

**TREE PROTECTION**

## 1.0 PURPOSE

The purpose of the Tree Protection policy is twofold:

- 1.1 To prevent or minimize damage to public trees during construction work, maintenance activities and snow removal operations; and
- 1.2 To protect trees while they are being transported from one site to another.

## 2.0 OBJECTIVES

The objectives of the policy are as follows:

- 2.1 To provide efficient and sensitive construction management that will minimize damage to trees from construction activities.
- 2.2 To provide a process for determining protective requirements for trees on construction sites.
- 2.3 To provide guidelines for protecting trees in and around construction sites.
- 2.4 To protect the public from possible injury from trees located on construction sites.
- 2.5 To provide guidelines for protecting trees during maintenance work.
- 2.6 To train City staff in the proper maintenance practices around trees.
- 2.7 To provide guidelines for protecting trees during snow removal operations.
- 2.8 To provide guidelines for protecting trees while they are being transported from one site to another.

## 3.0 DEFINITIONS

**Tree** - A woody plant with one or more stems and a minimum calliper width of 2.5 centimetres and a minimum height of 1.5 meters.

**Public Land** - Any real property owned or controlled by the City of Regina including, but without limiting the generality of the foregoing, any real property the City of Regina is granted access to under a tree planting easement.

**Public Tree** - Any tree located on public land including parks, boulevards, medians, bufferstrips and naturalized areas.

**Private Tree** - Any tree located on private property.

**Contractor** - Includes any private contracting firm or City department.

**Calliper** – The diameter of the tree trunk at a height of 1.37 meters from the ground. Calliper must be the determining measurement when the calliper exceeds 40 mm. It must be measured no less than 15 cms above grade level for trees with a calliper of up to 100 mm. Trees 100 mm and larger calliper are to be measured 30 cms above ground.

**Root Pruner** - A specialized mechanical device that cuts roots to a depth of 0.5 meters below grade.

#### **4.0 RESPONSIBILITY**

- 4.1 The Superintendent of Urban Forestry is responsible for ensuring the application of the Tree Protection Policy .
- 4.2 The Arborist is responsible for coordinating field operations involving City staff.
- 4.3 The Forestry Technician is responsible for conducting preliminary and follow-up site inspections.
- 4.4 The Integrated Pest Management Section is responsible for monitoring the urban forest for pests and diseases and for implementing programs to control their impact.
- 4.5 The Bylaw Enforcement Division is responsible for enforcing the related provisions of *Forestry Bylaw #9607*.
- 4.6 The approval of the Superintendent of Urban Forestry is required before any exposed root over ten centimetres is cut or removed. Roots smaller than ten centimetres may be removed with the approval of the Forestry Technician or Arborist.
- 4.7 The Superintendent of Urban Forestry or the Arborist shall approve the removal of any hazardous tree within a construction zone. Tree removals must follow the process outlined in the Tree Removal Policy.
- 4.8 The approval of the Parks and Recreation Board is required before any live tree not deemed a hazard is removed.

#### **5.0 MANAGING CONSTRUCTION IMPACT ON PUBLIC TREES**

When land is developed the existing trees on the site may be affected. With early planning and some precautions, many trees can be saved with little effort or expense. There are three types of construction projects that could impact trees on public land: 1) civic projects conducted on public land; 2) private projects that impact trees on public land; and 3) provincial or federal projects that impact trees on public land. Every attempt should be made to preserve and protect trees on public land during construction. Trees should only be removed to accommodate development when no cost-effective alternative is available. The

City's expectations for tree preservation should be clearly defined to developers and become an integral part of the project planning process. The following process is to be followed for construction projects working near trees on public land.

## **5.1 Pre-Construction Planning and Site Evaluation**

- 5.1.1 The Urban Forestry Section, Municipal Engineering and Public Works Departments shall meet in the off season (November - February) to discuss the one to three year schedule for City projects. This meeting will determine which sites require advance work (pruning, tree removal or root pruning) prior to the commencement of construction work.
- 5.1.2 During the planning stage of a proposed development Public Works, Municipal Engineering or the utility company undertaking the project shall contact the Superintendent of Urban Forestry to arrange an on-site evaluation of those sites where public trees could be impacted. (See Appendix "F" Tree Removal for the procedures to follow for tree removals.)
- 5.1.3 Applicants applying for a building permit whose construction activities will impact public trees shall be advised to contact The Urban Forestry Section for a copy of the Tree Protection Requirements described in section 6.0. It is the responsibility of applicants to notify The Urban Forestry Section in advance of any site where construction will occur closer than five meters to a public tree.
- 5.1.4 All preliminary and final construction plans for City-contracted projects and permit requests for utility or private construction projects in the public rights-of-way that may impact public trees shall be routed through The Urban Forestry Section for review.

The developer shall provide a Tree Preservation Plan for the site that incorporates the Requirements for Construction Near Trees on Public Land outlined in section 6.1.5. The Tree Preservation Plan shall be approved by The Urban Forestry Section prior to issuing the building permit to ensure the protection of the trees during construction. The plan shall:

- 1) Show the location of all existing trees on the site.
  - 2) Determine the viable alternatives for preserving the existing trees.
  - 3) Determine the tree protection requirements for the site.
  - 4) Determine any possible conflicts especially those requiring tree removal, relocation or new plantings on boulevards.
  - 5) Identify the access roadway to the site.
  - 6) Determine if clearance pruning is required prior to the commencement of construction work.
- 5.1.5 The Urban Forestry Section shall conduct a site inspection with the developer to review the proposed Tree Preservation Plan for the project. Based on The Urban Forestry Section's assessment of the site, the Tree Preservation Plan may be sent back to the applicant for revision.

- 5.1.6 The revised Tree Preservation Plan shall be reviewed by the Municipal Engineering Department and the Urban Forestry Section for final sign-off.
- 5.1.7 The Tree Preservation Plan should not be approved until the building permit has been approved. Then it should be forwarded to The Building Division for inclusion with the building permit when it is issued.
- 5.1.7 Sites requiring pruning, tree removal or root pruning shall be forwarded to the Arborist for scheduling.

## **5.2 Construction Activities**

- 5.2.1 The Urban Forestry Section shall verify installation of the protective materials as per the Tree Preservation Plan before the Building Division releases the building permit to the applicant.
- 5.2.2 The Urban Forestry Section shall conduct periodic inspections of the construction site to ensure compliance with the Requirements for Construction Near Trees on Public Land. In cases where the developer has failed to comply with the requirements, Urban Forestry Section shall request the developer to correct the situation. If the developer fails to comply within a reasonable period as determined by The Urban Forestry Section, a referral shall be made to The Bylaw Enforcement Division to enforce compliance.
- 5.2.3 The contractor shall contact The Urban Forestry Section within 24 hours of damage occurring to public trees and may be liable for these damages as stated in *Forestry Bylaw #9607*. Any repair work will be done by Urban Forestry staff.
- 5.2.4 In those cases where the Requirements for Construction Near Trees on Public Land or *Forestry Bylaw #9607* are contravened, Bylaw Enforcement Division shall be contacted for follow-up action.

## **5.3 Post Construction, Evaluation and Remediation**

- 5.3.1 The Urban Forestry Section shall conduct a final site inspection when the project is completed. The inspection shall:
  - 1) Determine the corrective work required to trees damaged during construction.
  - 2) List the damaged trees and notify the responsible parties.
  - 3) Determine the costs to remedy the damaged trees and bill accordingly. The costs may include:
    - i) Personnel, equipment and material costs for remedial action.
    - ii) The value lost when trees suffer excessive root cambium, and/or crown loss.
    - (iii) The assessed value of trees that were entirely lost or destroyed.
    - (iv) The cost of replacement plantings.
    - (v) The cost of any required follow-up work.

A copy of the inspection results shall be forwarded to the Building Division.

- 5.3.2 The Urban Forestry Section and the Building Division sign-off after final inspection verifying that all work has been completed according to plan.

#### **5.4 Construction on Private Land**

In those cases where the proposed construction is on private property but may impact a nearby tree on public land, the owner should contact The Urban Forestry Section to conduct a site inspection. The Urban Forestry Section may ask the owner to enter into a voluntary agreement to protect the tree and/or allow Urban Forestry Section to perform any branch or root pruning that may be required.

### **6.0 TREE PROTECTION REQUIREMENTS**

The following tree protection requirements are to be considered the normal practice for protecting trees on public land. The Superintendent of Urban Forestry may consider alternatives to or relaxations of these requirements when the developer, contractor or their agents provide a written submission outlining the reasons for waiving the requirements.

#### **6.1 Construction Near Trees on Public Land**

##### **6.1.1 Authority**

Protection of trees during construction is authorized by *Forestry Bylaw #9607*.

##### **6.1.2 Application**

- The following procedures apply to both municipal construction on City property and private construction activities that may impact public trees.
- The following procedures apply to any construction occurring within five meters of a public tree.

##### **6.1.3 Responsibilities**

- The contractor or applicant is responsible for contacting The Urban Forestry Section to arrange a site inspection prior to commencing work in order to determine all protection and follow-up maintenance requirements.
- The contractor is responsible for providing the necessary tree protection based on the assessment of the Superintendent of Urban Forestry or designate.
- For approval to remove or relocate a tree refer to the Tree Removal Procedures.

- The contractor is responsible for notifying The Urban Forestry Section within 24 hours of any damage occurring to City owned trees.
- The Urban Forestry Section or The Bylaw Enforcement Division are responsible for conducting periodic inspections of all construction sites.

#### **6.1.4 Costs Incurred**

- Any costs incurred for protecting, repairing, removing or replacing public trees as a result of construction activities shall be the responsibility of the contractor or applicant.
- Any damage to public trees caused by the contractor for which the costs are not covered may be subject to prosecution under Section 3 subsection (b) of *Forestry Bylaw #9607*.

#### **6.1.5 Requirements for Construction Near Trees on Public Land**

The following requirements are to be followed during construction activities near trees on public land. The contractor will be held financially responsible for any damage that occurs to public trees as a result of not applying these guidelines.

##### **6.1.5.1 Protective Lane**

- No one shall construct a walkway, driveway or paving within a distance of 0.5 meters from the base of any tree for every 10 centimetres of diameter of the trunk at a point 100 centimetres off the ground.

##### **6.1.5.2 Excavation and Trenching**

- The cutting of roots by a trencher, root pruner or saw to a depth of 0.5 meters shall be done prior to the commencement of any excavation when the work is to occur within two meters of the trunk. (See Appendix “E” Root Pruning – Table 1: Pruning Distance From Tree Base)
- When work is to occur more than 2 meters away from the trunk, repair to any damaged roots shall occur once the excavation is complete.
- Any roots that must be exposed for a period of time shall be covered by a wet tarp to prevent drying and periodically watered to be kept moist.
- Wherever possible the contractor shall core instead of trenching when working within 2 meters of the tree trunk.
- All open holes shall be backfilled as soon as possible.

### 6.1.5.3 Tree Protection Zone

In order to protect the roots, trunks and branches of trees during construction activities protective barricades shall be erected according to the International Society of Arboriculture standards as follows:

| <u>Diameter of Tree Trunk</u> | <u>Protection Zone</u><br>(minimum distance in meters from trunk) |
|-------------------------------|---|
| Up to 100 mm                  | 1.5m  |
| 100mm - 250mm                 | 2.4m  |
| 250mm - 375mm                 | 3.0m  |
| 375mm - 500mm                 | 3.6m  |
| Over - 500mm                  | 4.5m  |

Within this protective zone:

- i no equipment shall be operated;
- ii no building material stored;
- iii no temporary buildings or work trailers placed;
- iv no fuels or chemicals stored or dumped;
- v no soil piled; and
- vi no grading or excavation shall be allowed.

### 6.1.5.4 Soil Compaction

Surface soils are often compacted on construction sites as a result of heavy equipment moving over the area. Compacted soils affect tree growth by restricting root activity and development. The resultant poor drainage and aeration increases the tree's susceptibility to root diseases.

If extensive soil compaction has occurred as a result of construction, as determined by the Superintendent of Forestry or designate, the contractor will be responsible for aerating the area once construction is completed and for fertilizing it the following year.

### 6.1.5.5 Hoarding Requirements

In those developments where trees are situated within 5 meters of the project site or where in the opinion of the Superintendent of Urban Forestry or designate the trees could be adversely affected by the development, the contractor shall erect hoardings in compliance with the following guidelines.

- When working within 1 meter of the tree trunk, protection shall be provided by pounding 4" x 4" x 4' wooden posts into the ground around the tree at one foot intervals and held together by strapping.
- When working within 1 to 3 meters of a tree trunk, protection shall be provided by six foot sheets of half inch plywood held erect by steel posts at the furthest distance away from the tree possible.
- When working within 3 to 5 meters from the trunk, snow fencing shall be erected at the farthest point away from the tree possible.
- The contractor is responsible for all costs incurred in erecting, maintaining and removing such hoardings and for the regular watering and maintenance of trees while so enclosed. All boulevard repair or reconstruction and tree repair and replacement shall be at the contractor's expense.

#### **6.1.5.6 Grade Changes**

Grade changes are frequently necessary when building sites are being prepared for construction. However, any change in grade around existing trees can have a marked effect on their survival and future growth. Unless corrective action is taken immediately, lowering the grade exposes the existing root system to the air and reduces the supply of nutrients and moisture available to the roots. Raising the grade around a tree can have an even greater adverse effect. Air circulation is cut off and moisture and nutrients cannot reach the tree roots. In some cases drainage is impaired and the tree drowns. Generally, the original grade can be increased 10 to 15 centimetres a year without damaging the tree.

When changing the grade around a tree, careful consideration shall be given to methods of preventing injury to the tree. Preventing damage is always cheaper and more effective than attempting to correct the situation after the damage has been done. Where grade changes are necessary around trees, the following measures shall be followed:

- All grade changes that will impact public trees must be approved by the Superintendent of Forestry or designate.
- Any increases or decreases in the grade shall be gradual.
- Reduction in grade levels up to, but no greater than, 75 millimeters can be tolerated without significant tree root damage. Any grade reductions greater than 75 millimeters shall be accomplished by terracing around the tree. The first terrace shall be made as far away from the tree as possible and no closer to the tree than the dripline or edge of the tree crown. The terrace should be supported by a retaining wall.
- Any grade increases of 2 - 10 centimetres must be aerified by drilling 4 centimeter holes to a depth of 10 centimetres deeper than the fill over the entire fill area. The holes are to be filled with 20 millimetres weeping tile stone and covered with soil filter fabric.

- Any grade increases greater than 10 centimetres require the installation of a retaining wall to maintain the soil level to the dripline.
- If the grade is to be increased a total of more than 45 centimetres, a tree well will be needed.
- Where extensive measures may be necessary to save a tree, the Superintendent of Forestry or his designate shall determine whether the value of the tree and its contribution to the landscape is worth the expense and effort required.

#### **6.1.5.7 Penalty for Violations**

*Forestry Bylaw #9607* provides that any person who contravenes any provisions of the bylaw which includes damaging or pruning a tree, altering the grade level or drainage pattern, failing to erect a protective barrier around trees before beginning construction or removing or interfering with protective barriers is guilty of an offence punishable on summary conviction of a fine.

### **6.2 Requirements for Maintenance Work Around The Base of Public Trees**

The following practices shall be followed to protect trees on public land during turf maintenance.

- 6.2.1 An orientation session is conducted before the start of each season by The Open Space Management Division, Public Works Department and Support Services Department for all maintenance staff working around the base of trees. The session shall include information on the procedures to be followed in working around trees.
- 6.2.2 Maintenance staff shall not strike or rub against the bark of trees with maintenance equipment such as string trimmers, mowers and rototillers.
- 6.2.3 Trees 15 centimetres in diameter or less that are not in prepared planting beds shall have a protective guard placed around their base. The guards shall be of the plastic variety that expand on their own as the tree grows and shall be of an adequate length to provide protection from normal maintenance activities.
- 6.2.4 Trees in unirrigated areas shall have mulched tree wells during their establishment period (1 - 3 years).
- 6.2.5 In open space areas where regular turf maintenance is required (parks, medians, etc.) consideration shall be given to using planting beds as opposed to planting individual trees for ease of maintenance and aesthetic purposes.
- 6.2.6 The use of protective guards on grass mowers shall be incorporated into equipment where possible to reduce the damage to trees.

- 6.2.7 Equipment suitable to the size of the trees, the site and the job to be done shall be utilized to minimize damage to trees.
- 6.2.8 Coniferous trees shall not be cultivated within their driplines in order to prevent damage to their root system.
- 6.2.9 Pre-emergent herbicides may be used in planting beds to control weeds. It is believed that the use of herbicides will cause less damage to trees than cultivating. Staff should be careful to read the Material Safety Sheet for the herbicide to ensure that the herbicide is not toxic to the particular species being sprayed around.
- 6.2.10 Trees may be wrapped in protective wire to protect them from rodent damage. The wire should not be installed too tightly around the tree and should be inspected periodically.
- 6.2.11 Any suckering around the base of a tree shall be removed with hand pruners and not a weed whipper or lawnmower.
- 6.2.12 On those existing irrigated sites where a group of trees are planted so close together mowing may cause damage, the area encompassed by the trees shall be considered either a no-mow area or for a reduced frequency of mowing.

### **6.3 Requirements for Transporting Trees**

- 6.3.1 All tree material being transported to a site shall be covered with a tarpaulin to reduce desiccation due to wind and heat. Trees shall also be protected from leaf loss, limb breakage and trunk damage during transportation, loading and unloading procedures. Anti-desiccants may be used to reduce moisture loss when a tree is being relocated, during times of heat/drought stress or to protect evergreens during cold dry winters.
- 6.3.2 Ball and burlap trees are to be handled so as to ensure that the root ball is kept intact and not damaged. Trees moved by truck or trailer shall be secured to the deck by the root ball not the tree trunk.
- 6.3.3 Trees are to be covered with soil, mulch or a tarpaulin to prevent drying during the storage or handling period and watered regularly to prevent desiccation.
- 6.3.4 Containerized or ball and burlap trees wintered outside shall be protected from animals by surrounding them with snow fencing.
- 6.3.5 Trees shall be planted immediately following removal from the nursery. They must not be stored on the landscape site for more than one working day. If trees must be stored the root balls should be watered to protect them from drying out.

## **6.4 Requirements For Snow Removal**

It is reasonable to expect some damage to public trees as a result of City snow removal activities. While the following points will not completely eliminate the damage they should help to minimize it.

- 6.4.1 The Urban Forestry Section shall prune public trees to allow for the free movement of snow removal equipment.
- 6.4.2 Public Works shall bring to the attention of the Superintendent of Urban Forestry Section those locations where tree branches are impeding the movement of snow removal equipment.
- 6.4.3 The Public Works Department shall advise their operators and contractors to avoid damaging trees during snow removal.
- 6.4.4 Snow shall be plowed onto side or centre boulevards where applicable to provide off-road storage. Snow blowers shall not blow sand, ice or snow into coniferous trees or at the trunks of deciduous trees.
- 6.4.5 The snow shall be removed from the boulevard, windrowed, and loaded onto trucks for transport to a snow storage site.
- 6.4.6 Boulevards are not to be cleared to turf level. A cover of 10 centimetres shall be left and a 30 centimetre clearance shall be maintained from the tree trunk when removing snow.
- 6.4.7 To avoid damage to trees, the snow immediately next to the trees shall not be removed. Should trees be damaged The Public Works Department shall immediately notify the Superintendent of Urban Forestry Section so the necessary repairs to minimize further damage.
- 6.4.8 The Public Works Department shall reimburse The Urban Forestry Section for the costs related to the repair or replacement of a damaged tree.
- 6.4.9 Designated areas on boulevards shall be left treeless to allow for snow storage.

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