Table 1 Response to EPD's Request for Supplementary Information (Ref: EPD's letter dated 9th March 2011)

Supplementary Information Required	**Project Proponent's Response**
Tree Preservation 1. Supplementary and latest information on tree assessment, tree preservation, tree felling, the existing conditions of the trees which are numbered T10, T1, T2, T3 and T4 in the EIA report and the compliance with the "Environment, Transport, and Works Bureau Technical Circular (Works) No. 3/2006 Tree Preservation" (which is available at internet website: *http://www.devb.gov.hk/filemanager/technicalcirculars/en/upload/16/1/c-2006-03-0-1.pdf*).	Preservation and management of the existing trees have been carefully considered in the landscape impact assessment of the EIA. A team of experts including Prof CY Jim, Chair Professor of Geography, The University of Hong Kong, has conducted careful examination to assess their conditions and made appropriate recommendations. The same team has conducted a review of the latest conditions of trees T1, T2, T3, T4 and T10. The recommendation in the EIA Report remains valid, ie T1 to T4 (3 dead trees and 1 in poor health condition) are recommended for removal and they are not subsumed under the tree felling application while T10 is also recommended for removal as it is in conflict with the new access road after considering (i) the need for a new access road at that location and (ii) the feasibility of transplanting the tree. Need for a new access road on Old Bailey Street • Careful site analysis found that it is not possible to install a new entrance along either Arbuthnot Road or Chancery Lane. • The vehicular opening on Old Bailey Street and a service yard are necessary for the transport and future maintenance of new electricity transformer equipment as well as the loading and unloading needs. The electrical transformer will be housed inside the Ablutions Block, the best place to "hide" them as they cannot be put in a basement. The transformer equipment is essential to the revitalization of the site with or without new construction. • The service yard needs to be 9 m wide in order for essential service vehicles to turn around as Transport Department will not allow reversing out onto Old Bailey Street.

Supplementary Information Required	Project Proponent's Response
	<u>Feasibility of Transplanting T10</u> • It is not possible to transplant the wall tree successfully without damaging the original granite masonry wall which is an important part of the designated monument. It is understood that no wall tree has ever been transplanted successfully in Hong Kong or other cities. It is therefore concluded that transplanting the wall tree is not a viable option. The latest conditions and assessment of T1, T2, T3, T4 and T10 are attached in *Annex A* for reference. Further details for the justification of removing T10 is provided in *Annex B* for reference. The compensatory planting proposal has been described as mitigation measures CM6 in Table 4.5 of the EIA Report. The description in Table 4.5 remains valid and the compensatory proposal complies with the requirement stipulated in ETWB TC(W) No. 3/2006. In fact, the description in Table 4.5 has pointed out that the rate of compensation is equivalent to three times the DBH of T10, far beyond the requirements. Below is supplementary information regarding the species recommended to be planted to compensate for the removal of T10. <u>Choice of Replacement Tree Species</u> A total of six replacement trees should be planted in the new tree strip. Two of each of the outstanding and related flowering trees connected to local natural history are recommended for the landscape designer's consideration, namely: • *Bauhinia* 'Blakeana' (Hong Kong Orchid Tree, the city flower since 1960s and the emblem flower of the HKSAR), a native evergreen species with deep mauve flowers produced profusely in an exceptionally long flowering period stretching from late autumn to early spring. • *Bauhinia purpurea* (Purple Camel's Foot), a native evergreen species closely related to *Bauhinia* 'Blakeana', but with lighter purple flowers displayed from late autumn to early winter.

Supplementary Information Required	Project Proponent's Response
	• *Bauhinia variegata* (Camel's Foot), an exotic deciduous species related to *Bauhinia* 'Blakeana', with delightful pale pinkish flowers exhibited in spring to early summer often when the tree has little or no leaves. Planting materials should be of heavy standard size, with a single upright trunk, evenly spread branches, robust health, and freedom from wounds, decay, injuries, pests, and unstable structure, and other arboricultural problems. The 18 root balls of the standard trees should not be less than 0.75 m diameter and 0.75 m deep.
<u>Proposed Use/Landscape Design of the Parade Ground</u> 2. Further explanation on the proposed use/landscape design of the Parade Ground in the proposed development within the Central Police Station Compound and whether any consideration has been given to turning the Parade Ground into a grassed/vegetated area, and the reason(s), if any, why the Parade Ground is not turned into a grassed/vegetated area.	Section 4.7.2 of the EIA Report has already pointed out that the design intention for the courtyards (ie the Parade Ground and the Prison Yard) is to preserve the openness of both courtyards as they are both significant spaces in terms of cultural heritage. It is intended to leave the Parade Ground as an open space for passive recreational use with occasional cultural events. The Parade Ground has been known as the "Parade Ground" since the Barrack Block was constructed, and was extended northward when the Police Headquarters were built, a name which it has retained to this day. It is a significant characteristic of the Site and is referred to as such in the Conservation Management Plan published in 2008. If it was turned over to grass or other soft vegetation it would cease to be a Parade Ground and so a key element of the Site's significance would be lost. Hence, it is considered not appropriate to grass/vegetate the Parade Ground. Indeed, Section 4.7.2 of the EIA Report has already pointed out that "It was therefore decided not to compromise these spaces by adding significant soft landscape features within them, but rather retain and enhance the existing.".
<u>Glare Impact/Night-time Lighting Control</u> 3. Supplementary information on the glare impact and night-time lighting control within the Central Police Station Compound and	Sections 2.6.1 and 4.7.4 of the EIA Report has pointed out the choice of using non-reflective material as the façade material for the new building to minimise potential glare interference.

Supplementary Information Required	Project Proponent's Response
clarification on any spotlights or what kinds of lights would be turned on, if any, at night in the new buildings.	Section 4.7.4 of the EIA Report has pointed out that there is currently no plan to illuminate the buildings within the Site with external lighting. The extent of external lighting is limited to wayfinding and the illumination of space for security and safety reasons, not the illumination of buildings. All lights within the CPS will be turned to night time mode (dimmed) after 11pm. At the existing buildings, it is expected that light is emitted from the indoor space through doors and windows. Hence, as soon as the indoor space is not in operation, lights will be turned off (except limited lighting for emergency and escape uses). Apart from food and beverage uses, most of the other uses within the existing buildings are likely to be closed at night. Hence, light from the existing buildings is expected to come mainly from the few food and beverage uses, which is no difference to other bars and restaurants in the area. Hence, adverse night-time lighting impact is not anticipated. At the new buildings, facade flood lighting is not proposed. Light emitted from the buildings will be partially screened by the façade units. Similar to the arrangement at the existing buildings, as soon as the indoor space is not in operation, lights will be turned off (except limited lighting for emergency and escape uses). Apart from food and beverage uses, other uses within the new buildings are likely to be closed at night. Hence, the key light source from the new buildings is expected to come from the food and beverage uses at the podium level of Old Bailey Wing, which is no difference to other bars and restaurants in the area. The grand stairs under the canopy of the Arbuthnot Wing will be used as a semi-open multipurpose space for occasional cultural events. Spot lighting may be used during the events. However, the spot lights will mainly be used for the functioning of the cultural events. When there is no event at the grand stairs, lighting will be mainly catered for the needs of daily public circulation and gathering at the grand stairs. Hence, adverse night-time lighting impact is not anticipated.

ANNEX A

Update to EIA Report Section 4.6.4 Trees within the Project Site (Figures 1 and 3)

T1 – *Bombax ceiba* (Figures 4 to 11)

T1 was a medium-sized *Bombax ceiba*, around 25 years old, that measured 15 m tall and 4 m crown diameter before it was destroyed by Typhoon Fengshen on 25 June 2008. The gale force wind associated with typhoon signal number 8 snapped the trunk and completely removed its crown. Before the typhoon, the crown of T1 overlapped and intertwined with that of its notably larger neighbour T2. It is possible that T1 was brought down as collateral damage due to the collapse of the much larger and heavier T2. For a 15 m tall tree, the trunk diameter of 22 cm was on the low side and branch development was less than optimal, indicating that the tree's performance was of average or fair calibre. Only the lower segment of the trunk without any foliage was left of the tree after the typhoon though it is likely that the root system was able to remain more or less intact. Shortly after the typhoon, the top of the broken trunk was sawn to form a horizontal flat surface in an attempt to trim the breakage wound, leaving a trunk segment of 3.5 m tall. Following this, slender sprouts with new leaves developed from the edge of the wound to rebuild a tiny and unnatural crown. Measuring 1.9 m wide and with only a small amount of leaves, the reconstituted crown serves to resume a minimum amount of plant food production by photosynthesis to sustain the essential physiological functions of the emaciated tree. The wind force that caused the trunk snapping had created cracks that extend downwards from the wound.

Shortly after the typhoon attack, a small tree pit with concrete rim measuring 150 cm by 81 cm was installed for T1, where previously its critical root zone had been completely sealed by concrete paving. With the east side of the tree site bordered by a retaining wall adjacent to the access road and the north side adjacent to a building the root extension of T1 is permanently curtailed on two sides. Its roots could only spread towards to the south and west in the compacted and sealed soil lying beneath the continuous concrete paving and the root system of T1 cannot be expected to develop normally.

The installation of an air conditioner resting on a concrete plinth next to T1 would have incurred injuries to its roots. The excavation would have cut away some roots on the south side, and created wounds to permit the invasion of wood-decay fungi and other natural enemies into the root system. The weight of the concrete plinth and the machine could have overburdened the soil to dampen normal root functions and growth. In operation, the heat and air flow generated by the machine would have dehydrated the leaves and imposed additional stresses on tree growth.

By local standards, many *Bombax ceiba* are older and have better structure and health than T1, which is now considered to be damaged and be in 'poor' health.

T2 - *Ficus virens* (Figures 12 to 14)

T2 was snapped by Typhoon Fengshen on 25 June 2008, and irretrievably lost. It was a large tree, around 70 years old, that measured 17 m tall by 24 m wide and had a trunk of 99 cm diameter. Gauged against the final dimensions of the species and in view of the chronic site constraints, the tree had probably attained its maximum size. The breakage at the time of the typhoon occurred at the trunk base, leaving the above-ground part of the tree lying en masse on the ground. This has now been removed and T2 is considered to be dead.

T3 – *Nageia nagi* (Figures 15 to 26)

T3 was uprooted by Typhoon Fengshen on 25 June 2008. Previously it stood 20 m tall with an exceptionally limited crown spread of merely 6 m and a trunk diameter of 40 cm and was considered to be around 60 years old. A *Nageia nagi* of similar height would have the ability to develop a crown up to 10 m across. By local standards, T3 was probably the largest and oldest specimen of the species, even though its structure was not too representative of the species at its prime. Soon after the collapse, the tree was lifted to the upright posture and supported by a propping system composed of eight inclined steel bars connected to a steel ring around the trunk. In addition, the tree was pulled by three guy wires linked to a higher position of the trunk. Upon inspection in February 2009, it was concluded that T3 had died.

T4 – *Celtis sinensis* (Figures 27 to 32)

T4 was snapped at about 1.8 m from the ground by Typhoon Fengshen on 25 June 2008, leaving a stump with jagged fractured wood at its top. It is a native broadleaf deciduous tree that commonly dwells in mature local woodlands and can reach 16 m height. An inspection in February 2009 concluded that prior to its snapping, T4 was already a hazardous tree that could have broken or toppled suddenly without any warning. T4 is now considered to be dead.

T10 – *Ficus microcarpa* (Figures 33 to 38)

T10 is a wall tree that established spontaneously without human assistance. It has multiple trunks to support a full tree crown with dense branches and foliage, in a normal posture similar to a ground-growing Banyan. The tree measures approximately 6 m tall with a 6 m crown span. It is considered to be about 20 years old and in good health.

T10 does not take up ground space having established on an apparently vertical habitat. It is located at the boundary of the Police and the Prison sites, at the junction between the stone retaining wall and the adjacent, perpendicular, free-standing, brick wall that marks the Old Bailey Street perimeter. The stone retaining wall has soil kept behind its façade ("retained soil"), and the roots of T10 have penetrated the joints between the masonry blocks to spread in the retained soil so as to acquire a firm anchorage and capture water and nutrients. The free standing brick wall does not hold soil. The surface roots of T10 have

spread from the stone wall side onto the brick wall face and some roots attached to the brick wall have penetrated the slim gap between the wall toe and the concrete paving to enter the soil in the ground ("ground soil"). The retained soil and ground soil are collectively labelled "companion soil". The wall tree has developed three main types of roots, namely: (1) woody lateral roots the run profusely on the wall surface with some penetration into the companion soil ("lateral roots"); (2) fine fibrous roots that spread in the companion soil lying adjacent to the walls ("feeding roots"); and (3) aerial roots that hang down from the branches ("aerial roots"). Aerial roots remain soft and flexible, unless they are connected to the lateral roots whereupon they become woody.

Although T10 appears as if it could be easily detached, toppled or uprooted and is prone to wind attack due to its relatively exposed locality, like several hundred stone wall trees in Hong Kong, it has stabilized itself firmly by its profuse network of roots, many of which have moved into the soil lying behind the retaining wall. The lower portion of the tree (the masses of roots that cling on the wall surface, some of which have penetrated the wall), lies within a very narrow path which is hardly accessible and is hence protected from humans.

T10 is relying on the feeding roots that spread in the retained soil lying behind the stone wall and the ground soil below the brick wall to capture water and nutrient to sustain its life functions. If the soil has sufficient volume and suitable property for plant growth, the wall tree can prosper, if not, its growth will be retarded. Moreover, it is relying on the lateral roots to grip the two wall surfaces, the gaps between masonry blocks (for the stone wall) and the companion soil to secure a firm anchorage. The growth rate and shoot size of a wall tree relies on and echoes the spread and vigour of its roots. Due to the highly limited site and soil conditions, the growth rate of T10 has been suppressed and its performance can be rated as average. The habitat does not provide the right setting for T10 to thrive in the future and the prognosis is that it will continue to exhibit average growth in the future, should conditions remain the same.

Hong Kong has about 500 old stone retaining walls mainly found in the Mid-levels of three old districts on Hong Kong Island, namely Wanchai, Central and Western districts. A total of about 1200 trees of different age and size are growing on the vertical habitats, most of which are *Ficus microcarpa* species. T10 is considered a relatively small wall tree since the largest wall tree of the same species has attained over 20 m in height, with many times the crown size of T10.

Table 4.3 Trees within the Project Site

Tree ID	Species name	Height (m)	DBH [(a)] (m)	Average crown spread (m)	Tree form (Good/Fair/Poor)	Health (Good/Fair/Poor)	Amenity value (High/Med/Low)	Survival rate after transplanting (High/Med/Low)	Recommendation (Retain/Transplant/Fell)
T1	*Bombax ceiba* 木棉	3.5	0.3	1.9	Poor	Very Poor (Damaged)	Nil	N.A.	Fell
T2	*Ficus virens* 大葉榕	n/a	n/a	n/a	Dead	Dead	Nil	N.A.	Fell
T3	*Nageia nagi* 竹柏	19.8	0.4	3.8	Dead	Dead	Nil	N.A.	Fell
T4	*Celtis sinensis* 朴樹	1.8	0.7	n/a	Dead	Dead	Nil	N.A.	Fell
T10	*Ficus microcarpa* 細葉榕	6	0.20, Wall Tree	6	Fair	Good	Medium	Low	Fell

Note:

(a) DBH is Diameter at Breast Height is standardised as the trunk diameter at a height of 1300 mm above ground level in Hong Kong according to *ETWB-TC(W) No. 3/2006* on Tree Preservation.

Update to EIA Report Section 4.7.3 Landscape Impact Assessment – Tree Impact Assessment

The existing trees have not had proper tree care for many years. Except T10 which is recommended for felling, and T1, T2, T3 and T4 which were damaged or destroyed by typhoon in 2008 and whose remains should be removed, the remaining six trees could benefit from a systematic programme of tree care to tackle a host of accumulated arboricultural problems. The details of proposed tree care actions are explained below.

T1 – *Bombax ceiba* (Figures 4 to 11)

T1 is a broken tree, struggling to survive by developing some unnatural water sprouts and in poor health. Although it displays some apparent signs of recovery, they indicate the last-resort physiological and morphological responses of a tree that has been pushed to the extreme. Due to the massive structural losses and associated injuries, there is no hope that the tree regaining its health and restoring its natural neat and layered pagoda tree form, which in conjunction with its large reddish bloom, constitute the raison d'être for planting *Bombax ceiba*. With the loss of the leader trunk that would normally dominate the tree structure from base to tip, and dim prospect of forming a replacement leader, the tree's landscape and amenity value has been permanently depleted. In addition, there is a high risk of invasion by wood-decay fungi at the existing trunk breakage which would lead to a hazardous tree situation in due course.

Judging from the height and trunk diameter of the tree before it was snapped, and the site conditions, T1 is considered to be around 25 years old, hence it is a relatively recent addition to the Site with limited historical value. The historical association with the cultural heritage is at best tenuous and may not be construed as significant. By local standards, many *Bombax ceiba* are notably older, stronger and have better structure and health than T1. The present emaciated and truncated state is incongruous with the condition of the adjacent heritage buildings which are to be renovated and repaired where necessary.

Considering the above assessment and taking into account arboriculture and staff and visitor safety, it is suggested T1 be removed.

T2 - *Ficus virens* (Figures 12 to 14)

Before its collapse, T2 was beset by some wood decay in its trunk, as indicated by photographs from an October 2007 tree report. It is now a dead and should be removed. Despite no compensatory planting being required, it is suggested that the entire strip of land that previously accommodated T1 to T4 should be revamped to provide a planting site with improved soil conditions for future tree growth and six trees be planted here, as detailed in CM6 of *Table 4.5*.

T3 – *Nageia nagi* (Figures 15 to 26)

T3 is now considered to be dead as a result of toppling by Typhoon Fengshen which brought massive root breakage and injuries and should be removed. Despite no compensatory planting being required, it is suggested that the entire strip of land that previously accommodated T1 to T4 should be revamped to provide a planting site with improved soil conditions for future tree growth and six trees be planted here, as detailed in CM6 of *Table 4.5*.

T4 – *Celtis sinensis* (Figures 27 to 32)

T4 is now considered to be dead and the stump of T4 should be removed with the major structural roots below the trunk base being extracted by a stump grinder. Despite no compensatory planting being required, it is suggested that the entire strip of land that previously accommodated T1 to T4 should be revamped to provide a planting site with improved soil conditions for future tree growth and six trees be planted here, as detailed in CM6 of *Table 4.5*.

T10 – *Ficus microcarpa* (Figures 33 to 38)

T10 is considered to be about 20 years old and in good health. The key factors that permit meritorious wall tree growth are a wall that is tall and long, old, composed of large stones, made of irregular stones (rubble), has a large amount of joints between masonry blocks, and is sheltered by adjacent notably taller buildings. These inherent wall attributes cannot be found on the subject wall and it is concluded that future growth of T10 would be at a sluggish rate.

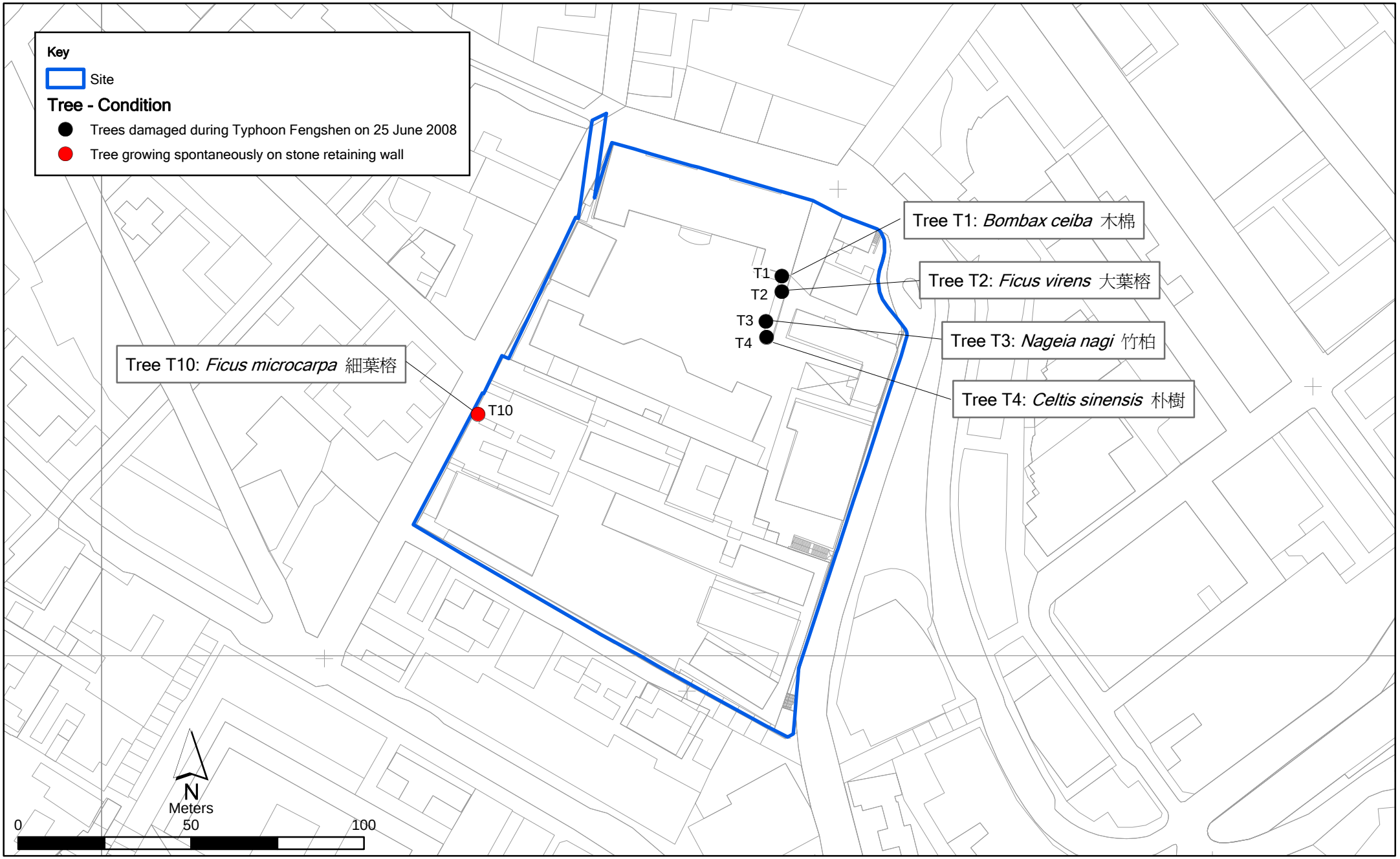
The adaptive use of the heritage site requires satisfying some fundamental building, safety and functional requirements. Due to elevation difference of the sloping site, at present the only vehicular access is at Hollywood Road and an additional access road, which also serves as the emergency vehicle access, has to be installed. In view of the need to preserve the heritage buildings, the latitude for a suitable location to install a new entrance is extremely limited. The small buildings in front of T10 are found to be of little heritage value, and hence could be demolished to give way to the new entrance. The site analysis has excluded the possibility of installing a new entrance along the other two edges of the site, namely Arbuthnot Road and Chancery Lane and therefore the section of wall containing T10 has been selected as the most suitable location for this new access road.

The feasibility of installing the new access road whilst preserving T10 has been considered. The proposed gap for the access road is the minimum required for emergency vehicle access and the entire width of the gap from the ground upwards has to remain clear of obstacles. The main branches of T10 begin to grow outwards towards the proposed gap just above the brick wall at about 3 m from the level of Old Bailey Street and its overhanging branches would limit the head room of the proposed road, thus disqualifying it as an emergency access. In situ preservation of T10 would also have to involve protection of both walls and the companion soil in a holistic package. Any damage to the two walls and their companion soil would injure or cut the lateral and feeding roots reducing the water and nutrient supply to the wall tree and seriously compromising its stability. Since creating the access road would damage the roots on the brick wall and in the ground soil T10 would be weakened and destabilized. It is therefore concluded that the co-existence of the new road and T10 is not possible.

Since T10 cannot be retained, the option of transplanting it has also been considered. To move T10, two requirements would need to be fulfilled: (1) taking two wall segments of sufficient dimension to keep most of the lateral roots; and (2) taking two root balls respectively for the retained soil and the ground soil, each of which must contain a sufficient volume of companion soil together with their constituent feeder roots. During the transport stage, the four entities plus the above-ground part of the tree ("the shoot") would need to be moved en masse as one unit without any relative movement to each other in the course of lifting and conveyance, to avoid their breakage or disintegration. These stringent requirements are technically very difficult to accomplish and are unlikely to be satisfied. In addition, any attempt to move the four entities would demand heavy lifting machines which require a wide road access, a flat and strong platform, and a large amount of manoeuvring space. These indispensable conditions are unlikely to be satisfied given the cramped condition of the tree site and the adjacent steeply-sloping and narrow Old Bailey Street. In view of technical and site difficulties, it is understood that no wall tree has ever been transplanted successfully in Hong Kong or other cities. The expensive and complicated operation in this instance is unlikely to succeed and given T10 does not have any outstanding dimensions or qualities it is considered unreasonable to attempt such an elaborate, expensive and unproven transplanting operation. It can therefore be concluded that transplanting the wall tree is not a viable option.

The size, tree form, performance, and landscape and amenity value of T10, in comparison with the large and robust wall trees in other parts of the city, are relatively low. Due to site and technical constraints, in situ preservation and transplanting cannot be recommended. Overall, considering alternative locations of the new access road would require the demolition of high quality and culturally valuable heritage structures, the felling of T10, a relatively average wall tree, is deemed an acceptable option.

Figure 1. Tree Location



0095646_landscape resource_tree4.mxd

Figure 2. The site condition of the four trees situated on the east edge of the open space of the ex-Central Police Station.

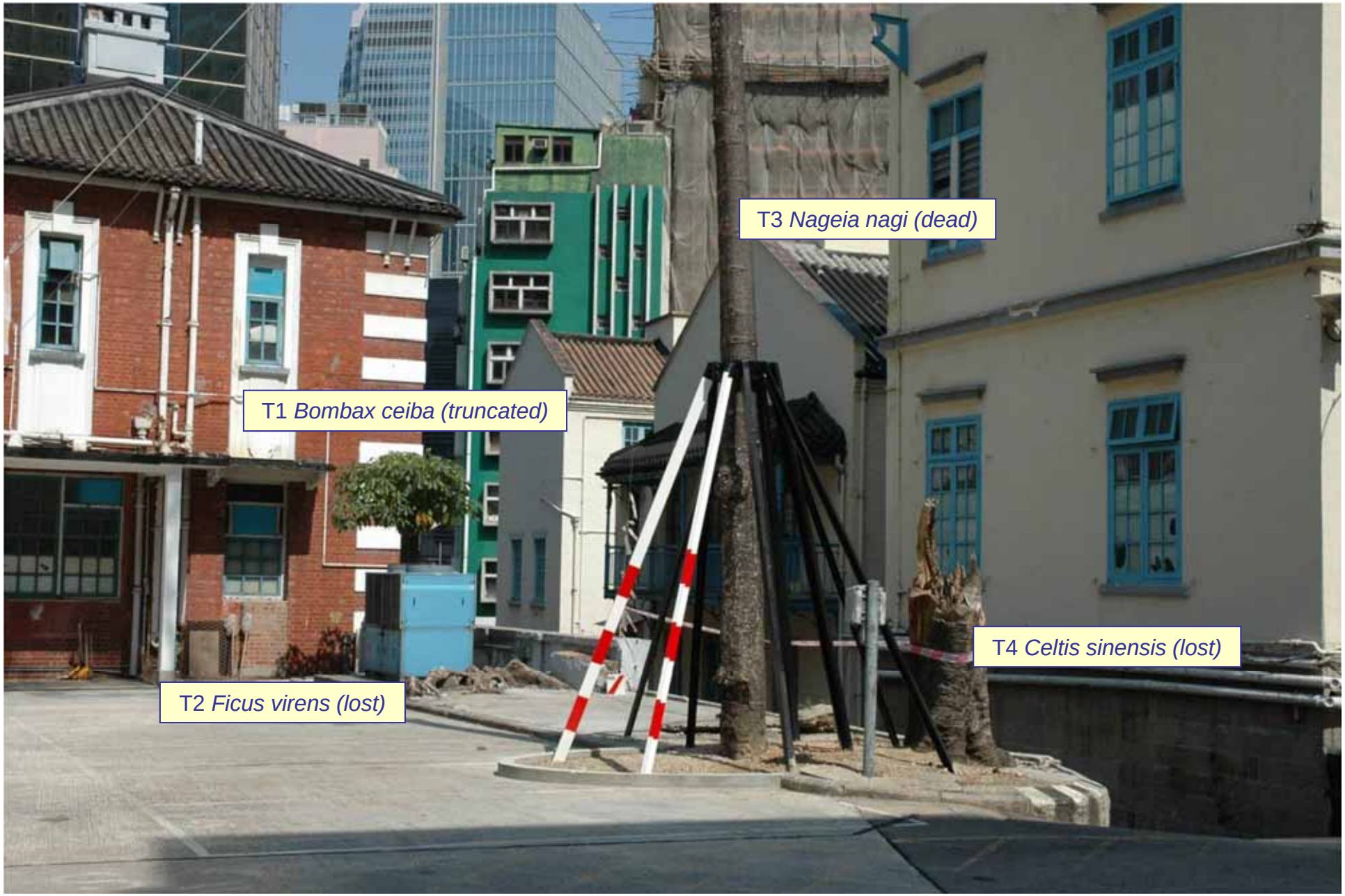
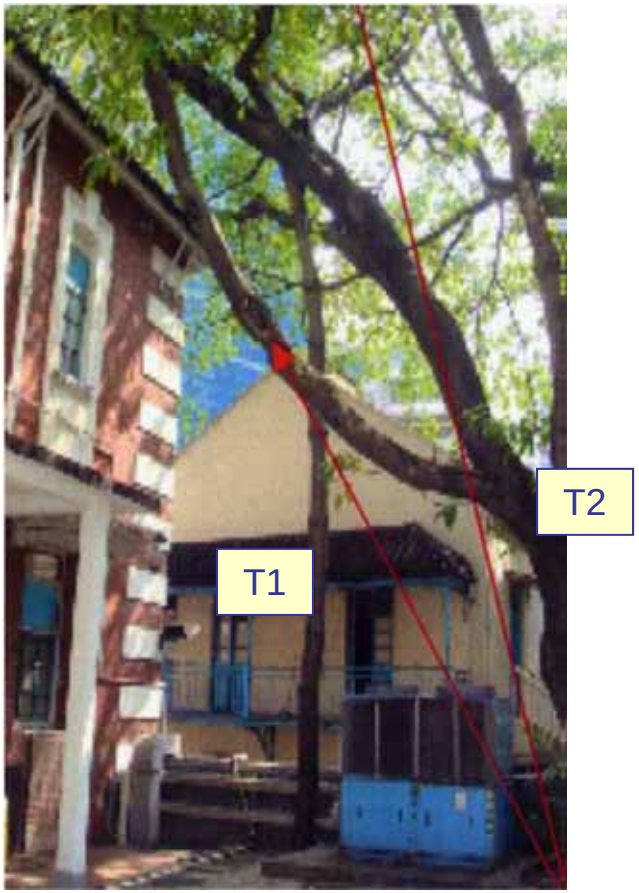


Figure 3. The site condition on 17 March 2011, showing that dead T3 and stump of dead T4 have been removed.

Figure 4. Before damage by Typhoon Fengshen, T1 conflicted with the much bigger and more vigorous neighbour T2, resulting in crown suppression and trunk bending of T1 (photos supplied by the Trust).



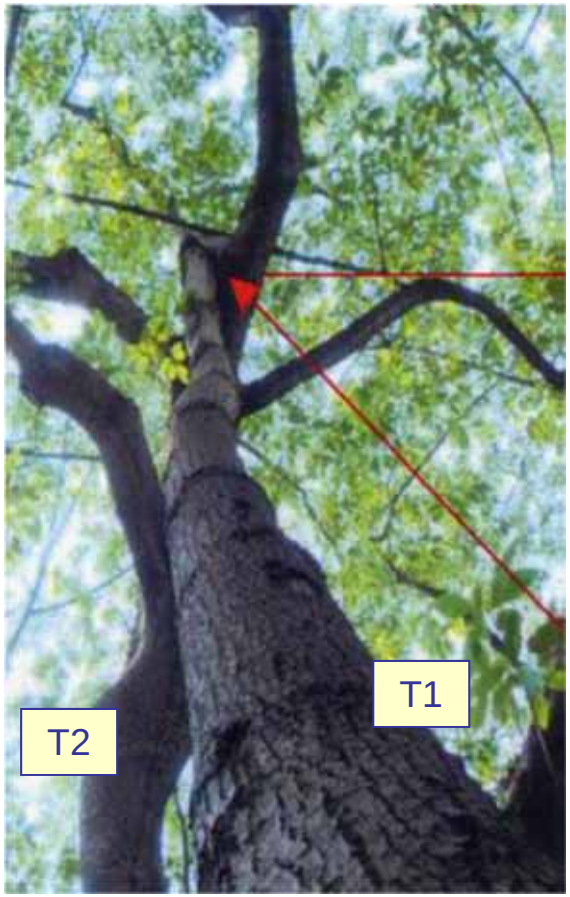


Figure 5. The status of T1 after Typhoon Fengshen that struck on 25 June 2008 (left), and on 03 October 2008 showing initiation of sprouts from the top of the truncated trunk (right) (photos supplied by the Trust).

Figure 6. T1 (*Bombax ceiba*) was truncated during Typhoon Fengshen, leaving only the lower portion of the trunk. Sprouts have since emerged near the wound.

Figure 7. The damaged T1 has sent out sprouts from latent buds at and around the wound to rebuild a small unnatural crown, with a live crown ratio of merely 5%.

Figure 8. Close-up view of T1's broken trunk top showing vertical cracks and the haphazard emergence of thin sprouts with mechanically weak attachments.

Figure 9. T1 was previously sealed by concrete to the trunk base (inset) before damage by Typhoon Fengshen. A new small tree pit has since been installed to improve soil condition.

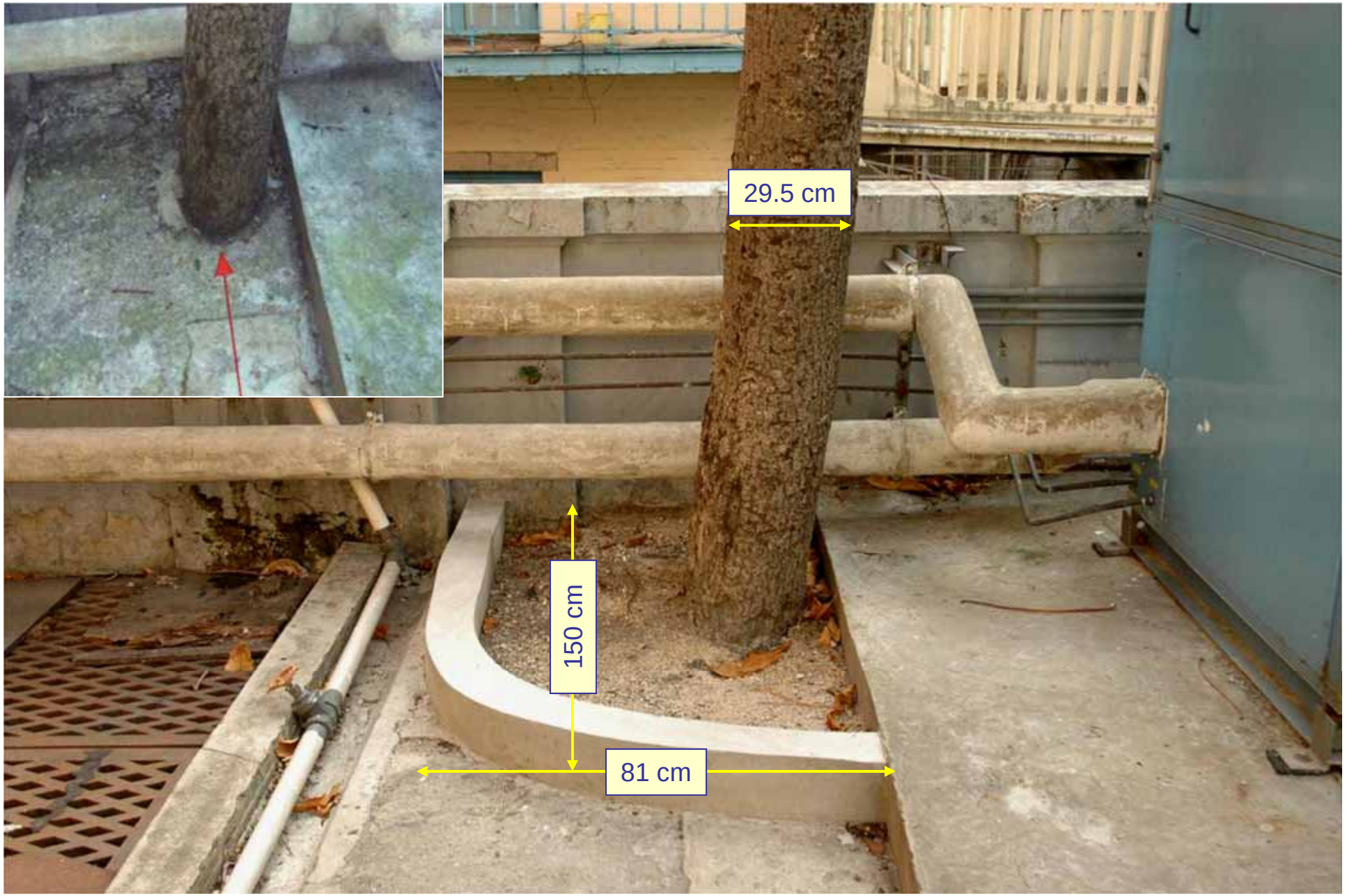


Figure 10. The east side of T1 has limited soil volume for root spread due to the presence of a retaining wall adjacent to the access road.

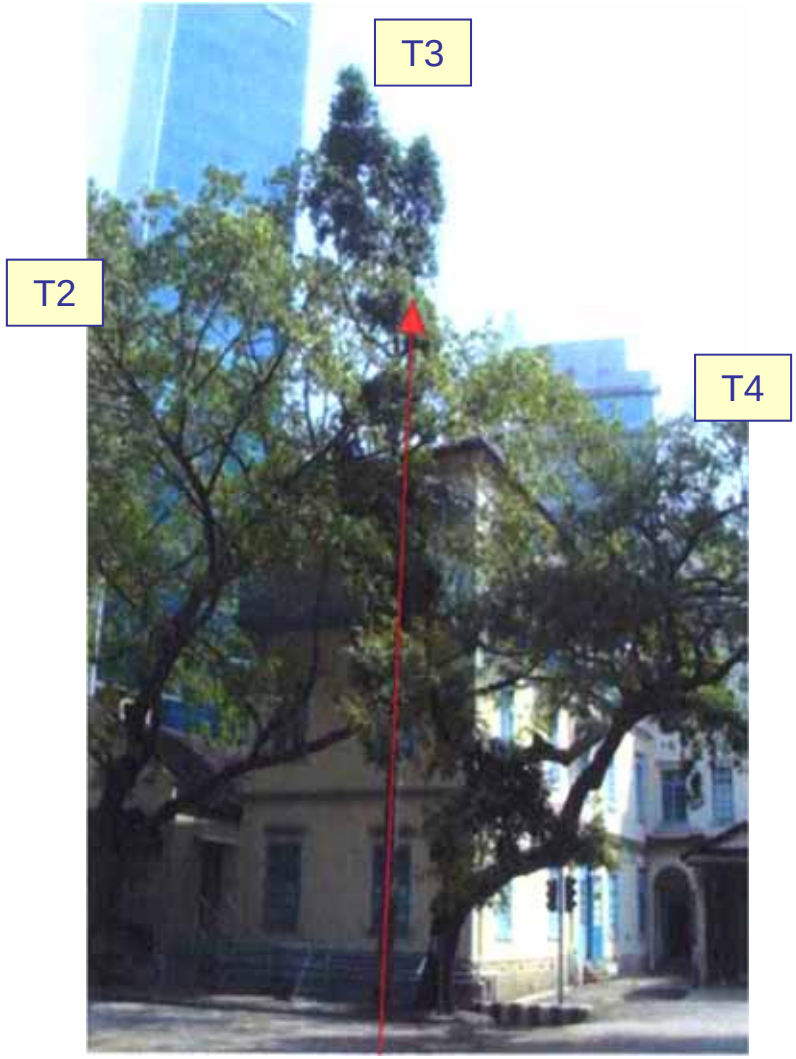
Figure 11. The condition of T1 on 17 March 2011, showing haphazard growth of expanded water sprouts from the truncated top of the trunk.

Figure 12. T2 (*Ficus virens*) had concrete paved to the trunk base (left); it was uprooted by Typhoon Fengshen on 25 June 2008, with the breakage occurring at the trunk base and the trunk and branches remaining largely intact (right) (photos supplied by HKJC).

Figure 13. Remains of T2 which was snapped at the trunk base by Typhoon Fengshen. The remnant roots are found mainly on the south side; roots on the north were probably damaged during installation of the air conditioner (blue box).

Figure 14. T2 was not provided with a proper tree pit, with concrete paved to the trunk base sealing the soil from air and water access. Old paving fragments (red tiles) engulfed by the tree in the course of its growth have been exposed.

Figure 15. T3 (*Nageia nagi*) before damage by Typhoon Fengshen, with exceptionally restricted branch development and limited crown spread. Note the two neighbour trees (T2 and T4) that competed with T3 for growth space (photos supplied by the Trust).



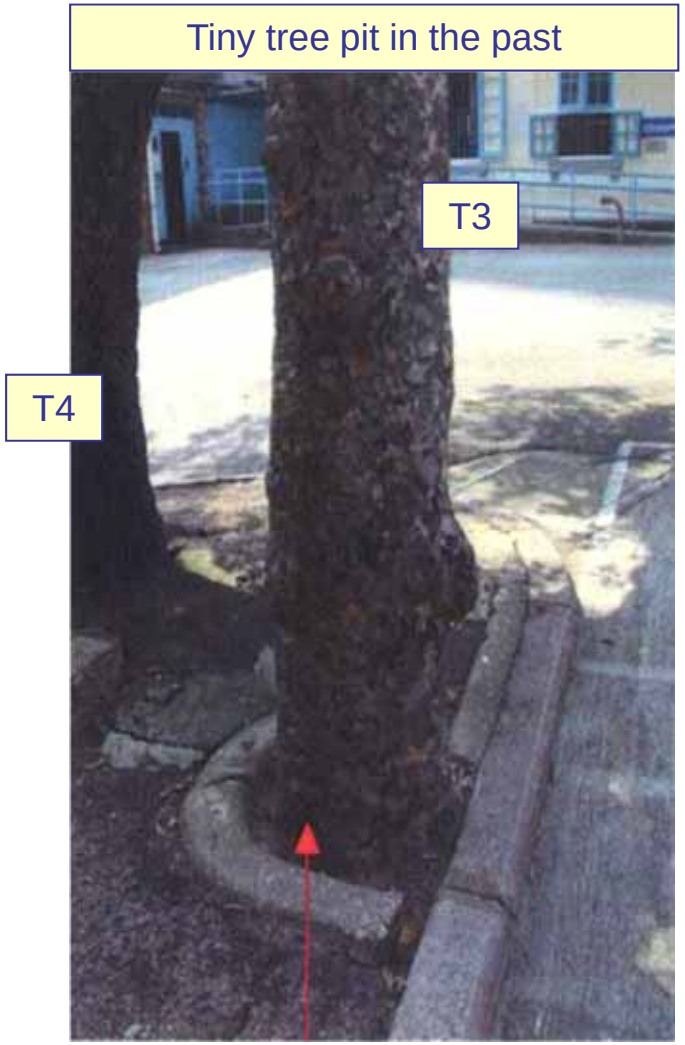


Figure 16. The rescue operations of T3 shortly after Typhoon Fengshen (left), and the salvaged tree with green leaves on 03 October 2008 (right) (photos supplied by the Trust).

Figure 17. T3 (*Nageia nagi*) was toppled by Typhoon Fengshen. It was subsequently lifted to an upright posture, and supported by props and guy cables. The evergreen tree has lost most of its branches and leaves, and all the remnant foliage have wilted.

Figure 18. The tree prop supporting T3 has been designed to avoid physical contact with the trunk. Note the tiny amount of remnant branches and leaves, resulting in a crown ratio of merely about 10%.

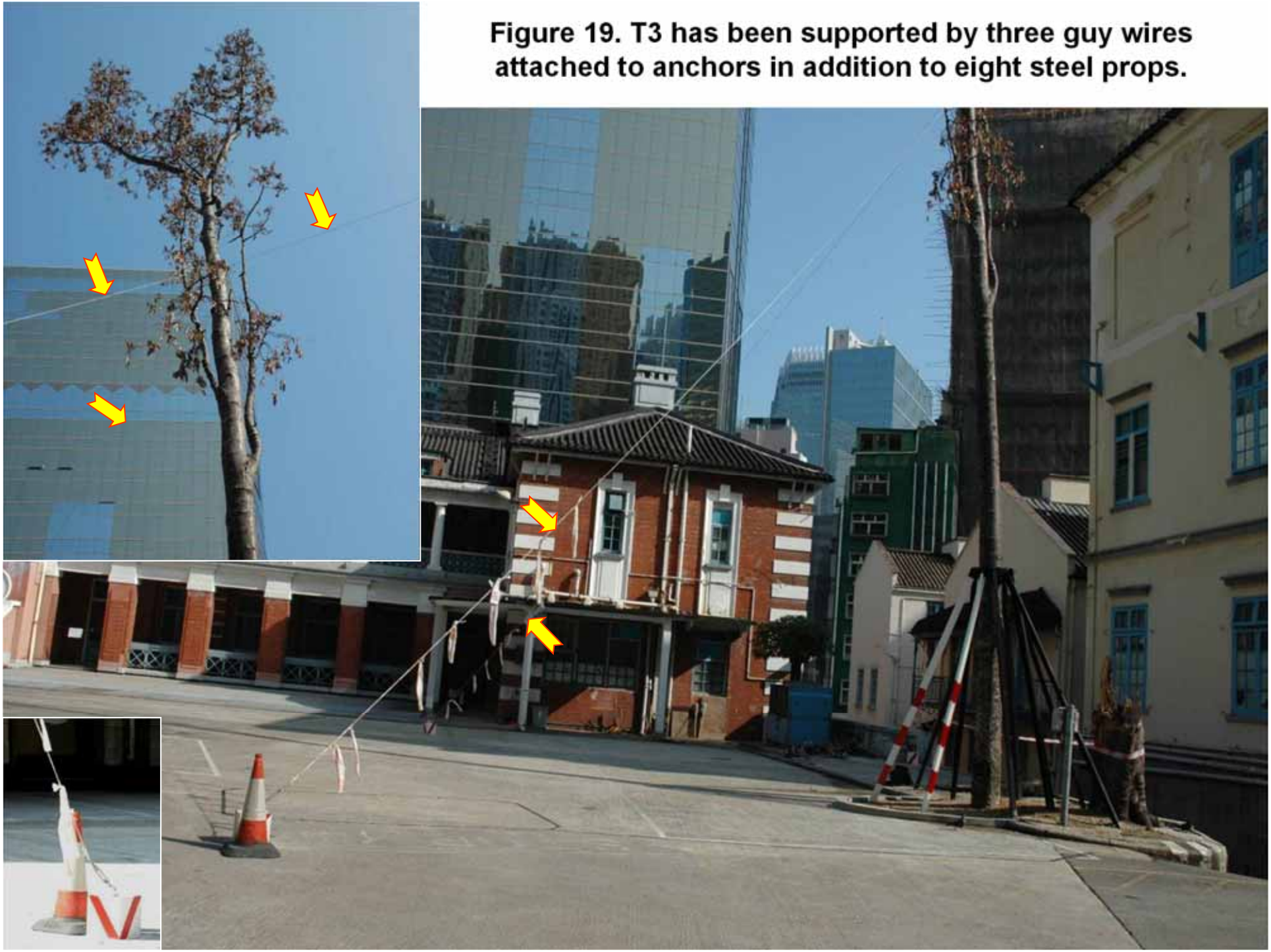


Figure 19. T3 has been supported by three guy wires attached to anchors in addition to eight steel props.

Figure 20. Root extension of T3 towards the east is restricted by the retaining wall on the edge of the access road.

Figure 21. The original tiny tree pit of T3 has been enlarged in conjunction with the salvage operation conducted after Typhoon Fengshen.

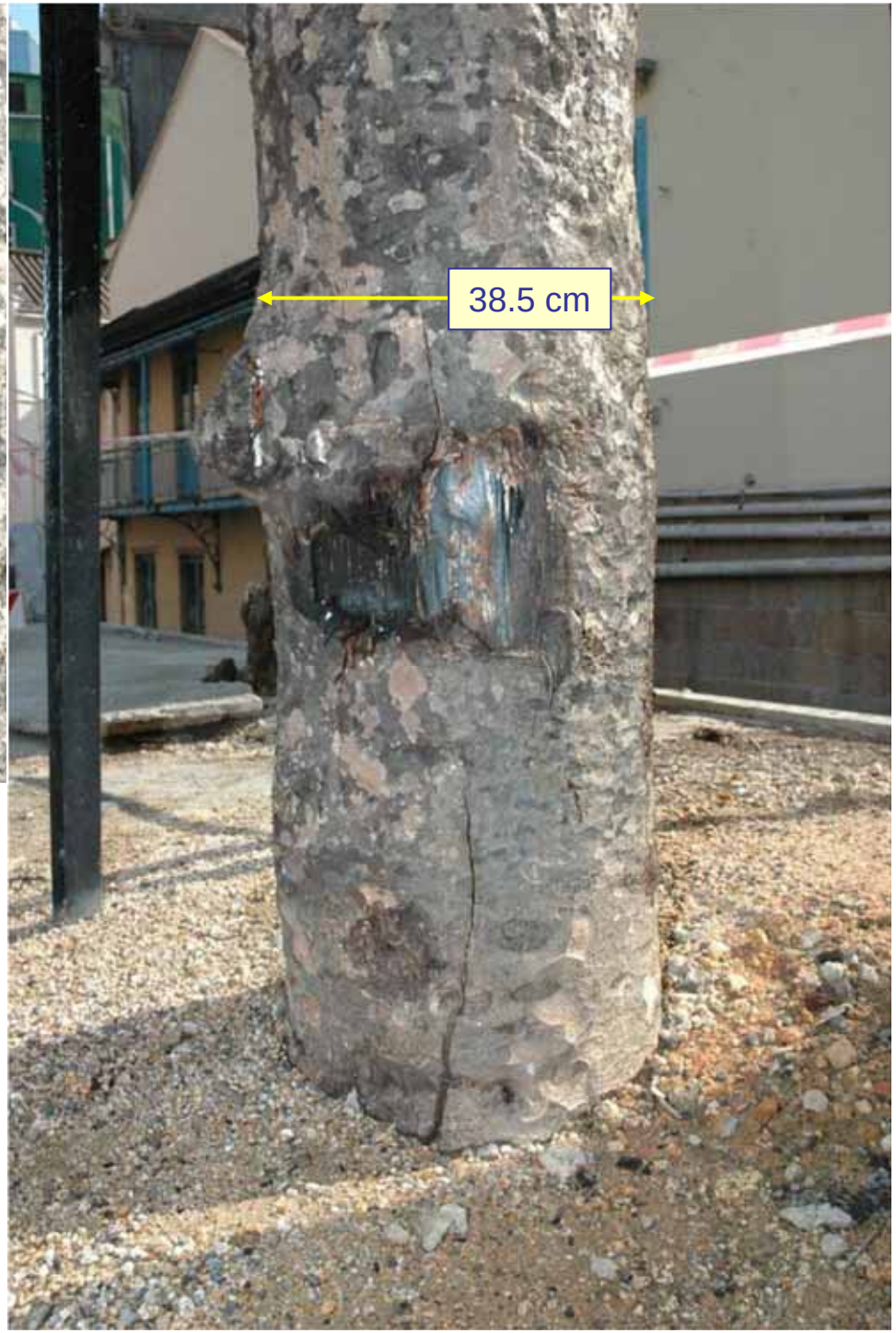


Figure 22. The lower part of the trunk of T3 on the southwest side has a large wound with loss of bark and some sapwood. Several conspicuous vertical cracks have developed, extending from the base upwards and from the wound upwards. These injuries could have been incurred when the tree collapsed during Typhoon Fengshen.

Figure 23. Another wound is found higher up the trunk of T3, also with loss of bark and some sapwood. The wound could become a portal for invasion by the tree's natural enemies, including the air-borne spores of wood-decay fungi.

Figure 24. On the east side of the lower trunk of T3, a series of vertical cracks have developed. They could have been incurred when the tree collapsed during Typhoon Fengshen. Note the lack of a trunk flare, indicating that the ground level around the tree has been raised in the past to bury the trunk base.

Figure 25. A gall has developed on the trunk of T3, which is usually connected with the invasion of woody tissues by a pathogenic microorganism.

Figure 26. The stump of the dead T3 on 17 March 2011.

Figure 27. Before damage by Typhoon Fengshen, T4 (*Celtis sinensis*) had restricted crown development only on the south side, and extensive dead and dying branches. Note the limited exposed soil at the trunk base (photos supplied by the Trust).

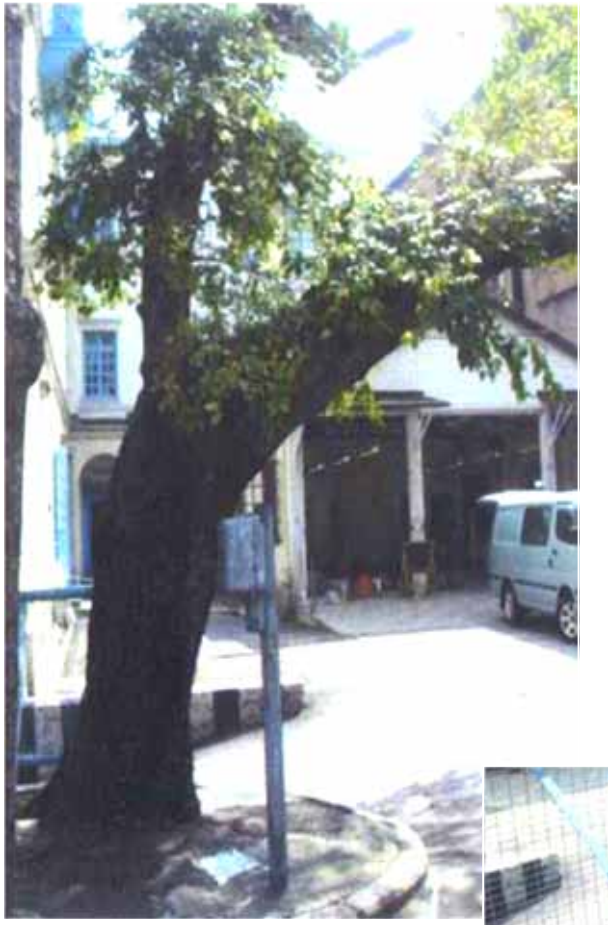


Figure 28. T4 was snapped by Typhoon Fengshen on 25 June 2008, leaving a stump with jagged fractured wood at its top.

Figure 29. The fractured top of T4's stump has exposed decayed wood with weakened mechanical strength (red ovals), and symptoms of boring insect infestation (yellow oval).

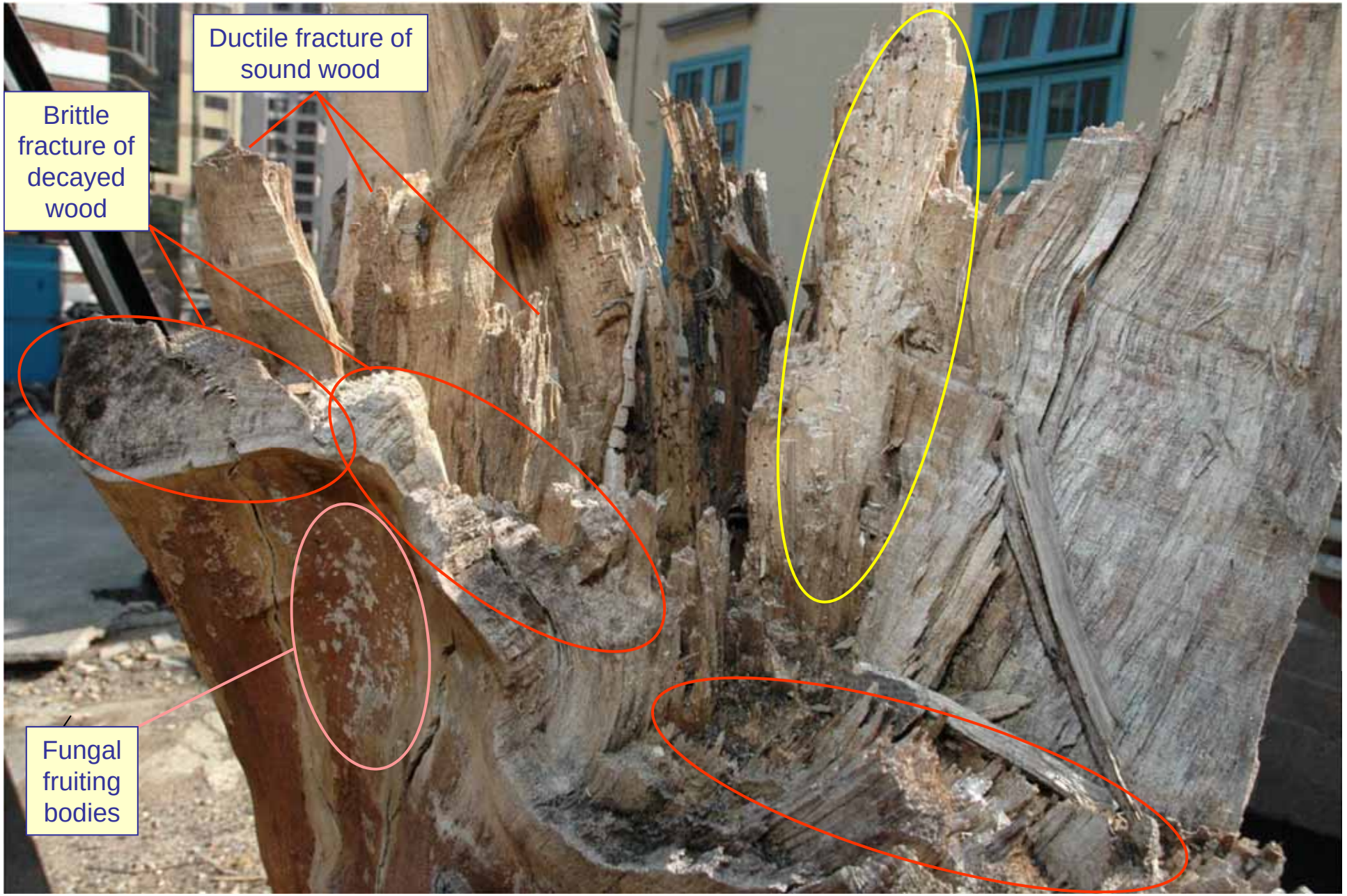


Figure 30. A cylindrical cavity is found in the centre of the T4 stump that extends towards the trunk base. On the walls of the cavity, the wood has been inflicted by advanced decay and symptoms of termite infestation. The extensive wood degradation had compromised the mechanical strength of the trunk, rendering it susceptible to breakage in high wind.

Figure 31. An interior view of the cavity in the T4 stump shows its longitudinal orientation and the degraded wood on its walls.

Figure 32. The stump of T4 on 17 March 2011.

Figure 33. T10 (*Ficus microcarpa*) grows spontaneously at the edge of Old Bailey Road, on the stone retaining wall that marks the boundary of the ex-Central Police Station and the ex-Victoria Prison. The wall tree has developed a rather compact and dense crown about 5 m wide and a tree height reckoned from the trunk base of about 6 m. The live crown ratio is estimated to be 90%.

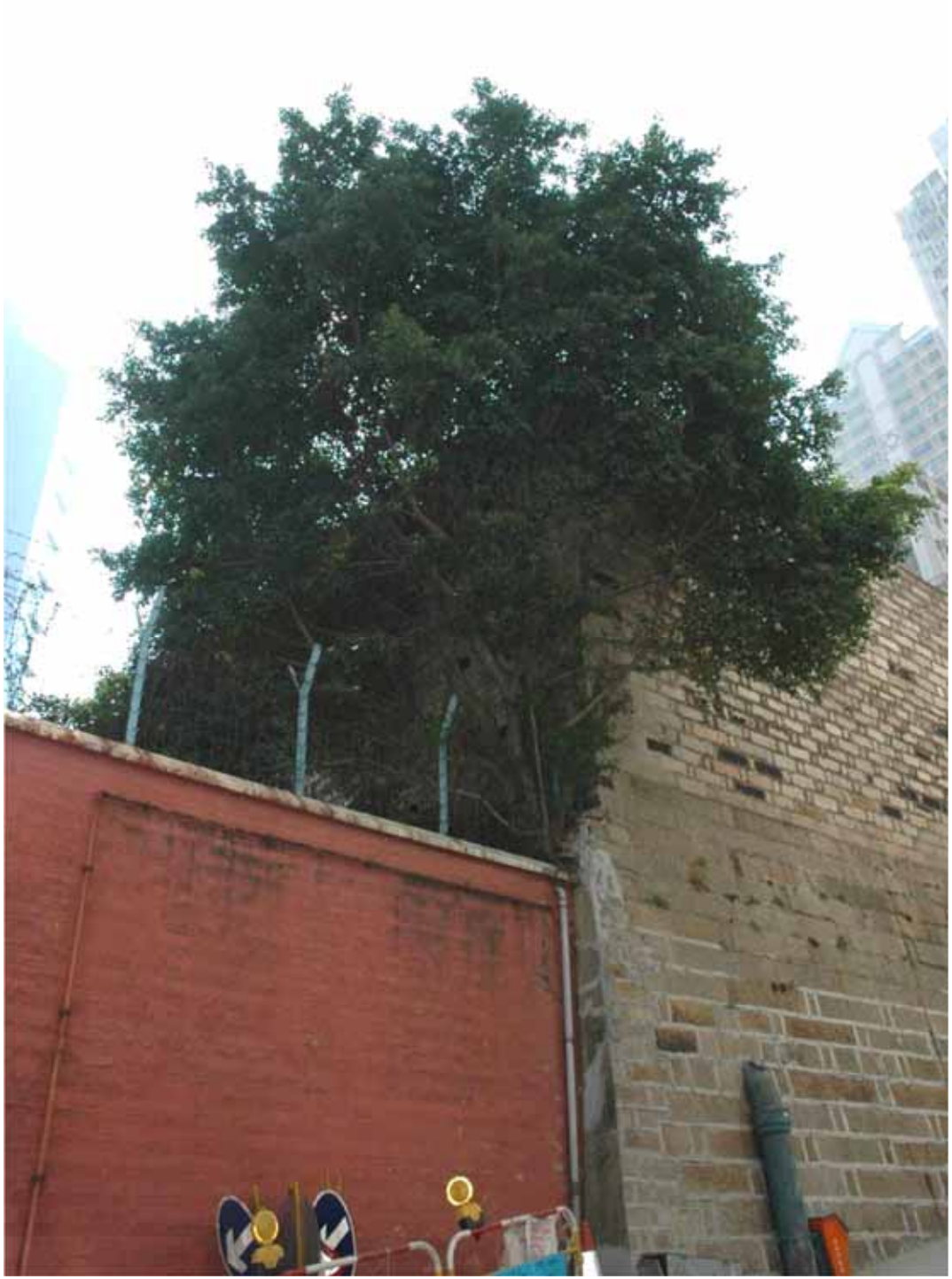


Figure 34. The trunk base of T10 is partly resting on the top of the brick wall that is attached to the adjacent stone retaining wall. Note the multiple stems of the wall tree.

Figure 35. Looking upwards in the narrow alley where T10 is located shows its relation to the brick wall along the perimeter at Old Bailey Road and the stone retaining wall.

Figure 36. The surface roots of T10 spreads downwards along the stone retaining wall at the end of the narrow alley, and extends to the brick wall at its right.

Figure 37. The roots of T10 has spread on the surface of the brick wall, with penetration into the soil under the concrete paving.

Figure 38. The condition of T10 on 17 March 2011.

ANNEX B

1. JUSTIFICATIONS TO REMOVE T10 *FICUS MICROCARPA* (CHINESE BANYAN)

1.1 Spontaneous growth on vertical habitat

T10 is a Chinese Banyan (*Ficus microcarpa*) that has established spontaneously on the wall of an old building at the west edge of the site. The stone retaining wall ("stone wall"), oriented perpendicular to Old Bailey Street, provides a substrate for a Banyan seed to lodge, germinate and establish on the vertical habitat. Some surface roots have since extended to the adjacent free-standing brick wall ("brick wall") that marks the site perimeter and runs parallel to Old Bailey Street. The tree has grown up without human assistance, and it does not need human input to continue to survive.

1.2 Wall and soil association

The two walls lie in a narrow corridor between them and a small one-storey building. The trunk base of T10 is resting on the stone wall façade, indicating that the tree started its life on this surface. Some roots have penetrated the stone wall to explore the soil lying behind the stone façade ("retained soil"). Some roots spreading on the brick wall have penetrated the slim gap between the wall toe and the concrete paving to enter the soil in the ground ("ground soil"). The retained soil and ground soil are collective labelled as "companion soil".

1.3 Wall trees are more than wall roots

The wall tree has developed three main types of roots, namely: (1) woody lateral roots the run profusely on the wall surface with some penetration into the companion soil ("lateral roots"); (2) fine fibrous roots that spread in the companion soil lying adjacent to the walls ("feeding roots"); and (3) aerial roots that hang down from the branches ("aerial roots"). Aerial roots remain soft and flexible, unless they are connected to the lateral roots whereupon they become woody.

1.4 Roots determine shoot growth

The tree is relying on the feeding roots that spread in the retained soil lying behind the stone wall and the ground soil below the brick wall to capture

water and nutrient to sustain its life functions. If the soil has sufficient volume and suitable property for plant growth, the wall tree can prosper well. If not, its growth will be retarded. Moreover, it is relying on the lateral roots to grip the two wall surfaces, the gaps between masonry blocks (for the stone wall) and the companion soil to secure a firm anchorage. The growth rate and shoot size of a wall tree relies on and echoes the spread and vigour of its roots.

1.5 Wall tree and wall and soil continuum

T10 is a typical stone wall tree that has intimately intertwined with its vertical habitat. The living tree and the non-living walls-cum-soil cannot be separated without gravely hurting the former. It is technically not feasible to transplant the tree that is literally dwelling on two walls and their two respective soil pockets. The two walls are contiguous but not physically connected. The two companion soil pockets are physically divorced from each other. The ground soil is sitting below the ground at more or less the level of Old Bailey Street. The retained soil is hanging above the adjacent ground level behind the façade of the stone wall.

1.6 Feasibility of transplanting T10

To move T10, two requirements must be fulfilled: (1) taking two wall segments of sufficient dimension to keep most of the lateral roots; and (2) taking two root balls respectively for the retained soil and the ground soil, each of which must contain a sufficient volume of companion soil together with their constituent feeder roots. The four entities (two wall segments and two root balls) must be tightly bound to prevent relative movement between them, and their breakage or disintegration during the move. This pre-transplanting preparatory stage is technically very difficult to accomplish. The tree does not have the outstanding dimensions or qualities to deserve such an elaborate, expensive, unprecedented and unproven transplanting operation.

1.7 Insurmountable technical and site constraints

During the transport stage, the four entities plus the above-ground part of the tree ("the shoot") must be moved en masse as one unit without any relative

movement to each other in the course of lifting and conveyance. Such stringent requirements are unlikely to be satisfied. Any attempt to move would demand heavy lifting machines which require a wide road access, a flat and strong platform, and enough manoeuvring space. These indispensable conditions are unlikely to be satisfied given the cramped condition of the tree site, and the adjacent steeply-sloping and narrow Old Bailey Street.

1.8 Impractical transplanting option

From the above analysis, taken from the arboricultural and the engineering perspectives, it can be concluded that transplanting the wall tree is not a viable option. In view of the rather insurmountable technical and site difficulties, to the best of our understanding, no wall tree has ever been transplanted successfully in Hong Kong and other cities. The expensive and complicated tree shifting operation is unlikely to succeed. Instead, the alternative of keeping the tree at its present site is evaluated.

1.9 Holistic habitat-tree in situ preservation

In situ preservation of T10 must involve protection of both walls and the companion soil in a holistic package. Any damage to the two walls and their companion soil will injure or cut the lateral and feeding roots. As a result, the water and nutrient supply of the wall tree will be reduced. More importantly, the stability of the tree will be seriously compromised. The extreme treatment will push the tree into an irreversible decline spiral, and it may even collapse.

1.10 Co-existence of new road and T10

The feasibility of installing the new access road whilst preserving T10 is could be considered. The gap for the proposed road is barely enough to satisfy the minimum requirements for emergent vehicle access. The entire width of the gap from the ground upwards has to remain clear of obstacles. However, the main branches of the tree begin to grow outwards towards the gap just above the brick wall at about 3 m from the level of Old Bailey Street. The overhanging branches will limit the head room of the proposed road, and disqualify it as an emergency access. Moreover, the roots on the brick wall and in the ground soil will have to be sacrificed, incurring weakening

destabilization of the tree. Thus the co-existence of the new road and T10 is not possible.

1.11 Performance of T10 amongst wall trees

Based on a comprehensive field survey by the author, Hong Kong has about 500 old stone retaining walls mainly found in the Mid-levels of three old districts on Hong Kong Island, namely Wanchai, Central and Western districts. A total of about 1200 trees of different age and size are growing on the ruderal vertical habitats, most of which are Chinese Banyans. T10 with a height of 6 m is considered as a small wall tree. It has the capability to continue its growth but only at a sluggish rate. In comparison, the largest wall Banyan has attained over 20 m tall with many times the crown size of T10.

1.12 Prognosis of T10 development

The key factors that permit meritorious wall tree growth are tall and long wall, old wall, wall composed of large stones, wall made of irregular stones (rubble), wall with a large amount of joints between masonry blocks, and wall sheltered by adjacent notably taller buildings. These inherent wall attributes cannot be found on the subject wall. Due to the highly limited site and soil conditions, the growth rate of T10 has been suppressed and its performance can only be rated as average. The habitat does not provide the right setting for T10 to thrive in the future. The prognosis is that T10 will continue to linger as an average wall tree if it can escape future damages.

1.13 New access road imperative

The adaptive use of the heritage site requires satisfying some fundamental building, safety and functional requirements. Due to elevation difference of the sloping site, at present the only vehicular access is at Hollywood Road. An additional access road, which also serves as the emergency vehicle access, has to be installed. In view of the need to preserve the heritage buildings, the latitude for a suitable location to install a new entrance is extremely limited. The small buildings in front of T10 are found to be little heritage value, and hence they could be demolished to give way to the new entrance. The site

analysis has excluded the possibility of installing a new entrance along the other two edges of the site, namely Arbuthnot Road and Chancery Lane.

1.14 The Choice between outstanding heritage and average wall tree

The size, tree form, performance, and landscape and amenity value of T10, in comparison with the large and robust wall trees in other parts of the city, are on the low side. Due to site and technical constraints, transplanting and in situ preservation cannot be recommended. If the choice is boiled down to demolishing a high quality heritage building or removing an average wall tree in order to install the new access road, the recommended course of action is to preserve the far more valuable cultural structure. Overall, if there is no alternative location to build the new road access, the felling of T10 is deemed an acceptable option.