

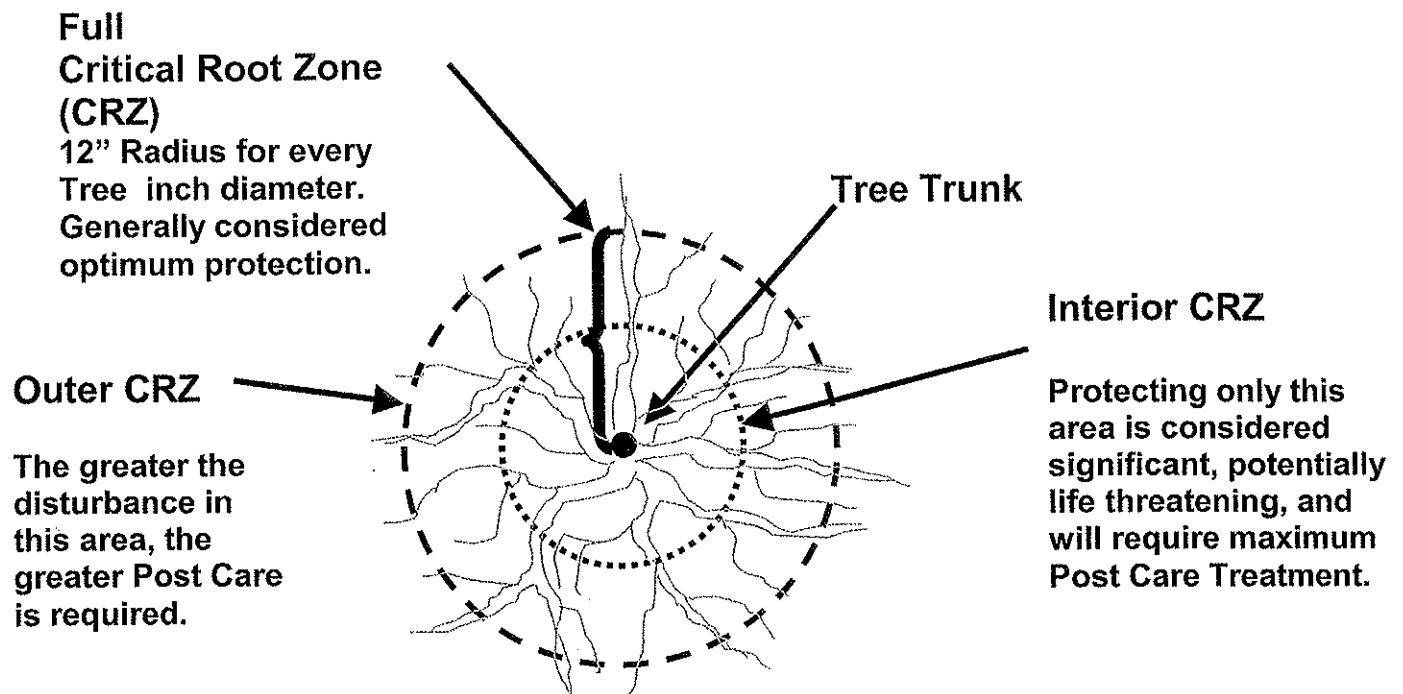
May 01, 2008

DKA  
Attn: John McWilliams

Re: Ingraham High School – Northwest grove of trees

The October 19, 2007 site trip and report was intended to establish the presence of “Exceptional Trees” per the City of Seattle Director’s Rule 6-2001. Bill Ames, urban forester from SDOT, and I walked three areas of the project site: the northwest corner, the right of way along Ashworth and the wooded area within the proposed future east parking expansion. At the completion of the walk through it was determined there were no exceptional trees present in any of the three areas. See attached report dated October 22, 2007.

The following report is in response to the current proposed site plan for the Ingraham High School. The proposed building addition is located in the northwest area and will impact the existing grove of trees. Currently there are 133 trees located within this area. 90 of these trees are proposed for removal due to impact to the critical root zone. The critical root zone (CRZ) of a tree is established based on the trees’ trunk diameter. The CRZ is a circular area which has a radius of 12” to every inch of trunk. The CRZ may vary depending on the size of tree, soil, water table, species and other factors.



The critical root zone is a recognized standard within the tree industry for establishing a protection zone and as a general guideline for what trees might survive proposed construction activity. Protecting this entire zone within the outer critical root zone should result in no adverse impact to the tree. It was determined by the design team that 43 of the existing trees could be retained with special provisions provided through construction activity. It is my understanding from review of the site drawings that the design team has carefully considered the impacts to the critical root zone of all remaining 43 trees. Grading and site activities have been kept outside the outer critical root zone for most of the trees. Two trees that are located close to the proposed building, will have special grading and wall construction activities that will impact a small portion of the outer CRZ.

It appears the design team has provided the remaining trees the best opportunity to survive, although it is impossible to foresee the long term effect to the remaining trees.

My recommendations for the remaining trees include the following:

The trees to remain should be individually reviewed after removal of the trees within the construction zone. Remaining trees should be reviewed by a certified arborist for viability and potential to withstand proposed construction activity. Tree protection fences should be installed at the established location of trees identified to remain prior to the start of any construction activity. Regular monitoring of these trees should be performed by a certified arborist on a bi-monthly basis through out the construction process. Monitoring should include review of conformance to established tree protection measures. After construction is complete, each tree should be individually reviewed and assessed for damage and hazard potential. The School District should perform ongoing post-construction maintenance to promote optimal tree vigor. Post construction care should include, but may not be limited to: regular irrigation, bio-stimulants, mycorrhizal inoculations, mulching, and pruning of dead wood.

In addition, it is my understanding the design team is proposing the following within the northwest area of the project site.

1. Addition of a 2-3" mulch layer - this will greatly improve soil conditions and enhance root growth of remaining trees. The existing conditions are compacted soil in a number of places from casual trails through the stand, and the non-native grasses competing for moisture and nutrients to the critical top layer of feeder roots. The mulch will provide protection from foot traffic and shade out the grass as well as providing nutrients for optimal root growth.

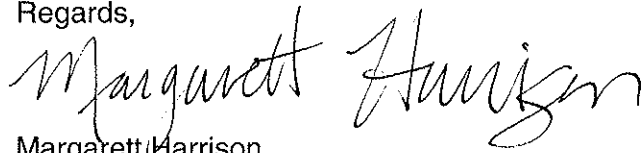
2. Addition of new plantings, native shrubs and groundcover including (31) thirty one conifers - this will create diversity to the existing stand, provide further protection from western winds, increase shading at the western edge for the soil and roots of existing trees, and provide repair for areas where trees have been removed. Research has shown that the addition of understory shrubs and trees improves soil conditions for trees by rounding out the natural conditions of a healthy soil in a forest stand. There appears to be a synergistic relationship between native shrubs and their companion trees in a fully functioning forest soils. The proposed plan would improve the existing conditions, create a more naturally functioning system and provide increased longevity for this tree canopy.

3. Commitment by the School District to maintain the plants, irrigate appropriately, weeding, remove of invasive plant materials, pruning as needed and on-going

monitoring of health. The lack of this basic care is commonly why so many new plantings fail. Regular maintenance will provide a higher potential for success.

If you have any questions or require further information please do not hesitate to call.

Regards,

A handwritten signature in cursive script that reads "Margaret Harrison". The signature is written in black ink and is positioned to the right of the typed name.

Margaret Harrison  
Certified Arborist PN 502

to: **Integrus Architecture** \_\_\_\_\_ project: **Ingraham high school** \_\_\_\_\_  
attn: **Brian Carter** \_\_\_\_\_ date: **October 22, 2007** \_\_\_\_\_  
from: **Margarett Harrison** \_\_\_\_\_ # of pages :  
please call if you do not receive all pages

cc:

**Jeff Middleton -Integrus**

**Bill Ames - SDOT**

**Jennifer Munde - CDC**

**subject: Exceptional Tree Review at Ingraham High School**

On Friday October 19, 2007 I walked the Ingraham High School site with Bill Ames Urban Forester from SDOT.

As requested we reviewed three areas within the project site to identify exceptional trees.

**Area One – Northwest corner of the project site.** Approximately 120 trees are located in this area. The tree stand is of fairly uniform age. Size ranged from 12” caliper to 30” caliper DBH. Trees consist of Douglas fir, Western Red Cedar and Madrones. Most of the firs and cedars are in fair health with a majority of the trees display a type of trunk defect occurring approx. 20’ from the ground.

On September 6, 2007 root samples from each of the three tree types were sent to the WSU Puyallup Plant Clinic.

Jenny Glass performed the diagnostic testing. Results from that testing are as follows

Bark, root, and soil samples were examined microscopically and incubated in moist chamber to determine if any of the common root diseases were present (note at this time, we are unable to culture soil for the presence of pathogens). I observed none of the typical types of symptoms or signs associated with our main diseases of concern (no rhizomorphs of Armillaria root rot, no red setal hairs in damaged wood typical of laminated root rot, no spores of Annosus root disease or Phytophthora root rot on the wood). I am not, however, comfortable making any diagnosis about the overall health of this grove based on negative findings from these samples given the volume of sample relative to the size of the site.

The madrones are in severe decline with most of the trees displaying less than 20% live canopy. Bill Ames concurred that none of the Madrones are exceptional due to their poor condition. Madrones are very sensitive to construction activity. Therefore it was determined, to minimize future hazard potential, all the madrones should be removed.

**Determination:** No exceptional trees were found in Area One.

**Recommendation for Area One:**

1. Trees outside the construction zone that are to remain should be protected per tree protection drawings and specifications.
2. Trees to be removed that are located within 10' of trees to remain should be removed in a manner that will not disturb canopy or root zone of adjacent trees. Stumps shall be ground with a stump grinder.
3. Madrones should be removed. Parts of the trees could be retained for habitat value.

**Area Two – Right of Way along Ashworth – south of entry drive**

Five trees are located within the right of way at the south west corner of Ashworth. Trees are located and labeled on attached sketch dated October 22, 2007. All of the trees are Douglas Fir ranging in size from 18"- 24" caliper. Trees #1, #2 and # 5 have been severely topped due to overhead power lines. All three trees display major disfigurement and are in poor health. Trees #3 and #4 are in fair health but should be further evaluated by an aerial inspection.

**Determination:** No exceptional trees were found in Area Two.

**Recommendations for Area Two:**

1. Remove trees #1 – 20" Douglas Fir and #2 two 20" Douglas Fir. Trees have been severely topped and are in poor health.
2. Retain trees #3 and #4. Trees should be pruned following ANSI A-300 Pruning Standards. Remove dead wood. Inspect trees canopies for structural defects of branch attachments. Provide to owner and city for review. Certified arborist and SDOT shall review proposed grades and proposed sidewalk location within the dripzone of these two trees. Contractor shall provide this information as well as construction methods prior to approval of work.
3. Remove tree #5 – 18" and 24" Douglas Fir.

**Area Three – Wooded area within the Proposed Future East Parking Expansion**

The tree stand consists of approximately 75 trees -Douglas fir, Western Red Cedar, Bitter Cherry Big Leaf Maple, Native Dogwood and Madrones. Trees occur in a natural area with a healthy native understory. Douglas Fir and Cedars appear to be in good health.

**Determination:** No exceptional trees were found in Area Three.

**Recommendations for Area Three:**

1. Retain small healthy madrones.
2. consider configuring the proposed parking to retain healthy fir trees

If you have any questions or require further information please do not hesitate to call.

Margarett Harrison

Certified Arborist - PN 502