Anadromous Salmonid Protection Rules: Revised Interpretive Questions and Answers for RPFs and Landowners

California Department of Forestry and Fire Protection
California Department of Fish and Wildlife

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List of Abbreviations

ASP	Anadromous Salmonid Protection
BOF/Board	California State Board of Forestry and Fire Protection
CAL FIRE	California Department of Forestry and Fire Protection
CAZ	Coastal Anadromy Zone
CCR	California Code of Regulations
CGS	California Geological Survey
CMZ	Channel Migration Zone
DBH	Diameter at Breast Height
DFW	California Department of Fish and Wildlife
DWR	California Department of Water Resources
ELZ	Equipment Limitation Zone
ESU	Evolutionary Significant Unit
FPA	Flood Prone Area
FPR	California Forest Practice Rules
FRAP	Fire and Resource Assessment Program
HCP	Habitat Conservation Plan
ITP	Incidental Take Permit
LIDAR	Light Detection and Ranging
LSAA	Lake or Streambed Alteration Agreement
LTO	Licensed Timber Operator
MOU	Memorandum of Understanding
NCCP	Natural Community Conservation Planning Permit
NOAA	National Oceanic and Atmospheric Administration
NTMP	Nonindustrial Timber Management Plan
NTO	NTMP Notice of Timber Operations
OAL	Office of Administrative Law
PHI	Pre-Harvest Inspection
PMP	Preferred Management Practices
PRC	Public Resources Code
QMD	Quadratic Mean Diameter
RPF	Registered Professional Forester
RWQCB	Regional Water Quality Control Board
TAC	Technical Advisory Committee
THP	Timber Harvesting Plan
T/I Rules	Threatened or Impaired Watershed Rules
TPA	Trees per Acre
SSD	Southern Subdistrict of the Coast District
SWC	Sound Watershed Consulting
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USGS	U.S. Geological Survey
WLPZ	Watercourse and Lake Protection Zone
WTL	Watercourse Transition Line

PART A

Introduction and Background Information

The Anadromous Salmonid Protection (ASP) rules were approved by the State Board of Forestry and Fire Protection (Board) during their September 2009 meeting held in Sacramento. The rules were recently revised under the "Class II-L Identification and Protection Amendments, 2013" rule package approved by the Board in October 2013 . This revised question and answer document reflects the recent changes to the California Forest Practice Rules for Class II Large watercourses that became effective January 1, 2014. Due to these changes, several questions and answers have been removed in 2014, and new questions and answers related to Class II-L identification and protection are provided.

The purpose of this document is to provide Registered Professional Foresters (RPFs) and forest landowners with answers to interpretive questions regarding these rules that were generated by both RPFs and agency personnel. This document was used during four scheduled training workshops held throughout the state during January and February 2010. It is not intended to establish policies outside of those adopted by the Board. The ASP rules themselves are the standards; this document only attempts to provide insight into the application of these rules.

As explained in the Final Statement of Reasons (FSOR) adopted by the Board, the ASP rules are intended to protect, maintain, and improve riparian habitats for state and federally listed anadromous salmonid species. These rules are permanent regulations and replace the interim Threatened or Impaired Watershed Rules (T/I Rules) which were originally adopted in July 2000 and readopted six times.

The current ASP rule development process began in 2006 with the Board's appointment of a Technical Advisory Committee (TAC) to oversee a contract for reviewing the scientific literature of studies pertinent to riparian buffers and functions. All stakeholders previously had agreed that changes to the T/I Rules must be based on science-based input. The TAC produced primers summarizing past studies related to the riparian functions of wood, heat/microclimate, sediment, biotic/nutrient, and water; allowing the contractor to focus on reviewing and synthesizing newer literature regarding these riparian functions. Sound Watershed Consulting (SWC) was awarded the contract in April 2008 and presented their findings to the Board in October 2008. A technical expert forum was also held later in October 2008 for the Board, allowing noted scientists to comment on SWC's findings.[1]

The Board began its review of non-technical portions of the T/I Rules in April 2008. It continued its review in November 2008, when a three-member California Department of Forestry and Fire Protection (CAL FIRE) staff team was charged by the Board to prepare an initial set of proposed changes to the T/I Rules based on the SWC review

[1] The websites for the SWC (2008) report and the BOF (2008) TAC primers are provided in the reference section.

and other scientific information. Draft concept papers for potential changes for Class I, II, and III watercourses were discussed at Board Forest Practice Committee meetings held in December 2008 through June 2009. Input received at these meetings and from the public resulted in draft rule language that was revised several times. At the April 2009 Board meeting, the full Board voted to circulate the ASP rules, with numerous options for Class I, II, and III watercourses, under a 45-day notice to the public. The Board re-noticed the ASP rule package in July 2009 and voted to approve the package in September 2009. The Final Statement of Reasons was approved in October 2009.

The Board's primary objectives in adopting the ASP rules were: (1) to ensure rule adequacy in protecting listed anadromous salmonid species and their habitat, (2) to further opportunities for restoring the species' habitat, (3) to ensure the rules are based on credible science, and (4) to meet Public Resources Code (PRC) § 4553 for review and periodic revisions to FPRs. The main goals of the Board for the rule revisions included having an update based on science; providing a high level of protection for listed species; having rules that contribute to anadromous salmonid habitat restoration; having consistency with partner agency mandates; and promoting landowner equity, flexibility and relief opportunities.

In the approved ASP rule package, there is a new geographic scope element. For Class I and II watercourses, rule requirements differ based on whether a planning watershed is found within the Coastal Anadromy Zone (CAZ) or outside this zone. More protective requirements are proposed for the CAZ, which is mainly found in the California Coast Ranges and the Klamath Province. Additional protection is also proposed for flood prone areas and channel migration zones, since the SWC literature review revealed that these are critical areas for listed fish species. Additionally, large Class II watercourses located near Class I confluences were noted as a "biological hotspot" in the scientific review of the literature and additional protection measures are now required for these areas. For the smallest headwater streams (standard Class II watercourses and Class III watercourses), additional protection is also required to ensure adequate bank stability and sources of wood to slow sediment transport down into fish bearing watercourses.

One of the main points made in the SWC review of the scientific literature was that a site-specific (spatially-explicit) approach to riparian management that addresses site and regional variability, as well as disturbance processes in riparian areas, be developed for California. Therefore, in addition to a relatively conservative prescriptive approach for Class I, II, and III watercourse protection, the ASP rule package incorporates a site-specific plan section that: (1) recognizes the high degree of biological and physical variability throughout the state, and (2) provides flexibility for landowners, while meeting or exceeding the results of the prescriptive standards.

During the the first three years of the adopted ASP regulations (2010-2012), members of the public expressed concerns about the interpretation and enforcement of the Class II-L provisions. Based upon the testimony received by the Board from both the public and regulatory agencies, it was clear that the adopted Class II-L rule language resulted

in significant differences of opinion. The Board concluded based upon the confusion and controversy exhibited in the testimony at numerous meetings that a rule amendment to further clarify the intent and implementation of the Class II-L identification provisions was needed. Following more than one year of discussion at Board Forest Practice Committee meetings, the Board voted to modify the Class II-L watercourse protection rules in October 2013 when it passed the "Class II-L Identification and Protection Amendments, 2013" rule package. With the passage of this rule package by the Board, it is expected that considerably less disagreement regarding Class II watercourse typing will occur.

Anadromous Salmonid Protection Rules:
Revised Interpretive Questions and Answers for RPFs and Landowners

1. When did the Anadromous Salmonid Protection Rules become effective?

January 1, 2010.

2. When did the Class II-L Identification and Protection Amendments, 2013, rule package become effective?

January 1, 2014.

3. Is the geographic area covered in the previous Threatened or Impaired watersheds incorporated for coverage under the ASP rules?

Yes, those planning watersheds where the T/I Rules applied are still covered by the ASP rules. Additionally, areas within planning watersheds immediately upstream of, and contiguous to, any watershed with listed anadromous salmonids are subject to specified provisions of the new rules, and projects in other watersheds further upstream that flow into watersheds with listed anadromous salmonids may be subject to the new provisions based on the results of the cumulative impacts assessment (also see the response to Question 11). Note that the existing definition under 14 CCR § 895.1 for *planning watershed* applies to the new ASP rules.

4. What sections of the California Forest Practice Rules (FPRs) pertain to the ASP Rules?

The following rule sections were modified by the Board in their adoption of the ASP rules. Additionally, plan preparers should note that the ASP rules apply "*in addition to all other Forest Practice Rules*" and should pay close attention to other sections of the rules pertaining to watercourse and lake protection, such as 14 CCR § 916.4 [936.4, 956.4].

§ 895.1	Definitions
§ 898	Feasibility Alternatives
§ 898.2	Special Conditions Requiring Disapproval of Plans
§ 914.8 [934.8, 954.8]	Tractor Road Watercourse Crossing
§ 916 [936, 956]	Intent of Watercourse and Lake Protection
§ 916.2 [936.2, 956.2]	Protection of the Beneficial Uses of Water and Riparian Functions
§ 916.9 [936.9, 956.9]	Protection and Restoration in Watersheds with Threatened or Impaired Values
§ 916.11 [936.11, 956.11]	Effectiveness and Implementation Monitoring
§ 916.12 [936.12, 956.12]	Section 303(d) Listed Watersheds

§ 923.3 [943.3, 963.3]	Watercourse Crossings
§ 923.9 [943.9, 963.9]	Roads and Landings in Watersheds with Threatened or Impaired Values

5. **Do plans submitted in 2009 that were accepted for filing and are currently under review need to be brought into conformance with the new ASP rules prior to approval in 2010?**

   Yes. Plans must be found in conformance with all current rules at the time the Director's representative approves the plan (also ref. responses to Questions 6 and 64 regarding THPs that were approved prior to 2010).

6. **How does one address the incursion of substantial liabilities in reliance upon the threatened or impaired rules and the unreasonable expense caused by adherence to the ASP rules per PRC § 4583?**

   CAL FIRE expects that all timber operations under THPs approved prior to January 1, 2010 shall conform to the operational rules contained within the new ASP rules, unless "prior to the adoption of such changes or modifications, substantial liabilities for timber operations have been incurred in good faith and in reliance upon the standards in effect at the time the plan became effective and the adherence to such new rules or modifications would cause unreasonable additional expense to the owner or operator." For THPs that were approved prior to January 1, 2010 where substantial liabilities have been incurred by the owner or operator and the RPF or plan submitter requests exemption from some or all of the new operational rules in areas of the THP yet to be completed, an amendment must be submitted to CAL FIRE pursuant to 14 CCR §§ 1039 or 1040 covering the portion of the plan subject to the amendment. The amendment should indicate each ASP operational rule(s) from which the submitter requests relief with a detailed explanation of the substantial liability incurred and the unreasonable expense caused by the ASP rule. If CAL FIRE is presented with substantial evidence that relief from the new rules may result in "take" of a listed species or timber operations may result in a significant adverse impact, a substantial deviation will be required in most cases.

7. **Do the ASP rules apply to existing Nonindustrial Timber Management Plans (NTMPs)? If so, do all or only part of the ASP rules apply? Do existing plans have to be amended to include the new ASP rule requirements?**

   To ensure that the NTMP and Notice of Timber Operations (NTO) adequately address potential significant impacts to, and take of, listed anadromous salmonids, the following should be addressed:

   - When the RPF submits the NTO, he or she must include a statement that no listed species has been discovered in the cumulative impacts assessment area since the approval of the NTMP (ref. 14 CCR § 1090.7(h)). If the NTMP falls within a watershed with listed anadromous salmonids and does not address this listed status, then the NTMP must be amended to address the current status of

any listed anadromous salmonids. CAL FIRE will treat such an amendment as minor or substantial based on its content and the manner in which it changes timber operations, if at all.

- Upon NTO submittal, the RPF must certify that the notice will carry out either best management practices for the protection of the beneficial uses of water, soil stability, forest productivity, and wildlife, as required by the current rules of the Board, or the NTO is consistent with the NTMP and will not result in significant degradation of the beneficial uses of water, soil stability, forest productivity, or wildlife, or be in violation of applicable legal requirements (ref. 14 CCR § 1090.7(l)). To address this certification relative to potential impacts and take of listed anadromous salmonids, the RPF should consider the following:

  - Has the NTMP already incorporated measures to mitigate significant impacts to, and avoid take of, listed anadromous salmonids? If the plan has, then it may not need to be amended to incorporate appropriate measures to mitigate significant impacts and to avoid take.

  - Does an NTO submitted in conformance with the operations proposed in the NTMP have the potential to result in significant impacts to, or take of, listed anadromous salmonids? If yes, then the plan should be amended to incorporate appropriate measures to mitigate significant impacts and to avoid take before submittal of the NTO. Pre-consultation with the California Department of Fish and Wildlife (DFW) may help the timberland owner and RPF ascertain what measures may be needed to avoid significant impacts to, and avoid take of, listed anadromous salmonids.

8. When should an RPF pre-consult with DFW regarding coho salmon protection measures?

Anytime an RPF is preparing a plan in a planning watershed with coho salmon, it is strongly recommended that DFW be contacted for pre-consultation. In regard to the development of a site-specific plan for a flood prone area, 14 CCR § 916.9 [936.9, 956.9](v)(5)(I) specifies that the site-specific plan must have pre-consultation with the Review Team agencies and receive concurrence from the Review Team agencies, including DFW. Also, see the answer to Question 7 regarding NTMPs and pre-consultation with DFW.

9. Under the new ASP rules, are RPFs still required to identify and provide protection for watersheds listed as impaired under Section 303(d) of the Federal Clean Water Act (ref. 14 CCR § 916 [936, 956])?

Yes. The new ASP rules still require identification and protection for watersheds listed as impaired under Section 303(d) of the Federal Clean Water Act, as was required under the interim Watersheds with T/I Rule package. RPFs must still comply with the standards mandated by the Basin Plans approved by the various

Regional Water Quality Control Boards. Language in 14 CCR §§ 898 (Feasibility Alternatives) and 916.12 [936.12, 956.12] (Section 303(d) Listed Watersheds) was not changed with the passage of the ASP rule package, other than removing item (f), which was the requirement stating that this rule would expire on December 31, 2009.

10. Explain how the requirements for restoration of salmonid habitat will be incorporated in plans approved under the ASP rules.

The ASP rules state that every timber operation shall be planned and conducted to contribute to restoration of properly functioning salmonid habitat. This is a "primary" or "significant" objective of the rules. The rules further state that contribution towards restoration of these values shall be achieved through a combination of the rules and plan-specific mitigation. When the protective measures in the rules are not adequate to contribute towards restoration, additional measures shall be developed by the RPF or proposed by the Director and incorporated in the plan.

In passing the ASP rule package, it was the Board's intent that implementation of the adopted regulations would contribute to restoration of anadromous salmonid habitat. This was based on the expected effects on the beneficial uses of water resulting from implementation of the rules. Therefore, plans submitted by RPFs following the ASP rules are considered to contribute to restoration of listed anadromous salmonid habitat. In site-specific cases, the rules allow an RPF or the Director to develop additional measures under the Alternative Watercourse and Lake Protection rules (ref. 14 CCR § 916.6 [936.6, 956.6]) to ensure implementation of the plan will meet the objective of the rules to contribute toward restoration. Furthermore, the rules allow an RPF to develop a site-specific plan that is more effective in achieving the goals and objectives of the ASP rules, including contributing to restoration of properly functioning salmonid habitat (ref. 14 CCR § 916.9 [936.9, 956.](v)).

11. Where do the ASP Rules apply? Provide a map of watersheds in the Coastal Anadromy Zone (CAZ) and watersheds with listed anadromous salmonids.

The ASP Rules apply in planning watersheds with state or federally listed anadromous salmonids, and those that are restorable (Figure 1).

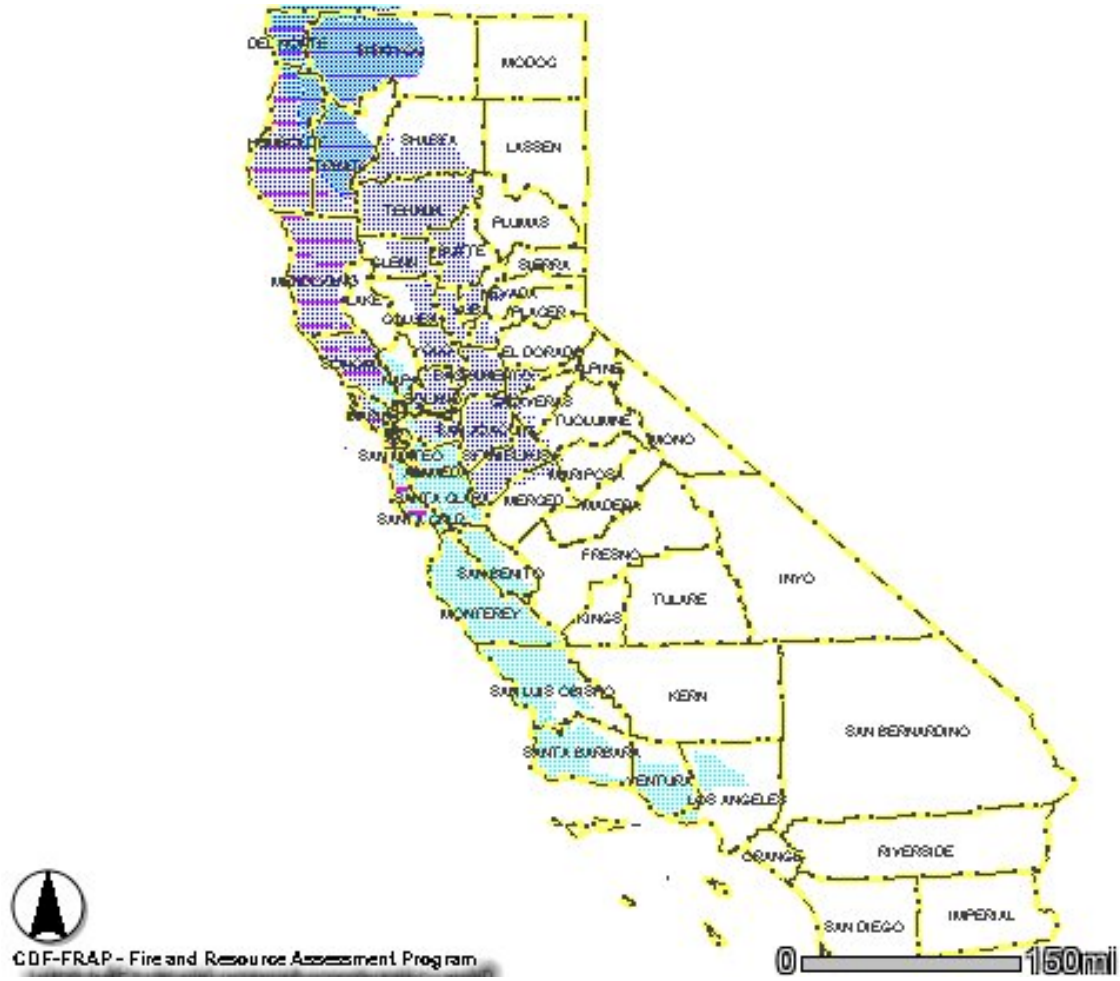

Figure 1. Boundaries for watersheds within the coho salmon ESU, Chinook salmon ESU, and steelhead ESU (produced from the CAL FIRE FRAP Salmon and Watersheds Mapping Tool). This Internet Map Server and the query tool allow RPFs to identify if a specific area is within a Threatened or Impaired Watershed/ASP watershed for the purpose of the Forest Practice Rules. See: http://frap.cdf.ca.gov/projects/esu/esumapframes.html

DFW has posted a list of watersheds within Trinity, Siskiyou, Tehama, and Shasta Counties (i.e., DFW Region 1) that indicates salmonid presence and restorability at: https://r1.dfg.ca.gov/portal/ConservationPermitting/Timber/Aquatics/ThreatenedImpairedWatersheds/tabid/939/Default.aspx

DFW has posted a list of watersheds with coho salmon at: http://www.dfg.ca.gov/habcon/timber/regulations.html

The ASP rules do not apply where there is an approved Habitat Conservation Plan (HCP) that addresses anadromous salmonid protection; a valid Incidental Take Permit (ITP) issued by DFW; a valid Natural Community Conservation Planning (NCCP) permit approved by DFW; or project revisions, guidelines, or take avoidance measures pursuant to a Memorandum of Understanding (MOU) or a planning agreement between the plan submitter and DFW in preparation of obtaining a NCCP that addresses anadromous salmonid protection (ref. 14 CCR § 916.9 [936.9, 956.9](w) (1)-(5)).

The ASP rules utilize specific sub-regions, including: (1) the CAZ, (2) the Coast District of the CAZ, (3) the Northern District of the CAZ, and (4) the Southern Subdistrict of the Coast District (SSD), where certain rules apply (Figure 2).

Also, planning watersheds that do not have listed anadromous salmonids but are immediately upstream of and contiguous to watersheds with listed salmonids are subject to 14 CCR § 916.9 [936.9, 956.9], subsections (k) through (q) and 14 CCR §§ 923.3 [943.3, 963.3] and 923.9 [943.9, 963.9] to reduce impacts from transported fine sediment. Note that projects even further upstream could also be subject to these provisions based on the results of a cumulative impacts assessment.

These rules do not apply to upstream watersheds where permanent dams block anadromy and reduce the transport of fine sediment downstream, or watersheds that do not support anadromy and feed directly into the ocean (also see the answer to Question 12 below).

12. Regarding watersheds in the Coastal Anadromy Zone (CAZ)—if a planning watershed flows directly into the ocean without any Class I watercourses (i.e., no listed salmonids are present and there have never been any), is it subject to the ASP rules?

The planning watershed in this situation would not be subject to the ASP rules since no listed salmonids have ever been present in the watershed. If, for example, there is a 100-foot waterfall where the watercourse enters the ocean, the channel would not be restorable and would not be subject to the ASP rules. It should be noted that a channel that could reasonably be restored to a Class I fish-bearing watercourse (as determined by a DFW biologist; ref. 14 CCR § 916.2 [936.2, 956.2](a)(2)) would be subject to the ASP rules.

13. If a THP has no Class I, II, III, or IV watercourses within the plan boundary, is it still subject to the new ASP rules?

Yes, if the planning watershed itself has listed anadromous salmonids present or is restorable, then the ASP rules apply.

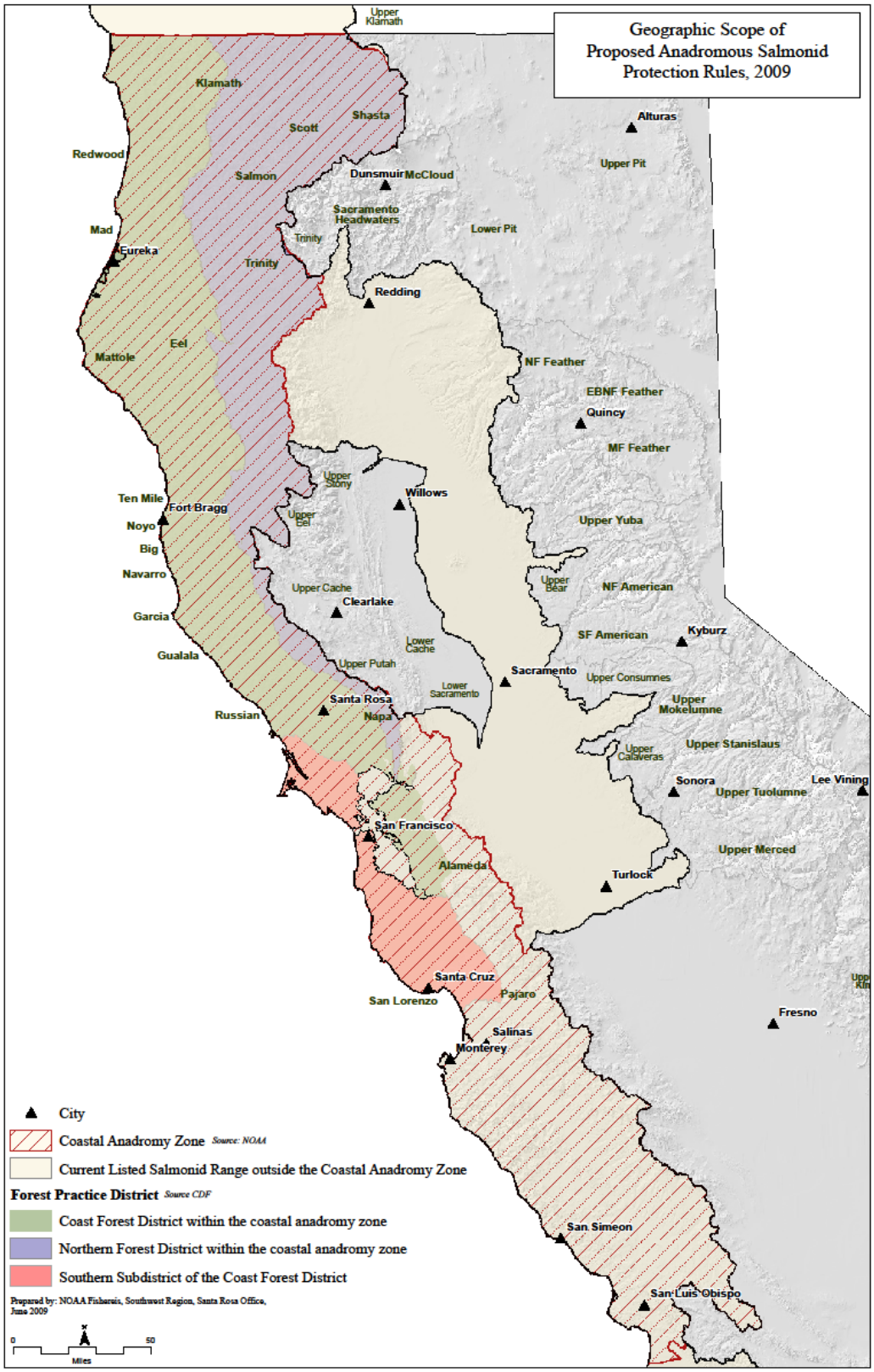

Figure 2. Geographic scope of the ASP rules.

14. What kind of information will an RPF be expected to provide for Class I watercourses to meet the standard described in 14 CCR § 916.9 [936.9, 956.9] (f)(1)(E), which states: "Documentation of how proposed harvesting in the WLPZ contributes to the objectives of each zone stated in 14 CCR § 916.9 [936.9, 956.9], subsection (c) and other goals in 14 CCR § 916.9 [936.9, 956.9], subsection (a) (1)-(8). Documentation shall include the examinations, analysis, and other requirements listed in 14 CCR § 916.4 [936.4, 956.4], subsection (a)"?

The amount of information required will depend on the extent of the activities proposed in the Class I Watercourse and Lake Protection Zone (WLPZ). In other words, disclosure and analysis requirements will increase with increased risk associated with the proposed level of activity. A considerable amount of the information required to be provided for most proposed activities is already mandated under the requirements of 14 CCR § 916.4 [936.4, 956.4](a), which will serve as the minimum amount of required information to meet this section.

The information provided should be included in Section III, Item #26 of a THP and describe how proposed timber operations will provide for riparian functions such as shade, large wood recruitment, sediment control, etc. that will ultimately improve or maintain salmonid habitat. The discussion should show how the proposed harvesting in the WLPZ will affect salmonid habitat in the near and long-term.

15. Provide greater detail on how to determine if there is a Class I confined channel present. Does an RPF average the width of the valley floor and the bankfull channel width, and if so, over what distance? Provide a diagram to illustrate how this is done in the field.

The ASP rules define a confined channel as "*a watercourse with an incised channel that does not shift position on a floodplain, the channel has no contiguous flat, flood prone areas, and the width of the valley floor is less than **2** times the channel width at bankfull stage*." Valley floor width is the width of the area within the comparatively flat valley bottom, measured from the edges of significant changes in topography—typically the base of hills or mountains (WFPB 2004). In order to calculate an average value for the ratio between the valley floor and bankfull widths, it is appropriate to obtain data from several locations, generally within the plan boundary, if the widths vary considerably in the downstream direction. Data can be obtained every 200 feet. U.S. Geological Survey (USGS) 7.5 minute topographic maps may be useful in determining valley floor widths for river channels. Measure the average valley width between the contour lines that define the valley walls. The contour lines of the valley bottom will be broadly spaced, and those of the adjacent hillslopes will be more closely spaced (WFPB 2004) (see Figure 3). Estimate the average channel width from field knowledge or aerial photographs. Stream channel confinement estimated from topographic maps should be confirmed with aerial photographs and field observations (WFPB 2004).

In Figure 4 below, the ratio of the valley floor width to the bankfull channel width is approximately **2.8**, so the channel is classified as unconfined, and there is either a Channel Migration Zone (CMZ) present and/or a flood prone area present.

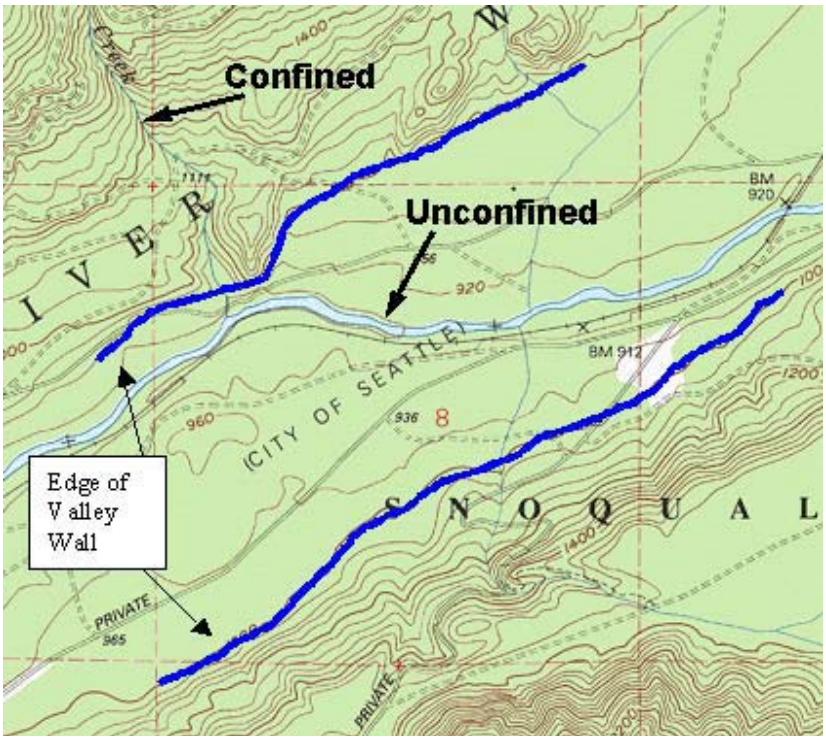

Figure 3. Determining valley floor width using a topographic map (*Figure 3 in WFPB 2004).*

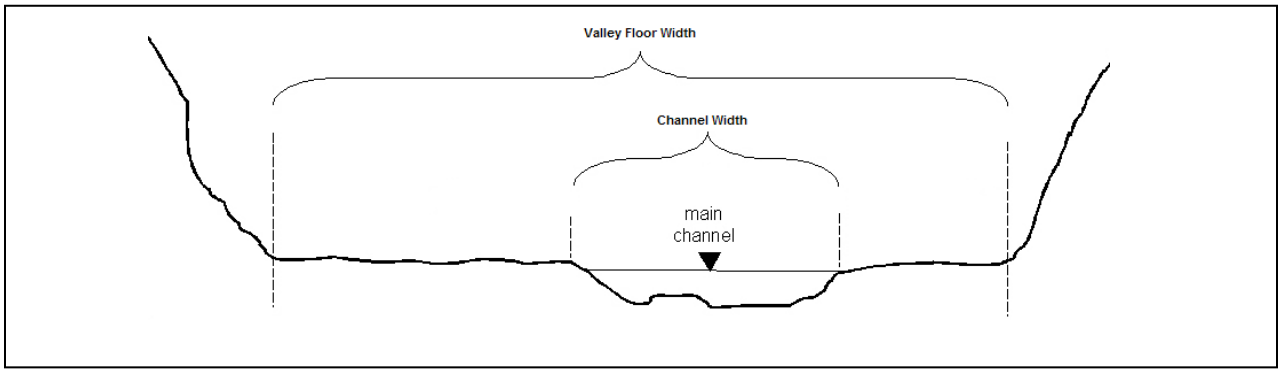

Figure 4. Example of how to determine the valley floor width to bankfull channel width ratio.

16. What constitutes a tree within a core zone?

When determining the location of the edge of the core zone using slope distance, a tree is to be considered "in" the core zone if a measuring tape touches any part of the bole at ground level when measured 30 feet from the Watercourse Transition Line (WTL).

17. In the Class I Inner Zone, is harvesting limited to thinning from below with both commercial thinning and single tree selection silviculture?

No, harvesting in the Class I Inner Zone is not limited to only thinning from below. However, as stated in 14 CCR § 916.9 [936.9, 956.9] (f)(2)(B), harvesting prescriptions should focus on practices that use "thinning from below." Thinning from below is not a defined silvicultural system in 14 CCR § 913 [933, 953], so this rule section specifies that the silvicultural systems are limited to commercial thinning or single tree selection. In stands with a wide range of tree sizes present, single tree selection may be the most applicable silvicultural system. By definition, single tree selection specifies that trees are removed throughout the diameter classes present in a stand. In stands that were regenerated at one time and have a relatively even size distribution, commercial thinning is more applicable, and the smaller trees will generally have to be marked for removal to meet the increasing Quadratic Mean Diameter (QMD) and standard FPR basal area requirements. Therefore, while thinning from below is the goal for the inner zone (removing suppressed, intermediate, and a few co-dominant trees), site-specific stand conditions will dictate to what degree this can be accomplished with these two silvicultural systems. The requirements for large tree retention and retention of relatively high overstory canopy cover (70-80%) will significantly limit removal of larger trees, unless a site-specific plan is developed and approved (ref. 14 CCR § 916.9 [936.9, 956.9](v)).

18. Since the ASP rules restrict silvicultural methods to commercial thinning and single tree selection, does the plan have to distinguish these silvicultural methods for harvesting in the WLPZ?

When the silvicultural method prescribed for the WLPZ differs from the silvicultural method proposed in the adjacent stand, the plan must differentiate the methods separately for both areas (ref. 14 CCR § 1034 (m) and (x)(2)).

19. What does it mean to require retaining the 13 largest conifer trees per acre, live or dead, on each acre that encompasses the core and inner zones, and how does an RPF do this on the ground? Illustrate how this will work in the field.

An RPF is to accomplish this task by evaluating an acre of ground running parallel to the watercourse extending from the WTL and covering the core and inner zones (i.e., 100 ft x 435 ft). In this area, the RPF must ensure that the 13 largest trees are not marked for harvest. The RPF may consider both live and dead trees when

determining which trees are the largest. The RPF may focus retention in the core zone and may utilize "clumps" of large trees where they occur in the zones. Note that the Departments do not view coast redwood "family groups" or coppice growth groups as one tree (i.e., a clump with several small diameter trees is not be counted as one large tree).[2] Once the first acre is considered, the second acre is evaluated, and so forth. See Figure 5 below.

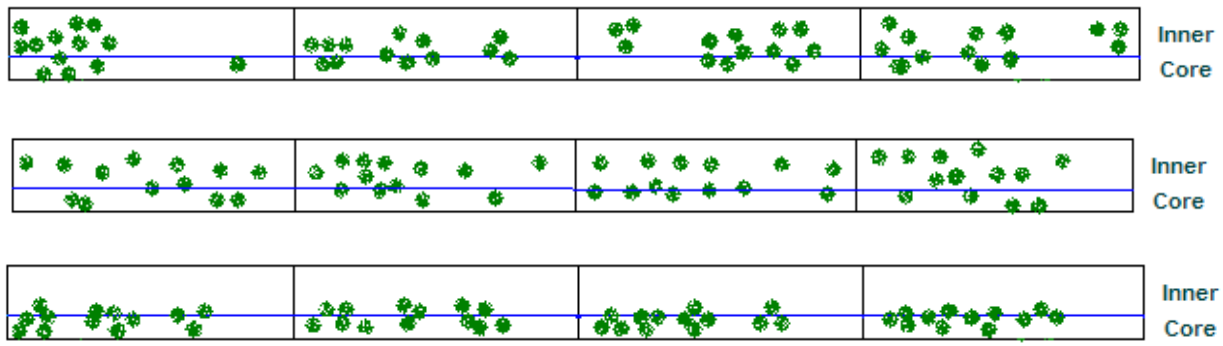

Figure 5. Illustrations of how to retain the 13 largest trees in the core and inner zones.

20. <u>Do you have to specifically mark the 13 largest retained trees?</u>

No. Marking requirements are no different than the previous WLPZ marking requirements. In areas where the ASP rules apply, trees to be harvested must be marked prior to the Pre-Harvest Inspection (PHI) (alternately trees for retention can be marked, but this is not recommended; see 14 CCR § 916.5 [936.5, 956.5](e)"D" requirements). Forest practice inspectors will evaluate compliance of retaining the 13 largest trees as part of the unmarked residual stand in most cases.

21. <u>What are the Class I and II WLPZ flagging requirements? Do you have to flag the core zone and inner zone boundaries? If it is not required by the rules, should this be done anyway so that the Licensed Timber Operator (LTO) is aware of the rule requirements and does not cut protected trees?</u>

The rules require Class I and II WLPZ boundaries to be clearly identified on the ground with paint, flagging, or other appropriate methods prior to the pre-harvest inspection (ref. 14 CCR § 916.5 [936.5, 956.5](e) "A" and "B"). There is **no requirement** to flag the boundary of the core and inner zones, unless the outer edge of the inner zone is the edge of the WLPZ. It is expected that in most cases all trees within the core zone will be retained (unless an alternative is developed and approved pursuant to 14 CCR § 916.9 [936.9, 956.9] (v), and it may be prudent to mark harvest or leave trees on the boundary between the core and inner zones to assist the LTO during operations, if timber harvesting will occur in the inner zone. If

[2] Note that "Departments" refers to both CAL FIRE and DFW.

heavy equipment operations are proposed in the Class I inner or outer zones, delineation of the boundary limiting (i.e., "stopping") equipment entry is recommended (ref. 14 CCR 916.4 [936.4, 956.4](e)).

The existing limitations on equipment operations within the WLPZ still apply and the WLPZ boundary marking will be important to delineate for the LTO those areas where equipment is restricted. However, the ASP rules allow the RPF to propose site-specific practices in place of the stated rules, but encourage the use of "Preferred Management Practices". In Class I watercourses with flood prone areas or CMZs, the "Preferred Management Practices" recommend delineation of all WLPZ zones and CMZs (ref. 14 CCR § 916.9 [936.9, 956.9](f)(3)(E)(6)).

22. Is a reduction in WLPZ width allowed for either Class I or Class II WLPZs for cable yarding?

No.

23. The ASP Rules under 14 CCR § 916.9 [936.9, 956.9] (c)(2) specify objectives for the inner zone of the WLPZ for Class I and II watercourses. One of the objectives is to provide a variety of tree species in the WLPZ for nutrient input, including hardwoods. How should hardwoods be incorporated to meet this objective?

Hardwood tree, shrub, and plant species diversity is good for the management of WLPZs for a variety of reasons, including: (1) reducing the potential for fire (the hardwoods have high water content), (2) maximizing both aquatic and terrestrial species biological diversity and suitable habitat, and (3) increasing the nutrient content for both aquatic and terrestrial species. Timber harvesting that incorporates species diversity is encouraged within the WLPZ as part of any overall hardwood retention strategy. Compliance with this section must be evaluated on a case-by-case basis with consideration given to pre-harvest species composition and opportunity to encourage species diversity through silvicultural applications. In determining the appropriate management for hardwoods within the WLPZ, the standard requirements for the chosen silvicultural prescription still apply and must be considered, including the resource conservation standards (ref. 14 CCR § 912.7 [932.7, 952.7](d)) and the protection of wildlife habitat (ref. 14 CCR § 939.15).

24. Provide a brief discussion of canopy measurement. How is overstory canopy to be measured when the preferred instrument, the vertical sighting tube, often hits both overstory and understory vegetation?

Overstory canopy is defined in the current FPRs as the portion of the trees, in a forest of more than one story, forming the upper canopy layers. Understory is defined as generally trees and woody species growing under an overstory. Total canopy is the summation of canopy at each layer, with a total maximum of 100 percent; it is used where there are multilayered or multistoried canopies (Berbach et

al. 1999). In actual field situations, defining overstory and understory can be difficult and vary depending on the observer (Robards et al. 2000, Nakamura 2000).

Total canopy and overstory canopy will be identical when there is only one canopy layer in a stand (i.e., an evenaged stand, as often occurs in a plantation). In contrast, total canopy and overstory canopy will be considerably different in stands with only a few dominant and co-dominant trees, but with an extensive layer of young conifers, shrubs, and suppressed trees (Figure 6). This situation is common in California due numerous past harvest entries into a given stand, the use of a variety of silvicultural systems, the presence of numerous conifer species with varying light tolerance levels, etc.

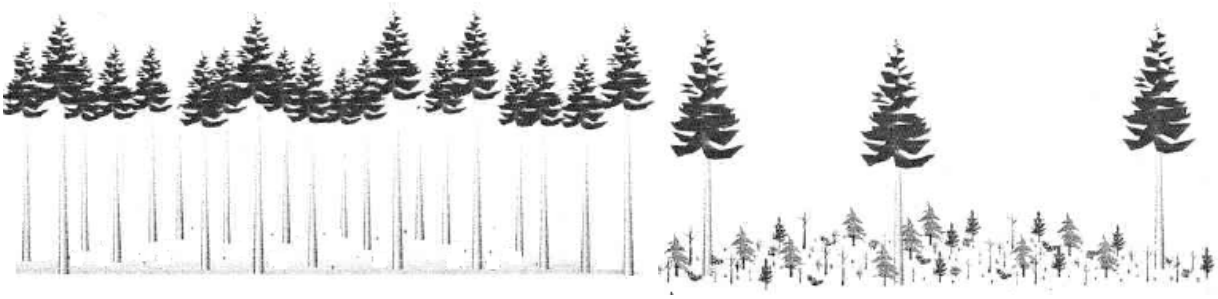

Figure 6. Diagram on the left illustrates a situation where overstory canopy and total canopy are identical. Diagram on the right illustrates a case where overstory canopy and total canopy are considerably different (*drawings from Chan et al. 2006*).

Several studies have compared different instruments for measuring overstory canopy (e.g., Robards et al. 2000, Nakamura 2000, Vales and Bunnell 1985, Fiala et al. 2006). These studies have found that the sighting tube/moosehorn is the most precise and unbiased instrument for measuring vertical canopy. Tools such as the spherical densiometer, while often used, produce low accuracy because they project a wide angle of view toward the canopy and consistently overestimate vertical canopy coverage (Nakamura 2000).

Measuring only overstory canopy, as well as differentiating between total canopy and overstory canopy, is often difficult.[3] Robards (1999) and Nakamura (2000) state that the sighting tube can be used to differentiate between overstory and understory canopy. Fiala et al. (2006), however, report that with measurement using the moosehorn (similar to the sighting tube), it may be possible to glean limited information about cover by species or layer. They state that overlap among layers of

[3] In many of the published and grey literature papers, overstory canopy measured with the spherical densiometer, sighting tube, etc. is defined as anything above eye level. Similarly, understory canopy is measured as canopy located below eye level. While simple to use, these definitions of overstory and understory do not agree with California FPR definitions.

cover and tree species, with shorter trees obstructing higher layered trees, can impede the ability of the user to identify or differentiate among them. Field observations using a sighting tube in California confirm that this is a common problem. In most cases, once the location for canopy measurement is determined, the observer will have to determine if there is an overstory tree present when understory vegetation is blocking higher observation with the sighting tube. If there is, it must be assumed that the sighting tube would hit the overstory cover and the site is to be recorded as a "hit."

In situations where compliance with the ASP overstory canopy retention levels are questionable, it may be necessary for the RPF to systematically sample the least stocked area to demonstrate compliance, and this area may need to be evaluated during the PHI.

25. In the case of requiring an additional protection zone adjacent to areas "where evenaged regeneration methods, seed tree removal, shelterwood removal, alternative prescriptions declared under 14 CCR § 913.6 [933.6, 953.6], subsection (b)(3) as most related to any evenaged silvicultural system, variable retention or rehabilitation of understocked areas will be utilized contiguous to the watercourse and lake protection zone," clarify if this means any even-aged silvicultural prescription.

Any even-aged silvicultural system listed under 14 CCR § 913.1 [933.1, 953.1] is to be included, as well as the other methods described above in this question. Note that this includes clearcutting, seed tree (including both seed tree seed step and seed tree removal step), and shelterwood (including shelterwood preparatory step, shelterwood seed step, and shelterwood removal step).

26. How is the CMZ to be determined in the field? Provide greater clarity on factors to observe in the field to make this determination.

The CMZ is defined as "the area where the main channel of a watercourse can reasonably be expected to shift position on its floodplain laterally through avulsion or lateral erosion during the period of time required to grow forest trees from the surrounding area to a mature size, except as modified by a permanent levee or dike." RPFs are encouraged to review the document titled Standard Methods for Identifying Bankfull Channel Features and Channel Migration Zones (WFPB 2004) for detailed information on how to determine if a CMZ is present. This document provides a flowchart for CMZ determination. RPFs may also refer to A Framework for Delineating Channel Migration Zones (Rapp et al. 2003). Both documents are available online (the websites are listed in the references section). Determination of a CMZ can be conducted by RPFs that have knowledge regarding riparian landforms and channel morphology.

It is most appropriate to determine if channel migration has historically occurred using a combination of office methods (e.g., a series of aerial photographs covering a wide time frame, topographic maps) and field inspection. CMZs are found in areas with unconfined channels (i.e., valley floor width is greater than two (2) times the bankfull channel width). Field inspections will reveal past lateral movement of the channel, often age-progressive bands of trees (e.g., red alder) on the floodplain, and at least one side channel on the floodplain at or below bankfull elevation of the main channel (WFPB 2004).

27. For Class I watercourses with flood prone areas, is the Watercourse Transition Line (WTL) located at the landward edge of the CMZ or at the beginning of the CMZ?

When a CMZ is present within a flood prone area, the WTL is located at the landward edge of the CMZ. See Figure 1 in the California Forest Practice Rules. As defined in the ASP rules, the CMZ's WTL is located where the landward (outer) edge of the CMZ and the streamward edge of the Flood Prone Area (FPA) meet.

28. When does the CMZ supersede the FPA?

In many cases there will be a FPA when a CMZ is present. The ASP rules state "when both a channel migration zone and flood prone area are present, the boundaries established by the channel migration zone supersede the establishment of a flood prone area." This means that the RPF is to establish the boundaries of the CMZ first, then the WTL, and then establish the flood prone area, if present. The establishment of the CMZ does not take the place of the establishment of any FPA, where it exists adjacent to the CMZ. The point is to establish the CMZ first, especially where it might overlap a FPA, then establish the remainder of the FPA beyond the CMZ.

29. Where is the WTL located for Class I watercourses with a FPA?

If there is a FPA but no CMZ present, then the WTL is located as described in 14 CCR § 895.1 for "Watercourse Transition Line." Functionally, it is located at or near the "top of bank" as indicated in Figure 3A in the California Forest Practice Rules. "Top of bank" is the line that is defined by a break in slope from the channel bank to a flatter valley bottom, start of a floodplain, terrace, or bench.

30. How will the FPA be determined in the field?

RPFs should refer to indicators described in the ASP rule FPA definition, as well as the document titled Flood Prone Area Considerations in the Coast Redwood Zone (Cafferata et al. 2005). Other helpful tools for determining the extent of flood prone areas are USGS topographic maps; LIDAR (Light Detection and Ranging) data, which provides high resolution topography; and individual county 100-year flood

hazard maps, which depict with reasonable accuracy the extent of relatively flat, floodplains adjacent to streams.

Evidence for a flood prone area includes, but is not limited to: (1) flotsam (i.e., material floating on water) hanging in the brush and log jams on top of the surface, (2) fine sediments found in the tree moss and bark, (3) silt, sand, or gravel found immediately under the leaf layer, (4) alluvial materials consisting of silt, sand and gravel that are uncompacted and unconsolidated, (5) a wetter understory plant community with facultative wet and/or wetland obligate species present, (6) disturbance species such as willow, cottonwood and alder present in the overstory canopy, (7) evidence of flowing water, such as scour features, flattened grass or secondary channels formed by scour action of the modern river channel, and (8) the elevation of the surface lies near the elevation of the highest channel features (e.g., log jams and gravel bar surfaces). If some period of time has lapsed since a large flood event, evidence that relates directly to flooding of a surface may be muted (WFPB 2004).

RPFs are encouraged to consult with DFW, CAL FIRE, the California Geological Survey (CGS), the Regional Water Quality Control Boards (RWQCBs), and others prior to laying out a project in an area suspected to be prone to flooding. Agency staff can help foresters determine if flood prone areas are present and answer questions about the ASP rules and agency expectations.

31. If harvesting in a FPA is proposed and the RPF elects not to use the site-specific approach, what silvicultural systems are permitted? Which silvicultural method requires QMD to increase? Is "thinning from below" required?

Both single tree selection and commercial thinning are permitted within inner zones A and B in the FPA, provided that they meet the requirements specified in 14 CCR § 916.9 [936.9, 956.9]. For inner zone A, when commercial thinning is used, the QMD of conifer trees greater than 8 inches diameter at breast height (DBH) must increase in the post-harvest stand.

"Thinning from below" is not a defined silvicultural system in 14 CCR § 913 [933, 953], so this rule section specifies that the silvicultural systems are limited to commercial thinning or single tree selection. As stated in the ASP rules, harvesting prescriptions are to focus on practices that use thinning from below (removing suppressed, intermediate, and a few co-dominant trees), and tree marking reviewed by Review Team agency personnel will be evaluated with this concept in mind.[4] See the response to Question 17 above.

[4] Ligon et al. 1999 define "thinning from below" as follows: "A low thinning is to be used in conjunction with silvicultural treatments in Zone A of Class I WLPZs. This thinning involves the removal of the understory, mid-canopy, and very limited numbers of co-dominant trees. Co-dominant trees may be removed only to improve spacing and enhance growth. Dominant trees may not be removed, and average stand diameter must increase following harvest." The Riparian Protection Committee Report

32. Provide a diagram showing what *thalweg riffle crest* means.

The thalweg is the longitudinal line that defines the deepest part of the channel or stream bed and it is almost always the line of fastest flow. The riffle crest is the "topographic high" along a longitudinal stream profile with a regular riffle-pool sequence (pools form topographic lows) (Figure 7). The thalweg riffle crest is easy to identify and provides a consistent location for measuring channel depth. It is the shallowest location for fish passage, tracing the deepest route through a riffle [refer to the definition of thalweg riffle crest in 14 CCR § 895.1, Definitions].

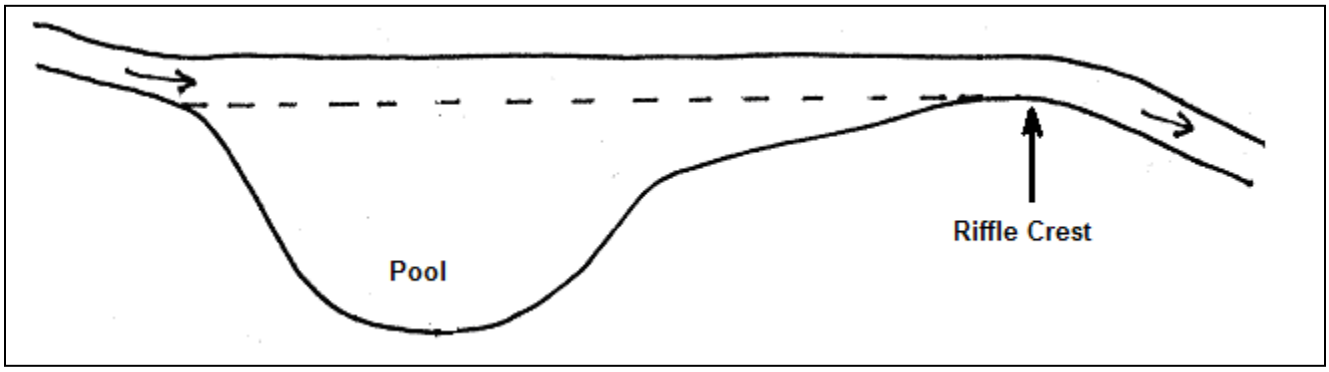

Figure 7. Longitudinal channel profile showing a riffle crest.

33. Under the flood prone area definition, discuss and illustrate the meaning of "the elevation equivalent to twice the distance between a thalweg riffle crest and the depth of the channel at bankfull stage (i.e., 2X bankfull stage)."

Rosgen (1996) states that: "To measure the width of the flood prone area, select the elevation that corresponds to twice the maximum bankfull channel depth as determined by the vertical distance between bankfull stage and the thalweg of a riffle (Figure 8). Field observations show that for most stream types, this elevation is associated with a <50-year return period flood, rather than with a very rare flood." For the California Coast Ranges, the 2X bankfull stage depth, measured from the thalweg riffle crest, equates to approximately the 40 to 50-year return period flood event (i.e., the depth determined with this method inundates the 20-year floodplain but does not stop at that elevation, and tends to preserve the riparian corridor) (Dr. William Trush, McBain and Trush, Arcata, CA, personal communication).

stated that thinning from below involves harvesting intermediates and co-dominants only, and that Quadratic Mean Diameter (QMD) of the stand must increase after harvest. Modeling showed that this silvicultural method did not significantly reduce the number of large trees following six decades (Cafferata et al. 2005).

The steps included in Rosgen (1996) and shown in Figure 8 are as follows:

1. Obtain a rod reading for an elevation at the “MAX DEPTH” location.
2. Obtain a rod reading for an elevation at the “BANKFULL STAGE” location.
3. Subtract the “Step 2” reading from the “Step 1” reading to obtain a “MAX DEPTH” value; then multiply the Max. Depth Value times 2 for the “2X MAX. DEPTH” value.
4. Subtract the “2X Max. Depth” value from the “Step 1 Rod Reading” for the FLOOD PRONE AREA location rod reading. Move the rod upslope, online with the cross-section, until a rod reading for the Flood Prone Area location is obtained.
5. Mark the Flood Prone Area locations on each bank.

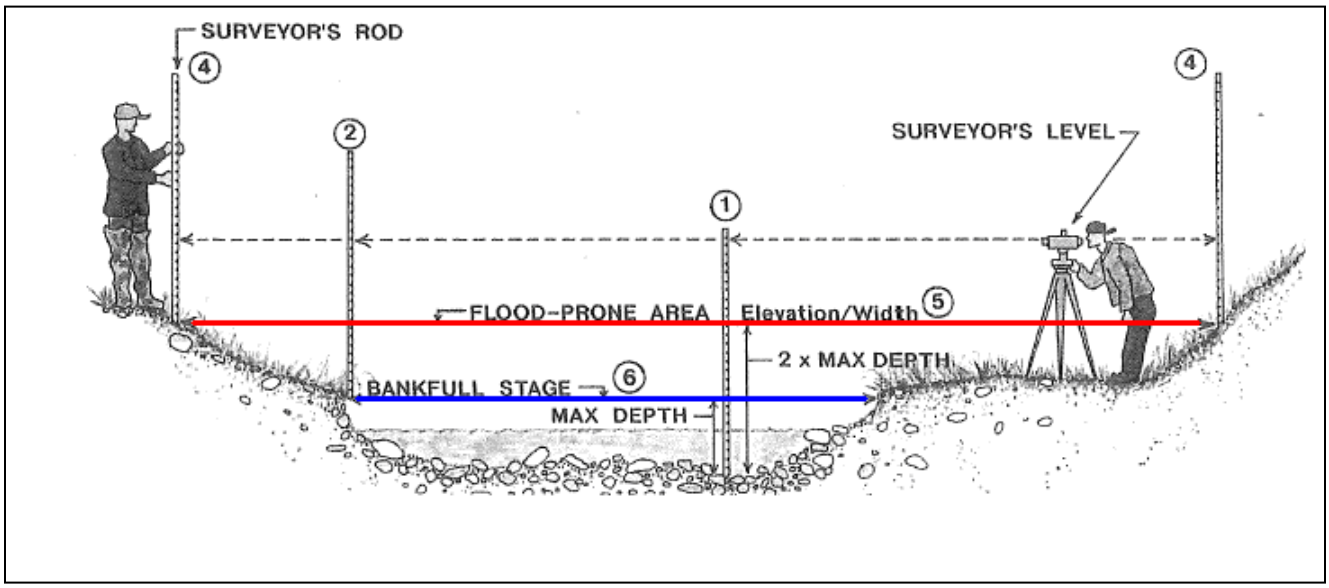

Figure 8. Illustration for determining a flood prone area using the two times bankfull stage method (*Figure 5.11 from Rosgen 1996).*

34. <u>Inner Zone A on FPAs: clarify how an RPF will determine the minimum and maximum widths. It appears that if the 70 foot minimum width encompasses the entire extent of the flood prone area, then the zone does not have to be any larger. This is not explicit and needs clarification.</u>

There was an error in the ASP rule package plead dated September 9, 2009. The correct wording for (C) Inner Zone A is: “The Inner Zone A generally encompasses the portion of the flood prone area from 30 feet beyond the WTL (Core Zone perimeter) up to 150 feet from the WTL. The minimum width of the Inner Zone A shall be the greater of the **<u>distance</u>** from the landward edge of Core Zone to the landward edge of the Inner Zone **<u>A</u>** or 70 feet. The maximum width is 120 feet.”

It is correct to state that if the 70 foot minimum width encompasses the entire extent of the FPA, then this zone is only 70 feet wide. If the entire FPA is 137 feet wide, then the Inner Zone A width would be 107 feet (30 feet for the core zone and 107 feet for Inner Zone A) [see Figure 9 below]. The landward edge of Inner Zone A will never extend up the base of the adjacent hillslope, outside of the flood prone area, to reach a total distance of 150 feet.

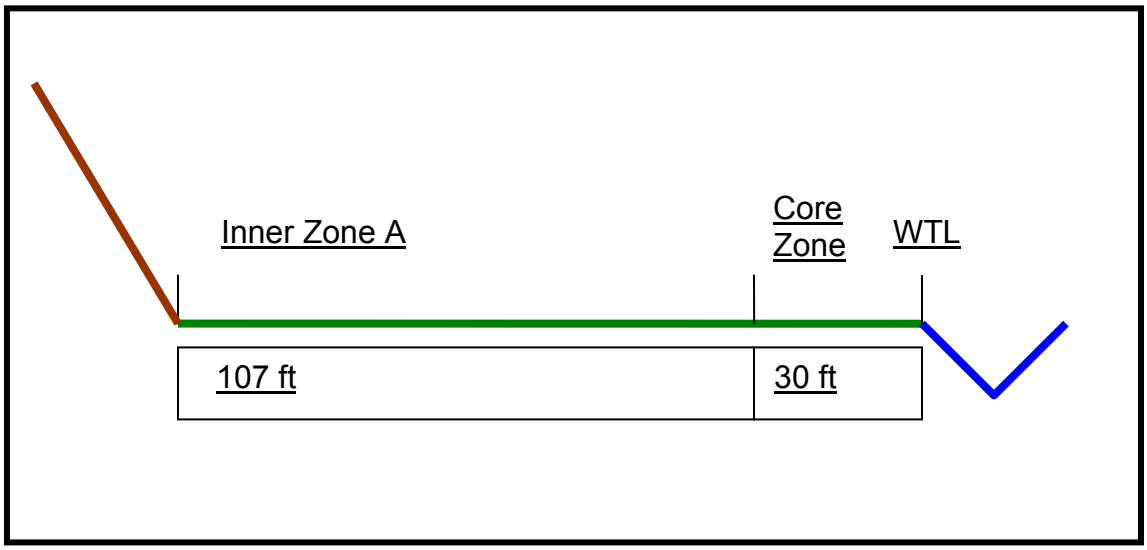

Figure 9. Example of an inner zone A with a width of less than 120 feet.

35. <u>Inner Zone B on flood prone areas: clarify that this zone may not be necessary if the inner zone A encompasses all of the flood prone area. This appears to be the case, but is not completely clear. Use diagrams and illustrations.</u>

Yes, Inner Zone B on FPAs is not necessary if Inner Zone A encompasses all of the flood prone area (see Figure 9 provided for Question 34 above).

36. <u>What prescriptions apply to a flood prone area that is less than 100 feet wide (the prescriptions for flood prone areas or for non-flood prone areas)?</u>

If the flood prone area is less than 100 feet wide, the channel might be confined and prescriptive measures for a Class I watercourse with confined channels might apply (i.e., a 30 foot wide core zone and a 70 foot wide inner zone). However, low gradient, confined channels often exhibit flood prone areas such as meander cut-offs and side channels; in some cases they might extend beyond 100 feet. Flood prone areas in confined channels should be evaluated for presence of short reaches of unconfined channels and protected where they occur. Also, flood prone areas in confined channel reaches should be evaluated pursuant to 14 CCR § 916.4 [936.4,

956.4](a)(1) and protected pursuant to 14 CCR § 916.4 [936.4, 956.4](b). It should be noted that the prescription for the inner zone of a confined channel is identical to the prescription for the Inner Zone A of a flood prone area. Therefore, in both instances, the same protective standards would apply.

37. How will RPFs know when Preferred Management Practices (PMPs) will be strongly encouraged for use—and are these "underground regulations?" How often will these practices be required to be incorporated in THPs? [Note that PMPs are provided for Class I confined channels in the CAZ, Class I watercourses with Flood Prone Areas or CMZs, and Class I confined channels outside the CAZ].

PMPs are practices that are intended to reduce the risk of timber operations adversely impacting water quality. They are not "underground regulations," since the Board determined that they are not always required. RPFs are strongly encouraged to consider including these practices, particularly in highly sensitive parts of watersheds (such as flood prone areas), as well as when more intensive management is proposed. PMPs are considered by the Board to be the least likely practices to result in significant effects to riparian resources. Therefore, the use of PMPs is encouraged and may result in expedited plan review when employed. The more sensitive the landscape is to disturbance, the greater the chance that the Review Team agencies will ask if PMPs were considered in preparing the plan.

38. How do you apply the PMPs [ref. 14 CCR § 916.9 [936.9, 956.9](f)(2)(D)] in a Class I WLPZ (inner and outer zones) when the standard FPRs prohibit heavy equipment operations in WLPZs without RPF explanation, justification and approval from the Director (ref. 14 CCR § 916.3 [936.3, 956.3] (c)).

To use heavy equipment in a WLPZ, the RPF would still have to propose an in lieu practice (ref. 14 CCR § 916.1 [936.1, 956.1]). Typically, PMP activities are intended to mitigate potential significant adverse impacts, and when these types of practices are specified and an in lieu practice justification is provided, it is expected that the review and approval of the practice should be expedited.

39. How many different types of Class II watercourses are there in the California Forest Practice Rules?

There are three types of Class II watercourses, two of which only apply to portions of California subject to the ASP rules (Class II-S and Class II-L). The Class II watercourse described in 14 CCR § 916.5 [936.5, 956.5], Table 1, still applies where there are watersheds with no listed anadromous salmonids.

40. What are the steps that an RPF will take to classify, type and assign protection measures to a Class II watercourse in the areas of California where the ASP rules apply?

As with the previous FPRs, the ASP rules require an RPF to conduct a field examination of all lakes and watercourses to determine the classification of the watercourse and the appropriate WLPZ widths and protection measures. The primary rules that apply to this step in the classification and protection process are found under 14 CCR §§ 916.4 [936.4, 956.4] and 916.5 [936.5, 956.5].

In regard to Class II watercourses, once the appropriate watercourse classification has been determined (Class I, II, III, or IV), the ASP rules now require the RPF to determine the "type" of Class II watercourses found within the harvest area that will require protection, Class II-L (Large) or Class II-S (Standard). As specified in the Class II-L Identification and Protection Amendments, 2013 rule package (ref. 14 CCR § 916.9 [936.9, 956.9](g)(1) (A)), Class II-L watercourses are to be identified based on contributing drainage area and average active channel width. Either drainage area or active channel width can qualify a watercourse for Class II-L typing. Detailed information on these methods is provided in the answers to questions below. Class II-S watercourses are those that have been classified as Class II watercourses, but do not meet the definition of a Class II-L watercourse. Once the determination has been made that a Class II watercourse is typed as a Class II-L, the entire length of the Class II watercourse will be typed as a Class II-L.

After the appropriate classification and type for the watercourse has been determined, the RPF must consider what protection measures are appropriate, either the minimum standards stated in the rules, or more protective or less restrictive standards based on the site-specific conditions identified during the field examination. Less restrictive site-specific practices must be proposed in conformance with 14 CCR § 916.1 [936.1, 956.1] regarding in lieu practices or 14 CCR § 916.9 [936.9, 956.9] (v). Detailed information on section v site-specific proposals is provided in the VTAC guidance document (VTAC 2012).

For a Class II watercourse in a watershed where the ASP rules apply, the minimum standards are stated under 14 CCR § 916.9 [936.9, 956.9](g)(2). Class II watercourses that are equal to or greater than 1,000 feet in length and that have been typed as a Class II-L, shall have the Class II-L minimum standards applied to the first (lowest) 1,000 feet. After the first (lowest) 1,000 feet, the Class II-S protection standards shall be applied, but the watercourse is still typed as a Class II-L. Class II watercourses that are less than 1,000 feet in length and that have been typed as a Class II-L shall have the Class II-L minimum standards applied to the entire length of the Class II watercourse. Regardless of the length, Class II watercourses that have been typed as Class II-S shall have the standards stated under 14 CCR § 916.9 [936.9, 956.9](g)(2)(B)(1.) applied. Note that the Core Zone requirement for a Class II-S watercourse now applies for side slopes less than 10

percent, with passage of the Class II-L Identification and Protection Amendments, 2013 rule package by the Board.

This typing procedure and the corresponding minimum standards are not required in the Southern Subdistrict of the Coast Forest District where special protection measures apply (ref. 14 CCR § 916.9 [936.9, 956.9](g)(3)).

Summary of steps:

1. Determine the watercourse classification--14 CCR § 916.4(a) [936.4(a), 956.4(a)],
    a. If the watercourse is a Class II, determine the type (L or S)—14 CCR § 916.9(g)(1) [936.9(g)(1), 956.9(g)(1)]
        i. Based on contributing drainage area or average active channel width—14 CCR § 916.9(g)(1)(A), [936.9(g)(1)(A); 956.9(g)(1)(A)]
        ii. This typing applies to the **entire** Class II watercourse—14 CCR § 916.9(g)(1) [936.9(g)(1), 956.9(g)(1)]
        iii. This typing does not apply to Class II watercourses in the SSD of the Coast Forest District—14 CCR § 916.9(g)(3) [936.9(g)(3), 956.9(g)(3)]

2. Determine the appropriate protection—14 CCR § 916.9(g)(2) [936.9(g)(2), 956.9(g)(2)]
    a. Based on field evaluation 14 CCR §§ 916.4 [936.4, 956.4] and 916.9 [936.9, 956.9].
    b. If the watercourse is a Class II-L, determine the length
        i. If > or = 1,000 feet, apply Class II-L standards to the 1st 1,000 feet—14 CCR § 916.9(g)(1)(E) [936.9(g)(1)(E), 956.9(g)(1)(E)]
            1. Apply Class II-S standards to the remainder of the length (standard Class II protection measures, but apply WLPZ widths from Table 4, and core zone protection measures) — 14 CCR § 916.9(g)(1)(E) [936.9(g)(1)(E), 956.9(g)(1)(E)]
        ii. If < 1,000 feet, apply Class II-L standards to the entire length—14 CCR § 916.9(g)(1)(E) [936.9(g)(1)(E), 956.9(g)(1)(E)]
    c. If the watercourse is a Class II-S, apply Class II-S standards (standard Class II protection measures, but apply WLPZ widths from Table 4, and core zone protection measures) —14 CCR § 916.9(g)(1) [936.9(g)(1), 956.9(g)(2)(B)(1)]; 14 CCR § 916.9(g)(2)(B)(1) [936.9(g)(2)(B)(1), 956.9(g)(2)(B)(1)]
    d. If the Class II watercourse is in the SSD of the Coast Forest District, special protection measures apply—14 CCR § 916.9(g)(3) [936.9(g)(3), 956.9(g)(3)]

41. How do you determine the contributing drainage area for a potential Class II-L watercourse?

The contributing drainage area requirement for a Class II-L watercourse is ≥100 acres in the Coast Forest District, or ≥150 acres for the Northern and Southern Forest Districts, as specified in 14 CCR § 916.9(1)(A)1. The contributing drainage area is determined from 7.5 minute USGS quadrangle maps, as illustrated in Figure 10. A line is drawn down the ridgelines to the point where the watercourse enters the Class I channel. Watershed drainage may be estimated by using a dot grid overlay, a planimeter, topographic map program (e.g., Terrain Navigator), or with GIS.

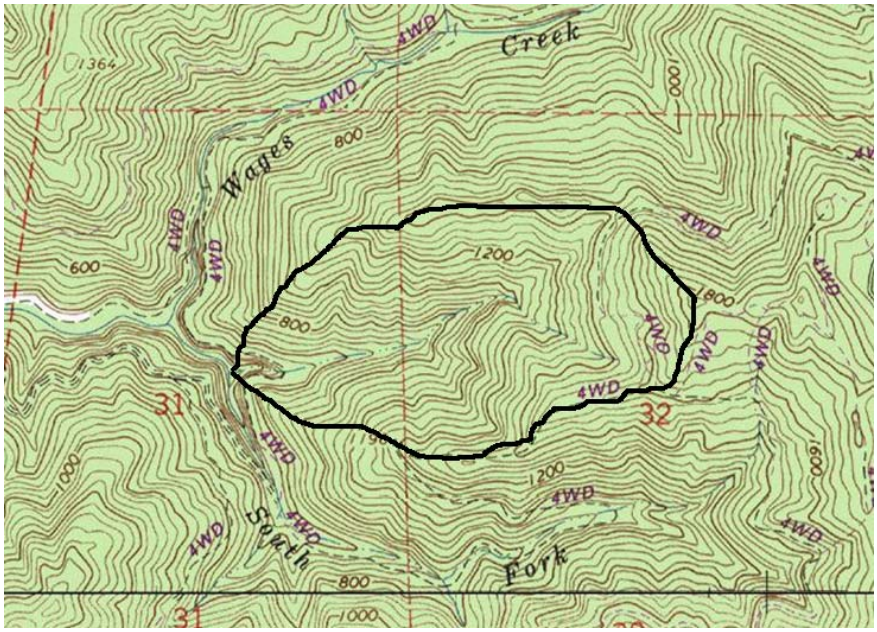

Figure 10. Topographic map for the Center Gulch tributary of South Fork Wages Creek, located in western Mendocino County (Coast Forest District). The contributing drainage area is 185 acres, qualifying this basin as a Class II-L typed watercourse.

42. How do you determine the average active channel width?

As mandated in the Class II-L Identification and Protection Amendments, 2013, rule package, the average active channel width must be five (5) feet or greater near the confluence with the receiving Class I for this pathway to qualify a watercourse for the Class II-L type. 14 CCR § 916.9 [936.9, 956.9] (g)(1)(A)2. specifies that active channel width measurements shall be taken at approximately 50 ft intervals beginning at the point where the Class II watercourse intersects the Class I WLPZ boundary and moving up the Class II watercourse for a distance of approximately 200 ft (Figure 11). The combined average of these five measurements are used to establish the average active channel width. Measurement points may be adjusted based upon site-specific conditions, and should occur at riffle locations and outside the influence of watercourse crossings to the extent feasible. Figures 12, 13, and 14 provide guidance on determining active channel width in the field.

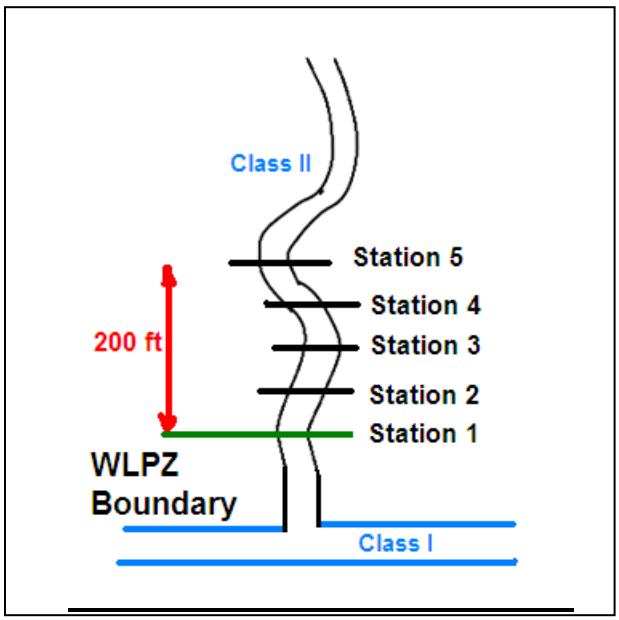

Figure 11. Illustration of how to determine average active channel width.

Figure 12. Determination of active channel width in Siskiyou County in 2012.

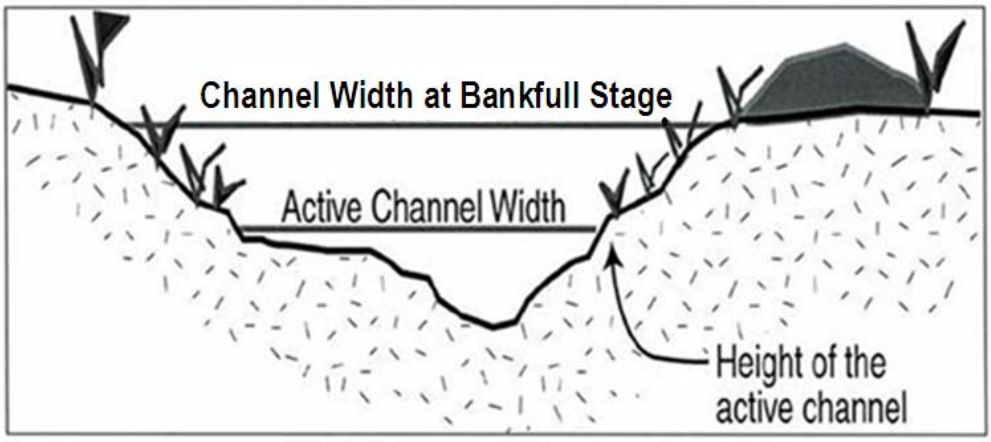

Figure 13: Depiction of bankfull channel width compared to active channel width (modified from Taylor and Love 2003, Figure IX-3).

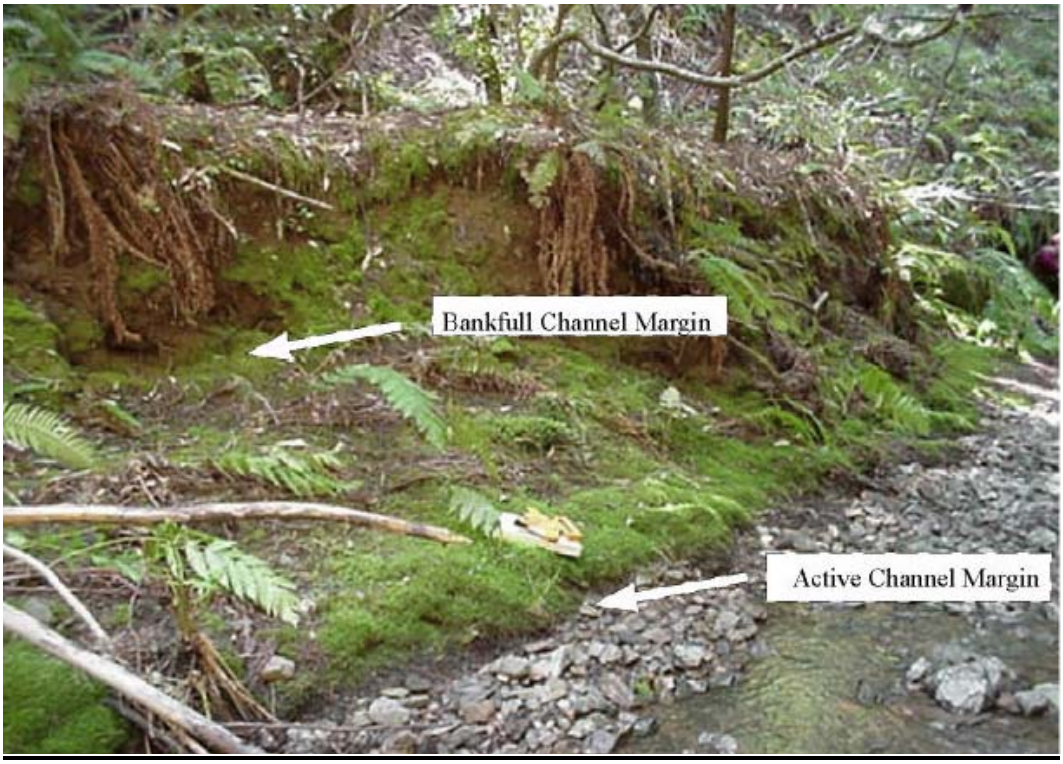

Figure 14. Example of active and bankfull channel margin (from Taylor and Love 2003, Figure IX-4).

43. <u>Do the revised rules now allow Class II-L watercourse lengths of 300', 732' or 1,000'? Does the phrase "whichever is less" refer to whatever length the Class II is determined in the field, and not established at a mandatory 1,000' length because it was determined to be Class II-L at the confluence?</u>

Once typed as a Class II-L based on,contributing drainage area or average active channel width, the watercourse remains a Class II-L for at least 1,000 feet from the confluence with a Class I watercourse, unless the classification changes to a Class III watercourse before 1000 feet. Only the first 1,000 feet of the Class II-L from the confluence with a Class I receives Class II-L protection measures; the remainder receives Class II-S protection measures, as illustrated in Figures 15, 16, 17, 18, and 19. If classification changes to a Class III prior to 1,000 feet from the confluence with a Class I watercourse, the Class II watercourse up to that point is typed as a Class II-L. Figure 20 shows an example of a 500 foot Class II-L. Figure 21 illustrates a situation where neither the contributing drainage area or average active channel width meets the minimum requirements for a Class II-L watercourse. Alternate protection measures for Class II-L watercourses may be proposed with a site-specific measure (see Question 65). Question 79 and Figure 28 illustrate a case where there is a Class II watercourse that is tributary to Class II-L watercourses within 1,000 feet of the confluence of a Class I.

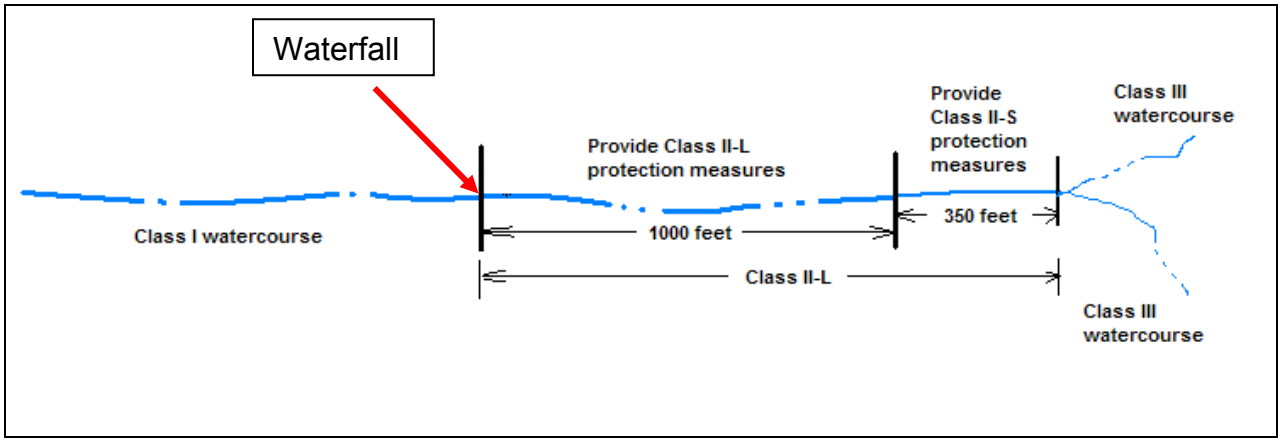

Figure 15. Class II-L watercourse where 1,000 feet receives Class II-L protection measures and 350 feet receive Class II-S watercourse protection measures.

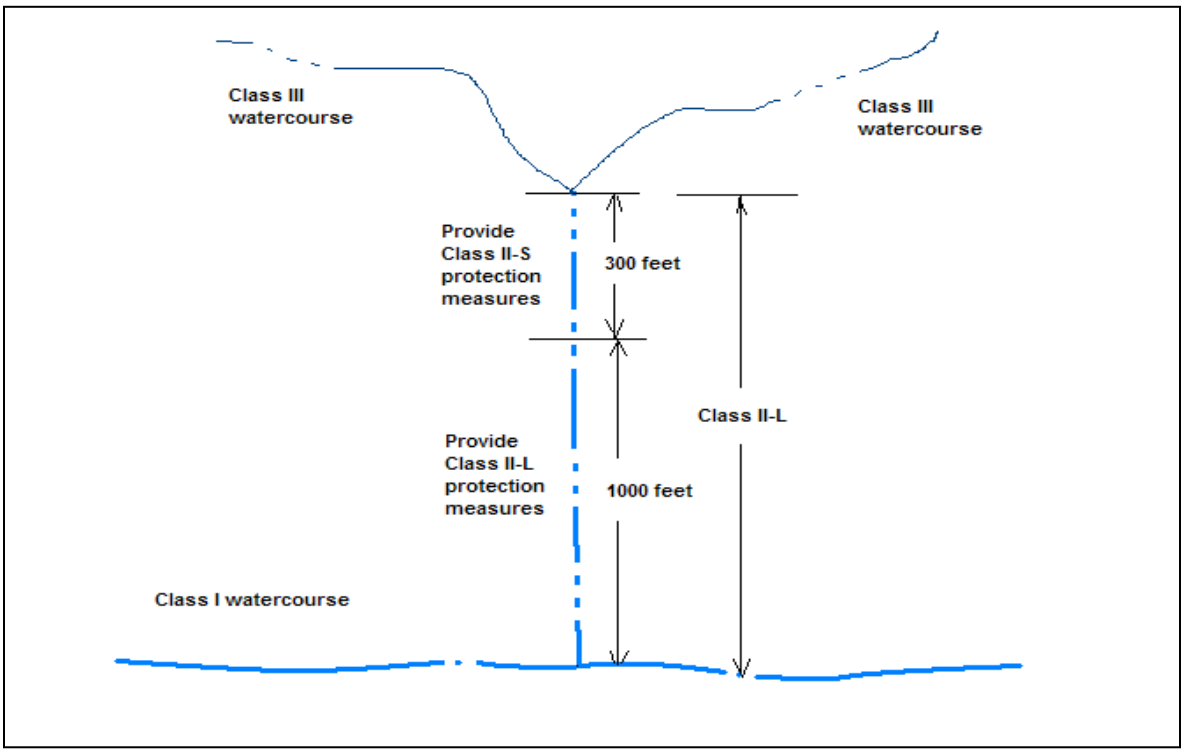

Figure 16. Class II-L watercourse where 1,000 feet receives Class II-L protection measures and 300 feet receive Class II-S watercourse protection measures.

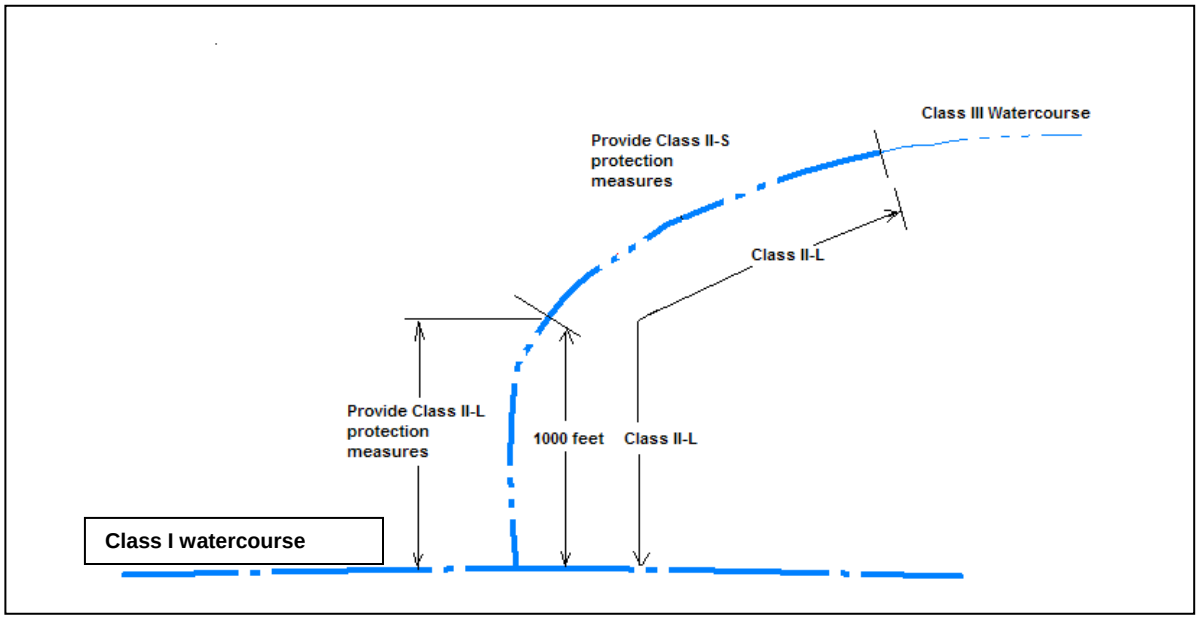

Figure 17. Class II-L watercourse where 1,000 feet receives Class II-L protection measures. The Class II-L continues to 2,300 feet, where classification changes to a Class III, and Class II-S protection measures are applied for 1,300 feet.

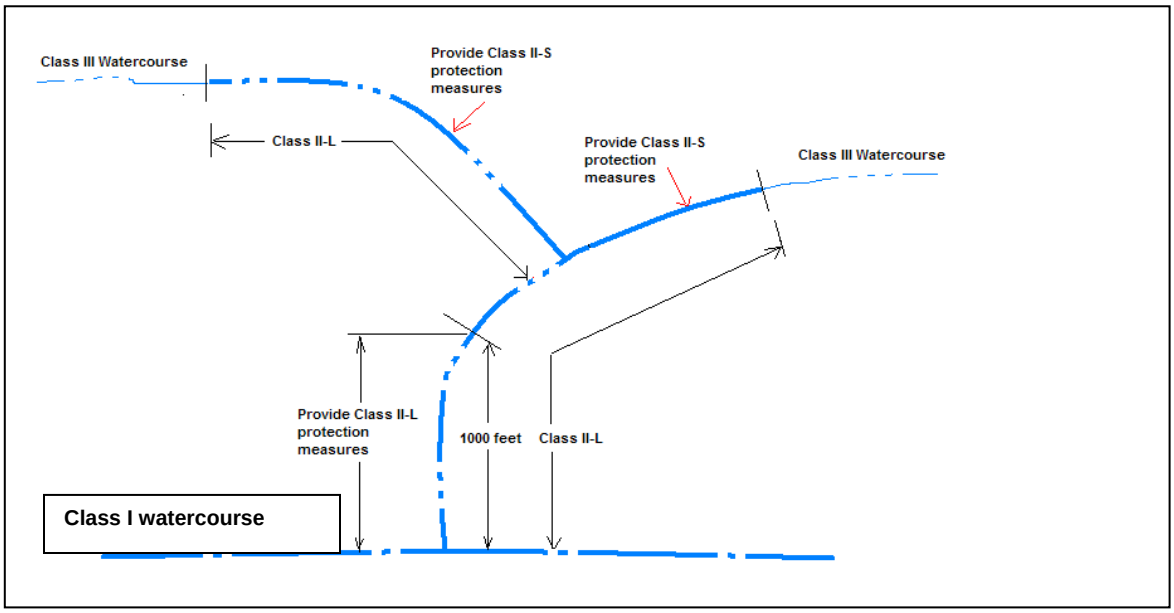

Figure 18. Class II-L watercourse where 1,000 feet receives Class II-L protection measures. The Class II-L continues to where the watercourse classification changes to a Class III, and Class II-S protection measures are applied beyond 1,000 feet. Additionally, a Class II tributary joins the main Class II-L and is typed as a Class II-L watercourse, but receives Class II-S protection measures for its entire length until it becomes a Class III watercourse, since it is located more than 1,000 feet from the confluence with the Class I watercourse.

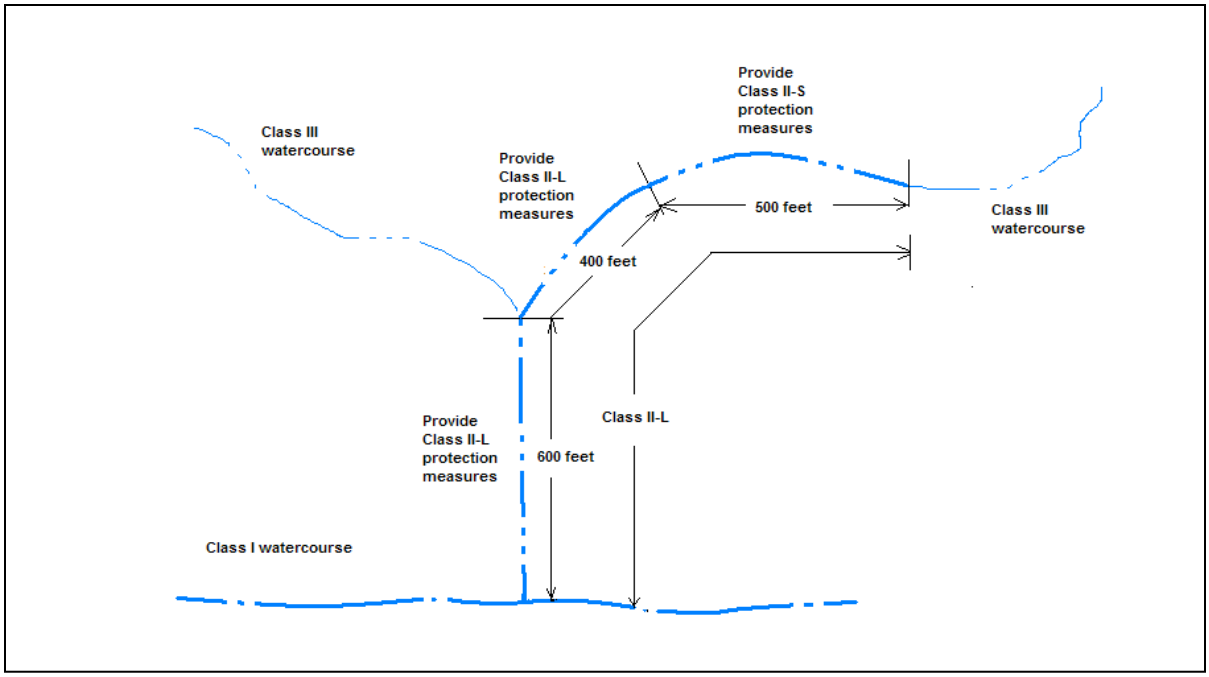

Figure 19. Class II-L watercourse where 1,000 feet receives Class II-L protection and 500 feet receive Class II-S protection measures.

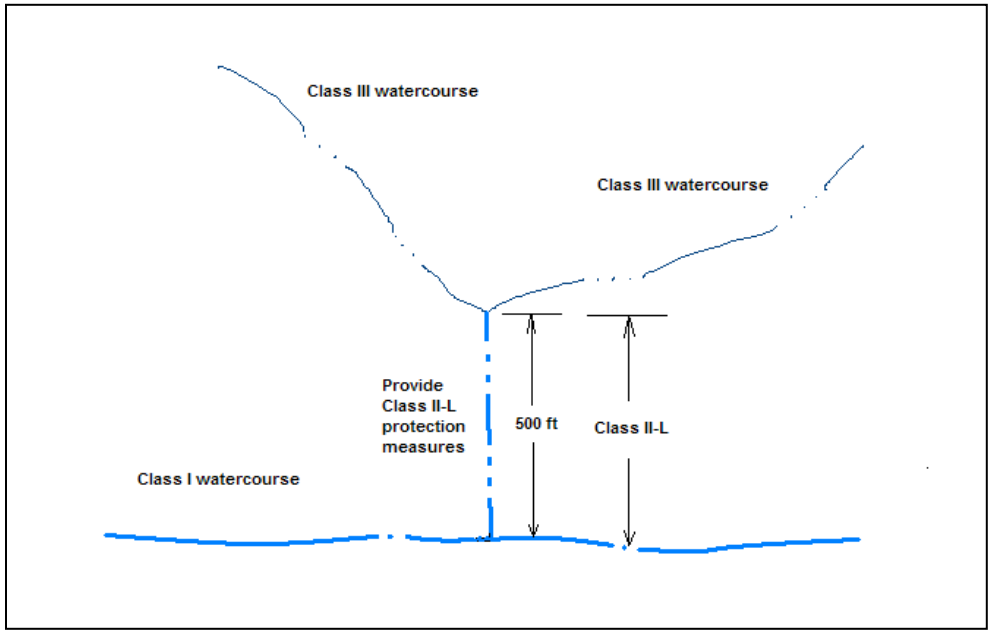

Figure 20. Class II-L watercourse that extends less than 1,000 feet and Class II-L protection measures are applied to the whole Class II length.

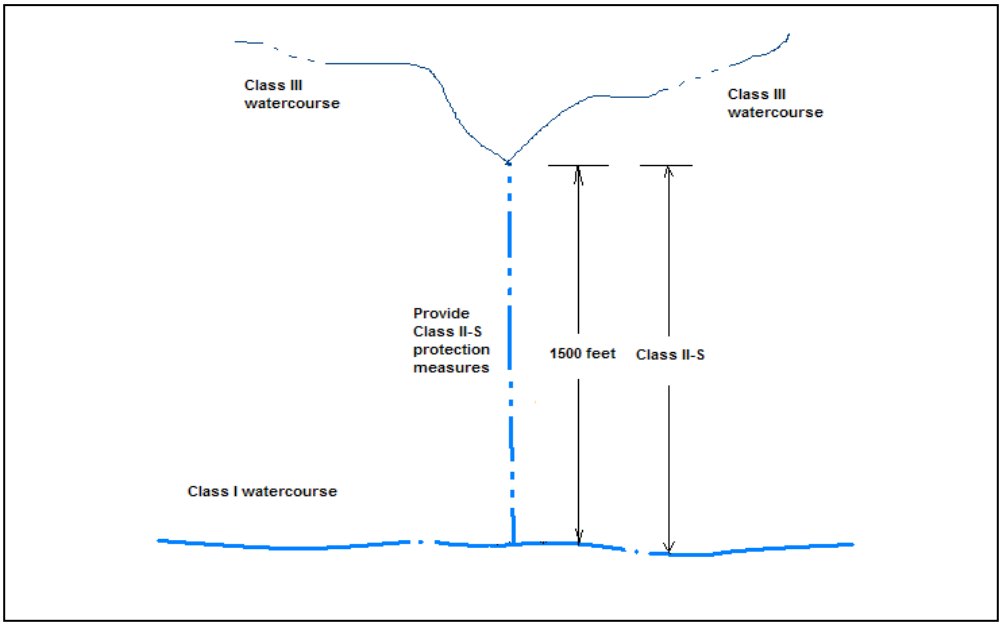

Figure 21. Class II-S watercourse type, since neither the contributing drainage area or average active channel width requirements are met.

44. <u>If water just flows for the lower 250 feet before entering a Class I watercourse, while meeting the drainage area or active channel width requirements, do I still need to type the channel as a Class II-L the whole 1,000 feet, and if so, why? When can I have a distance of less than 1,000 ft (show diagram)?</u>

Yes. The Board determined that Class II-L watercourses can significantly impact Class I watercourses, and have significant values themselves, such as providing for sediment storage and decreasing the rate of sediment transport into Class I watercourses. Therefore, unless an alternative is developed and approved pursuant to 14 CCR § 916.9 [936.9, 956.9](v), Class II-L watercourse protection measures will be assigned for at least 1,000 feet where the watercourse meets Class II-L criteria outlined in the revised rules, unless the watercourse changes to a Class III prior to 1,000 feet.

45. <u>According to 14 CCR § 916.9 [936.9, 956.9](g)(1)(E), the distance of 1,000 feet for application of the requirements for Class II-L protection is measured from the *confluence* with a Class I watercourse. At what point do the measurements begin and is it different for confined and unconfined channels?</u>

The 1,000 foot distance is to be measured from the edge of the active channel at bankfull stage. For watercourses without channel migration zones, that is confined channels and flood prone areas, this will be close to or the same as the WTL. For channels with CMZs, this will be inside the CMZ along the active channel.

46. <u>When should additional site-specific measures be incorporated into a plan to adequately protect beneficial uses of water relative to riparian functions?</u>

As specified in 14 CCR § 916.9 [936.9, 956.9](g), additional site-specific measures should be incorporated into the THP pursuant to 14 CCR § 916.2(c), 916.4(a)(1), and 916.9(b) to address site-specific conditions where the standard protection measures are determined inadequate to maintain, protect, or contribute towards restoration of beneficial uses. In making a determination as to whether additional measures are necessary, the relevance and strength of linkage between conditions and processes related to current and future aquatic conditions and beneficial uses, and the specific riparian function(s) in question for which protection measures apply must be evaluated by the RPF. The Director's determination as to the necessity of additional site-specific measures ultimately relies upon informed professional opinion in consultation with qualified interdisciplinary Review Team members and any other pertinent technical expertise involved with the THP (e.g., licensed geologist, hydrologist, biologist).

For example, additional watercourse protection measures may be warranted due to impaired riparian or channel conditions, which could include unstable side slopes (e.g., inner gorge areas), highly erodible soils or impaired stream conditions. Impaired riparian conditions may include the presence of roads, skid trails or landings where: (1) these impairments are resulting in significant sediment

discharge, or (2) these disturbed areas result in insufficient numbers of large conifers for large woody debris (LWD) recruitment to a watercourse or shading (when required for aquatic habitat protection or improvement).

47. Why are the canopy standards for Class I watercourses in the non-CAZ areas less than the standards for Class II-L watercourses in non-CAZ areas?

Only two zones were established for Class II watercourses: a core zone and an inner zone (i.e., no outer zone delineation was established, as there are for Class I watercourses). For the non-CAZ area, the core zone requirements and inner zone canopy requirements for Class II-L and Class I requirements are designed to result in similar contributions to salmonid habitat by maintaining canopy for shade and a supply of LWD. Thus, there is a wider no-cut for Class I watercourses with slightly reduced outer zone canopy, and there is a narrower no-cut zone for Class II-L watercourses and slightly higher canopy cover for the outer part of the first 100 foot zone. For Class II-L watercourses in the CAZ, the core and inner zone requirements are identical.

48. Given that 14 CCR § 916.9(g)(2)(B)2.(i) only requires an increase in QMD if commercial thinning is used, does the provision that prescriptions "should" focus on thinning from below still apply if single tree selection silviculture is used within the Class II-L WLPZ?

See the response to Question 17. For both the commercial thinning and single tree selection silvicultural methods, RPFs should remove mainly suppressed and intermediate trees, with only very limited removal of co-dominants. The degree that this can be completed will depend on individual stand characteristics.

49. Does the "thinning from below" language in 14 CCR § 916.9(g)(2)(B) apply only to the Class II-L inner zone, or to both the Class II-L and Class II-S inner zone?

As stated in 14 CCR § 916.9(g)(2)(B), harvesting prescriptions within the inner zone should focus on practices that use "thinning from below"; this applies for Class II-S inner zones, as well as Class II-L inner zones. This requirement should be interpreted in the context of the mark for the entire Class II WLPZ inner zone, and should not be in the context of examining a very select subset of trees in a given part of the WLPZ inner zone. Also, it is important to understand that thinning from below does allow a limited number of larger trees (i.e., co-dominants) to be selected for harvest (see footnote number 4 on page 19). Dominant and predominant trees should be retained when thinning from below.

50. Where the plan submitter proposes to protect all Class II watercourses in the most restrictive manner (i.e., all Class II watercourses in the plan area are treated as a Class II-L), is differentiation between small and large Class IIs still required in the THP discussion and for THP maps?

If the plan submitter clearly states that all Class II watercourses, regardless of their attributes, are being provided Class II-L protection, then minimal discussion in the THP is necessary. A new mapping requirement is included in 14 CCR § 916.9 [936.9, 956.9]) (g)(1)(B), however, which specifies that the RPF shall include the mapped location of Class II-L watercourse segments receiving protections pursuant to 14 CCR § 916.9 [936.9, 956.9], subsection (g)(2) in the plan area.

51. In the Southern Subdistrict of the Coast Forest District, can you harvest a stem from a coast redwood with multiple trunks that has some of its boles overlapping the edge of the channel, if you harvest the stem that does not have a bole overlapping the edge of the channel?

Yes, however RPFs will still have to meet the other Class II watercourse requirements, which include: (1) maintaining 80% overstory canopy within the channel zone; (2) not harvesting more than 1/3 of the conifers 18 inches DBH or larger, (3) not harvesting 2/3 of the stems of redwoods with live roots permeating the bank, and (4) maintaining sufficient redwood trees ≥12 inches DBH so that they are not spaced more than 25 feet apart.

52. In the Southern Subdistrict of the Coast Forest District, can you harvest all stems from a coast redwood with multiple trunks that has live roots permeating the bank or providing channel grade control if you don't exceed the harvesting limit of 1/3 of all redwood stems with this characteristic throughout the Class II WLPZ, or can you only harvest 1/3 of the trees within each multiple stemmed redwood that has live roots permeating the bank or providing channel grade control?

The ASP rules do not specifically restrict the number of stems allowed to be harvested from coast redwoods with multiple trunks. However, the ASP rules for the Southern Subdistrict of the Coast Forest District have been designed to provide a stable watercourse channel specifically through the retention of all trees within the channel zone, with boles extending into the channel zone, and with live roots permeating the bank of a watercourse. This is intended to better promote the retention and growth of the root biomass in the banks. Recognizing that coast redwood will retain much of its root biomass following harvest due to its capacity for coppice regeneration, the Board allowed harvesting of up to 1/3 of the redwood stems of any bank trees with live roots permeating the bank or providing channel grade control. However, there are several other requirements that must be met when considering how many stems can be removed adjacent to a Class II watercourse; especially from redwoods with multiple trunks (ref. 14 CCR § 916.9 (g)(3)) and the response to Question 51 above). The Departments prefer that RPFs retain trees dispersed evenly along the watercourse transition line where those conditions exist and maintain some stems when harvesting from redwoods with multiple trunks to minimize to the extent feasible the impacts to the existing root biomass providing bank stability along the channel. See Figure 22.

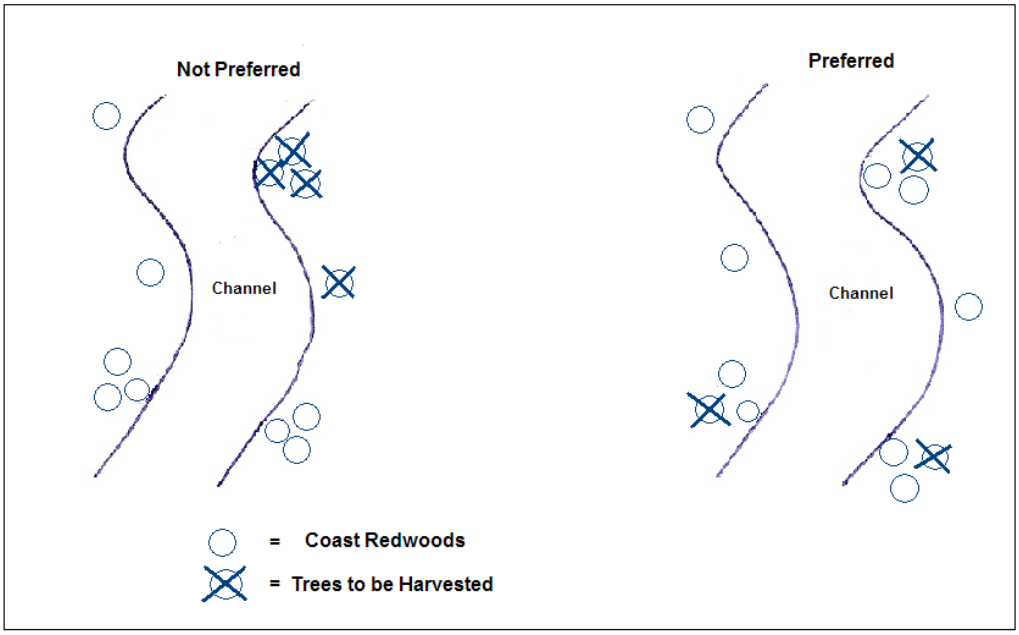

Figure 22. Diagram illustrating how trees may be harvested along Class II watercourse channels in the SSD.

53. <u>Show diagrams illustrating Class II watercourse requirements in the Southern Subdistrict of the Coast Forest District—comparing and contrasting these requirements with those outside the SSD in the Coastal Anadromy Zone.</u>

See Figures 23 and 24 below.

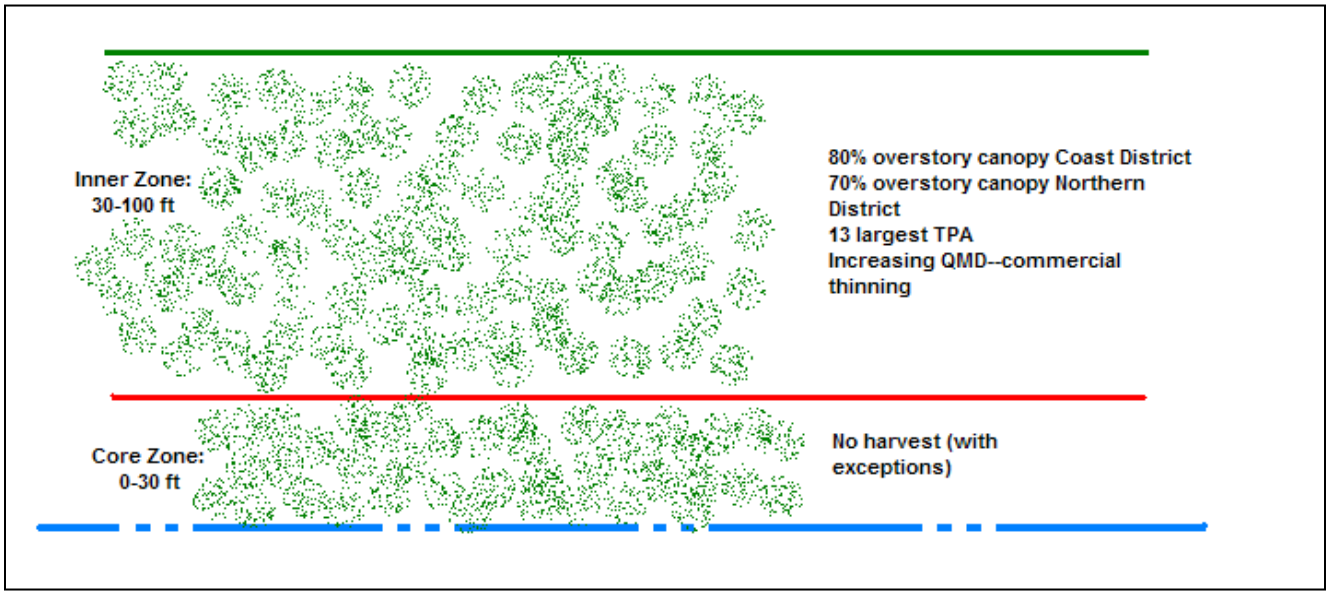

Figure 23. Large Class II diagram for the CAZ.

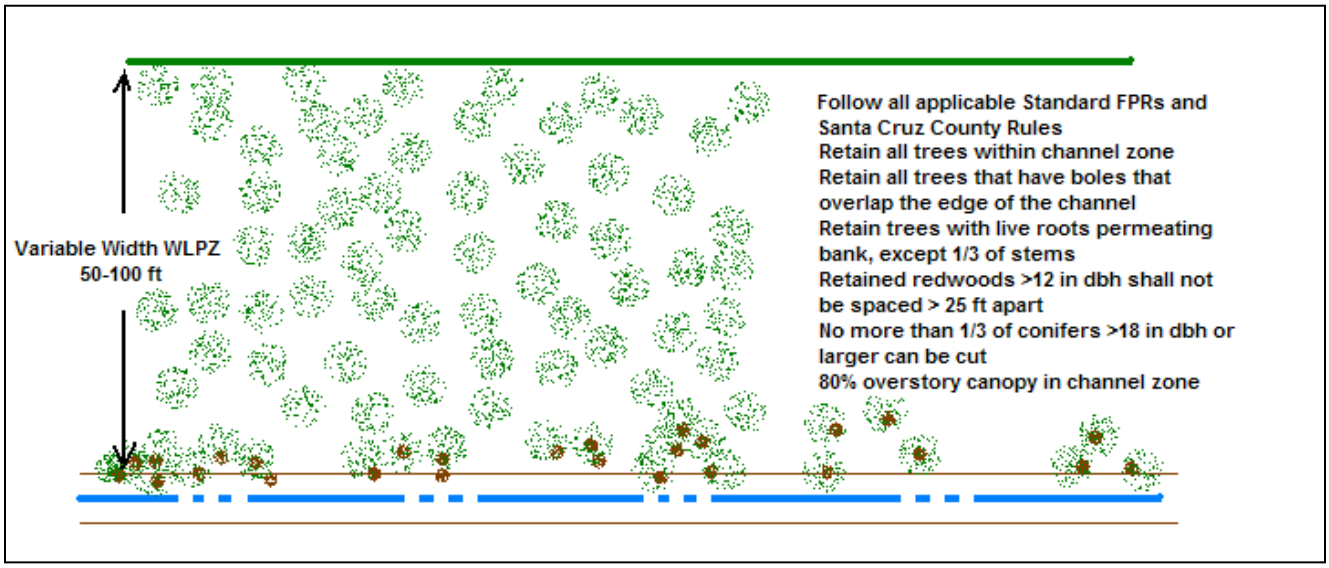

Figure 24. Class II WLPZ protection measures for the SSD of the CAZ.

54. <u>For Class III watercourses, what does it mean to retain hardwoods in the Equipment Limitation Zone (ELZ) where feasible?</u>

Retaining hardwoods where feasible means that the LTO must make a reasonable effort to produce a post-harvest stand with most of the hardwoods upright and in good condition. Hardwoods may be removed if they pose a safety hazard or otherwise impede other harvest activities.

55. <u>Class III protections include: "Retain all countable trees needed to achieve resource conservation standards in 14 CCR § 912.7 [932.7, 952.7] within the ELZ." Clarification of what this means is necessary. Does this mean that large conifers must be retained in some locations?</u>

RPFs are encouraged to review the Resource Conservation Standards under Article 5 in the Forest Practice Act, as well as 14 CCR § 912.7 [932.7, 952.7]. Following harvest, trees needed to meet the minimum stocking standards specified in the Act and the FPRs must be retained within the Class III ELZ. These standards should be easily met if unevenaged silvicultural systems are applied, and also where there is advanced regeneration when evenaged silviculture is prescribed. The intent of this rule section was to minimize disturbance to advanced regeneration when clearcutting is used to ensure functionality of the ELZ buffer immediately post harvest. If there is a wide diameter distribution present, ranging from large trees to seedlings, the countable tree requirement can be met with the smallest diameter trees and seedlings. If there is not advanced regeneration, RPFs will be required to leave larger trees to meet the Resource Conservation Standards, unless an "in lieu" practice is requested, with accompanying explanation and justification. Alternately, a considerably more detailed site-specific plan under 14 CCR § 916.9 [936.9, 956.9]

(v) can be developed to harvest mature conifer trees in the Class III ELZ. Note that there are limited exceptions for these requirements for trees growing within the channel zone. See the response to Question 59.

56. 14 CCR § 916.9 [936.9, 956.9](h)(6) states that you must "retain all countable trees needed to achieve resource conservation standards in 14 CCR § 912.7 [932.7, 952.7] within the ELZ." It is unclear as to what is actually required to be retained and when, and then how compliance is to be determined. Multiple interpretations can be made. Depending on stand conditions this might require retention of numerous large conifer trees (e.g., where conifer regeneration is absent)—which is inconsistent with Board Forest Practice Committee discussions. Provide clarification for RPFs.

See the response to Question 55 above.

57. Does the language isolate Equipment Limitation Zones in terms of retaining trees to meet the resource conservation standards of 14 CCR § 912.7 [932.7, 952.7]]? Does the language require that the resource conservation standards be achieved immediately upon completion of timber operations within ELZs? In other words, will one stocking survey have to be carried out for an ELZ and a separate survey for the adjacent harvest unit outside the ELZ? If yes, given the procedures in Article 5 have substantial issues with regard to use in Class III ELZs (i.e., plots wider than the ELZ), can other methods such as a 100% sample be used to determine compliance with the conditional retention standard?

This Class III ELZ requirement only isolates the ELZ area for retention standards in terms of time, since countable trees that exist on-site in the ELZ prior to operations and that would be necessary to meet the resource conservation standards (i.e., stocking standards) must be retained upon completion of timber operations within the ELZ. Plots do not have to be installed within the ELZ to determine if the stocking standards have been met. CAL FIRE will not request stocking standard reports for ELZs unless there appears to be a violation of the FPRs. A 100% sample could be used to determine compliance with this rule for enforcement purposes. See Figure 25 below, where a 50 foot wide ELZ x 871 feet = 43,560 ft^2 or 1 acre. Also, see responses to questions 58 and 59

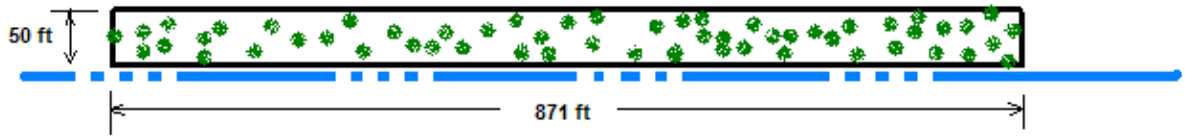

Figure 25. Illustration showing how Class III ELZ retention is to be determined.

58. Can hardwoods retained in ELZs be counted towards meeting the conditional retention standard? If hardwoods can be counted toward retention, is there a ceiling in terms of how many hardwoods can be counted?

Yes, hardwoods can be counted towards meeting the conditions of the countable tree and resource conservation standards. The requirement stated under subsection (h)(6) for the ELZ is a retention standard and the metric required to gauge compliance is the basal area or point count standard stipulated under 14 CCR § 912.7 [932.7, 952.7] with Group A or B species.

59. For a Class III ELZ with large, non-sprouting Group A species (e.g. Douglas-fir) and assorted hardwoods, if you cut all the conifers, you change the Group A to Group B species ratio. The rules under 14 CCR § 912.7 [932.7, 952.7] say that "the percentage of the stocking requirements met with Group A species shall be no less than the percentage of the stand basal area they comprised before harvesting." Is it correct to assume that since this standard must be met immediately after harvest, you have to leave the same ratio of conifer stocking to hardwood stocking as was present before harvesting? If Group A species will recapture the site after harvest, does one have to leave the same ratio of conifer to hardwood stocking?

No, the RPF is not required to leave the same ratio of conifer stocking to hardwood stocking that was present prior to harvesting in the ELZ (it must remain constant, however, for the logging unit as a whole). See the response to Question 57 above.

60. Regarding Class III watercourses, is there a requirement to flag the ELZ boundary?

There is no requirement to flag the boundaries of the ELZ. The standard rules require that areas of equipment use within the ELZ be described in the plan or flagged or marked on the ground prior to the PHI. Under the ASP rules, with hardwood protection, stocking considerations, large, downed wood retention, etc., the RPF will have to determine on a case-by-case basis whether flagging the ELZ will be necessary to prevent an LTO from adversely impacting the ELZ.

61. Does the language in 14 CCR § 916.9 [936.9, 956.9] (h)(8) modify subsection (h)(1) to allow for the construction of new tractor crossings of Class III watercourses?

Yes, construction of new tractor crossings of Class III watercourses is permitted.

62. 14 CCR § 916.9 [936.9, 956.9](l) uses the term “low antecedent soil moisture.” Provide a useful definition of this term.

The term “low antecedent soil moisture” has been used in the Board’s rules for several years. It can be defined as low soil moisture levels prior to precipitation inputs, or dry rainless periods when soils are not saturated.

63. <u>Does the definition of saturated soil conditions in an approved plan supersede the definition in the ASP rules effective January 1, 2010?</u>

No. As specified in PRC § 4583, the new ASP rules adopted by the Board apply to any approved plan unless “*prior to the adoption of such changes or modifications, substantial liabilities for timber operations have been incurred in good faith and in reliance upon the standards in effect at the time the plan became effective and the adherence to such new rules or modifications would cause unreasonable additional expense to the owner or operator*.” The Department will consider each case made for not following the ASP rules on the evidence and explanation provided (also ref. the response to Question 6).

64. <u>Explain how the new ASP water drafting rules differ from the old T/I rule requirements.</u>

The Board found that the existing water drafting rules created redundant documentation requirements with Fish and Game Code § 1600 *et seq*. Streambed Alteration Agreements. The amended language in 14 CCR § 916.9 [936.9, 956.9](r) provides a more streamlined permitting process than the old T/I rules. The new ASP rule makes clear FGC § 1600 authority and the use of the THP as notification. The new language clarifies the information necessary for disclosure and evaluation of water drafting projects in THPs; clarifies compliance with Fish and Game Code section 1600 *et seq.* for Lake and Streambed Alteration Agreement (LSAA) notification; and provides basic water drafting operational requirements, unless otherwise specified in a LSAA issued by DFW. Specific changes are described below. The most substantive change is the requirement contained in 14 CCR § 916.9 [936.9, 956.9](r)(1) that requires water drafting for timber operations to comply with Fish and Game Code § 1600 *et seq*. Prior rule language prohibited water drafting under certain circumstances unless the RPF provided a drafting plan and, if necessary, a DFW-issued LSAA. Other substantive changes that are included in subsection (r) include the following new information disclosure requirements:

(r)(2)(E) - Describe the estimated drainage area (acres) above the point of diversion;
(r)(2)(I) - Describe the methods that will be used to measure source streamflow, and new requirements for conduct of water drafting;
(r)(3)(C) - Barrier installation to prevent sediment transport; and
(r)(3)(D) - Use of drip pans to capture motor oil or hydraulic fluid leaks.

65. <u>Provide examples of subsection (v) approaches that meet the standard that the prescription will result in effects “equal or more favorable” than those expected to result from the application of the standard rule requirements in 14</u>

CCR § 916.9 [936.9, 956.9] (examples involving flood prone areas and the fuel hazard reduction provisions are appropriate).

The following scenarios provide examples of site-specific measures that could potentially meet the standards specified in 14 CCR § 916.9 [936.9, 956.9] subsection (v):

Example A: Flood Prone Area

Setting: A flood prone area exists along a significant river in the Coast Ranges of California that was previously in agricultural use. Twenty years ago this area was planted with conifer seedlings, which are now sapling and pole sized trees. The stand is extremely dense with close to 400 stems per acre, since no pre-commercial thinning activities were conducted within the plantation.

Proposal: The RPF proposes to thin the stand, going from 400 trees per acre (TPA) to approximately 150 TPA. Thinning will occur throughout the stand (i.e., from the WTL to the edge of the flood prone area).

Analysis: This proposal will not meet the no harvest requirement for the core zone and will not meet the overstory canopy requirements for the inner zone. This prescription appears reasonable, however, since it will allow the remaining trees to grow much larger in a considerably shorter time (reducing the time required for trees to provide critical riparian functions such as shading, large wood recruitment, etc.). This proposal will meet the objectives in 14 CCR § 916.9 (c)(5), creating favorable habitat in a more timely manner than would occur with the prescriptive standard.

Example B: Fuel Hazard Reduction

Setting: A Class I watercourse located in the Sierra Nevada was subjected to a catastrophic wildfire 50 years ago. The area naturally regenerated, producing an overly dense stand both in the riparian zone and on the adjacent hillslopes. Fire behavior models show that this area is once again highly prone to catastrophic wildfire (i.e., a rapidly moving crown fire). Listed anadromous fish use the Class I watercourse.

Proposal: The RPF proposes a prescription to reduce surface fuels, intermediate fuels, and co-dominate fuels (i.e., “ladder fuels”) in the stand beyond the standards in the ASP rules. This treatment is to occur both in the Class I WLPZ core, inner, and outer zones, as well on the hillslopes beyond the WLPZ, creating a landscape-level fire hazard reduction project.

Analysis: Since the area has an established fire history and fire behavior models document a significant problem, the RPF is able to make a valid case for removing trees and other vegetation beyond the standards in the ASP rules. In addition to describing how the stand will be improved for potential future timber production, the

RPF should include a discussion of how the riparian functions necessary for salmonid life stages will be better secured and maintained by the fuel reduction treatment.

Considerable information and numerous additional examples of site-specific riparian zone management are provided in the following document:

VTAC. 2012. Site-specific riparian zone management: Section V guidance. Final report prepared by the Anadromous Salmonid Protection Rule Section V Technical Advisory Committee (VTAC). California Department of Forestry and Fire Protection. Sacramento, CA. 171 p. Available online at: http://www.bof.fire.ca.gov/board_committees/vtac/vtac_guidance_document_/vtac_guidancedocument_dec21-2012_final.pdf

66. Explain how section (v), site-specific plans, can be used in a practical manner, and how the equal to or more favorable standard will allow these types of practices to be used. Is there a time element involved, so that riparian conditions can be improved in 20-30 years, but not initially?

See the response for Question 65 above. The Board did not specify that riparian conditions could be improved several decades after treatment, but RPFs can discuss this approach with the reviewing agencies with pre-project development consultations. An example of this situation would be where a riparian stand is entirely composed of red alder and the Class I watercourse is devoid of functioning large wood. The proposal would be to rehabilitate the stand by removing patches of the red alder stand and replanting with coast redwood and Douglas-fir seedlings.

67. What is the simplest way to get a site-specific plan under 14 CCR § 916.9 [936.9, 956.9](v) approved by the Review Team agencies?

Under 14 CCR § 916.9 [936.9, 956.9](v)(2) for alternate measures limited to specific sites, all the RPF needs to do is pre-consult with DFW and obtain written concurrence prior to plan submittal (i.e., written concurrence negates the need for further documentation). Note however, that for a site-specific plan for a flood prone area, subsection (v)(5)(I) specifies that the site-specific plan must have pre-consultation with the Review Team agencies and receive concurrence from the Review Team agencies, including DFW. Additional information is provided in the VTAC guidance document referenced above in Question 65.

References

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PART B

Outstanding Questions from Anadromous Salmonid Protection (ASP) Training Workshops held in January and February 2010

68. Do the ASP rules apply to watercourses without anadromous salmonids located in planning watersheds that contain listed anadromous salmonids (in the case of watercourses that flow directly into the ocean)? Include a map to illustrate this principle, using the Roseman Creek planning watershed example supplied at the Ukiah ASP training workshop.

The ASP rules do not apply to individual small drainages that flow directly into the ocean that do not contain listed anadromous salmonids (and cannot be restored), even though other discreet drainages in the same planning watershed do have listed salmonids present (where the ASP rules do apply). An example of this situation is found in the Roseman Creek planning watershed, located in western Mendocino County (see Figure 26).

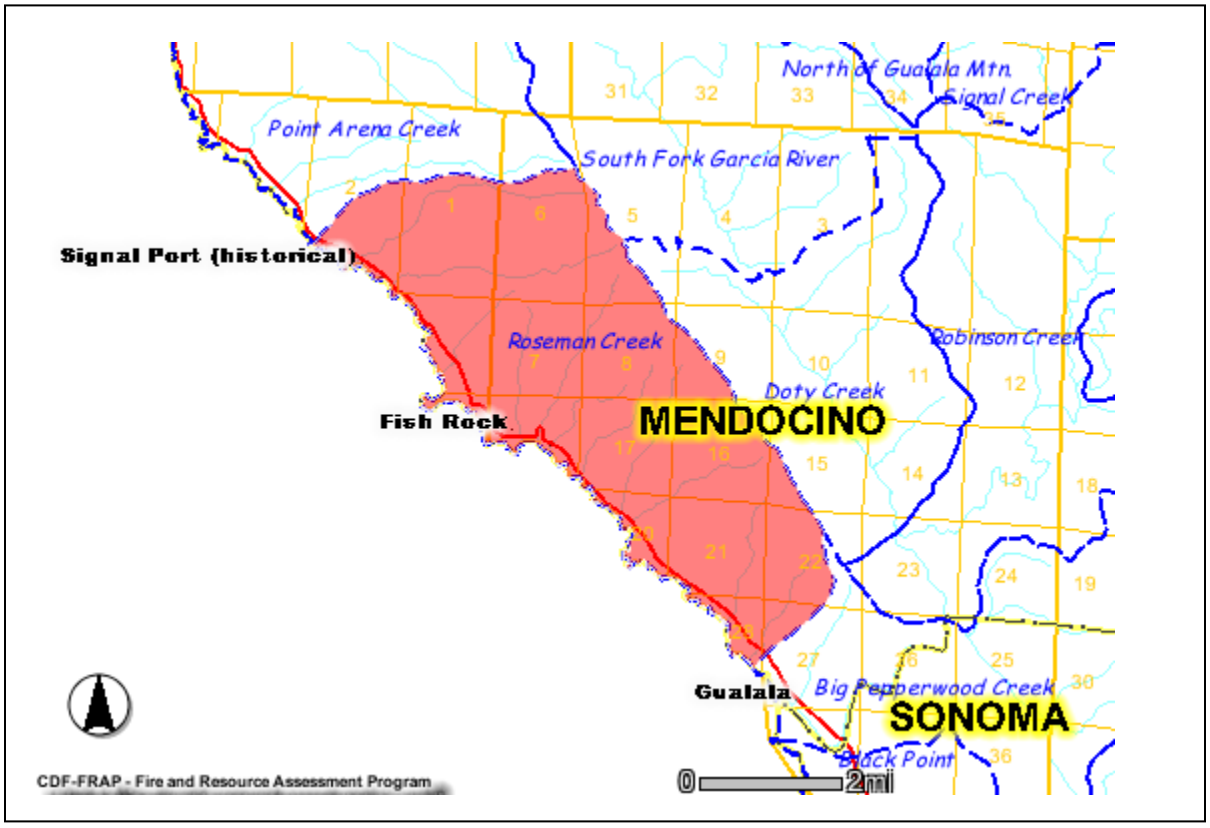

Figure 26. The Roseman Creek planning watershed, located in western Mendocino County, with both small coastal watersheds where the ASP rules apply and do not apply.

69. What ASP-related operational rules does one need to address when arguing incurrence of substantial liabilities?

The following ASP-related Forest Practice Rules may need to be addressed when preparing the justification for incurred substantial liabilities (Title 14, CCR):

- 895.1 - Definitions
- 916.9(e) [936.9(e), 956.9(e)] - Channel zone requirements
- 916.9(f)(2)(A)-(C) and (E) [936.9(f)(2)(A)-(C) and (E), 956.9(f)(2)(A)-(C) and (E)] - Class I watercourses with confined channels in watersheds in the coastal anadromy zone
- 916.9(f)(3)(A)-(D) [936.9(f)(3)(A)-(D), 956.9(f)(3)(A)-(D)] - Class I watercourses with flood prone areas or channel migration zones
- 916.9(f)(4)(A)-(C) [936.9(f)(4)(A)-(C), 956.9(f)(4)(A)-(C)] - Class I watercourses with confined channels outside watersheds in the coastal anadromy zone
- 916.9(g)(2)(A)-(B) [936.9(g)(2)(A)-(B), 956.9(g)(2)(A)-(B)] - Class II WLPZ widths and operational requirements
- 916.9(g)(3) [936.9(g)(3), 956.9(g)(3)] - Class II watercourses in the Southern Subdistrict of the Coast Forest District
- 916.9(h) [936.9(h), 956.9(h)] - Class III watercourses
- 916.9(j) [936.9(j), 956.9(j)] - Inner Gorge
- 916.9(k) [936.9(k), 956.9(k)] - Year-round logging road, landing and tractor road use limitations
- 916.9(l) [936.9(l), 956.9(l)] - Extended Wet Weather Period
- 916.9(m) [936.9(m), 956.9(m)] - Tractor Road Drainage Facility Installation
- 916.9(n) [936.9(n), 956.9(n)] - Treatments to stabilize soils
- 916.9(o) [936.9(o), 956.9(o)] - Erosion Site identification and remedies
- 916.9(p) [936.9(p), 956.9(p)] - Erosion control maintenance period
- 916.9(q) [936.9(q), 956.9(q)] - Site preparation
- 916.9(r) [936.9(r), 956.9(r)] - Water drafting
- 916.9(u) [936.9(u), 956.9(u)] - Salvage logging
- 923.3(g) [943.3(g), 963.3(g)] - Watercourse Crossings
- 923.9(b) [943.9(b), 963.9(b)] - Roads and Landings
- 923.9(c) [943.9(c), 963.9(c)] - Roads and Landings
- 923.9(d) [943.9(d), 963.9(d)] - Roads and Landings
- 923.9(e) [943.9(e), 963.9(e)] - Roads and Landings

70. Given that most timber operations are prohibited in the core and inner zones, how should one address log hauling on existing roads that pass through a WLPZ (and apparently are not covered under 14 CCR § 916.9(e) [936.9(e), 956.9(e)])?

The prohibition of timber operations in the core and inner zones does not pertain to normal use of existing haul roads in watercourse and lake protection zones. If more

extensive activities such as grading, widening, reconstruction of the existing road prism, or new road construction are proposed, operations may be prohibited unless addressed in the Plan pursuant to 14 CCR § 916.9(v) [936.9(v), 956.9(v)].

71. **Given the requirement that an outer zone be applied to the Class I WLPZ in cases where even-aged silvicultural prescriptions are applied to adjacent areas, can one propose the selection prescription between an existing logging road and the WLPZ with an even-aged prescription upslope of the road when less than 50 feet separate the even-aged prescription area from the WLPZ boundary?**

The primary objective for the outer zone is to buffer the inner and core zones and to provide the following functions: 1) wind resistance where windthrow is common or likely to occur, 2) additional wood recruitment, 3) microclimate control in the inner or core zones for purposes other than limiting water temperature change, 4) habitat for terrestrial wildlife species that depend on riparian areas, and 5) an additional sediment filter on steeper slopes with high or moderate erosion hazard rating when tractor operations are proposed. There may be times where it is appropriate to apply an even-aged silvicultural prescription within 50 feet of a WLPZ boundary under the circumstances described in the question and other times when it is not. In cases where the rules applicable to requiring an outer zone do not clearly address the on-site conditions, the RPF will need to evaluate the area in question, the timber operations proposed there, and propose appropriate protection measures for the beneficial uses of water and riparian functions. What is appropriate will depend on the individual site, the timber operations proposed there, operations proposed in the WLPZ, and what measures are needed to maintain the functions set forth in 14 CCR § 916.4(b) [936.4(b), 956.4(b)] and contribute to restoration. Please see 14 CCR § 916.4(a)(1) [936.4(a)(1), 956.4(a)(1)].

72. **Given the requirement that an outer zone be applied to the Class I WLPZ in cases where even-aged silvicultural prescriptions are applied to adjacent areas, can one propose the selection prescription next to the WLPZ with an even-aged prescription adjacent to the selection area when less than 50 feet separate the even-aged prescription area from the WLPZ boundary?**

The primary objective for the outer zone is to buffer the inner and core zones and to provide the following functions: 1) wind resistance where windthrow is common or likely to occur, 2) additional wood recruitment, 3) microclimate control in the inner or core zones for purposes other than limiting water temperature change, 4) habitat for terrestrial wildlife species that depend on riparian areas, and 5) an additional sediment filter on steeper slopes with high or moderate erosion hazard rating when tractor operations are proposed. It will generally be inappropriate to propose an evenaged silvicultural system within 50 feet of the inner zone, since extensive removal of overstory canopy will likely compromise the objectives stated above. However, site specific proposals under 14 CCR § 916.9 [936.9, 056.9] (v) can be made by the RPF, particularly related to logical logging unit layouts.

Another consideration in the scenario outlined above, is the unlikely possibility that the intent of the selection harvesting system and uneven age management principles can be met as configured (i.e. creation/maintenance of a balanced stand structures, regular cutting cycle harvests and access considerations, and encouragement of natural reproduction).

73. Does the RPF need to show Class II watercourse typing on operational maps or can watercourse typing be shown on a separate map (e.g., a planimetric map) for plan review purposes only?

A new mapping requirement is included in the revised ASP Class II rules which specifies that the RPF shall include the mapped location of Class II-L watercourse segments receiving protections pursuant to 14 CCR § 916.9 [936.9, 956.9], subsection (g)(2) in the plan area. One way to display this information on a THP map is displayed in Figure 27. .

74. Is there any way of interpreting the typing of a Class II watercourse in which the watercourse reach between the confluence with the Class I and 1,000 feet upstream is typed partly as a Class II-L and partly as a Class II-S, where only the Class II-L portion receives Class II-L protection and the Class II-S portion receives Class II-S protection?

CAL FIRE has determined that the rule language contained in 14 CCR § 916.9(g)(1)(B) [936.9(g)(1)(B), 956.9(g)(1)(B)] regarding Class II watercourse typing requires a Class II watercourse typed as a Class II-L at the confluence with a Class I watercourse to be a Class II-L the entire length of the Class II watercourse, unless the watercourse classification changes to that of a Class III watercourse. A plan submitter may propose alternative protection measures under 14 CCR § 916.9 [936.9, 956.9] (v).

75. Do the new definitions pertaining to watercourse attributes, such as flood prone areas and channel migration zones, apply to Class II and III watercourses?

The new definitions pertaining to watercourse attributes apply to all watercourses, if such conditions are present. However, the specific protection measures contained in the ASP rules for watercourses with flood prone areas and channel migration zones are specific to Class I watercourses. Thus, appropriate protection for Class II and III watercourses with flood prone areas and channel migration zones, if present, should be developed as part of the RPF's assessment of watercourses per 14 CCR § 916.4(a)(1) [936.4(a)(1), 956.4(a)(1)].

For both Class II and III watercourses, if the channel is not confined and has a flood prone area or CMZ, the RPF must propose appropriate protection measures. Class II watercourses, however, are generally smaller headwater drainages and are usually entrenched without CMZs or significant flood prone areas. Class III

watercourses flow only in direct response to precipitation events and would not be expected to have CMZs or flood prone areas. 14 CCR § 916.4 [936.4, 956.4] (a) requires an RPF to conduct a field examination of all watercourses (Class I, II, III, and IV) for sensitive conditions, including flood prone areas, and provide appropriate protection measures. The definition of a CMZ in 14 CCR § 895.1 is not limited to Class I watercourses.

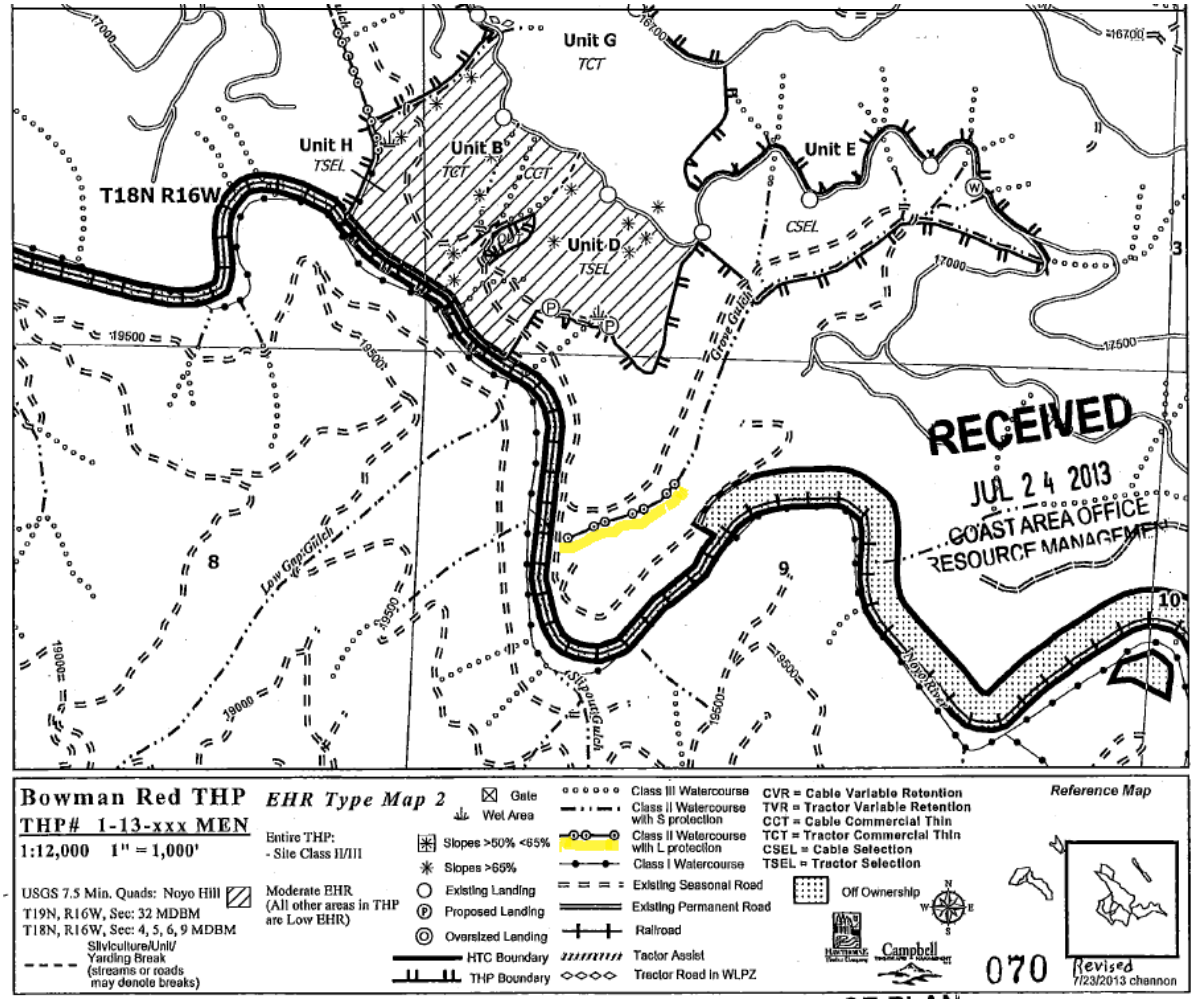

Figure 27. Example of a method to display the location of a Class II-L watercourse receiving protections pursuant to 14 CCR § 916.9 [936.9, 956.9], subsection (g)(2) (see the yellow highlighted area). This map is from THP 1-13-056 MEN, submitted by Campbell Timberland Management for a plan located in western Mendocino County.

76. Are exceptions proposed to the Class III watercourse rules contained in 14 CCR § 916.9(h) [936.9(h), 956.9(h)] considered in-lieu practices or exceptions unique to that rule subdivision?

The new rules adopted under 14 CCR § 916.9 [936.9, 956.9](h)(1-8) are minimum requirements and must be adhered to in the plan; however, this section of the rules allows an RPF to propose different requirements that are explained and justified in the plan. Pursuant to 14 CCR § 916.1[936.1, 956.1], any site-specific practice proposed by an RPF in the plan instead of a stated rule under Article 6 (Watercourse and Lake Protection) is defined as an in-lieu practice and must be addressed under the requirements of 14 CCR § 916.1[936.1, 956.1].

It should be noted that exceptions proposed in the ELZ or the channel zone pursuant to 14 CCR § 916.9 [936.9, 956.9](h)(8) are permitted without having to address the requirements of 14 CCR § 916.1[936.1, 956.1] for in-lieu practices. Furthermore, as stated under 14 CCR § 916.9(v)[936.9(v), 956.9(v)], site-specific measures or nonstandard operational provisions may be developed in place of any rule under section 14 CCR § 916.9 [936.9, 956.9] pursuant to subsection (v) (also see the answer to Question 86).

77. Are the requirements contained in 14 CCR § 916.9(h)(6) [936.9(h)(6), 956.9(h)(6)] stocking standards (therefore subject to all rules related to stocking) or retention standards (therefore not subject to all rules related to stocking)?

The requirement stated under subsection (h)(6) is a *retention* standard, but the metric required to gauge compliance is the basal area or point count standard stipulated under 14 CCR § 912.7 [932.7, 952.7] with Group A or B species. It should be noted though that all areas harvested must meet the stocking standards appropriate for the silvicultural method applied in that area as otherwise required by the rules. Also see answer to Question 55.

78. Given the language contained in 14 CCR § 916.9(r)(1)(A) [936.9(r)(1)(A), 956.9(r)(1)(A)], does a Lake and Streambed Alteration Master Agreement for Timber Operations (MATO) cover all of the informational requirements contained in 14 CCR § 916.9(r)(2) [936.9(r)(2), 956.9(r)(2)], or does the RPF need to provide any informational items required by the paragraph that is not contained in the master 1600 agreement?

The master 1600 agreement will generally be considered adequate in terms of meeting the informational requirements of 14 CCR § 916.9(r)(2) [936.9(r)(2), 956.9(r)(2)]. Since issuance of a Master Agreement is subject to a CEQA process, it is likely that environmental impacts associated with the permit have been evaluated and mitigated. The Department may rely on the findings of the CEQA document and analysis which supported DFW's issuance of the permit. However, CAL FIRE, when relying on the Master Agreement, must evaluate whether the proposed use is

consistent with the agreement. In addition, the Department will need to determine that there have been no significant changes to the environmental setting or new potentially adverse impacts which were not analyzed in the CEQA analysis supporting the Master Agreement. When relying on the Master Agreement, the plan submitter should demonstrate how the proposed use is consistent with the Master Agreement. This will also likely require the plan submitter to provide the Department with a copy of the Master Agreement. If information necessary for CAL FIRE to make the determinations required to meet our lead agency obligations under CEQA is lacking, the Department may require that additional information be provided during plan review. This additional information may include elements listed under 14 CCR § 916.9(r)(2) [936.9(r)(2), 956.9(r)(2)] if this information has not been sufficiently addressed in the Master Agreement.

79. How does one treat Class II watercourses that are tributary to Class II-L watercourses within 1,000 feet of the confluence of a Class I? Include a diagram illustrating this scenario.

As described in 14 CCR § 916.9 [936.9, 956.9] (g)(1)(B), where Class II-L watercourses branch prior to the end of the 1,000 ft protection distance, the branch that meets or exceeds the drainage area standards of 14 CCR § 916.9 [936.9, 956.9](g)(1)(A) shall receive the remainder of the 1,000 ft protection distance. If two or more branches meet or exceed the drainage area standards of 14 CCR § 916.9 [936.9, 956.9](g)(1)(A)1., then the remainder of the 1,000 ft protection distance shall be applied to all branches exceeding the standard. If no individual branch exceeds the drainage area standards of 14 CCR § 916.9 [936.9, 956.9](g)(1)(A)1., then the single branch with the largest drainage area shall receive the remainder of the one-thousand foot (1,000 ft.) protection distance.

See Figure 28 below for an example of this situation.

80. Does an RPF have to amend the plan to incorporate new ASP rules when not arguing incursion of substantial liabilities and when choosing to adhere to the new ASP rules which can be less restrictive than required under the T/I rules?

No, however, if amending the plan will provide clearer guidance to the licensed timber operator, the RPF should submit a plan amendment prior to operations. Also, if adherence to the new ASP rules changes timber operations in such a way as to result in a new potential significant adverse impact [see 14 CCR § 15088.5(a)], the RPF should amend the plan.

81. Will equal weight be given to the RPF's evidence as well as an agency's evidence when a disagreement arises related to Class II watercourse typing?

When a disagreement about the type of a watercourse arises, CAL FIRE will look at all the evidence in the plan record and will base its decision on watercourse typing based on substantial evidence contained in the whole record. Such substantial

evidence may have been provided by the RPF or a reviewing agency, or both. It may be necessary for CAL FIRE to verify the information in the field and supplement the record or require the plan to be revised based on the supplemental field evaluation.

82. <u>Does PRC § 4583 apply to NTMPs?</u>

PRC § 4583 does not apply to NTMPs.

83. <u>Do all even-aged silvicultural methods trigger an outer zone on a Class I WLPZ, especially shelterwood preparation step, since its stocking standard is similar to that of the selection and commercial thinning prescriptions?</u>

Yes. A WLPZ that is adjacent to an area treated with the shelterwood preparatory step silvicultural prescription is subject to an outer zone. Since the shelterwood preparatory step silvicultural prescription occurs prior to the shelterwood seed step, which is the regeneration step of the shelterwood regeneration method, the outer zone clearly applies.

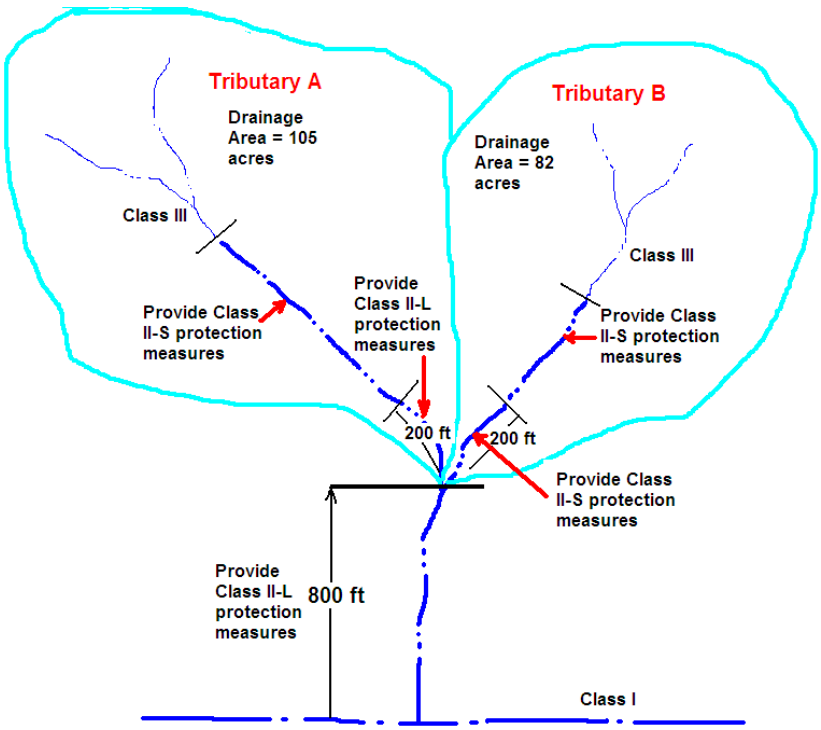

Figure 28. Class II-L watercourse where two tributaries join at less than 1,000 feet. The first 200 feet of Tributary A receives Class II-L protection measures, since its drainage area exceeds 100 acres in the Coast Forest District, while the entire Class II length of Tributary B receives Class II-S protection measures, since the drainage area is less than 100 acres. Had Tributary B been greater than 100 acres, the first 200 feet would also receive Class II-L protection measures.

84. Is the overstory canopy standard for the outer zone of a Class I watercourse 50% total canopy or 50% of the existing canopy?

The overstory canopy standard refers to 50% total canopy.

85. What are the WLPZ retention standards under an emergency notice?

WLPZ retention standards under an emergency notice are as follows per 14 CCR § 916.9(t)(7) [936.9(t)(7), 956.9(t)(7)]:

> The harvest of dead or dying conifer trees subject to the following conditions:
> (A) Retention of all trees in the core zone of Class I and Class II-L watercourses.
> (B) Within any WLPZ, ELZ, or EEZ designated for Class II or III watercourse protection, a minimum of two dead, dying, or diseased conifer trees per acre at least 16 inches diameter breast high and 50 feet tall shall be retained within 50 feet of the watercourse transition line.
> (C) Trees to be harvested or retained shall be marked by, or under the supervision of, an RPF prior to timber operations within the WLPZ or ELZ/EEZ.
> (D) Within the WLPZ or ELZ/EEZ, if the stocking standards of 14 CCR § 912 [932, 952].7 are not met upon completion of timber operations, unless the area meets the definition of substantially damaged timberlands, at least ten trees shall be planted for each tree harvested but need not exceed an average point count of 300 trees per acre.

86. Has the use of 14 CCR § 916.9(v) [936.9(v), 956.9(v)] for site-specific practices superseded other alternatives contained in the watercourse and lake protection rules (916.1, 916.6, etc.)?

14 CCR § 916.9(v)[936.9(v), 956.9(v)] for site-specific practices does not supersede the use of any of the other alternatives (i.e. 14 CCR § 916.6 [936.6, 956.6]) pertaining to watercourse and lake protection or in-lieu practices (i.e. 14 CCR § 916.1[936.1, 956.1]). As stated under subsection (v), development of site specific measures or nonstandard operational provisions may be developed in place of any rule under section 14 CCR § 916.9 [936.9, 956.9].

87. In 14 CCR § 916.9(k)(2) [936.9(k)(2), 956.9(k)(2)], what does "where feasible" mean in the context of hydrologic connectivity? Does this include both economic feasibility as well as operational feasibility?

"Where feasible" in the context of the hydrologic connectivity requirement refers to both operational feasibility and economic feasibility. Not all road segments can or need to be disconnected. "Low delivery potential" road segments likely will not need to be disconnected and include road segments on flat terrain (e.g., dry terraces or ridge tops) that do not intersect a channel.

Also note that the word "feasible" is defined under Section 895.1, Definitions.

88. In changing operations to conform to the new rules, will decreasing the size of the WLPZ from 150 to 100 feet constitute a substantial deviation due to a change in operations in the WLPZ?

A change in the designation of the WLPZ meets the definition of a substantial deviation per 14 CCR § 895.1. In changing operations to conform to the new rules, decreasing the size of the WLPZ from 150 to 100 feet constitutes a substantial deviation due to a change in the designation of the WLPZ. However, the RPF may propose that such a change constitutes a minor deviation per 14 CCR § 1040. Thus, the RPF will need to evaluate whether decreasing the size of the Class I WLPZ in conformance with the new ASP rules could alter the conduct of timber operations in a manner which may cause a significant adverse effect on the environment (Also see CEQA Guidelines § 15162).

89. The T/I rules required retention of 50% of the understory per 14 CCR § 916.5(e) measure "G." Considering 14 CCR § 916.9 [936.9, 956.9] says the rule section applies in addition to other FPRs, does the retention standard of 50% of the understory per 14 CCR § 916.5(e) measure "G" apply in addition to the 14 CCR § 916.9(f) [936.9f, 956.9(f)] overstory requirement?

The retention standard of 50% of the understory per 14 CCR § 916.5(e) measure "G" applies in addition to the 14 CCR § 916.9(f) [936.9f, 956.9(f)] overstory requirement. Please note that this results because the ASP rules apply in addition to other district Forest Practice Rules (See § 916.9.1). While the ASP rules are meant to take precedence over certain operational rules (e.g., higher ASP overstory canopy retention standards take precedence over lower non-ASP standards), operational rules that do not have an equivalent ASP component still apply. In this case, since the ASP rules address overstory canopy but not understory canopy, the higher ASP overstory standard applies and the standard understory rules also apply.

90. Is Class II watercourse typing only necessary where timber operations will occur in a plan?

Yes, an RPF only has to type Class II watercourses where timber operations are proposed. It is not required for appurtenant road maps, cumulative impact assessment areas, etc. However, it may be helpful or necessary to provide Class II information such as typing if nonstandard operational provisions are developed in accordance with 14 CCR § 916.9[936.9, 956.9](v) to aid the reviewing agencies in evaluating potential impacts associated with the proposal.

91. What is the appropriate length of a Class III ELZ reach to use in determining whether the retention standard of 14 CCR § 916.9[936.9, 956.9](h)(6) has been met (e.g., 200 feet)?

A two hundred foot reach is an appropriate length to use to determine whether the retention standard is met immediately following timber harvesting.