

## SISKIYOU FORESTRY CONSULTANTS

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Humboldt County Planning Commission

RE: Homan Development Project at College Cove

As a professional forester I am often asked about the impacts of subdivision and building development on forest stands and on individual trees. As a result, I have been asked to review the Homan Major Subdivision development planned for the College Cove area. I have reviewed the 2/3/09 Homan Phased Major Subdivision Project Description, the Staff report at page 8 (1994 vertical color aerial photo), the Mitigated Negative Declaration dated 1/5/10, and the 1/21/10 LACO Phased Tentative Map [of the] Homan Major Subdivision, particularly page 12 of that document. I have also looked at the 2009 digital orthophotos of the property.

The Mitigated Negative Declaration does not directly discuss tree removal other than as it relates to wildlife (raptor surveys) and to permitting requirements for timber removal. The Mitigated Negative Declaration is only partly correct with respect to timber removal permitting requirements. While a timberland conversion permit THP would indeed be required by CALFIRE, as the MND states, in fact, the timberland conversion permit will be held to a higher standard because the project area falls within the coastal zone and special Forest Practice Rules for operations within the coastal zone are required.

After review of the above documents, I find that numerous trees are slated for removal (approximately 37 trees of which 2 are spruce and the balance either white fir (sic), Douglas-fir or redwood). However, the developers project description states that the forest on the property is mostly composed of spruce and is located on the east side of the property. The applicants photo and the 2009 digital orthophotos show differently, and indeed the majority of the larger trees and the forest are located on the south and west sides of the property. Most trees to be removed are in the 20" diameter range. Also, besides numerous trees which are to be removed, numerous trees are located close to house pads, access roads and utility corridors such that damage can be expected to their root systems from construction activities.

Damage to trees comes from the building of roads, homes, leach fields, utility trenches, water lines etc. with the potential to both disturb the soil through compaction which can damage root systems of nearby trees, as well as the physical tearing of roots through trenching and digging. Both of these impacts would occur at the proposed Homan subdivision. Sitka Spruce in particular is susceptible to compaction because it is so shallowly rooted. However other trees on the property such as redwood and red alder would also be susceptible to damage from construction activities, particularly trenching for utilities and excavation of road ways, foundations and leach fields.

Compaction from heavy equipment typically occurs when soils are moist to wet and can result from equipment passing over a particular area as few as 3 times. If there is enough compaction, soil bulk density increases and root systems become damaged by either being physically crushed (particularly for shallow rooted trees), or through an inability to penetrate the substrate and take up water and nutrients. Soil compaction due to heavy equipment operation has been extensively researched and there is plenty of evidence as to the deleterious impacts of operating heavy equipment within the drip line of trees (see below).

Physically tearing roots during excavation and trenching of foundations, retaining walls, roads, utility lines, leach fields, etc is easily known to occur within the drip line of tree crowns. Root systems of trees

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in forested environments such as the Homan project generally extend as far as their canopies. In addition, root systems interlock such that operation within the drip line of one tree can often times have impacts to trees further away.

The drip line of tree crowns is often directly related to tree diameter and whether the tree was open grown or not. Tree crown width is generally in the range of 1 to 2 times the diameter, in feet, thus a 24" diameter Doug fir will often times have a crown width of 40-60' or more in diameter. Based on the 2009 digital orthophotos, many of the trees on the photo have crowns which are 60 or more feet in diameter.

Operation within the drip line as described above whether through excavation or compaction can lead to tree death or more likely in the coastal bluff area of the Homan subdivision, to trees uprooting during wind events.

Finally, tree roots are known to be a significant factor in maintaining slope stability on moderate to steep slopes. Removal of trees and attendant root death and decay have been studied extensively in northern California and in Oregon. During my career, I have been called as an expert witness in a case in Southern Oregon where clearcutting lead seven years later to a debris torrent which killed three people. As an expert witness, I was able to determine that the logging practices employed by the logger directly contributed to the slope stability failure that resulted in the debris torrent. In this case, as an expert with respect to the impacts of tree removal I can unequivocally state that construction activities are likely to result in damage and potentially death to trees being left within the project area from project activities. As noted above, damage or death to trees left after construction is likely due to root disturbance, compaction, wind throw and bole injuries from equipment scraping residual trees. As a result, the project as designed will have an impact that has not been disclosed, evaluated and mitigated to a level of insignificance

For these reasons and for others, operation in or around trees can lead to immediate (within one year) tree mortality and wind throw. Subdivision and subsequent building of roads, foundations, trenches and operation of heavy equipment can also lead to accelerated tree decline eventually leading to mortality and wind throw over longer time periods (1-7 years) too, from both physical disturbance of trees roots as well as from compaction.

Sincerely yours:



Greg Blomstrom, RPF  
Arcata, CA.

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