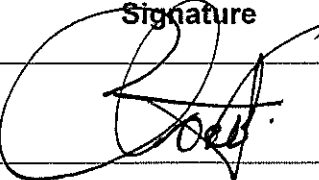


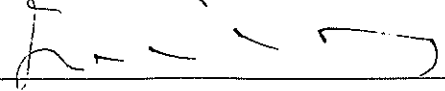


ADI

Development at Former Marine Police Headquarters, KIL 11161 Tsim Sha Tsui

Environmental Permit No. EP – 184/2004 Landscape Mitigation and Tree Preservation Proposal

	Name	Signature	Role	Date
Compiled by	Christopher Foot		Landscape Consultant	18 th April 2006
Checked by	Alison Lee		Landscape Consultant	18 th April 2006
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1.0 Introduction

1.1 This Landscape Mitigation and Tree Preservation Proposal has been prepared for the development at the Former Marine Police Headquarters (FMPHQ), KIL 11161 under the EIAO to fulfil:

- (i) Condition No. 3 imposed under Section 5(12) of the EIAO for permission to apply directly for an Environmental Permit under EIAO; and
- (ii) Condition 2.5 of the Environmental Permit No. EP-184/2004.

1.2 This project is a Designated Project under item Q.1 in Schedule 2 of the EIAO as it involves earthworks and building works partly or wholly in an existing site of cultural heritage. The "Former Marine Police Headquarters Compound" is a declared monument under the Antiquities and Monuments ordinance and is therefore a site of cultural heritage under the EIAO. (Therefore this submission is primarily based on the area within the Declared Monument Boundary (DMB) as shown on **Appendix I: Project Boundary** although information concerning the other trees within the project boundary is also included in order to provide a complete picture of the proposals. Appendix VIII: Scheme Proposal Drawings contains two artist impressions of the current architectural proposals which are intended to demonstrate the future character of the development and its associated landscape.

1.3 The proposal, which supersedes the Landscape Mitigation and Tree Preservation Proposal that was submitted and approved under Condition 2.5 of Environmental Permit No. EP-184/2004 in August 2004, sets out the measures for the preservation and protection of the retained trees, and construction phase and post construction phase monitoring arrangements; and the landscape migration design including the compensatory tree planting proposals; and maintenance proposals for the retained trees and the compensatory tree planting proposals during the operational phase of the project.

2.0 Description of the Proposed Project Changes

2.1 Subsequent to the issuance of the Environmental Permit by EPD in February 2004, a proposed amendment of the Master Layout Plan (MLP) for the development was submitted under the Town Planning Ordinance and it was approved on 11 November 2005.

2.2 The major amendments covered in the MLP approved in November 2005 include the changing shape of the Grand Piazza from circular to elliptical, the provision of a lawn bridge connecting the Main Building with the Signal Tower (Round House), and a new Heritage Hall at the end of the disused tunnel section in the middle of the site which was interpreted from site investigation result. Figure 1-2 shows the latest approved MLP.

2.3 Details of the major amendments to the previously approved scheme approved by Town Planning Board are as follows:

- Construction of the lawn bridge to connect the Main Building area (above the northern commercial podium) with the Signal Tower (Round House) area (above the southern commercial podium) at the podium deck level;
- Changing the shape of the Grand Piazza from circular to elliptical;
- Construction of a new Heritage Hall at the end of a disused tunnel section in the middle of the Site for displaying the history of the Marine Police and the significant historic items of the Site;

- Construction of the new basements underneath the commercial podium for retail/E&M and E&M uses respectively;
- Construction of a new glass atrium structure between two buildings of the Former Fire Station; and
- Provision of a new connection at the south-eastern corner of the Site to the existing pedestrian subway (which is outside the Site) and changing the existing ramp of the subway to a staircase;

2.4 From a landscape and visual perspective some minor revisions to the approved tree preservation proposal were recommended as follows:

- Tree T12 was originally identified for transplantation however a closer inspection of the tree revealed it to be senescent (close to end of its predicted life expectancy) and was found to contain significant decay in the main branches. Given these factors and its likely longevity following the physical trauma of transplantation it was recommended for felling.
- Tree T65 located in close proximity to trees T66 / T67 was originally recommended for felling however this tree will now be retained so as to maximize the greenery visible from the Star Ferry Terminal and the future piazza.
- Trees T104 and T107 were originally identified for felling however upon a detailed review of the recommendations for these trees it was found that they were suitable candidates for transplantation.

(These minor amendments have been incorporated into the Landscape Mitigation and Tree Preservation Proposal that was submitted and approved under Condition 2.5 of Environmental Permit No. EP-184/2004 in August 2004. These amendments were also approved by District Planning Officer / Tsuen Wan and West Kowloon (DPO/TWK) under the delegated authority of the Town Planning Board on 7 April 2005 under Application No. AVK/207);

2.5 Another recommended change to the tree preservation proposal was the proposed underpinning of tree T96 (near Canton Road) which would allow the underlying space to be utilised for a retail and services use. The recommendations for the treatment of tree T96 are described in greater detail under section 5.5 of this report.

3.0 Background of the Tree Protection and Preservation Team

3.1 The project proponent is committed to the retention of a number of significant trees within the redevelopment site in a healthy condition as listed in Table 4.0 Trees to be retained within the project. The persons responsible for their preservation and protection are as follows:

- **ADI Limited – Landscape Consultant**
ADI Limited forms part of the integrated consulting network ADI Group, which is an international landscape architecture, urban design and environmental practice established to bring together design professionals with a common vision from across Asia. With over 80 professional staff in 8 regional offices, ADI Group is able to combine local expertise with international project experience. The Hong Kong office now has six professionally trained landscape architects including three Registered Landscape Architects (RLA) supported by a team of CAD operators, horticulturists and technicians in addition to administrative staff. ADI Limited is ISO 9001 certified in accordance with HKQAA.

The key members of the team from ADI Limited are as follows:

Christopher Chung, BLArch (Toronto), MLI, MICI Arb, ASLA, HKILA, APAP.
Registered Landscape Architect (HK)
Director, ADI Limited

Christopher Chung has practiced as a Landscape Architect for over 17 years. He has strong design skills and undertook the detailed design of Hong Kong Park (Honor Award for Urban Design, The American Institute of Landscape Architects). His experience includes the design of the preservation and protection measures for the large Chinese Banyan at Queensway. Christopher's key responsibility will be in overseeing the design of the hard and soft landscape for the development and as final technical reviewer for landscape related inputs.

Christopher Foot, BA (Hons) LD, BLD, MLI, HKILA (Associate Member)
Chartered Landscape Architect (UK)
Director, ADI Limited

Christopher has fourteen years experience in landscape architecture, with nearly seven years in Hong Kong. He currently leads ADI's team dedicated to environmental projects. His previous experience includes the LVIA for the KCRC Spur Line, KCRC East Rail Extensions from Hung Hom to TST, NENT and SEKD studies. Prior to coming to Hong Kong he was part of the landscape team winning the Project Awards for the South Wales Millennium Coastal Park, Landscape Institute (UK) Award for Design 2002. Christopher's key responsibility will be to ensure that the recommendations made in the Landscape and Visual Impact section of the Project Profile are implemented. This includes the recommendations made for the preservation and protection of the large trees within the site.

Alison Lee, BA, MLA, HKILA
Registered Landscape Architect (HK)
Director, ADI Limited

Alison Lee has over ten years of landscape design experience in Hong Kong and is very experienced in projects requiring tree protection and preservation. Her current project portfolio includes the District Open Space in Areas 3 & 8 Tsing Yi for ArchSD. Her previous experience includes the ArchSD Conceptual Design and Feasibility Study for Ma On Shan Promenade in Area 90, Ma On Shan, DOS, Ma On Shan 125 LS, Area 100 Shatin and ArchSD Ping Shek Playground. Alison's role in this project will involve the day to day responsibilities for the landscape aspects of the project.

- **Oriental Landscapes Limited – Specialist Landscape Contractor**

The team at Oriental Landscapes Limited has been preserving, protecting and transplanting mature trees in Hong Kong for over 25 years. Oriental has more recently pioneered new methods of transplanting very large trees successfully within construction sites which would otherwise have to be felled. The use of modern technology sound arboricultural techniques and scientific principles to preserve trees on difficult sites combined with a team of qualified managers and technically competent personnel forms the basis of the physical approach to successfully preserving trees.

The key members of the team from Oriental Landscapes Limited will be Mr. Ian Robinson. Mr. Robinson is the Director of Oriental Landscapes, a Member of the Institute of Horticulture and Part-time Assistant Professor with the University of Hong Kong's Master of Landscape Architecture course. Mr. Robinson has over 30 years of Landscape Management experience and has been advising on tree care issues and the management of trees in the urban areas for over 20 years in Hong Kong.

Oriental Landscapes Limited will be the specialist landscape contractor to undertake the preparation works for the existing trees to be retained, and to monitor and maintain tree health during the construction works and during the establishment period following the completion of these works.

- **Professor C.Y. Jim – Third Party Tree Specialist**

BA (First Class Hons), PhD, Cert. Hydrology, MSc SoilSci, FArborA, FLS, CSci, JP
Chair Professor, Department of Geography, The University of Hong Kong, Pokfulam Road, Hong Kong.

In addition to his academic responsibilities Professor C.Y. Jim has been active in the promotion of greening in Hong Kong particularly in respect to the planting of new trees and the protection of existing trees. His core research interests include urban ecology, interfacing with urban forestry and urban greening, urban design and landscape planning, soil science, and environmental impacts of recreation and tourism, with a geographical focus on Hong Kong and south China region. His is also widely published in specialist journals encompassing the full range of his research interests in addition to his authorship of a number of key landscape and tree related books. Professor Jim has also developed an expertise in the practical application of his research through involvement in numerous tree reservation and protection projects.

In his role as Third Party Tree Specialist Professor Jim will review and approve all designs and procedures for the protection and preservation of the existing trees, and provide an additional level of monitoring during the construction and establishment periods.

- **Environmental Team and Independent Environmental Checker**

The duties of the Environmental Team (ET) and Independent Environmental Checker (IEC) with respect to the environmental monitoring and audit requirements during construction are described in detail in the Environmental Monitoring and Audit Manual (EM & A Manual).

All relevant measures recommended in Landscape Mitigation and Tree Preservation Proposal during the construction phase shall be fully and properly implemented on site by the Contractor with the advice of the qualified or registered landscape architect associated with the AR and shall be certified by the ET and verified by the IEC. A photographic record of the completed mitigation for landscape and tree preservation works shall be submitted at monthly intervals by the ET to Contractor and subsequently to the AR/ Permit Holder for submission to the Director of EPD for reference throughout the construction period.

The ET shall place the monitoring reports for landscape mitigation and tree preservation works and the photographic records on the project web page (as described in Condition 6.2 of the EP) maintained by the Permit Holder as part of the monthly EM&A reports for the Project.

All measures recommended in the Landscape Mitigation and Tree Preservation Proposal as approved under Condition 2.5 of the Environmental Permit shall be fully and properly implemented on site and verified by the IEC before the commencement of the operation stage of the project

4.0 Preservation and Protection of Existing Trees

4.1 A key consideration driving the design of the successful Tender Scheme was the retention of the significant mature trees to ensure their continued contribution to the landscape character and visual amenity of the development site and its local urban context. Table 4.0 below provides details of the trees identified for retention. **Appendix II: Tree Location and Recommendation Plan** refers.

Table 4.0: Trees to be retained within the Proposed Development

Tree No.	Botanical Name	Chinese Name	Tree Diameter	Height	Spread
T1	<i>Livistona chinensis</i>	蒲葵	0.23m	7.0m	5.0m
T3	<i>Livistona chinensis</i>	蒲葵	0.22m	7.0m	5.0m
T6	<i>Livistona chinensis</i>	蒲葵	0.20m	8.0m	5.0m
T8	<i>Livistona chinensis</i>	蒲葵	0.22m	8.0m	5.0m
T10	<i>Bischofia trifoliata</i>	重陽木	1.10m	18.0m	12.0m
T54	<i>Ficus microcarpa</i>	細葉榕	1.26m	14.0m	18.0m
T65*	<i>Litsea glutinosa</i>	潺槁樹	0.22m	8.0m	5.0m
T66* / T67*	<i>Ficus microcarpa</i>	細葉榕	3.00m	20.0m	20.0m
T96*	<i>Ficus microcarpa</i>	細葉榕	1.20m	20.0m	20.0m
T120*	<i>Celtis tetrandra subsp. Sinensis</i>	朴樹	0.30m	12.0m	7.0m
T121*	<i>Celtis tetrandra subsp. Sinensis</i>	朴樹	0.70m	12.0m	10.0m
T122*	<i>Celtis tetrandra subsp. Sinensis</i>	朴樹	0.50m	8.0m	6.0m
T124*	<i>Ficus microcarpa</i>	細葉榕	0.70m	13.0m	10.0m
T125*	<i>Ficus microcarpa</i>	細葉榕	0.70m	13.0m	4.0m
T126*	<i>Ficus microcarpa</i>	細葉榕	0.70m	12.0m	7.0m
T127*	<i>Ficus microcarpa</i>	細葉榕	0.30m	12.0m	7.0m
T128*	<i>Ficus microcarpa</i>	細葉榕	0.80m	10.0m	8.0m
T129*	<i>Livistona chinensis</i>	蒲葵	0.17m	4.0m	3.0m
T131*	<i>Ficus superba</i>	筆管榕	0.50m	12.0m	7.0m
T132*	<i>Celtis tetrandra subsp. Sinensis</i>	朴樹	0.26m	8.0m	5.0m
T134*	<i>Ficus variegata</i>	青果榕	0.24m	9.0m	5.0m
TA1*	<i>Ficus microcarpa</i>	細葉榕	0.10m	4.5m	2.5m
TA2*	<i>Morus alba</i>	桑樹	0.18m	9.0m	4.0m

Note: Trees identified with an asterisk are located outside the Declared Monument Boundary. All proposals are subject to the approval of the formal Tree Felling Application submitted on 18th August 2003.

4.2 The roots, trunk and canopy of the retained trees will be protected throughout the construction period through the implementation of the measures listed below. **Appendix III: Construction Sequence** shows the key stages in the preservation of the existing large trees taking T96 as an example, in addition to T10 to show the proposed underpinning and T54 for the approach to the piling operations below a relatively low crown. In addition a series sectional drawings, located in the same appendix, show the tree preservation proposals for each of the large retained trees (T10, T54, T65/T66/T67,

T96 and T120/T121/T122) at the completion of the project. The key tree protection and preservation measures are as follows:

- In order to protect the retained trees during the construction works a circular protection zone known as the 'Cordon Area' will be established around the base of the tree equal to the extent of the retained root zone. The Cordon Area is designed to prevent unauthorised access to the tree and to protect the soil and roots therein from disturbance. It will be protected by chain link fencing some 2.5m in height, with padlocked gates. It will be closed to all construction activity apart from the proposed tree preservation works and prevent potentially detrimental activities such as the storage of materials including fuel, the movement of construction vehicles, and the refuelling and washing of equipment occurring within the area of the tree canopy.

The retained trees, particularly the root systems, are also potentially sensitive to runoff and contamination from adjacent construction activity. Therefore measures will be implemented to prevent runoff from adjacent construction activities entering the root zone of the retained trees. The measures include the protection from contamination of pruned root systems from the effects of poured concrete or cement run-off during the pile / caisson construction works. In addition to the measures described above the roots will be protected through the use of waterproof membrane placed between the retained rootball and the proposed casting associated with the concrete caisson.

Appendix VII: Typical Sections showing Tree Protection Measures shows the proposed measures for each phase of the construction stage of the project including:

- Stage 1: Prior to the proposed piling operations**
Protection measures include the erection of 2.5m chain fence with lockable gates located outside the proposed root pruning trenches demarcated by the Cordon Area. The metal uprights will be bolted to the existing concrete hard standing and so not encroach on the retained root zone. A protective rim will be formed through the use of a waterproof membrane held in place by a cast in-situ concrete kerb.
- Stage 2: During piling operations**
Protection measures include the erection of a bamboo scaffold with transparent waterproof membrane weighted down at the base with sand bags to prevent runoff from the piling operation entering the protected root zone. The scaffold structure will not encroach on the preserved root zone.
- Stage 3: During the site formation contract**
Protection measures include the erection of 2.5m chain fence with lockable gates to prevent unauthorised access located along the alignment of the proposed pipe piles. The uprights will be welded to the top of the pipe piles and so not encroach on the preserved root zone. This will form the new Cordon Area.
- Stage 4: During the superstructure contract**
Protection measures include the retention of the 2.5m chain fence with lockable gates to prevent unauthorised access located along the alignment of the proposed pipe piles. A waterproof membrane will be fixed to the lower section of the fence, draped over the piles and extending to a depth of 0.5m creating an overlap with the waterproof membrane positioned during the root pruning operations.

- Where possible measures will be taken to ensure that plumes of exhaust fumes, smoke and heated air generated by construction vehicles, machines and equipment will not drift into the Cordon Area.
 - Measures will be undertaken to ensure that lifting equipment with cable, pulley gears and haulage will not sail above the Cordon Area.
 - The root collar of each tree shall be marked prior to the commencement of works to ensure that the finished soil level after the completion of the works will be the same as the marked collar level.
- 4.3 The preparation works for the root material will be partly compensated for by a limited removal of foliage through careful and selective crown thinning rather than a reduction process. This allows the tree to balance its ability to take in nutrients and moisture with the energy it expends and the water lost through transpiration. The tips of the branches where root-promoting hormones are produced naturally in trees are kept intact so that the trees can continue to send biochemical signals to the roots to generate new fibrous within the rootball. By keeping the bulk of the foliage and by increasing the water supply through a scheduled irrigation programme, the transpiration need of the trees could be met and the photosynthetic rate will not be unduly suppressed. Thus the trees can be continue to maintain their food manufacturing capability at a higher level which is pertinent to counter the effect of root pruning and to supply energy and nutrition to grow the new fibrous roots within the trench and the rootball. Previously many such crown reductions have involved the loss of significant branches thus severely degrading the trees form and amenity value. However current practice involves the removal of only a small amount of the foliage which has a temporary effect similar to a deciduous tree losing its leaves during the autumn and winter. This allows the tree to retain its form and amenity value, and as with the coming of spring the leaves will grow again returning the tree to its former appearance. However some pruning will be required to remove dead, broken and crossed and decayed branches in accordance with good arboricultural practice and public safety considerations. The pruning sites will be treated to prevent infection.
- 4.4 Demolition works within the Cordon Area for the retained trees will leave the existing hard paved surfaces and building foundations intact until the proposed root pruning operations are commenced. The hard paving in the mean time serves to shield the soil and roots from compaction and contamination. At that time the breaking out of hard paved areas and foundations within the Cordon Area should be undertaken by hand to prevent damage to the existing root structure of the trees identified for retention and transplantation. Exposed roots shall be backfilled as soon as possible to prevent desiccation with a suitable growing medium and the soil thoroughly watered. The backfilling depth shall not exceed the existing ground level using the root collar marking described above as a guide. Where immediate backfilling cannot be undertaken the roots should be covered with wet Hessian cloth to prevent desiccation.
- 4.5 In terms of the proposed piling required to enclose and protect the retained rootball the operation will utilise pipe piles, a process which involves drilling / boring rather than pile driving, this will protect the existing root ball from vibration which could loosen the soil around the roots or cause mechanical damage to them. In addition the pipe piles will be in sections which will be fitted together during the piling operation reducing their height in relation to the tree canopy thus protecting the crown from damage. The proposed piling will take place beyond the prepared rootball.
- 4.6 An important concept behind the design of the planting medium for trees T10 and T96 is that in the future the roots will be able to extend into the planting beds upon the surrounding landscape deck. This will be achieved through the removal of the top 1.5m of the pipe piles creating a direct interface between the rootball and the surrounding growing medium. In addition tree T54 will be connected to the main landscaped area on the proposed deck of the superstructure through the use of a 1.5m deep soil bridge. These proposals allow for the future growth of the roots and hence the trees will continue to grow in size. The ground plane around the base of the tree trunks will be initially be formed by planting beds and then porous materials allowing water to percolate to the roots and gaseous exchange with the soil.
- 4.7 During the construction and operational phases the trees will be monitored to ensure that their continued health. The maintenance operations will include applications of fertiliser to maintain soil fertility and irrigation to maintain soil moisture levels. The proposed monitoring will allow the specialist landscape contractor to fine tune these inputs to ensure an optimum tree health condition.
- ## 5.0 Specific Tree Protection and Preservation Measures
- ### 5.1 Trees T1, T3, T6 and T8
- 5.1.1 Trees T1, T3, T6 and T8 (*Livistonia chinensis*) located along the southern face of the main heritage structure contribute to the colonial character of the building. It is likely that given the species and their size the existing rootball will not extend beyond a diameter of 2m therefore the retention of the existing bed will be sufficient to preserve the existing root zone. This area has been enclosed with a chain link fence to prevent unauthorised access. During restoration activities to the building façade the trees and the soil bed will be protected using a scaffolding frame covered with translucent waterproof sheeting or membrane. This will prevent both chemical and mechanical damage to the trees during the conservation of the building façade whilst maintaining solar radiation access and gaseous exchange needed for continued photosynthesis and respiration.
- 5.1.2 Following the completion of the construction works the bed containing the retained palm trees will be planted with ground cover plants to enhance the landscape setting of the southern façade of the main heritage building.
- ### 5.2 Tree T10
- 5.2.1 Tree T10 (*Bischofia trifoliata*) makes an important contribution to both the visual amenity of the site and the setting of the main heritage building. The location of the proposed X, Y, Z to the north of tree T10 will necessitate the creation of an open area below the trees and therefore its rootball will require underpinning using horizontal piles. However the underpinning proposals will retain the topsoil around the rootball to a depth sufficient to retain the roots and allow for its continued healthy growth. As far as possible the soil around the roots will be kept immobile during the piling operations to prevent any damage to them.
- 5.2.2 Tree T10 is currently growing approximately 1m from the edge of the existing retaining wall lining Kowloon Park Drive and so it is likely that the present pattern of the root spread reflects this situation. Therefore the existing root zone is likely to be asymmetrical with the majority of the roots extending to the west of the trunk. **Appendix IV: Tree Preservation Proposals** provides details of the dimensions of the retained rootball. This species (*Bischofia trifoliata*) is less tolerant to disturbance than the Chinese Banyans (*Ficus microcarpa*) which make the other significant trees within the site. The size of the proposed retained rootball will be equal to the extent of the existing crown and respond to the existing drip line with the final dimension of 12m in diameter and 3m in depth. The proposed temporary removal of foliage will be based on a maximum of 10% of the existing foliage to compensate for the loss of root material. The proposed back filling of the eastern

portion of the rootball will be undertaken following the completion of the construction phase of the project. The present shotcrete skin and associated steel mesh will be manually broken and removed, and the exposed soil surface will be scarified before backfilling is conducted.

5.2.3 Tree T10 will be underpinned and the process will commence with securing the perimeter of the retained rootball with temporary vertical walls. Pipe piles will be driven vertically to enclose the rootball soil. The area outside the piles will then be excavated on one side to expose the vertical pipe piles. Horizontal pipe piles are then driven into the soil at the level of the rootball bottom. The perimeter and bottom pipe piles are secured with by additional steel members (H-beams) to create a strong and rigid container to hold and protect the soil. The horizontal piles are supported using vertical piles near but outside the retained rootball. The underlying soil is then removed to permit the building of the architectural structure below. The roof plate is built below the rootball with adequate drainage installed. The supporting steel members will then be removed on the completion of the surrounding architectural structure. At this point the top 1.5m of the vertical pipe piles will be removed to create an interface with the surrounding 1.5m depth of planting medium. This will effectively increase the size of the container in which the root system is contained allowing for the future growth of the tree. The area to the east of the trunk formerly shaped to respond the retaining wall lining Kowloon Park Drive will be filled to the level of the root collar allowing for root future growth that hitherto has not been possible. To allow the roots there to get used to burial by soil, the backfilling will be conducted in three stages, each adding 1 m of soil and separate from the ensuing stage by at least six months.

5.2.4 The soil below the tree crown will be covered by a combination of planting bed (open soil) immediately around the base of the trunk and porous paving beyond allowing water percolation and gaseous exchange with the soil. It is recommended where pedestrian circulation and structural considerations allow that this open soil area be equivalent two thirds of the trees original crown size. The rootball of tree T10 will be situated at grade and will appear to be growing in its natural position. The space below the tree in the shade cast by its crown will be utilised for a shaded seating area.

5.3 Tree T54

5.3.1 The Chinese Banyan (T54, *Ficus microcarpa*) located in the centre of the site is important in establishing the landscape character of the site. Although screened in many views available to pedestrians at the periphery of the site it is important in determining the visual amenity of the development in internal views particularly those from the main heritage building and in elevated views from the surrounding buildings.

5.3.2 This species (*Ficus microcarpa*) is particularly robust and this ability to survive extensive pruning is evident in a number of previous projects throughout Hong Kong.

5.3.3 The proposals for the retention of tree T54 will involve the creation of asymmetrical rootball based on the requirements of continued tree health and taking into consideration all of the existing site constraints and the proposals for the future development. These include for example the KCRC KSL reserve which has been fully considered within the design of the tree preservation proposals and so there is no conflict between the two schemes. Another factor determining the size and shape is the maximisation of the open space available for the Grand Piazza. **Appendix IV: Tree Preservation Proposals** provides details of the dimensions of the retained rootball. The design of the proposed area available for the roots of T54 will incorporate three main elements. The first is

the creation of a 9m diameter solid core extending through the existing soil to the existing bedrock below. The second is the creation of a soil bridge extending from the 9m wide solid core west to the proposed landscape deck providing for future root growth. The third is the creation of a cantilevered structure some 3m from the top of the solid core extending the future rootball diameter to 12m. In addition the provision of 1.5m soil depth in the soil bridge will allow for the future growth.

5.3.4 There will be a temporary removal of foliage based on a maximum of 10% of the existing foliage to compensate for the loss of root material. The aerial roots hanging vertically from the primary branch to the roof of the existing bungalows situated on the southern side of the tree will be planted into the growing medium at the base of the tree.

5.3.5 The base of the tree and the soil bridge will be lined with wooden decking allowing pedestrian access to the trunk and preventing compaction of the soil in the root zone. This area will feature decorative seating allowing visitors to sit in the shade of its crown.

5.3.6 The other large retained trees within the site identified for retention (T65/T66/T67, T96, T120/T121/T122, T124 - T129, T131, T132, T134, TA1 and TA2) described below are outside the Declared Monument Boundary.

5.4 Trees T65 / T66 / T67

5.4.1 These trees (T65, *Litsea glutinosa* and T66 / T67, *Ficus microcarpa*) are key to the views of the site from the Star Ferry terminal and provide an important green element in views south along Canton Road and west along Salisbury Road. One of the key features of these trees apart from their impressive canopies is the visible root structures growing on the rock outcrop located to the southwest of the site. These will be retained and continue to provide a focal point at the pedestrian level.

5.4.2 The preservation of these trees will involve the protection and retention of the visible roots and retaining the rock outcrop to the north and east to provide for the mechanical stability of the tree and provide sufficient growing medium for the tree's continued health. The existing crown diameter of Trees T66 / T67 is approximately 20m with large part of the crown overhanging the junction of Canton and Salisbury Roads. The retained rootball will be approximately 10m by 12m and triangular in shape responding to the existing landform. The edge of the retained rootball will conform to the existing drip line. **Appendix IV: Tree Preservation Proposals** provides details of the dimensions of the retained rootball. The canopy of Tree T65 falls within the same area as trees T66/T67 and so measures to preserve and protect these trees also apply to T65. The temporary removal of foliage will be a maximum of 10% of the existing foliage to compensate for the loss of root material. It is likely that trees T66 / T67 will require some tree surgery including the cutting back of dead and decayed areas of the trunk and main branches. The purpose of this pruning is ensure public safety and maintain tree health. The extent of the pruning will be determined following the completion of the baseline study. For any pruning work which involves the removal of branches (other than branchlets and twigs), DLO consent will be sought prior to the commencement of the operation.

5.4.3 At street level a 500mm wide section of the pavement portion within the site boundary of Lot KIL11161 which abuts to the existing root structure of the trees will be carefully removed and the void backfilled with soil. This measure will allow the roots to continue to develop.

5.4.4 The existing shotcrete surface and the wire mesh contained therein on the retained section of the original landform around the base of the trees will be broken up and removed by hand. The exposed soil will then be very lightly scarified with manual tools if found necessary to no more than

5 cm depth. A 10 cm layer of topsoil enrich with fully matured compost will be laid on the surface to improve the soil condition for long-term plant growth. The area will then be planted with ground cover plants to soften its appearance, and enhance water percolation and gaseous exchange with the soil.

5.4.5 These trees are located in a prominent position near the junction of Canton Road and Salisbury Road and so the proposed design of this area will be carefully considered to ensure that the tree retaining structure is visually integrated with the main superstructure. The corner of Canton Road and Salisbury Road will be paved in natural granite to create a distinctive nodal point. This distinctive quality will be enhanced through the use of decorative uplighting to create a nocturnal focal point.

5.5 Tree T96

5.5.1 One of the key features of views along Canton Road is tree T96 (*Ficus microcarpa*) with its canopy extending into the space above the road. In views along Canton Road the tree is visually linked to trees T120, T121 and T122 in views north and trees T66 / T67 in views south. The tree also provides a visual balance with tree T10 in views of the decorative southern façade of the main heritage building.

5.5.2 It is proposed that tree T96 will be underpinned to create space below the retained root ball. This varies from the approved scheme in that it was originally proposed that T96 be retained within a solid cylinder of soil extending down to the underlying rock. However, as the majority of any trees roots are contained within the top 2m of the topsoil this method does not hold significant benefits for the tree from a horticultural perspective. The soil that lies under the tree rooting zone serves mainly to receive the drainage water drawn down by gravitational pull especially during heavy rains or after irrigation. The underpinning proposal includes an effective drainage system at the bottom of the concrete container to shed drainage water efficiently and prevent water ponding within the rooting zone (Appendix III Figure 5). The main benefits of the new approach arise from the preservation of as large a rootball as possible in addition to the creation of an enlarged area for root growth following the completion of the proposed landscape deck. These measures and their resultant benefits remain the same as those approved under the previous Section 16 Application and the Phase 2 Tree Preservation Proposal.

5.5.3 The method selected for the underpinning procedure will follow the approved method for tree T10. However it should be noted that *Ficus microcarpa* (T96) is a more robust species than *Bischofia trifoliata* (T10) and so the tree is better able to withstand any potential disturbance. **Appendix IV: Tree Preservation Proposals** demonstrates the proposed approach to the horizontal piling and 'Construction Sequence for Large Retained Tree T96, 5: Completion of Construction Works for Tree T96' shows the proposed treatment for T96 following the completion of the construction phase of the project.

5.5.4 The underpinning proposals will retain the soil within a protected rootball to a depth of 2.75 m which is sufficient to retain a significant proportion of the roots and allow for the trees continued healthy growth. This proposed soil depth is based on recent research findings in tree science, the consultant's previous experience and the depth of the existing roots observed during the pruning exercise required to form the preserved rootball.

5.5.5 The approved diameter of the preserved rootball for T96 will be increased to 13m so as to accommodate the surficial roots on the western (Canton Road) side of the tree. This is at present a cut slope situated close to the trunk base, and as a result root growth is limited in this direction. The cut slope there will be preserved intact although the soil volume will be extended to facilitate root

growth to the west and permit a substantially improved soil environment for future root expansion. This will create a more balanced root growth in the future as the tree's roots expand to fill the available space. We anticipate that with this relief from a long-standing straitjacket on root growth on the west side, the tree will be able to thrive better in the future. While to the northern, eastern and southern sides of the tree the 9m radius of the approved dimension approved for the preserved rootball will be maintained.

5.5.6 A concrete ring will be formed around the preserved rootball of tree T96 to maintain its physical integrity throughout the construction phase of the project. Once this is completed the underpinning would commence with the use of bored horizontal piles. The depth of the retained soil, at 2.75m deep, extends down from the existing soil level at the base of the tree trunk. The horizontal piles will be inserted individually so that the integrity of the rootball can be monitored throughout the operation. As far as possible the soil around the roots within the rootball will be kept immobile during the piling operations to prevent any root disturbance or damage. Once the piling is complete the piles will be secured in place through the use of additional steel members (H-beams) to create a strong and rigid container to hold and protect the soil. The underlying soil will then be removed to permit the building of the architectural structure below. The roof plate will be built below the rootball with adequate drainage installed. The supporting steel members will then be removed on the completion of the surrounding architectural structure. At this point the top 1.5m of the concrete ring will be removed to create an interface with the surrounding 1.5m depth of planting medium. This will effectively increase the size of the container to the north, east and south in which the root system is contained allowing for the future growth of the tree. The area to the west of the trunk formerly shaped in response to the existing slope profile lining Canton Road will be filled to the level of the root collar allowing for root future growth that hitherto has not been possible.

5.5.7 As with the approved proposals for tree T54 the soil below the tree crown will be covered by a combination of planting bed (open soil) immediately around the base of the trunk and porous paving beyond allowing water percolation and gaseous exchange with the soil. It is recommended where pedestrian circulation and structural considerations allow that this open soil area be equivalent to at least two thirds of the tree's original crown diameter. The space below the tree in the shade cast by its crown will be utilised for a shaded seating area.

5.6 Trees T120, T121 and T122

5.6.1 The trees located in the northwest corner of the site (T120, T121 and T122, all of which are *Celtis tetrandra* subsp. *Sinensis*) play an important role as a group both in the setting for the main heritage structures and in views along Canton Road. These trees are currently growing on the slope lining Canton Road. Due to their proximity these three trees will be treated as one for the purposes of the preservation proposal. Again the reserve for the KCRC KSL has been fully considered in the design of the tree preservation proposals and so there is no conflict between the two schemes. The preservation of these trees will employ the asymmetrical rootball concept with all of the existing rootball to the north and east being preserved. Whilst the retained rootball to the south will extend approximately 3m and 2m to the west adopting the same principle as that utilised for trees T10 and T96. The existing roots along the southern and western sides will be pruned adopting a similar phased approach to that utilised for trees T10 and T54. **Appendix IV: Tree Preservation Proposals** provides details of the dimensions of the retained rootball. The alignment of the proposed piling will be situated outside of the proposed root pruning trenches indicated on Appendix IV as with the other preserved trees described above.

5.6.2 The temporary removal of foliage will be a maximum of 10% of the existing foliage to compensate for the loss of root material. It is proposed that the lower branches of tree T122 are pruned, as they

will be in conflict with the architectural proposals for the Canton Road façade. The wounds will be treated to prevent infection.

5.6.3 The area above the proposed retained rootball will be planted with ground cover plants and shade tolerant shrubs to enhance the setting of the landscape adjacent to the main heritage structures and ensure a porous surface allowing water percolation and gaseous exchange with the soil.

5.7 Trees T124 - T129, T131, T132, T134, TA1 and TA2

5.7.1 The trees lining the northern boundary (T124 - T129, T131, T132, T134, TA1 and TA2, all *Ficus microcarpa* with the exception of T129 – *Livistona chinensis*, T131 – *Ficus superba*, T132 – *Celtis tetrandra subsp. Sinensis*, T134 – *Ficus variegata*, and TA2 – *Morus alba*) of the site will all be preserved as part of the proposals. Prior to the implementation of the No. 1 Peking Road Development these trees were growing on the existing retaining wall and so their existing root structure is likely to be concentrated to the south. In recognition of this the area to the south of the trees will be fenced off preventing any disturbance below the existing crowns. In addition no excavations will be undertaken within this area including for instance trenching for utilities. Again the future surface above the retained root zone will be paved with a porous material. As these wall trees are growing near the top of the retaining wall, their roots are likely to have penetrated the soil underneath the concrete paving. It is probable that the weight of the concrete is providing a surcharge that contributes to the stability of the trees. We need to be careful in our attempt to remove or replace the existing concrete paving, which is worn and cracked, to forestall possible toppling of the trees as result of losing their 'counterpoise'.

5.8 Tree TA69

5.8.1 The remaining section of the trunk of Champion Tree, Tree No. 248 *Phoenix dactylifera* identified and recorded by Professor C. Y. Jim [Champion Trees in Urban Hong Kong, Urban Council 1994 – C. Y. Jim] located in the planting bed on the southern side of the main heritage building will be cut to a height of 1m above the existing ground level (for safety reasons) and retained in-situ. A plaque will be installed to record its historical significance.

6.0 Tree Transplanting Proposal

6.1 Based on the Phase 2 Tree Preservation Proposal some 19 trees affected by the building works for the successful Tender Scheme are proposed for transplantation. The trees include species such as *Aleurites moluccana*, *Bischofia trifoliata*, *Celtis tetrandra subsp. Sinensis*, *Eucalyptus torelliana*, *Litsea glutinosa* and *Livistona chinensis* that were all assessed as being in good to fair condition. Of these trees 70% are *Livistona chinensis*. Table 6.0 below provides details of the trees identified for retention. **Appendix II: Tree Location and Recommendation Plan** refers.

Table 6.0: Trees Identified for Transplantation

Tree No.	Botanical Name	Chinese Name	Tree Diameter	Height	Spread
T9	<i>Livistona chinensis</i>	蒲葵	0.20m	8.0m	5.0m
T14	<i>Livistona chinensis</i>	蒲葵	0.25m	9.0m	5.0m
T17	<i>Litsea glutinosa</i>	潺槁樹	0.20m	7.0m	5.0m
T32*	<i>Livistona chinensis</i>	蒲葵	0.16m	2.0m	1.0m
T34*	<i>Livistona chinensis</i>	蒲葵	0.24m	6.0m	5.0m
T35*	<i>Livistona chinensis</i>	蒲葵	0.24m	7.0m	5.0m
T55	<i>Eucalyptus torelliana</i>	毛葉桉	0.24m	7.0m	5.0m
T73*	<i>Celtis tetrandra subsp. Sinensis</i>	朴樹	0.33m	9.0m	6.0m
T75*	<i>Livistona chinensis</i>	蒲葵	0.19m	7.0m	4.0m
T79*	<i>Livistona chinensis</i>	蒲葵	0.22m	9.0m	4.0m
T80*	<i>Livistona chinensis</i>	蒲葵	0.21m	9.0m	4.0m
T98*	<i>Livistona chinensis</i>	蒲葵	0.23m	4.0m	3.0m
T99*	<i>Livistona chinensis</i>	蒲葵	0.17m	6.0m	6.0m
T100*	<i>Livistona chinensis</i>	蒲葵	0.15m	3.0m	2.0m
T102*	<i>Livistona chinensis</i>	蒲葵	0.17m	4.0m	2.0m
T104*	<i>Litsea glutinosa</i>	潺槁樹	0.11m	4.0m	3.5m
T107*	<i>Bischofia trifoliata</i>	重陽木	0.17m	8.0m	6.0m
T111	<i>Livistona chinensis</i>	蒲葵	0.20m	6.0m	4.0m
TA66	<i>Livistona chinensis</i>	蒲葵	0.25m	3.0m	2.0m

Note: Trees identified with an asterisk are located outside the Declared Monument Boundary. All proposals are subject to the approval of the formal Tree Felling Application submitted on 18th August 2003.

6.2 At this stage it is anticipated that the trees will not be transplanted directly into their final locations within the site during the construction phase. This is largely due to the spatial constraints within the site during the site formation and construction works. Therefore the trees will be transplanted off-site to a temporary holding nursery up until such time that the final transplant locations become available.

6.3 A high profile project of this nature requires that any trees planted within the site be high quality trees that exhibit excellent form, health and condition. It is likely that a number of the trees to be transplanted while healthy do not possess the high quality form required of the planting material for this project. A detailed assessment will be made on a tree-by-tree basis during the tree-transplanting phase as to which trees meet the quality requirements of this project, and therefore can be transplanted back into the site. Once the detailed architectural and engineering layouts for the scheme proposals have been finalised the locations for the transplanted trees will be determined and a Master Landscape Plan showing these proposals together with the hard and soft landscape proposals will be forwarded to the relevant government departments for their information.

6.4 For the remaining trees that do not meet the quality standards required of the planting material for this project, liaison with the relevant government departments will be carried out to obtain agreement on the final transplant locations outside of the site. It is possible that these trees will be planted in near-by locations such as a local open space. In these locations, it is envisaged that these trees will be planted as part of a group rather than stand alone specimens as so their individual form is less important, and obvious. Again once these arrangements are finalised the information will be forwarded to the relevant government departments.

6.5 At least 60% of the trees identified for transplantation will be replanted within the site following the completion of the construction phase works. As has been described above the final recipient locations for these trees will be determined during the detailed design stage once the architectural and engineering schemes have been finalised. However, preliminary locations for the transplanted trees include the proposed planting area located between trees T96 and T120. In this location the transplanted trees would contribute to the restoration of the green edge effect along the periphery of the development particularly when viewed from Canton Road and the sense of enclosure created within the formal garden to the west of the main heritage building. Following the completion of the detailed design a Master Landscape Plan submission showing the final locations for the transplanted trees will be circulated to the relevant government departments.

7.0 Monitoring of the Health of the Retained Trees

7.1 A fundamental requirement for the preservation of the existing trees on site is the monitoring of health condition and the state of the protective measures throughout the construction and establishment phases of the project. The monitoring of the retained trees will adopt the approach outlined below.

Baseline Study

7.2 Prior to the commencement of the construction phase activities a detailed baseline survey of the retained trees will be undertaken. The principal objectives are to assess the current status of the trees to provide a yardstick against which future change can be measured and to identify the symptoms and signs that might point to the need for preventive and proactive tree care.

7.3 The health status of each tree will be assessed, specifically to check whether the root collar (at trunk base) and the lower part of the trunk have been infected by wood decay fungi, and whether the trunk has developed cavities or weakened by poorly-healed wounds. This could be accomplished using a non-invasive method (Sonic Tomography and / or micro-drill instruments) to produce cross-sections of internal wood conditions. In addition there would be a measurement of soil moisture and soil nutrient status to assess the condition of the existing growing medium. A detailed photographic survey will also be undertaken.

7.4 Such measurements will be needed for the four most outstanding trees, namely T10, T54, T66/67 and T96. The baseline study would also be used to determine the exact boundaries of the cordon areas around the trees. The baseline study will utilise a methodology which can be replicated in the successive monitoring reports.

Construction Phase Monitoring

7.5 During the construction phase the monitoring will be based on two distinct levels of assessment for both the preserved and transplanted trees. The first is a weekly visit by the Landscape Architect to monitor the activity of the contractors to ensure the proposed tree protection measures are not

compromised. The second level of assessment will involve a joint monthly visit by the Landscape Architect and Third Party Tree Specialist to monitor tree health. These visits will be recorded using a standard proforma established during the baseline study and compiled into a monthly report. This monthly report will be submitted to EPD as part of the EP requirements together with a photographic record for each tree.

7.6 In addition to the weekly / monthly visits the Landscape Architect and Third Party Tree Specialist will undertake ad hoc visits should anything happen to the trees that warrants immediate attention, or before the initiation of any construction activities that may have deleterious impacts on the trees. It is intended that a fast-response monitoring system is established whereby arboricultural problems can be prevented, and where this is not possible are promptly tackled or rectified.

7.7 The key construction activities requiring inspection and supervision from the Landscape Consultant and Third Party Tree Specialist are briefly described below. Where operations are likely to affect particular trees these are identified specifically by number. The main operations affecting the existing trees are as follows:

- Tree pruning in preparation for the retention and transplantation of the trees identified in the Phase 1 and 2 Tree Preservation Proposal. This includes both the root and crown pruning. Phase 1 of the Tree Preservation Proposal which specifically describes the proposals for the advanced root and crown pruning of the large trees identified for retention within the site has been approved by DLO (ref: (93) in LND KW 110 / KPA / KW (T)) on 19th March 2004.
- Identification of trees on site to be felled and transplanted in accordance with the Phase 2 Tree Preservation Proposal.
- Preparation works including the pruning of roots and crown for the trees identified for transplantation and their subsequent lifting and transportation to a temporary holding nursery.
- Removal of trees identified for felling ensuring that the operation does not lead to damage of the trees identified for retention and transplantation.
- Piling works around the base of the large trees identified for retention (T10, T54, T65/T66/T67 and T96) to ensure that the retained rootball is maintained intact and that the piling rigs do not interfere with the crowns of each tree. This includes the inspection of the tree protection works.
- Horizontal piling for trees T10 and T96.
- Erection of new fencing around the Cordon Area for each tree (T10, T54, T66/T67 and T96) following the completion of the pipe piling works.
- Site formation works in close proximity to the large retained trees including the proposed soldier piles adjacent to trees T1, T3, T6 and T8, and T120-T122.
- Erection of new fencing around the Cordon Area for each tree (T1, T3, T6 and T8, and T120-T122) following the completion of the piling works.
- Construction of geotechnical works in areas adjacent to large retained trees T65/T66/T67 and T120 - T122. The method of slope stabilisation in each case will be designed to avoid damage to tree roots. Inspections to identify actual extent of roots.
- Refurbishment of the main heritage structure including the treatment of the facades. Inspection of tree protection works to prevent chemical and mechanical damage to the large retained trees in close proximity adjacent to the main heritage structures T1, T3, T6 and T8 along the southern façade of the main building, trees T120-T122 to the west of the stable block and trees T124 -T129, T131, T132, T134, TA1, TA2 located to the north of the main buildings.
- Site formation works in close proximity to the large retained trees including the proposed soldier piles adjacent to trees T1, T3, T6 and T8, and T120-T122.
- Construction of the concrete caisson around the rootball of the large retained trees.
- Construction activities including any in-situ casting of concrete structures in close proximity to the large retained trees.

- Construction of the building superstructure in the vicinity of the large retained trees including the construction of the proposed soil bridge linking the landscaped deck with the rootball of tree T54.
- Removal of the top section of the pipe piles to create the extended root zone for the future growth for trees T10, T54 and T96.
- Construction of the permeable paving and timber deck structures above the root zone of trees T10, T54, T66/T67 and T96.
- Construction of the proposed planting beds for the new planting and transplanted trees.
- Planting works including the replanting of transplanted trees.
- Final cleaning of completed building facades (all planting).
- Establishment works monitoring.

Post Construction Phase Monitoring (Initial 24 Months)

7.8 Following the completion of the construction phase activities, during the initial 24 month establishment phase, a quarterly tree condition report will be produced recording the same tree health data proposed for the Construction Phase Monitoring and this be submitted to EPD. The specialist landscape contractors will also be retained throughout this period to undertake any activities required to maintain tree health.

8.0 Maintenance of Tree Health during the Construction Period

8.1 Tree health will be maintained through the use of applications of artificial fertiliser and through the use of irrigation. A slow release fertiliser will be applied to large trees identified for retention in a feeding band along the edge of the canopy spread. It will be applied between March and June or as determined through the proposed site monitoring. The fertiliser will be applied through the use of small drill holes at an angle, at 450-600mm centres in the feeding bands; they shall be 300-600mm deep and approximately 37-50mm in diameter. Slow release fertiliser shall be inserted in the holes, bulked up if necessary with sand or fine peat, at the rate of 1kg / 25mm of trunk diameter.

8.2 The trees will be watered by hand to maintain the soil moisture levels measured during the construction stage of the project. The exact requirements for each tree will be fine tuned during the construction and initial post construction phases to ensure continued tree health.

9.0 Compensatory Planting Proposal

9.1 The compensatory tree-planting proposal is largely the same as that submitted by the Project Proponent in their successful tender scheme.

9.2 As indicated on the **Appendix V: Landscape Master Plan (LMP)**, the proposed trees forming the basis of the compensatory tree planting proposal are primarily located around the periphery of the site on the upper platform, and at street level along Salisbury Road and Canton Road. The MLP seeks to recreate the green oasis effect that the current site provides within the local landscape. In addition to the transplanted trees, approximately 92 new trees can be accommodated within the current landscape design. This includes approximately 26 ornamental trees as part of the proposed for colonial style garden to the west of the main heritage structure. These ornamental trees will have an upright, columnar form and be clipped to create a topiary effect. A compensatory tree planting ratio of 1:1 cannot be achieved due to spatial constraints. It is important to note that the quantity of trees existing on site is due to the trees growing unnaturally close together, a situation which has been detrimental to the tree form and condition. Therefore an alternative to using this quantitative approach is the qualitative approach, which was adopted for the MLP submitted by the Project

Proponent as part of the successful tender scheme. The qualitative approach is based on increasing the quality and size of a number of the compensatory trees from heavy standard grade to semi-mature grade, rather than focusing on quantity. This approach will ensure that the planting which is included along the east and western boundaries, and the feature tree planting at strategic locations within the piazza and terraced gardens provides the instant mature effect to ensure that the character of the existing landscape is maintained.

9.3 The redeveloped Marine Police Headquarters will be a world-class site, which demands the best quality trees in terms of their size, form and aesthetic appeal that can be provided.

9.4 Semi-mature and heavy standard grade trees are defined as follows:

Semi-mature Grade

- A sturdy straight stem with the lowest branch not less than 2000mm above the soil level.
- Stem diameter greater than 150mm.
- A well balanced head with branches growing out from the stem with good symmetry, and a minimum length of 1500mm.
- A total height above soil level greater than 6000mm.

9.5 The height of all trees shall be measured above root collar, and the diameter of all stems to be measured at a height of 1000mm above ground level.

Standard Grade

- A sturdy straight stem.
- Stem diameter of 50mm.
- A well balanced columnar form and symmetry.
- A total height above soil level greater than 1500mm.

9.6 As previously mentioned the majority of the existing trees are not quality specimen trees, primarily due to growing in dense clusters in steeply sloping conditions. The proposed compensatory trees will be chosen for their good form and amenity value that is befitting a grand historical site such as the FMPH.

9.7 The proposed tree species palette, indicated in **Table 9.0: Proposed Compensatory Tree Planting Species** will include species such as *Bombax malabaricum*, *Ficus microcarpa* and *Cinnamomum camphora* as the structural tree planting, and species such as *Magnolia grandiflora* for their flowering character providing seasonal variety.

Table 9.0: Proposed Compensatory Tree Planting Species

Proposed Semi-mature Species	Percentage of Planting Mix
<i>Bombax malabaricum</i>	15%
<i>Ficus microcarpa</i>	5%
<i>Magnolia grandiflora</i>	5%

Proposed Semi-mature Species	Percentage of Planting Mix
<i>Terminalia catappa</i>	5%
<i>Crateva unilocularis</i>	5%
<i>Cinnamomum camphora</i>	15%
<i>Bauhinia variegata</i>	4%
<i>Plumeria rubra</i>	4%
<i>Terminalia mantaly</i>	15%
Proposed Standard Species	Percentage of Planting Mix
<i>Juniperus chinensis 'columnaris'</i>	27%

appointment of a third party tree specialist are designed to ensure the ultimate success of these proposals.

9.8 The landscape proposals including the compensatory planting proposals will be funded, implemented managed and maintained by the project proponent. A qualified or registered landscape architect will be involved in the design, construction supervision and monitoring, and maintenance period to oversee the implementation of the recommended landscape and visual mitigation measures including the tree preservation and landscape works on site. **Appendix VI: Technical Specification for the Establishment Works** details the operation for the maintenance of the existing and proposed soft works.

10.0 Summary and Conclusions

10.1 This Tree Preservation Proposal seeks to clarify the main issues concerning the preservation and protection of the trees identified for retention at the FMPHQ. These trees are regarded as living heritage and contribute most to the visual amenity and landscape character of the FMPHQ and formed the basis of the landscape proposals for the successful tender scheme. The retention of this number of significant trees within one project is unique in Hong Kong and reflects the applicant's recognition of their importance in maintaining the colonial and historic character of the development.

10.2 It should be noted that the measures designed to preserve the existing trees have been primarily based on the requirement to ensure their continued health and hence their continued contribution to the landscape and visual amenity of the site. A number of factors have shaped the size and extent of the preserved rootballs for each of the retained trees including the location of three of the trees (T10, T65 / T66 / T67 and T96) on the edge of the existing slope retention works, the widening of Canton Road (T66 / T67 and T96), the creation of a viable public open space in the Grand Piazza (T54) which is accessible from the street level and the location of the X, Y, Z. on the eastern side of the site (T10); and the measures required to preserve the heritage structures (T120, T121 and T122). The design of the preservation measures for trees T54, T96, T120, T121 and T122 have also fully considered the requirements for the KCRC KSL reserve and so there is no conflict between the two schemes.

10.3 The proposals for the preservation and protection of the existing significant trees are based on current arboricultural best practice and have been reviewed in detail and approved by the Third Party Tree Specialist.

10.4 The applicants commitment to the retention of these significant trees is not limited to the design of tree preservation measures, the procedures for the monitoring and maintenance of tree health, and the

Appendices

Appendix I

Project Boundary

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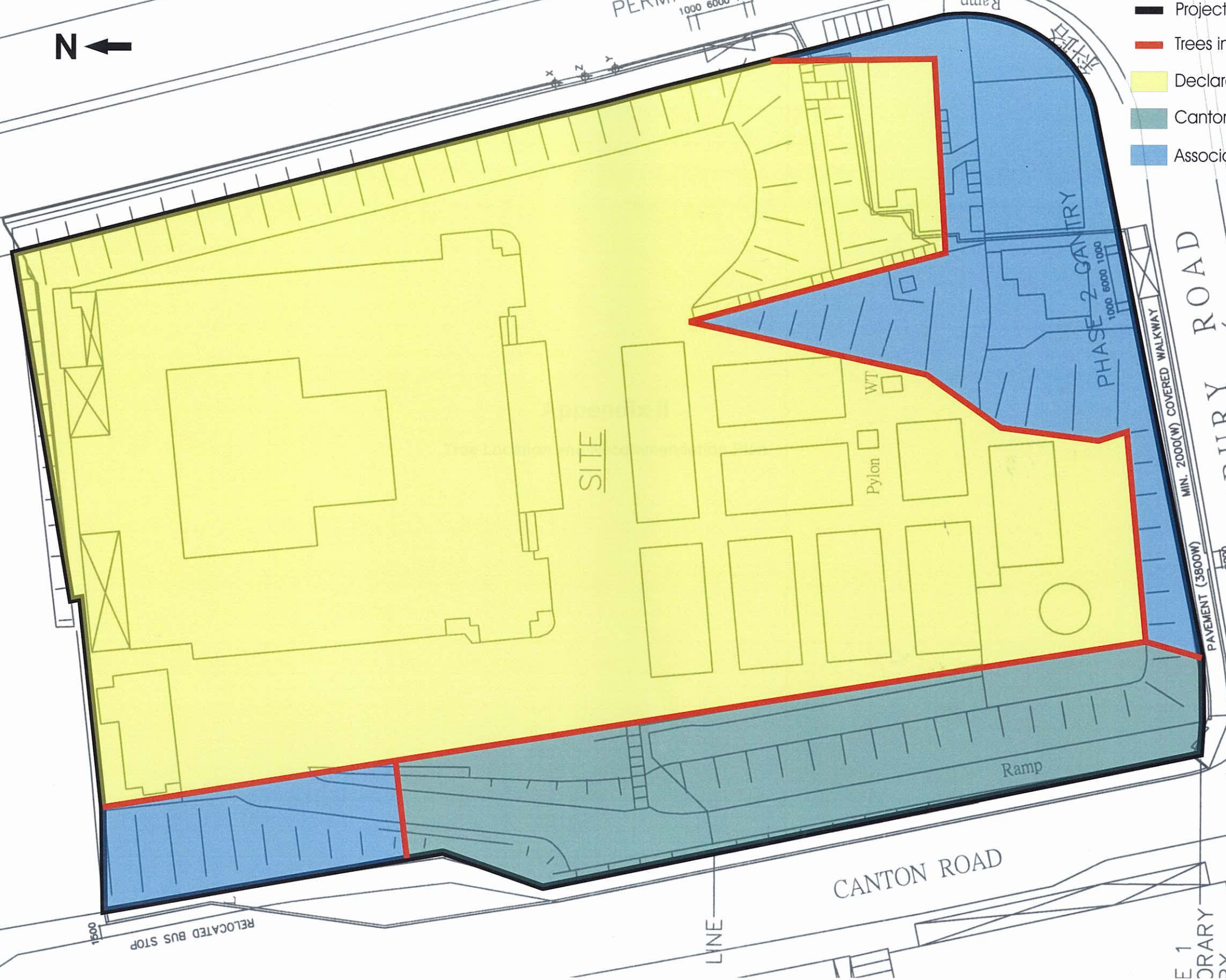


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Legend:

-  Project boundary
-  Trees impact zones
-  Declared Monument Boundary
-  Canton Road widening
-  Associated areas



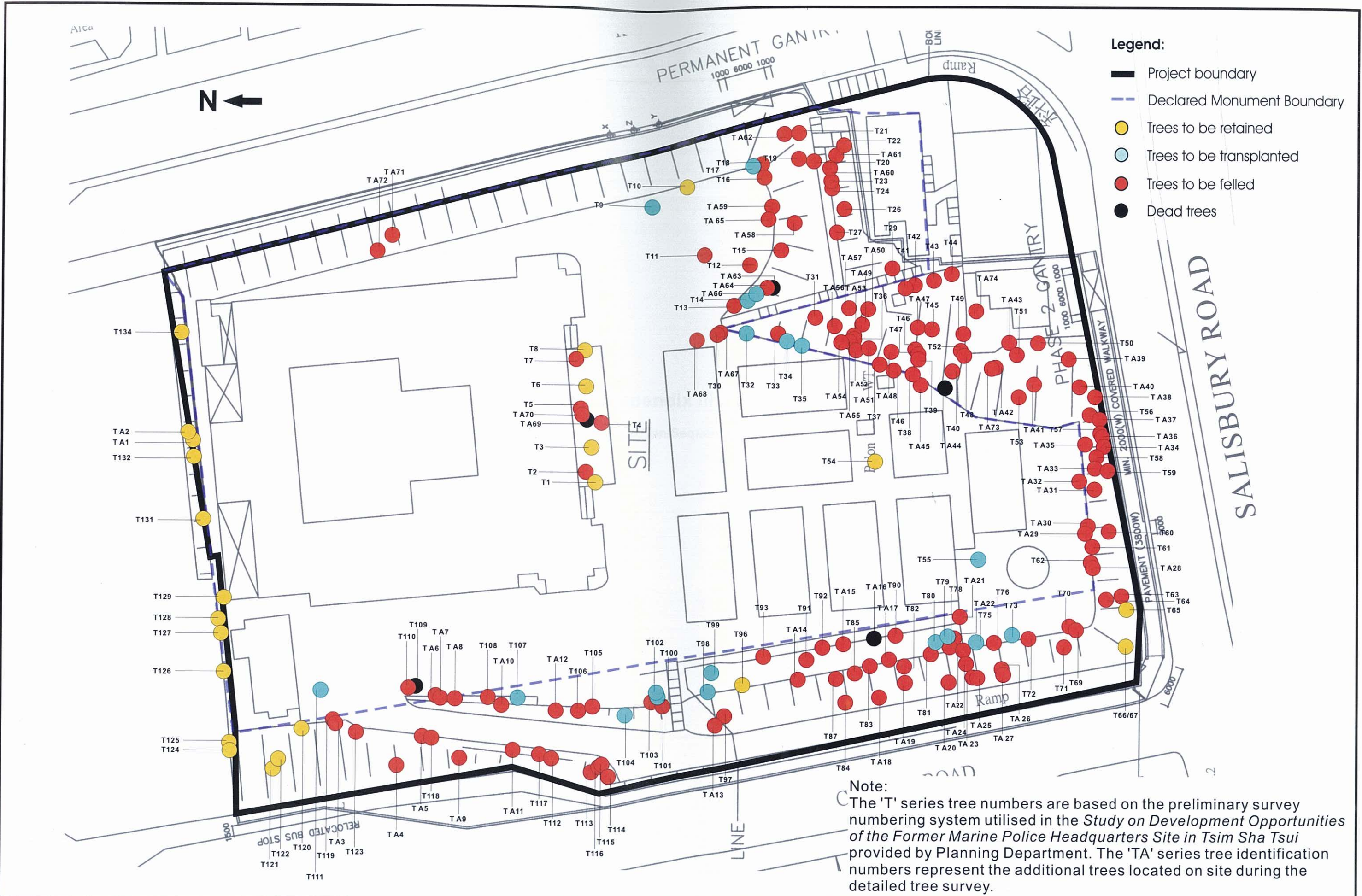
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Development at Fomer Marine Police Headquarters, KIL 11161
Project Boundary

SCALE	N.T.S.	DATE	10 APR 2006
CHECKED	CJF	DRAWN	NOC
DWG NO.	Appendix I		REV

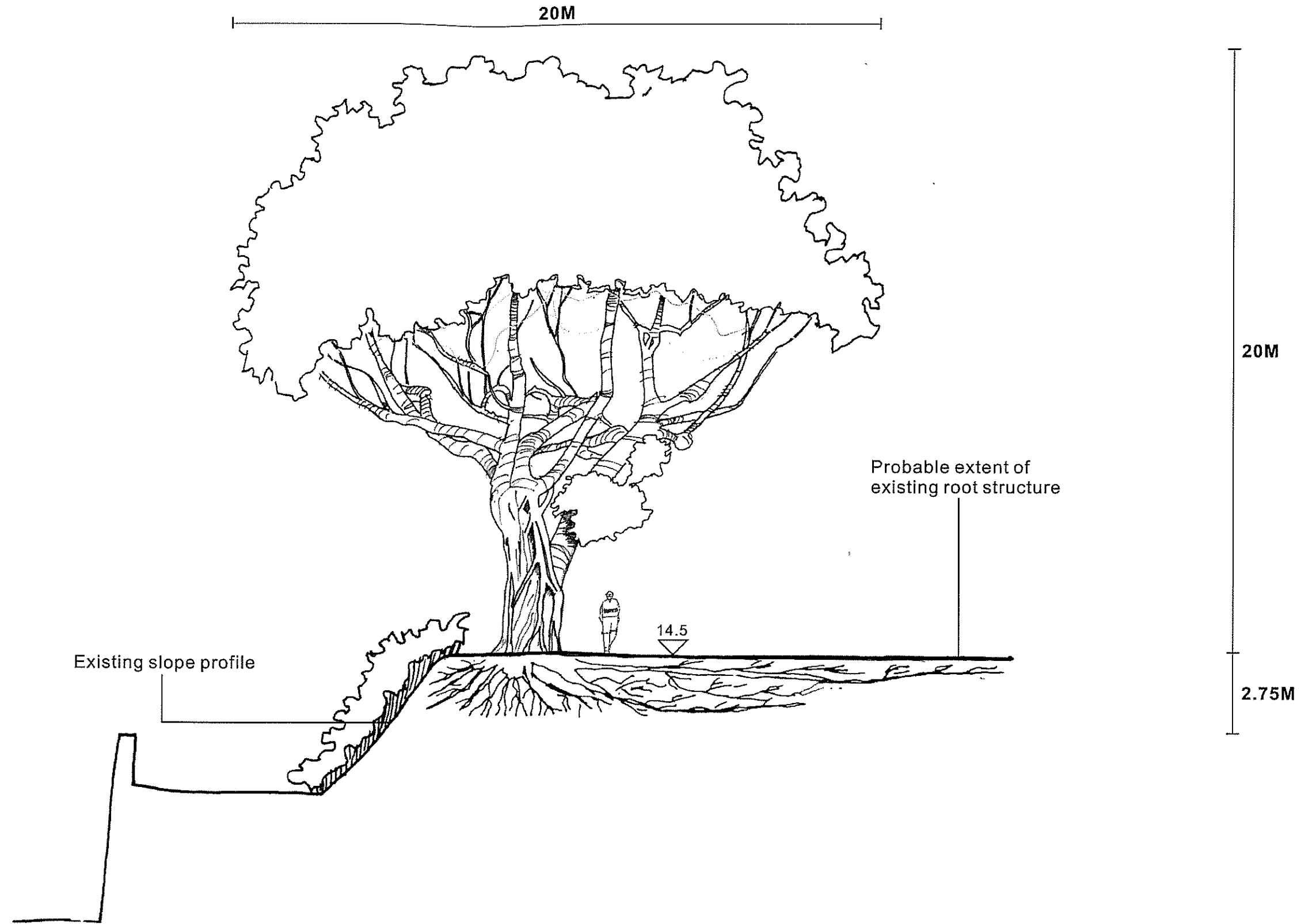
Appendix II

Tree Location and Recommendation Plan



SCALE	N.T.S.	DATE	10 APR 2006
CHECKED	CJF	DRAWN	NOC
DWG NO.	Appendix II		REV

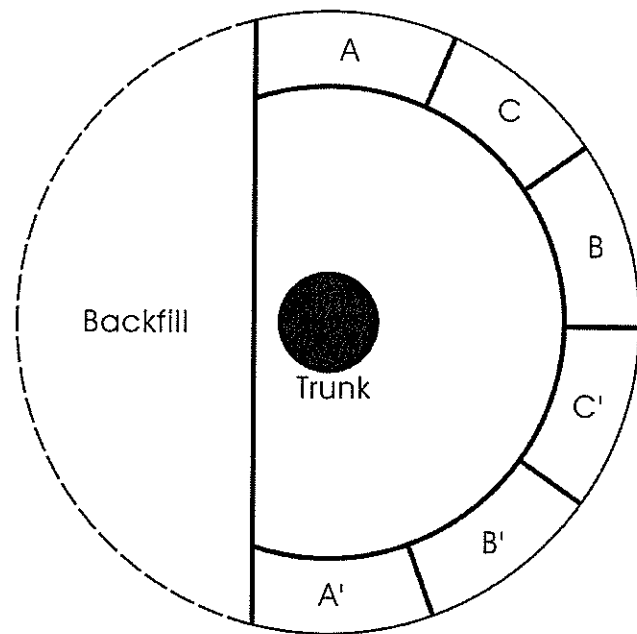
Appendix III
Construction Sequence



1: Existing Situation (T96)

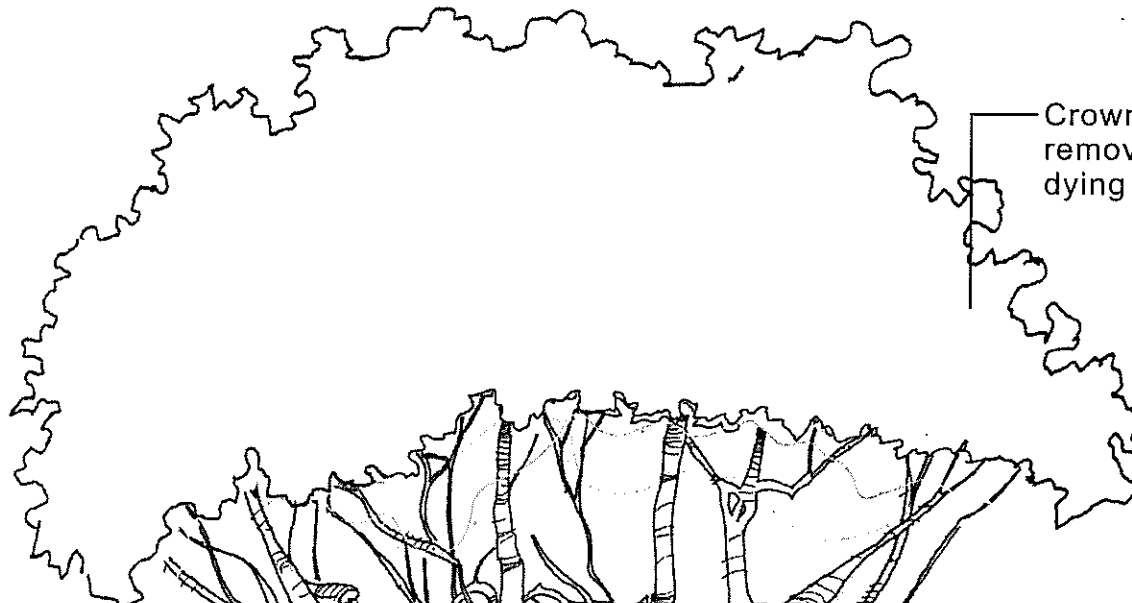
SCALE	1:200	DATE	10 APR 2006
CHECKED	CJF	DRAWN	NOC
DWG NO.	Appendix III		REV

Proposed phasing for the pruning of existing roots



Location of tree in relation to crest of existing slope

20M



Crown pruning limited to the removal of foliage and dead / dying material

Size of retained rootball determined by tree size and location of the KCRC KSL Reserve

Fencing to protect tree during the construction phase of the project
Please refer to Appendix VII

Fencing to protect tree during the construction phase of the project
Please refer to Appendix VII

20M



14.5

Water proof membrane

2.75M

4M 9M

Roots pruned by hand to a depth of 2m and backfilled

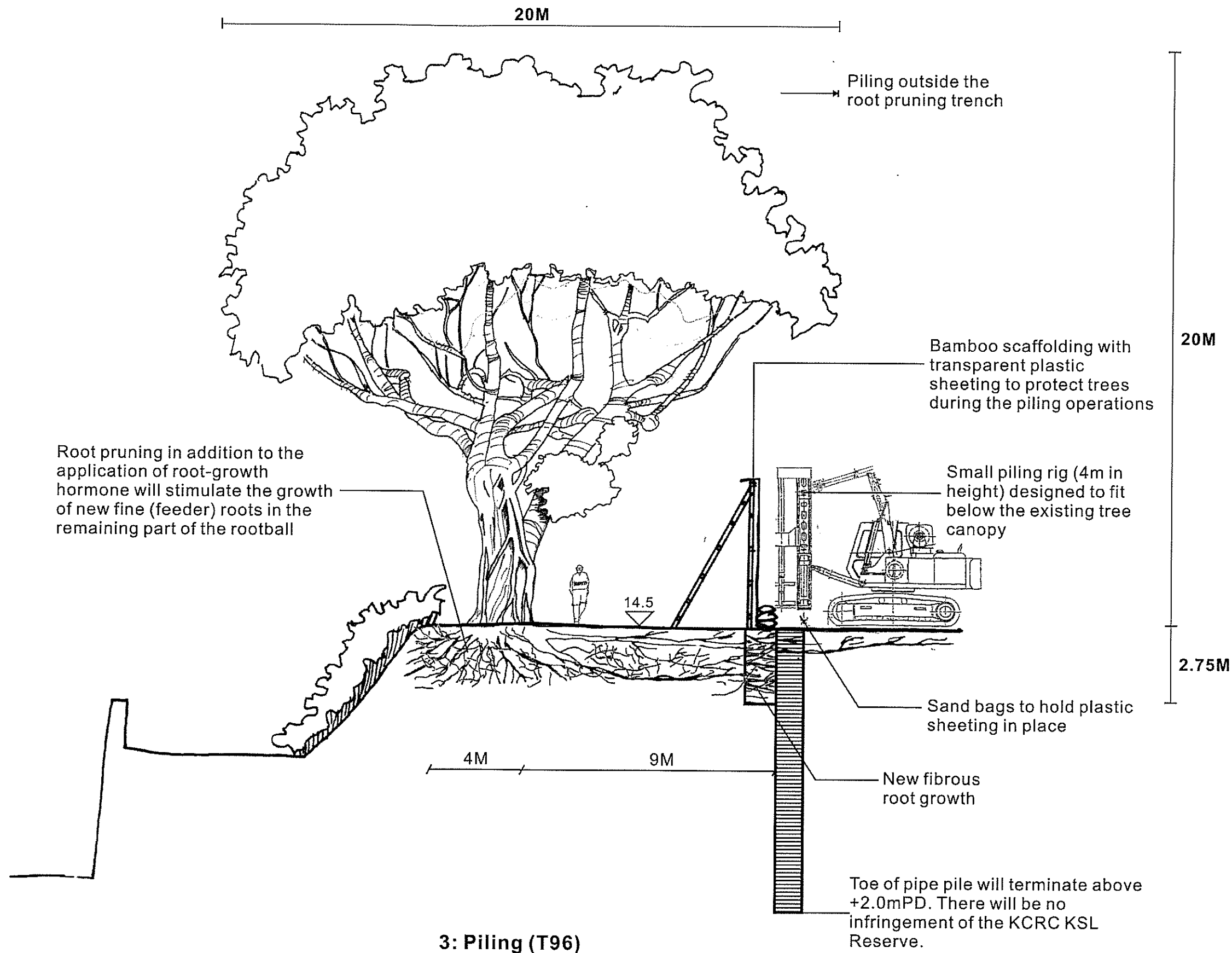
2: Root Pruning (T96)



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Development at Fomer Marine Police Headquarters, KIL 11161
Construction Sequence for Large Retained Trees

SCALE	1:200	DATE	10 APR 2006
CHECKED	CJF	DRAWN	NOC
DWG NO.	Appendix III		REV E

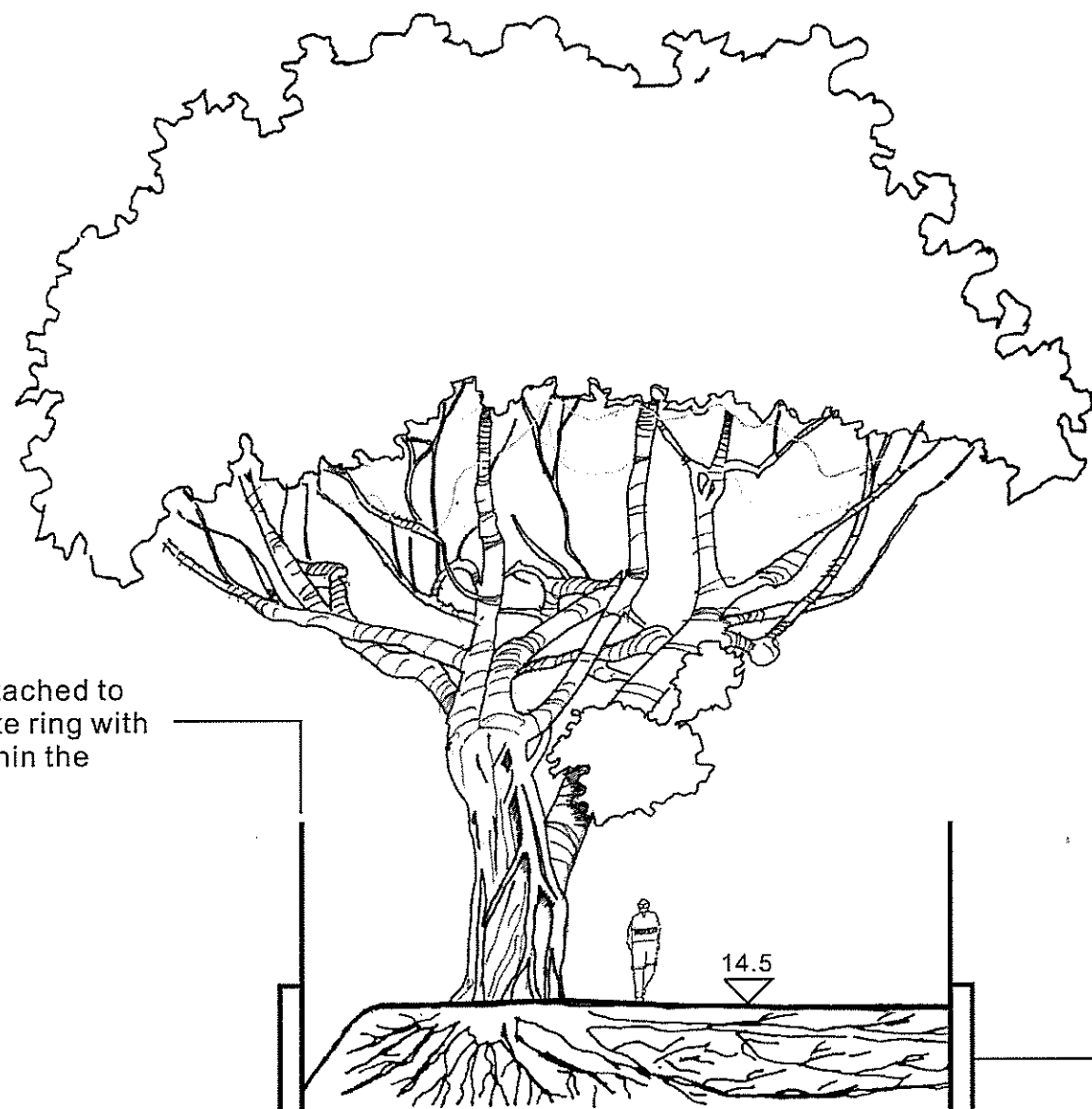


Root pruning in addition to the application of root-growth hormone will stimulate the growth of new fine (feeder) roots in the remaining part of the rootball

3: Piling (T96)

SCALE	1:200	DATE	10 APR 2006
CHECKED	CJF	DRAWN	NOC
DWG NO.	Appendix III		REV D

20M



Tree health condition and protection measures carefully monitored

20M

Protective fencing attached to the top of the Concrete ring with no encroachment within the Cordon Area

2.75M

Concrete ring to retain and protect preserved rootball

Soil and rock removed from around retained rootball

4M

9M

Soil and rock removed from around retained rootball

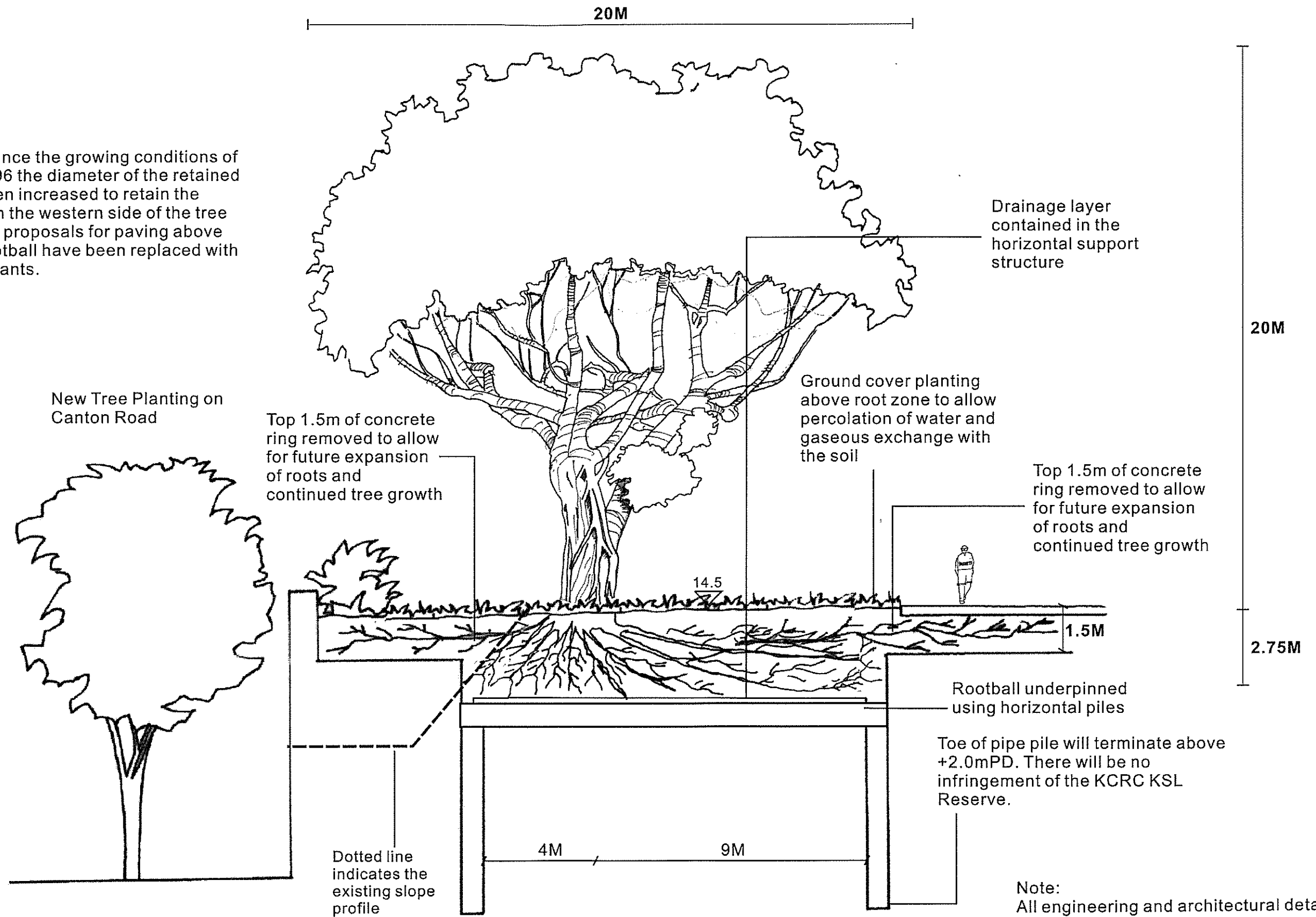
Rootball underpinned using horizontal piles

Toe of pipe pile will terminate above +2.0mPD. There will be no infringement of the KCRC KSL Reserve.

4: Construction Works (T96)

SCALE	1:200	DATE	10 APR 2006
CHECKED	CJF	DRAWN	NOC
DWG NO.	Appendix III		REV B

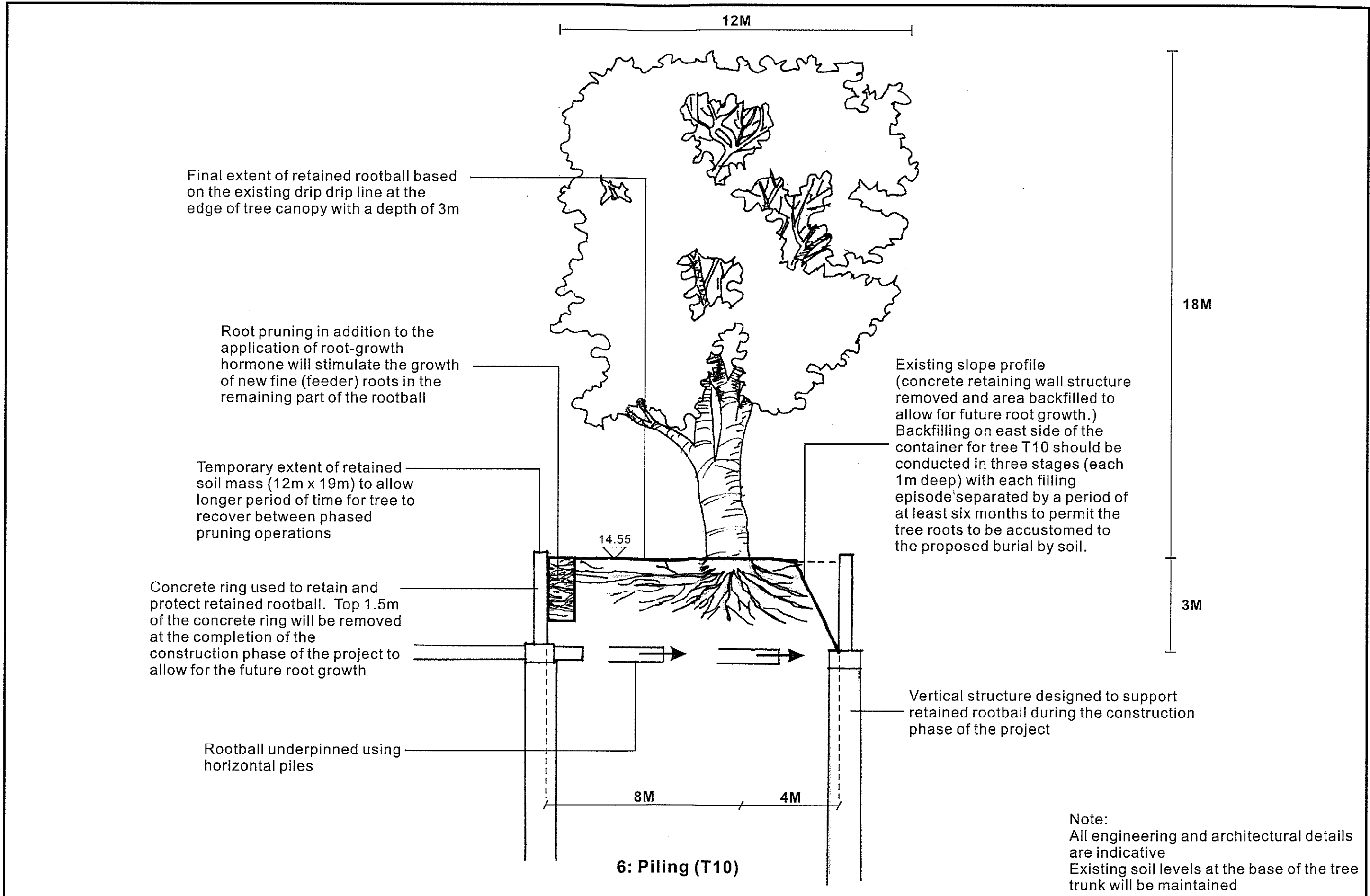
In order to enhance the growing conditions of retained tree T96 the diameter of the retained rootball has been increased to retain the surface roots on the western side of the tree and the original proposals for paving above the retained rootball have been replaced with ground cover plants.



5: Completion of Construction Works (T96)

Note:
All engineering and architectural details are indicative
Existing soil levels at the base of the tree trunk will be maintained

SCALE	1:200	DATE	10 APR 2006
CHECKED	CJF	DRAWN	NOC
DWG NO.	Appendix III		REV F



Final extent of retained rootball based on the existing drip drip line at the edge of tree canopy with a depth of 3m

Root pruning in addition to the application of root-growth hormone will stimulate the growth of new fine (feeder) roots in the remaining part of the rootball

Temporary extent of retained soil mass (12m x 19m) to allow longer period of time for tree to recover between phased pruning operations

Concrete ring used to retain and protect retained rootball. Top 1.5m of the concrete ring will be removed at the completion of the construction phase of the project to allow for the future root growth

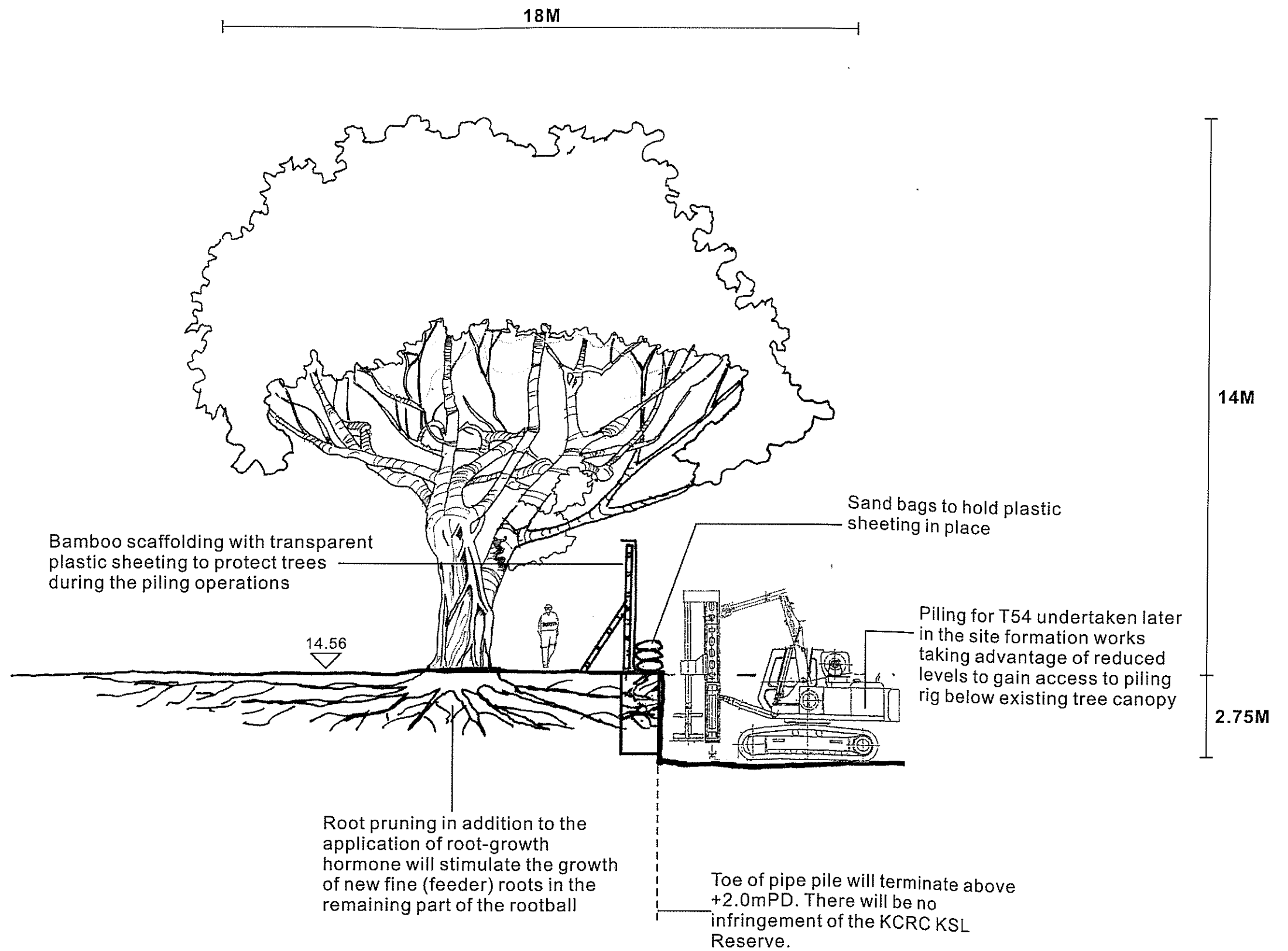
Rootball underpinned using horizontal piles

Existing slope profile (concrete retaining wall structure removed and area backfilled to allow for future root growth.) Backfilling on east side of the container for tree T10 should be conducted in three stages (each 1m deep) with each filling episode separated by a period of at least six months to permit the tree roots to be accustomed to the proposed burial by soil.

Vertical structure designed to support retained rootball during the construction phase of the project

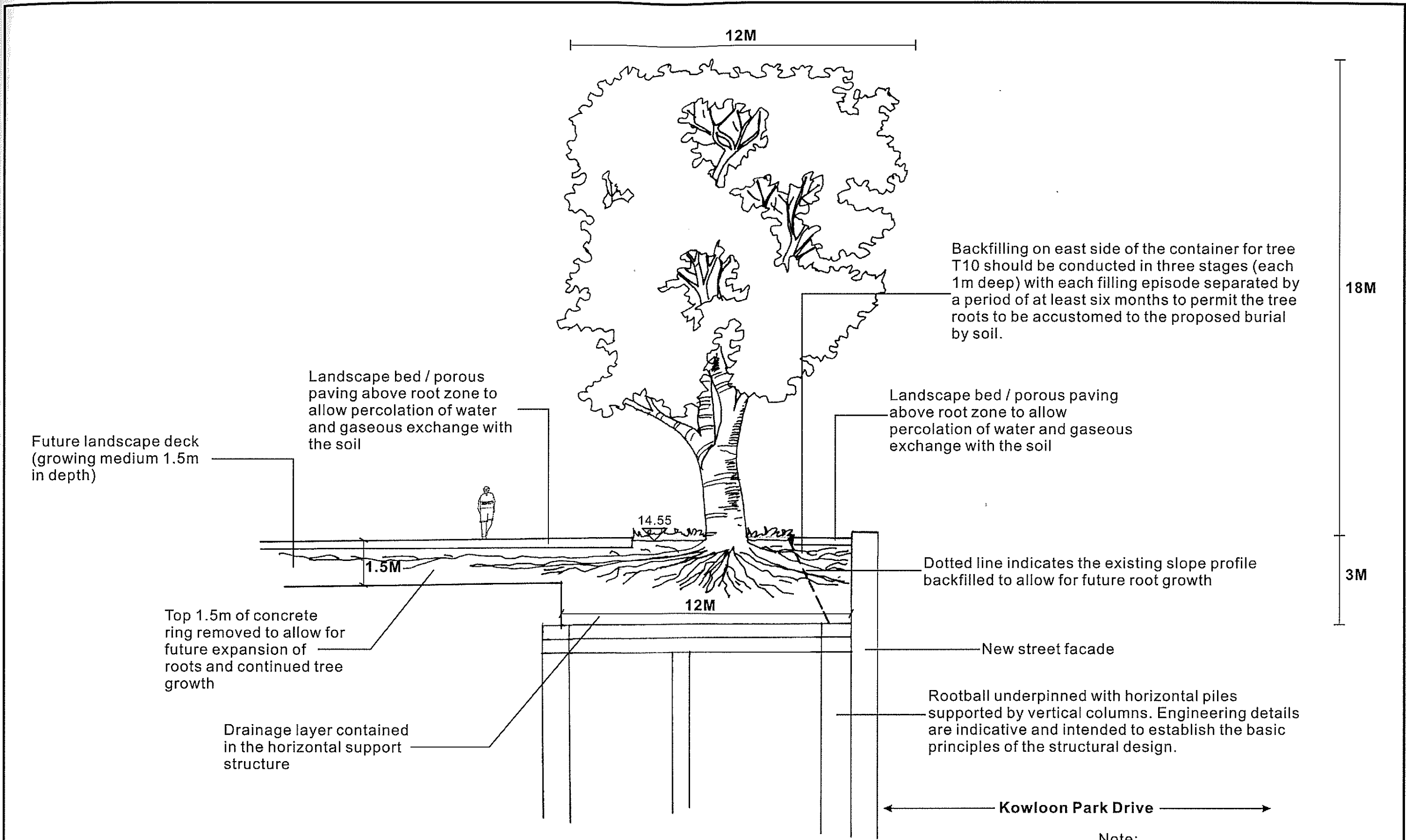
Note:
All engineering and architectural details are indicative
Existing soil levels at the base of the tree trunk will be maintained

6: Piling (T10)



7: Piling (T54)

SCALE	1:200	DATE	11 APR 2006
CHECKED	CJF	DRAWN	NOC
DWG NO.	Appendix III		REV A



8 : Completion of Construction Works (T10)

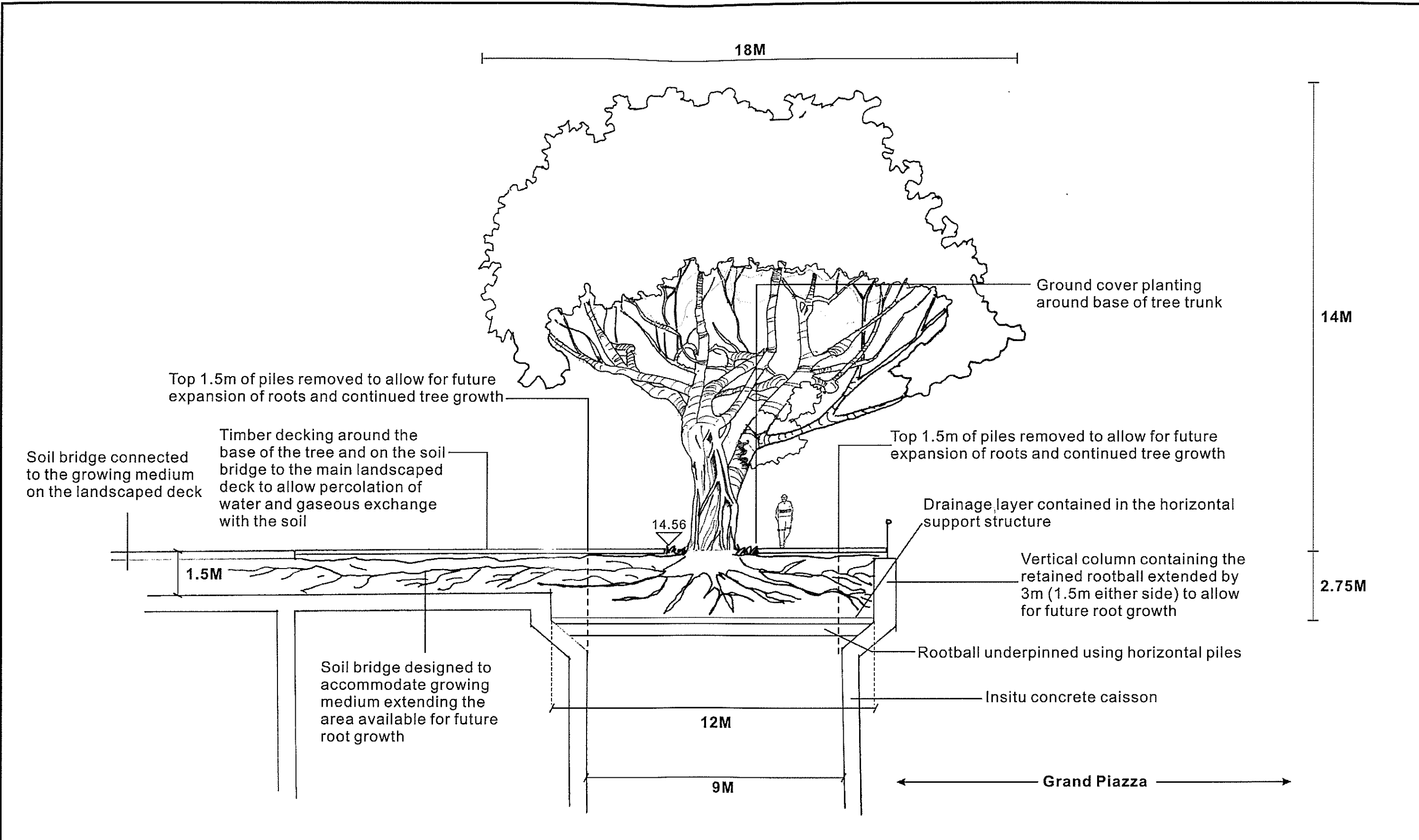
Note:
 All engineering and architectural details are indicative
 Existing soil levels at the base of the tree trunk will be maintained



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 電話 (八五二) 二一三一八六三〇 傳真 (八五二) 二一三一八六三九

Development at Fomer Marine Police Headquarters, KIL 11161
Construction Sequence for Large Retained Trees

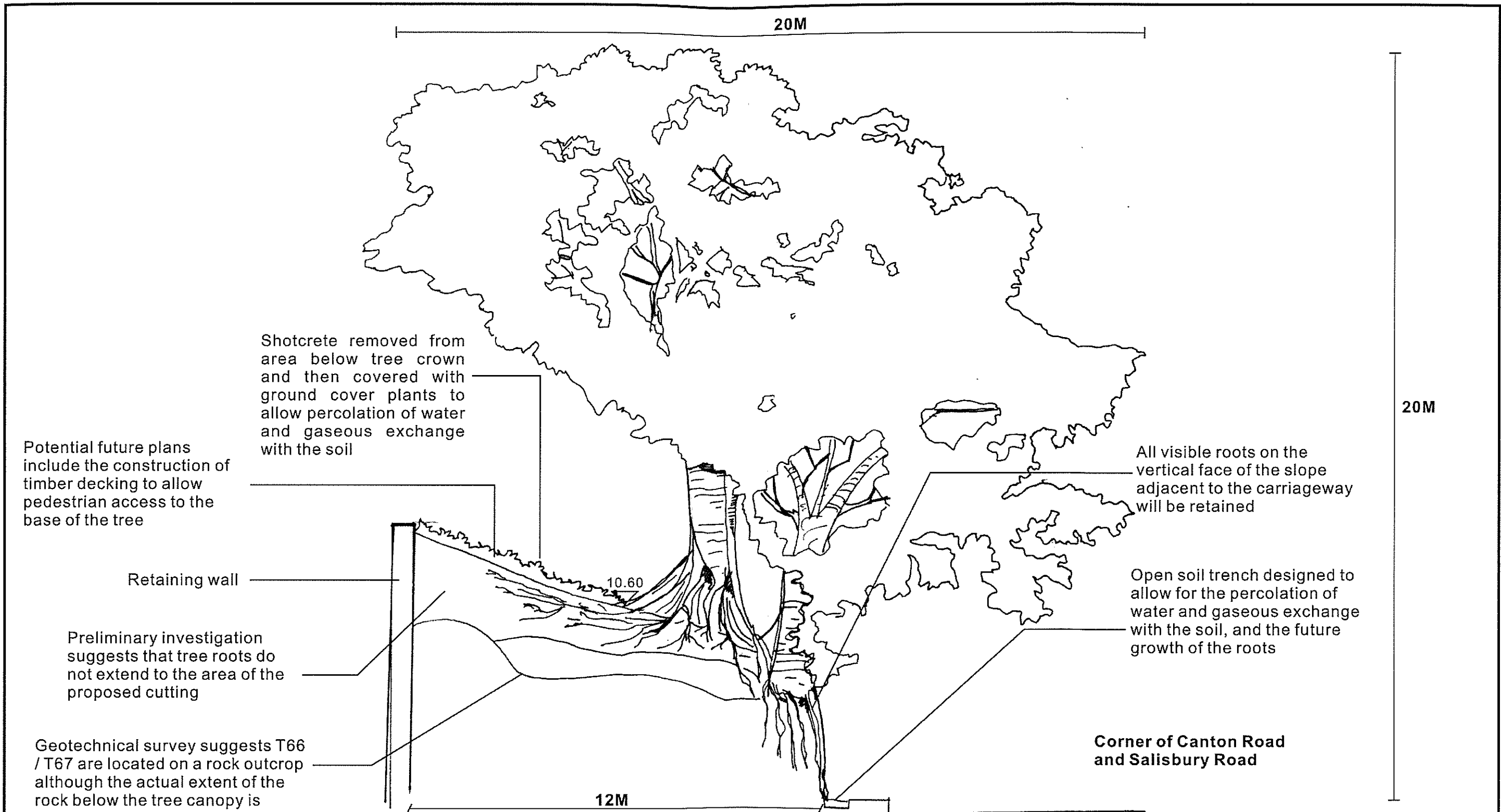
SCALE	N.T.S.	DATE	10 APR 2006
CHECKED	CJF	DRAWN	NOC
DWG NO.	Appendix III		REV B



9 : Completion of Construction Works (T54)

Note:
 All engineering and architectural details are indicative
 Existing soil levels at the base of the tree trunk will be maintained

SCALE	N.T.S.	DATE	10 APR 2006
CHECKED	CJF	DRAWN	NOC
DWG NO.	Appendix III		REV



10 : Completion of Construction Works (T66/T67)

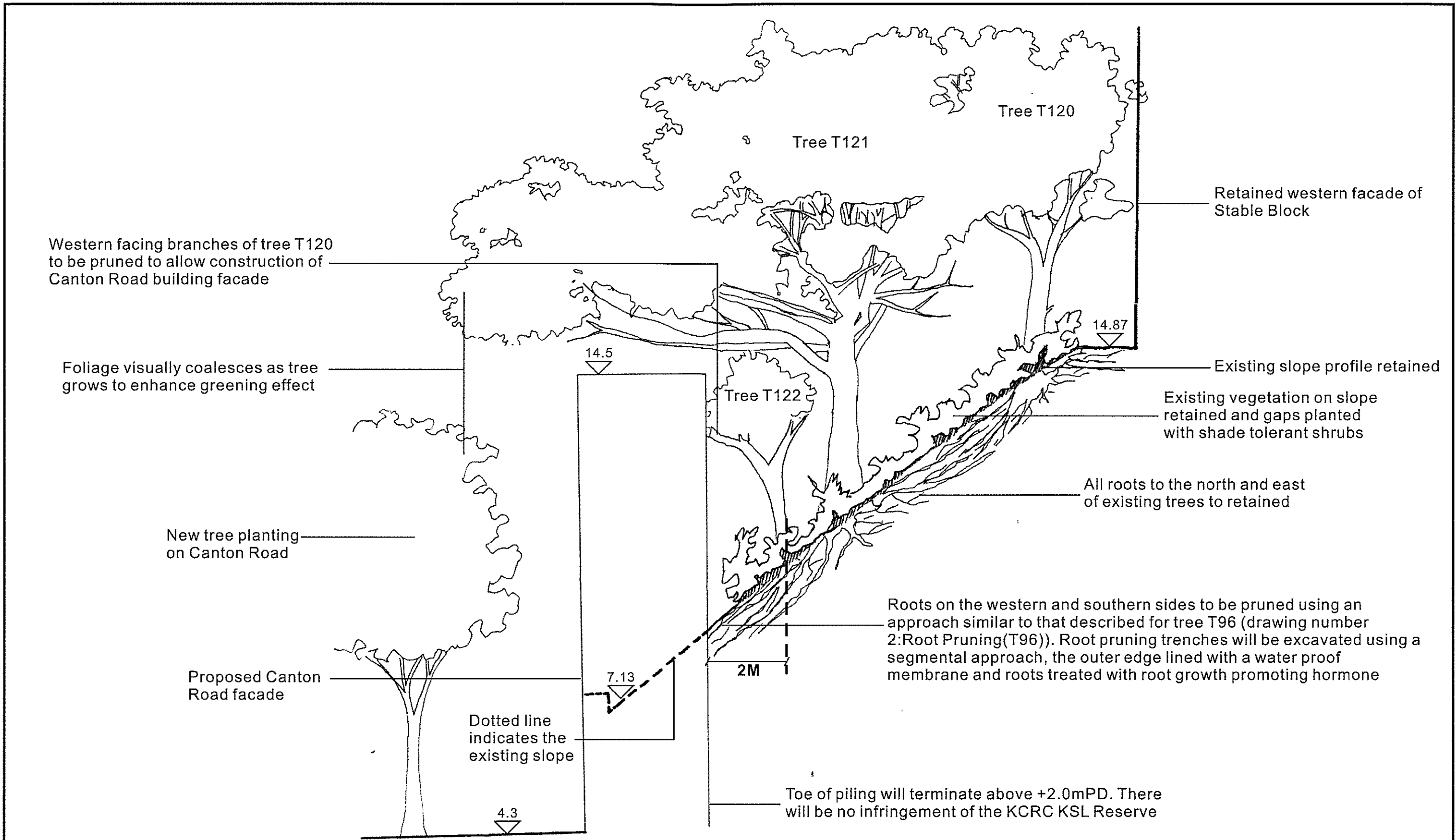
Note:
 All engineering and architectural details are indicative
 Existing soil levels at the base of the tree trunk will be maintained



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 電話 2131 6530 傳真 2131 8629
 香港中環干諾道西19號香港銀行大廈19樓
 香港中環干諾道西19號香港銀行大廈19樓
 電話 (A/C) 二一三一六五三〇 傳真 (A/C) 二一三一八六二九

Development at Fomer Marine Police Headquarters, KIL 11161
Construction Sequence for Large Retained Trees

SCALE	N.T.S.	DATE	10 APR 2006
CHECKED	CJF	DRAWN	NOC
DWG NO.	Appendix III		REV
			-



11 : Completion of Construction Works (T120, T121 and T122)

Note:
 All engineering and architectural details are indicative
 Existing soil levels at the base of the tree trunk will be maintained

SCALE	N.T.S.	DATE	11 APR 2006
CHECKED	CJF	DRAWN	NOC
DWG NO.	Appendix III		REV A

Appendix IV
Tree Preservation Proposals

Revised
28 Jan 2004

Root pruning and rootball preparation

Revised
28 Jan 2004

Fig. 1 - T10 (underpinned)

(ht. = 18m, Crown = 12m)

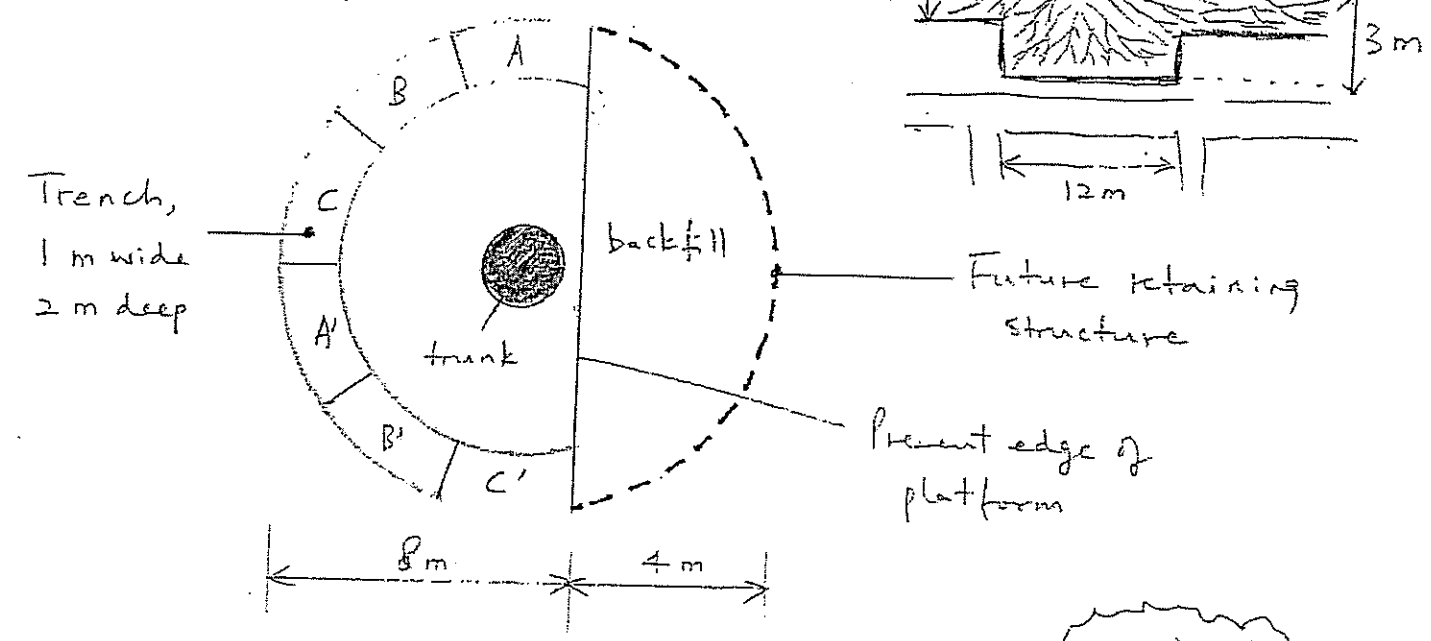


Fig. 2 - T96 (without underpinning)

(ht. = 20m, Crown = 20m)

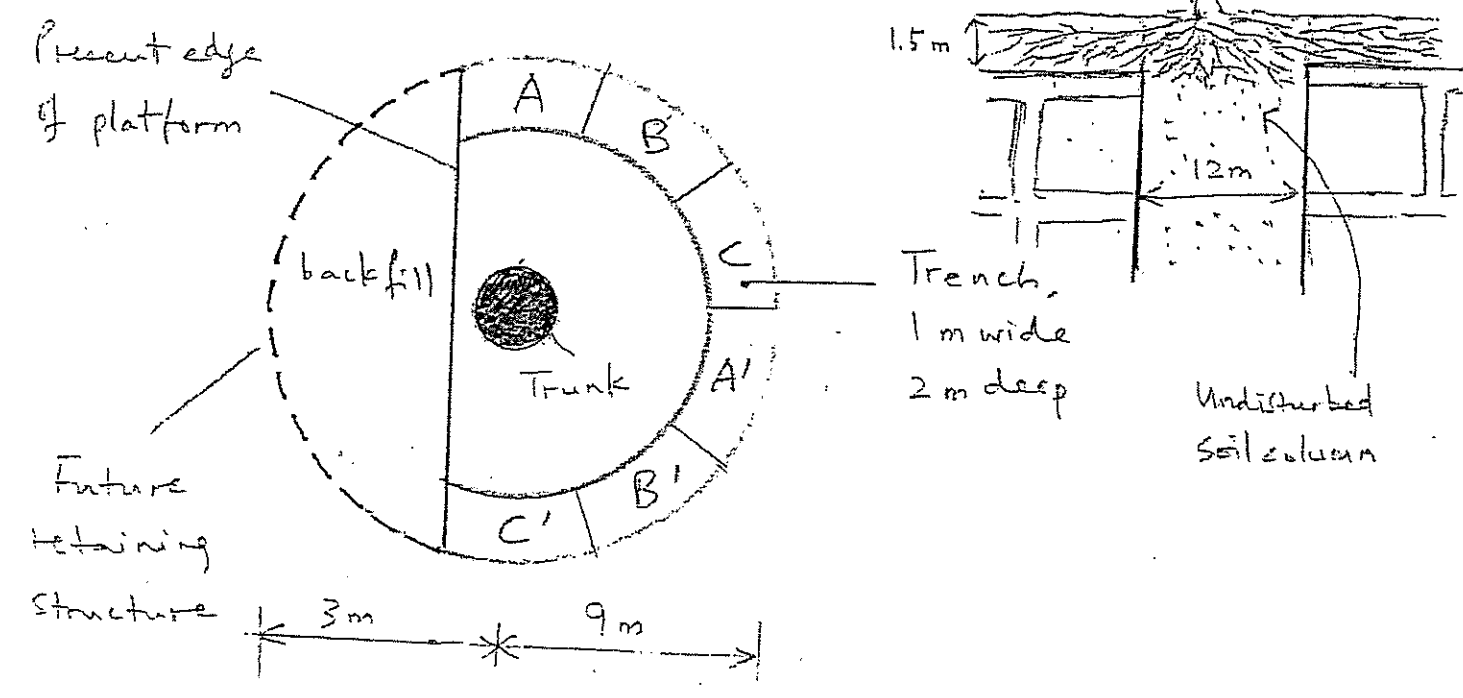


Fig. 3 - T66/67 (no underpinning)

(ht. = 20m, Crown = 20m)

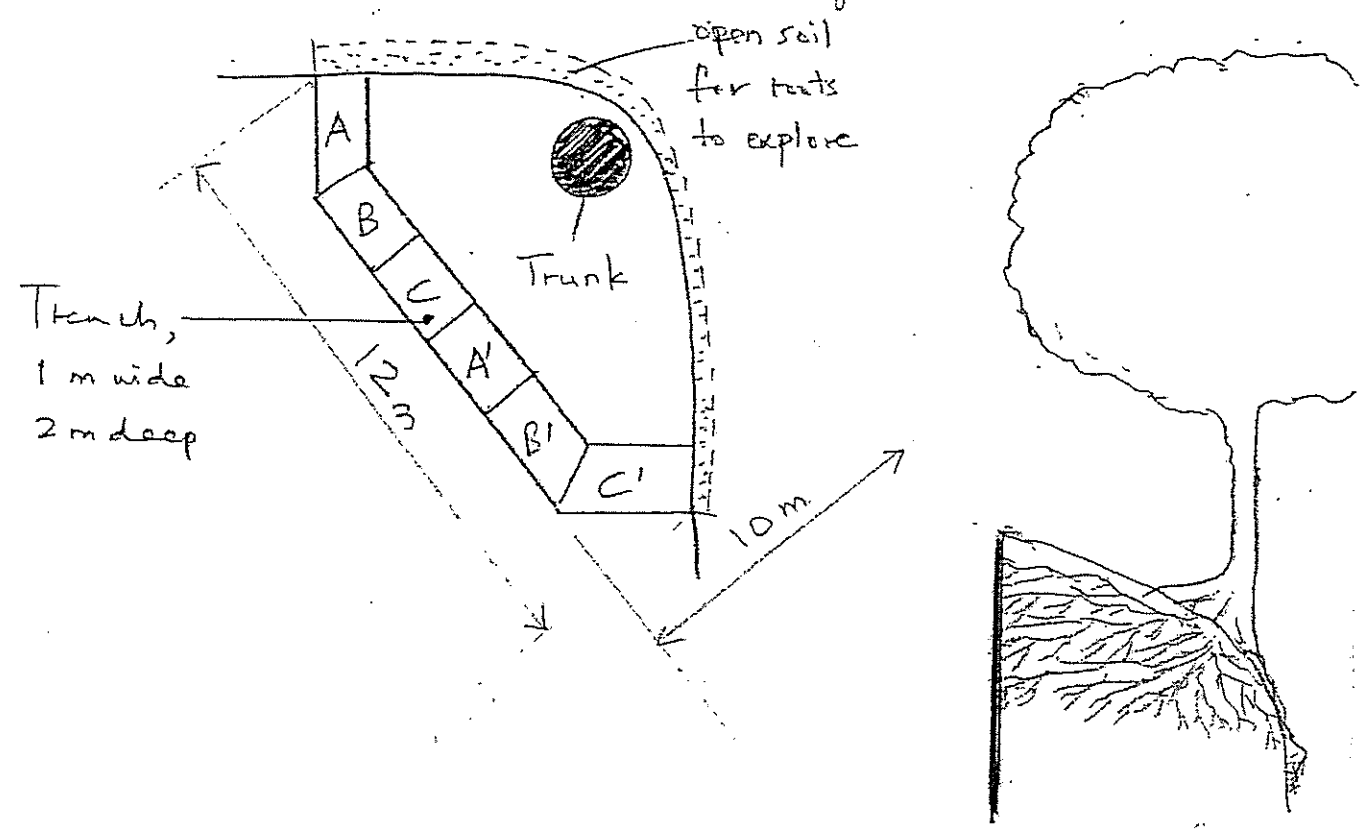
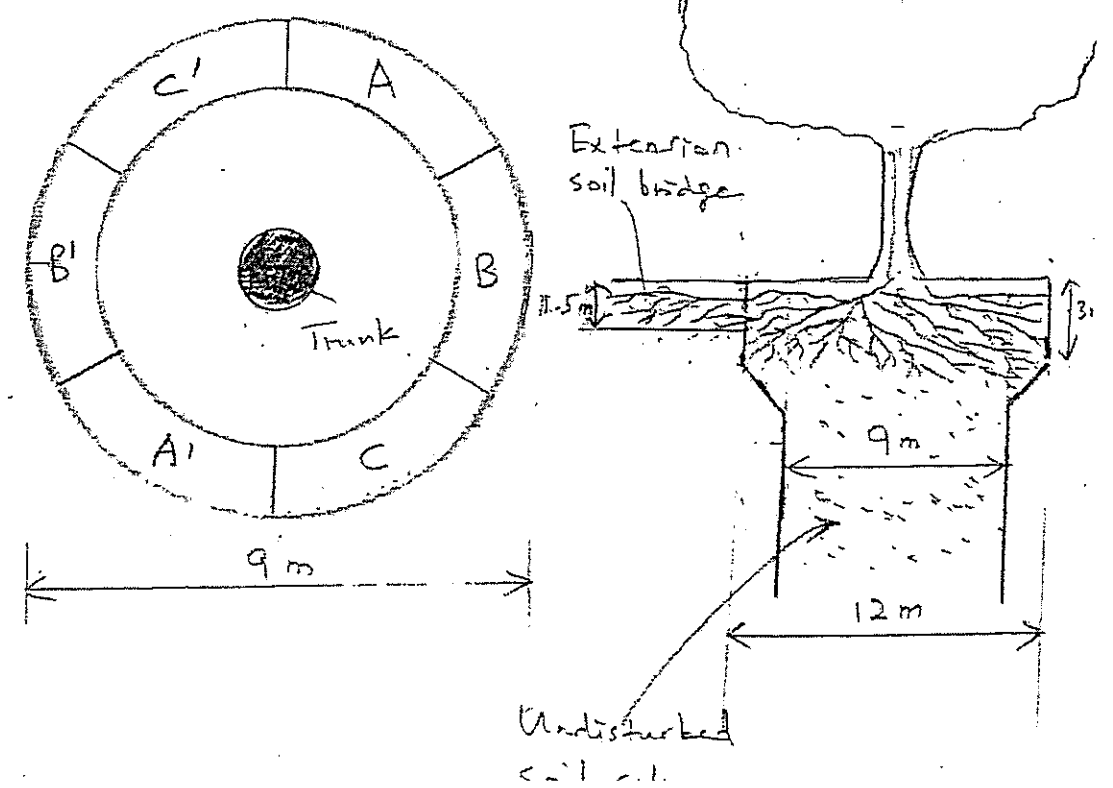


Fig. 4 - T54 (no underpinning)

(ht. = 14m, Crown = 18m)






Appendix V
Landscape Master Plan



KOWLOON PARK

Tree T10

LEGEND

-  Declared Monument Boundary
-  Existing tree retained (with Tree No.)
-  Proposed tree
-  Decorative paving
-  Water feature
-  Lawn
-  Amenity tree and shrub planting

Tree T134

Tree T A2

Tree T A1

Tree T132

Tree T131

Tree T129

Tree T128

Tree T127

Tree T126

Tree T124 - T125

Tree T121

Tree T8

Tree T6

Tree T3

Tree T1

Tree T122

Tree T120

Tree T96

SALISBURY ROAD

TAXI SHELTER

Tree T54

Tree T65

Tree T66/67

CANTON ROAD

Note:
Landscape design proposals are indicative in nature and subject to detailed design.

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Landscape Master Plan

SCALE	N.T.S.	DATE	April 2006
CHECKED	CJF	DRAWN	JAS
DWG NO.	CKPL15A/MLP-01		REV 1

Appendix VI

Technical Specification for the Establishment Works

TECHNICAL SPECIFICATIONS FOR TREATMENT OF EXISTING TREES AND ESTABLISHMENT WORKS

1. EXISTING TREES: TREATMENT, PROTECTION AND TRANSPLANTATION

1.1 Treatment of Existing Trees

1.2 Work Near Existing Trees

1.3 Protection of Existing Trees and Woodland Areas

1.4 Transplanting of Existing Trees

1. EXISTING TREES

1.1 Treatment of Existing Trees

1.1.1 For the treatment of existing trees which are to be retained, the Contractor shall work in accordance with this specifications and shall be directed and supervised by the Architect or Architect's Representative.

The Contractor shall allow for adequate site inspection and Site Inspection supervision employing qualified personnel holding a degree in and Supervision Arboriculture and relevant work experience. Safety precautions shall be taken to protect those engaged in operations as well as people and property in the vicinity.

The Contractor shall carry out an inspection of existing trees which are to be retained and produce a Schedule of Work indicating the tree no., species, problem and suitable treatment. The Schedule of Work must be approved by the Architect or Architect's Representative prior to commencement of any tree work or felling. Only suitable qualified personnel shall be employed to inspect and complete the Schedule of Works.

The Contractor shall take care to avoid damaging any structures or neighbouring trees, shrubs, grass or surfaces and if any are damaged the Contractor shall undertake to reinstate or compensate to the satisfaction of the Architect or Architect's Representative.

The Contractor shall provide adequate warning signs and staff to ensure the safety of public and traffic during operations.

All work shall be undertaken in strict accordance with the general safety factors in this specification. Any plant material produced as a result of pruning, felling and cavity work performed on trees shall be collected and removed from Site to a tip provided by the Contractor at his own expense. No such material shall be burned on Site.

All work shall be done in the appropriate season or as by the Architect or Architect's Representative.

The Contractor shall notify the Architect or Architect's Representative before work is to commence and when work is completed.

1.1.2 Pruning

Pruning and removal of branches shall be carried out using using sharp, clean implements. All plant and equipment shall be appropriate for the task and in well maintained order. Tools shall be surface sterilized after use on trees which are known or suspected to be diseased.

All final cuts shall be made into living wood and shall be carried out with the cut just above, and sloping away from, an outward facing healthy bud.

Pruning shall be carried out between the months of December and March or as directed by the Architect or Architect's Representative.

Large branches shall be removed in stages to remove the weight Removal of the branch and to avoid splintering or tearing of barks. Large Branches shall generally be made in two phases; a cut 1/3 into the branch from below; and a cut from the top of the branch to meet the first cut.

The final cut shall have a single flat face which shall be cut from the outside of the branch ridge to the outside of the branch collar using the 'natural target method' to allow for the formation of callus.

Ragged edges of bark or wood shall be trimmed with a sharp knife. All cut surfaces over 25mm in diameter shall be treated Cuts as soon as possible or within the same day with an approved gel formulation of systemic fungicide.

All pruning operations shall take into account the natural appearance of the tree and public safety and shall be carried out in accordance with clauses 1.1.1 and 1.1.2. Pruning work shall fall into the following categories:

- a. Cleaning out work: this shall include the removal of all dead, dying and diseased or dangerous branches and stumps, the removal of fungal brackets, rubbish in forks, etc. and any other unwanted items.
- b. Crown thinning: this shall include the reduction of the foliage by removing weak, thin and crossing branches and then such sound branch tips as necessary to achieve the desired reduction. This shall also include the removal of overcrowded branches up to 50mm in diameter from the crown of the tree.
- c. Lifting of crown: this shall include the removal of lower branches from the main stem or branch system to the stem or branch system to the specified height.
- d. Reducing and shaping: this shall include the reduction of

	the overall dimensions of the tree by shortening the branches back to growing points, leaving as natural a shape as possible.			sections. The stump shall be removed by hand grubbing and winching; stump cutting machine; hydraulic lifting or another method approved by the Architect or Architect's Representative before work commences.
	e. Light prune: this shall include the removal of a few branches up to 75mm in diameter.			
	f. Hard prune: this shall include the removal of a substantial number of branches up to 200mm in diameter.	1.2	Works near Existing Trees	
1.1.3	Treat for pest and/or disease attack. This shall include the application of a suitable pesticide or fungicide approved by Disease Attack the Architect or Architect's Representative to the infected areas in accordance with the manufacturer's instructions.	1.2.1	All individual trees to be retained on site are to be protected for the duration of construction works by Temporary Protective Fencing as described in Clause 1.2.4 to be erected at a minimum distance of 2 metres from the trunk of the tree or as otherwise directed by the Architect or Architect's Representative.	
1.1.4	All cavities or rots shall be inspected and a report shall be made Inspection of Cavity to the Architect or Architect's Representative on the extent of the rot and the recommended treatment required. All accumulated rubbish shall be removed from cavities however water shall be retained. Cavities shall not be cleaned out back to clean wood. Only Cavity Work rotten wood shall be removed.	1.2.2	Where excavation is required near existing trees for General construction of works, the following precautions shall be taken to protect the roots: Existing Trees i) roots exposed and damaged during excavation shall be cut cleanly back to living tissue and sealed with an approved wound sealant. The Architect or Architect's Representative shall be contacted immediately when root of diameter larger than 50mm are exposed, damaged or severed. Cutting of the roots shall be kept to a minimum; ii) exposed roots shall be protected by wrapping with straw or Hessian during construction of the works; iii) excavation shall be backfilled with topsoil including sufficient slow release fertilizer to ensure a rate of application of 500g/m ³ .	
1.1.5	Uncallused bark wounds shall undergo the following treatments. a) removal of loose, dead or damaged bark, b) removal of rotten wood Bark shall be trimmed back to undamaged tissue and all margins shall be rounded, with no pointed tips to the cut areas. Tissue shall be painted straight away with approved gel formulations of systemic fungicide.	1.2.3	Trench excavation for services, including drainage and shall be kept to a minimum of 3m from the tree. Detailed location of services shall be agreed with the Existing Trees Architect or Architect's Representative before excavation commences if this minimum cannot be achieved. Large roots exposed in trench excavation and above the final line of the installation shall be preserved, and excavation close to trees shall be carried out with particular care to ensure this. Following installation of the services, severed roots shall be cut back cleanly to living tissue and sealed with an approved wound sealant. Trenches shall be backfilled as specified, except that where topsoil is required, sufficient slow release fertilizer to assure a rate of application of 500g/m ³ shall be applied.	
1.1.6	Felling Felling shall involve the removal of trees, including stumps, by one of the following methods to be approved by the Architect or Architect's Representative before work commences: a) Bulldozer A bulldozer shall be used to push over the whole tree which shall then be cut by chain saw and removed from Site. This method shall only be used where no trees are to be retained. b) Winches Power mounted or hand winches shall be used for pulling over the whole tree, the main support roots shall first be severed either by mechanical means or by hand grubbing. Preserved trees shall not be used as anchor points for winching c) Chain Saws Felling shall be felling the whole tree at once or in	1.2.4	Existing planted areas shall be protected during the contract work by temporary bamboo pale fencing, as specified below: Temporary Protective Fencing Temporary Protective Fencing shall be 1200mm high comprising end straining corner posts, intermediate straining posts and bamboo pales. - End straining posts shall be 150 x 150 x 1800mm long timber posts driven 600mm into ground. Posts shall be installed at corners, ends of runs and at 10m centres. - Intermediate posts shall be 100 x 100 x 1800mm timber posts driven 600mm into ground at 1500 centres.	

- Bamboo pales shall be hand-driven from bamboo poles of approximately 30mm diameter. Pales shall be 1200mm long and notched 80mm from top. Pales shall be positioned at not more than 50mm spacing.
- Line wires shall consist of two numbers of 2mm diameter galvanized steel wires twisted together. Pales shall be fixed between the twisted wires.
- One line of wire shall be fixed 150mm from the top of pales and one line wire shall be fixed 200mm from the ground level. A third line wire shall be fixed equally spaced between the other two. Fixing to intermediate timber posts shall be galvanized steel staples. Wires shall be fixed to end posts by running two complete turns round the post with the wire twisted back on itself and staples driven tightly into the post.

The Contractor shall maintain the Temporary Protective Fencing in good repair and subsequently remove it. Removal will be subject to the permission of the Architect or Architect's Temporary Representative which will not normally be given earlier than the substantial completion of an adjacent and substantial part of the works other than Landscape Softworks.

Provided that the Contractor may seek permission to remove the fencing temporarily if its removal is necessary for the satisfactory execution of the Work but he will be required to reinstate it as soon as possible.

1.3 Protection of Existing Trees and Woodland Areas

1.3.1 In respect of all existing trees and woodland the Contractor shall ensure, for the whole duration of the Contract, the following:

- no unnecessary intrusion into areas of woodland or scrubland is made;
- all access routes to construction areas which need to pass through woodland or scrub shall be approved by the Architect or Architect's Representative;
- the limits of site clearance are to be agreed by the Architect or Architect's Representative on site before site clearance commences. All trees to be cleared shall be marked by the Contractor and approved by the Architect or Architect's Representative before felling;
- trees which are not required to be trimmed, pruned or felled shall not be marked;
- no nails or other fixings shall be driven into trees;
- no fencing or signs shall be attached or painted on trees;
- no workshop, canteens, or similar shall be installed beneath trees; storage of plant, materials or fill shall not be permitted under the spread of trees; nor shall equipment maintenance etc. be carried

out under trees;

- no trees shall be used as anchors for ropes or chains used in guying, pulling and the like;
- no fires should be lit under or in the close proximity of trees;
- all existing planting to be retained shall be adequately protected by Temporary Protective Fencing as described in Clause 1.2.4.

1.3.2 The Contractor shall exercise the greatest care during the progress of the work to avoid damage to any tree which the Contract does not require to clear.

As soon as the Site or any part thereof becomes available the Contractor shall erect Temporary Protective Fencing around any tree or group of trees which are required to be protected. The fence shall not be closer than 2m from the trunk of any such tree. The Contractor shall inform the Architect or Architect's Representative if Works are to be carried out within such fenced areas and, save with the express permission of the Architect or Architect's Representative or on his order, all such work shall be executed using only hand-held tools. The rates in the Contract shall include for this restriction.

1.3.3 Slow release fertilizer shall be applied to existing mature trees in a feeding band 1.5m either side of the branch spread as and when directed by the Architect or Architect's Representative. Holes shall be drilled, at an angle, at 450-600mm centres in the feeding bands, they shall be 300-600mm deep and approximately 37-50mm in diameter.

Slow release fertilizer shall be inserted in the holes, bulked up if necessary with sand or fine peat, at the rate of 1kg/25mm of trunk diameter at a height of 1.2 metres from ground level.

The fertilizer shall be applied between March and June or as directed by the Architect or Architect's Representative.

1.4 Transplanting of Existing Trees

1.4.1 The selected existing trees as indicated on the drawings shall be Transplanting transplanted to the nursery holding area of the Contractor as necessary of Existing and maintain for a period as specified before transplanting back to Trees the site, or to the final position within the site or location within the HKSAR, as instructed by the Architect or Architect's Representative. The Contractor shall ensure the root ball is kept intact with the soil, wrapped in Hessian and the whole including root ball, shall be kept moist at all times.

The exact locations for transplanted material shall be approved final location by the Architect or Architect's Representative before the plant material is planted.

1.4.2 A full photographic record of preparatory and transplanting photographic record works shall be taken by the Contractor and submitted to the Architect or Architect's Representative.

1.4.3 Root pruning and undercutting shall be carried out on three occasions prior to lifting at two week intervals.

To facilitate root-cutting and undercutting, a trench shall be dug encircling the tree at a radius of approximately 250mm per 25mm tree girth (refer to Transplanting Schedule), or as approved on site by the Architect or Architect's Representative. The depth of the trench shall be approximately 250mm deep per 25mm girth.

Roots which are severed in the course of root pruning shall be cut cleanly and those exceeding 50mm diameter shall be treated with an approved bituminous sealant. Only 1/3 of the total circumference to the trenched shall be completed at each of the tree visits.

Immediately after trenches are so made they shall be back-filled with loose, clean coarse aggregate.

At each visit during root pruning, the trees shall be inspected for signs of deterioration in their health. Any such signs shall be brought to the attention of the Architect or Architect's Representative.

Limited approved crown pruning, lifting of crown, tree Crown Thinning reduction, light pruning and hard pruning may be permitted but the shape and form of the plant shall be retained. All works shall be carried out in accordance with clause 1.1.2 and shall require approval from the Architect or Architect's Representative prior to work being carried out.

1.4.4 Prior to the lifting of the trees or prior to bringing the trees on from the holding nursery, tree pits shall be agreed on site and prepared as follows:

- All pits shall have dimensions which are 500mm greater than the size of the root ball of the tree to be transplanted.
- The base and sizes of the pit shall be broken up to a depth of 150mm.
- A minimum of two weeks and maximum of four weeks after the final undercut, the tree shall be excavated and lifted.
- The tree shall be lifted carefully to ensure the specified root ball is obtained. The minimum root ball size for the selected tree shall be as stated below and as confirmed by the Architect or Architect's Representative:

TREE (Spread x Height)	MINIMUM ROOT BALL SIZE (Length x width x depth)
500 x 1000mm	500 x 500 x 500mm
1000 x 2000mm	600 x 600 x 600mm
2000 x 3000mm	800 x 800 x 600mm
3000 x 6000mm	1200 x 1200 x 1200mm

- At the time of lifting, the root ball and the trunk from soil level to the lower branches of tree shall be securely wrapped to prevent loss of soil and moisture using Hessian or other approved

material. The wrapping material shall not be removed until the tree is required for planting. Wrapped tree root balls shall be kept moist at all times.

- The Contractor shall provide all necessary plant to ensure the safe and careful implementation of all works described.

1.4.5 The tree shall be wrapped and protected to prevent mechanical damage during lifting, transportation to the designated position during and in the holding nursery. It shall also be protected against excessive sunlight, wind and drought. Care shall be taken in packing to prevent over-heating with its resultant loss of foliage.

If storage of the tree is required between lifting and planting, the tree shall be kept in a holding nursery and shall be carefully protected and maintained. Maintenance shall include watering and addition of fertilizer, insecticide and herbicide in accordance with the specification for new trees, until the permanent location is available.

1.4.6 The newly transplanted tree shall be treated as new tree planting with respect to planting methods including watering in addition of slow-release fertilizer and backfilling.

All trees shall be secured with tree guys or stakes to be approved by the Architect or Architect's Representative.

1.4.7 The Contractor shall carry out establishment works for a period of twelve months or period as specified from the date of Practical Completion of the transplanting works and shall include the following works.

- Periodic inspections shall be carried out to ensure that the guys or stakes are providing adequate support and not bruising the bark.
- The tree shall be kept moist at all times by watering as necessary in accordance with the specification for Establishment Works.
- Provide a spring dressing of an approved fertilizer and confirm in writing to the Architect or Architect's Representative one full week prior to work being carried out.

The rate of application of fertilizer shall be in accordance with the specification for Establishment Works.

- An area similar to the size of the rootball around the base of the tree shall be kept weed free.

1.4.8 The Contractor shall be responsible for the healthy survival of the transplanted trees.

At any time during lifting, storage, transplanting or establishment any tree which dies, suffers severe damage or suffers irretrievable ill-health due to works not being carried out in accordance with the specification or due to the negligence of the Contractor, shall be replaced with a tree of the same species and size, as approved by the Architect or Architect's Representative, at the Contractor's own expense.

Trees shall be replaced within one month of the transplanted tree being

certified dead, damaged or in ill-health.

2. ESTABLISHMENT WORKS

2.1 Establishment Works

2.2 Watering

2.3 Weeding

2.4 Pruning

2.5 Grass Cutting

2.6 Post Planting Fertilizer

2.7 Forking Over

2.8 Securing Stakes and Ties

2.9 Replacement of Plants

2.10 Mulching

2.11 Programme

2.12 Removal of Protective Fencing

2. ESTABLISHMENT WORKS

2.1 During the period for Establishment Works, i.e. 12-months or period as specified from practical completion of the planting works, the Contractor shall carry out regular inspection and cultural operations as defined below to ensure that all grass, trees and other plants thrive and become established.

The Contractor shall keep the Site neat and tidy at all times. Unless otherwise specified (and/or exceptional weather conditions prevail), inspections with the Architect or Architect's Representative shall be carried out at monthly intervals. The Contractor shall report to the Architect or Architect's Representative before and after carrying out any Establishment Works and submitted in duplicate on forms provided by the Contractor and of a style approved by the Architect or Architect's Representative.

2.2 Watering

2.2.1 The Contractor shall water all planted areas as often as is required to keep the ground moist all round the roots of the plants. An inspection of watering requirements shall be made in dry weather by the Contractor and the Architect or Architect's Representative twice weekly. The Contractor shall thoroughly water areas as necessary to ensure the

above conditions are achieved. Watering shall be carried out either at dawn or at dusk to avoid excessive evaporation under direct sunlight.

2.2.2 Fresh water only shall be used for the works. When required an analysis of water to be used shall be obtained by the Contractor for approval by the Architect or Architect's Representative.

2.2.3 Water shall be applied using an approved hose or sprinkler, and so as not to cause compaction or wash-out of soil, or loosening of plants. The Contractor shall immediately make good any such damage.

The Contractor shall complete watering operations within 24 hours of an inspection which deems watering to be necessary.

2.3 Weeding

2.3.1 Planting in bare ground shall be maintained in a weed free in condition by the removal of bare ground all unwanted vegetative growth over the whole planted area to the satisfaction of the Architect or Architect's Representative.

2.3.2 Planting not in bare ground shall be maintained by removing all competing and overhanging weeds and grass as specified in Clause 2.5 and by keeping all areas within 300mm radius of the base of each plant in a weed/grass free and tidy condition in accordance with Clause 2.3.1.

2.3.3 Weeding shall be carried out by hand or by a means approved by the Architect or Architect's Representative so as not to cause any damage to the works. All weeds and rubbish resulting from this operation shall be removed from the Site. The Contractor shall weed areas as necessary and shall complete weeding within seven days of inspection.

2.3.4 All litter/rubbish in the planting areas shall be removed from the site. Litter/rubbish removal shall be completed within seven days of inspections.

2.4 Pruning

2.4.1 The Contractor shall prune all plants when agreed with the Architect or Architect's Representative during the Establishment Period.

2.4.2 Pruning shall be carried out in accordance with Clause 1.1.2.Method of Pruning 2.5

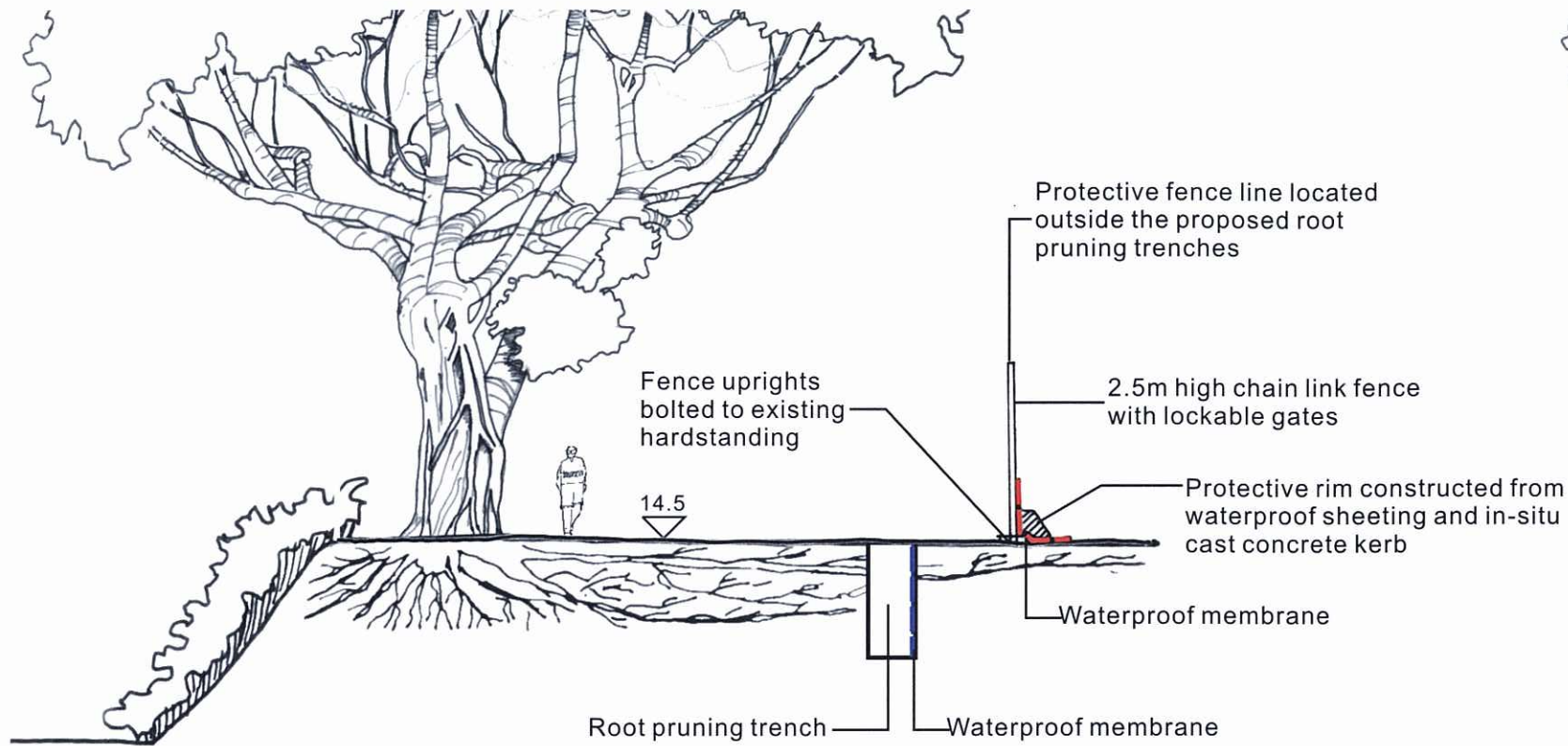
The Contractor shall cut all grassed areas by approved mechanical or manual means so as to avoid root pulling. Grass shall be cut when it reaches a height of 100mm. Cutting shall reduce the height to 40mm. The Contractor shall cut the grass as often as necessary to maintain the height in this range. All grass areas shall be weed free in accordance with Clause 2.3.2 before any grass cutting is carried out. Grass cuttings shall be removed from site to a dump approved by the Architect or

	Architect's Representative.	2.9.1	The Contractor shall be responsible for any plants Firming up which become loose as a result of wind-rock or other causes. The Contractor shall inspect the Site regularly for this purpose and after each storm or typhoon, to assess damage, which shall be reported to the Architect or Architect's Representative. Any damaged branches shall be carefully pruned and the wounds sealed.
2.5	Not Used		
2.6	Post Planting Fertilizer		
2.6.1	The Contractor shall apply post-planting fertilizer once each season during the Establishment Period when agreed with the Architect or Architect's Representative.	2.9.2	The Contractor shall replace all plants which are dead, dying or otherwise unsatisfactory, if the cause is in the opinion of the Architect or Architect's Representative, as a consequence of the use of poor materials or workmanship. Such replacement shall be to the relevant Clauses of this Specification.
2.6.2	Application of fertilizer shall be at a rate of 100g/m ² of grass.		
2.6.3	Application of fertilizer shall be at a rate of 50g per Shrub, Application Climber, Whip Tree or Seedling Tree, Ground-cover, Bamboo Rate (Per Plant) Plant or Herbaceous Plant.	2.10	Mulching
2.6.4	Application of fertilizer shall be at the rate of 225g per Light Standard Tree, Standard Tree, Heavy Standard Tree, Semi-mature Tree, Palm, Heavy Palm, Extra Heavy Palm and Semi-mature Palm.	2.10.1	The Contractor shall apply approved mulch when agreed and in the areas agreed by the Architect or Architect's Representative during the Establishment Period.
2.6.5	Fertilizer shall be lightly worked into the soil surface around the base of the plant, allowing an even distribution. After application of fertilizer each plant shall be well watered.	2.10.2	During the Establishment Period, the Contractor shall carry out three applications of mulch each to a thickness necessary to bring the total depth of mulch of 75mm unless otherwise specified after the application. The final mulching operation is to be carried out in the last month of the Establishment Period.
2.7	Forking Over	2.11	Programme
2.7.1	The Contractor shall fork over the surface of all bare ground forking over planted areas to relieve surface panning and compaction of the soil. The Contractor shall take care not to disturb the roots or loosen the plants. Any plants so disturbed shall be firmed up and well watered in immediately.		The Contractor shall submit a programme to the Architect or Architect's Representative for approval before the commencement of Establishment Works. The programme shall include all the items of operations as defined above. Other than the items of mulching, pruning and fertilizing; the Contractor shall propose in the programme the number of operations for the other items to be carried out during the Establishment Period.
2.8	Securing Stakes and Ties		The programme shall be approved by the Architect or Architect's Representative. Once approved, the Contractor shall carry out all the operations unless subsequently instructed otherwise by the Architect or Architect's Representative.
2.8.1	The Contractor shall be responsible for securing stakes and ties. An inspection shall be made every month by the Contractor and he shall replace all broken, damaged or otherwise unsatisfactory stakes and ties. Any ties which are causing chafing or abrasion of the tree shall be adjusted.	2.12	Removal of Protective Fencing
2.9	Securing and Replacement of Plants	2.12.1	The Contractor shall remove the fence at the end of the Establishment Period unless otherwise directed by the Architect or Architect's Representative.

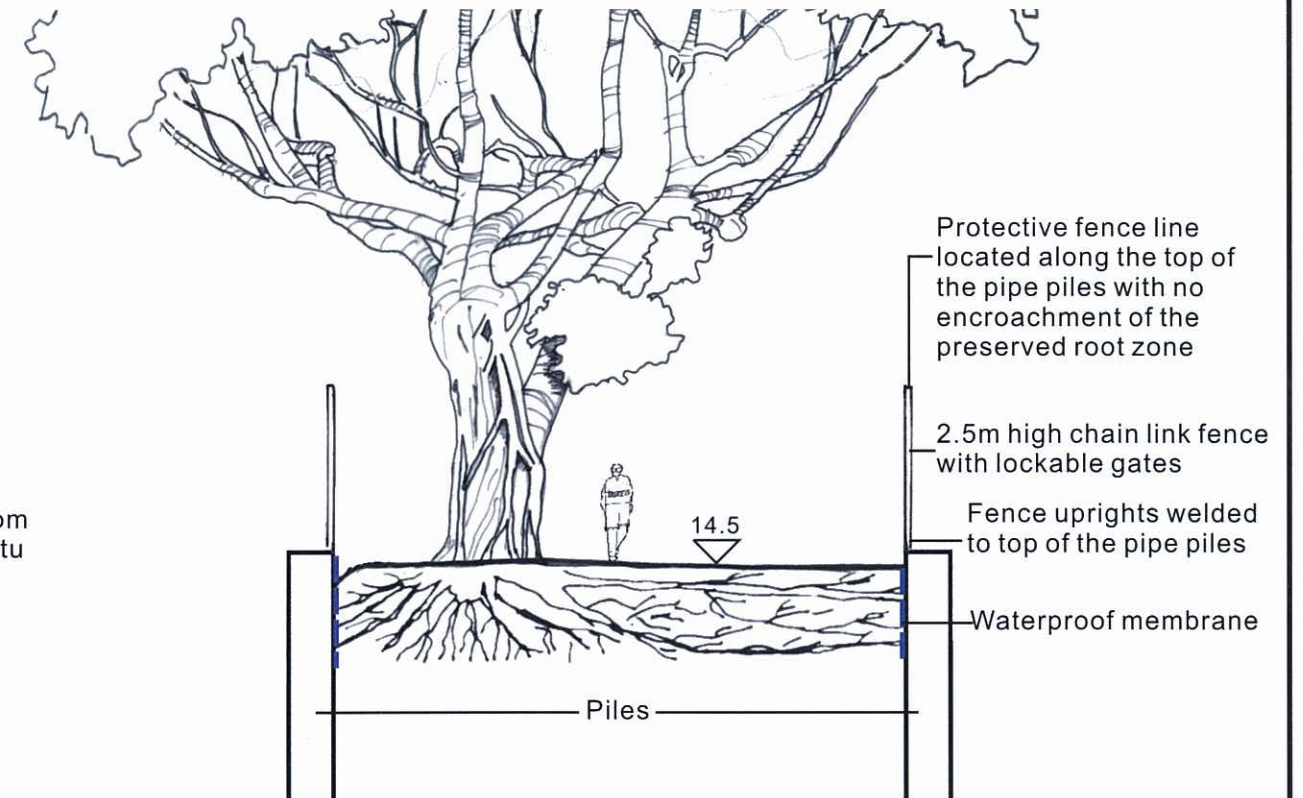
Appendix VII

Typical Sections showing Tree Protection Measures

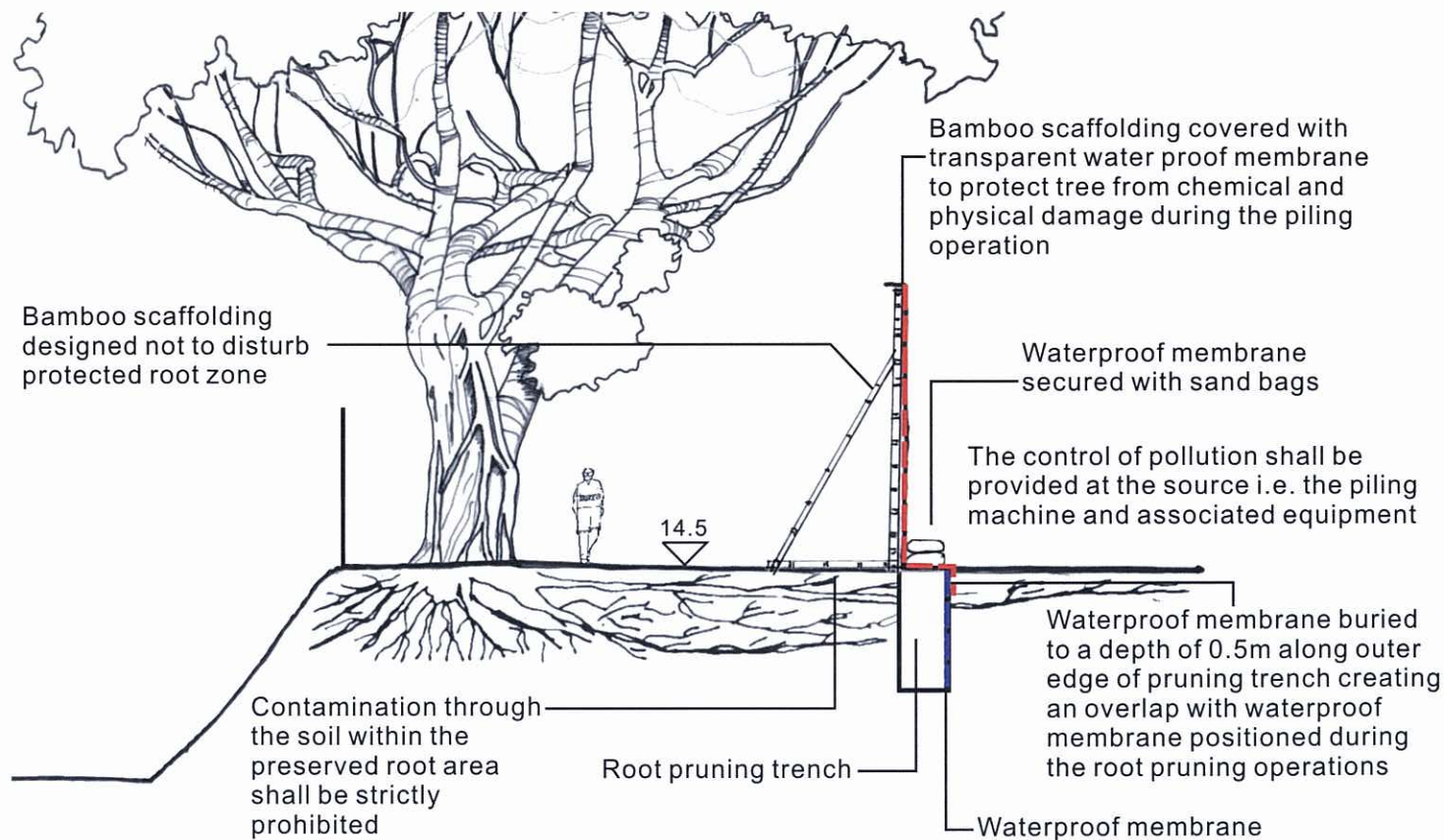
Stage 1: Prior to the proposed piling operations



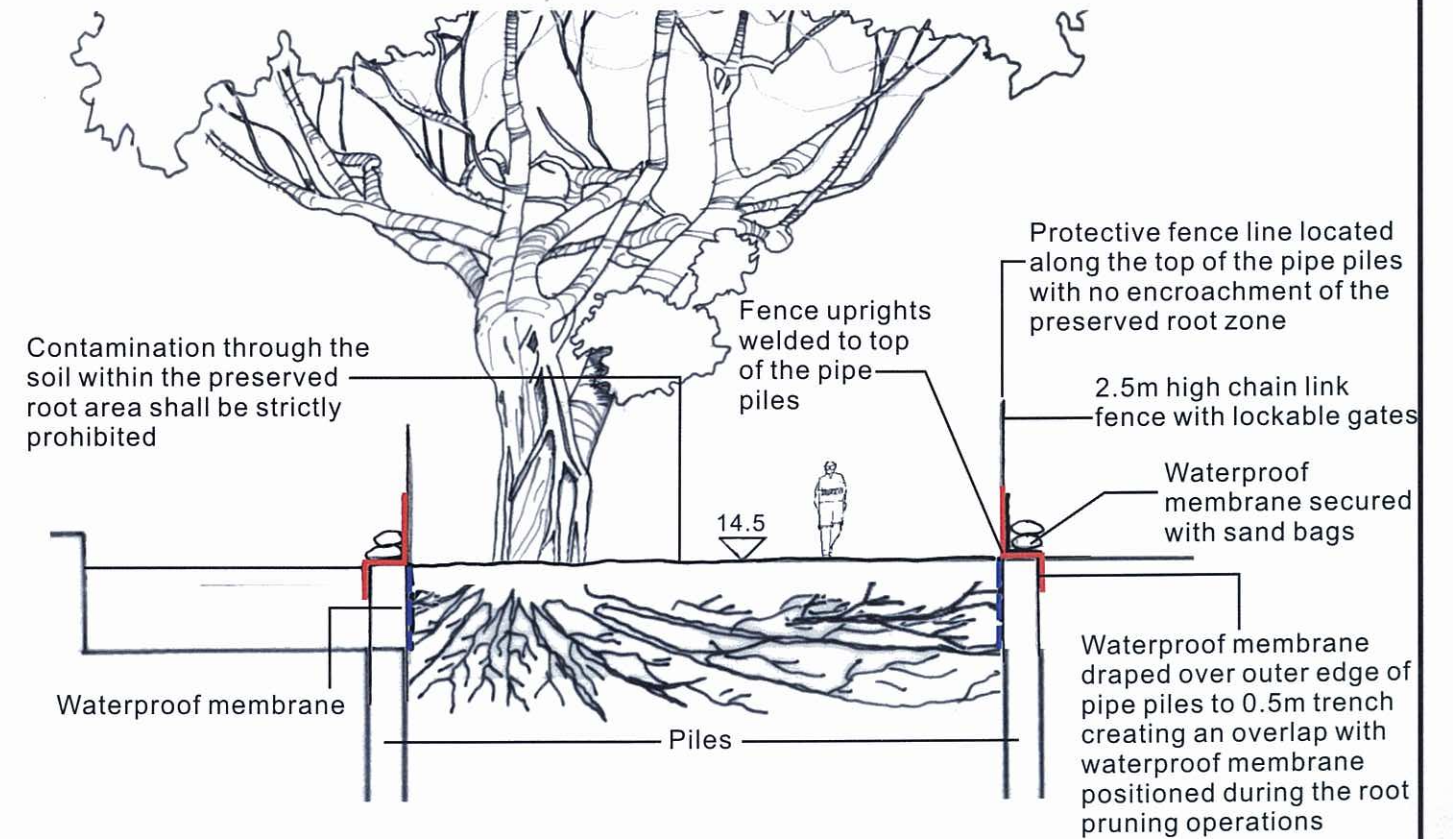
Stage 3: During the site formation contract



Stage 2: During piling operations

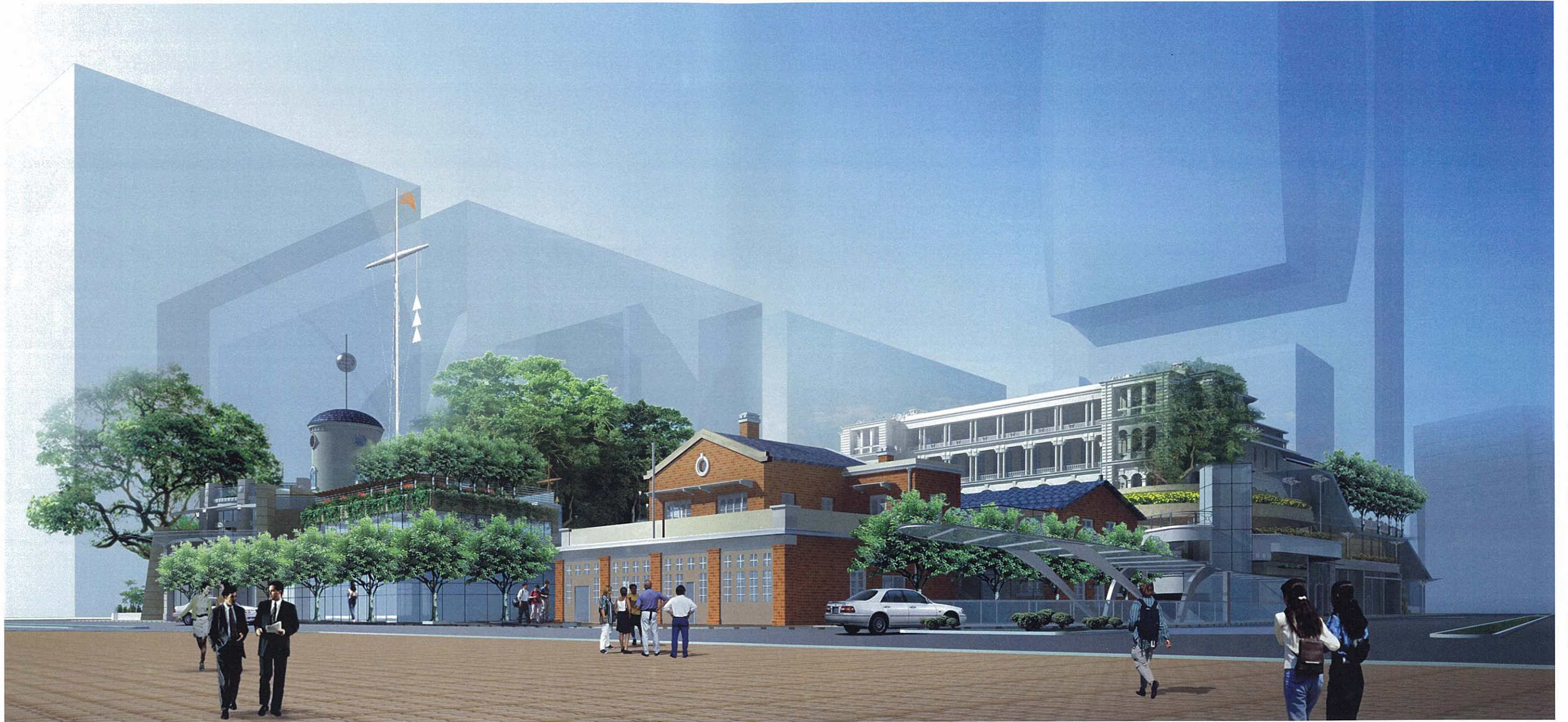


Stage 4: During the superstructure contract



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Appendix VIII
Scheme Proposal Drawings



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