

## Technical Review of Tree Related Issues in ACE Paper 8/2023

(Rev.2)

### EXECUTIVE SUMMARY

ACE Paper 8/2023 has been prepared to address specific requests of ACE made at ACE meetings in August 2022. As such, it does nothing to address or rectify the numerous significant errors and omissions in the Landscape Impact Assessment (LIA) and the Tree Survey in the original Environmental Impact Assessment (EIA) Report dated May 2022 that were catalogued in the “*Technical Review of Landscape Impact Assessment of Partial Development of Fanling Golf Course*” (TRLIA) dated 17 June 2022. The conclusion of the TRLIA is that the LIA is replete with numerous significant errors, omissions, and deficiencies and as a result the findings and conclusions of the LIA are objectively unsustainable – including its fundamental conclusion as to whether the environmental impact of the proposed project is acceptable. The LIA falls far short of the standards required by the EIAO GN 8/2010, the EIAO TM, and the SB, is not capable of being accepted as a valid EIA Report under the EIAO and does not provide the Advisory Council on the Environment and Director of Environmental Protection with a sound basis for a rational decision. ACE Paper 8/2023 does nothing to address these deficiencies of the LIA.

Furthermore, in February-March 2023, URBIS Limited (URBIS) undertook a detailed site survey (the “HKGC Tree Survey”) to check and verify the findings of the EIA Tree Survey. The findings of the HKGC Tree Survey are reported in the “*Technical Review Report of the EIA Tree Survey*” (TRR) dated April 2023. Major errors are found. The EIA Tree Survey missed 460 trees (approx. one quarter of trees on site) including 26 rare and/or protected species and 5 large Trees of Particular Interest (TPIs); misidentified 57 tree species; plotted over 60 trees in wrong locations; and recorded most tree dimensions incorrectly at averages of only 86% of actual tree trunk diameters (DBH), 76% of actual tree heights and 66% (in woodland areas) and 60% (in open areas) of actual tree canopy spreads. Furthermore, the tree survey failed to identify that 25 of the 29 large TPIs in Sub Area 1 are directly comparable in size and quality with existing Old and Valuable Trees (OVTs) on Government’s OVT Register, meaning these trees are likely to be registered as OVTs if Government resumes the land and therefore, they should not be touched. The only other sites in HK with comparable OVT numbers are Kowloon Park (42) and Victoria Park (14). ACE Paper 8/2023 does nothing to address these deficiencies of the EIA Tree Survey.

Serious errors and flaws in Sections 5, 6 (part) and 8 of ACE Paper 8/2023 include the following:

- It is based on the grossly inaccurate EIA Tree Survey which means that all proposals for tree felling, tree retention, tree transplanting, and tree compensation are completely incorrect and invalid.
- The proposed Tree Protection Zones do not properly follow best practice GLTMS Guidelines.
- Claims regarding “abundant” OVTs in public housing developments (HDs) are false and misleading. There are only 3 OVTs in HDs in Hong Kong, which is “rare” occurrence, not “abundant”.
- Tree Transplanting proposals described in the EIA are based on false information and are impractical.
- The methods of determining tree compensation as described in the Paper are incomplete and do not follow the full requirements of DEVB TC(W) 4/2020 because they do not attempt to achieve 1:1 compensation by quality (DBH) nor explain why that is not done, as required by the technical circular.
- The tree compensation proposals in section 5 and the woodland compensation proposals in Section 6 are inconsistent and contradictory.
- The proposed compensation woodland planting is wrongly plotted in the EIA and will require incursion in Sub-Area 4, thus greatly threatening the survival of the Chinese Swamp Cypress.
- The described levels of tree shading are wrong and very misleading. The tree cluster would receive less than 1 hour per day of sunlight in winter and less than 4 hours per day at the Spring and Autumn equinoxes. Sun-path diagrams and mpegs are provided to illustrate this fact.

ACE Paper 8/2023 also fails to rectify the omission in the original EIA of any professional assessment of the shading impact on the Fanling Golf Club (FGC) golf holes located west of Fan Kam Road. The PHD will

cause shading that will have serious detrimental effect to the turfgrass of several golf holes, including portions of holes used for the Hong Kong Open. The PHD therefore poses a major risk to the future of Hong Kong’s ability to host its oldest golf tournament, the world’s second oldest continuously running international golf tournament, and Hong Kong’s most internationally significant golfing event, as no other golf course in Hong Kong could host such a significant international event.

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## A. INTRODUCTION

This Paper summarizes the findings of a Technical Review of Sections 5, 6 and 8 of ACE Paper 8/2023: Reporting of the Additional Information prepared for the EIA Report on “Technical Study on Partial Development of Fanling Golf Course – Feasibility Study”. Reference is also made where appropriate to the original Environmental Impact Assessment (EIA) Report that was uploaded for public viewing in June 2022.

## B. “SECTION 1. INTRODUCTION & SUMMARY”

ACE Paper 8/2023 is prepared to address specific requests of ACE made at ACE meetings in August 2022. As such, it does nothing to address or rectify the numerous significant errors and omissions in the Landscape Impact Assessment (LIA) and the Tree Survey in the original Environmental Impact Assessment (EIA) Report dated May 2022 that were catalogued in the “Technical Review of Landscape Impact Assessment of Partial Development of Fanling Golf Course” (TRLIA) dated 17 June 2022.

The conclusion of the TRLIA is that the LIA is replete with numerous significant errors, omissions, and deficiencies and as a result the findings and conclusions of the LIA are objectively unsustainable – including its fundamental conclusion as to whether the environmental impact of the proposed project is acceptable. The LIA falls far short of the standards required by the EIAO GN 8/2010, the EIAO TM, and the SB, is not capable of being accepted as a valid EIA Report under the EIAO and does not provide the Advisory Council on the Environment and Director of Environmental Protection with a sound basis for a rational decision. **ACE Paper 8/2023 does nothing to address these deficiencies of the LIA.**

Furthermore, in February-March 2023, URBIS Limited (URBIS) undertook a detailed site survey (the HKGC Tree Survey) to check and verify the findings of the EIA Tree Survey. The findings of the HKGC Tree Survey are reported in the “Technical Review Report of the EIA tree Survey” (TRR) dated April 2023. Major errors are found. The EIA Tree Survey missed 460 trees (approx. one quarter of trees on site) including 26 rare and/or protected species and 5 large Trees of Particular Interest (TPIs); misidentified 57 tree species; plotted over 60 trees in wrong locations; and recorded most tree dimensions incorrectly at averages of only 86% of actual tree trunk diameters (DBH), 76% of actual tree heights and 66% (in woodland areas) and 60% (in open areas) of actual tree canopy spreads. Furthermore, the tree survey failed to identify that 25 of the 29 large TPIs in Sub Area 1 are directly comparable in size and quality with existing Old and Valuable Trees (OVTs) on Government’s OVT Register, meaning these trees are likely to be registered as OVTs if Government resumes the land and therefore, they should not be touched. The only other sites in HK with comparable OVT numbers are Kowloon Park (42) and Victoria Park (14). **ACE Paper 8/2023 does nothing to address these major deficiencies of the EIA Tree Survey.**

## C. SECTION 5. TREE COMPENSATION PLAN AND MANAGEMENT PLAN

### 1. Additional Information required (Section 5.1)

The entire Section 5 is seriously flawed and invalid because it is based in a grossly inaccurate and incompetent Tree Survey which has failed to record 460 trees located on site and which records grossly inaccurate (far too small) tree dimensions (DBH, height, canopy spread), wrongly mapped trees locations and incorrect species identification. **Figure 5.1** illustrates typical examples of the huge inaccuracies in the EIA Tree Survey.

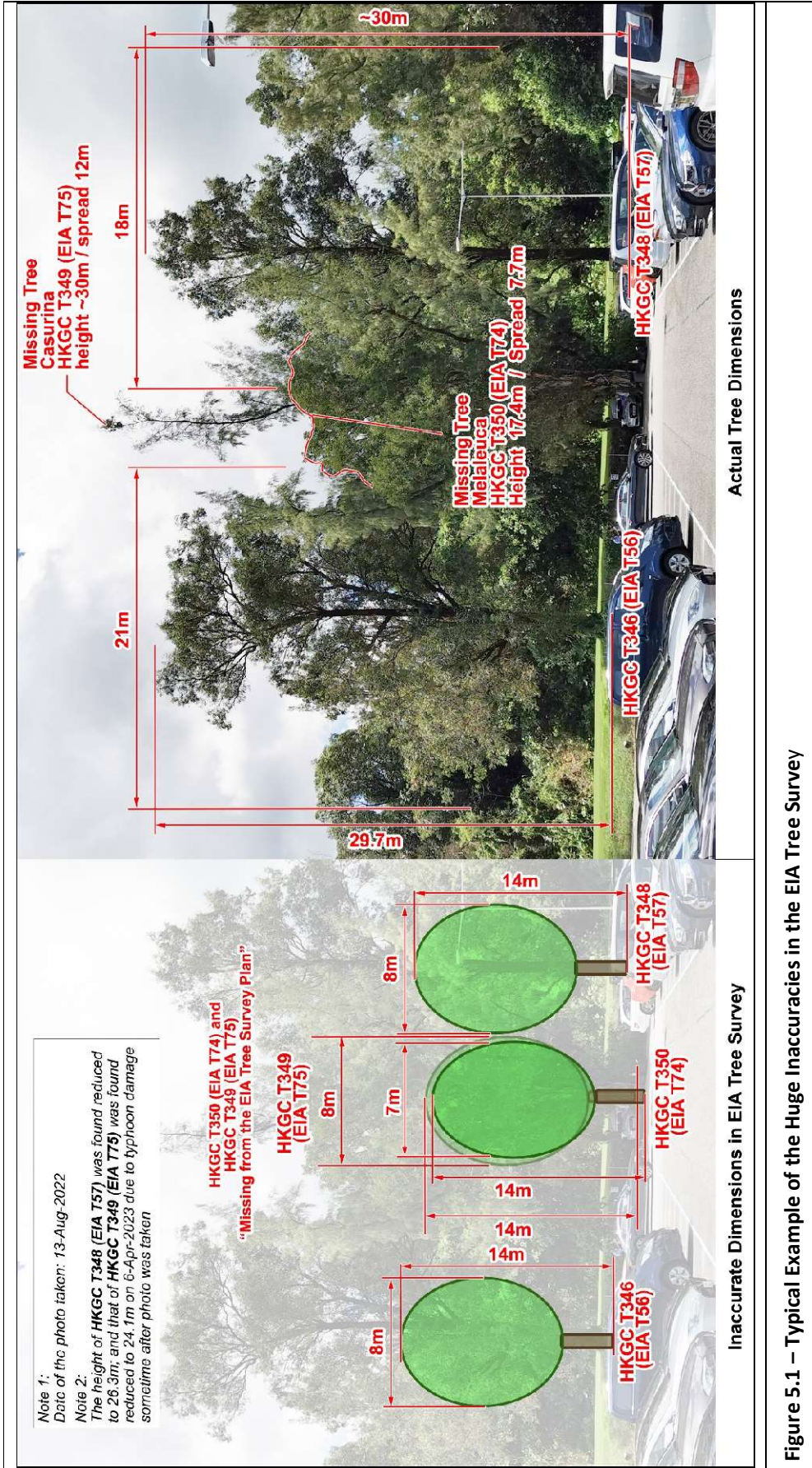


Figure 5.1 – Typical Example of the Huge Inaccuracies in the EIA Tree Survey

**2. "Background and discussion at the ACE Meeting" (section 5.2)**

[Para 5.2.1] The "996 trees to be removed" is a gross understatement of the actual tree impacts. It is estimated that approximately **1400** trees will be impacted by the Proposed Housing Development (PHD). All the tree compensation proposals in ACE Paper 8/2023 are therefore totally inadequate.

**3. "Tree Compensation Plan" (section 5.3)**

**a. "(i) Measures to enhance tree survival "**

All measures described in this section are normal practice and therefore there is nothing described here that will enhance tree survival above normal practice.

**b. "(ii) Larger area for tree compensation"**

The quoted extract from DEVB TC(W) no. 4/2020 in "Figure 5A - Relevant clause of compensatory tree planting under DEVB TC(W) No. 4/2020" is incomplete and misleading because it fails to include the subsequent paragraph b2 in DEVB TC(W) No. 4/2020, Appendix C, which states:

*"In case the requirement in the above paragraph can be met, and sufficient growing space for tree planting can be identified, further planning and design consideration with an objective to achieve the compensatory planting ratio of 1:1 in terms of aggregated DBH, i.e. the total DBH of planted trees to have the same total DBH of removed trees should be undertaken as far as practicable. In situations where this compensatory planting criterion cannot be achieved, the difficulties should be demonstrated."*

**The EIA and ACE Paper 8/2023 both completely fail to satisfy the above requirement of DEVB TC(W) 4/2020, Appendix C, paragraph I(v)b2.**

Furthermore, "Figure 5B - the Compensatory tree planting plan of the 996 trees" shows much less than the 5.1ha of woodland planting promised in the EIA and repeated in paragraph 6.4.7 of ACE Paper 8/2023. **ACE Paper 8/2023 is thus internally inconsistent and contradictory.**

**c. "(iii) Consideration of additional compensation"**

The statement in paragraph 5.3.8 that "the requirements laid down in DEVB TC(W) No. 4/2020 will be fully met" is **false and misleading** for the reason explained above, namely that the EIA and ACE Paper 8/2023 both completely fail to satisfy the above requirement of DEVB TC(W) 4/2020, Appendix C, paragraph I(v)b2.

**4. "Tree Management Plan" (section 5.4)**

**a. "(ii) Retained Trees and Transplant Trees"**

**Wrong Tree Data.** The claims of tree retention in this section are incorrect because of the serious failures of the EIA Tree Survey which has significantly underestimated the numbers and locations of large TPis that should be protected as well as the DBH, height and canopy spread of these TPis. This in turn means that all promises of tree retention in the EIA and ACE Paper 8/2023 are based on completely wrong information and thus very false and misleading.

**Tree Protection Zones.** The Tree Protection Zones (TPZs) described in paragraph 5.4.2 do **not** follow Government's own best practice guidelines. Guidelines for TPZs are given in (i) *Development Bureau, Greening, Landscape and Tree Management Section (DEVB GLTMS)– Handbook of Tree Management (Appendices updated 2021) – Appendix 22 – Guidelines on Tree Preservation during Development*, and (ii) *DEVB GLTMS – Tree Management Practice Note 1: Tree Preservation during Construction (September 2019)*. These guidelines describe

3 different methods to be used depending on the nature, shape, age of the tree being protected. The Dripline Method proposed in “Figure 5C – Additional set back from the tree protection zone” is the most basic ‘Method 1’. Better methods, especially for the protection of large TPIs and OVTs, are Method 2: Tree Height Method and Method 3: Trunk Diameter Method. **Figure 5.2** shows TPZs for the large TPIs in Sub Area 1 prepared in accordance with best practices described in the DEVB GLTMS guidelines. It can be clearly seen on **Figure 5.2** that the TPZs are incompatible with the proposed building layout.

**No plans provided to show TPZs:** A total of 11 TPIs are proposed to be retained within the PHD and adjacent Special School (SS), however no evidence is presented to support the practicality of this proposal. The following serious inadequacies undercut the proposal:

- There is no identification of any TPZs on any plan in the EIA or ACE Paper 8/2023.
- The Tree Survey contains no spot levels to indicate ground levels at or around any surveyed trees.
- There is no consideration or evidence presented regarding the relationship between the proposed formation levels of the PHD (+14mPD and +16mPD according to EIA Figures 11.12 and 11.14.1) and the existing ground levels of the proposed retained trees, which are generally located at elevations considerably higher than the proposed site formation levels (up to 11m higher in some locations).
- There are no cross sections presented to show the relationship between existing ground levels at trees and the proposed formation levels.
- Figure 5E of ACE paper 8/2023 shows examples of a tree island and a tree well, but there is no discussion or explanation on how any such level differences will be resolved with L-shaped retaining walls or piled retaining walls or cut slopes, each of which require differing amounts of space, and which would have dramatically different impacts on existing topography and trees.
- Whether or not a tree is affected by the works appears to have been determined in the LIA simply by overlaying the building blocks and Emergency Vehicle Access (EVAs) on the tree locations – if there is an overlap the tree is scheduled for to be removed (i.e., felled) or transplanted, and if there is no overlap, the tree is scheduled to be retained. The PHD is very dense with very little space between tower blocks for construction of EVAs, construction of utilities and contractors works areas etc. The two-dimensional analysis, that takes no account of the three-dimensional relationship between the existing undulating topography and proposed flat platform levels, is far too simplistic and appears to be, in the absence of any proper consideration or evidentiary support, far too optimistic in the assessment of tree retention.
- Finally, the fact that the Tree Survey is grossly inaccurate undermines all the tree protection proposals in both the EIA and ACE Paper 8/2023.

**Numbers of OVTs in Existing PHDs.** The claim in paragraph 5.4.3 that there are “*abundant cases of OVTs being maintained within the existing housing developments of HD*” is false and misleading. In all of Hong Kong’s many HD’s there are **only 3 OVTs**, which are the 3 OVTs illustrated in Figures 5F, 5G and 5H. Three OVTs in all of HK’s HDs cannot be described as “abundant” – a more accurate adjective would be “**rare**”. It is fallacious to claim that the dense development proposed at Fanling would be capable, as claimed in the EIA, of retaining 11 large TPIs adopting Government’s own standards for tree protection, as **Figure 5.2** shows clearly.

Reporting of the Additional Information prepared for the EIA Report on  
 "Technical Study on Partial Development of Fanling Golf Course – Feasibility Study"

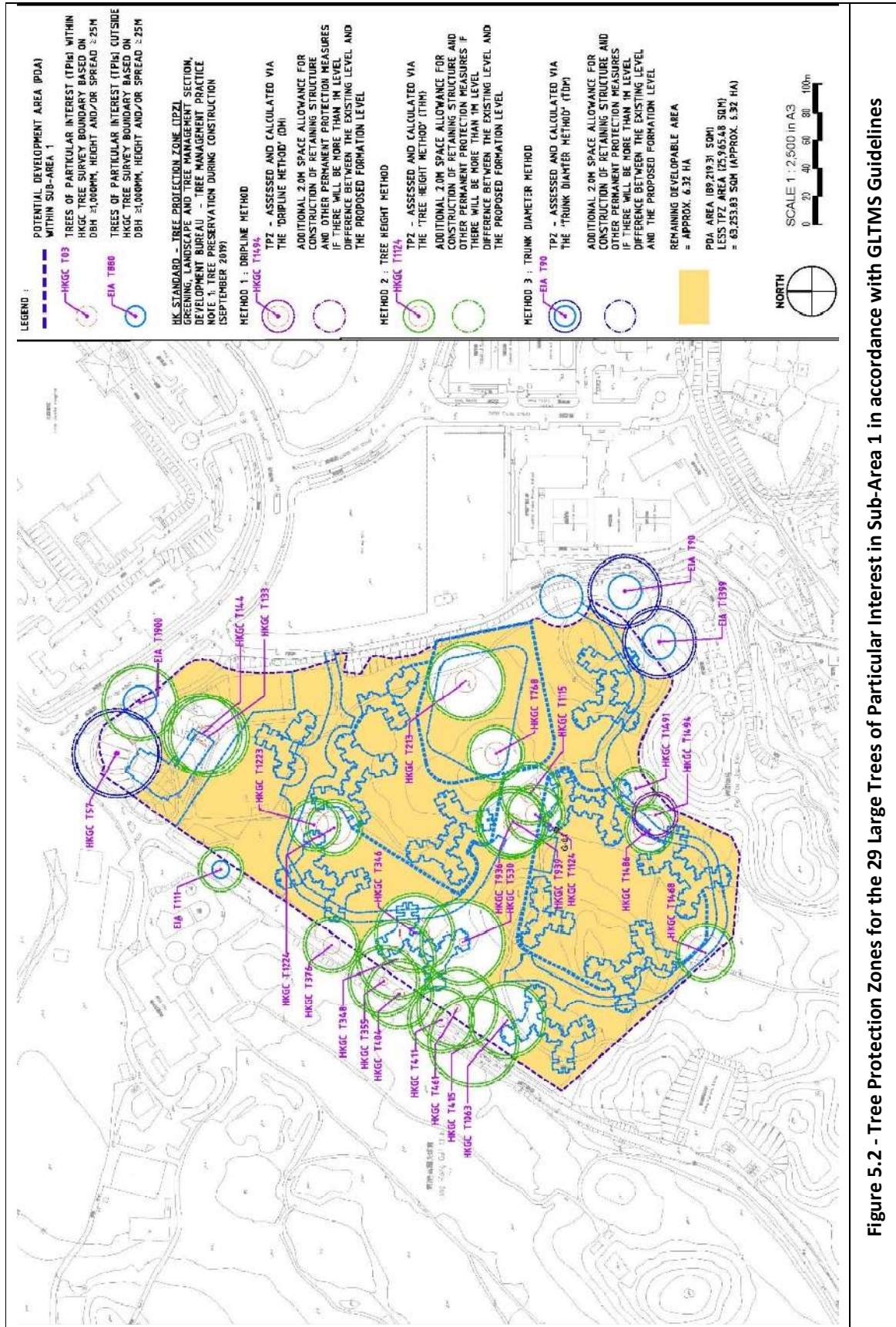


Figure 5.2 - Tree Protection Zones for the 29 Large Trees of Particular Interest in Sub-Area 1 in accordance with GLTMS Guidelines

**Number of potential OVTs at Fanling is comparable with OVTs in Kowloon Park.** Figure 5.3 shows a table providing an objective comparison, on a like-for-like basis, of the large TPIs in Sub-Area 1 with the physical characteristics of existing OVTs in the OVT Register. Figure 5.3 shows that of the total 29 large TPIs within Sub-Area 1, 25 large TPIs are very likely (16) or likely (9) to meet the criteria to be registered as OVTs. The only other locations in Hong Kong that have similar high density of OVTs in such a small area are Kowloon Park (42 OVTs) and Victoria Park (14 OVTs). It is therefore wrong for CEDD to compare the Fanling site which has 25 potential OVTs with other HD sites in HK, only 3 of which have 1 OVT each, the rest having none.

**Proposed Transplanting of two large TPIs is not feasible:** It is agreed that transplanting of large trees has been done successfully in Hong Kong. However, in the EIA the transplant trees are proposed to be relocated to a position near the tee box of Old Course Hole 6 in Sub-Area 3 which is 600-700m distant from the existing tree locations. Transplanting large mature trees is a major engineering feat and there is no explanation or demonstration, either in the EIA or ACE paper 8/2023, as to how this will be achieved over such a long distance. There are five main concerns that raise serious doubts on the practicality of the proposal:

- **Actual tree dimensions much larger than recorded in the EIA Tree Survey.** The trees are very significantly larger than recorded in the EIA Tree Survey – the actual dimensions are:
  - EIA T60 - *Adenanthera microsperma* DBH: 833mm, Height: 18.5m, Spread: 25.5m
  - EIA T71 - *Ficus microcarpa* DBH: 1050mm, Height: 15.5m, Spread: 21.0m
- ***Adenanthera microsperma* is very special specimen.** The *Adenanthera microsperma* is a reasonably uncommon native species with a relatively unknown success rate for transplanting. The comments in paragraph 5.4.10 and 5.4.11 are factually incorrect and underrepresent the quality and value of this tree which is the largest and best quality tree of this species of which we are aware. No other *Adenanthera microsperma* is on the OVT Register. This is likely to be the single best *Adenanthera microsperma* in Hong Kong. It should be preserved in situ, not transplanted.
- **Tree Rootball Preparation & Extraction:** Transplanting mature trees requires creation of rootball in a ratio of 12 times DBH - i.e., **10m and 12.6m diameter** for T60 and T71 respectively - with a depth of approximately 2000mm.
- **Routing distance and elevation changes:** The 600-700m routing distance is a very long distance to transplant such large trees. We know of no precedent in Hong Kong for transplanting mature trees with 10-12m diameter rootballs, or similar, over such a long distance. Of even greater concern is the elevation change along the route – the rolling terrain goes up and down and up again to the receptor site incurring a total elevation change in excess of 20m. Again, we know of no precedent in Hong Kong (or elsewhere) for doing this with such large mature trees with 12m rootballs.
- **Other trees adversely impacted by transplanting process:** There are several pinch points along the route from existing site to receptor site where existing trees block the transplantation route. It would be necessary to bring in and manoeuvre very large machinery for the transplanting operation and we estimate at least 30 trees may need to be felled at different locations in Sub-Area 2 and Sub-Area 3 to create a wide enough transplanting route for the passage of the trees and associated heavy machinery.

Reporting of the Additional Information prepared for the EIA Report on  
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Assessment of the Likelihood for Large Trees of Particular Interests in Sub Area 1 to be Registered as Old and Valuable Trees												
Tree no. of TPIs within Sub-Area 1 (Dimensions inside parenthesis is the one for the tree fulfil the TPI requirement)	Species (Scientific Name)	Species (Chinese Name)	DBH range (mm)	Height range (m)	Spread range (m)	Form range	Health range	Structure range	Amenity Range	No. of species currently on the HK Tree Register - Range of sizes	REMARKS	Registerable as OVT
HKGC T1488 (23.5mS)	<i>Adenanthe micropetala</i>	海紅豆	833	18.5	25.5	G	G	G	H	0 registered as OVTs on Tree Register	No <i>Adenanthe micropetala</i> is registered as OVT in Hong Kong. The high quality (form, health, structure, amenity) makes it very likely to be registerable as an OVT and this TPI can serve as a pioneer to represent the species <i>Adenanthe micropetala</i> as OVT.	Very likely
HKGC T415 (30.4mH), HKGC T481 (25.7mH), HKGC T530 (28.3mH)	<i>Casuarina equisetifolia</i>	木麻黃	445-570	26.7-30.4	3.0-5.0	P-A	A	P-A	H	4 registered as OVTs (104C-1480mmDBH, 15-28.4mH, 12-24.6mS)	All existing <i>Casuarina equisetifolia</i> OVTs possess over 100mmDBH while not necessarily exceeding 25m height. The <i>Casuarina equisetifolia</i> TPIs at Fanling, although all over 25m high possess poorer form and structure than the rest of the TPIs. They seem unlikely to be registerable as OVTs.	Unlikely
HKGC T1481 (1084mmDBH), HKGC T1484 (28.5mS), EIA T100 (2000mmDBH), EIA T1395 (2000mmDBH)	<i>Chimonozium carphora</i>	桂	900-2000	13-20	15.0-28.5	A-G	A-G	A-G	MH	44 registered as OVTs (700-3007mmDBH, 10-27mH, 13-35mS)	These <i>Chimonozium carphora</i> TPIs have their ranges of DBH, height and spreading in the middle range of existing OVTs and their quality is of an average to good range. These TPIs are likely to be registerable as OVTs.	Likely
EIA T1800 (1300mmDBH, 25mH)	<i>Corymba citrodora</i> (syn. <i>Eucalyptus citrodora</i> )	檸檬桉	1300	25	12.0	A	A	A	M	2 registered as OVTs (1015-1086mmDBH, 17-24mH, 12-14.5mS)	The EIA T1800 <i>Corymba citrodora</i> within Sub-Area 1 has DBH and height larger than the existing same species OVTs and therefore it is very likely to be registerable as OVT.	Very likely
HKGC T132 (25.7mH), HKGC T144 (25.5mH), HKGC T213 (25.9mH)	<i>Eucalyptus camaldulensis</i>	赤桉	540-700	25.9-26.7	10.0-15.0	G	A-G	A	H	0 registered as OVTs on Tree Register	One tree of <i>Eucalyptus camaldulensis</i> subsp. <i>obesa</i> is registered as OVT (ARCHSD KWTH) in Central Kwo Chung Park (1296mmDBH, 19mH, 16mS). These three Fanling TPIs are larger height than that OVT, although with less DBH and Spyrac than that OVT. The three TPIs have good form, good to average health and average structure. They are likely to be registerable as OVTs.	Likely
HKGC T346 (25.7mH, 1040mmDBH), HKGC T348 (26.3mH)	<i>Eucalyptus exserta</i>	藍桉	850-1040	20.3-29.7	18.0-21.0	G	G	A-G	H	0 registered as OVTs on Tree Register	HKGC T346 and T348 have DBH range of 850-1040mm, height range of 20.3-29.7m and spread range of 18.0-21.0m. If compared to the <i>Eucalyptus camaldulensis</i> subsp. <i>obesa</i> OVT as listed above, both are higher and have larger spread than that OVT while the DBH of both TPIs are less than that OVT. It is likely that both TPIs can be registered as OVTs.	Likely
HKGC T1486 (1050mmDBH)	<i>Ficus microcarpa</i>	細葉榕	1050	15.5	21.0	G	G	G	H	101 registered as OVTs (703-7710mmDBH, 9-28mH, 7-41mS), 30 registered as OAS (730-3000mmDBH, 12-19mH, 13-25mS)	HKGC T1486 (1050mmDBH, 15.6mH, 21.0mS) falls within the range of DBH of <i>Ficus microcarpa</i> registered OVTs, however there are so many <i>Ficus microcarpa</i> registered OVTs having larger DBH, height, and spread than HKGC T1486, which puts its registerability as OVT in doubt.	Unlikely
HKGC T57 (2458mmDBH, 29mS)	<i>Ficus virens</i>	大葉榕	2458	18.3	29.0	G	G	G	H	29 registered as OVTs (985-2700mmDBH, 10-25mH, 10-34mS) + 2 registered as OAS (1066-1102mmDBH, 18-21mH, 21-28mS)	HKGC T57 is directly comparable to some existing <i>Ficus virens</i> OVTs (e.g. ARCHSD WCH01, DH KZ2, EMSD WCH1), LCSD CW7, LCSD CW/103, LCSD N7, LCSD TM6 and LCSD WCH40). The tree has good form, health and structure. Therefore this TPI is very likely to be registerable as OVT.	Very likely
HKGC T355 (1073mmDBH), HKGC T375 (1000mmDBH), HKGC T404 (1060mmDBH), HKGC T411 (1165mmDBH), HKGC T763 (1002mmDBH), HKGC T893 (1040mmDBH), HKGC T893 (1011mmDBH), HKGC T1063 (25.7mH), HKGC T1115 (1258mmDBH), HKGC T1124 (1080mmDBH), E/A T111 (1020mmDBH)	<i>Melaleuca cajuputi</i> subsp. <i>curtiffiana</i>	白千層	724-1256	14.0-25.2	5.0-16.0	A-G	A-G	P-G	MH	12 registered as OVTs (700-1656mmDBH, 9-21mH, 5.5-12mS)	All 11 <i>Melaleuca cajuputi</i> subsp. <i>curtiffiana</i> possess comparable size with the existing <i>Melaleuca cajuputi</i> subsp. <i>curtiffiana</i> OVTs and make registration to OVT for these TPIs very likely.	Very likely
HKGC T1223 (1340mmDBH), HKGC T1224 (1275mmDBH)	<i>Pterocarpus indicus</i>	紫檀	1275-1340	16.5-17.8	19.0-24.0	P-A	A	P	H	4 registered as OVTs (1100-1420mmDBH, 19-25mH, 16-29mS)	Although HKGC T1223 and T1224 possess height (16.5-17.8m) less than the same species OVTs, both trees have DBH larger than the same species OVTs, and spread (19-24mS) comparable to the same species OVTs. They are also very old trees. Therefore they are very likely to be registerable as OVTs.	Very likely

Figure 5.3 - Assessment of Likelihood for large Trees of Particular Interest in Sub-Area 1 to be registered as Old and Valuable Trees (extract from Appendix B2 of Technical review Report of EIA Tree Survey)



- It is also likely, given the undulating terrain, that earthworks operations would be required in Sub-Area 2 and Sub-Area 3 to allow manoeuvring of the machinery. Such tree felling impacts are not considered or assessed anywhere in the LIA which is in breach of the requirements of the EIAO TM, Annex 20, 6.8 & 6.9 as follows: “6.8 Have any adverse environmental effects of mitigation measures been investigated and described? 6.9 Has the potential for conflict between the benefits of mitigating measures and their adverse impacts been considered?”
- **Receptor Site:** The proposed location of the receptor site is on or immediately adjacent to an existing large grave site. Presuming the trees can be offset from the grave site, the trees would then be elevated and exposed on a tee box area which is generally undesirable for large, transplanted trees given the greater exposure to desiccating winds, greater wind-loading on the trees to which they are not adapted (increasing the likelihood of structural failures) and a greater increase in the soil hydrology change.

#### D. “SECTION 6. DETAILED LAYOUT PLANS (WITH CONSIDERATION OF 0.39HA WOODLAND RESTORATION)”

##### 1. “Additional Information required” (Section 6.1)

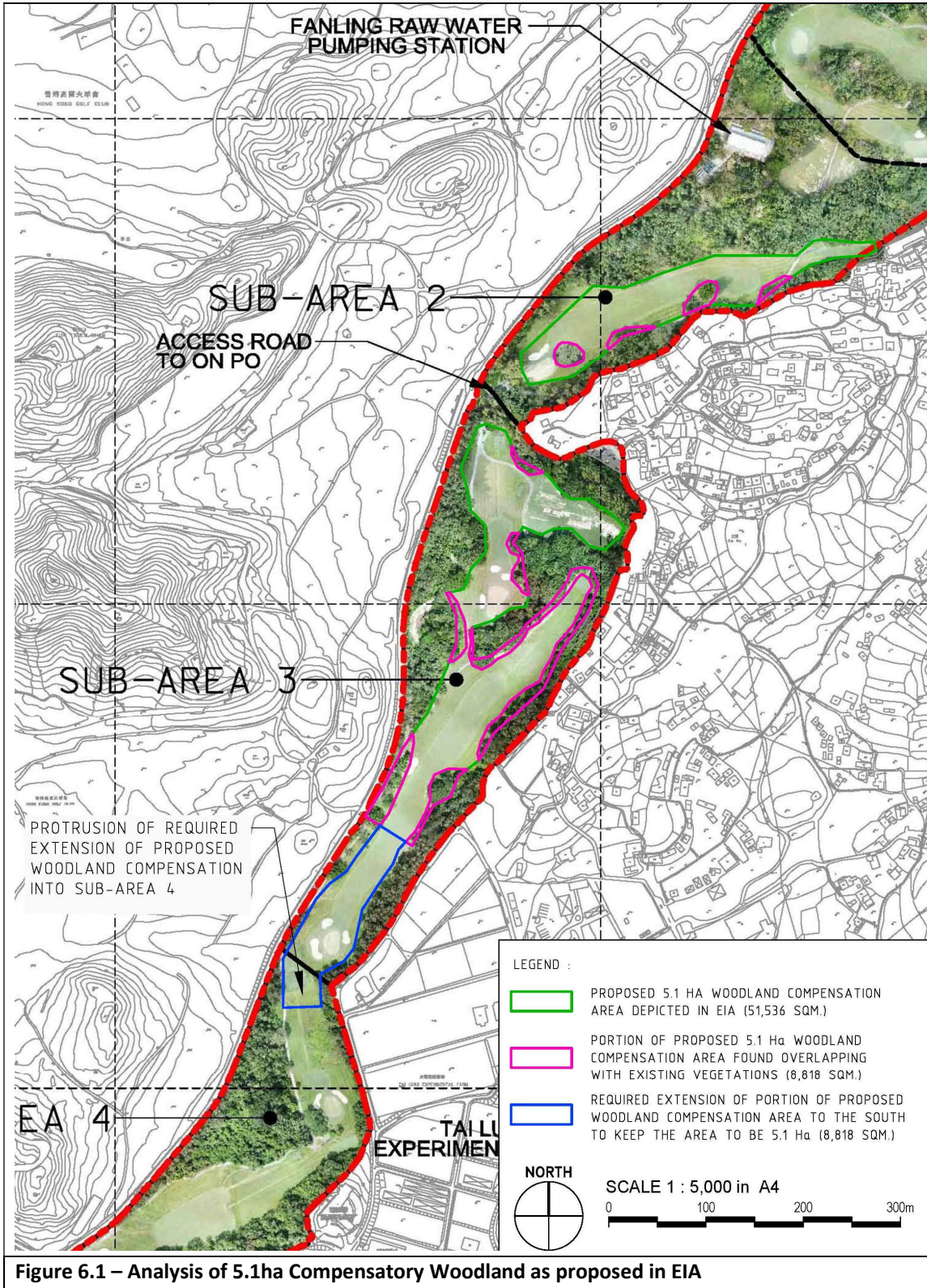
It is noted that contrary to previous promises made by CEDD in 2022 to ACE and to the Town Planning Board, the layout of the PHD is **NOT** revised to mitigate tree and landscape impacts.

For the reasons explained above, the PHD layout in *Figure 6A – Location of Woodland suggested by ACE to be preserved* fails to show the correct number and locations of existing TPI locations and their necessary TPZs derived in accordance with Government’s own tree protection guidelines. See **Figure 5.2** for the correct situation.

Furthermore, the assessment of the value of the ecological value of the woodland is based on a grossly inaccurate tree survey that has omitted 460 trees, including 26 rare and/or protected species.

As mentioned above, the proposed 5.1ha woodland compensation is inconsistent with the tree compensation proposal described in ACE Paper 8/2023 section 5 and illustrated in Figure 5B. Furthermore, the 5.1ha is inaccurately plotted in the original EIA - some of the compensation woodland planting is shown in locations where there is existing woodland to be retained. This means that to create 5.1ha of woodland it would be necessary to extend the planting further south into Sub-Area 4, thus greatly endangering the survival of the Chinese Swamp Cypress located there. See **Figure 6.1** which shows the actual area required to provide 5.1ha of woodland planting.

**Failure to identify some proposed mitigation measures as potential sources of adverse impact:** As identified in the TRLIA dated 17 June 2022, the original EIA Table 11.7 fails to identify that some proposed landscape mitigation measures will also be sources of substantial adverse landscape impact. The proposed landscape treatment in Sub-Area 2, Sub-Area 3 and Sub-Area 4 [Table 11.10, OM1] and proposed compensatory tree planting in Sub-Area 2 and Sub-Area 3 [Table 11.10, OM4] will have substantial adverse impacts on the unique and historic golf course grassland (Landscape Resource LR2) and unique and historic Landscape Character (Landscape Character Area LCA1) that are described in the TRLIA. Failure to identify and assess adverse impacts of proposed mitigation measures is in breach of the EIAO TM, Annex 20, 6.8 & 6.9 which state: “6.8. Have any adverse environmental effects of mitigation measures been investigated and described? 6.9. Has the potential for conflict between the benefits of mitigating measures and their adverse impacts been considered?” The failure to identify MMs OM1 and OM4 as potential sources of impact means that associated substantial adverse landscape impacts are not addressed in the LIA. This fails to satisfy the requirements of the EIAO TM.



E. “SECTION 8. SHADING IMPACT TO THE TREES”

1. “Impact assessment” (section 8.2)

- a. **No evidence presented to support proposed retention of hillock containing ~100 trees in the centre of Sub-Area 1.** Figure 8A shows a ‘Tree Cluster to be Retained’ on a hillock in the centre of the Sub-Area 1 between blocks 6 and 12. This hillock rises to 27.6mPD which is at least 11m above the site formation level of 16mPD. There is complete lack of any explanation or demonstration of how this tree cluster can be physically retained which means that the effectiveness of the mitigation is not demonstrated to be practical or achievable, which requires the mitigation to be discounted in the EIA.
- b. **Tree Count in paragraph 8.2.2 is wrong.** Due to the poor quality of the EIA Tree Survey, the tree count in the tree cluster is incorrect.
- c. **Sun Path Analysis.** Paragraph 8.2.5 states “*In spring equinox (春分), summer equinox (夏至), autumn equinox (秋分), the retained tree clusters would be able to receive direct sunlight, although in some time of a day, the trees may be shaded by the proposed housing development. The shading is not significant.*” This statement greatly understates the actual shading that will be caused by the buildings, and it is wrong to say the shading is not significant. (Furthermore, there is also no such astronomical event as ‘summer equinox’ – the correct astronomical event is the “summer solstice” - this appears to reveal the consultant’s basic misunderstanding of the information they are trying to present.) Hourly sun-path diagrams for the Winter Solstice and the Spring and Autumn Equinoxes are provided in **Annex 1**. Composite sun-path diagrams are provided in **Figures 8.1 to 8.3**. Sun-path mpegs are also made available. It may be seen from composite diagrams in **Figures 8.1 to 8.3**, the hourly diagrams in **Annex 1** and the mpegs that the tree cluster is surrounded to the north and south by the very tall housing blocks and will receive less than 1 hour per day of sunlight at the Winter Solstice and less than 4 hours per day at the Spring and Autumn Equinoxes. This means the tree cluster will receive less than 4 hours per day of direct sunlight for more than 6 months of the year, which constitutes a very significant and serious shading effect, contrary to the claims in ACE Paper 8/2023. Other TPis which are (unrealistically) being proposed to be retained within the scheme would suffer even more shading than the tree cluster. This is a most significant change from the current situation in which all trees have direct sunlight from soon after sunrise to just before sunset. To say that the shading is not significant is quite incorrect and very misleading.
- d. **Dr Kuo’s advice is based on wrong information.** We would agree with Dr Kuo’s advice that “*mature trees being periodically shaded for two months in winter, while receiving direct sunlight in other time of the year, would not be significantly impacted in health.*” **But, as explained above and as illustrated in Figures 8.1 to 8.3, the sun-path diagrams in Annex 1 and the mpegs, the degree of shading described in the above quote is not the actual situation that will result from the proposed PHD.** Dr Kuo therefore appears to have been misled.
- e. **Retaining the Tree Cluster is impractical.** We consider the above discussion on the shading of the tree cluster to be a moot point, because, as described in **paragraph E.1.a.** above, the EIA has not established the practicality of retaining the tree cluster, which is seriously doubted, especially given CEDD’s refusal to revise the building layout or describe the specific measures that will be adopted to ensure the retention of this cluster.

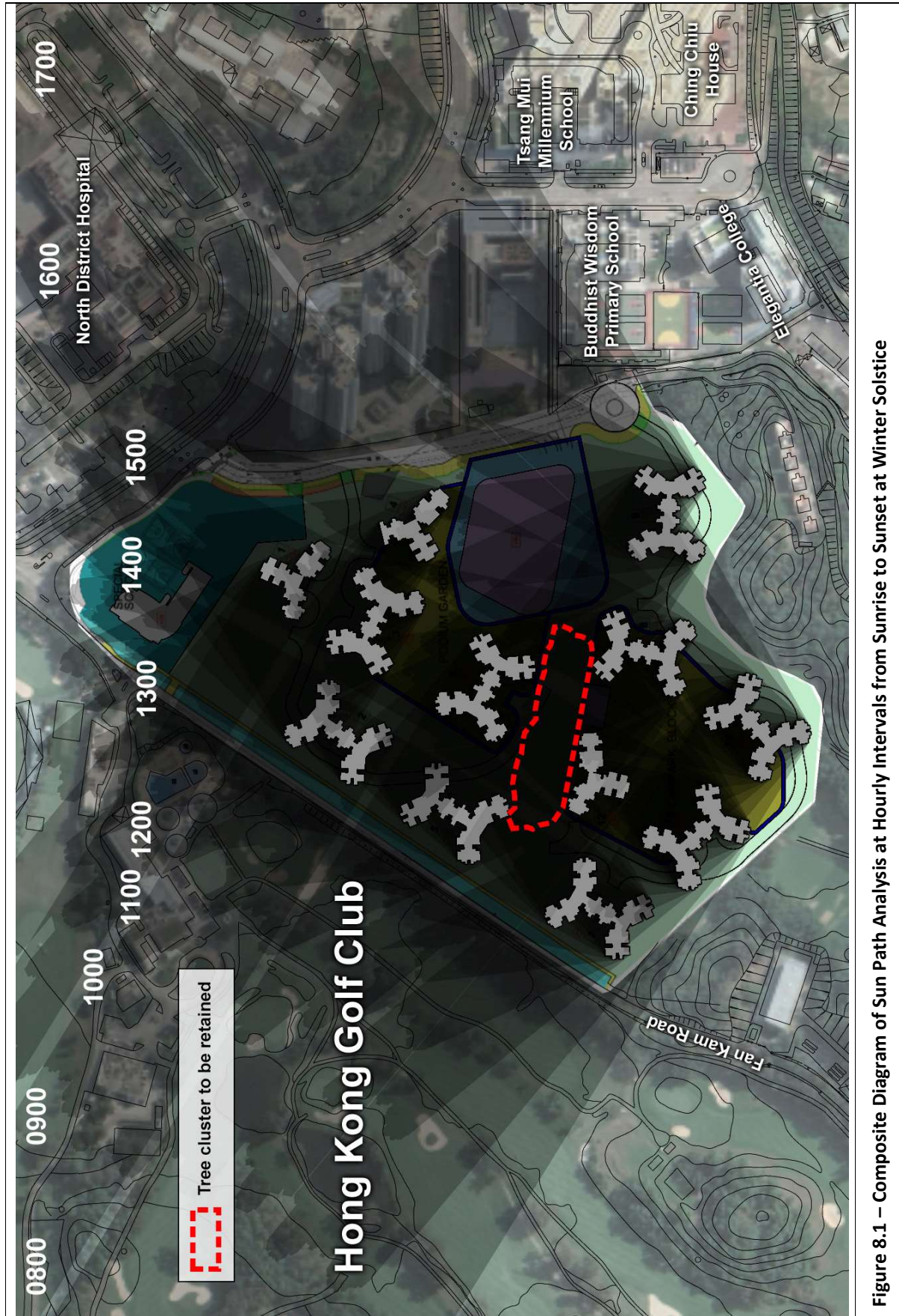
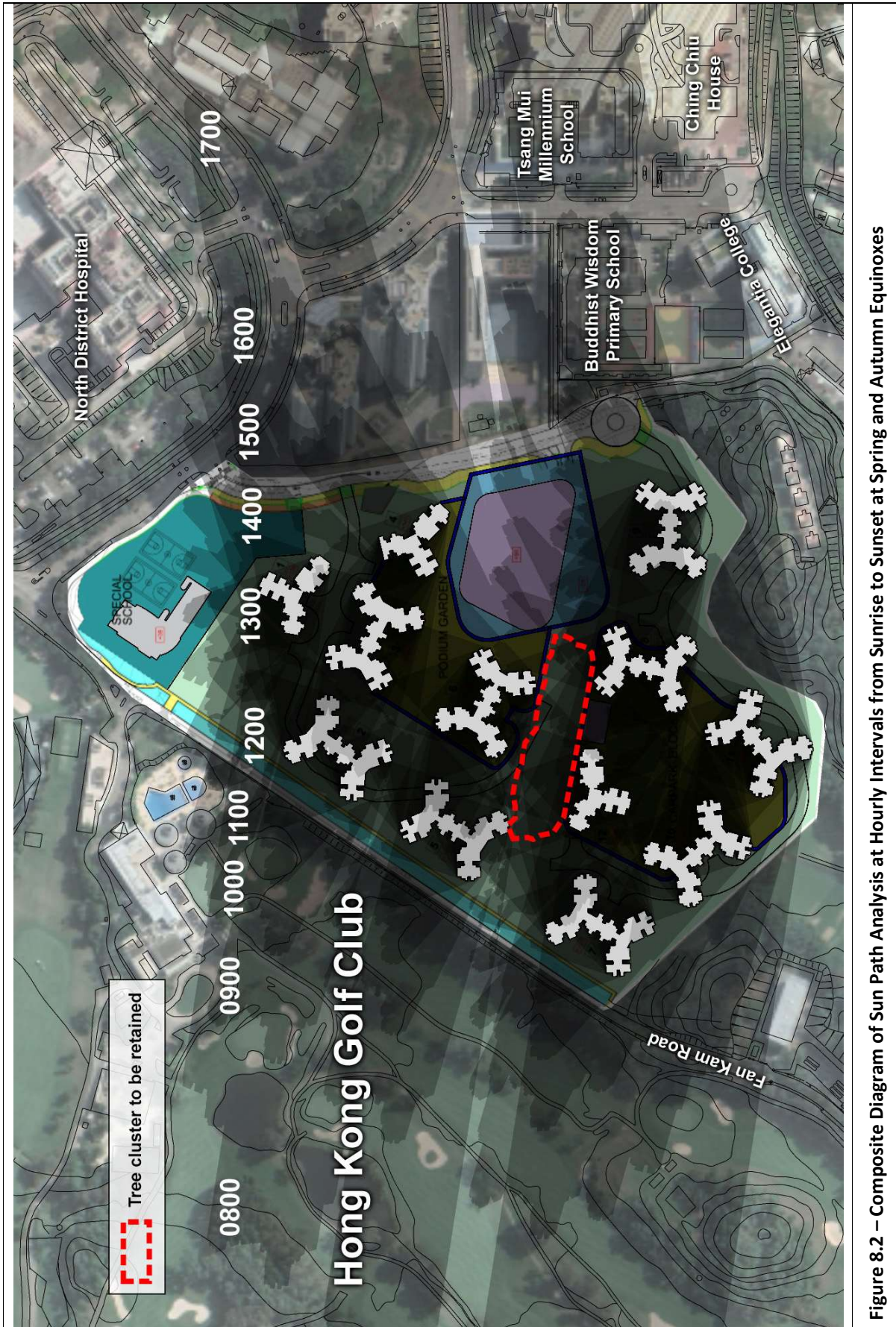


Figure 8.1 – Composite Diagram of Sun Path Analysis at Hourly Intervals from Sunrise to Sunset at Winter Solstice



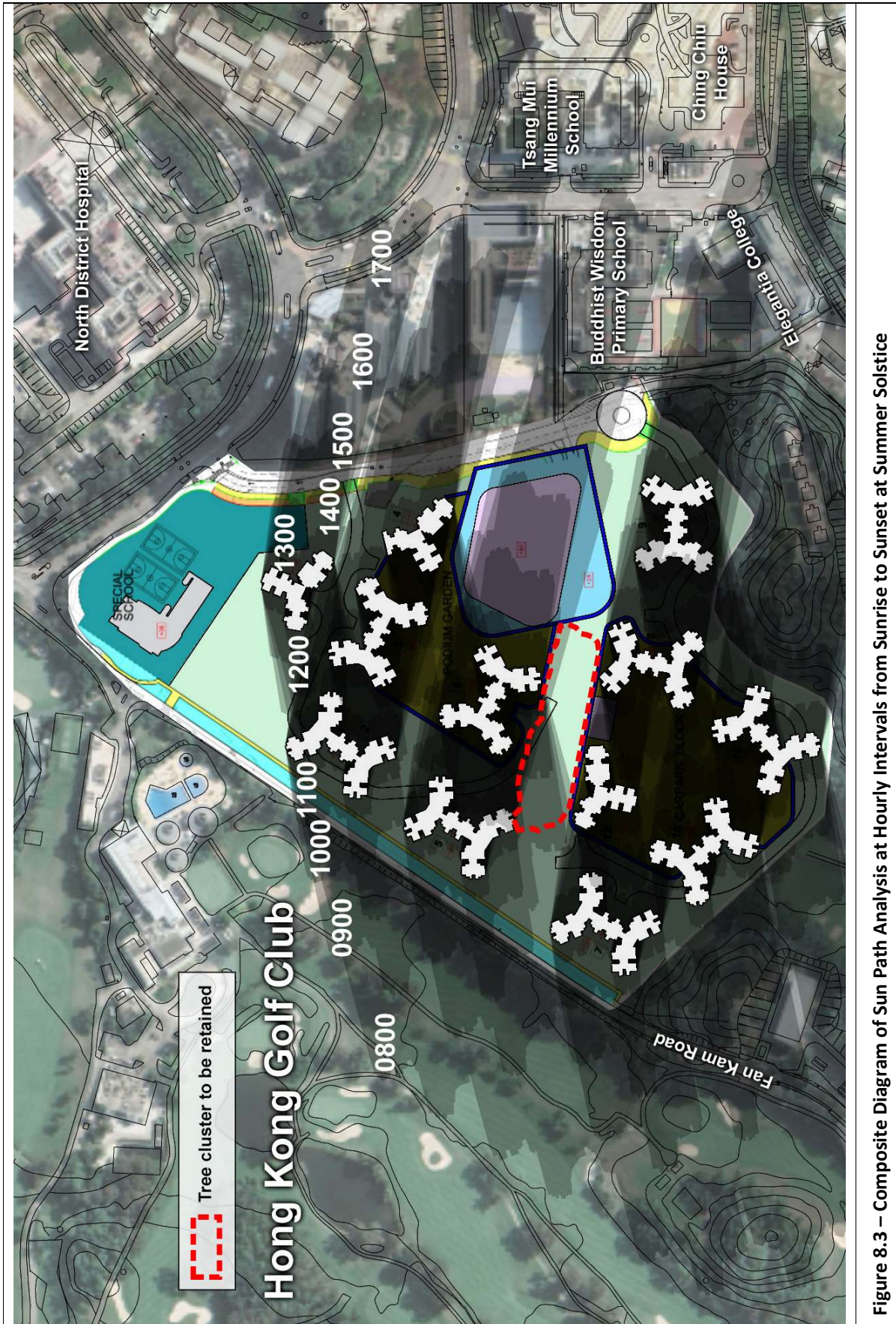


Figure 8.3 – Composite Diagram of Sun Path Analysis at Hourly Intervals from Sunrise to Sunset at Summer Solstice

**F. SHADING IMPACT UPON FANLING GOLF COURSE WEST OF FAN KAM ROAD**

**1. EIA Fails to Assess Shading Impact upon Fanling Golf Course West of Fan Kam Road**

It is the duty of the LIA in the EIA to assess all potential impacts on landscape resources and landscape character in the LIA study area (500m from project boundary). However, amongst many other failings (previously catalogued in the “Technical Review of Landscape Impact Assessment of Partial Development of Fanling Golf Course” (TRLIA) dated 17 June 2022), the LIA failed to assess the shading impact caused by the proposed tall buildings upon the surrounding landscape, which is particularly critical for the Fanling Golf Course (FGC) golf holes located to the west of Fan Kam Road, because direct sunlight is critical to the health of golf turf. ACE Paper 8/2023 does nothing to address this failing.

**2. The Importance of Sunlight to Golf Courses**

Plants use light the same way animals use food – to fuel the chemical reactions that keep them alive, and different types of plants require different levels of light. Golf course turfgrass requires a large amount of direct sunlight for optimum growth and development. There is no golf turfgrass variety developed that performs well when deprived of sufficient light, and lack of sufficient light is an important stressor that weakens turf, making it more susceptible to attack by pests, traffic, and other stressors. The proposed PHD will cause serious adverse impact to the golf turfgrass on the west side of Fan Kam Road as the very high tower blocks will directly shade the 18th hole of the Old Course as well as portions of several holes on the New and Eden courses that are used for the Hong Kong Open (HKO).

**3. Quantitative Scientific Shade Assessment and Impacts**

Using sun-path analysis computer programmes, HKGC have modelled very precisely the impact of shading by PHD high rises on the remaining golf holes including those used for the Hong Kong Open composite course. Individual hourly sun-path diagrams for the Winter Solstice, and Spring and Autumn Equinoxes and Summer Solstice are provided in **ANNEX 1**. **Figures 8.1 to 8.3** illustrate the composite diagrams for the Winter Solstice, the Spring and Autumn Equinoxes, and Summer Solstice. The resulting number of hours of direct sunlight for several key locations are tabulated in **Table 1**.

<b>Table 1 Number of Direct Sunlight Hours per Day</b>				
Colour code: <b>Enough sun (&gt;8Hrs)</b> / <b>Borderline (6-8Hrs)</b> / <b>Too little sun (&lt;6Hrs)</b>				
<b>TIME</b>				
		<b>Midsummer</b> (21 June) Sunrise: 05:40 Sunset: 19:10 Sunlight Hours: ~13.5hrs	<b>Equinoxes</b> (21 March / 21 September) Sunrise: 06:26 / 06:11 Sunset: 18:34 / 18:20 Sunlight Hours: ~12hrs/~12hrs	<b>Midwinter</b> (21 December) Sunrise: 06:58 Sunset: 17:44 Sunlight Hours: ~10.5hrs
<b>LOCATION</b>	<b>Old Course - Hole #18 (Green &amp; fairway)</b>	~6.5hrs (12:00-18:30)	~5hrs (13:00-18:00)	~3hrs (14:00-17:00)
	<b>Eden Course - Hole #1 (Tee &amp; fairway)</b>	~8.5hrs (10:00-18:30)	~7hrs (11:00-18:00)	~5hrs (12:00-17:00)
	<b>Eden Course - Hole #7 (Green &amp; fairway)</b>	Not Affected	~8hrs (10:00-18:00)	~6hrs (11:00-17:00)
	<b>Eden Course - Hole #18 (Green)</b>	Not Affected	~8hrs (10:00-18:00)	~6hrs (11:00-17:00)
	<b>New Course - Hole #1 (Tee &amp; fairway)</b>	Not Affected	Not Affected	~6hrs (11:00-17:00)
	<b>New Course - Hole #18 (Green)</b>	Not Affected	Not Affected	Not Affected
	<b>Practice Putting Green</b>	Not Affected	~7hrs (11:00-18:00)	~5hrs (12:00-17:00)

\*Last time of direct sunlight is calculated to be 30-45 minutes before actual sunset due to effect of surrounding topography & vegetation.

The results for Midwinter are particularly important because the HKO is normally held within one month either side of Midwinter (the exact timing of HKO is according to the calendar of the DP World Tour and is outside the control of HKGC).

The results demonstrate that there will be serious adverse effects on several remaining holes as follows:

- **Old Course Hole #18 (Green and Fairway):** This will receive less than 6.5 hours/day of direct sunlight for the entire year, and less than 5 hours/day for 6 months (between equinoxes). This effectively means that the grass will quickly deteriorate to a condition whereby it cannot continue to be played as a golf hole.
- **Practice Putting Green (PPG) at Clubhouse** (Important role during HKO): This will receive less than 7 hours/day of direct sunlight for 6 months of the year (between equinoxes), and less than 6 hours/day for about 3 months (early November to early February). This will seriously adversely impact the PPG turfgrass. The PPG has a vital role to play during the HKO (normally played within a month of Midwinter) because the professional golfers practice there immediately prior to starting their round. The professionals expect that the PPG will have exactly the same playing conditions and putting ‘speed’ as the greens out on the course, but that will not be the case due to the serious adverse impacts on the PPG turf due to the shading described above. It is anticipated that that such a scenario will be unacceptable to the DP World Tour. It will also adversely impact the ability of the PPG to serve its purpose for the regular golfers for much of the year.
- **Eden Hole #1 (Tee and Fairway):** This is part (Hole #1) of the HKO Composite Course. Like the PPG, this will receive less than 7 hours/day of direct sunlight 6 months of the year (between equinoxes), and less than 6 hours/day for about 3 months (early November to early February). This will seriously adversely impact the turfgrass, which will in turn compromise regular golf play throughout the year and seriously compromise turf quality during the HKO, to a level that is highly likely to be unacceptable to the DP World Tour. Regular play for average golfers will also be compromised for much of the year.
- **Eden Hole #7 (Fairway & Green):** This is part (Hole #3) of the HKO Composite Course. This will receive less than 8 hours/day for 6 months (between equinoxes) and less than 7 hours for about 3 months (early November to early February) which is the period when the HKO is normally held. The #7 green will suffer as a result and the turfgrass quality will be reduced to a level that will be unacceptable to the DP World Tour. Regular play for average golfers will also be compromised for much of the year.
- **Eden Hole #18 (Green):** This is part (Hole #18) of the HKO Composite Course. Like Eden #7, this will suffer from less than 8 hours/day for 6 months (between equinoxes) and less than 7 hours for about 3 months (early November to early February) which is the period when the HKO is normally held. The 18<sup>th</sup> green is the single most important green in the HKO, as it is where the tournament winner is often decided, and anything less than perfect turf quality will be unacceptable to the DP World Tour. Regular play for average golfers will also be compromised for much of the year.
- **New Hole #1 (Tee & Fairway):** This is part (Hole #17) of the HKO Composite Course. This will suffer from less than 7 hours/day for about 2 months (late November to late January) which is the period within which the HKO is normally held. Again, the resultant lowering in turf quality is highly likely to be unacceptable to the DP World Tour. Regular play for average golfers will also be compromised.

#### 4. Adverse Impacts of Poor Ventilation

The adverse impacts caused by shading will be further exacerbated and compounded by the adverse impacts of poor air ventilation resulting from the blockage caused by the PHD high rises. Although the precise changes in air ventilation at ground level are more difficult to quantify than the precise



reductions of direct sunlight, the total adverse impact on the turfgrass from shading and poor air ventilation will undoubtedly be qualitatively greater than from the shading alone.

**5. Negative Synergy Effects Create Major Risk to Hong Kong Open**

Thus, temperature and shade direct impacts, in combination with the loss of car and coach parking and logistics and back up areas from the removal of the 8 Old Course Holes east of Fan Kam Road, it can be seen the CEDD’s proposed PHD poses a major risk to the future of Hong Kong’s ability to host its oldest golf tournament, the world’s second oldest continuously running international golf tournament, and Hong Kong’s most internationally significant golfing event, as no other golf course in Hong Kong could host such a significant international event.



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**Managing Director | URBIS Limited**  
**1 May 2023**

**ANNEX 1 – Shading Impact Upon Fanling Golf Course West of Fan Kam Road**