



Any land use or development removing trees must submit a major tree permit in conjunction with their land use application. Additionally, a tree retention plan must be submitted to show tree protection measures and ensure compliance with BMC 19.26.

## Tree Retention Plan and Tree Protection Plan

### Suggested Steps

1. Identify the developable area (i.e., land within critical areas and their buffers, public rights-of-way, private PUD streets, shared driveways, and public trails shall be excluded), and calculate the required tree credits. Vegetation in shoreline management areas, critical areas, or their buffers are regulated separately from BMC 19.26. Trees in the public ROW are regulated by BMC 12.38.
2. Survey tree locations within the developable area, or those within 30 feet that could be impacted by development. In conjunction with an arborist report designate trees for retention to meet minimum required tree credits and show exceptional trees on all plans. All trees must have numbers on the plans that correspond to physical tags on the trees.
3. If proposing to remove an exceptional tree document how it cannot be retained with the deviations in BMC 19.26.040(2)(C)
4. Show tree protection fencing and measures for all significant and exceptional trees proposed to be retained. All trees proposed for removal shall be marked with an X.
5. Exceptional trees retained with deviation BMC 19.26.040(2)(C) must post a bond which shall be applied by the director, of the appraised landscape value, using the latest edition of the "Guide for Plant Appraisal". The bond of the tree shall be posted for a five-year survival period after the conclusion of development.
6. If trees are to be replanted for landscape standards or to meet minimum tree credits show the size and location of trees on the landscape or tree replacement plan. Post a bond for these trees.
7. If the director determines it is not feasible to replant on the site, pay the fee-in-lieu.
8. Prior to construction have the Urban Forest Planner on-site to inspect tree protection measures, including but not limited to:
  - a. Tree protection fencing
  - b. Woodchip mulch within tree protection fencing.
  - c. Signs posted on tree protection fencing.
  - d. Associated fines posted for illegal tree removal.
9. After construction have a third-party arborist, at the applicant's expense, inspect tree protection measures. If trees are not present or unhealthy conduct restoration or pay fines as applicable.

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## Significant and exceptional trees – Retention plan.

The applicant shall submit a tree retention plan prepared by a qualified tree professional, concurrent with a land use review application, grading permit application, building permit application, preliminary subdivision application or short subdivision application, whichever is reviewed and approved first.

1. A tree map that identifies the location, size (DSH), and species of all significant and exceptional trees on a site. The tree map shall be conducted by a method that locates individual significant and exceptional trees provided that the map:

- A. Shall also show the location and species of each significant and exceptional tree:
  - i. With an engineered professional survey location when a survey is required; or
  - ii. With an accuracy of five (5) feet or less – or measurements from the property line and to the proposed disturbance – when a survey is not required for the application.
- B. All trees proposed for removal must clearly be marked with an X;
- C. Shall show the location of any tree designated as a Heritage tree or exceptional tree. Exceptional and Heritage trees must be clearly noted on the survey;
- D. Shall show the location of trees within thirty (30) feet of any clearing or grading that could be impacted by development;
- E. Trees shall be labeled on all plan sheets with numbers that correspond to physical tags on the trees; and
- F. Shall show the location of the critical root zone(s) and tree protection zone(s), showing the tree protection fencing at the extent of the tree protection zone. Tree protection fencing shall be on all plans that involve ground disturbance, such as but not limited to grading, demolition, landscaping, and stormwater.

## Significant and exceptional trees – Protection.

To provide the best protection for significant and exceptional trees:

1. No clearing or development activity shall be allowed on a site until approval of tree retention and landscape plans.
2. An area of prohibited disturbance, generally corresponding to the TPZ of the significant and/or exceptional tree(s) shall be protected during construction with a temporary 6-foot-high chain-link fence and include warning signs “Tree Protection Zone – Keep Out” every 20 feet. The fencing shall be

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installed prior to issuance of development permits for the site and removed once the project is complete. Fencing shall be inspected by the Director prior to grading.

3. Each retained exceptional tree shall be posted with the fine associated with removal as provided in Table 19.26.040-1. The fine must be affixed to the nearest fence panel or affixed to the tree in a manner that does not damage the tree. Signs must be visible and maintained throughout the duration of the project.

4. No impervious surfaces, fill, excavation, or storage of construction materials or equipment shall be permitted within the area defined by such fencing. Temporary access within the TPZ must be approved and monitored by a qualified tree professional at the expense of the applicant.

5. Each TPZ must be covered with 4 inches of coarse arborist woodchips to clearly delineate the TPZ, retain moisture, and protect soils throughout construction. Supplemental irrigation will be required if the woodchip layer cannot sufficiently maintain soil moisture throughout construction.

6. The grade level shall not be lowered or raised within the TPZ without a report provided by a qualified tree professional and approval of the director. Approved excavation within the TPZ must use low-impact excavation methods, such as directional boring, pneumatic (air) or hydro excavation, or hand digging to minimize disturbance to the trees. Any roots 2 inches diameter or greater that cannot be retained must be cleanly cut at the extent of excavation to prevent damage to the root beyond excavation. Exposed roots must be covered with burlap or plastic sheeting and kept wet throughout construction.

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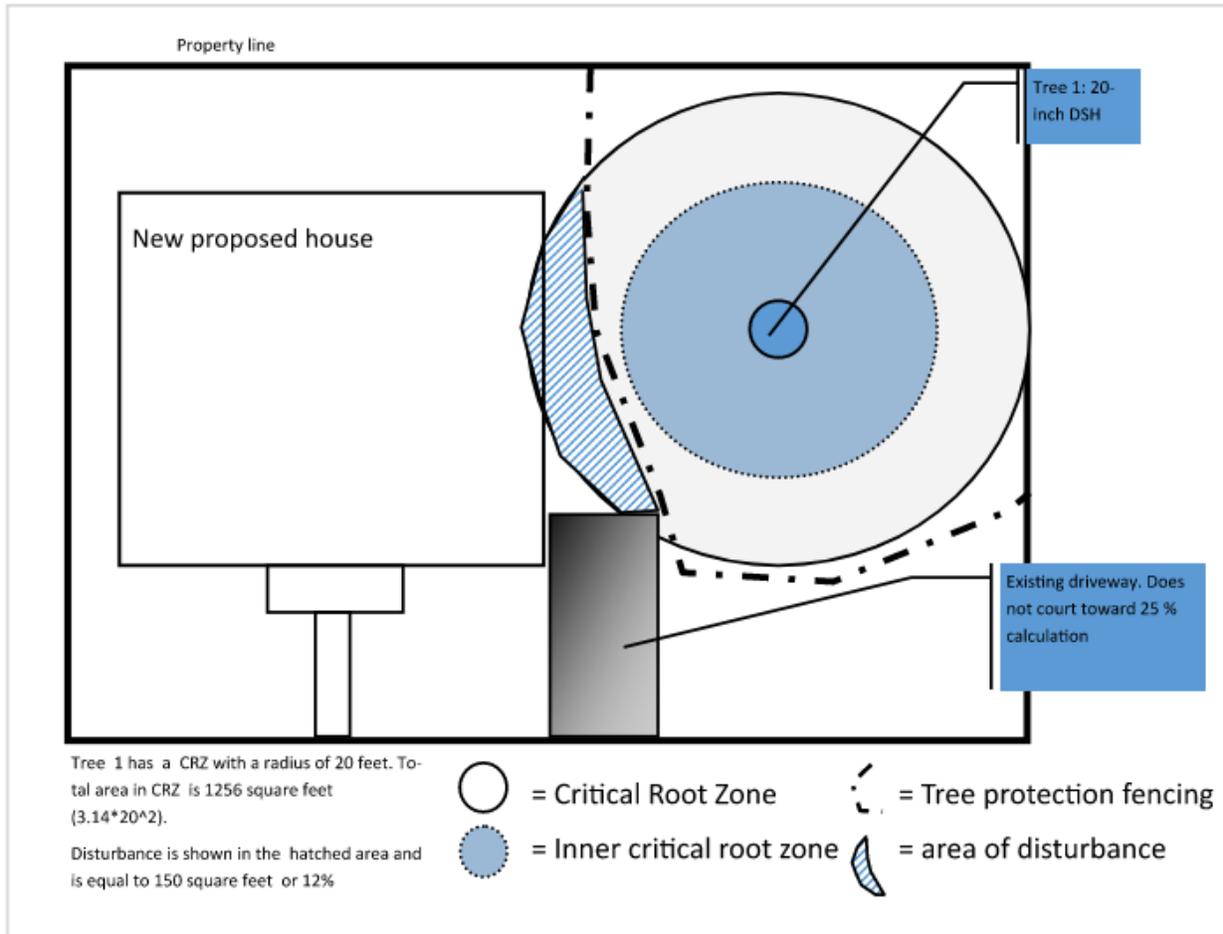


Figure 1. NOT TO SCALE. Example of critical root zone and location of tree protection fencing which represents the Tree Protection Zone. Disturbance is allowed in up to 25% of the Critical Root Zone, however, no disturbance is allowed within the inner critical root zone.

## Definitions:

**Critical root zone** or CRZ (BMC 19.10.093) is an area around the tree that is equal to one-foot radius from the center point of the tree for each 1 inch of tree trunk diameter measured at the diameter at standard height (DSH).

The **inner critical root zone** (ICRZ) is an area around the tree that is equal to a half-foot radius from the center point of the tree for each 1 inch of tree trunk diameter measured at DSH. This is equivalent to half of the radius for the CRZ. This is an area with a high concentration of structural roots and should not be disturbed.

The **Tree Protection Zone** (TPZ) is equal to the CRZ OR an area sufficient to protect the tree during and after development as recommended by a qualified tree professional. Under no circumstances can impacts occur within the ICRZ and grading impacts cannot exceed more than 25% of the total CRZ. Other

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limited disturbances may be considered at the discretion of the director provided they will not cause damage to the tree.

When developing a property, all trees designated for retention shall show the CRZ, ICRZ, and TPZ if different from the CRZ. For example, if a 20-inch Douglas-fir was slated for retention, the tree protection plan must show a circle with a 40-foot diameter (the CRZ) and a 20-foot diameter (the ICRZ). If disturbance is proposed within the CRZ (disturbance is allowed in up to 25% of that area provided the health and structure of the tree will remain intact and no disturbance occurs within the ICRZ), then the TPZ would be the area minus the disturbance areas. In situations where alternative excavation or special tree protection methods are required the tree protection fencing must be installed at the CRZ and then adjusted to the final TPZ when the work is to be performed.

### Required Minimum Tree Credits

1. All pieces of property, regardless of zoning or use, within the City of Burien are required to maintain a minimum tree credit requirement (BMC 19.26.050). The tree credit requirement is calculated per the table below:

**Table 19.26.050-1 Required Minimum Tree Credits**

Land Use Type	Required Minimum Tree credits per 1,000 square feet of developable area <sup>1</sup>
Single-family development (detached dwellings, ADUs and DADUs) and townhouses on individual lots.	1
Multi-family development (attached dwellings including townhouse apartments and cottage housing).	1
Commercial, industrial, or landscape categories C, D, and F	0.15

<sup>1</sup> Developable area excludes critical areas and their buffers, public rights-of-way, private PUD streets, shared driveways, and public trails.

2. Credits are derived from the size of a tree (measured by DSH, or diameter of the trunk taken at 4.5 feet from the base).

3. The tree credit chart is:

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**Table 19.26.050-2 Tree credits**

Existing Significant and Exceptional Trees								Planted trees	
Tree DSH <sup>1</sup> Or size	6 to 10 inches DSH	Larger than 10 and up to 14 inches DSH	Larger than 14 and up to 18 inches DSH	Larger than 18 and up to 22 inches DSH	Larger than 22 and up to 26 inches DSH	Larger than 26 and less than 30 inches DSH	30 inches or greater DSH and all exceptional trees	2-inch caliper deciduous or broadleaf tree	6-foot-tall evergreen conifer
Credits per tree	1	2	3	4	5	7	9	1	2

4. Calculating minimum required tree credits. Example: A residential property has a developable area (i.e., land within critical areas and their buffers, public rights-of-way, private PUD streets, shared driveways, and public trails shall be excluded) of 7,200 square feet.  $7,200 \text{ square feet} / 1000 = 7.2$  tree credits. When this calculation does not result in a whole number the number is rounded to the nearest whole number, in this case 7. When there are existing trees on the property, a minimum of 50 percent of the required tree credits must be met from existing trees. The remaining 50 percent of tree credits can be met from existing trees, replacement trees, or a combination of the two.

- A. The property has on it two 20-inch Douglas-fir trees, one 15-inch red oak, and three 6-inch bigleaf maples.
  - i. 20-inch Douglas-fir = 4 tree credits x 2 (trees) = 8 tree credits
  - ii. 15-inch red oak = 3 tree credits
  - iii. 6-inch bigleaf maple = 1 tree credits x 3 (trees) = 3 tree credits
 Total tree units on site:  $8 + 3 + 3 = 14$  tree units. Minimum tree density is met and exceeded. **IF** development requires tree removal the minimum tree density can be met by a combination of retention options. For example, both Douglas-fir trees can be retained. One Douglas-fir, and the red oak. **OR** one Douglas-fir and three bigleaf maples.
- B. If the same property had no trees on the site it would need to plant trees to reach the required 7 tree credits. Each 2-inch caliper deciduous or broadleaf tree counts for 1 tree credit. Each 6-foot-tall evergreen conifer planted counts as 2 tree credits. The minimum required credits can be reached by planting seven deciduous trees or four evergreen coniferous trees or some combination of the two.
- C. If in order to construct a house, one Douglas-fir, one red oak, and all three bigleaf maples need to be removed there would be 4 tree credits remaining on the property ( $14 \text{ credits} - 4 \text{ credits (one Douglas-fir)} - 3 \text{ credits (one red oak)} - 3 \text{ credits (three bigleaf maples)} = 4 \text{ credits}$ ). Since 7

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credits are required on the lot, 50 percent of the requirement is met by retaining one Douglas-fir. The remaining three credits can be met by replacement trees.

## Alternatives

- An applicant can receive a 25% reduction in the landscape buffer if all tree credits are obtained from existing significant or exceptional trees.

## Exceptional Trees

Exceptional trees are large trees, generally 30 inches DSH or larger, or the size listed in Table 19.26.040-1.

**Table 19.26.040-1 Exceptional Tree Table with Threshold Diameters at Standard Height<sup>1</sup>**

<b>Exceptional Tree Sizes</b>		
<b>Common name</b>	<b>Scientific name</b>	<b>Exceptional size</b>
<u>Grand fir</u>	<u><i>Abies grandis</i></u>	<u>24 in</u>
<u>Vine maple</u>	<u><i>Acer circinatum</i></u>	<u>10 in</u>
<u>Bigleaf maple</u>	<u><i>Acer macrophyllum</i></u>	<u>24 in</u>
<u>Red alder</u>	<u><i>Alnus rubra</i></u>	<u>Not Exceptional<sup>2</sup></u>
<u>Pacific madrone</u>	<u><i>Arbutus menziesii</i></u>	<u>8 in</u>
<u>Port Orford cedar</u>	<u><i>Chamaecyparis lawsoniana</i></u>	<u>24 in</u>
<u>Cascara</u>	<u><i>Franqula purshiana</i></u>	<u>8 in</u>
<u>Ash</u>	<u><i>Fraxinus spp.</i></u>	<u>Not Exceptional<sup>3</sup></u>
<u>Sitka spruce</u>	<u><i>Picea sitchensis</i></u>	<u>24 in</u>
<u>Lodgepole or shore pine</u>	<u><i>Pinus contorta</i></u>	<u>12 in</u>
<u>Western white pine</u>	<u><i>Pinus monticola</i></u>	<u>24 in</u>
<u>Black cottonwood</u>	<u><i>Populus trichocarpa</i></u>	<u>Not Exceptional<sup>2</sup></u>
<u>Bitter cherry</u>	<u><i>Prunus emarginata</i> var. <i>mollis</i></u>	<u>Not Exceptional<sup>2</sup></u>
<u>Douglas-fir</u>	<u><i>Pseudotsuga menziesii</i></u>	<u>24 in</u>
<u>Oregon white oak</u>	<u><i>Quercus garryana</i></u>	<u>12 in</u>
<u>Willow (All native species) –</u>	<u><i>Salix spp. (Geyeriana ver meleina, eriocephala ssp. mackenzieana, Hookeriana, Piperi, Scouleriana, sitchensis)</i></u>	<u>8 in</u>
<u>Pacific yew</u>	<u><i>Taxus brevifolia</i></u>	<u>8 in</u>
<u>Western redcedar</u>	<u><i>Thuja plicata</i></u>	<u>24 in</u>
<u>Western hemlock</u>	<u><i>Tsuga heterophylla</i></u>	<u>24 in</u>
<u>Any tree not listed in this table</u>		<u>30 in or greater</u>
<u>Heritage tree</u>		<u>Any size</u>

<sup>1</sup>Diameter at standard heights listed in this table apply for both for single stem or multistem equivalent.

<sup>2</sup>These trees are early successional trees, which have a short lifespan and are not always appropriate to retain around urban areas with high concentrations of targets (e.g. homes, buildings, and people).

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<sup>3</sup>This is a genus of tree species that is susceptible to emerald ash borer, the additional protection afforded by the exceptional designation is not warranted as these trees have a higher likelihood of mortality.

On a development proposal site, exceptional trees shall not be removed unless they are determined to pose a risk to surrounding targets based on an ISA tree risk assessment produced by a qualified tree professional. However, Exceptional trees may be removed if retention will limit the constructable building coverage to less than 85% of the maximum building coverage area allowed pursuant to BMC 19.15

Deviations in development standards to allow for retention of exceptional trees:

- For a single-family residence, building coverage may be increased by 20% or a reduction of the front yard setback by up to 10' may be granted. If such a departure is granted, the departure shall be no greater than the development potential lost in tree protection areas.
- An additional 10' of height may be granted to accommodate floor area that is equivalent to the square feet of the tree protection areas multiplied by the total number of floors proposed by the project.
- Parking reduction. A reduction in the parking quantity required by BMC 19.15 and BMC 19.20.040 may be permitted in order to protect an exceptional tree if the reduction complies with BMC 19.20.040(3) and would result in a project that would avoid the tree protection area

## Tree Replacement

A tree replacement plan is required when replacement trees are required. This can be part of the landscaping plan or a separate document.

- Required to replace trees in accordance with BMC 19.26.100 to bring up to minimum tree credit requirement (BMC 19.26.050)
- During development each healthy exceptional tree removed must be replaced by three trees.
- If the director determines it is not feasible to plant all the required replacement trees on the site, a fee-in-lieu (currently \$700/tree, however that rate may change) can be collected per tree.

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