Risk Assessment

Provided by Big Creek Lumber Company to Central Coast Regional Water Quality Control Board

Smelt-Locatelli Timber Harvest Plan

December 2003

The Risks

Risks associated with timber harvesting as they relate to water quality are those aspects of timber operations that have the potential to cause impacts to water quality that will degrade the beneficial uses of water. As a party concerned with protecting the beneficial uses of water, and responsible for the implementation of many aspects of that protection, Big Creek Lumber Company has prepared this risk assessment for submittal to Central Coast Regional Water Quality Control Board (CCRWQCB) staff. The beneficial uses of water can be impacted positively or negatively both by actions taken within the channel of the watercourse, as well as by actions occurring upslope from surface waters on any land within a given watershed. With regards to water quality, risk was assessed and protection given for the following factors: water temperature control, structural flow modification generated by large and small woody debris, filtration of organic and inorganic material, bank and upslope stability, channel stabilization, spawning and rearing habitat for fish and amphibians, and vegetation structure and composition diversity for aquatic organisms and aquatic-associate organisms. Risks can be assessed, and impacts generated, by either individual events or cumulative effects.

Assessment of Risk

Risks were assessed by reviewing current (i.e., pre-harvest) and potential future (i.e., post-harvest) conditions for positive and negative changes to water quality. Concerning scale, risks were assessed to identify both individual impacts along with cumulative impacts. Two main methods were used to identify and quantify risk: evaluations made during the preparation of the timber harvest plan (THP), and consultations with the landowner. Field time spent in the project area during the preparation and layout of the THP was sometimes used specifically for the evaluation of the risks associated with certain aspects of project infrastructure or timber operations. Other field time was spent with risk assessment as a secondary objective, examining the project area for impacts to water quality when a particular indicator, such as geology, soil conditions, wildlife presence or use, or vegetation type, presented itself. Consultations with the landowner had more of a general nature, focusing on historical land use, past events or mitigations that might have impacted water quality, existing infrastructure and its date of construction, and frequency and types of maintenance that have been performed. The collection of information provides a comprehensive and holistic view of the risks associated with the Smelt-Locatelli THP.

Statement of Conditions

The following is a presentation of some of the quantitative and qualitative attributes of what is proposed in the Smelt-Locatelli THP, to allow CCRWQCB to develop a more robust understanding of risk.

Silviculture

Brown's Creek is the only Class I watercourse in the proposed project area, and it will have a 150 foot Watercourse and Lake Protection Zone (WLPZ) surrounding it throughout the plan area. Additionally, two Class II watercourses are found in or near the THP area, and both of these have

been assigned 100 foot WLPZ buffers on each side. In the entire plan area, no more than five to ten trees are marked for harvest in the WLPZ areas, and all of these are in the last few feet of the protection zones.

Haul Roads

All of the roads proposed for use as haul roads for this THP are existing roads, most of which have been frequently maintained since their construction many years ago. As apple farmers, tree farmers, and residents, the landowners responsible for road upkeep have been vigilant in their maintenance of the road systems on their properties. The re-opening of roads for use by heavy equipment and highway-legal log trucks will require little to no grading, bulldozing, or excavation prior to use. All three of the watercourse road crossings slated for use in the Smelt-Locatelli THP are existing crossings, two of which are bridges (crossings R1 and R2) and one of which is a corrugated metal pipe culvert (crossing R3). Finally, the on-site geology of this area has provided for a high content of native rock in the road surface, particularly in the higher elevation stretch of road. The overall risks of road surface erosion or mass wasting triggered by timber operations is very low. As there are no new watercourse crossings proposed, there will be no removal of vegetative canopy, disruption to the streambanks, or disturbance of aquatic organisms associated with crossing construction.

Existing Skid Trails

Approximately 3500 feet of existing skid trail is proposed for use in this THP and will require little blade work to make operational. At three locations in the plan area (Mitigation points D, F, and G), all on existing skid trails, trails pass over unstable areas. Mitigation point D is approximately 300 feet from Brown's Creek, and any sediment or debris that might leave the area of the mitigation would be impounded by a large flat area between mitigation point D and the creek. Mitigations points F and G are approximately 400 feet from Brown's Creek. Though reference to these as unstable areas is technically correct, they are little more than bank failures of only a few yards of material onto a full bench trail. The toe of the fill that currently rests on the full bench skid trail here will not be removed during operations. Further debris or sediment originating from these mitigation points will be intercepted by intact ground cover or settle on one of two historical roads in between the mitigation points and the creek. At mitigation point A, an existing skid trail is located on slopes over 50%, and at mitigation point E a skid trail is located on slopes over 65%. Both of these are existing skid trails that are well designed with full bench construction.

Skid Trail Crossings

Two existing skid trail crossings are proposed for use, one of a Class III watercourse (crossing S2), and another of a Class IV watercourse (crossing S1). The overall risk associated with these skid trails is low, largely based on the their pre-existing nature. After more than a decade of winters, these existing skid trails exhibit stable configurations and continued use is unlikely to cause any instability or degradation.

Proposed Skid Trails

About 2500 feet of new skid trail has been proposed for this THP. These trails have not been used in the past for skidding logs, but most of them are on the edge of the landowner's orchard and are regularly used by his orchard equipment, including tractors. No portion of these new trail segments cross known unstable areas or pass through Class I or II WLPZ areas. Furthermore, no new trail segments are located on slopes greater than 50%. No bulldozer blade work will be necessary to use these skid trails, but instead the skidding equipment will simply travel over the surface of the existing orchard paths. The combination of the favorable topography present in the project area, the mitigations proposed for these trail segments (see below), and the avoidance of blade work, results in one more low risk outlook for this THP.

Landings

One landing is located within a Class I WLPZ, for Brown's Creek. Risk associated with use of this landing is low because it is an existing opening in a wide, flat area with almost no need for any ground disturbing construction or grading. Some consideration was given to placing this landing

elsewhere (outside of the WLPZ), but the additional skidding distance would do unnecessary damage to a rocked, all-season road. Restoring the all-season surface would then require additional ground disturbance to re-grade and re-surface the road. As there are no trees in the location where this landing is proposed, no canopy reduction will occur from the use of this area.

Mitigations and Proposed Practices

Haul Roads
Due to the low-risk nature of the road system found in the project area, the roads will be disturbed as little as possible. As an additional measure to protect Brown's Creek near crossing R2, the road will be rocked with drain rock to a depth of 2 inches for 50 feet on both sides of the existing bridge prior to the winter period or at the completion of operations. This will further strengthen the already-stout road surface.

Existing Skid Trails
The use of existing skid trails for nearly 60% of the skid trail system is in itself a mitigation of risk, as it prevents the need to construct new trails. The existing trails exhibit a stable configuration, and they are not likely to cause even minor degradation of water quality following use. Furthermore, use of existing trails will create the opportunity to improve the waterbars and other drainage features on these old trails, as all will be waterbarred as if their erosion hazard is high. Also, all skid trails will be mulched with tractor-packed slash and/or seeded and strawed following use to prevent surface erosion and concentration of water.

Several hundred additional feet of existing skid trails can be found within the harvest area, but during the harvest plan layout risk assessment it was decided that these trails would not be used. These trails, though geologically sound and operationally valuable, were excluded from use because they might be judged to have a higher risk of impacting the beneficial uses of water. Beyond mitigation points F and G, the trail continues down the hill in a series of full-bench switchbacks; northeast of landing L4, a road and landing are found within the Brown's Creek WLPZ; uphill from Smelt's domestic water supply, an existing skid trail follows a contour into a Class II WLPZ; and northwest of landing L3, an old trail parallels Brown's Creek in the Class I WLPZ. These trails and others were all avoided in the interest of mitigating our risks of sedimentation, mass wasting, or understory vegetation disturbance.

Skid Trail Crossings
In the two instances where skid trail crossings are proposed, the channel shape will be well maintained by the use of Spittler modified Humboldt crossings. These crossings are composed of a lining of straw placed in the channel, followed by careful alignment of logs parallel to the channel to fill the banks and support their shape. These logs are then covered with more straw, and a small amount of soil. The entire structure will be removed prior to the completion of operations. In the case that water is present during operations, a plastic pipe will be laid in the channel first, and then the rest of the structure will be installed.

Proposed Skid Trails
Proposed skid trails will be kept to the most gentle slopes available, and skidding over undisturbed ground will be largely avoided because orchard paths will be used almost exclusively as the skid trails. Upon completion of operations, these skid trails will all be waterbarred and drained to stable configurations and/or seeded and strawed to minimize surface flow. (Large drainage structures will not be constructed for trails that will continue to be used by the landowner for his orchard equipment.)

Mitigation Point C
A manmade, or Class IV, watercourse can be found near Smelt's house leading to Brown's Creek. When constructed in this area, it was little more than a ditch several feet deep with steep soil banks. Over the years, the bed of this watercourse has been actively downcutting, and the banks have been head cutting into the channel. The proximity of this sediment source to Brown's

Creek motivated Big Creek Lumber Co. and the landowner to decide to make an attempt at improving the morphological structure of this feature to alleviate soil input. Following operations or prior to the winter period, a significant mitigation is proposed to reduce channel degradation and contribution of sediment to Brown's Creek. This activity, called mitigation point C, will alter the southeast bank of the Class IV watercourse from around crossing S1 to Brown's Creek, a length of approximately 100 feet. The southeastern bank of the channel, which is nearly vertical now, will be laid back with a backhoe to a slope of approximately 1:1 or 1:1.5. The excess soil generated by pulling back the banks will then be used to develop a berm at the top of the sloped bank. The effect of these activities will also be to increase the volume of the channel, thereby reducing the likelihood of high flows leaving the channel. Rip-rap or large chunks of wood will be placed in the outlet of the channel at Brown's Creek, to serve as energy dissipaters to prevent further downcutting. Following construction, all soil bared by the restoration of this mitigation area will be seeded and straw mulched. The net effect of mitigation point C should be a sizable decrease in erosion potential out of the Class IV into Brown's Creek. The value of the long-term protection of the beneficial uses of water by completing work at mitigation point C will be an improvement in the cumulative state of the watershed.

Conclusion

The net risks of the Smelt Locatelli THP as presented are low, based on the extensive use of pre-existing infrastructure, avoidance of high-risk skid trails, and proven erosion control measures. Furthermore, the harvest plan lay-out was done so that newly constructed roads, trails, and landings will present a low risk to water quality anywhere in the plan area. Finally, the implementation of mitigation point C to repair an eroding watercourse will further alleviate pressures on the beneficial uses of water in this watershed. In all likelihood, the combination of the mitigations proposed in the Smelt Locatelli THP will reduce any current cumulative impacts. In essence, the entire infrastructure will receive an upgrade as part of the proposed THP.