HANDBOOK ON TREE MANAGEMENT

(DRAFT)

Greening, Landscape and Tree Management Section
Development Bureau
The Government of the Hong Kong Special Administrative Region

AUGUST 2015
# HANDBOOK ON TREE MANAGEMENT

## CONTENT

<table>
<thead>
<tr>
<th>Page No.</th>
<th>LIST OF ABBREVIATIONS</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>GLOSSARY OF TERMS</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td><strong>PART 1 – DUTY OF CARE OF TREE OWNERS</strong></td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>Purpose</td>
<td>7</td>
</tr>
<tr>
<td>1.2</td>
<td>Objectives</td>
<td>7</td>
</tr>
<tr>
<td>1.3</td>
<td>Importance of Tree Management</td>
<td>8</td>
</tr>
<tr>
<td>1.3.1</td>
<td>Trees are Living Organisms</td>
<td>8</td>
</tr>
<tr>
<td>1.3.2</td>
<td>Trees are Valuable Assets</td>
<td>8</td>
</tr>
<tr>
<td>1.3.3</td>
<td>Managing Tree Safety</td>
<td>9</td>
</tr>
<tr>
<td>1.4</td>
<td>The Legal Framework</td>
<td>10</td>
</tr>
<tr>
<td>1.4.1</td>
<td>Common Law Duty of Care</td>
<td>10</td>
</tr>
<tr>
<td>1.4.2</td>
<td>Building Management Ordinance (Chapter 344)</td>
<td>10</td>
</tr>
<tr>
<td>1.4.3</td>
<td>Code of Practice on Building Management and Maintenance</td>
<td>10</td>
</tr>
<tr>
<td>1.4.4</td>
<td>Occupiers Liability Ordinance (Chapter 314)</td>
<td>10</td>
</tr>
<tr>
<td>1.4.5</td>
<td>Provisions in Land Leases</td>
<td>11</td>
</tr>
<tr>
<td>1.5</td>
<td>Tree Owners’ Responsibilities</td>
<td>12</td>
</tr>
<tr>
<td>1.5.1</td>
<td>Engaging Qualified Professionals for Tree Works</td>
<td>12</td>
</tr>
<tr>
<td>1.5.2</td>
<td>Following Standards and Best Practices</td>
<td>12</td>
</tr>
<tr>
<td>1.5.3</td>
<td>Performing Routine Tree Inspection</td>
<td>13</td>
</tr>
</tbody>
</table>
Part 2 – KEY STEPS IN TREE RISK MANAGEMENT

2.1 Knowing your Tree Stock

2.2 Undertaking Tree Risk Assessment
   2.2.1 Tree Risk Assessment on Area Basis
   2.2.2 Tree Risk Assessment on Tree Basis
      (a) Tree Group Inspection (Form 1)
      (b) Individual Tree Risk Assessment (Form 2)

2.3 Mitigating Tree Risk
   2.3.1 Mitigation Measures after Tree Risk Assessment
   2.3.2 Tree Removal Procedures and Compensatory Planting
   2.3.3 Urgent Tree Removal
   2.3.4 Emergency Tree Failure Incident
   2.3.5 Safety Precautions
      (a) Safe Access
      (b) Arboriculture Occupational Safety and Health

2.4 Keeping Record
Part 3 – GENERAL TREE CARE

3.1 Tree Maintenance
   3.1.1 Performing Regular Tree Maintenance
   3.1.2 Maintaining Good Environment for Tree Growth
   3.1.3 Tackling Insect Pest and Fungal Disease
   3.1.4 Protecting Trees during Development
   3.1.5 Performing Good Tree Pruning Practices
   3.1.6 Keeping Maintenance Records

3.2 Tree Planting and Replacement
   3.2.1 Selecting Right Tree at Right Place
   3.2.2 Selecting Healthy Stock
   3.2.3 Considering Site Environment
   3.2.4 Providing Establishment Maintenance
Part 4 – APPENDICES

Appendix 1 - List of Qualified Service Providers and Members in Professional Groups on Tree Management
Appendix 2 - Sample Brief for Procurement of Arboricultural Service
Appendix 3 - Sample Format of Tree Inventory
Appendix 4 - Guidelines for Tree Risk Assessment and Management
Appendix 5 - Examples of Common Tree Defects
Appendix 6 - Guidelines on Arboriculture Occupational Safety and Health
Appendix 7 - Sample of Master List of Document and Record on Tree Works
Appendix 8 - Proper Planting Practice - Staking and Guying
Appendix 9 - Management Guidelines for Mature Trees
Appendix 10 - Management Guidelines for Stonewall Trees
Appendix 11 - Keep Sufficient Space Clear of Vegetation at the Base of Trees
Appendix 12 - Guidelines on Brown Root Rot Disease
Appendix 13 - Note on Common Wood Decay Fungi on Urban Trees of Hong Kong
Appendix 14 - Guidelines on Tree Preservation during Development
Appendix 15 - Design for Tree Protection Zone
Appendix 16 - General Guidelines on Tree Pruning
Appendix 17 - Do’s and Don’ts in Pruning (Factsheet)
Appendix 18 - Do’s and Don’ts in Pruning (Leaflet)
Appendix 19 - Sample of Tree Maintenance Record
Appendix 20 - Selection of Trees
Appendix 21 - Select and Plant Good Specimens
Appendix 22 - Provide Adequate Growing Space for Future Growth of Canopy
Appendix 23 - Provide Sufficient Growing Space Between Trees and Adjacent Buildings/Structures
Appendix 24 - Guideline on Pavement Renovation Works and Tree Stability

REFERENCES
LIST OF ABBREVIATIONS

AAP  Accredited Arboricultural Practitioners
BMO  Building Management Ordinance
BRR  Brown Root Rot
DEVB  Development Bureau
DLO  District Lands Office
GLTMS  Greening, Landscape and Tree Management Section
HTM  Handbook on Tree Management
LandsD  Lands Department
GLOSSARY OF TERMS

Arboricultural service
Engagement of qualified professionals to provide works related to tree works, including but not limiting to tree survey, preparation of tree inventory, tree inspection, tree risk assessment, mitigation measure, planting, transplanting, tree surgery work and control of pest and disease.

Common parts
Apart from the parts specified for the exclusive use, occupation or enjoyment of an owner, all other parts of the building and those parts specified in Schedule 1 to the Building Management Ordinance, e.g. structural parts, lifts, clubhouses, gardens and lawns, are the common parts of the building. Owners may refer to the Deed of Mutual Covenant to ascertain the common parts of their building.

Owner
A person who for the time being appears from the records at the Land Registry to be the owner of an undivided share in land on which there is a building and a registered mortgagee in possession of such share.

Lot owner
The owner of any piece or parcel of ground demised under a Government lease.

Mitigation measures
Tree works as recommended in tree inspection or tree risk assessment to mitigate potential tree risk for protection of public safety. Mitigation measures include the removal of defective parts of tree, installation of support system, pest and disease control, etc.

Qualified Professional
A qualified service provider and member of professional group with recognised qualifications and expertise to carry out arboricultural works.

Tree inventory
A tree database containing the latest tree and site information, including tree identity number, species, size, health and structural condition, number of each tree species, photo and location plan.

Tree Owner
A person, who is the owner of an undivided share of a building, also owns the trees that are growing on the common parts of the building.
PART 1 – DUTY OF CARE OF TREE OWNERS

1.1 PURPOSE
This ‘Handbook on Tree Management’ (HTM) has been developed by the Greening, Landscape and Tree Management Section (GLTMS) of the Development Bureau (DEVB). It provides Tree Owners the guideline and standard of good practice for management of their trees.

1.2 OBJECTIVES

For Tree Owners
- Understand your legal responsibilities of tree safety on your property.
- Understand the importance of routine tree inspection, regular tree maintenance and use of Qualified Professionals to implement tree works.

For Property Managers
- Understand the role you play in the application of the HTM on behalf of your Tree Owners.
- Engage Qualified Professionals for all tree works.

For Qualified Professionals
- Follow the HTM.
- Be diligent in your assessments and maintain the standard of expertise expected of a Qualified Professional.
- Only engage qualified contractors or personnel with demonstrated knowledge and experience.
1.3 IMPORTANCE OF TREE MANAGEMENT

1.3.1 Trees are Living Organisms

Just like human beings, trees are living organisms. It is normal and natural for trees to age with time. As part of its aging process, trees may:

- Shed and drop some branches
- Get sick and suffer from poor health
- Become susceptible to pest or disease and become weak
- Come under attack by wildlife

Structural and health conditions of trees will change with their life cycle and surroundings. Trees are particularly vulnerable in stormy weather.

The landscape environment we create will also affect the life of trees. A range of factors can make your trees weak and sick such as:

- Bad design: mismatch of tree species and growing place
- Bad landscape details: poor growing environment such as confined root space
- Bad supply: poor stock quality
- Bad installation: poor soil condition
- Bad management: poor assessment of tree health and tree risk
- Bad maintenance: cutting the main root; lack of water; bad pruning

A suitable growing environment and proper tree care is important for maintaining trees in stable and healthy conditions. Trees without proper management can become weak, deteriorate and eventually fail.

| To the Tree Owners: damage to your property will be insignificant when faced with the possibility of human injury and death. |

1.3.2 Trees are Valuable Assets

Structurally stable and healthy trees can add value to your property over time. Trees improve our outdoor environment and enhance our physical, emotional, intellectual and cultural well-being. Effective tree management and maintenance is an investment in our future.
1.3.3 Managing Tree Safety

Human safety is the most important aspect in tree risk management. Tree Owners must validate management diligence to keep trees in healthy and structurally sound conditions, recognise hazardous trees and take proper mitigation measures in a timely manner to protect human safety.
1.4  THE LEGAL FRAMEWORK

1.4.1 Common Law Duty of Care
The Owner of a land has a common law duty of care to maintain his/her land, including trees growing on the land, so as to ensure that they will not pose danger to his/her neighbours and the public. The Owner can be held liable for personal injury and/or property damage arising from failure to observe the duty.

1.4.2 Building Management Ordinance (Chapter 344)
Where owners of a building have formed an owners’ corporation under the Building Management Ordinance (BMO) (Chapter 344, Laws of Hong Kong), the responsibility for management of the common parts of the building rests with the owners’ corporation.

Under the BMO, owners’ corporation has a duty to maintain the common parts of the building in a state of good and serviceable repair and clean condition. Hence, an owners’ corporation must properly manage and maintain landscaping areas, such as lawns and gardens, within the common parts.

1.4.3 Code of Practice on Building Management and Maintenance
In performing its duties and exercising its powers under the BMO, an owners’ corporation is guided by the ‘Code of Practice on Building Management and Maintenance’ issued by the Secretary for Home Affairs under section 44(1) of the BMO. The purpose of the Code of Practice is to publicise standards and practices of management and safety in relation to the common parts of a building for owners’ corporation to observe and follow. Failure to observe the Code of Practice may be relied upon as tending to establish or to negative any liability which is in question in a civil or criminal proceeding.

The HTM forms part of the Code of Practice (in progress). Owners’ corporation are advised to follow the HTM to achieve effective tree management and maintenance.

1.4.4 Occupiers Liability Ordinance (Chapter 314)
The Occupiers Liability Ordinance (Chapter 314, Laws of Hong Kong) imposes on occupier of premises, that is the person in control of the premises, a duty to his/her visitor to take such care as is reasonable in the circumstances to see that his/her visitor will be reasonably safe in using the premises for the permitted purposes, a breach of which can give rise to civil liability.
1.4.5 Provisions in Land Leases

In the sale or grant of a plot of land, the Lands Department (LandsD) executes a lease with the purchaser/grantee, who will then be the owner of the land and is required to comply with the lease conditions. Leases executed at different times contain different conditions prevailing at that time. Lot owners (including the above purchasers/grantees and their subsequent assignees) have to check and comply with the lease conditions.

For lease of a private lot containing a tree preservation clause; the lot owner has to, except in an emergency situation, obtain written consent from LandsD for tree removal and pruning works. The application must meet the requirements specified in the Lands Administration Office Practice Note No. 7/2007 – Tree Preservation and Tree Removal Application for Building Development in Private Projects or its subsequent updated version. In granting a written consent, the relevant District Lands Office (DLO) may impose conditions on transplanting, compensatory landscaping or replanting as deemed appropriate.

Tree pruning or removal within a private lot are to be carried out by Qualified Professional(s) appointed by the lot owner if the tree within the lot is considered to pose an imminent danger where public safety is at risk after assessment by a professional employed by the lot owner meeting the requirements of the Lands Administration Office Practice Note No. 7/2007. The lot owner or his/her representative has to submit a detailed report prepared by the professional to LandsD within 21 days after the pruning or removal of the tree.

If a lot owner carries out tree removal or pruning without DLO’s written consent, appropriate action will be taken by DLO upon detection. Such action includes issuing warning letters to the lot owner, requiring the lot owner to carry out compensatory planting or pay a premium.

The information in this Section is for general reference only and should not be relied on as professional legal advice. Tree Owners are advised to seek assistance from your lawyers should you have doubts about your duties and liabilities in your specific case.
1.5 TREE OWNERS’ RESPONSIBILITIES

1.5.1 Engaging Qualified Professionals for Tree Works
Tree inspection, tree risk assessment and mitigation works involve arboricultural knowledge and require professional input. Tree Owners should always engage the services of Qualified Professionals to advise, supervise and handle all matters in relation to tree works. Selection of Qualified Professionals with good reputation and demonstrated experience are essential for quality results.

Appendix 1 - List of Qualified Service Providers and Members of Professional Groups on Tree Management

Appendix 2 - Sample Brief for Procurement of Arboricultural Service

1.5.2 Following Standards and Best Practices
The GLTMS is responsible for providing policy steer and advice to the tree management work of government departments. The Section promulgates standards in tree management and promotes the professionalism of the arboriculture industry.

The GLTMS regularly organises seminars and workshops on different tree management topics to arouse the awareness of Tree Owners on their responsibilities in proper tree management and the importance of proper tree maintenance. A wide range of online information including guidelines, publications, videos are available at www.trees.gov.hk.

While the guidelines promulgated by the GLTMS are intended primarily for government departments, Tree Owners are advised to take reference of the guidelines and standards and adopt them as appropriate. A section on ‘Information About Tree Maintenance for Private Properties’ (http://www.trees.gov.hk/en/tree_care/info_tree_maintenance_pp/index.html) has been specifically developed for private property owners and property managers in carrying out tree management works.
1.5.3 Performing Routine Tree Inspection

Routine tree inspection can help to identify early symptoms of deterioration in tree. Tree inspection needs to be carried out continuously as part of day-to-day tree maintenance work. Tree Owners are advised to check your trees after inclement weather to make sure they are not adversely affected by the heavy rain and strong wind.
PART 2 – KEY STEPS IN TREE RISK MANAGEMENT

Tree Owners are required to exercise proper tree risk assessment and mitigation measures to minimise risk of tree failure. This requires engagement of Qualified Professionals for the works. The following diagram illustrates the steps to be taken by Tree Owners for effective tree risk management.

- **Step 1:** Knowing your tree stock
- **Step 2:** Undertaking tree risk assessment
- **Step 3:** Mitigating tree risk
- **Step 4:** Keeping record

Engaging Qualified Professional(s) to undertake tree works
A proper tree risk management covers four fundamental aspects.

2.1 KNOWING YOUR TREE STOCK

Knowing the conditions your trees is the first step in implementing effective tree risk management. A good tree inventory can facilitate Tree Owners to establish a maintenance programme and prepare budget estimation for maintenance works.

<table>
<thead>
<tr>
<th>#</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ascertain the extent of areas with trees within your land.</td>
</tr>
<tr>
<td>2</td>
<td>Engage a Qualified Professional to collect and record:</td>
</tr>
<tr>
<td></td>
<td>▪ Basic tree information, including tree identity number, species, size,</td>
</tr>
<tr>
<td></td>
<td>health and structural conditions;</td>
</tr>
<tr>
<td></td>
<td>▪ Site information, such as number of each tree species, photos and</td>
</tr>
<tr>
<td></td>
<td>location plan.</td>
</tr>
<tr>
<td>3</td>
<td>For new planting schemes, the designer who is responsible for the planting</td>
</tr>
<tr>
<td></td>
<td>design needs to prepare the tree inventory as part of design service</td>
</tr>
<tr>
<td></td>
<td>and submit to the Tree Owner for record.</td>
</tr>
<tr>
<td>4</td>
<td>Update tree inventory as part of inspection programme.</td>
</tr>
<tr>
<td>5</td>
<td>Have Qualified Professional to check for completeness and accuracy.</td>
</tr>
</tbody>
</table>

**Appendix 3 - Sample Format of Tree Inventory**

2.2 UNDERTAKING TREE RISK ASSESSMENT

The purpose of tree risk assessment is to identify potential tree risks and carry out mitigation measures in a timely manner to reduce the risks.

<table>
<thead>
<tr>
<th>#</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Refer to the ‘Guidelines for Tree Risk Assessment and Management’</td>
</tr>
<tr>
<td></td>
<td>(<a href="http://www.trees.gov.hk/filemanager/content/attachments/TRAM_Guidelines_2">http://www.trees.gov.hk/filemanager/content/attachments/TRAM_Guidelines_2</a></td>
</tr>
<tr>
<td></td>
<td>014.pdf) issued by the GLTMS in carrying out tree risk assessment.</td>
</tr>
<tr>
<td>2</td>
<td>Conduct assessment within three months before the onset of the wet season.</td>
</tr>
<tr>
<td>3</td>
<td>Undertake inspection of all CAT I trees within three days after lowering of</td>
</tr>
<tr>
<td></td>
<td>a Red or Black Rainstorm Signal.</td>
</tr>
<tr>
<td>4</td>
<td>Undertake inspection of all CAT I trees within one week after lowering of</td>
</tr>
<tr>
<td></td>
<td>Typhoon Signal No.8 or above.</td>
</tr>
</tbody>
</table>

**Appendix 4 - Guidelines for Tree Risk Assessment and Management**
The tree risk assessment should be carried out in the following two stages.

### 2.2.1 Tree Risk Assessment on Area Basis

Areas of land with trees are defined according to the level of use in target areas. Targets are people, property, or human activities that can be injured, damaged, or disrupted by a tree failure. By identifying the frequently used areas in target areas, Tree Owners can allocate resources to these areas with higher priority for more effective tree risk assessment.

Tree Owners are recommended to coordinate with property managers and Qualified Professionals on the categorisation of tree risk management zone in accordance with the area usage and information in the tree inventory.

Categorisation of different potential risk zones is illustrated in the following table.

<table>
<thead>
<tr>
<th>Intensity of Use in Target Area</th>
<th>Potential Risk Zone</th>
<th>Priority for Tree Risk Management</th>
<th>Inspection Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intensive use</td>
<td>High (Category I)</td>
<td>Top priority</td>
<td>At least once a year before onset of wet season and when necessary</td>
</tr>
<tr>
<td>Areas of high traffic flow and high pedestrian flow such as entrances, sitting-out areas, children play areas, footpaths, vehicular access, etc.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infrequent use</td>
<td>Medium (Category II)</td>
<td>Secondary priority</td>
<td>Every 3 to 5 years</td>
</tr>
<tr>
<td>Areas of low traffic flow and low pedestrian flow such as roads with limited access, maintenance access, etc.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rare use</td>
<td>Low (Category III)</td>
<td>Low priority</td>
<td>When necessary</td>
</tr>
<tr>
<td>Areas of very rare access such as inaccessible areas, dense vegetated areas, etc.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
2.2.2 Tree Risk Assessment on Tree Basis

The engaged Qualified Professional is required to conduct tree risk assessment in group and individually to identify any potential tree risk and provide timely mitigation to alleviate the risk.

(a) Tree Group Inspection (Form 1)

Purpose: to facilitate an initial screening of trees.

Each tree in a tree group has to be inspected systematically for identifying potential tree hazards or tree required for detailed individual tree risk assessment (Form 2).

(b) Individual Tree Risk Assessment (Form 2)

Purpose: to conduct a detailed assessment of an individual tree that needs special attention.

This is an in-depth inspection that examines the full range of tree defects and site conditions present to determine the risk level of a tree to fail and strike a target.

A tree hazard rating with follow-up mitigation actions to address the identified defects and tree problems are given in the assessment. In some cases, use of advance equipment is required to identify, analyse and evaluate the inspected tree.

Appendix 5 - Examples of Common Tree Defects
2.3 MITIGATING TREE RISK

If the defects are not promptly rectified, it can lead to tree failure and cause serious or fatal injuries.

2.3.1 Mitigation Measures after Tree Risk Assessment

Appropriate mitigation measures as recommended in tree risk assessment are to be carried out in a timely manner and include:

- Pest and disease control
- Pruning
- Cordon off the tree fall zone
- Installation of support system
- Continuous monitoring of defect
- Tree removal

2.3.2 Tree Removal Procedures and Compensatory Planting

Tree Owners are required to proactively carry out tree pruning or removal if the tree is considered to have the risk of failure.

<table>
<thead>
<tr>
<th>#</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Follow requirements in the lease conditions and Lands Administration Office Practice Note No. 7/2007 – Tree Preservation and Tree Removal Application for Building Development in Private Projects or its subsequent updated version for application of tree removal.</td>
</tr>
<tr>
<td>2</td>
<td>After removal of tree(s), carry out compensatory planting in accordance with the requirements as stated in the practice note.</td>
</tr>
</tbody>
</table>

2.3.3 Urgent Tree Removal

<table>
<thead>
<tr>
<th>#</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Follow requirements stated in the Lands Administration Office Practice Note No. 7/2007 or its subsequent updated version to carry out urgent tree removal work.</td>
</tr>
<tr>
<td>2</td>
<td>Take full photographic record on the concerned tree(s) before removal or pruning of the damaged tree(s) due to natural causes or emergency situations where safety is at stake.</td>
</tr>
<tr>
<td>3</td>
<td>Photograph taking and tree removal can be carried out in parallel for expeditious emergency action if considered necessary.</td>
</tr>
<tr>
<td>4</td>
<td>In any case, inform Lands Department within 21 calendar days after the incident.</td>
</tr>
<tr>
<td>5</td>
<td>After removal of tree(s), carry out compensatory planting in accordance with the requirements as stated in the practice note.</td>
</tr>
</tbody>
</table>
2.3.4 Emergency Tree Failure Incident
Call 999 for assistance in emergency situation if a tree poses an imminent danger of collapse.

2.3.5 Safety Precautions
Provisions of safe working practices are set down in law in the Occupational Safety and Health Ordinance (Cap 509).

‘Every employer must, so far as reasonably practicable, ensure the safety and health at work of all the employer’s employees.’

- Provide and maintain a safe system of work to ensure the safety and health of the employees involved in the works
- Verify that all contractors have qualified safe work policies and implementation procedures.

(a) Safe Access
- Tree Owners have to provide a safe access for carrying out tree works, especially for trees located on slopes and retaining walls.
(b) Arboriculture Occupational Safety and Health

Refer to the ‘Guidelines on Arboriculture Occupational Safety and Health’ (http://www.trees.gov.hk/filemanager/content/attachments/OSH_Guidelines_2012_Dec_Issue.pdf) issued by the GLTMS to implement adequate occupational safety and health measures in carrying out the tree works.

Appendix 6 - Guidelines on Arboriculture Occupational Safety and Health

2.4 KEEPING RECORD

Tree Owners need to keep a complete set of inspection findings and recommendations of tree inspection properly and systematically for planning of tree maintenance and management works. Information to be recorded includes:

- Tree inventory
- Records of maintenance inspections
- Recommended mitigation measures and actions taken
- Photo records

Comprehensive and tracking mitigation measures can demonstrate that Tree Owners have taken reasonable care in tree management.

Appendix 7 - Sample of Master List of Documents and Record of Tree Works
PART 3 – GENERAL TREE CARE

Prevention is always better than cure. Proper tree care can help to promote healthy tree growth and reduce development of hazardous tree defects. Tree Owners need to engage qualified landscape contractors with demonstrated knowledge and experience to carry out regular maintenance to keep your trees in healthy conditions.

An overview of tree maintenance and planting practice essentials is provided in this section. More detailed information on tree care can be found in GLTMS website at www.trees.gov.hk.

3.1 TREE MAINTENANCE

3.1.1 Performing Regular Tree Maintenance
Proper tree maintenance contributes to the healthy growth and good form of trees. Many tree failure incidents are the result of lack of regular maintenance, poor tree maintenance practices and other malpractices in tree care.

<table>
<thead>
<tr>
<th>#</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Landscape contractors have to follow guidelines and best practice to carry out regular tree maintenance properly to upkeep the trees in healthy and structurally sound conditions.</td>
</tr>
<tr>
<td>2</td>
<td>Regular tree maintenance operation includes proper watering, weeding, pruning, fertilising, mulching, staking, pest and disease control, etc.</td>
</tr>
</tbody>
</table>

Appendix 8 - Proper Planting Practice - Staking and Guying

Appendix 9 - Management Guidelines for Mature Trees

Appendix 10 - Management Guidelines for Stonewall Trees
http://www.trees.gov.hk/filemanager/content/attachments/Guilelines_for_stone_wall_trees.pdf
3.1.2 Maintaining Good Environment for Tree Growth

The relationship between tree root systems and the characteristics of the soils in which they grow has a greater influence on tree health than any other single factor. To provide a favourable environment for tree growth, landscape contractors need to:

<table>
<thead>
<tr>
<th>#</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Provide soil with suitable texture, structure, pH value, and water-holding capacity for roots to anchor and obtain water, oxygen and nutrients in soil.</td>
</tr>
<tr>
<td>2</td>
<td>Keep the area around the base of tree trunk clear of vegetation, excessive soil and mulch fill.</td>
</tr>
</tbody>
</table>

Appendix 11 - Keep Sufficient Space Clear of Vegetation at the Base of Trees


3.1.3 Tackling Insect Pest and Fungal Disease

Insect pest and fungal disease can threaten tree health and structure. In Hong Kong, termites and Brown Root Rot (BRR) disease are the two key pest and fungal disease impacts on our trees. BRR disease is prevalent in tropical and subtropical areas. There is currently no direct remedy for BRR infected trees.

(a) Termites

<table>
<thead>
<tr>
<th>#</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>An indicator of wood decay.</td>
</tr>
<tr>
<td>2</td>
<td>Some species actively consume wood and can cause significant impact to structural stability.</td>
</tr>
<tr>
<td>3</td>
<td>Engage pest control professional to treat the infestation promptly.</td>
</tr>
</tbody>
</table>

(b) Brown Root Rot (BRR) disease

<table>
<thead>
<tr>
<th>#</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Highly pathogenic and infectious.</td>
</tr>
<tr>
<td>2</td>
<td>Cause rapid root decay and may lead to tree collapse.</td>
</tr>
<tr>
<td>3</td>
<td>Early detection of BRR signs and symptoms can help to control the disease through timely removal of the infected trees.</td>
</tr>
</tbody>
</table>

Appendix 12 - Guidelines on Brown Root Rot Disease

http://www.trees.gov.hk/filemanager/content/attachments/Guidelines_on_Brown_Root_Rot_Disease(version_for_the_general_public)EN.pdf
### 3.1.4 Protecting Trees during Development

During development, construction activities near trees can cause serious impacts to trees. Landscape contractors have to undertake precautionary measures to minimise the damage and subsequent risks associated with trees during and after construction.

<table>
<thead>
<tr>
<th>#</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Plan in advance for tree preservation before works.</td>
</tr>
<tr>
<td>2</td>
<td>Erect protection fence to prevent physical damages to trees and their roots.</td>
</tr>
</tbody>
</table>

### Appendix 14 - Guidelines on Tree Preservation during Development

http://www.trees.gov.hk/filemanager/content/attachments/Guidelines_on_Tree_Preservation_during_Development.pdf

### Appendix 15 - Design for Tree Protection Zone

http://www.greening.gov.hk/en/preservation/new/designForTreeProtectiveZone_e_b.jpg

### 3.1.5 Performing Good Tree Pruning Practices

Pruning is the most common maintenance operation in tree care. Proper pruning can:
- Improve tree health and appearance
- Prevent development of many hazardous tree defects
- Reduce the risk of tree failure

Improper tree pruning is detrimental to the appearance and healthy growth of trees and may result in irrecoverable damage to the structure of trees. Landscape contractors need to follow GLTMS guidelines to carry out pruning works safely and properly.
### 3.1.6 Keeping Maintenance Records

All inspection and maintenance records have to be documented properly. They need to contain:

- Date of operation
- Person responsible for the works
- Relevant tree information
- Operation details
- Photographic records showing the trees before and after treatment

The records on tree works can:

- Facilitate the monitoring of tree condition
- Assess the effectiveness of treatment
- Decide alternative follow up measures
- Demonstrate Tree Owners have taken reasonable care in proper tree management

---

**Appendix 16 - General Guidelines on Tree Pruning**
http://www.trees.gov.hk/filemanager/content/attachments/guideline.pdf

**Appendix 17 - Do’s and Don’ts in Pruning (Factsheet)**
http://www.trees.gov.hk/filemanager/content/attachments/factsheet.pdf

**Appendix 18 - Do’s and Don’ts in Pruning (Leaflet)**
http://www.trees.gov.hk/filemanager/content/attachments/leaflet.pdf

**Appendix 19 - Sample of Tree Maintenance Record**
3.2 TREE PLANTING AND REPLACEMENT

3.2.1 Selecting Right Tree at Right Place

Selecting the right tree at the right place is the basic principle in tree selection. The following factors have to be considered before planting.

- Sufficient space both above and below ground has to be allowed for the ultimate size of tree
- Purpose of tree planting
- Design intention
- Condition of planting site
- Tree characteristics
- Growing requirements of tree

Appendix 20 - Selection of Trees

3.2.2 Selecting Healthy Stock

Landscape contractors should provide high quality nursery stocks to Tree Owners. Substandard nursery materials can cause tree health and structural problems in future. A high-quality tree consists of the following characteristics:

- A central leader with good taper and free of co-dominant stems
- A strong form with well-spaced and firmly attached branches
- A balanced canopy with normal foliage and good live-crown ratio
- A trunk with no wound or damage
- A good quality root system with sufficient size and no defect

Appendix 21 - Select and Plant Good Specimens
3.2.3 Considering Site Environment

When allocating space for tree planting, the mature form, height and crown spread of the trees as well as the purpose of planting have to be considered. Sufficient growing space and adequate distance between trees and adjacent structures have to be allowed in planning stage. Trees that are planted too close to building structures can result in imbalance form and poor health in the long run.

**Appendix 22** - Provide Adequate Growing Space for Future Growth of Canopy


**Appendix 23** - Provide Sufficient Growing Space between Trees and Adjacent Buildings/Structures.


**Appendix 24** - Guideline on Pavement Renovation Works and Tree Stability


3.2.4 Providing Establishment Maintenance

For newly planted trees, landscape contractors have to:

<table>
<thead>
<tr>
<th>#</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Apply appropriate irrigation.</td>
</tr>
<tr>
<td>2</td>
<td>Maintain well drainage system.</td>
</tr>
<tr>
<td>3</td>
<td>Conduct regular weeding.</td>
</tr>
<tr>
<td>4</td>
<td>Install staking and guying to provide support for trees.</td>
</tr>
<tr>
<td>5</td>
<td>Apply appropriate mulching to control weed growth, retain moisture, relieve soil compaction and release nutrients to the soil.</td>
</tr>
<tr>
<td>6</td>
<td>Conduct proper formative pruning for young trees to create a balanced and healthy tree form.</td>
</tr>
</tbody>
</table>