WASHINGTON STATE DEPARTMENT OF
Natural Resources

PETER GOLDMARK
Commissioner of Public Lands

April 23, 2013

MEMORANDUM

To: Forest Practices Board

FROM: Marc Engel
Forest Practices Assistant Division Manager for Policy and Services

SUBJECT: Forest Practices Hydraulic Project Rule Making

On May 14, 2013 I will request the Board's approval to file a CR-102 *Proposed Rule Making* with the enclosed draft language. This will initiate public review of the Forest Practices Hydraulic Project rule making. The draft rules carry out 2012 legislation (2ESSB 6406) which streamlined the application process for forest practices including hydraulic projects (FPHPs). The legislation directed the Board to:

> *…incorporate into the forest practices rules those fish protection standards in the rules adopted under chapter 77.55 RCW, as the rules existed on the effective date of this section, that are applicable to activities regulated under the forest practices rules.*[1]

The enclosed rule package is the result of:

- A joint effort by DNR forest practices and Washington Department of Fish and Wildlife (WDFW) to incorporate applicable protection standards from the hydraulic code rules into appropriate sections of Title 222 WAC; and
- Helpful feedback from Forests and Fish Policy members.

I am also enclosing a table that offers explanations of the rule changes that I hope will be helpful during your rule review, and a preliminary cost-benefit analysis. A small business economic impact statement is not required because the proposed rules do not impose additional costs on businesses.

2ESSB 6406 also directed the Board to establish and maintain technical guidance in the forest practices board manual to "…assist with implementation of the standards incorporated into the forest practices rules… (including) best management practices and standard techniques to ensure fish protection."[2] To this end, we convened a multi-stakeholder team to help us draft hydraulic project guidance in a new Board Manual Section 5, *Forest Practices Hydraulic Projects*. We are grateful to this group for working with us for many weeks in over a dozen half-day sessions to ensure the guidance will truly be helpful to forest landowners when planning and conducting hydraulic projects. The guidance is close to being completed, and we are posting it as a draft on

[1] RCW 76.09.040(3) as amended by 2ESSB 6406.
[2] Ibid.

the Board Manual Development web page at http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesRules/Pages/fp_board_manual_development.aspx to show reviewers how the rules and the board manual will together facilitate forest practices and hydraulic project integration.

The following is our anticipated timeline for the rule making and related activities:

- June 2013: Public review and comment of draft rules and two hearings
- August 13, 2013: Board consider adopting rules and approving Board Manual Section 5
- September/October 2013: Forest Practices Division conduct FPHP training
- January 1, 2014: Rules become effective

I look forward to seeing you on May 14th.

GR/
Enclosures: Draft Rule Proposal for Forest Practices Hydraulic Projects
Explanatory Information on Proposed Rule Amendments
Preliminary Cost-Benefit Analysis

CHAPTER 222-12 WAC

WAC 222-12-010 Authority.

These forest practices rules are adopted pursuant to chapter 76.09 RCW, and RCW 76.13.100 through 76.13.130~~, and RCW 77.85.180 through 77.85.190~~. Where necessary to accomplish the purposes and policies stated in the act, the board is authorized to promulgate forest practices rules pursuant to chapter 34.05 RCW and in accordance with the procedures enumerated in the act. These rules establish minimum standards for forest practices, provide procedures for the voluntary development of resource management plans, set forth necessary administrative provisions, establish procedures for the collection and administration of forest practices fees, allow for the development of watershed analyses, foster cooperative relationships and agreements with affected tribes, and establish the rivers and habitat open space program. The board also establishes which forest practices will be included within each class and is authorized to adopt rules under RCW 76.09.055, 76.09.370, and 76.13.120~~(9)~~(10).

Promulgation of all forest practices rules shall be accomplished so that compliance with such forest practices rules will achieve compliance with the water quality laws.

Those rules marked with an asterisk (*) pertain to water quality protection; pursuant to RCW 76.09.040 they can be amended only by agreement between the board and the department of ecology.

Forest practices rules shall be administered and enforced by the department except as otherwise provided in the act. Such rules shall be administered so as to give consideration to all purposes and policies set forth in RCW 76.09.010.

WAC 222-12-030 Application information and classes of forest practices.

Forest practices are divided into four classes as specified by RCW 76.09.050 and described in WAC 222-16-050. Review periods and application and notification requirements differ as follows:

(1) **Class I forest practices** require no application or notification, but do require compliance with all other forest practices rules.

(2) **Class II forest practices** require a notification to the department, and may begin five calendar days (or such lesser time as the department may determine) after receipt of a complete notification by the department.

(3) **Class III forest practices** must be approved or disapproved within thirty or fewer calendar days of receipt of a complete application by the department. The department is directed to approve or disapprove within fourteen calendar days Class III applications not requiring additional field review. Exceptions are:

(a) Multiyear applications must be approved or disapproved within forty-five days of receipt of a complete application by the department.

(b) Small forest landowner long-term applications are reviewed in two steps as described in WAC 222-20-016.

(c) Applications including the project types listed in WAC 222-20-017(4)(b), concurrence review, must be approved or disapproved within sixty days of receipt of a complete application by the department.

(4) **Class IV forest practices** are divided into "Class IV - special," and "Class IV - general," and must be approved or disapproved within thirty calendar days of receipt of a complete application by the department. Exceptions are:

(a) Small forest landowner long-term applications are reviewed in two steps as described in WAC 222-20-016.

(b) Applications including the project types listed in WAC 222-20-017(4)(b), concurrence review, must be approved or disapproved within sixty days of receipt of a complete application by the department.

(~~b~~c) If a detailed environmental statement is necessary, additional time for approval or disapproval as specified in RCW 76.09.050 will be required.

(5) In certain emergencies as defined in RCW 76.09.060(7) the application or notification may be submitted within forty-eight hours after commencement of the practice.

NEW SECTION

WAC 222-12-037 *Applications that include forest practices hydraulic projects.

(1) The review process for applications that include forest practices hydraulic projects is described in WAC 222-20-017.

(2) Pursuant to RCW 76.09.040(3), fish protection standards within chapter 220-110 WAC, hydraulic code rules, are incorporated into Title 222 WAC as they apply to forest practices hydraulic projects, and are summarized in WAC 222-16-025.

(3) Each forest practices hydraulic project included in an application will be reviewed on an individual basis and will be subject to rules and applicable conditions to the forest practices application or notification. Common general provisions applicable to a specific project may be modified or deleted by the department where any of the following is demonstrated by the landowner:

(a) The provision has no logical application to the project;

(b) The applicant provides an alternate plan to the provision and demonstrates that it provides equal or greater protection for fish life;

(c) The modification or deletion of the provision will not contribute to net loss of fish life.

(4) Projects may be subject to additional conditions to address project- or site-specific considerations not adequately addressed by the forest practices application or notification.

(5) The department will place specific time limitations on project activities in forest practices hydraulic projects in order to protect fish life. The department and the applicant will consult with the department of fish and wildlife for appropriate work windows for the protection of fish life.

(6) If site conditions change over the course of an approved application, the department may approve a landowner request for an amendment to the application.

WAC 222-12-050 Notices to comply--Stop work orders.

(1) **Violations.** When a forest practice has been completed, the department may issue a notice to comply requiring the operator or landowner to correct or compensate for damage to public resources where there was:

(a) A violation of the act, or these rules; or

(b) A deviation from the approved application; or

(c) A willful or negligent disregard for potential damage to a public resource.

(2) **Other required action.** When a forest practice has not yet been completed, the department may issue either a notice to comply to the operator and/or landowner, or a stop work order to the operator, requiring him/her to prevent potential or continuing damage to a public resource where:

(a) The need for additional actions or restrictions has become evident; and

(b) The department determines that a specific course of action is needed to prevent potential or continuing damage to public resources; and

(c) The damage would result or is resulting from the forest practices activities, whether or not the activities involve any violation, unauthorized deviation or negligence.

(3) **No notice to comply** shall be issued to require a person to prevent, correct, or compensate for any damage to public resources which occurs more than 1 year after the date of completion of the forest practices operations involved exclusive of reforestation, unless such forest practices were not conducted in accordance with forest practices rules: Provided, That this provision shall not relieve the forest landowner from any obligation to comply with forest practices rules pertaining to providing continuing road maintenance.

(4) **No notice to comply** to recover money damages shall be issued more than 2 years after the date the damage involved occurs.

(5) **In emergency action,** where the department requires the operator or landowner to do immediate work ~~in~~ that could affect the bed or flow of the stream, the department shall first seek ~~approval~~ consultation from the department of fish and wildlife.

WAC 222-12-090 Forest practices board manual.

When approved by the board the manual serves as an advisory technical supplement to these forest practices rules. The department, in cooperation with the departments of fish and wildlife, agriculture, ecology, and such other agencies, affected Indian tribes, or interested parties as may have appropriate expertise, is directed to prepare, and submit to the board for approval, revisions to the forest practices board manual. The manual shall include:

(1) **Method for determination of adequate shade requirements on streams** needed for use with WAC 222-30-040.

(2) Standards for identifying channel migration zones and bankfull channel features.

(3) **Guidelines** for forest roads.

(4) **Guidelines** for clearing slash and debris from Type Np and Ns Waters.

(5) **Guidelines** for ~~landing location and construction~~forest practices hydraulic projects.

(6) **Guidelines** for determining acceptable stocking levels.

(7) **Guidelines** for riparian management zones.

(8) **Guidelines** for wetland delineation.

(9) **Guidelines** for wetland replacement or substitution.

(10) A list of nonnative wetland plant species.

(11) The standard methodology for conducting watershed analysis shall specify the quantitative methods, indices of resource conditions, and definitions, for conducting watershed analysis under chapter 222-22 WAC. The methodology shall also include a cultural resource module that shall specify the quantitative and qualitative methods, indices of resource conditions, and guidelines for developing voluntary management strategies for cultural resources. Except for cultural resources, the department, in consultation with Timber/Fish/Wildlife's Cooperative Monitoring, Evaluation and Research Committee

(CMER), may make minor modifications to the version of the standard methodology approved by the board. Substantial amendments to the standard methodology requires approval by the board.

(12) **Guidelines** for forest chemicals.

(a) A list of special concerns related to aerial application of pesticides developed under WAC 222-16-070(3).

(b) Guidelines for aerial applications of pesticides and other forest chemicals under chapter 222-38 WAC.

(13) **Guidelines** for determining fish use for the purpose of typing waters under WAC 222-16-031.

(14) **Survey protocol for marbled murrelets.** The Pacific Seabird Group survey protocol dated January 6, 2003, and formally titled *Methods for Surveying Marbled Murrelets in Forests: A Revised Protocol for Land Management and Research*, shall be used when surveying for marbled murrelets in a stand. Surveys are valid if they were conducted in compliance with the board-recognized Pacific Seabird Group survey protocols in effect at the beginning of the season in which the surveys were conducted.

(15) The department shall, in consultation with the department of fish and wildlife, develop **platform protocols** for use by applicants in estimating the number of platforms, and by the department in reviewing and classifying forest practices under WAC 222-16-050. These protocols shall include:

(a) A sampling method to determine platforms per acre in the field;

(b) A method to predict the number of platforms per acre based on information measurable from typical forest inventories. The method shall be derived from regression models or other accepted statistical methodology, and incorporate the best available data; and

(c) Other methods determined to be reliable by the department, in consultation with the department of fish and wildlife.

(16) **Guidelines** for evaluating potentially unstable slopes and landforms.

(17) **Guidelines** for the small forest landowner forestry riparian easement program.

(18) **Guidelines** for rivers and habitat open space program.

(19) **Guidelines** for hardwood conversion.

(20) **Guidelines** for financial assurances.

(21) **Guidelines** for alternate plans.

(22) **Guidelines** for adaptive management program.

(23) **Guidelines** for field protocol to locate mapped divisions between stream types and perennial stream identification.

(24) **Guidelines** for interim modification of bull trout habitat overlay.

(25) **Guidelines** for bull trout presence survey protocol.

(26) **Guidelines** for placement strategy for woody debris in streams.

Chapter 222-16 WAC

WAC 222-16-010 *General definitions

Unless otherwise required by context, as used in these rules:

"Act" means the Forest Practices Act, chapter 76.09 RCW.

…

“Fish protection standards” means the standards by which forest practices hydraulic projects are evaluated. These standards are identified in WAC 222-16-025.

…

"Forest practice" means any activity conducted on or directly pertaining to forest land and relating to growing, harvesting, or processing timber or forest biomass, including but not limited to:

Activities in and over typed water;
Road and trail construction;
Harvesting, final and intermediate;
Precommercial thinning;
Reforestation;
Fertilization;
Prevention and suppression of diseases and insects;
Salvage of trees; and
Brush control.

"Forest practice" shall not include: Forest species seed orchard operations and intensive forest nursery operations; or preparatory work such as tree marking, surveying and road flagging; or removal or harvest of incidental vegetation from forest lands such as berries, ferns, greenery, mistletoe, herbs, mushrooms, and other products which cannot normally be expected to result in damage to forest soils, timber or public resources.

“Forest practices hydraulic project” means a forest practices activity that includes the construction or performance of work that will use, divert, obstruct, or change the natural flow or bed of any Type S, F, and N Waters~~:~~.

. . .

“Green recruitment trees” means those trees left after harvest for the purpose of becoming future wildlife reserve trees under WAC 222-30-020(~~11~~12).

NEW SECTION

WAC 222-16-025 Fish protection standards for forest practices hydraulic projects.

(1) Specific fish protection standards in chapter 220-110 WAC, hydraulic code rules, are included in forest practices rules pertaining to forest practices hydraulic project types. The most common hydraulic project types in forest practices are included in chapters 222-24 and 222-30 WAC. Fish protection standards for hydraulic projects that are less commonly associated with forest practices can be found in chapter 220-110 WAC, hydraulic code rules. These may include but are not limited to channel change and realignment, dredging in fresh water areas, and outfall structures.

(2) The department will evaluate forest practices hydraulic projects on the basis of whether they meet fish protection standards. The primary objectives of the fish protection standards are to:
   (a) Protect fish life;
   (b) Achieve no-net-loss of productive capacity of fish or shellfish habitat;
   (c) Minimize project-specific and cumulative impacts to fish life; and
   (d) Mitigate for unavoidable impacts to fish life and fish habitat.

(3) “Fish life”, “protection of fish life”, “mitigation”, and “no-net-loss” are defined in WAC 220-110-020 as follows:
   (a) “Fish life” means all fish species, including but not limited to food fish, shellfish, game fish, and other non-classified fish species and all stages of development of those species.

(b) "Protection of fish life" means prevention of loss or injury to fish or shellfish, and protection of the habitat that supports fish and shellfish populations.

(c) "Mitigation" means actions required as provisions of forest practices hydraulic projects to avoid or compensate for impacts to fish life resulting from the proposed project activity. The type(s) of mitigation required will be considered and implemented, where feasible, in the following sequential order of preference:

(i) Avoiding the impact altogether by not taking a certain action or parts of an action;

(ii) Minimizing impacts by limiting the degree or magnitude of the action and its implementation;

(iii) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;

(iv) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or

(v) Compensating for the impact by replacing or providing substitute resources or environments; or

(vi) Monitoring the impact and taking appropriate corrective measures to achieve the identified goal.

For projects with potentially significant impacts, a mitigation agreement may be required prior to approval. Replacement mitigation may be required to be established and functional prior to project construction.

(d) "No-net-loss" means:

(i) Avoidance or mitigation of adverse impacts to fish life; or

(ii) Avoidance or mitigation of net loss of habitat functions necessary to sustain fish life; or

(iii) Avoidance or mitigation of loss of area by habitat type.

Mitigation to achieve no-net-loss should benefit those organisms being impacted.

(4) The following general conditions shall apply to any forest practices hydraulic project, as defined in WAC 222-16-010:

(a) If fish may be adversely impacted as a result of the project, the landowner may be required to capture and safely move food fish, game fish, or other fish life (at the discretion of the department in consultation with the department of fish and wildlife) to the nearest free-flowing water. See board manual section 5 for further technical guidance.

(b) If at any time fish are observed in distress, a fish kill occurs or water quality problems develop as a result of the project, operations shall cease immediately and the department shall be immediately contacted.

(c) Disturbance to the stream bed, banks and riparian vegetation shall be restricted to that necessary to complete the project.

(d) All disturbed areas shall be protected from erosion. The banks shall be revegetated with native or other approved woody species and maintained as necessary to ensure survival. See board manual section 5 for further technical guidance. Equipment shall not enter or operate within the wetted perimeter of a stream.

(e) Equipment shall be inspected, cleaned and maintained to prevent loss of petroleum products waterward of bankfull width. See board manual section 5 for further guidance.

(f) Excavation for and replacement of footings and foundations shall be landward of

bankfull width unless the construction site is separated from typed waters by use of a dike, cofferdam, or other structure.

(g) Structures containing concrete shall be sufficiently cured prior to contact with water.

(h) Wastewater from project activities and water removed from the work area shall be routed to an area landward of the bankfull width to allow removal of fine sediment and other contaminants prior to being discharged to typed waters.

(i) Excess spoils shall be deposited onto the forest floor and not carry surface water or sediment into the stream channel or wetland.

(j) Wood or other materials treated with preservatives shall be sufficiently cured to minimize leaching into the water or bed. The use of creosote or pentachlorophenol is not allowed.

WAC 222-16-050 Classes of forest practices.

*There are four classes of forest practices created by the act. All forest practices (including those in Classes I and II) on nonfederal forest lands must be conducted in accordance with the forest practices rules. The department determines the classification of each forest practices proposal.

(1) **"Class IV-special."** Except as provided in WAC 222-16-051, application to conduct forest practices involving the following circumstances requires an environmental checklist in compliance with the State Environmental Policy Act (SEPA), and SEPA guidelines, as they have been determined to have potential for a substantial impact on the environment. It may be determined that additional information or a detailed environmental statement is required before these forest practices may be approved.

*(a) Aerial application of pesticides in a manner identified as having the potential for a substantial impact on the environment under WAC 222-16-070 or ground application of a pesticide within a Type A or B wetland.

(b) Specific forest practices listed in WAC 222-16-080 on lands designated as critical habitat (state) of threatened or endangered species.

(c) Harvesting, road construction, aerial application of pesticides and site preparation on all lands within the boundaries of any national park, state park, or any park of a local governmental entity, except harvest of less than five thousand board feet within any developed park recreation area and park managed salvage of merchantable forest products.

*(d) Timber harvest, or construction of roads, landings, gravel pits, rock quarries, or spoil disposal areas, on potentially unstable slopes or landforms described in (d) (i) of this subsection that has the potential to deliver sediment or debris to a public resource or that has the potential to threaten public safety, and which has been field verified by the department (see WAC 222-10-030 SEPA policies for potentially unstable slopes and landforms).

(i) For the purpose of this rule, potentially unstable slopes or landforms are one of the following: (See board manual section 16 for more descriptive definitions.)

(A) Inner gorges, convergent headwalls, or bedrock hollows with slopes steeper than thirty-five degrees (seventy percent);

(B) Toes of deep-seated landslides, with slopes steeper than thirty-three degrees (sixty-five percent);

(C) Ground water recharge areas for glacial deep-seated landslides;

(D) Outer edges of meander bends along valley walls or high terraces of an unconfined meandering stream; or

(E) Any areas containing features indicating the presence of potential slope instability which cumulatively indicate the presence of unstable slopes.

(ii) The department will base its classification of the application or notification on professional knowledge of the area, information such as soils, geologic or hazard zonation maps and reports, review of approved watershed analysis mass wasting prescriptions according to WAC 222-22-090 (6) or other information provided by the applicant.

(iii) An application would not be classified as Class IV-Special for potentially unstable slopes or landforms under this subsection if:

(A) The proposed forest practice is located within a watershed administrative unit (WAU) that is subject to an approved watershed analysis;

(B) The forest practices are to be conducted in accordance with approved prescriptions from the watershed analysis; and

(C) The applicable prescription are specific to the site or situation, as opposed to a prescription that calls for additional analysis. The need for an expert to determine whether the site contains specific landforms will not be considered "additional analysis," as long as specific prescriptions are established for such landforms.

*(e) Timber harvest, in a WAU not subject to an approved watershed analysis under chapter 222-22 WAC, construction of roads, landings, rock quarries, gravel pits, borrow pits, and spoil disposal areas on snow avalanche slopes within those areas designated by the department, in consultation with department of transportation and local government, as high avalanche hazard where there is the potential to deliver sediment or debris to a public resource, or the potential to threaten public safety.

(f) Timber harvest or construction of roads, landings, rock quarries, gravel pits, borrow pits, and spoil disposal areas on the following except in (f)(iv) of this subsection:

(i) Archaeological sites or historic archaeological resources as defined in RCW 27.53.030; or

(ii) Historic sites eligible for listing on the National Register of Historic Places or the Washington Heritage Register as determined by the Washington state department of archaeology and historic preservation; or

(iii) Sites containing evidence of Native American cairns, graves, or glyptic records as provided for in chapters 27.44 and 27.53 RCW. The department of archaeology and historic preservation shall consult with affected Indian tribes in identifying such sites.

(iv) A forest practice would not be classified as Class IV-special under this subsection if:

(A) Cultural resources management strategies from an approved watershed analysis conducted under chapter 222-22 WAC are part of the proposed forest practices, and the landowner states this in the application; or

(B) A management plan agreed to by the landowner, the affected Indian tribe, and the department of archaeology and historic preservation is

part of the proposed application, and the landowner states this in the application.

*(g) Forest practices subject to an approved watershed analysis conducted under chapter 222-22 WAC in an area of resource sensitivity identified in that analysis which deviates from the prescriptions (which may include an alternate plan).

*(h) Filling or draining of more than 0.5 acre of a wetland.

(2) **"Class IV-general."** Applications involving the following circumstances are Class IV-general forest practices unless they are listed in Class IV-special. Forest practices applications classified Class IV-general are subject to the SEPA review process described in subsection (1) of this section.

(a) Forest practices (other than those in Class I) on lands that are being converted to another use;

(b) Forest practices that would otherwise be Class III, but are taking place on lands that are not to be reforested because of likelihood of future conversion to urban development (see WAC 222-16-060 and 222-34-050); or

(c) Where the regulatory authority for forest practices has not been transferred from the department to the local governmental entity pursuant to RCW 76.09.240 (1), forest practices involving timber harvesting or road construction on lands that are contained within urban growth areas, designated pursuant to chapter 36.70A RCW, except where the forest landowner provides one of the following:

(i) A written statement of intent signed by the forest landowner not to convert to a use other than commercial timber operations for ten years. This statement must be accompanied by either a written forest management plan acceptable to the department or documentation that the land is enrolled under the provisions of chapter 84.33 or 84.34 RCW; or

(ii) A conversion option harvest plan approved by the local governmental entity and submitted to the department as part of the application.

Upon receipt of an application, the department will determine the lead agency for purposes of compliance with SEPA pursuant to WAC 197-11-924 and 197-11-938 (4) and RCW 43.21C.037 (2). Such applications are subject to a thirty-day period for approval unless the lead agency determines a detailed statement under RCW 43.21C.030 (2) (c) is required. Upon receipt, if the department determines the application is for a proposal that will require a permit from a local governmental entity acting under the powers enumerated in RCW 76.09.240, the department shall notify the applicable local governmental entity under WAC 197-11-924 that the department has determined according to WAC 197-11-938 (4) that the local governmental entity is the lead agency for purposes of compliance with SEPA.

(3) **"Class I."** Operations that have been determined to have no direct potential for damaging a public resource are Class I forest practices. When the conditions listed in Class IV-special are not present, these operations may be commenced without notification or application.

(a) Culture and harvest of Christmas trees and seedlings.

*(b) Road maintenance except: Replacement of bridges and culverts across Type S, F or flowing Type Np Waters; or movement of material that has a direct potential for entering Type S, F or flowing Type Np Waters or Type A or B Wetlands.

*(c) Construction of landings less than one acre in size, if not within a shoreline area of a Type S Water, the riparian management zone of a Type F Water, the bankfull width of a Type Np Water, a wetland management zone, a wetland, or the CRGNSA special management area.

*(d) Construction of less than six hundred feet of road on a sideslope of forty percent or less if the limits of construction are not within the shoreline area of a Type S Water, the riparian management zone of a Type F Water, the bankfull width of a Type Np Water, a wetland management zone, a wetland, or the CRGNSA special management area.

*(e) Installation or removal of a portable water crossing structure where such installation does not take place within the shoreline area of a Type S Water and does not involve disturbance of the beds or banks of any waters.

*(f) Initial installation and replacement of relief culverts and other drainage control facilities not requiring ~~a hydraulic permit~~an application.

(g) Rocking an existing road.

(h) Loading and hauling timber from landings or decks.

(i) Precommercial thinning and pruning, if not within the CRGNSA special management area.

(j) Tree planting and seeding.

(k) Cutting and/or removal of less than five thousand board feet of timber (including live, dead and down material) for personal use (i.e., firewood, fence posts, etc.) in any twelve-month period, if not within the CRGNSA special management area.

(l) Emergency fire control and suppression.

(m) Slash burning pursuant to a burning permit (RCW 76.04.205).

*(n) Other slash control and site preparation not involving either off-road use of tractors on slopes exceeding forty percent or off-road use of tractors within the shorelines of a Type S Water, the riparian management zone of any Type F Water, or the bankfull width of a Type Np Water, a wetland management zone, a wetland, or the CRGNSA special management area.

*(o) Ground application of chemicals, if not within the CRGNSA special management area. See WAC 222-38-020 and 222-38-030.

*(p) Aerial application of chemicals (except insecticides), outside of the CRGNSA special management area when applied to not more than forty contiguous acres if the application is part of a combined or cooperative project with another landowner and where the application does not take place within one hundred feet of lands used for farming, or within two hundred feet of a residence, unless such farmland or residence is owned by the forest landowner. Provisions of chapter 222-38 WAC shall apply.

(q) Forestry research studies and evaluation tests by an established research organization.

*(r) Any of the following if none of the operation or limits of construction takes place within the shoreline area of a Type S Water or the riparian management zone of a Type F Water, the bankfull width of a Type Np Water or flowing Type Ns Water, or within the CRGNSA special management area and the operation does not involve off-road use of tractor or wheeled skidding systems on a sideslope of greater than forty percent:

(i) Any forest practices within the boundaries of existing golf courses.

(ii) Any forest practices within the boundaries of existing cemeteries which are approved by the cemetery board.

(iii) Any forest practices involving a single landowner where contiguous ownership is less than two acres in size.

~~(s) Removal of beaver structures from culverts on forest roads. A hydraulics project approval from the Washington department of fish and wildlife may be required.~~

(4) **"Class II."** Certain forest practices have been determined to have a less than ordinary potential to damage a public resource and may be conducted as Class II forest practices: ~~P~~provided~~,~~ ~~T~~that no forest practice enumerated below may be conducted as a Class II forest practice if the operation ~~requires~~ includes a forest practices hydraulic project ~~approval (RCW 77.55.021)~~ or is within a "shorelines of the state"~~,"~~ or involves owner of perpetual timber rights subject to RCW 76.09.067 (other than renewals). Such forest practices require an application. No forest practice enumerated below may be conducted as a Class II forest practice if it takes place on lands that are being converted to another use. Unless the conditions described in (f) or (g) of this subsection are met, no forest practice enumerated below involving timber harvest or road construction may be conducted as a Class II if it takes place within urban growth areas designated pursuant to chapter 36.70A RCW. Such forest practices require a Class IV application. Class II forest practices are the following:

(a) Renewal of a prior Class II notification where no change in the nature and extent of the forest practices is required under rules effective at the time of renewal.

(b) Renewal of a previously approved Class III or IV forest practices application where:

(i) No modification of the uncompleted operation is proposed;

(ii) No notices to comply, stop work orders or other enforcement actions are outstanding with respect to the prior application;

(iii) No change in the nature and extent of the forest practice is required under rules effective at the time of renewal; and

(iv) The application is not a multiyear permit that is located within an area subject to reanalysis of a watershed analysis under WAC 222-22-090(6).

*(c) Any of the following if none of the operation or limits of construction takes place within the riparian management zone of a Type F Water, within the bankfull width of a Type Np Water, within a wetland management zone, within a wetland, or within the CRGNSA special management area:

(i) Construction of advance fire trails.

(ii) Opening a new pit of, or extending an existing pit by, less than one acre.

*(d) Salvage of logging residue, if none of the operation or limits of construction takes place within the riparian management zone of a Type F Water, within the bankfull width of a Type Np Water, within a wetland management zone or within a wetland; and if none of the operations involve off-road use of tractor or wheeled skidding systems on a sideslope of greater than forty percent.

*(e) Any of the following if none of the operation or limits of construction takes place within the riparian management zone of a Type F Water, within the bankfull width of a Type Np Water, within a wetland management zone, within a wetland, or within the CRGNSA special management area, and if none of the operations involve off-road use of tractor or wheeled skidding systems on a sideslope of greater than forty percent, and if none of the operations are located on lands with a likelihood of future conversion (see WAC 222-16-060):

(i) West of the Cascade summit, partial cutting of forty percent or less of the live timber volume.

(ii) East of the Cascade summit, partial cutting of five thousand board feet per acre or less.

(iii) Salvage of dead, down, or dying timber if less than forty percent of the total timber volume is removed in any twelve-month period.

(iv) Any harvest on less than forty acres.

(v) Construction of six hundred or more feet of road, provided that the department shall be notified at least two business days before commencement of the construction.

*(f) Forest practices involving timber harvesting or road construction listed in (a) through (e) of this subsection within urban growth areas (UGAs) designated pursuant to chapter 36.70A RCW, if the landowner provides one of the following:

(i) A written statement of intent signed by the forest landowner not to convert to a use other than commercial timber operations for ten years. This statement must be accompanied by either a written forest management plan acceptable to the department, or documentation that the land is enrolled under the provisions of chapter 84.33 or 84.34 RCW; or

(ii) A conversion option harvest plan approved by the local governmental entity and submitted to the department as part of the application.

*(g) Forest practices listed in (a) through (e) of this subsection within UGAs, and where the regulatory authority for forest practices has been transferred to the local governmental entity pursuant to RCW 76.09.240(1), may nonetheless be Class II forest practices and regulated by the department if:

(i) The forest practice is on a landowner's ownership of contiguous forest land equal to or greater than twenty acres; and

(ii) The landowner provides documentation described in (f) (i) or (ii) of this subsection.

(5) **"Class III."** Forest practices not listed under Classes IV, I or II above are Class III forest practices. Among Class III forest practices are the following:

(a) Those ~~requiring~~including forest practices hydraulic projects ~~approval (RCW 77.55.021)~~.

*(b) Those within the shorelines of the state other than those in a Class I forest practice.

*(c) Aerial application of insecticides, except where classified as a Class IV forest practice.

*(d) Aerial application of chemicals (except insecticides), except where classified as Class I or IV forest practices.

*(e) Harvest or salvage of timber except where classed as Class I, II or IV forest practices.

*(f) All road construction except as listed in Classes I, II and IV forest practices.

(g) Opening of new pits or extensions of existing pits over one acre.

*(h) Road maintenance involving:

(i) Replacement of bridges or culverts across Type S, F or flowing Type Np Waters; or

(ii) Movement of material that has a direct potential for entering Type S, F or flowing Type Np Waters or Type A or B Wetlands.

(i) Operations involving owner of perpetual timber rights subject to RCW 76.09.067.

(j) Site preparation or slash abatement not listed in Classes I or IV forest practices.

(k) Harvesting, road construction, site preparation or aerial application of pesticides on lands which contain cultural, historic or archaeological resources which, at the time the application or notification is filed, have been identified to the department as being of interest to an affected Indian tribe.

(l) Harvesting exceeding nineteen acres in a designated difficult regeneration area.

(m) Utilization of an alternate plan. See WAC 222-12-040.

*(n) Any filling of wetlands, except where classified as Class IV forest practices.

*(o) Multiyear permits.

*(p) Small forest landowner long-term applications that are not classified Class IV-special or Class IV-general, or renewals of previously approved Class III or IV long-term applications.

*(q) Forest practices involving timber harvest or road construction listed in (a) through (p) of this subsection within urban growth areas (UGAs) designated pursuant to chapter 36.70A RCW, if the landowner provides documentation described in subsection (4) (f) (i) or (ii) of this section.

*(r) Forest practices listed in (a) through (p) of this subsection within UGAs, and where the regulatory authority for forest practices has been transferred to the local governmental entity pursuant to RCW 76.09.240 (1), may nonetheless be Class III forest practices and regulated by the department if:

(i) The forest practice is on a landowner's ownership of contiguous forest land equal to or greater than twenty acres; and

(ii) The landowner provides documentation described in subsection (4) (f) (i) or (ii) of this section.

(s) Removal of beaver structures from culverts on forest roads.

Chapter 222-20 WAC

NEW SECTION

WAC 222-20-017 *Applications and notifications that include forest practices hydraulic projects.

(1) **Review for consistency with fish protection standards.** The department reviews forest practices applications that include forest practices hydraulic projects for consistency with fish protection standards.

(2) **Pre-application consultation.**

(a) Prospective applicants are encouraged to consult with the department and the department of fish and wildlife, including site visits as needed, prior to submitting a forest practices application to the department.

(b) Pre-application consultation helps to ensure that project design and specifications meet fish protection standards.

(c) Pre-application consultation should take place well before submitting an application to the department and well before the desired work windows.

(3) **Application time limits**. Except for applications involving project types listed in (5)(b) of this section, application time limits for applications that include forest practices hydraulic projects are the same as those listed in WAC 222-20-020.

(4) **Review of forest practices hydraulic projects involving Type S and F Waters by the department of fish and wildlife.** The department of fish and wildlife's review of forest practices hydraulic projects is guided by WAC 220-110-085, and summarized in (a) and (b) below:

(a) Except for the particular review process for projects listed in (b)(i), the department of fish and wildlife reviews forest practices hydraulic projects involving Type S and F Waters as follows:

(i) The department of fish and wildlife either provides comments to the department or documents that the review has occurred without the need for comments.

(ii) Prior to commenting, or as soon as reasonably practical, the department of fish and wildlife will communicate with the applicant regarding any concerns relating to consistency with fish protection standards.

(iii) The department of fish and wildlife will also strive to maintain communications with the department as concerns arise, and inform the department of its communications with applicants.

(b) Concurrence review.

(i) The following project types involving Type S and F Waters are subject to the department of fish and wildlife conducting a concurrence review according to the process outlined in WAC 220-110-085(3):

- Culvert installation or replacement, and repair at or below the bankfull width in Type S and F Waters that exceed five percent gradient;
- Bridge construction or replacement, and repair at or below the bankfull width of unconfined streams in Type S and F Waters; or
- Fill within the flood level-100 year of unconfined streams in Type S and F Waters.

(ii) After review of these projects, the department of fish and wildlife must provide written notification of concurrence or non-concurrence to the department within thirty days of the department officially receiving a complete application, stating whether or not the project is consistent with fish protection standards and including any proposed changes needed to meet fish protection standards.

(iii) As indicated in WAC 222-20-020(e), the department approves, conditions, or disapproves such applications within sixty days of officially receiving an application. The department of fish and wildlife's review is completed within the first thirty days.

(5) **Disapproval**.

(a) An application will be disapproved if the department determines, after consultation with the department of fish and wildlife, that a forest practices hydraulic project in the application will result in direct or indirect harm to fish life, unless:

(i) Adequate mitigation can be assured by conditioning the application for the project; or

(ii) The project is modified satisfactorily.

(b) If disapproved, the department will provide a statement to the applicant in writing of the specific reason(s) why, and how the proposed project would adversely affect fish life.

WAC 222-20-020 Application time limits.

(1) **When the department officially receives an application,** the department will approve, condition or disapprove it within thirty calendar days for Class III and Class IV forest practices, except:

(a) To the extent the department is prohibited from approving the application by the act.

(b) For Class IV applications when the department or the lead agency has determined that a detailed environmental statement must be made, the application must be approved, conditioned or disapproved within sixty days, unless the commissioner of public lands promulgates a formal order specifying a later date for completion of the detailed environmental statement and final action on the application. At least ten days before promulgation of such an order extending the time, the applicant shall be given written notice that the department is requesting such extension; giving the reasons the process cannot be completed within such period; and stating that the applicant may comment in writing to the commissioner of public lands or obtain an informal conference with the department regarding the proposed extension.

(c) When they involve lands described in (c) (i), (ii) or (iii) of this subsection, the applicable time limit shall be no less than fourteen business days from transmittal to the local governmental entity unless the local governmental entity has waived its right to object or has consented to approval of the application:

(i) Lands that are being converted to another use;

(ii) Lands that will not be reforested because of likelihood of future conversion to urban development (see WAC 222-16-060 and 222-20-050); or

(iii) Forest practices involving timber harvesting or road construction on lands that are contained within urban growth areas, designated pursuant to chapter 36.70A RCW.

(d) Applications for multiyear permits will be approved, conditioned, or disapproved within forty-five days of the department receiving a complete application, except if a detailed environmental statement is necessary, additional time for approval or disapproval as specified in RCW 76.09.050 will be required.

(e) Applications requiring a concurrence review of forest practices hydraulic projects listed in WAC 222-20-017(4)(b) will be approved, conditioned, or disapproved within sixty days of the department officially receiving an application. The department of fish and wildlife's review will take place within the first thirty days.

~~(e)~~(f) Small forest landowner long-term applications will be reviewed in two steps as described in WAC 222-20-016. The department will review Step 1 and issue a decision within forty-five days of receiving a complete resource and roads assessment. The department will review and approve, condition, or disapprove Step 2 within forty-five days of receiving a complete resource protection strategies portion of the long-term application, except if a detailed environmental statement is necessary, additional time for approval or disapproval as specified in RCW 76.09.050 will be required.

(2) **Where a notification** is submitted for operations which the department determines involve Class III or IV forest practices, the department shall issue a stop work order or take other appropriate action. If the operations were otherwise in compliance with the act and forest practices rules, no penalty should be imposed for those operations which occurred prior to the enforcement action: Provided, That no damage to a public resource resulted from such operations, and the operations commenced more than five days from receipt by the department of the notification.

(3) **If the department** fails to approve or disapprove an application or any portion thereof within the applicable time limit, the application shall be deemed approved and the operation may commence except that this provision shall not apply where:

(a) The local governmental entity objects and the application involves lands that are being converted to a use other than commercial timber operations where the local governmental entity's right of objection is fourteen business days which may be longer than the approval time limit.

(b) The department is prohibited from approving the application by the act.

(c) Compliance with the State Environmental Policy Act requires additional time.

(4) **If seasonal field** conditions prevent the department from being able to properly evaluate the application, the department may disapprove the application until field conditions allow for an on-site review.

WAC 222-20-040 Approval conditions.

(1) **Whenever an approved** application includes a forest practices hydraulic project or authorizes a forest practices activity which, because of soil condition, proximity to a water course or other unusual factor, has a potential for causing material damage to a public resource, as determined by the department, the applicant shall, when ~~requested~~required as a condition on the approved application, notify the department two business days before the commencement of actual operations.

(2) **All approvals are** subject to any conditions stipulated on the approved application and to any subsequent additional requirements set forth in a stop work order or a notice to comply.

(3) **Local governmental entity conditions—Class IV-general applications.**

(a) RCW 76.09.240 (6) allows a local governmental entity to exercise limited land use planning or zoning authority on certain types of forest practices. This subsection is designed to ensure that local governmental entities exercise this authority consistent with chapter 76.09 RCW and the rules in Title 222 WAC. The system provided for in this subsection is optional.

(b) This subsection only applies to applications on lands that are being converted to a use other than commercial timber operations.

(c) After determining that an application is Class IV-general, the department shall transmit the applications to the appropriate local governmental entity within two business days from the date the department officially receives the application.

(d) The department shall condition the application consistent with the request of the local governmental entity if:

(i) The local governmental entity has adopted a clearing and/or grading ordinance that addresses the items listed in (e) of this subsection and requires a permit;

(ii) The local governmental entity has issued a permit under the ordinance in (i) that contains the requested conditions; and

(iii) The local governmental entity has entered into an interagency agreement with the department consistent with WAC 222-50-030 addressing enforcement of forest practices.

(e) The local governmental entity conditions may only cover:

(i) The location and character of open space and/or vegetative buffers;

(ii) The location and design of roads;

(iii) The retention of trees for bank stabilization, erosion prevention, and/or storm water management; or

(iv) The protection of critical areas designated pursuant to chapter 36.70A RCW.

(f) The local governmental entity shall file its conditions with the department within twenty-nine days of the department's official receipt of the application or within fourteen business days of the transmittal of the application to the local governmental entity or one day before the department acts on the application, whichever is later.

(g) The department shall incorporate local governmental entity conditions consistent with this subsection as conditions of the forest practices approval.

(h) Any exercise of local governmental entity authority consistent with this subsection shall be considered consistent with the forest practices rules in this chapter.

(4) **Lead agency mitigation measures.**

(a) This subsection is designed to specify procedures for a mitigated DNS process that are consistent with chapters 76.09 and 43.21C RCW and the rules in Title 222 WAC and chapter 197-11 WAC.

(b) This subsection applies to all Class IV applications in which the department is not the lead agency under the State Environmental Policy Act. (See WAC 197-11-758.)

(c) The department shall transmit the application to the lead agency within two business days from the date the department officially receives the application.

(d) The lead agency may specify mitigation measures pursuant to WAC 197-11-350.

(e) The lead agency threshold determination and any mitigation measures must be filed with the department within the later of twenty-nine days of the official receipt of the application by the department, fourteen business days of the transmittal of the application to the lead agency if the lead agency is a local governmental entity; or one day before the department acts on the application.

(f) Unless the applicant clarifies or changes the application to include mitigation measures specified by the lead agency, the department must disapprove the application or require an environmental impact statement. (See WAC 197-11-738.)

(g) If the department does not receive a threshold determination from the lead agency by the time it must act on the application, the department shall disapprove the application.

(5) **Small forest landowner approval conditions.** The department shall not disapprove a small forest landowner's application or notification on the basis that fish passage barriers have not been removed or replaced if the landowner has committed to participate in the department's family forest fish passage program for:

(a) Any barriers on their forest roads located within the boundaries of their application or notification; and

(b) Any barriers on their forest roads needed for their proposed forest practice, but located outside the boundaries of the application or notification.

(6) **CRGNSA special management area.**

(a) **Policy.** The states of Oregon and Washington have entered into a Compact preauthorized by Congress to implement the CRGNSA Act, 16 U.S.C. §§ 544, et seq. chapter 43.97 RCW, 16 U.S.C. § 544c. The purposes of the CRGNSA Act are:

(i) To establish a national scenic area to protect and provide for the enhancement of the scenic, cultural, recreational, and natural resources of the Columbia River Gorge; and

(ii) To protect and support the economy of the Columbia River Gorge area by encouraging growth to occur in existing urban areas and by allowing future economic development in a manner that is consistent with paragraph (1). 16 U.S.C. § 544a.

The forest practices rules addressing forest practices in the CRGNSA special management area recognize the intent of Congress and the states expressed in the CRGNSA Act and Compact and the intent of the Washington state legislature in the Forest Practices Act. These rules are designed to recognize the public interest in sound natural resource protection provided by the Act and the Compact, including the protection to public resources, recreation, and scenic beauty. These rules are designed to achieve a comprehensive system of laws and rules for forest practices in the CRGNSA special management area which avoids unnecessary duplication, provides for interagency input and intergovernmental and tribal coordination and cooperation, considers reasonable land use planning goals contained in the CRGNSA management plan, and fosters cooperation among public resources managers, forest landowners, tribes and the citizens.

(b) The CRGNSA special management area guidelines shall apply to all forest practices within the CRGNSA special management area. Other forest practices rules also apply to these forest practices. To the extent these other rules are inconsistent with the guidelines, the more restrictive requirement controls. To the extent there is an incompatibility between the guidelines and another rule, the guidelines control. Copies of the guidelines can be obtained from the department's Southeast and Pacific Cascade regional offices and Olympia office, as well as from the Columbia River Gorge commission and the U.S. Forest Service.

(c) The department shall review and consider the U.S. Forest Service review statement and shall consult with the U.S. Forest Service and the Columbia River Gorge commission prior to making any determination on conditioning an application or notification within the CRGNSA special management area.

WAC 222-20-090 Options for filing applications and pre-application consultation for forest practices hydraulic projects.

(1) Applicants may schedule an early review of a proposed application with the department prior to official filing, or submit an application with a delayed effective date. Such early review or submission will allow the department to review multiple applications and bring other forest practices concerns to the attention of the applicant so that such concerns can be addressed prior to official filing and processing of an application. When submitting an application with a delayed effective date, the applicant shall indicate the date when

approval is desired.

(2) **Pre-application consultation for forest practices hydraulic projects.** Landowners are encouraged to consult with the department and the department of fish and wildlife prior to submitting an application involving a forest practices hydraulic project to help ensure that project plans and specifications meet fish protection standards.

CHAPTER 222-24 WAC

WAC 222-24-010 Policy.

*(1) A well designed, located, constructed, and maintained system of forest roads is essential to forest management and protection of the public resources. Riparian areas contain some of the more productive conditions for growing timber, are heavily used by wildlife and provide essential habitat for fish and wildlife and essential functions in the protection of water quality. Wetland areas serve several significant functions in addition to timber production: Providing fish and wildlife habitat, protecting water quality, moderating and preserving water quantity. Wetlands may also contain unique or rare ecological systems.

*(2) To protect water quality and riparian habitat, roads must be constructed and maintained in a manner that will prevent potential or actual damage to public resources. This will be accomplished by constructing and maintaining roads so as not to result in the delivery of sediment and surface water to any typed water in amounts, at times or by means, that preclude achieving desired fish habitat and water quality by:

- Providing for free and unimpeded passage for fish ~~passage~~ at all life stages ~~(see Washington state department of fish and wildlife hydraulic code Title 220 WAC)~~;
- Preventing mass wasting;
- Limiting delivery of sediment and surface runoff to all typed waters;
- Avoiding capture and redirection of surface or ground water. This includes retaining streams in their natural drainages and routing subsurface flow captured by roads and road ditches back onto the forest floor;
- Diverting most road runoff to the forest floor;
- ~~Providing for the passage of~~ Designing water crossing structures to the 100-year flood level to provide for the passage of bedload and some woody debris;
- Protecting stream bank stability, the existing stream channel, and riparian vegetation;
- Minimizing the construction of new roads; and
- Assuring no-net-loss of wetland function, and
- Assuring no-net-loss of fish habitat.

The rules for road construction and maintenance ~~rules in this chapter~~and forest practices hydraulic projects must be applied in achieving these goals. Additional guidance is provided in board manual sections 3 and 5. If these goals are not achieved using the rules and the applied guidance, additional management strategies must be employed.

*(3) Extra protection is required during road construction and maintenance and for forest practices hydraulic projects to protect public resources and timber growing potential. Landowners and fisheries and wildlife managers are encouraged to cooperate in the development of road management and abandonment plans. Landowners are further encouraged to cooperate in sharing roads to minimize road mileage and avoid duplicative road construction.

*(4) This section covers the location, design, construction, maintenance and abandonment of forest roads, bridges, stream crossings, quarries, borrow pits, and disposal sites used for forest road construction and is intended to assist landowners in proper road planning, construction and maintenance so as to protect public resources.

(Note: Other laws and rules and/or permit requirements may apply. See chapter 222-50 WAC.)

WAC 222-24-020 Road location and design.

(1) Fit the road to the topography so that a minimum of alterations to the natural features will occur.

*(2) Except for crossings, new stream-adjacent parallel roads shall not be located within natural drainage channels, channel migration zones, sensitive sites, equipment limitation zones, and riparian management zones when there would be substantial loss or damage to fish or wildlife habitat unless the department has determined that other alternatives will cause greater damage to public resources. Proposals with new stream-adjacent parallel roads will require an on-site review by an interdisciplinary team. The appropriate federal representative(s) will be invited to attend the interdisciplinary team to determine if the proposal is in compliance with the Endangered Species Act.

*(3) Roads shall not be constructed in bogs or low nutrient fens.

*(4) Roads shall not be located in wetlands if there would be substantial loss or damage to wetland functions or acreage, unless the department has determined that alternatives will cause greater damage to public resources.

*(5) Minimize the number of stream crossings.

*(6) Where stream crossings are necessary:

(a) Design stream crossings to minimize alterations to natural features;

(b) Locate and design culverts to minimize sediment delivery; ~~and~~

(c) Whenever practical, cross streams at right angles to the main channel; and

(d) Design stream crossings in Type S and F Waters to provide free and unimpeded passage for fish at all life stages.

*(7) Avoid duplicative roads by keeping the total amount of construction to a minimum. Use existing roads whenever practical and avoid isolating patches of timber which, when removed, may require unnecessary road construction.

*(8) All new road construction on side slopes that exceed ~~60~~ sixty percent, which have the potential to deliver sediment to any typed water or wetland must utilize full bench construction techniques, including end hauling, over hauling or other special techniques. The department may waive the full bench construction requirement if a site review is conducted and the absence of delivery potential to any typed water or wetlands is determined.

(9) Use the minimum design standard that produces a road sufficient to carry the anticipated traffic load with reasonable safety.

*(10) Subgrade width should average not more than ~~32~~ thirty two feet for double lane roads and ~~20~~ twenty feet for single lane roads, exclusive of ditches, plus any additional width necessary for safe operations on curves and turnouts. Where road location in wetlands is unavoidable (see WAC 222-24-015(1)(b)), minimize subgrade width.

(11) Balance excavation and embankments so that as much of the excavated material as is practical will be deposited in the roadway fill sections. Where full bench construction is necessary, design suitable embankments so that the excavated material may be end hauled to appropriate deposit areas.

(12) Cut and fill slopes must be designed and constructed in a manner that will assure a high likelihood of remaining stable throughout the life of the road.

*(13) All roads shall be outsloped or ditched on the uphill side and appropriate surface drainage shall be provided by the use of adequate drainage structures such as: Cross drains, ditches, drivable dips, relief culverts, water bars, diversion ditches, or other such structures demonstrated to be equally effective.

*(14) Drainage structures shall not discharge onto erodible soils, or over fill slopes unless adequate outfall protection is provided.

*(15) Relief culverts installed on forest roads shall meet the following minimum specifications: (See ~~the~~ board manual~~,~~ section 3 for culvert spacing.)

(a) Be at least ~~18~~ eighteen inches in diameter or equivalent in western Washington and ~~15~~ fifteen inches in diameter or equivalent in eastern Washington.

(b) Be installed in a manner that efficiently captures ditchline flow and passes it to the outside of the road.

*(16) Ditch diversion. Where roadside ditches slope toward any typed water, or Type A or B Wetland, a ditch relief structure must be located as close to the stream crossing or wetland as possible so it drains off before reaching the stream. On stream-adjacent parallel roads, relief culverts shall be located at maximum distances from stream channels to minimize sediment delivery. The relief structure must allow the sediment to be deposited onto the forest floor and not carry surface water or sediment into the stream channel or wetland.

*(17) Outslope the road surface where practical. Where outsloping is not practical, provide a ditch with drainage structure on the inside of the road, except where roads are constructed in rock or other materials not readily susceptible to erosion.

*(18) Crown or slope the road to prevent the accumulation of water on the road surface.

*(19) Install rock armor headwall inlets on all stream-crossing culverts where the stream gradient above the crossing is greater than ~~6~~ six percent.

*(20) Install rock armored headwalls and rock armored ditchblocks for drainage structure culverts located on erodible soils or where the affected road has a gradient greater than 6 percent.

*(21) Install drainage structures at locations where seeps and springs are known or discovered during construction to route accumulated surface water across the road prism. The water from the seeps and springs must be returned to the forest floor as close to the point of origin as reasonably practicable.

*(22) ~~The~~ In addition to information required for a complete application, the department may require ~~additional~~more detailed information for proposed road construction~~ as part of a complete application~~, including:

(a) A map with detailed topographic information showing the location and alignment of the road in relation to all typed water and wetlands as required in WAC 222-16-035;

(b) Location, size, alignment and number of water crossing and drainage structures;

(c) Detailed plans for bridges, ~~large~~ culverts or other complex elements of the proposal; and

(d) Other information identified by the department.

NEW SECTION

WAC 222-24-038 Pre-application consultation and road-related forest practices hydraulic projects. Landowners contemplating forest practices hydraulic projects related to road construction and maintenance are encouraged to consult with the department and the department of fish and wildlife prior to submitting an application to help ensure that project plans and specifications meet fish protection standards.

WAC 222-24-040 *Water crossing structures for all typed waters.

~~*(1) General provisions for all typed waters.~~

~~In addition to the applicable general provisions below, installation, maintenance and removal of water crossing structures in or across the bankfull width of Type S or F Waters are subject to hydraulic code rules, chapter 220-110 WAC, and require hydraulic project approval (HPA) issued by the department of fish and wildlife. HPAs may be required on Type Ns and Np Waters.~~

~~(a)~~(1) Bridges are required for new crossings and reconstructed crossings of any typed waters regularly used for recreational boating.

~~(b)~~(2) Structures containing concrete must be sufficiently cured prior to contact with water.

~~(c)~~(3) One end of each new or reconstructed permanent log or wood bridge shall be tied or firmly anchored if any of the bridge structure is within ~~10~~ ten vertical feet of the 100-year flood level.

~~(d)~~(4) Alterations or disturbance of the stream bed, bank or bank vegetation must be limited to that necessary to construct the project. All disturbed areas must be stabilized and restored according to the recommended schedule and procedures found in ~~section 3 of the~~ board manual section 5. This requirement may be modified or waived by the department, in consultation with the department of fish and wildlife, if precluded by engineering or safety factors.

~~(e)~~ (5)When earthen materials are used for bridge surfacing, only clean sorted gravel may be used, a geotextile lining must be installed, and curbs of sufficient size shall be installed to a height above the surface material to prevent surface material from falling into the stream bed.

~~(f)~~(6) Wood removed from the upstream end of culverts and bridges will be placed at the downstream end of such culverts and bridges in such a way as to minimize obstruction of fish passage and, to the extent practical, while avoiding significant disturbance of sediment~~,~~ in connection with maintenance activities.

(7) Fords.

(a) New ford construction requires a forest practices application.

(b) The entry and exit points of a new ford must not be within one hundred feet upstream or downstream of another ford.

(c) The following activities associated with established fords require a forest practices application:

(i) Ford repair with equipment or construction work waterward of the bankfull width;

(ii) Driving a vehicle or operating equipment on or across wetted stream beds at areas other than established fords.

(d) Driving a vehicle or operating equipment on or across an established ford does not require a forest practices application.

(e) **"Established ford"** means a crossing place in a watercourse that was in existence and annually use prior to 1986 or subsequently permitted by the department, and has identifiable approaches on the banks.

~~*(2) **Bridges over Type Np and Ns Waters.** In addition to the applicable general provisions above, installation, maintenance, and removal of permanent bridges in or across Type Np and Ns Waters are subject to the following:~~

~~(a) Permanent bridges must not constrict clearly defined channels and must be designed and installed to pass the 100-year flood. The bridge and its associated embankments and fills must provide sufficient erosion protection to withstand a 100-year flood event.~~

~~(b) Excavation for and placement of the bridge foundation and superstructure must be located and conducted from outside the outer edge of the bankfull width. This requirement may be waived by the department, in consultation with the department of fish and wildlife, if it can be demonstrated that these activities may be conducted in such a manner to prevent damage to public resources.~~

~~(c) Earthen embankments constructed for use as bridge approaches must be provided with sufficient erosion protection to withstand a 100-year flood event.~~

~~*(3) **Culvert installation for Type Np and Ns Waters.** In addition to applicable general provisions above, installation, maintenance and removal of permanent culverts in or across Type Np and Ns Waters are subject to the following provisions:~~

~~(a) All permanent culverts must be designed to pass the 100-year flood event with consideration for the passage of debris likely to be encountered.~~

~~(b) The culvert and its associated embankments and fills must have sufficient erosion protection to withstand the 100-year flood event. Erosion protection may include armored overflows or the use of clean coarse fill material.~~

~~(c) If the department determines that because of unstable slopes the culvert size shown in the board manual, section 3, "Determining Culvert Size, Method A" would be inadequate to protect public resources, it may require a larger culvert designed using generally accepted engineering principles that meet the standards in (a) and (b) of this subsection.~~

~~(d) No permanent culverts shall be installed that are smaller than:~~

~~(i) 24 inches for Type Np Waters.~~

~~(ii) 18 inches for Type Ns Waters in western Washington.~~

~~(iii) 15 inches for Type Ns Waters in eastern Washington.~~

~~(e) The alignment and slope of the culvert shall parallel the natural flow of the stream whenever possible.~~

~~(f) Culverts must be designed and installed so they will not cause scouring of the stream bed and erosion of the banks in the vicinity of the project.~~

~~(g) When the department determines that installing a culvert in a flowing stream will result in excessive siltation and turbidity, and siltation and turbidity would be reduced if stream flow were diverted, the department shall require the stream flow be diverted using a bypass flume or culvert, or by pumping the stream flow around the work area. This may include culvert installations that are within 0.25 miles of a Type S or F Water or within two miles of a hatchery intake in consultation with the department of fish and wildlife.~~

~~(h) Fill associated with culvert installation must have sufficient erosion protection to withstand the 100-year flood.~~

(i) Stream beds shall be cleared for a distance of 50 feet upstream from the culvert inlet of such slash or debris that reasonably may be expected to plug the culvert.

(j) The entrance of all culverts shall have adequate catch basins and headwalls to minimize the possibility of erosion or fill failure.

*(4) **Temporary water crossings in Type Np and Ns Waters.** In addition to the applicable general provisions above, installation, maintenance and removal of temporary bridges or other structures in or across Type Np and Ns Waters are subject to the following:

(a) A temporary water crossing is intended for use during the life of an approved application/notification.

(b) It must be constructed to facilitate abandonment when the intended use is complete or upon seasonal shutdown, whichever is sooner.

(c) Temporary water crossings must be identified on the forest practices application or notification, along with an abandonment date.

(d) Temporary water crossings may be used:

(i) In western Washington if installed after June 1 and removed by September 30 of the same year.

(ii) In eastern Washington if installed after the spring runoff and removed prior to October 15th.

(iii) At other times, when the department and applicant can agree to specific dates of installation and removal and the extended dates result in equivalent levels of resource protection.

(e) Temporary water crossings must be designed to pass the highest peak flow event expected to occur during the length of its intended use.

(f) When the department determines that installing a culvert in a flowing stream will result in excessive siltation and turbidity, and siltation and turbidity would be reduced if stream flow were diverted, the department shall require the stream flow be diverted using a bypass flume or culvert, or by pumping the stream flow around the work area. This may include culvert installations that are within 0.25 miles of a Type S or F Water or within two miles of a hatchery intake, in consultation with the department of fish and wildlife.

(g) Temporary water crossings shall be promptly removed and abandoned to the specifications approved by the department upon completion of use or by the date specified in the approved forest practices application, whichever is earlier. Approaches to the crossing shall be water barred and stabilized at the time of the crossing removal. The department may waive removal of the water crossing if the applicant secures an amended forest practices application, and the structure and its approaches meet all of the requirements of a permanent water crossing structure.

(h) Temporary wetland crossings shall be abandoned and restored based on a written plan approved by the department prior to construction.

(i) Temporary water crossings must be designed to provide the same level of protection for public resources as provided by rules during the length of its use.

*(5) Properly prepared and maintained fords may be used in Type Np and Ns Waters during periods of low water.

(a) Entry and exit points for each ford must be located as close to perpendicular along the stream as possible, but will not exceed 100 feet upstream or downstream of each other. Approaches to the ford will not run adjacent to the stream.

(b) Ford locations must be shown on the forest practices application.

~~(c) Best management practices for construction, maintenance and use will be utilized as appropriate or as required by conditions on the approved forest practices application.~~

NEW SECTION

WAC 222-24-041 *Water crossing structures in Type S and F Waters

(1) In Type S and F Waters, bridges are preferred as water crossing structures in order to ensure free and unimpeded fish passage for adult and juvenile fishes and preserve spawning and rearing habitat. Pier placement within bankfull width shall be avoided where practical. Other structures which may be approved include, in descending order of preference: temporary culverts; bottomless arch culverts; arch culverts; round culverts; and fords. Corrugated culverts are generally preferred over smooth surfaced culverts. Culvert baffles and downstream control weirs are discouraged except to correct fish passage problems at existing structures.

(2) An approved forest practices application is required for construction, structural work and maintenance associated with any bridge structure. Typical maintenace includes painting and other activities where there is potential for wastage of paint, sandblasting material, sediments, or bridge parts into the water, or where the work, including equipment operation, occurs within bankfull width of the stream.

(3) Water crossing structure projects shall incorporate mitigation measures as necessary to achieve no-net-loss of productive capacity of fish and shellfish habitat.

(4) **Bridge construction.**

(a) Excavation for and placement of the foundation and superstructure shall be outside the bankfull width unless the construction site is separated from the stream by use of an approved dike, cofferdam, or similar structure.

(b) The bridge structure or stringers shall be placed in a manner to minimize damage to the bed.

(c) Alteration or disturbance of bank or bank vegetation shall be limited to that necessary to construct the project. All disturbed areas shall be protected from erosion within seven days of completion of the project, using vegetation or other means. The banks shall be revegetated with native or other approved woody species and maintained as necessary to ensure survival. Removal of existing or temporary structures shall be accomplished so that the structure and associated material does not enter the stream. See board manual section 5 for technical guidance.

(d) Removal of existing or temporary structures shall be accomplished so that the structure and associated material does not enter the stream.

(e) The bridge shall be constructed, according to the approved design, to pass the 100-year flood level and debris likely to be encountered. Exception shall be granted if applicant provides hydrologic or other information that supports alternative design criteria.

(f) Wastewater from project activities and water removed from within the work area shall be routed and deposited to the forest floor in an upland area to allow removal of fine sediment and other contaminants prior to being discharged to typed waters.

(g) Structures containing concrete shall be sufficiently cured prior to contact with water to avoid leaching.

(h) Abutments, piers, piling, sills, approach fills, etc., shall not constrict the flow so as to cause any appreciable increase (not to exceed 0.2 feet) in backwater elevation (calculated at the 100-year flood level) or channel wide scour and shall be aligned to cause the least effect on the hydraulics of the watercourse.

(i) Riprap materials used for structure protection shall be angular rock and the placement shall be installed according to an approved design to withstand the 100-year flood level.

(5) **Temporary culvert installation.** The allowable placement of temporary culverts and time limitations shall be determined by the department based on the specific fish resources of concern at the proposed location of the culvert. See board manual section 5 for guidance on temporary culvert installation.

(a) Where fish passage is a concern, temporary culverts shall be installed according to an approved design based on the definition of bankfull width for culvert design and construction in WAC 222-16-010, to provide adequate fish passage. In these cases, the temporary culvert installation shall meet the fish passage design criteria in Table 1 in subsection (6) of this section.

(b) Where culverts are left in place during the period of September 30 to June 15, the culvert shall be designed to maintain structural integrity to the 100-year flood level with consideration of the debris loading likely to be encountered.

(c) Where culverts are left in place during the period June 16 to September 30, the culvert shall be designed to maintain structural integrity at a peak flow expected during the entire period the culvert will be in place.

(d) Disturbance of the bed and banks shall be limited to that necessary to place the culvert and any required channel modification associated with it. Affected bed and bank areas outside the culvert shall be restored to preproject condition following installation of the culvert.

(e) The culvert shall be installed in the dry, or in isolation from stream flow by the installation of a bypass flume or culvert, or by pumping the stream flow around the work area. Exception may be granted if siltation or turbidity is reduced by installing the culvert in the flowing stream. The bypass reach shall be limited to the minimum distance necessary to complete the project. Fish stranded in the bypass reach shall be safely removed to the flowing stream.

(f) Wastewater from project activities and dewatering shall be routed and deposited to the forest floor in an upland area to allow removal of fine sediment and other contaminants prior to being discharged to typed waters.

(g) Imported fill which will remain in the stream after culvert removal shall consist of clean rounded gravel ranging in size from one-quarter to three inches in diameter. The use of angular rock may be approved from June 16 to September 30, where rounded rock is unavailable. Angular rock shall be removed from the watercourse and the site restored to preproject conditions upon removal of the temporary culvert.

(h) The culvert and fill shall be removed and the disturbed bed and bank areas shall be reshaped to preproject configuration. All disturbed areas shall be protected from erosion, within seven days of completion of the project, using vegetation or other means. The banks shall be revegetated with native or other approved woody species and maintained as necessary to ensure survival. See board manual section 5 for technical guidance.

(i) The temporary culvert shall be removed and the approaches shall be blocked to vehicular traffic prior to the expiration of the work window as conditioned for the specific hydraulic project in the forest practices application.

(j) Temporary culverts must be removed prior to the expiration of the forest practices application.

(6) **Permanent culvert installation.**

(a) In fish bearing waters or waters upstream of a fish passage barrier (which can reasonably be expected to be corrected, and if corrected, fish presence would be reestablished), culverts shall be designed and installed so as not to impede fish passage. Culverts shall only be approved for installation in spawning areas where full replacement of impacted habitat is provided by the applicant.

(b) To facilitate fish passage, culverts shall be designed based on bankfull width to the following standards:

(i) Culverts may be approved for placement in small streams if placed on a flat gradient with the bottom of the culvert placed below the level of the streambed a minimum of twenty percent of the culvert diameter for round culverts, or twenty percent of the vertical rise or structure height for elliptical culverts (this depth consideration does not apply within bottomless culverts). Footings of bottomless culverts shall be buried sufficiently deep so they will not become exposed by scour within the culvert. The twenty percent placement below the streambed shall be measured at the culvert outlet. The culvert width at the bed, or footing width, shall be equal to or greater than the average width of the bed of the stream.

(ii) Where culvert placement is not feasible as described in (b)(i) of this subsection, the culvert design shall include the elements in (b)(ii)(A) through (E) of this subsection:

(A) Water depth at any location within culverts as installed and without a natural bed shall not be less than that identified in Table 1. The low flow design, to be used to determine the minimum depth of flow in the culvert, is the two-year seven-day low flow discharge for the subject basin or ninety-five percent exceedance flow for migration months of the fish species of concern. Where flow information is unavailable for the drainage in which the project will be conducted, calibrated flows from comparable gauged drainages may be used, or the depth may be determined using the installed no-flow condition.

(B) The high flow design discharge, used to determine maximum velocity in the culvert (see Table 1), is the flow that is not exceeded more than ten percent of the time during the months of adult fish migration. The two-year peak flood flow may be used where stream flow data are unavailable.

(C) The hydraulic drop is the abrupt drop in water surface measured at any point within or at the outlet of a culvert. The maximum hydraulic drop criteria must be satisfied at all flows between the low and high flow design criteria.

(D) The bottom of the culvert shall be placed below the natural channel grade a minimum of twenty percent of the culvert diameter for round culverts, or twenty percent of the vertical rise or structural height for elliptical culverts (this depth consideration does not apply within bottomless culverts). The downstream bed elevation, used for hydraulic calculations and culvert placement in relation to bed elevation, shall be taken at a point downstream at least four times the average width of the stream (this point need not exceed twenty-five feet from the downstream end of the culvert). The culvert capacity for flood design flow shall be determined by using the remaining capacity of the culvert.

Table 1

Fish Passage Design Criteria for Culvert Installation

Criteria	Adult Trout > 6 in. (150mm)	Adult Pink, Chum Salmon	Adult Chinook, Coho, Sockeye, Steelhead
1. Velocity, Maximum (fps)			
Culvert Length (ft)			
a. 10 - 60	4.0	5.0	6.0
b. 60 - 100	4.0	4.0	5.0
c. 100 - 200	3.0	3.0	4.0
d. > 200	2.0	2.0	3.0
2. Flow Depth Minimum (ft)	0.8	0.8	1.0
3. Hydraulic Drop, Maximum (ft)	0.8	0.8	1.0

(E) Appropriate statistical or hydraulic methods must be applied for the determination of flows in (b)(ii)(A) and (B) of this subsection. These design flow criteria may be modified for specific proposals as necessary to address unusual fish passage requirements, where other approved methods of empirical analysis are provided, or where the fish passage provisions of other special facilities are approved by the department.

(F) Culvert design shall include consideration of flood capacity for current conditions and future changes likely to be encountered within the stream channel, and debris and bedload passage.

(c) Culverts shall be installed according to an approved design to maintain structural integrity to the 100-year flood level with consideration of the debris loading likely to be encountered. Exception may be granted if the applicant provides justification for a different level or a design that routes the flow past the culvert without jeopardizing the culvert or associated fill.

(d) Disturbance of the bed and banks shall be limited to that necessary to place the culvert and any required channel modification associated with it. Affected bed and bank areas outside the culvert and associated fill shall be revegetated with native or other approved woody species and maintained as necessary to ensure survival. See board manual section 5 for technical guidance.

(e) Fill associated with the culvert installation shall be protected from erosion to the 100-year flood level.

(f) Culverts shall be designed and installed to avoid inlet scouring and shall be designed in a manner to prevent erosion of stream banks downstream of the project.

(g) Where fish passage criteria are required, the culvert facility shall be maintained by the landowner(s), such that fish passage design criteria in Table 1 are not exceeded. If the structure becomes a hindrance to fish passage, the landowner shall be responsible for obtaining an approved forest practices application and providing prompt repair.

(h) The culvert shall be installed in the dry or in isolation from the stream flow by the installation of a bypass flume or culvert, or by pumping the stream flow around the work area. Exception may be granted if siltation or turbidity is reduced by installing the culvert in the flowing stream. The bypass reach shall be limited to the minimum distance necessary to complete the project. Fish stranded in the bypass reach shall be safely removed to the flowing stream.

(i) Wastewater from project activities and dewatering shall be routed to the forest floor an upland area as necessary to allow removal of fine sediment and other contaminants prior to being discharged to any typed water or wetland.

(7) **Alternative designs** will be considered if they can be demonstrated to meet or exceed fish protection standards. Alternative designs may require additional review.

NEW SECTION

WAC 222-24-042 * Water crossing structures in Type Np and Ns Waters

*(1) **Bridges over Type Np and Ns Waters.** In addition to the applicable general provisions in WAC 222-24-040, the installation, maintenance, and removal of permanent bridges in or across Type Np and Ns Waters are subject to the following:

(a) Permanent bridges must not constrict clearly defined channels and must be designed and installed to pass the 100-year flood. The bridge and its associated embankments and fills must provide sufficient erosion protection to withstand a 100-year flood event.

(b) Excavation for and placement of the bridge foundation and superstructure must be located and conducted from outside the outer edge of the bankfull width. This requirement may be waived by the department if it can be demonstrated that these activities may be conducted in such a manner to prevent damage to public resources.

(c) Earthen embankments constructed for use as bridge approaches must be provided with sufficient erosion protection to withstand a 100-year flood event.

*(2) **Culvert installation for Type Np and Ns Waters.** In addition to applicable general provisions in WAC 222-24-040, the installation, maintenance and removal of permanent culverts in or across Type Np and Ns Waters are subject to the following provisions:

(a) All permanent culverts must be designed to pass the 100-year flood event with consideration for the passage of debris likely to be encountered.

(b) The culvert and its associated embankments and fills must have sufficient erosion protection to withstand the 100-year flood event. Erosion protection may include armored overflows or the use of clean coarse fill material.

(c) If the department determines that because of unstable slopes the culvert size shown in board manual section 3, "Determining Culvert Size, Method A" would be inadequate to protect public resources, it may require a larger culvert designed using generally accepted engineering principles that meet the standards in (a) and (b) of this subsection.

(d) No permanent culverts shall be installed that are smaller than:

(i) 24 inches for Type Np Waters;

(ii) 18 inches for Type Ns Waters in western Washington; and

(iii) 15 inches for Type Ns Waters in eastern Washington.

(e) The alignment and slope of the culvert shall parallel the natural flow of the stream whenever possible.

(f) Culverts must be designed and installed so they will not cause scouring of the stream bed and erosion of the banks in the vicinity of the project.

(g) When the department determines that installing a culvert in a flowing stream will result in excessive siltation and turbidity, and siltation and turbidity would be reduced if stream flow were diverted, the department shall require the stream flow be diverted using a bypass flume or culvert, or by pumping the stream flow around the work area. This may include culvert installations that are within 0.25 miles of a Type S or F Water or within two miles of a hatchery intake in consultation with the department of fish and wildlife.

(h) Fill associated with culvert installation must have sufficient erosion protection to withstand the 100-year flood event.

(i) Stream beds shall be cleared for a distance of 50 feet upstream from the culvert inlet of such slash or debris that reasonably may be expected to plug the culvert.

(j) The entrance of all culverts shall have adequate headwalls constructed to minimize the possibility of erosion or fill failure.

*(3) **Temporary water crossings in Type Np and Ns Waters.** In addition to the applicable general provisions above, installation, maintenance and removal of temporary bridges or other structures in or across Type Np and Ns Waters are subject to the following:

(a) A temporary water crossing is intended for use during the life of an approved application/notification.

(b) It must be constructed to facilitate abandonment when the intended use is complete or upon seasonal shutdown, whichever is sooner.

(c) Temporary water crossings must be identified on the forest practices application or notification, along with an abandonment date.

(d) Temporary water crossings may be used:

(i) In western Washington if installed after June 1 and removed by September 30 of the same year.

(ii) In eastern Washington if installed after the spring runoff and removed prior to October 15th.

(iii) At other times, when the department and applicant can agree to specific dates of installation and removal and the extended dates result in equivalent levels of resource protection.

(e) Temporary water crossings must be designed to pass the highest peak flow event expected to occur during the length of its intended use.

(f) When the department determines that installing a culvert in a flowing stream will result in excessive siltation and turbidity, and siltation and turbidity would be reduced if stream flow were diverted, the department shall require the stream flow be diverted using a bypass flume or culvert, or by pumping the stream flow around the work area. This may include culvert installations that are within 0.25 miles of a Type S or F Water or within two miles of a hatchery intake

(g) Temporary water crossings shall be promptly removed and abandoned to the specifications approved by the department upon completion of use or by the date specified in the approved forest practices application, whichever is earlier. Approaches to the crossing shall be water barred and stabilized at the time of the crossing removal. The department may waive removal of the water crossing if the applicant secures an amended forest practices application, and the structure and its approaches meet all of the requirements of a permanent water crossing structure.

(h) Temporary wetland crossings shall be abandoned and restored based on a written plan approved by the department prior to construction.

(i) Temporary water crossings must be designed to provide the same level of protection for public resources as provided by rules during the length of its use.

NEW SECTION

WAC 222-24-044 *Temporary bypass culverts, flumes, or channels.

Temporary bypass culvert, flume, or channel projects shall incorporate mitigation measures as necessary to achieve no-net-loss of productive capacity of fish and shellfish habitat. The following shall apply to temporary bypass culvert, flume, or channel projects:

(1) The temporary bypass culvert, flume, or channel shall be in place prior to initiation of other work in the wetted perimeter.

(2) A sandbag revetment or similar device shall be installed at the inlet to divert the entire flow through the culvert, flume, or channel.

(3) A sandbag revetment or similar device shall be installed at the downstream end of the culvert, flume, or channel to prevent backwater from entering the work area.

(4) The culvert, flume, or channel shall be of sufficient size to pass flows and debris for the duration of the project.

(5) For diversion of flow into a temporary channel the relevant provisions of WAC 220-110-080, channel change/realignment, shall apply.

(6) Prior to releasing the water flow to the project area, all bank protection or armoring shall be completed. See board manual section 5 for project site preparation best management practices.

(7) Upon completion of the project, all material used in the temporary bypass shall be removed from the site and the site returned to preproject conditions.

(8) The department may require fish capture and safe transport from the project site to the nearest free flowing water if fish could be adversely impacted as a result of the project. The department of fish and wildlife may assist in capturing and safely removing fish to free-flowing water if personnel are available.

(9) Alteration or disturbance of the banks and bank vegetation shall be limited to that necessary to construct the project. All disturbed areas shall be protected from erosion within seven days of completion of the project using vegetation or other means. The banks shall be revegetated with native or other approved woody species and maintained as necessary to ensure survival. See board manual section 5 for technical guidance.

NEW SECTION

WAC 222-24-046 *Bank protection.

Bio-engineering is the preferred method of bank protection where practicable. Bank protection projects shall incorporate mitigation measures as necessary to achieve no-net-loss of productive capacity of fish and shellfish habitat. The following shall apply to bank protection projects:

(1) Bank protection work shall be restricted to work necessary to protect eroding banks.

(2) Bank protection material placement waterward of the bankfull width shall be restricted to the minimum amount necessary to protect the toe of the bank, or for installation of mitigation features approved by the department.

(3) The toe shall be designed to protect the integrity of bank protection material.

(4) Bank sloping shall be accomplished in a manner that avoids release of overburden material into the water. Overburden material resulting from the project shall be deposited so as not to reenter the water.

(5) Alteration or disturbance of the bank and bank vegetation shall be limited to that necessary to construct the project. All disturbed areas shall be protected from erosion within seven days of completion of the project using vegetation or other means. The banks, including riprap areas, shall be revegetated with native or other approved woody species and maintained to ensure survival. See board manual section 5 for technical guidance.

(6) Fish habitat components such as logs, stumps, and/or large boulders may be required as part of the bank protection project to mitigate project impacts. These fish habitat components shall be installed according to an approved design to withstand 100-year peak flows.

(7) When rock or other hard materials are approved for bank protection, the following provisions shall apply:

(a) Bank protection material shall be angular rock. The project shall be designed and the rock installed to withstand 100-year peak flows. River gravels shall not be used as exterior armor, except as specifically approved by the department.

(c) Bank protection and filter blanket material shall be placed from the bank or a barge. Dumping onto the bank face shall be permitted only if the toe is established and the material can be confined to the bank face.

WAC 222-24-0511 *Small forest landowner road maintenance planning.

(1) Small forest landowners who own a total of eighty acres or less forest land in Washington state are not required to submit any road maintenance and abandonment plan for any block of forest land that contains twenty contiguous acres or less.

(2) Small forest landowners other than those described in subsection (1) of this section, are only required to submit a checklist road maintenance and abandonment plan when they submit a forest practices application or notification that includes timber harvest or salvage. The checklist must include all their forest roads that are used for the forest practice. Instead of a checklist, landowners may submit a road maintenance and abandonment plan as described in WAC 222-24-051 with the following modifications:

- They are not required to submit an annual report.
- If they participate in the family forest fish passage program, they may schedule their barrier projects accordingly.

(3) Forest roads must be maintained only to the extent necessary to prevent damage to public resources.

*(4) If the department determines that a road will cause or has the potential to cause damage to a public resource, the department may require the applicant to submit a compliance schedule of work to fix the problem(s) identified by the department.

(5) Fish passage barriers will be assessed on a watershed basis focusing on fixing the worst barriers first.

(a) The department's family forest fish passage program is available to assist with the removal, replacement, or repair of fish passage barriers that were installed prior to May 14, 2003. The program includes limits on landowner costs and the opportunity for in-kind contributions. One hundred percent public funding shall be provided if an existing barrier was installed under an approved forest practices application, ~~and~~ or a hydraulics project approval acquired prior to December 31, 2013, and that barrier becomes a high priority for replacement.

(b) Small forest landowners who participate in the family forest fish passage program are not required to remove, replace or repair barriers until cost share funding is available and higher priority barriers on lands within the watershed have been removed or funded. Small forest landowners participating in the program may make use of prioritization without any obligations to receive funding from the program.

Chapter 222-30 WAC

WAC 222-30-020 *Harvest unit planning and design.

(1) Pre-application consultation and harvest-related forest practices hydraulic projects.

(a) Landowners contemplating forest practices hydraulic projects related to timber harvest are encouraged to consult with the department and the department of fish and wildlife prior to submitting an application to help ensure that project plans and specifications meet fish protection standards.

(b) Harvest-related forest practices hydraulic projects include, but are not limited to, projects associated with:

(i) Felling and bucking (WAC 222-30-050);

(ii) Cable yarding (WAC 222-30-060); and

(iii) Large woody material removal or repositioning (WAC 222-30-062).

(~~1~~2) **Logging system.** The logging system should be appropriate for the terrain, soils, and timber type so that yarding or skidding can be economically accomplished and achieve the ecological goals of WAC 222-30-010 (2), (3) and (4) in compliance with these rules.

*(~~2~~3) **Landing locations.** Locate landings to prevent damage to public resources. Avoid excessive excavation and filling.

*(~~3~~4) **Western Washington riparian management zones.** (See WAC 222-30-021 and 222-30-023.)

*(~~4~~5) **Eastern Washington riparian management zones**. (See WAC 222-30-022 and 222-30-023.)

*(~~5~~6) **Riparian leave tree areas**. (See WAC 222-30-021, 222-30-022, and 222-30-023.)

*(~~6~~7) **Forested wetlands.** Within the wetland, unless otherwise approved in writing by the department, harvest methods shall be limited to low impact harvest or cable systems. Where feasible, at least one end of the log shall be suspended during yarding.

(a) When forested wetlands are included within the harvest area, landowners are encouraged to leave a portion (30 to 70%) of the wildlife reserve tree requirement for the harvest area within a wetland. In order to retain undisturbed habitat within forested wetlands, these trees should be left in clumps. Leave tree areas should be clumped adjacent to streams,

riparian management zones, or wetland management zones where possible and they exist within forested wetlands. Green recruitment trees should be representative of the size and species found within the wetland. Leave nonmerchantable trees standing where feasible.

(b) If a RMZ or WMZ lies within a forested wetland, the leave tree requirement associated with those areas may be counted toward the percentages in (a) of this subsection.

(c) Where riparian associated wetlands are present in the outer zone of a RMZ, trees may be left in the zone to maximize wetland function. See WAC 222-30-021 *(1) (c) (ii).

(d) If the conditions described in (a) and (b) of this subsection are met, the distribution requirements for wildlife reserve trees and green recruitment trees (subsection (11)(e) of this section) are modified as follows: For purposes of distribution, no point within the harvest unit shall be more than 1000 feet from a wildlife reserve tree and green recruitment tree retention area.

(e) Approximate determination of the boundaries of forested wetlands greater than 3 acres shall be required. Approximate boundaries and areas shall be deemed to be sufficient for harvest operations.

(f) The department shall consult with the department of fish and wildlife and affected Indian tribes about site specific impacts of forest practices on wetland-sensitive species in forested wetlands.

*(~~7~~8) **Wetland management zones (WMZ).** These zones shall apply to Type A and B Wetlands, as indicated in (a) of this subsection, and shall be measured horizontally from the wetland edge or the point where the nonforested wetland becomes a forested wetland, as determined by the method described in the board manual section 8, and shall be of an average width as described in (a) of this subsection. These zones shall not be less than the minimum nor more than the maximum widths described in (a) of this subsection. When these zones overlap a riparian management zone the requirement which best protects public resources shall apply.

*(a) Wetland management zones (WMZ) shall have variable widths based on the size of the wetland and the wetland type, described as follows:

Wetland Management Zones

Wetland Type	**Acres of Nonforested Wetland***	**Maximum WMZ Width**	**Average WMZ Width**	**Minimum WMZ Width**
A (including bogs)	Greater than 5	200 feet	100 feet	50 feet
A (including bogs)	0.5 to 5	100 feet	50 feet	25 feet
A (bogs only)	0.25 to 0.5	100 feet	50 feet	25 feet
B	Greater than 5	100 feet	50 feet	25 feet
B	0.5 to 5			25 feet
B	0.25 to 0.5	No WMZ required	No WMZ required	

*For bogs, both forested and nonforested acres are included.

(b) Within the WMZ, leave a total of 75 trees per acre of WMZ greater than 6 inches dbh in Western Washington and greater than 4 inches dbh in Eastern Washington, 25 of which

shall be greater than 12 inches dbh including 5 trees greater than 20 inches dbh, where they exist. Leave trees shall be representative of the species found within the WMZ.

(c) Retain wildlife reserve trees where feasible. Type 1 and 3 wildlife reserve trees may be counted among, and need not exceed, the trees required in (b) of this subsection. Leave all cull logs on site.

(d) Partial-cutting or removal of groups of trees is acceptable within the WMZ. The maximum width of openings created by harvesting within the WMZ shall not exceed 100 feet as measured parallel to the wetland edge. Openings within WMZs shall be no closer than 200 feet. Landowners are encouraged to concentrate leave trees within the WMZ to the wetland edge.

*(e) Tractors, wheeled skidders, or other ground based harvesting systems shall not be used within the minimum WMZ width without written approval of the department.

*(f) When 10% or more of a harvest unit lies within a wetland management zone and either the harvest unit is a clearcut of 30 acres or less or the harvest unit is a partial cut of 80 acres or less, leave not less than 50% of the trees required in (b) of this subsection.

*(~~8~~9) **Type A or B Wetlands.** Within the boundaries of Type A or B Wetlands the following shall apply:

(a) Individual trees or forested wetland areas less than 0.5 acre in size may occur. These trees have a high habitat value to the nonforested wetland. Leave individual trees or forested wetlands less than 0.5 acre. These trees may be counted toward the WMZ requirements.

(b) Harvest of upland areas or forested wetlands which are surrounded by Type A or B Wetlands must be conducted in accordance with a plan, approved in writing by the department.

(c) No timber shall be felled into or cable yarded across Type A or B Wetlands without written approval of the department.

(d) Harvest shall not be allowed within a Type A Wetland which meets the definition of a bog.

(~~9~~10) **Future productivity.** Harvesting shall leave the land in a condition conducive to future timber production except:

(a) To the degree required for riparian management zones; or

(b) Where the lands are being converted to another use or classified urban lands as specified in WAC 222-34-050.

(~~10~~11) **Wildlife habitat**. This subsection is designed to encourage timber harvest practices that would protect wildlife habitats, provided, that such action shall not unreasonably restrict landowners action without compensation.

(a) The applicant should make every reasonable effort to cooperate with the department of fish and wildlife to identify critical habitats (state) as defined by the board. Where these habitats are known to the applicant, they shall be identified in the application or notification.

(b) Harvesting methods and patterns in established big game winter ranges should be designed to ensure adequate access routes and escape cover where practical.

(i) Where practical, cutting units should be designed to conform with topographical features.

(ii) Where practical on established big game winter ranges, cutting units should be dispersed over the area to provide cover, access for wildlife, and to increase edge effect.

(~~11~~12) **Wildlife reserve tree management.** In areas where leaving wildlife reserve trees under

this section will not create a significant fire hazard, or significant hazard to overhead power lines and operations that are proposed in the vicinity of wildlife reserve trees will not create a significant safety or residential hazard nor conflict with achieving conformance with the limitation of or performance with the provisions of chapter 76.04 RCW (snag falling law) and chapter 49.17 RCW (safety), wildlife reserve trees will be left to protect habitat for cavity nesting wildlife in accordance with the following:

(a) For the purposes of this subsection the following defines eastern and western Washington boundaries for wildlife reserve tree management. Beginning at the International Border and Okanogan National Forest boundary at the N1/4 corner Section 6, T. 40N, R. 24E., W.M., south and west along the Pasayten Wilderness boundary to the west line of Section 30, T. 37N, R. 19E.,

Thence south on range line between R. 18E. and R. 19E., to the Lake Chelan-Sawtooth Wilderness at Section 31, T. 35N, R. 19E.,

Thence south and east along the eastern wilderness boundary of Lake Chelan-Sawtooth Wilderness to the west line of Section 18, T. 31N, R. 19E. on the north shore of Lake Chelan,

Thence south on the range line between R. 18E. and R. 19E. to the SE corner of T. 28N, R. 18E.,

Thence west on the township line between T. 27N, and T. 28N to the NW corner of T. 27N, R. 17E.,

Thence south on range line between R. 16E. and R. 17E. to the Alpine Lakes Wilderness at Section 31, T. 26N, R. 17E.,

Thence south along the eastern wilderness boundary to the west line of Section 6, T. 22N, R. 17E.,

Thence south on range line between R. 16E. and R. 17E. to the SE corner of T. 22N, R. 16E.,

Thence west along township line between T. 21N, and T. 22N to the NW corner of T. 21N, R. 15E.,

Thence south along range line between R. 14E. and R. 15E. to the SW corner of T. 20N, R. 15E.,

Thence east along township line between T. 19N, and T. 20N to the SW corner of T. 20N, R. 16E.,

Thence south along range line between R. 15E. and R. 16E. to the SW corner of T. 18N, R. 16E.,

Thence west along township line between T. 17N, and T. 18N to the SE corner of T. 18N, R. 14E.,

Thence south along range line between T. 14E. and R. 15E. to the SW corner of T. 14N, R. 15E.,

Thence south and west along Wenatchee National Forest boundary to the NW corner of T. 12N, R. 14E.,

Thence south along range line between R. 13E. and R. 14E. to the SE corner of T. 10N, R. 13E.,

Thence west along township line between T. 9N, and T. 10N to the NW corner of T. 9N, R. 12E.,

Thence south along range line between R. 11E. and R. 12E. to the SE corner of T. 8N, R. 11E.,

Thence west along township line between T. 7N, and T. 8N to the Gifford Pinchot

National Forest boundary,
Thence south along forest boundary to the SE corner of Section 33, T. 7N, R. 11E.,
Thence west along township line between T. 6N, and T. 7N to the SE corner of T. 7N, R. 9E.,
Thence south along Skamania-Klickitat County line to Oregon-Washington.

(b) In Western Washington, for each acre harvested 3 wildlife reserve trees, 2 green recruitment trees, and 2 down logs shall be left. In Eastern Washington for each acre harvested 2 wildlife reserve trees, 2 green recruitment trees, and 2 down logs shall be left. Type 1 wildlife reserve trees may be counted, at the landowner's option, either as a wildlife reserve tree or as a green recruitment tree. If adequate wildlife reserve trees are not available, no additional green recruitment trees will be required as substitutes. Landowners shall not under any circumstances be required to leave more than 2 green recruitment trees per acre for the purpose of wildlife reserve tree recruitment, or be required to leave Type 3 or 4 wildlife reserve trees.

(c) In Western Washington, only those wildlife reserve trees 10 or more feet in height and 12 or more inches dbh shall be counted toward wildlife reserve tree retention requirements. In Eastern Washington, only those wildlife reserve trees 10 or more feet in height and 10 or more inches dbh shall be counted toward wildlife reserve tree retention requirements. Green recruitment trees, 10 or more inches dbh and 30 or more feet in height and with at least 1/3 of their height in live crown, left standing after harvest may be counted toward green recruitment tree requirements. Green recruitment trees and/or wildlife reserve trees left to meet other requirements of the rules or those left voluntarily by the landowner shall be counted toward satisfying the requirements of this section. Large, live defective trees with broken tops, cavities, and other severe defects are preferred as green recruitment trees. Only down logs with a small end diameter greater than or equal to ~~12~~ twelve inches and a length greater than or equal to ~~20~~ twenty feet or equivalent volume shall be counted under (a) of this subsection. Large cull logs are preferred as down logs.

(d) In the areas where wildlife reserve trees are left, the largest diameter wildlife reserve trees shall be retained to meet the specific needs of cavity nesters. Where the opportunity exists, larger trees with numerous cavities should be retained and count as recruitment trees.

(e) In order to facilitate safe and efficient harvesting operations, wildlife reserve trees and recruitment trees may be left in clumps. For purposes of distribution, no point within the harvest unit shall be more than ~~800~~ eight hundred feet from a wildlife reserve tree or green recruitment tree retention area. Subject to this distribution requirement, the location of these retention areas and the selection of recruitment trees shall be at the landowner's discretion. Closer spacing of retention areas through voluntary action of the landowner is encouraged. Wildlife reserve tree and green recruitment tree retention areas may include, but are not limited to, riparian management zones, riparian leave tree areas, other regulatory leave areas, or voluntary leave areas that contain wildlife reserve trees and/or green recruitment trees.

(f) In order to provide for safety, landowners may remove any Type 3 or 4 wildlife reserve tree, which poses a threat to humans working, recreating, or residing within the hazard area of that tree. In order to provide for fire safety, the distribution of wildlife reserve tree retention areas, described in (e) of this subsection, may be modified as necessary based on a wildlife reserve tree management plan proposed by the landowner and approved by the department.

*(~~12~~13) **Channel migration zones.** No harvest, construction or salvage will be permitted within

the boundaries of a channel migration zone except for the construction and maintenance of road crossings in accordance with applicable rules and the creation and use of yarding corridors, consistent with WAC 222-24-020(6), 222-30-060 (1)~~,~~ and 222-30-045(2)~~,. and chapter 220-110 WAC (Hydraulic code rules).~~

(~~13~~14) **Bankfull width**. No harvest or construction will be permitted within the bankfull width of any Type S or F Water or any buffered length of Type Np Water, except for the construction and maintenance of road crossings in accordance with applicable rules and creation and use of yarding corridors, consistent with WAC 222-30-020 *(~~5~~6)~~ (a),~~ and 222-24-060 (1)~~,. and chapter 220-110 WAC (Hydraulic code rules).~~ No salvage may take place within the bankfull width of any typed water (see WAC 222-30-045).

WAC 222-30-021 *Western Washington riparian management zones.

These rules apply to all typed waters on forest land in Western Washington, except as provided in WAC 222-30-023. RMZs are measured horizontally from the outer edge of the bankfull width or channel migration zone, whichever is greater, and extend to the limits as described in this section. See board manual section 7 for riparian design and layout guidelines.

*(1) **Western Washington RMZs for Type S and F Waters** have three zones: The core zone is nearest to the water, the inner zone is the middle zone, and the outer zone is furthest from the water. (See definitions in WAC 222-16-010.) RMZ dimensions vary depending on the site class of the land, the management harvest option, and the bankfull width of the stream. See tables for management options 1 and 2 below.

None of the limitations on harvest in each of the three zones listed below will preclude or limit the construction and maintenance of roads for the purpose of crossing streams in WAC 222-24-030 and 222-24-050, or the creation and use of yarding corridors in WAC 222-30-060 (1).

The shade requirements in WAC 222-30-040 must be met regardless of harvest opportunities provided in the inner zone RMZ rules. See board manual section 1.

(a) **Core zones.** No timber harvest or construction is allowed in the core zone except operations related to forest roads as detailed in subsection (1) of this section. Any trees cut for or damaged by yarding corridors in the core zone must be left on the site. Any trees cut as a result of road construction to cross a stream may be removed from the site, unless used as part of a large woody debris placement strategy or as needed to reach stand requirements.

(b) **Inner zones.** Forest practices in the inner zone must be conducted in such a way as to meet or exceed stand requirements to achieve the goal in WAC 222-30-010(2). The width of the inner zone is determined by site class, bankfull width, and management option. Timber harvest in this zone must be consistent with the stand requirements in order to reach the desired future condition targets.

"Stand requirement" means a number of trees per acre, the basal area and the proportion of conifer in the combined inner zone and adjacent core zone so that the growth of the trees would meet desired future conditions. The following table defines basal area targets when the stand is one hundred forty years old.

Site Class	**Desired future condition target basal area per acre (at 140 years)**
I	325 sq. ft.

II	325 sq. ft.
III	325 sq. ft.
IV	325 sq. ft.
V	325 sq. ft.

Growth modeling is necessary to calculate whether a particular stand meets stand requirement and is on a trajectory towards these desired future condition basal area target. The appropriate growth model will be based on stand characteristics and will include at a minimum, the following components: The number of trees by diameter class, the percent of conifer and hardwood, and the age of the stand. See board manual section 7.

(i) **Hardwood conversion in the inner zone.** When the existing stands in the combined core and inner zone do not meet stand requirements, no harvest is permitted in the inner zone, except in connection with hardwood conversion.

(A) The landowner may elect to convert hardwood-dominated stands in the inner zone to conifer-dominated stands. Harvesting and replanting shall be in accordance with the following limits:

(I) Conversion activities in the **inner zone** of any harvest unit are only allowed where all of the following are present:

- Existing stands in the combined core and inner zone do not meet stand requirements (WAC 222-30-021 (1) (b));
- There are fewer than fifty-seven conifer trees per acre eight inches or larger dbh in the conversion area;
- There are fewer than one hundred conifer trees per acre larger than four inches dbh in the conversion area;
- There is evidence (such as conifer stumps, historical photos, or a conifer understory) that the conversion area can be successfully reforested with conifer and support the development of conifer stands;
- The landowner owns five hundred feet upstream and five hundred feet downstream of the harvest unit;
- The core and inner zones contain no stream adjacent parallel roads;
- Riparian areas contiguous to the proposed harvest unit are owned by the landowner proposing to conduct the conversion activities, and meet shade requirements of WAC 222-30-040 or have a seventy-five foot buffer with trees at least forty feet tall on both sides of the stream for five hundred feet upstream and five hundred feet downstream of the proposed harvest unit (or the length of the stream, if less);
- If the landowner has previously converted hardwood-dominated stands, then post-harvest treatments must have been performed to the satisfaction of the department.

(II) In addition to the conditions set forth above, permitted conversion activities in the **inner zone** of any harvest unit are limited by the following:

- Each continuous conversion area is not more than five hundred feet in length; two conversion areas will be considered "continuous" unless the

no-harvest area separating the two conversion areas is at least half the length of the larger of the two conversion areas.

- Type S and F (Type 1, 2, or 3) Water: Up to fifty percent of the inner zone area of the harvest unit on one side of the stream may be converted provided that:
  - The landowner owns the opposite side of the stream and the landowner's riparian area on the opposite bank meets the shade requirements of WAC 222-30-040 or has a seventy-five foot buffer of trees at least forty feet tall or:
  - The landowner does not own land on the opposite side of the stream but the riparian area on the opposite bank meets the shade requirements of WAC 222-30-040 or has a seventy-five foot buffer of trees at least forty feet tall.
  - Not more than twenty-five percent of the inner zone of the harvest unit on both sides of a Type S or F Water may be converted if the landowner owns both sides.

(III) Where conversion is allowed in the **inner zone**, trees within the conversion area may be harvested except that:

- Conifer trees larger than twenty inches dbh shall not be harvested;
- Not more than ten percent of the conifer stems greater than eight inches dbh, exclusive of the conifer noted above, within the conversion area may be harvested; and
- The landowner must exercise reasonable care in the conduct of harvest activities to minimize damage to all residual conifer trees within the conversion area including conifer trees less than eight inches dbh.

(IV) Following harvest in conversion areas, the landowner must:

- Reforest the conversion area with **conifer** tree species suitable to the site in accordance with the requirements of WAC 222-34-010; and
- Conduct post-harvest treatment of the site until the conifer trees necessary to meet acceptable stocking levels in WAC 222-34-010 (2) have crowns above the brush or until the conversion area contains a minimum of one hundred fifty conifer trees greater than 8 inches dbh per acre.
- Notify the department in writing within three years of the approval of the forest practices application for hardwood conversion, if the hardwood conversion has been completed.

(V) **Tracking hardwood conversion.** The purpose of tracking hardwood conversion is to determine if hardwood conversion is resulting in adequate enhancement of riparian functions toward the desired future condition while minimizing the short term impacts on functions. The department will use existing or updated data bases developed in cooperation with the Washington Hardwoods Commission to identify watershed administrative units (WAUs) with a high percentage of hardwood-dominated riparian areas and, thus have the potential for excessive hardwood conversion under these rules. The department will track the rate of conversion of hardwoods in the riparian zone: (1) Through the application process on an annual basis; and (2) at a WAU scale on a biennial basis as per WAC 222-30-120 through the adaptive

management process which will develop thresholds of impact for hardwood conversion at the watershed scale.

(ii) **Harvest options**.

(A) No inner zone management. When the existing stands in the combined core and inner zone do not meet stand requirements, no harvest is permitted in the inner zone. When no harvest is permitted in the inner zone or the landowner chooses not to enter the inner zone, the width of core, inner and outer zones are as provided in the following table:

No inner zone management RMZ widths for Western Washington

Site Class	**RMZ width**	**Core zone width** (measured from outer edge of bankfull width or outer edge of CMZ of water)	**Inner zone width** (measured from outer edge of core zone)		**Outer zone width** (measured from outer edge of inner zone)	
			stream width ≤10'	stream width >10'	stream width ≤10'	stream width >10'
I	200'	50'	83'	100'	67'	50'
II	170'	50'	63'	78'	57'	42'
III	140'	50'	43'	55'	47'	35'
IV	110'	50'	23'	33'	37'	27'
V	90'	50'	10'	18'	30'	22'

(B) Inner zone management. If trees can be harvested and removed from the inner zone because of surplus basal area consistent with the stand requirement, the harvest and removal of the trees must be undertaken consistent with one of two options:

(I) **Option 1. Thinning from below.** The objective of thinning is to distribute stand requirement trees in such a way as to shorten the time required to meet large wood, fish habitat and water quality needs. This is achieved by increasing the potential for leave trees to grow larger than they otherwise would without thinning. Thinning harvest under option 1 must comply with the following:

- Residual trees left in the combined core and inner zones must meet stand requirements necessary to be on a trajectory to desired future condition. See board manual section 7 for guidelines.
- Thinning must be from below, meaning the smallest dbh trees are selected for harvest first, then progressing to successively larger diameters.
- Thinning cannot decrease the proportion of conifer in the stand.
- Shade retention to meet the shade rule must be confirmed by the landowner for any harvest inside of seventy-five feet from the outer edge of bankfull width or outer edge of CMZ, whichever is greater.
- The number of residual conifer trees per acre in the inner zone will equal

or exceed fifty-seven.

Option 1. Thinning from below.

Site class	**RMZ width**	**Core zone width** (measured from outer edge of bankfull width or outer edge of CMZ of water)	**Inner zone width** (measured from outer edge of core zone)		**Outer zone width** (measured from outer edge of inner zone)	
			stream width ≤10'	stream width >10'	stream width ≤10'	stream width >10'
I	200'	50'	83'	100'	67'	50'
II	170'	50'	63'	78'	57'	42'
III	140'	50'	43'	55'	47'	35'
IV	110'	50'	23'	33'	37'	27'
V	90'	50'	10'	18'	30'	22'

(II) **Option 2. Leaving trees closest to the water.** Management option 2 applies only to riparian management zones for site class I, II, and III on streams that are less than or equal to ten feet wide and RMZs in site class I and II for streams greater than ten feet wide. Harvest must comply with the following:

- Harvest is not permitted within thirty feet of the core zone for streams less than or equal to ten feet wide and harvest is not permitted within fifty feet of the core zone for streams greater than ten feet wide;
- Residual leave trees in the combined core and inner zone must meet stand requirements necessary to be on a trajectory to desired future condition. See board manual section 7 for calculating stand requirements;
- A minimum of twenty conifers per acre, with a minimum twelve inch dbh, will be retained in any portion of the inner zone where even-age harvest occurs. These riparian leave trees will be counted towards meeting applicable stand requirements. The number of riparian leave trees cannot be reduced below twenty for any reason.
- Trees are selected for harvest starting from the outer most portion of the inner zone first then progressively closer to the stream.
- If (b) (ii) (B) (II) of this subsection results in surplus basal area per the stand requirement, the landowner may take credit for the surplus by harvesting additional riparian leave trees required to be left in the adjacent outer zone on a basal area-for-basal area basis. The number of leave trees in the outer zone can be reduced only to a minimum of ten trees per acre.

Option 2. Leaving trees closest to water.

Site class	RMZ width	Core zone width (measured from outer edge of bankfull width or outer edge of CMZ of water)	Inner zone width				Outer zone width (measured from outer edge of inner zone)	
			stream width ≤10'	stream width ≤10'	stream width >10'	stream width >10'	stream width ≤10'	stream width >10'
				minimum floor distance		minimum floor distance		
			(measured from outer edge of core zone)	(measured from outer edge of core zone)	(measured from outer edge of core zone)	(measured from outer edge of core zone)		
I	200'	50'	84'	30'	84'	50'	66'	66'
II	170'	50'	64'	30'	70'	50'	56'	50'
III	140'	50'	44'	30'	**	**	46'	**

**Option 2 for site class III on streams >10' is not permitted because of the minimum floor (100') constraint.

(iii) **Where the basal area components of the stand requirement cannot be met** within the sum of the areas in the inner and core zone due to the presence of a stream-adjacent parallel road in the inner or core zone, a determination must be made of the approximate basal area that would have been present in the inner and core zones if the road was not occupying space in the core or inner zone and the shortfall in the basal area component of the stand requirement. See definition of "stream-adjacent parallel road" in WAC 222-16-010.

(A) Trees containing basal area equal to the amount determined in (b) (iii) of this subsection will be left elsewhere in the inner or outer zone, or if the zones contain insufficient riparian leave trees, substitute riparian leave trees will be left within the RMZ width of other Type S or F Waters in the same unit or along Type Np or Ns Waters in the same unit in addition to all other RMZ requirements on those same Type S, F, Np or Ns Waters.

(B) When the stream-adjacent road basal area calculated in (b) (iii) of this subsection results in an excess in basal area (above stand requirement) then the landowner may receive credit for such excess which can be applied on a basal area-by-basal area basis against the landowner's obligation to leave trees in the outer zone of the RMZ of such stream or other waters within the same unit, provided that the number of trees per acre in the outer zone is not reduced to less than ten trees per acre.

(C) When the basal area requirement cannot be met, as explained in (b) (iii) of this subsection, the shortfall may be reduced through the implementation of

an acceptable large woody debris placement plan. See board manual section 26 for guidelines.

(iv) If a harvest operation includes both yarding and harvest activities within the RMZ, all calculations of basal area for stand requirements will be determined as if the yarding corridors were constructed prior to any other harvest activities. If trees cut or damaged by yarding are taken from excess basal area, these trees may be removed from the inner zone. Trees cut or damaged by yarding in a unit which does not meet the basal area target of the stand requirements cannot be removed from the inner zone. Any trees cut or damaged by yarding in the core zone may not be removed.

(c) **Outer zones.** Timber harvest in the outer zone must leave twenty riparian leave trees per acre after harvest. **"Outer zone riparian leave trees"** are trees that must be left after harvest in the outer zone in ~~Western~~ western Washington. Riparian leave trees must be left uncut throughout all future harvests:

Outer zone riparian leave tree requirements

Application	**Leave tree spacing**	**Tree species**	**Minimum dbh required**
Outer zone	Dispersed	Conifer	12" dbh or greater
Outer zone	Clumped	Conifer	12" dbh or greater
Protection of sensitive Features	Clumped	Trees representative of the overstory including both hardwood and conifer	8" dbh or greater

The twenty riparian leave trees to be left can be reduced in number under the circumstances delineated in (c)(iv) of this subsection. The riparian leave trees must be left on the landscape according to one of the following two strategies. A third strategy is available to landowners who agree to a LWD placement plan.

(i) **Dispersal strategy.** Riparian leave trees, which means conifer species with a diameter measured at breast height (dbh) of twelve inches or greater, must be left dispersed approximately evenly throughout the outer zone. If riparian leave trees of twelve inches dbh or greater are not available, then the next largest conifers must be left. If conifers are not present, riparian leave trees must be left according to the clumping strategy in ~~subsection~~ (c) (ii) ~~below~~of this subsection.

(ii) **Clumping strategy.** Riparian leave trees must be left clumped in the following way:

(A) Clump trees in or around one or more of the following **sensitive features** to the extent available within the outer zone. When clumping around sensitive features, riparian leave trees must be eight inches dbh or greater and representative of the overstory canopy trees in or around the sensitive feature and may include both hardwood and conifer species. Sensitive features are:

(I) Seeps and springs;

(II) Forested wetlands;

(III) Topographic locations (and orientation) from which leave trees currently on the site will be delivered to the water;

(IV) Areas where riparian leave trees may provide windthrow protection;

(V) Small unstable, or potentially unstable, slopes not of sufficient area to be

detected by other site evaluations. See WAC 222-16-050 (1) (d).

(VI) Archaeological sites or historic archaeological resources as defined in RCW 27.53.030;

(VII) Historic sites eligible for listing on the National Register of Historic Places or the Washington Heritage Register as determined by the Washington state department of archaeology and historic preservation. See WAC 222-16-050 (1)(f); or

(VIII) Sites containing evidence of Native American cairns, graves or glyptic records as provided for in chapters 27.44 and 27.53 RCW. See WAC 222-16-050 (1) (f).

(B) If sensitive features are not present, then clumps must be well distributed throughout the outer zone and the leave trees must be of conifer species with a dbh of twelve inches or greater. When placing clumps, the applicant will consider operational and biological concerns. Tree counts must be satisfied regardless of the presence of stream-adjacent parallel roads in the outer zone.

(iii) **Large woody debris in-channel placement strategy.**

(A) ~~A~~In order to reduce the number of required outer zone leave trees, a landowner may design a LWD placement plan ~~in cooperation with the department of fish and wildlife~~for department approval prior to submitting a forest practices application. The plan must be consistent with guidelines in board manual sections 5 and 26. ~~The landowner may reduce the number of trees required to be left in the outer zone to the extent provided in the approved LWD placement plan.~~ Landowners are encouraged to consult with the department and the department of fish and wildlife while designing the plan and prior to submitting a forest practices application.

(B) Reduction of trees in the outer zone must not go below a minimum of ten trees per acre.

(C) If this strategy is chosen, the approved plan must be included in a complete forest practices application ~~must include a copy of the WDFW approved hydraulics project approval (HPA) permit~~.

(iv) **Twenty riparian leave trees must be left after harvest** with the exception of the following:

(A) If a landowner agrees to implement a placement strategy, see (iii) of this subsection.

(B) If trees are left in an associated channel migration zone, the landowner may reduce the number of trees required to be left according to the following:

(I) Offsets will be measured on a basal area-for-basal area basis.

(II) Conifer in a CMZ equal to or greater than six inches dbh will offset conifer in the outer zone at a one-to-one ratio.

(III) Hardwood in a CMZ equal to or greater than ten inches dbh will offset hardwood in the outer zone at a one-to-one ratio.

(IV) Hardwood in a CMZ equal to or greater than ten inches dbh will offset conifer in the outer zone at a three-to-one ratio.

*(2) **Western Washington protection for Type Np and Ns Waters.**

(a) An **equipment limitation zone** is a thirty foot wide zone measured horizontally from the outer edge of the bankfull width of a Type Np or Ns Water where equipment use and other forest practices that are specifically limited by these rules. It applies to all perennial and

seasonal streams.

(i) On-site mitigation is required if any of the following activities exposes the soil on more than ten percent of the surface area of the zone:

(A) Ground based equipment;

(B) Skid trails;

(C) Stream crossings (other than existing roads); or

(D) Cabled logs that are partially suspended.

(ii) Mitigation must be designed to replace the equivalent of lost functions especially prevention of sediment delivery. Examples include water bars, grass seeding, mulching, etc.

(iii) Nothing in this subsection (2) reduces or eliminates the department's authority to prevent actual or potential material damage to public resources under WAC 222-46-030 or 222-46-040 or any related authority to condition forest practices notifications or applications.

(b) **Sensitive site and RMZs protection along Type Np Waters.** Forest practices must be conducted to protect Type Np RMZs and sensitive sites as detailed below:

(i) A fifty foot, no-harvest buffer, measured horizontally from the outer edge of bankfull width, will be established along each side of the Type Np Water as follows:

Required no-harvest, 50-foot buffers on Type Np Waters.

Length of Type Np Water from the confluence of Type S or F Water	**Length of 50' buffer required on Type Np Water (starting at the confluence of the Type Np and connecting water)**
Greater than 1000'	500'
Greater than 300' but less than 1000'	Distance of the greater of 300' or 50% of the entire length of the Type Np Water
Less than or equal to 300'	The entire length of Type Np Water

(ii) No timber harvest is permitted in an area within fifty feet of the outer perimeter of a soil zone perennially saturated from a headwall seep.

(iii) No timber harvest is permitted in an area within fifty feet of the outer perimeter of a soil zone perennially saturated from a side-slope seep.

(iv) No timber harvest is permitted within a fifty-six foot radius buffer patch centered on the point of intersection of two or more Type Np Waters.

(v) No timber harvest is permitted within a fifty-six foot radius buffer patch centered on a headwater spring or, in the absence of a headwater spring, on a point at the upper most extent of a Type Np Water as defined in WAC 222-16-030 (3) and 222-16-031.

(vi) No timber harvest is permitted within an alluvial fan.

(vii) At least fifty percent of a Type Np Waters' length must be protected by buffers on both sides of the stream (2-sided buffers). Buffered segments must be a minimum of one hundred feet in length. If an operating area is located more than five hundred feet upstream from the confluence of a Type S or F Water and the Type Np Water is more than one thousand feet in length, then buffer the Type Np Water according to the following table. If the percentage is not met by protecting sensitive sites listed

in (b)(i) through (vii) of this subsection, then additional buffers are required on the Type Np Water to meet the requirements listed in the table.

Minimum percent of length of Type Np Waters to be buffered when more than 500 feet upstream from the confluence of a Type S or F Water

Total length of a Type Np Water upstream from the confluence of a Type S or F Water	**Percent of length of Type Np Water that must be protected with a 50 foot no harvest buffer more than 500 feet upstream from the confluence of a Type S or F Water**
1000 feet or less	refer to table in this subsection (i) above
1001 - 1300 feet	19%
1301 - 1600 feet	27%
1601 - 2000 feet	33%
2001 - 2500 feet	38%
2501 - 3500 feet	42%
3501 - 5000 feet	44%
Greater than 5000 feet	45%

The landowner must select the necessary priority areas for additional two-sided buffers according to the following priorities:

(A) Low gradient areas;

(B) Perennial water reaches of nonsedimentary rock with gradients greater than twenty percent in the tailed frog habitat range;

(C) Hyporheic and ground water influence zones; and

(D) Areas downstream from other buffered areas.

Except for the construction and maintenance of road crossings and the creation and use of yarding corridors, no timber harvest will be allowed in the designated priority areas. Landowners must leave additional acres equal to the number of acres (including partial acres) occupied by an existing stream-adjacent parallel road within a designated priority area buffer.

(c) None of the limitations on harvest in or around Type Np Water RMZs or sensitive sites listed in (b) of this subsection will preclude or limit:

(i) The construction and maintenance of roads for the purpose of crossing streams in WAC 222-24-030 and 222-24-050.

(ii) The creation and use of yarding corridors in WAC 222-30-060(1).

To the extent reasonably practical, the operation will both avoid creating yarding corridors or road crossings through Type Np Water RMZ or sensitive sites and associated buffers, and avoid management activities which would result in soil compaction, the loss of protective vegetation or sedimentation in perennially moist areas.

Where yarding corridors or road crossings through Type Np Water RMZs or sensitive sites and their buffers cannot reasonably be avoided, the buffer area must be expanded

to protect the sensitive site by an area equivalent to the disturbed area or by providing comparable functions through other management initiated efforts.

Landowners must leave additional acres equal to the number of acres (including partial acres) occupied by an existing stream-adjacent parallel road within a Type Np Water RMZs or sensitive site buffer.

WAC 222-30-022 *Eastern Washington riparian management zones.

For eastside forests, riparian management is intended to provide stand conditions that vary over time. It is designed to mimic eastside disturbance regimes within a range that meets functional conditions and maintains general forest health. These desired future conditions are a reference point on the pathway to restoration of riparian functions, not an end point of riparian stand development. These rules apply to all typed waters on forest land in Eastern Washington, except as provided in WAC 222-30-023. RMZs are measured horizontally from the outer edge of the bankfull width or channel migration zone, whichever is greater, and extend to the limits as described in the following section.

Eastern Washington RMZ for streams with bankfull width of less than or equal to 15 feet wide

Site Class	**Total RMZ Width**	**Core Zone Width** From outer edge of bankfull width or outer edge of CMZ, whichever is greater	**Inner Zone Width**	**Outer Zone Width**
I	130'	30'	45'	55'
II	110'	30'	45'	35'
III	90'	30'	45'	15'
IV	75'	30'	45'	0'
V	75'	30'	45'	0'

Eastern Washington RMZ for streams with bankfull width of greater than 15 feet wide

Site Class	**Total RMZ Width**	**Core Zone Width** From outer edge of bankfull width or outer edge of CMZ, whichever is greater	**Inner Zone Width**	**Outer Zone Width**
I	130'	30'	70'	30'
II	110'	30'	70'	10'
III	100'	30'	70'	0'
IV	100'	30'	70'	0'

V	100'	30'	70'	0'

*(1) **Eastern Washington RMZs on Type S and F Waters** have three zones: The core zone is nearest to the edge of the bankfull width or outer edge of the CMZ, whichever is greater. The inner zone is the middle zone, and the outer zone is furthest from the water. Permitted forest practices vary by timber habitat type and site class.

None of the limitations on harvest in each of the three zones listed below will preclude or limit the construction and maintenance of roads for the purpose of crossing streams in accordance with WAC 222-24-030 and 222-24-050, or the creation and use of yarding corridors in accordance with WAC 222-30-060 (1).

The shade requirements in WAC 222-30-040 must be met regardless of harvest opportunities provided in the inner zone RMZ rules. See ~~the~~ board manual~~,~~ section 1.

(a) **Core zones.** The core zone extends ~~30~~ thirty feet measured horizontally from the edge of the bankfull width or outer edge of the CMZ, whichever is greater, for all timber habitat types. No harvest or construction is allowed in the core zone except as detailed in subsection (1) of this section. Any trees cut for or damaged by yarding corridors must be left on site. Any trees cut as a result of road construction to cross a stream may be removed from the site unless used as part of a large woody debris replacement strategy.

(b) **Inner zones.** Width and leave tree requirements of the inner zone vary by timber habitat type as outlined below.

(i) **Ponderosa pine timber habitat type.**

(A) The width of the inner zone is ~~70~~ seventy feet measured horizontally from the outer edge of the core zone on streams greater than ~~15~~ fifteen feet bankfull width or ~~45~~ forty-five feet measured horizontally from the outer edge of the core zone on streams with a bankfull width of ~~15~~ fifteen feet or less.

(B) No harvest is allowed in the inner zone except as described in (b) (i) (C) or (D) of this subsection, and as allowed for stream crossings and yarding corridors as described ~~above~~ in this subsection (1).

(C) **Stands with a high basal area:** Harvest is permitted in the inner zone if the basal area in the inner zone is greater than ~~110~~ one hundred ten square feet per acre for conifer and hardwood trees equal to or greater than ~~6~~ six inches dbh. The harvest must leave at least ~~50~~ fifty trees per acre AND subject to (b) (i) (C) (III) of this subsection, a minimum leave tree basal area of at least ~~60~~ sixty square feet per acre. The trees to be left shall be selected as follows:

(I) The ~~21~~ twenty-one largest trees per acre must be left; and

(II) An additional ~~29~~ twenty-nine trees per acre that are ~~10~~ten-inch dbh or greater must be left. If there are less than ~~29~~ twenty-nine ~~10~~ten-inch dbh or greater trees per acre, leave the ~~29~~ twenty-nine largest trees. If there are more than ~~29~~ twenty-nine ~~10~~ten-inch dbh or greater trees per acre, leave ~~29~~ twenty-nine ~~10~~ten-inch dbh or greater trees per acre based on the following priority order:

- Trees that provide shade to water;
- Trees that lean towards the water;
- Trees of the preferred species, as defined in WAC 222-16-010;
- Trees that are evenly distributed across the inner zone.

(III) If more than ~~50~~ fifty trees per acre are needed to meet the minimum leave tree basal area of ~~60~~ sixty square feet per acre, then additional trees greater

than ~~6~~six-inch dbh must be left. If the minimum basal area cannot be met with fewer than ~~100~~ one hundred trees of at least ~~6~~ six inches dbh, then no more than ~~100~~ one hundred trees per acre of the largest remaining trees will be required to be left regardless of the basal area.

(D) **Stands with low basal areas and high density:** Thinning is permitted if the basal area of all species is less than ~~60~~ sixty square feet per acre AND there are more than ~~100~~ one hundred trees per acre. The thinning must leave a minimum of ~~100~~ one hundred trees per acre. The trees to be left must be selected as follows:

(I) The ~~50~~ fifty largest trees per acre must be left; and

(II) An additional ~~50~~ fifty trees per acre that are greater than ~~6~~ six inches dbh must be left. If there are not ~~50~~ fifty ~~6~~six-inch dbh or greater trees per acre, then all ~~6~~six-inch dbh or greater trees per acre must be left plus the largest remaining trees to equal ~~50~~ fifty trees per acre. Select the additional ~~50~~ fifty trees based on the following priority order:

- Trees that provide shade to water;
- Trees that lean towards the water;
- Trees of the preferred species, as defined in WAC 222-16-010;
- Trees that are evenly distributed across the inner zone.

(E) To the extent down wood is available on site prior to harvest, at least twelve tons of down wood per acre must be left following harvest as follows:

(I) Six pieces greater than ~~16~~ sixteen inches diameter and ~~20~~ twenty feet in length; and

(II) Four pieces greater than ~~6~~six inches in diameter and ~~20~~ twenty feet in length.

(III) Landowner/operator is not required to create down wood.

(F) See **stream-adjacent parallel roads for all timber habitat types** in (iv) of this subsection if there is a stream-adjacent parallel road in this zone.

(ii) **Mixed conifer timber habitat type.**

(A) The width of the inner zone is ~~70~~ seventy feet measured horizontally from the outer edge of the core zone on streams greater than ~~15~~ fifteen feet bankfull width or ~~45~~ forty-five feet measured horizontally from the outer edge of the core zone on streams with a bankfull width of ~~15~~ fifteen feet or less.

(B) No harvest is allowed in the inner zone except as described in (b) (ii) (C) or (D) of this subsection, and as allowed for stream crossings and yarding corridors as described above in subsection (1).

(C) **Stands with a high basal area:**

(I) Harvest is permitted in the inner zone if the combined conifer and hardwood basal area for trees greater than ~~6~~ six inches dbh is:

- Greater than ~~110~~ one hundred ten square feet per acre on low site indexes (site index less than ~~90~~ninty); or
- Greater than ~~130~~ one hundred thirty square feet per acre on medium site indexes (site index between ~~90~~ ninty and ~~110~~one hundred ten); or
- Greater than ~~150~~ one hundred fity square feet per acre on high site indexes (site index greater than ~~110~~one hundred ten).

(II) The harvest must leave at least ~~50~~ fifty trees per acre AND a minimum leave tree basal area of at least:

- ~~70~~ seventy square feet per acre on low site indexes; or
- ~~90~~ ninty square feet per acre on medium site indexes; or

- ~~110~~ one hundred ten square feet per acre on high site indexes.

(III) The trees to be left shall be selected as follows:

- The ~~21~~ twenty-one largest trees per acre must be left; and
- An additional ~~29~~ twenty-nine trees per acre that are ~~10~~ten-inch dbh or greater must be left. If there are less than ~~29~~ twenty-nine ~~10~~ten-inch dbh or greater trees per acre, leave the ~~29~~ twenty-nine largest trees. If there are more than ~~29~~ twenty-nine ~~10~~ten-inch dbh or greater trees per acre, leave ~~29~~ twenty-nine ~~10~~ten-inch dbh trees per acre based on the following priority order:
  - Trees that provide shade to water;
  - Trees that lean towards the water;
  - Trees of the preferred species, as defined in WAC 222-16-010; or
  - Trees that are evenly distributed across the inner zone.
- If more than ~~50~~ fifty trees per acre are needed to meet the minimum leave tree basal area for the site index in (b) (ii) (C) (II) of this subsection, then additional trees greater than ~~6~~ six inches dbh must be left. If the minimum basal area cannot be met with fewer than ~~100~~ one hunderd trees at least ~~6~~ six inches dbh, then no more than ~~100~~ one hundred trees per acre of the largest remaining trees will be required to be left regardless of the basal area.

(D) **Stands with low basal areas and high density:** Thinning is permitted if the basal area of all species is less than the minimum requirements for the site index in (b)(ii)(C)(II) of this subsection AND there are more than ~~120~~ one hundred twenty trees per acre. The thinning must leave a minimum of ~~120~~ one hundred twenty trees per acre. The trees to be left shall be selected as follows:

(I) The ~~50~~ fifty largest trees per acre must be left; and

(II) An additional ~~70~~ seventy trees per acre greater than ~~6~~ six inches dbh must be left. If there are not ~~70~~ seventy ~~6~~six-inch dbh or greater trees per acre, then all ~~6~~six-inch dbh or greater trees per acre must be left plus the largest remaining trees to equal ~~70~~ seventy trees per acre. Select the additional ~~70~~ seventy trees based on the following priority order:

- Trees that provide shade to water;
- Trees that lean towards the water;
- Trees of the preferred species, as defined in WAC 222-16-010; or
- Trees that are evenly distributed across the inner zone.

(E) To the extent down wood is available on site prior to harvest, ~~20~~ twenty tons of down wood per acre is required to be left following harvest as follows:

(I) ~~8~~ Eight pieces greater than ~~16~~ sixteen inches diameter and ~~20~~ twenty feet in length; and

(II) ~~8~~ Eight pieces greater than ~~6~~ six inches in diameter and ~~20~~ twenty feet in length.

(III) Landowner/operator is not required to create down wood.

(F) **See stream-adjacent parallel roads for all timber habitat types** in (b) (iv) of this subsection if there is a parallel road in this zone.

(iii) **High elevation timber habitat type.**

(A) The width of the inner zone is ~~45~~ forty-five feet measured horizontally from the outer edge of the core zone on streams equal to or less than ~~15~~ fifteen feet

bankfull width or ~~70~~ seventy feet measured horizontally from the outer edge of the core zone on streams with a bankfull width of greater than ~~15~~ fifteen feet.

(B) Follow stand requirements for Western Washington riparian management zones, WAC 222-30-021 (1)(b).

Note: Option 2 is not permitted for eastside use, because of the minimum floor (~~100'~~one hundred feet) constraint

(C) To the extent down wood is available prior to harvest, ~~30~~ thirty tons per acre of down wood per acre must be left following harvest as follows:

(I) ~~8~~ Eight pieces greater than ~~16~~ sixteen inches diameter and ~~20~~ twenty feet in length; and

(II) ~~8~~ Eight pieces greater than ~~6~~ six inches in diameter and ~~20~~ twenty feet in length.

(III) Landowner/operator is not required to create down wood.

(D) See **stream-adjacent parallel roads for all timber habitat types** in (b) (iv) of this subsection if there is a parallel road in this zone.

(iv) **Stream-adjacent parallel roads for all timber habitat types in the inner zone.** The shade rule, WAC 222-30-040, must be met whether or not the inner zone includes a stream-adjacent parallel road. Where a stream-adjacent parallel road exists in the inner zone and the minimum required basal area cannot be met due to the presence of the road, then the location of the road determines the allowable operations as follows:

(A) For streams with a bankfull width that is greater than ~~15~~ fifteen feet:

(I) If the edge of the road closest to the stream is ~~75~~ seventy-five feet or more from the outer edge of bankfull width of the stream or outer edge of CMZ, whichever is greater, **no harvest is permitted in the inner zone.** This includes trees within the inner zone on the uphill side of the road.

(II) No harvest is permitted within the inner zone on the streamside of the road. If the edge of the road closest to the stream is less than ~~75~~ seventy-five feet from the outer edge of bankfull width of the stream or outer edge of CMZ, whichever is greater then:

- Additional leave trees equal in total basal area to the trees lost due to the road must be left near the streams in or adjacent to the unit to be harvested; (See ~~the~~ board manual section 7.)
- Where the additional leave trees providing fish habitat for water quality function are determined to be not available or not practical by the department, landowners and operators will employ site specific management activities to replace lost riparian functions that may include placement of large woody debris in streams. (See ~~the~~ board manual section 7.)

(B) For streams with a bankfull width less than ~~15~~ fifteen feet:

(I) If the edge of the road closest to the stream is ~~50~~ fifty feet or more from the outer edge of bankfull width or outer edge of CMZ, whichever is greater, no harvest is permitted in the inner zone. This includes trees within the inner zone on the uphill side of the road.

(II) No harvest is permitted within the inner zone on the stream side of the road. If the edge of the road closest to the stream is less than ~~50~~ fifty feet from the

bankfull width or CMZ, whichever is greater then:

- Additional leave trees equal in total basal area to the trees lost due to the road must be left near the streams in or adjacent to the unit to be harvested. (See ~~the~~ board manual section 7.)
- Where the additional leave trees providing fish habitat for water quality function are determined to be not available or not practical by the department, landowners and operators will employ site specific management activities to replace lost riparian functions that may include placement of large woody debris in streams. (See ~~the~~ board manual section 7.)

(C) **Wildlife reserve trees.** Leave all wildlife reserve trees within the inner zone of the riparian management zone where operations in the vicinity do not violate the safety regulations (chapter 296-54 WAC and chapter ~~49-17~~49.17 RCW administered by the department of labor and industries, safety division). Live wildlife reserve trees will contribute to the basal area requirements for inner zone leave trees and to leave tree counts if they are among the ~~21~~ twenty-one largest trees per acre; or meet the requirement of an additional ~~29~~ twenty-nine leave trees per acre as per (b) (ii) (E) ~~above~~of this subsection.

(c) **Outer zones.** This zone has three categories based on timber habitat type: Ponderosa pine, mixed conifer and high elevation. The width of this zone is ~~0~~ zero to ~~55~~ fifty-five feet measured horizontally from the outer edge of the inner zone depending on the site class and stream width. (See WAC 222-16-010 definition of "RMZ outer zone.")

(i) Tree counts that must be left per acre, regardless of the presence of an existing stream-adjacent parallel road in the zone, are:

(A) Ponderosa pine habitat type - ~~10~~ ten dominant or codominant trees.

(B) Mixed conifer habitat type - ~~15~~ fifteen dominant or codominant trees.

(C) High elevation habitat type - See requirements for Western Washington RMZs in WAC 222-30-021 (1)(c).

(ii) Outer zone leave tree requirements in ~~section (i) above~~ (c) (i) of this subsection may be reduced to ~~5~~ five trees per acre in the ponderosa pine zone, ~~8~~ eight trees per acre in the mixed forest habitat type and ~~10~~ ten trees per acre in the high elevation habitat type, if the landowner voluntarily implements an LWD placement plan consistent with board manual sections 5 and 26. Landowners are encouraged to consult with the department and the department of fish and wildlife while designing the plan and prior to submitting a forest practices application. If this strategy is chosen, the approved plan must be included in a complete forest practices application ~~must include a copy of the WDFW-approved hydraulics project approval (HPA) permit~~.

*(2) **Eastern Washington protection along Type Np and Ns Waters.**

(a) An **equipment limitation zone** is a ~~30~~thirty-foot wide zone measured horizontally from the outer edge of bankfull width of a Type Np or Ns Water where equipment is limited. It applies to all perennial and seasonal streams.

(i) On-site mitigation is required if any of the following activities exposes the soil more than ~~10%~~ten percent of the surface area of the zone:

(A) Ground based equipment;

(B) Skid trails;

(C) Stream crossings (other than existing roads); or

(D) Cabled logs that are partially suspended.

(ii) Mitigation must be designed to replace the equivalent of lost functions, especially prevention of sediment delivery. Examples include water bars, grass seeding, mulching, etc.

(iii) Nothing in this subsection ~~(2)~~ reduces or eliminates the department's authority to prevent actual or potential material damage to public resources under WAC 222-46-030 or 222-46-040 or any related authority to condition forest practices notifications or applications.

(b) **Type Np Waters.**

Within ~~50~~ fifty horizontal feet of the outer edge of bankfull width of the stream, the landowner must identify either a partial cut and/or clearcut strategy for each unit to be harvested:

Once approved by the department, the selected strategy will remain in effect until July 1, 2051. If a landowner transfers title of the harvest unit, the landowner must provide written notice of this continuing obligation to the new owner and send a copy to the department. See WAC 222-20-055.

(i) **For partial cuts:**

(A) Basal areas requirements are the same as those specified for the timber habitat type in the Eastern Washington RMZ inner zone.

(B) Where a stream-adjacent parallel road exists, the basal area required in (b) (i) (A) of this subsection is required to be left. (See stream-adjacent parallel roads for Type Np Waters in (c) ~~below~~of this subsection.)

(C) The trees to be included in the basal area determination and left after harvest must include:

(I) The ~~10~~ ten largest trees per acre;

(II) Up to an additional ~~40~~ forty trees per acre greater than or equal to ~~10~~ ten inches dbh must be left. If all or some of the trees are not at least ~~10~~ ten inches dbh, then the largest of the remaining trees must be left. Select trees based on the following priority order:

- Provide streambank stability;
- Provide shade to water;
- Lean towards the water;
- Preferred species, as defined in WAC 222-16-010; or
- Evenly distributed; and

If the basal area target has not been met with the trees required above, up to an additional ~~50~~ fifty trees are required greater than ~~6~~ six inches in dbh based on the above priority order.

(D) Side slope seeps must be protected with a ~~50~~fifty-foot partial cut buffer that meets the basal area and leave tree requirements of (b) (i) (A), (B), and (C) ~~above~~of this subsection. The buffer shall be measured from the outer perimeter of the perennially saturated soil zone.

(ii) **For clearcuts:**

When the clearcut strategy in this subsection is selected, the landowner must simultaneously designate a ~~2~~two-sided no-harvest ~~50~~fifty-foot buffer along the stream reach in the harvest unit that:

(A) Is equal in total length to the clearcut portion of the stream reach in the harvest unit; and

(B) Meets the upper end of basal area requirements for each respective timber habitat

type in the Eastern Washington RMZ inner zone. See WAC 222-30-022 (1) (b) (i), (ii) or (iii).

(C) The streamside boundary of all clearcuts must:

(I) Not exceed in total ~~30%~~thirty percent of the length of the stream reach in the harvest unit;

(II) Not exceed ~~300~~ three hundred continuous feet in length;

(III) Not be located within ~~500~~ five hundred feet of the intersection of a Type S or F Water; and

(IV) Not occur within ~~50~~ fifty feet of the following sensitive sites as defined in WAC 222-16-010:

- The outer perimeter of a soil zone perennially saturated from a headwall seep;
- The outer perimeter of a soil zone perennially saturated from a side-slope seep;
- The center of a headwater spring;
- An alluvial fan;
- The center point of intersection of two or more Type Np Waters.

(c) **Stream-adjacent parallel roads for Type Np Waters.** If a road exists in a Type Np RMZ and the basal area required to be left cannot be met within ~~50~~ fifty feet of the outer edge of bankfull width of the stream measured horizontally due to the presence of the road, then the distance of the road to the stream determines the allowable operations as follows:

(i) A road that is within ~~30~~ thirty to ~~49~~ forty-nine feet measured horizontally from the outer edge of bankfull width of the stream requires:

(A) A total of ~~100~~ one hundred feet of riparian management zone measured horizontally (both sides of the stream count towards the total) must be left in a manner to provide maximum functions for nonfish use streams. If harvest is taking place on only one side of the stream, then ~~50~~ fifty feet of RMZ width must be left, regardless of presence of a stream-adjacent parallel road. The width of the road is not counted as part of the total width of the RMZ.

(B) The location of the riparian management zone required in (A) of this subsection shall be based on the following priority order:

(I) Preferred: The area between the stream and the stream side edge of the road.

(II) The area that provides the most shade to the channel.

(III) The area that is most likely to deliver large woody debris to the channel.

(ii) A road that is within less than ~~30~~ thirty feet from the outer edge of bankfull width of the stream measured horizontally requires, in addition to (c)(i)(A) and (B) of this subsection, that all trees between the stream and the streamside edge of the road must be left.

WAC 222-30-050 Felling and bucking.

*(1) **Felling along water**.

(a) ~~No~~ Except when removing or repositioning large woody debris per WAC 222-30-062, no trees will be felled into or removed from Type S and F Waters RMZ core zones, sensitive sites, or Type A or B Wetlands except trees which cannot practically and safely be felled outside these areas using techniques in general use. Such felling and removing in Type S or F Waters shall comply with the ~~hydraulic project approval of the department of fish and~~

~~wildlife.~~mitigation measures necessary to achieve no-net-loss of productive capacity of fish and shellfish habitat as follows:

(i) Trees shall not be felled into or across the stream except where approved by the department.

(ii) Trees or logs that enter a stream during felling shall remain where they enter unless parts or all of the trees or logs are specifically approved by the department.

(iii) If limbs or other small debris enter the stream as a result of felling, they shall be removed concurrently with each change in yarding road or within seventy-two hours after entry into the stream and placed outside the 100-year flood plain. Limbs or other small debris shall be removed from dry streams prior to the normal onset of high flows. Large woody material which was in place prior to felling shall not be disturbed.

(iv) Precautions shall be taken to minimize the release of sediment to waters downstream from the felling activity. See board manual section 5 for technical guidance.

(b) Within RMZ inner and outer zones, and wetland management zones, fell trees favorable to the lead consistent with safety standards to yard or skid away from the waters. The use of directional felling, lining, jacking and staged felling techniques are required.

(c) Trees may be felled into Type Np Water if logs are removed as soon thereafter as practical. See forest practices board manual section 4 guidelines for clearing slash and debris from Type Np and Ns Water.

*(2) **Bucking or limbing along water**.

No bucking or limbing shall be done on trees or portions thereof lying within the bankfull width of Type S, F or Np Waters, in the RMZ core zones, in sensitive sites, or in open water areas of Type A Wetlands, except as necessary to remove the timber from the water, or unless it is part of a proposal to remove or reposition large woody debris per WAC 222-30-062. Such bucking or limbing in Type S or F Waters shall comply with the ~~hydraulic project approval of the department of fish and wildlife~~ mitigation measures in (1)(a) of this section.

*(3) **Felling near riparian management zones, wetland management zones and setting boundaries.** Reasonable care shall be taken to avoid felling trees into riparian management zones, wetland management zones and areas outside the harvest unit.

(4) **Felling in selective and partial cuts.** Reasonable care shall be taken to fell trees in directions that minimize damage to residual trees.

(5) **Disturbance avoidance for northern spotted owls**. Felling and bucking within a SOSEA boundary shall not be allowed within 0.25 mile of a northern spotted owl site center between March 1st and August 31st provided that, this restriction shall not apply if:

(a) The landowner demonstrates that the owls are not actively nesting during the current nesting season; or

(b) The forest practice is operating in compliance with a plan or agreement developed for the protection of the northern spotted owl under WAC 222-16-080 (6) (a), (e), or (f).

(6) **Disturbance avoidance for marbled murrelets.** Felling and bucking shall not be allowed within 0.25 mile of an occupied marbled murrelet site during the daily peak activity periods within the critical nesting season, provided that, this restriction shall not apply if the forest practice is operating in compliance with a plan or agreement developed for the protection of the marbled murrelet under WAC 222-16-080 (6) (a) or (c).

WAC 222-30-060 Cable yarding.

*(1) **Type S and F Waters and sensitive sites.** No timber shall be cable yarded in or across Type

S or F Waters except where the logs will not materially damage the bed of waters, banks of sensitive sites, or riparian management zones. If yarding across Type S or F Waters is permitted, then yarding is limited to cable or other aerial logging methods. Any work in or above Type S or F Waters requires ~~a hydraulics project approval (HPA)~~ an approved forest practices application. Logs must be fully suspended above the water unless otherwise allowed in the applicable ~~HPA~~forest practices application. Yarding corridors must be no wider or more numerous than necessary to accommodate safe and efficient transport of logs. Generally, yarding corridors should be located no closer to each other than ~~150~~ one hundred fifty feet (measured edge to edge) and should be no wider than ~~30~~ thirty feet. Safety is a prime consideration in the location of yarding corridors. Total openings resulting from yarding corridors must not exceed ~~20%~~twenty percent of the stream length associated with the forest practices application. When changing cable locations, care must be taken to move cables around or clear of the riparian vegetation to avoid damage to riparian vegetation.

*(2) **Type A or B Wetlands.** No timber shall be cable yarded in or across Type A or B Wetlands without ~~written approval from the department and may require a hydraulic project approval from the department of fish and wildlife~~an approved forest practices application.

*(3) **Deadfalls.** Logs which are firmly embedded in the bed or bank of Type S or F Waters shall not be removed or disturbed without ~~hydraulic project approval from the department of fish and wildlife~~ an approved forest practices application.

*(4) **Yarding in riparian management zones, sensitive sites, and wetland management zones.** Where timber is yarded from or across a riparian management zone, sensitive site, or wetland management zone reasonable care shall be taken to minimize damage to the vegetation providing shade to the stream or open water areas and to minimize disturbance to understory vegetation, stumps and root systems. Where practical and consistent with good safety practices, logs shall be yarded in the direction in which they lie and away from Type A or B Wetlands or Type S, F or Np Waters until clear of the wetland management zone or riparian management zone.

*(5) **Trees or logs that enter a stream during yarding** shall remain where they enter unless parts or all of the trees or logs are specifically authorized to be removed in an approved forest practices application.

*(6) **Logs transported across Type S, F, or flowing waters** shall be suspended so no portion of the logs or limbs can enter the watercourse or damage the bed and banks.

*(7) **Yarding corridors or full suspension** shall be required to prevent damage to riparian vegetation.

*(8) **If limbs or other small debris enter the stream** as a result of yarding of timber, they shall be removed concurrently with each change in yarding road or within seventy-two hours after entry into the stream, and placed outside the 100-year flood plain. Limbs or other small debris shall be removed from dry streams prior to the normal onset of high flows. Large woody material which was in place prior to yarding of timber shall not be disturbed.

*(9) **Precautions shall be taken to minimize the release of sediment** to waters downstream from the yarding activity. See board manual section 5 for technical guidance.

(~~5~~10) **Direction of yarding.**

(a) Uphill yarding is preferred.

(b) Where downhill yarding is used, reasonable care shall be taken to lift the leading end of the log to minimize downhill movement of slash and soils.

*(c) When yarding parallel to a Type S or F Water channel below the 100-year flood level or within the riparian management zone, reasonable care shall be taken to minimize soil

disturbance and to prevent logs from rolling into the stream, lake, pond, or riparian management zone.

(~~6~~11) **Disturbance avoidance for northern spotted owls.** The operation of heavy equipment within a SOSEA boundary shall not be allowed within 0.25 mile of a northern spotted owl site center between March 1st and August 31st provided that, this restriction shall not apply if:

(a) The landowner demonstrates that the owls are not actively nesting during the current nesting season; or

(b) The forest practice is operating in compliance with a plan or agreement developed for the protection of the northern spotted owl under WAC 222-16-080 (6)(a), (e), or (f).

(~~7~~12) **Disturbance avoidance for marbled murrelets.** Yarding or operation of heavy equipment shall not be allowed within 0.25 mile of an occupied marbled murrelet site during the daily peak activity periods within the critical nesting season, provided that, this restriction shall not apply if the forest practice is operating in compliance with a plan or agreement developed for the protection of the marbled murrelet under WAC 222-16-080 (6)(a) or (c).

NEW SECTION

WAC 222-30-062 *Large woody debris removal or repositioning.

Large woody debris removal or repositioning projects shall incorporate mitigation measures as necessary to achieve no-net-loss of productive capacity of fish and shellfish habitat. The following shall apply to large woody material removal or repositioning:

(1) Large woody debris removal from streams shall only be approved where necessary to address safety considerations, or where its removal would not diminish the fish habitat quality of the watercourse. The department may approve the repositioning of large woody debris within the watercourse to protect life and property or as needed to conduct a forest practices hydraulic project. Repositioned large woody material shall be placed or anchored to provide stable, functional fish habitat.

(2) Large woody debris removal shall be conducted by equipment stationed on the bank, bridge, or other approved methods.

(3) Unless otherwise authorized, large woody debris shall be suspended during its removal so no portion of the large woody debris or limbs can damage the bed or banks. Yarding corridors or full suspension shall be required to avoid damage to riparian vegetation. It may be necessary to cut the large woody debris in place, to a size that allows suspension during removal.

(4) Smaller limb and bark debris associated with the large woody debris shall be removed and disposed of so as not to reenter the typed water.

(5) Large woody debris embedded in a bank or bed shall be left undisturbed and intact except where authorized for removal.

(6) Large woody debris removal or repositioning shall be accomplished in a manner which minimizes the release of bedload, logs, or debris downstream.

(7) Depressions created in gravel bars shall be filled, smoothed over, and sloped upwards toward the bank on a minimum two percent gradient.

WAC 222-30-070 Ground-based logging systems.

(1) **Typed waters and wetlands**.

(a) Ground-based equipment shall not be used in Type S or F Water, except with approval by the department ~~and with a hydraulic project approval issued by the department of fish and wildlife~~. Yarding across Type S or F Waters is limited to cable or other aerial logging methods.

(b) Ground-based transport of logs across Type Np and Ns Waters shall minimize the potential for damage to public resources.

(i) Skidding logs and driving ground-based equipment through defined channels with flowing water is not allowed.

(ii) Ground-based transport of logs to landings across any Typed Np or Ns Water shall minimize the potential to damage public resources.

(iii) Whenever skidding across Type Np or Ns Waters, the direction of log movement between stream banks shall be designed to minimize sediment delivery to the stream.

(c) In order to maintain wetland water movement and water quality, and to prevent soil compaction, ground-based logging systems shall not be used in Type A or B wetlands.

(d) Where harvest in wetlands is permitted, ground-based logging systems shall be limited to low impact harvest systems. Ground-based logging systems operating in wetlands shall only be allowed during periods of low soil moisture or frozen soil conditions.

(e) Locations of temporary stream crossings to Np Waters shall be shown on the base map of the forest practices application. Whenever skidding in or across Type Np or Ns Waters, the direction of log movement between stream banks shall be designed to minimize sediment delivery to the stream. BMPs for stream crossings can be found in the board manual section ~~3~~5.

*(2) **Riparian management zone.**

(a) Logging will be permitted within the riparian management zone subject to riparian management zone protection in chapter 222-30 WAC. However, any use of ground-based yarding machines within the zone must be as described in an approved forest practices application or otherwise approved in writing by the department.

(b) When transporting logs in or through the riparian management zone with ground-based equipment, the number of routes through the zone shall be minimized.

(c) Logs shall be transported so as to minimize damage to leave trees and vegetation in the riparian management zone, to the extent practical and consistent with good safety practices.

*(3) **Wetlands management zones.**

(a) Logging will be permitted within wetland management zones subject to restrictions in WAC 222-30-020(~~7~~8).

(b) Where feasible logs shall be skidded with at least one end suspended from the ground so as to minimize soil disturbance and damage to leave trees and vegetation in the wetland management zone.

(c) Ground-based harvesting systems shall not be used within the minimum WMZ width unless described in an approved forest practices application or otherwise approved in writing by the department.

*(4**)** **Deadfalls.** Logs firmly embedded in the bed or bank of Type S or F Waters shall not be removed or disturbed without ~~hydraulic project~~ approval from the department ~~of fish and wildlife~~.

*(5) **Moisture conditions.**

(a) Ground-based logging systems shall not be used on exposed erodible soils or saturated soils if sediment delivery is likely to disturb a wetland, stream, lake or pond.

(b) When soil moisture is high and unrestricted operation of ground-based equipment would result in unreasonable soil compaction, operations shall be restricted to methods that minimized widespread soil compaction or, operations postponed until site conditions

improve such that yarding may proceed without causing unreasonable soil compaction and the long-term impacts to soil productivity and moisture absorption capacity that can result.

(6) **Protection of residual timber.** Reasonable care shall be taken to minimize damage from skidding to the stems and root systems of residual timber and to young reproduction.

*(7) **Skid trail location and construction.**

(a) Skid trails shall be kept to the minimum width.

(b) Reasonable care shall be taken to minimize the amount of sidecast required and shall only be permitted above the 100-year flood level.

(c) Skid trails shall be outsloped where practical, but be insloped where necessary to prevent logs from sliding or rolling downhill off the skid trail.

(d) Skid trails running parallel or near parallel to streams shall be located outside the no-harvest zone of all typed waters and at least ~~30~~ thirty feet from the outer edge of the bankfull width of the unbuffered portions of Type Np or Ns Water unless approved in writing by the department.

(e) Skid trails shall cross the drainage point of swales at an angle to minimize the potential for delivering sediment to a typed water or where channelization is likely to occur. See board manual section 3.

*(8) **Skid trail maintenance**.

(a) Upon completion of use and termination of seasonal use, skid trails on slopes in exposed soils shall be water barred where necessary to prevent soil erosion.

(b) Skid trails located within ~~200~~ two hundred feet horizontal distance of any typed water that directly delivers to the stream network shall use water bars, grade breaks, and/or slash to minimize sediment delivery to the stream. Water bars shall be placed at a frequency to minimize gullying and soil erosion. In addition to water barring, skid trails with exposed soil that is erodible and may be reasonably expected to cause damage to a public resource shall be seeded with a noninvasive plant species (preferably a species native to the state) and adapted for rapid revegetation of disturbed soil, or treated with other erosion control measures acceptable to the department.

*(9) **Slope restrictions.** Ground-based systems shall not be used on slopes where in the opinion of the department this method of operation would cause actual or potential material damage to a public resource.

(10) **Disturbance avoidance for northern spotted owls.** The operation of heavy equipment within a SOSEA boundary shall not be allowed within 0.25 mile of a northern spotted owl site center between March 1st and August 31st, provided that, this restriction shall not apply if:

(a) The landowner demonstrates that the owls are not actively nesting during the current nesting season; or

(b) The forest practice is operating in compliance with a plan or agreement developed for the protection of the northern spotted owl under WAC 222-16-080 (6)(a), (e), or (f).

(11) **Disturbance avoidance for marbled murrelets.** Operation of heavy equipment shall not be allowed within 0.25 mile of an occupied marbled murrelet site during the daily peak activity periods within the critical nesting season, provided that, this restriction shall not apply if the forest practice is operating in compliance with a plan or agreement developed for the protection of the marbled murrelet under WAC 222-16-080 (6)(a) or (c).

WAC 222-30-100 Slash disposal or prescribed burning.

(1) **Slash disposal or prescribed burning are prohibited in the core zone.**

(2) **Slash disposal** techniques:

*(a) Any conventional method of slash disposal may be used, except in Type A or B Wetlands, wetland management zones, and RMZ core and inner zones, Type Np RMZs, sensitive sites, and on sites where the department determines that a particular method would cause unreasonable risk to leave trees, public resources or site productivity. Conventional methods of slash disposal include the following: Controlled broadcast burning; pile or windrow and burn; pile or windrow without burning; mechanical scatter and compaction; scarification; chip, mulch or lop and scatter; burying; and physical removal from the forest lands: Provided, That on land shown to have low productivity potential the landowner or operator shall obtain the department's approval of its regeneration plan prior to utilizing controlled broadcast burning as a slash disposal technique. In riparian management inner zones, slash disposal shall be by hand, unless approved by the department. Slash disposal methods that employ machine piling, mechanical scatter and/or compaction, scarification or other techniques that result in soil disturbance shall not be allowed in equipment limitation zones. Scarification shall not be allowed within wetlands. Machine piling is not allowed in Type A and B Wetlands. Department approval, through a burning permit, is required for burning within an equipment limitation zone.

(b) All slash burning requires a burning permit from the department which provides for compliance with the smoke management plan and reasonable care to protect Type A and B Wetlands, wetland management zones, riparian management zones, equipment limitation zones, soil, residual timber, public resources, and other property.

(3) **Slash isolation, reduction, or abatement** is required when the department determines there is an extreme fire hazard according to law (see chapter 332-24 WAC).

(4) **Slash disposal** is required where the forest landowner has applied for and been granted an extension of time for reforestation on the grounds that slash disposal is necessary or desirable before reforestation.

*(5) **Removing slash and** debris from streams.

"Slash" or "debris" which can reasonably be expected to cause significant damage to the public resource shall be removed from Type S, F or Np Waters, to above the 100-year flood level and left in a location or manner minimizing risk of re-entry into the stream, lake or pond and if substantial accumulations of slash exist below the 100-year flood level of Type S, F or Np Waters, slash disposal is required. See ~~the forest practices~~ WAC 222-16-025 fish protection standards for general provisions for all forest practices hydraulic projects, and board manual section 4, ~~for~~ ~~"~~Guidelines for clearing slash and debris from Type Np and Ns Waters.~~"~~

*(6) **Fire trails.**

(a) Construct drainage structures as needed to control erosion.

(b) Reasonable care shall be taken to minimize excavation during fire trail construction and sidecast shall only be permitted above the 100-year flood level.

(c) Fire trails shall not be located within Type A or B Wetlands, wetland management zones, equipment limitation zones or riparian zones without prior written approval of the department. Hand constructed fire trails are preferred within forested wetlands. When machine built fire trails are necessary for control of burning, trail width and excavation shall be minimized.

(7) **Disturbance avoidance for northern spotted owls.** Burning within a SOSEA boundary shall not be allowed within 0.25 mile of a northern spotted owl site center between March 1st and August 31st , provided that, this restriction shall not apply if:

(a) The landowner demonstrates that the owls are not actively nesting during the current

nesting season; or

(b) The forest practice is operating in compliance with a plan or agreement developed for the protection of the northern spotted owl under WAC 222-16-080 (6)(a), (e), or (f).

(8) **Disturbance avoidance for marbled murrelets.** Slash disposal or prescribed burning shall not be allowed within 0.25 mile of an occupied marbled murrelet site during the critical nesting season, provided that, this restriction shall not apply if the forest practice is operating in compliance with a plan or agreement developed for the protection of the marbled murrelet under WAC 222-16-080 (6)(a) or (c).

Chapter 222-34 WAC

WAC 222-34-040 Site preparation and rehabilitation.

*(1) **Heavy equipment.** Heavy equipment shall not be used in connection with site preparation or rehabilitation work:

(a) When, because of soil moisture conditions or the type of soils, undue compaction or unnecessary damage to soil productivity would occur or erosion would result in damage to water quality; or

(b) Within riparian management zones, Type A and B Wetlands, wetland management zones, or within equipment limitation zones of Type Np and Ns Waters on slopes of 30 percent or less. On slopes greater than ~~30~~ thirty percent heavy equipment shall not operate within ~~50~~ fifty feet of Type S through Ns Waters unless a site specific plan has been approved by the department.

*(2) **Surface water drainage.** Where site preparation or rehabilitation involves contouring or terracing of slopes, drainage ditches, or similar work:

(a) The gradient of ditches or other artificial water courses in erodible soils shall not cause significant stream, lake, pond, or wetland siltation.

(b) Ditches and other artificial water courses shall not discharge onto any road, landing or fill.

(c) Ditches and other artificial water courses shall not be constructed to discharge onto the property of other parties without their consent.

*(3) **Stream channel realignment.** Where work involves deepening, widening, straightening or relocating the channel; or bulkheading, riprapping or otherwise stabilizing the banks of a Type S or F Water, ~~a hydraulic project approval is always required, and~~ the work shall be done only:

(a) In conformance with chapter 222-110 WAC;

(~~a~~b) After consultation with any party having an appropriation permit or registered right to appropriate waters from the affected stream segment in cases of streams used for domestic water supplies~~.~~;

(~~b~~c) Where no significant adverse effects on either the peak or minimum water levels or flows downstream can be expected~~.~~; and

(~~c~~d) In a manner not expected to result in long-term damage to public resources or to adjacent or downstream property.

CHAPTER 222-50 WAC

WAC 222-50-020 Other agency requirements.

(1) Many other laws and rules apply to the conduct of forest practices. Other agencies administer some of these other regulatory programs. Permits may be required by such agencies prior to the conduct of certain forest practices. The ~~department will~~Governor's Office of Regulatory

Assistance maintains a list ~~for distribution~~ of state, regional, and local regulatory programs including those that apply to forest practices operations. Affected parties are urged to consult with the specified agencies and independent experts with respect to the regulatory requirements shown on the list.

~~(2) **Hydraulics project approval law,** chapter 77.55 RCW. A hydraulics project approval must be obtained from the department of fish and wildlife prior to constructing any form of hydraulic project or other work that will use, divert, obstruct, or change the natural flow or bed of any river or stream or that will utilize any of the waters of the state or materials from the stream beds. See chapter 77.55 RCW and WAC 232-14-010.~~

*(~~3~~2) **Compliance with the Shoreline Management Act,** chapter 90.58 RCW, is required. The Shoreline Management Act is implemented by the department of ecology and the applicable local governmental entity. A substantial development permit must be obtained prior to conducting forest practices which are "substantial developments" within the "shoreline" area as those terms are defined by the Shoreline Management Act.

(~~4~~3) **Wildlife protection, Title 77 RCW.** Nothing in these rules is intended to interfere with any authority of the department of fish and wildlife to protect wildlife under any other statutes or regulations, or under any agreements with landowners.

(~~5~~4) **Federal Endangered Species Act, 16 U.S.C. 1531 et seq., and other federal laws.** The federal Endangered Species Act and other federal laws may impose certain obligations on persons conducting forest practices. Compliance with the Forest Practices Act or these rules does not ensure compliance with the Endangered Species Act or other federal laws.

Forest Practices Hydraulic Project Rules
Explanatory Information on Proposed Rule Amendments
Prepared for May 14, 2013 Forest Practices Board Meeting

Second Engrossed Substitute Senate Bill 6406, chapter 1, laws of 2012 (2ESSB 6406), directed the Forest Practices Board to incorporate fish protection standards from the hydraulic code rules (chapter 220-110 WAC) into the forest practices rules (Title 222 WAC). This table provides explanatory information on the resulting proposed amendments to Title 222 WAC. Only NEW WAC sections and portions of WAC sections proposed for amendment are included.

WAC 222-12-010 Authority. These forest practices rules are adopted pursuant to chapter 76.09 RCW, <u>and</u> RCW 76.13.100 through 76.13.130 ~~and RCW 77.85.180 through 77.85.190~~. Where necessary to accomplish the purposes and policies stated in the act, the board is authorized to promulgate forest practices rules pursuant to chapter 34.05 RCW and in accordance with the procedures enumerated in the act. These rules establish minimum standards for forest practices, provide procedures for the voluntary development of resource management plans, set forth necessary administrative provisions, establish procedures for the collection and administration of forest practices fees, allow for the development of watershed analyses, foster cooperative relationships and agreements with affected tribes, and establish the rivers and habitat open space program. The board also establishes which forest practices will be included within each class and is authorized to adopt rules under RCW 76.09.055, 76.09.370, and 76.13.120~~(9)(~~10).		References to chapter 77.85 RCW are no longer relevant in the context of rule adoption enabling law. Correction.
WAC 222-12-030 Authority. (3) **Class III forest practices** must be approved or disapproved within thirty or fewer calendar days of receipt of a complete application by the department. The department is directed to approve or disapprove within fourteen calendar days Class III applications not requiring additional field review. Exceptions are: <u>(c) Applications including the project types listed in WAC 222-20-017(4)(b), concurrence review, must be approved or disapproved within sixty calendar days of receipt of a complete application by the department.</u> (4) **Class IV forest practices** are divided into "Class IV - special," and "Class IV - general," and must be approved or disapproved within thirty calendar days of receipt of a complete application by the department. Exceptions are: <u>(b) Applications including the project types listed in WAC 222-20-017(4)(b), concurrence review, must be approved or disapproved within sixty days of receipt of a complete application by the department.</u>		The additions in this WAC refer to the concurrence process for Class III and IV applications per RCW 77.55.361 and RCW 76.09.490 as amended by legislation.

NEW SECTION **WAC 222-12-037 Applications that include forest practice hydraulic projects.** (1) The review process for applications that include forest practices hydraulic projects is described in WAC 222-20-017. (2) Pursuant to RCW 76.09.040(3), fish protection standards within chapter 220-110 WAC, hydraulic code rules, are incorporated into Title 222 WAC as they apply to forest practices hydraulic projects, and are summarized in WAC 222-16-025. (3) Each forest practices hydraulic project included in an application will be reviewed on an individual basis and will be subject to rules and applicable conditions to the forest practice application/notification. Common general provisions applicable to a specific project may be modified or deleted by the department where any of the following is demonstrated by the landowner: (a) The provision has no logical application to the project; (b) The applicant provides an alternate plan to the provision and demonstrates that it provides equal or greater protection for fish life; (c) The modification or deletion of the provision will not contribute to net loss of fish life. (4) Projects may be subject to additional conditions to address project- or site-specific considerations not adequately addressed by the forest practices application/notification. (5) The department will place specific time limitations on project activities in forest practices hydraulic projects in order to protect fish life. The department and the applicant will consult with the department of fish and wildlife for appropriate work windows for the protection of fish life. (6) If site conditions change over the course of an approved application, the department may approve a landowner request for an amendment to the application.		This section is critical for understanding the site-specific nature of applications including forest practices hydraulic projects (FPHPs) and how they may be conditioned accordingly. Content of (3) is derived from WACs 220-110-010 and 220-110-032.
WAC 222-12-050 Notices to comply – Stop work orders. (5) **In emergency action,** where the department requires the operator or landowner to do immediate work in that could affect the bed or flow of the stream, the department shall first seek ~~approval~~ consultation from the department of fish and wildlife.		Clarifies the changed relationship between DNR and WDFW.
WAC 222-12-090 Forest practices board manual. (5) Guidelines for ~~landing location and construction~~ forest practices hydraulic projects.		Board Manual 5 was a placeholder for landing location and construction. Guidance for landing location and construction is now in Board Manual Section 3, Road Location and Design. Section 5 will now provide guidance for FPHP projects.
WAC 222-16-010 General Definitions "Fish protection standards" means the standards by which forest practices hydraulic projects are evaluated. These standards are identified in WAC 222-16-025.		One of two rule areas defining "fish protection standards", which was introduced but not defined in 2ESSB 6406. Refers the reader to the more complete definition in WAC 222-16-025.

"Forest practice" means any activity conducted on or directly pertaining to forest land and relating to the growing, or processing timber or forest biomass, including but not limited to: Activities in and over typed water Road and trail construction; Harvesting, final and intermediate; Precommercial thinning; Reforestation; Fertilization; Prevention and suppression of diseases and insects; Salvage of trees; and Brush control. "Forest practice" shall not include: Forest species seed orchard operations and intensive forest nursery operations; or preparatory work such as tree marking, surveying and road flagging; or removal or harvest of incidental vegetation from forest lands such as berries, ferns, greenery, mistletoe, herbs, mushrooms, and other products which cannot normally be expected to result in damage to forest soils, timber or public resources.		"Activities in and over typed water" is added to account for hydraulic projects.
"Forest practices hydraulic project" means a forest practices activity that includes the construction or performance of work that will use, divert, obstruct, or change the natural flow or bed of any Type S, F, and N Waters.		Derived from the definition of "hydraulic project" in WAC 220-110-020(52).
Green recruitment trees" means those trees left after harvest for the purpose of becoming future wildlife reserve trees under WAC 222-30-020~~(11)~~(12).		Changed reference for consistency with an amendment to WAC 222-30-020.
NEW SECTION **WAC 222-16-025 Fish protection standards for forest practices hydraulic projects.** (1) Specific fish protection standards in chapter 220-110 WAC, hydraulic code rules, are included in forest practices rules pertaining to forest practices hydraulic project types. The most common hydraulic project types in forest practices are included in chapters 222-24 and 222-30 WAC. Fish protection standards for hydraulic projects that are less commonly associated with forest practices can be found in chapter 220-110 WAC, hydraulic project rules. These may include but are not limited to channel change and realignment, dredging fresh water areas, and outfall structures. (2) The department will evaluate forest practices hydraulic projects on the basis of whether they meet fish protection standards. The primary objectives of the fish protection standards are to: (a) Protect fish life; (b) Achieve no-net-loss of productive capacity of fish or shellfish habitat; (c) Minimize project-specific and cumulative impacts to fish life; and		One of two rule areas defining "fish protection standards", which was introduced but not defined in 2ESSB 6406.

(d) Mitigate for unavoidable impacts to fish life and fish habitat. (3) "Fish life", "protection of fish life", "mitigation", and "no-net-loss" are defined in WAC 220-110-020 as follows: (a) "Fish life" means all fish species, including but not limited to food fish, shellfish, game fish, and other non-classified fish species and all stages of development of those species. (b) "Protection of fish life" means prevention of loss or injury to fish or shellfish, and protection of the habitat that supports fish and shellfish populations. (c) "Mitigation" means actions required as provisions of forest practices hydraulic projects to avoid or compensate for impacts to fish life resulting from the proposed project activity. The type(s) of mitigation required will be considered and implemented, where feasible, in the following sequential order of preference: (i) Avoiding the impact altogether by not taking a certain action or parts of an action; (ii) Minimizing impacts by limiting the degree or magnitude of the action and its implementation; (iii) Rectifying the impact by repairing, rehabilitating, or restoring the affected environment; (iv) Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or (v) Compensating for the impact by replacing or providing substitute resources or environments; or (vi) Monitoring the impact and taking appropriate corrective measures to achieve the identified goal. For projects with potentially significant impacts, a mitigation agreement may be required prior to approval. Replacement mitigation may be required to be established and functional prior to project construction. (d) "No-net-loss" means: (i) Avoidance or mitigation of adverse impacts to fish life; or (ii) Avoidance or mitigation of net loss of habitat functions necessary to sustain fish life; or (iii) Avoidance or mitigation of loss of area by habitat type. Mitigation to achieve no-net-loss should benefit those organisms being impacted. (4) The following general conditions shall apply to any forest practices hydraulic project, as defined in WAC 222-16-010: (a) If fish may be adversely impacted as a result of the project, the landowner may be required to capture and safely move food fish, game fish, or other fish life (at the discretion of the department in consultation with the department of fish and wildlife) to the nearest free-flowing water. See board manual section 5 for further guidance.		(a) From WAC 220-110-120

(b) If at any time fish are observed in distress, a fish kill occurs or water quality problems develop as a result of the project, operations shall cease immediately and the department shall be immediately contacted. (c) Disturbance to the stream bed, banks and riparian vegetation shall be restricted to that necessary to complete the project. (d) All disturbed areas shall be protected from erosion. The banks shall be revegetated with native or other approved woody species and maintained as necessary to ensure survival. See board manual section 5 for further guidance. (e) Equipment shall not enter or operate within the wetted perimeter of a stream. (f) Equipment shall be inspected, cleaned and maintained to prevent loss of petroleum products waterward of bankfull width. See board manual section 5 for further guidance. (g) Excavation for and replacement of footings and foundations shall be landward of bankfull width unless the construction site is separated from typed waters by use of a dike, cofferdam, or other structure. (h) Structures containing concrete shall be sufficiently cured prior to contact with water. (i) Wastewater from project activities and water removed from the work area shall be routed to an area landward of the bankfull width to allow removal of fine sediment and other contaminants prior to being discharged to typed waters. (j) Excess spoils shall be deposited onto the forest floor and not carry surface water or sediment into the stream channel or wetland. (k) Wood or other materials treated with preservatives shall be sufficiently cured to minimize leaching into the water or bed. The use of creosote or pentachlorophenol is not allowed.		(b) From WAC 220-110-130 (c) From WAC 220-110-050, -070, -100 and others (d) From WAC 220-110-050 and others (e) From WACs 220-110-140, -150, -160, and -224 (f) From WAC 220-110-140(15) (g) From WAC 220-110-060, -070, and others (h) From WAC 220-110-070 and others (i) From WAC 220-110-070 and others (j) From WAC 220-11-100 (k) From WAC 220-110-223
WAC 222-16-050 Classes of forest practices. (3) **"Class I"** (f) Initial installation and replacement of relief culverts and other drainage control facilities not requiring ~~a hydraulic permit~~ an <u>application.</u> (s) ~~Removal of beaver structures from culverts on forest roads. A hydraulics project approval from the Washington department of fish and wildlife may be required.~~ **(4) "Class II."** Certain forest practices have been determined to have a less than ordinary potential to damage a public resource and may be conducted as Class II forest practices:		Hydraulic projects are now under the forest practice application process. Removal of beaver structures is moved from Class I to Class III. This activity is now an FPHP; FPHPs cannot be classified Class I per the following definition in RCW77.55.011: "Forest practices hydraulic project" means a hydraulic project that requires a forest practices application or notification under chapter 76.09 RCW. A forest practices activity cannot be classified Class II if it includes an FPHP.

provided that no forest practice enumerated below may be conducted as a Class II forest practice if the operation ~~requires~~ includes a forest practices hydraulic project ~~(approval (RCW 77.55.021)~~ or is within a "shorelines of the state", … (5) **"Class III."** Forest practices not listed under Classes IV, I or II above are Class III forest practices. Among Class III forest practices are the following: (a) Those ~~requiring~~ including forest practices hydraulic projects ~~(RCW 77.55.021)~~. (s) Removal of beaver structures from culverts on forest roads.		Reflects the change in jurisdiction for hydraulic projects. Moved from Class I.
NEW SECTION **WAC 222-20-017 *Applications and notifications that include forest practices hydraulic projects.** (1) **Review for consistency with fish protection standards.** The department reviews forest practices applications that include forest practices hydraulic projects for consistency with fish protection standards. **(2) Pre-application consultation.** (a) Prospective applicants are encouraged to consult with the department and the department of fish and wildlife, including site visits as needed, prior to submitting a forest practices application to the department. (b) Pre-application consultation helps to ensure that project design and specifications meet fish protection standards. (c) Pre-application consultation should take place well before submitting an application to the department and well before the desired work windows. (3) **Application time limits.** Except for applications involving project types listed in (5)(b) of this section, application time limits for applications that include forest practices hydraulic projects are the same as those listed in WAC 222-20-020. (4) **Review of forest practices hydraulic projects involving Type S and F Waters by the department of fish and wildlife.** The department of fish and wildlife's review of forest practices hydraulic projects is guided by WAC 220-110-085, and summarized in (a) and (b) below: (a) Except for the particular review process for projects listed in (b)(i), the department of fish and wildlife reviews forest practices hydraulic projects involving Type S and F Waters as follows: (i) The department of fish and wildlife either provides comments to the department or documents that the review has occurred without the need for comments. (ii) Prior to commenting, or as soon as reasonably practical, the department of fish and wildlife will communicate with the applicant regarding any concerns relating to consistency with fish protection standards.		Explains the application process particular to FPAs that include FPHPs, encourages pre-application consultation, and informs applicants of concurrence review for certain project types.

(iii) The department of fish and wildlife will also strive to maintain communications with the department as concerns arise, and inform the department of its communications with applicants. (b) Concurrence review. (i) The following project types involving Type S and F Waters are subject to the department of fish and wildlife conducting a concurrence review according to the process outlined in WAC 220-110-085(3): • Culvert installation or replacement, and repair at or below the bankfull width in Type S and F Waters that exceed five percent gradient; • Bridge construction or replacement, and repair at or below the bankfull width of unconfined streams in Type S and F Waters; or • Fill within the flood level-100 year of unconfined streams in Type S and F Waters. (ii) After review of these projects, the department of fish and wildlife must provide written notification of concurrence or non-concurrence to the department within thirty days of the department officially receiving a complete application, stating whether or not the project is consistent with fish protection standards and including any proposed changes needed to meet fish protection standards. As indicated in WAC 222-20-020(e), the department approves, conditions, or disapproves such applications within sixty days of officially receiving an application. The department of fish and wildlife's review is completed within the first thirty days. **(5) Disapproval.** (a) An application will be disapproved if the department determines, after consultation with the department of fish and wildlife, that a forest practices hydraulic project in the application will result in direct or indirect harm to fish life, unless: (i) Adequate mitigation can be assured by conditioning the application for the project; or (ii) The project is modified satisfactorily. (b) If disapproved, the department will provide a statement to the applicant in writing of the specific reason(s) why, and how the proposed project would adversely affect fish life.		

WAC 222-20-020 Application time limits. (1) When the department officially receives an application, the department will approve, condition or disapprove it within thirty calendar days for Class III and Class IV forest practices, except: (e) Applications requiring a concurrence review of forest practices hydraulic projects listed in WAC 222-20-017(4)(b) will be approved, conditioned, or disapproved within sixty days of the department officially receiving an application. The department of fish and wildlife's review will take place within the first thirty days.		Clarifies the review time limit for FPAs that include the FPHPs subject to concurrence review per WAC 222-20-017.
WAC 222-20-040 Approval conditions (1) **Whenever an approved** application includes a forest practices hydraulic project or authorizes a forest practices activity which, because of soil condition, proximity to a water course or other unusual factor, has a potential for causing material damage to a public resource, as determined by the department, the applicant shall, when ~~requested~~ required as a condition on the approved application, notify the department two business days before the commencement of actual operations.		Consistent with RCW 76.09.060(6)(d) as amended by the legislation, DNR may require the applicant to provide advance notice before commencing operations on an approved application or notification.
WAC 222-20-090 Options for filing applications and pre-application consultation for forest practices hydraulic projects. (2) **Pre-application consultation for forest practices hydraulic projects.** Landowners are encouraged to consult with the department and the department of fish and wildlife prior to submitting an application involving a forest practices hydraulic project to help ensure that project plans and specifications meet fish protection standards.		Language is added to emphasize that pre-application consultation is key to successful FPAs that include FPHPs.

WAC 222-24-010 Policy. *(2) To protect water quality and riparian habitat, roads must be constructed and maintained in a manner that will prevent potential or actual damage to public resources. This will be accomplished by constructing and maintaining roads so as not to result in the delivery of sediment and surface water to any typed water in amounts, at times or by means, that preclude achieving desired fish habitat and water quality by: • Providing for free and unimpeded passage for fish ~~passage~~ at all live stages ~~(see Washington state department of fish and wildlife hydraulic code Title 220 WAC)~~; • Preventing mass wasting; • Limiting delivery of sediment and surface runoff to all typed waters; • Avoiding capture and redirection of surface or ground water. This includes retaining streams in their natural drainages and routing subsurface flow captured by roads and road ditches back onto the forest floor; • Diverting most road runoff to the forest floor; • ~~Providing~~ Designing water crossing structures to the 100-year flood level to provide for the passage of bedload and some woody debris; • Protecting stream bank stability, the existing stream channel, and riparian vegetation; • Minimizing the construction of new roads; ~~and~~ • Assuring no-net-loss of wetland function; and • Assuring no-net-loss of fish habitat. The rules for road construction and maintenance ~~rules in this chapter~~ and forest practices hydraulic projects must be applied in achieving these goals. Additional guidance is provided in board manual sections 3 and 5. If these goals are not achieved using the rules and the applied guidance, additional management strategies must be employed. *(3) Extra protection is required during road construction and maintenance and for forest practices hydraulic projects to protect public resources and timber growing potential. Landowners and fisheries and wildlife managers are encouraged to cooperate in the development of road management and abandonment plans. Landowners are further encouraged to cooperate in sharing roads to minimize road mileage and avoid duplicative road construction.		Language changes in this section incorporate fish protection standards from the hydraulic code rules.

WAC 222-24-020 Road location and design. (6) Where stream crossings are necessary: (a) Design stream crossings to minimize alterations to natural features; (b) Locate and design culverts to minimize sediment delivery; ~~and~~ (c) Whenever practical, cross streams at right angles to the main channel; and (d) Design stream crossings in Type S and F Waters to provide free and unimpeded passage for fish at all life stages. (22) ~~The~~ In addition to information required for a complete application, the department may require ~~additional~~ more detailed information for proposed road construction, ~~as part of a complete application~~ including: (a) A map with detailed topographic information showing the location and alignment of the road in relation to all typed water and wetlands as required in WAC 222-16-035; (b) Location, size, alignment and number of water crossing and drainage structures; (c) Detailed plans for bridges, ~~large~~ culverts or other complex elements of the proposal; and (d) Other information identified by the department.		Incorporates a fish protection standard from the hydraulic code rules. Reminds applicants that more information may be needed when submitting applications that include an FPHP. "Large" is removed because it is not defined and is unnecessary for implementation.
NEW SECTION **WAC 222-24-038 Pre-application consultation and road-related forest practices hydraulic projects.** Landowners contemplating forest practices hydraulic projects related to road construction and maintenance are encouraged to consult with the department and the department of fish and wildlife prior to submitting an application to help ensure that project plans and specifications meet fish protection standards.		Again, language is added to emphasize that pre-application consultation is key to successful FPAs that include FPHPs. It is included in the roads section to capture applicants that may skip the applications chapter.

WAC 222-24-040 Water crossing structures for all typed waters. *(1) ~~General provisions for all typed waters.~~ ~~In addition to the applicable general provisions below, installation, maintenance and removal of water crossing structures in or across the bankfull width of Type S or F Waters are subject to hydraulic code rules, chapter 220-110 WAC, and require hydraulic project approval (HPA) issued by the department of fish and wildlife. HPAs may be required on Type Ns and Np Waters.~~ ~~(a) Bridges over Type Np and Ns Waters~~ ~~(b) Culver installation for Type Np and Ns Waters~~ ~~(c) Temporary water crossing in Type Np and Ns Waters~~ (7) Fords. (a) New ford construction requires a forest practices application. (b) The entry and exit points of a new ford must not be within one hundred feet upstream or downstream of another ford. (c) The following activities associated with established fords require a forest practices application: (i) Ford repair with equipment or construction work waterward of the bankfull width; (ii) Driving a vehicle or operating equipment on or across wetted stream beds at areas other than established fords. (d) Driving a vehicle or operating equipment on or across an established ford does not require a forest practices application. (e) "Established ford" means a crossing place in a watercourse that was in existence and annually use prior to 1986 or subsequently permitted by the department, and has identifiable approaches on the banks.		Changes reflect that DNR's jurisdiction related to water crossing structures now includes all typed waters. Rules for Type N bridges, culvert installation, and temporary water crossings are now in NEW WAC 222-24-042. This language is from WAC 220-110-035(4); language on fords in current rule, WAC 222-24-040(5), is eliminated. See explanation in WAC 222-24-042. The definition of "established ford" is from WAC 220-110-020(31).
NEW SECTION **WAC 222-24-041 *Water crossing structure in Type S and F Waters** (1) In Type S and F Waters, bridges are preferred as water crossing structures in order to ensure free and unimpeded fish passage for adult and juvenile fishes and preserve spawning and rearing habitat. Pier placement within bankfull width shall be avoided where practical. Other structures which may be approved include, in descending order of preference: temporary culverts; bottomless arch culverts; arch culverts; round culverts; and fords. Corrugated culverts are generally preferred over smooth surfaced culverts. Culvert baffles and downstream control weirs are discouraged except to correct fish passage problems at existing structures. (2) An approved forest practices application is required for construction, structural work and maintenance associated with any bridge structure. Typical maintenace includes painting and other activities where there is potential for wastage of paint, sandblasting material, sediments,		Content of this NEW section is from portions of WAC 220-110-070 Water crossing structures. The following terminolgy is changed for consistency with forest practices rule language.: • "Waterward of the ordinary high water line" is changed to "within the bankfull width" or "within the stream." • "Exemption/5-year permits" is changed to "alternate plans." • "100-year peak flow", "100-year flood", and "a peak flow expected to occur once in 100 years during the season of installation" is changed to "100-year flood level." • "Waters of the state" is changed to "Type S and F Waters."

or bridge parts into the water, or where the work, including equipment operation, occurs within bankfull width of the stream. (3) Water crossing structure projects shall incorporate mitigation measures as necessary to achieve no-net-loss of productive capacity of fish and shellfish habitat. (4) **Bridge construction.** (a) Excavation for and placement of the foundation and superstructure shall be outside the bankfull width unless the construction site is separated from the stream by use of an approved dike, cofferdam, or similar structure. (b) The bridge structure or stringers shall be placed in a manner to minimize damage to the bed. (c) Alteration or disturbance of bank or bank vegetation shall be limited to that necessary to construct the project. All disturbed areas shall be protected from erosion within seven days of completion of the project, using vegetation or other means. The banks shall be revegetated with native or other approved woody species and maintained as necessary to ensure survival. Removal of existing or temporary structures shall be accomplished so that the structure and associated material does not enter the stream. See board manual section 5 for technical guidance. (d) Removal of existing or temporary structures shall be accomplished so that the structure and associated material does not enter the stream. (e) The bridge shall be constructed, according to the approved design, to pass the 100-year flood level and debris likely to be encountered. Exception shall be granted if applicant provides hydrologic or other information that supports alternative design criteria. (f) Wastewater from project activities and water removed from within the work area shall be routed and deposited to the forest floor in an upland area to allow removal of fine sediment and other contaminants prior to being discharged to typed waters. (g) Structures containing concrete shall be sufficiently cured prior to contact with water to avoid leaching. (h) Abutments, piers, piling, sills, approach fills, etc., shall not constrict the flow so as to cause any appreciable increase (not to exceed 0.2 feet) in backwater elevation (calculated at the 100-year flood level) or channel wide scour and shall be aligned to cause the least effect on the hydraulics of the watercourse. (i) Riprap materials used for structure protection shall be angular rock and the placement shall be installed according to an approved design to withstand the 100-year flood level. (5) **Temporary culvert installation.** The allowable placement of temporary culverts and time limitations shall be determined by the department based on the specific fish resources of concern at the proposed location of the culvert. See board manual section 5 for guidance on temporary culvert installation. (a) Where fish passage is a concern, temporary culverts shall be installed according to an approved design based on the definition of bankfull width for culvert design and		

construction in WAC 222-16-010, to provide adequate fish passage. In these cases, the temporary culvert installation shall meet the fish passage design criteria in Table 1 in subsection (6) of this section. (b) Where culverts are left in place during the period of September 30 to June 15, the culvert shall be designed to maintain structural integrity to the 100-year flood level with consideration of the debris loading likely to be encountered. (c) Where culverts are left in place during the period June 16 to September 30, the culvert shall be designed to maintain structural integrity at a peak flow expected during the entire period the culvert will be in place. (d) Disturbance of the bed and banks shall be limited to that necessary to place the culvert and any required channel modification associated with it. Affected bed and bank areas outside the culvert shall be restored to preproject condition following installation of the culvert. (e) The culvert shall be installed in the dry, or in isolation from stream flow by the installation of a bypass flume or culvert, or by pumping the stream flow around the work area. Exception may be granted if siltation or turbidity is reduced by installing the culvert in the flowing stream. The bypass reach shall be limited to the minimum distance necessary to complete the project. Fish stranded in the bypass reach shall be safely removed to the flowing stream. (f) Wastewater from project activities and dewatering shall be routed and deposited to the forest floor in an upland area to allow removal of fine sediment and other contaminants prior to being discharged to typed waters. (g) Imported fill which will remain in the stream after culvert removal shall consist of clean rounded gravel ranging in size from one-quarter to three inches in diameter. The use of angular rock may be approved from June 16 to September 30, where rounded rock is unavailable. Angular rock shall be removed from the watercourse and the site restored to preproject conditions upon removal of the temporary culvert. (h) The culvert and fill shall be removed and the disturbed bed and bank areas shall be reshaped to preproject configuration. All disturbed areas shall be protected from erosion, within seven days of completion of the project, using vegetation or other means. The banks shall be revegetated with native or other approved woody species and maintained as necessary to ensure survival. See board manual section 5 for technical guidance. (i) The temporary culvert shall be removed and the approaches shall be blocked to vehicular traffic prior to the expiration of the work window as conditioned for the specific hydraulic project in the forest practices application. (j) Temporary culverts must be removed prior to the expiration of the forest practices application. (6) **Permanent culvert installation.** (a) In fish bearing waters or waters upstream of a fish passage barrier (which can reasonably		

be expected to be corrected, and if corrected, fish presence would be reestablished), culverts shall be designed and installed so as not to impede fish passage. Culverts shall only be approved for installation in spawning areas where full replacement of impacted habitat is provided by the applicant.

(b) To facilitate fish passage, culverts shall be designed based on bankfull width to the following standards:

(i) Culverts may be approved for placement in small streams if placed on a flat gradient with the bottom of the culvert placed below the level of the streambed a minimum of twenty percent of the culvert diameter for round culverts, or twenty percent of the vertical rise or structure height for elliptical culverts (this depth consideration does not apply within bottomless culverts). Footings of bottomless culverts shall be buried sufficiently deep so they will not become exposed by scour within the culvert. The twenty percent placement below the streambed shall be measured at the culvert outlet. The culvert width at the bed, or footing width, shall be equal to or greater than the average width of the bed of the stream.

(ii) Where culvert placement is not feasible as described in (b)(i) of this subsection, the culvert design shall include the elements in (b)(ii)(A) through (E) of this subsection:

(A) Water depth at any location within culverts as installed and without a natural bed shall not be less than that identified in Table 1. The low flow design, to be used to determine the minimum depth of flow in the culvert, is the two-year seven-day low flow discharge for the subject basin or ninety-five percent exceedance flow for migration months of the fish species of concern. Where flow information is unavailable for the drainage in which the project will be conducted, calibrated flows from comparable gauged drainages may be used, or the depth may be determined using the installed no-flow condition.

(B) The high flow design discharge, used to determine maximum velocity in the culvert (see Table 1), is the flow that is not exceeded more than ten percent of the time during the months of adult fish migration. The two-year peak flood flow may be used where stream flow data are unavailable.

(C) The hydraulic drop is the abrupt drop in water surface measured at any point within or at the outlet of a culvert. The maximum hydraulic drop criteria must be satisfied at all flows between the low and high flow design criteria.

(D) The bottom of the culvert shall be placed below the natural channel grade a minimum of twenty percent of the culvert diameter for round culverts, or twenty percent of the vertical rise or structural height for elliptical culverts (this depth consideration does not apply within bottomless culverts). The

downstream bed elevation, used for hydraulic calculations and culvert placement in relation to bed elevation, shall be taken at a point downstream at least four times the average width of the stream (this point need not exceed twenty-five feet from the downstream end of the culvert). The culvert capacity for flood design flow shall be determined by using the remaining capacity of the culvert.

Table 1

Fish Passage Design Criteria for Culvert Installation

Criteria	Adult Trout > 6 in. (150mm)	Adult Pink, Chum Salmon	Adult Chinook, Coho, Sockeye, Steelhead
1. Velocity, Maximum (fps)			
Culvert Length (ft)			
a. 10 - 60	4.0	5.0	6.0
b. 60 - 100	4.0	4.0	5.0
c. 100 - 200	3.0	3.0	4.0
d. > 200	2.0	2.0	3.0
2. Flow Depth Minimum (ft)	0.8	0.8	1.0
3. Hydraulic Drop, Maximum (ft)	0.8	0.8	1.0

(E) Appropriate statistical or hydraulic methods must be applied for the determination of flows in (b)(ii)(A) and (B) of this subsection. These design flow criteria may be modified for specific proposals as necessary to address unusual fish passage requirements, where other approved methods of empirical analysis are provided,

or where the fish passage provisions of other special facilities are approved by the department.

(F) Culvert design shall include consideration of flood capacity for current conditions and future changes likely to be encountered within the stream channel, and debris and bedload passage.

(c) Culverts shall be installed according to an approved design to maintain structural integrity to the 100-year flood level with consideration of the debris loading likely to be encountered. Exception may be granted if the applicant provides justification for a different level or a design that routes the flow past the culvert without jeopardizing the culvert or associated fill.

(d) Disturbance of the bed and banks shall be limited to that necessary to place the culvert and any required channel modification associated with it. Affected bed and bank areas outside the culvert and associated fill shall be revegetated with native or other approved woody species and maintained as necessary to ensure survival. See board manual section 5 for technical guidance.

(e) Fill associated with the culvert installation shall be protected from erosion to the 100-year flood level.

(f) Culverts shall be designed and installed to avoid inlet scouring and shall be designed in a manner to prevent erosion of stream banks downstream of the project.

(g) Where fish passage criteria are required, the culvert facility shall be maintained by the landowner(s), such that fish passage design criteria in Table 1 are not exceeded. If the structure becomes a hindrance to fish passage, the landowner shall be responsible for obtaining an approved forest practices application and providing prompt repair.

(h) The culvert shall be installed in the dry or in isolation from the stream flow by the installation of a bypass flume or culvert, or by pumping the stream flow around the work area. Exception may be granted if siltation or turbidity is reduced by installing the culvert in the flowing stream. The bypass reach shall be limited to the minimum distance necessary to complete the project. Fish stranded in the bypass reach shall be safely removed to the flowing stream.

(i) Wastewater from project activities and dewatering shall be routed to the forest floor an upland area as necessary to allow removal of fine sediment and other contaminants prior to being discharged to any typed water or wetland.

(7) **Alternative designs** will be considered if they can be demonstrated to meet or exceed fish protection standards. Alternative designs may require additional review.

NEW SECTION **WAC 222-24-042 * Water crossing structures in Type Np and Ns Waters** *(1) **Bridges over Type Np and Ns Waters.** In addition to the applicable general provisions in WAC 222-24-040, the installation, maintenance, and removal of permanent bridges in or across Type Np and Ns Waters are subject to the following: (a) Permanent bridges must not constrict clearly defined channels and must be designed and installed to pass the 100-year flood. The bridge and its associated embankments and fills must provide sufficient erosion protection to withstand a 100-year flood event. (b) Excavation for and placement of the bridge foundation and superstructure must be located and conducted from outside the outer edge of the bankfull width. This requirement may be waived by the department if it can be demonstrated that these activities may be conducted in such a manner to prevent damage to public resources. (c) Earthen embankments constructed for use as bridge approaches must be provided with sufficient erosion protection to withstand a 100-year flood event. *(2) **Culvert installation for Type Np and Ns Waters.** In addition to applicable general provisions in WAC 222-24-040, the installation, maintenance and removal of permanent culverts in or across Type Np and Ns Waters are subject to the following provisions: (a) All permanent culverts must be designed to pass the 100-year flood event with consideration for the passage of debris likely to be encountered. (b) The culvert and its associated embankments and fills must have sufficient erosion protection to withstand the 100-year flood event. Erosion protection may include armored overflows or the use of clean coarse fill material. (c) If the department determines that because of unstable slopes the culvert size shown in board manual section 3, “Determining Culvert Size, Method A” would be inadequate to protect public resources, it may require a larger culvert designed using generally accepted engineering principles that meet the standards in (a) and (b) of this subsection. (d) No permanent culverts shall be installed that are smaller than: (i) 24 inches for Type Np Waters; (ii) 18 inches for Type Ns Waters in western Washington; and (iii) 15 inches for Type Ns Waters in eastern Washington. (e) The alignment and slope of the culvert shall parallel the natural flow of the stream whenever possible. (f) Culverts must be designed and installed so they will not cause scouring of the stream bed and erosion of the banks in the vicinity of the project. (g) When the department determines that installing a culvert in a flowing stream will		Content of this NEW section is from current forest practices WAC 222-24-040(2), (3), and (4), except sub (5) in the current WAC regarding fords is not included. See related comment in WAC 222-24-040(7).

result in excessive siltation and turbidity, and siltation and turbidity would be reduced if stream flow were diverted, the department shall require the stream flow be diverted using a bypass flume or culvert, or by pumping the stream flow around the work area. This may include culvert installations that are within 0.25 miles of a Type S or F Water or within two miles of a hatchery intake in consultation with the department of fish and wildlife. (h) Fill associated with culvert installation must have sufficient erosion protection to withstand the 100-year flood event. (i) Stream beds shall be cleared for a distance of 50 feet upstream from the culvert inlet of such slash or debris that reasonably may be expected to plug the culvert. (j) The entrance of all culverts shall have adequate headwalls constructed to minimize the possibility of erosion or fill failure. *(3) **Temporary water crossings in Type Np and Ns Waters.** In addition to the applicable general provisions above, installation, maintenance and removal of temporary bridges or other structures in or across Type Np and Ns Waters are subject to the following: (a) A temporary water crossing is intended for use during the life of an approved application/notification. (b) It must be constructed to facilitate abandonment when the intended use is complete or upon seasonal shutdown, whichever is sooner. (c) Temporary water crossings must be identified on the forest practices application or notification, along with an abandonment date. (d) Temporary water crossings may be used: (i) In western Washington if installed after June 1 and removed by September 30 of the same year. (ii) In eastern Washington if installed after the spring runoff and removed prior to October 15th. (iii) At other times, when the department and applicant can agree to specific dates of installation and removal and the extended dates result in equivalent levels of resource protection. (e) Temporary water crossings must be designed to pass the highest peak flow event expected to occur during the length of its intended use. (f) When the department determines that installing a culvert in a flowing stream will result in excessive siltation and turbidity, and siltation and turbidity would be reduced if stream flow were diverted, the department shall require the stream flow be diverted using a bypass flume or culvert, or by pumping the stream flow around the work area. This may include culvert installations that are within 0.25 miles of a Type S or F Water or within two miles of a hatchery intake (g) Temporary water crossings shall be promptly removed and abandoned to the specifications approved by the department upon completion of use or by the date		

specified in the approved forest practices application, whichever is earlier. Approaches to the crossing shall be water barred and stabilized at the time of the crossing removal. The department may waive removal of the water crossing if the applicant secures an amended forest practices application, and the structure and its approaches meet all of the requirements of a permanent water crossing structure. (h) Temporary wetland crossings shall be abandoned and restored based on a written plan approved by the department prior to construction. (i) Temporary water crossings must be designed to provide the same level of protection for public resources as provided by rules during the length of its use.		
NEW SECTION **WAC 222-24-044 *Temporary bypass culverts, flumes, or channels.** Temporary bypass culvert, flume, or channel projects shall incorporate mitigation measures as necessary to achieve no-net-loss of productive capacity of fish and shellfish habitat. The following shall apply to temporary bypass culvert, flume, or channel projects: (1) The temporary bypass culvert, flume, or channel shall be in place prior to initiation of other work in the wetted perimeter. (2) A sandbag revetment or similar device shall be installed at the inlet to divert the entire flow through the culvert, flume, or channel. (3) A sandbag revetment or similar device shall be installed at the downstream end of the culvert, flume, or channel to prevent backwater from entering the work area. (4) The culvert, flume, or channel shall be of sufficient size to pass flows and debris for the duration of the project. (5) For diversion of flow into a temporary channel the relevant provisions of WAC 220-110-080, channel change/realignment shall apply. (6) Prior to releasing the water flow to the project area, all bank protection or armoring shall be completed. See board manual section 5 for project site preparation best management practices. (7) Upon completion of the project, all material used in the temporary bypass shall be removed from the site and the site returned to preproject conditions. (8) The department may require fish capture and safe transport from the project site to the nearest free flowing water if fish could be adversely impacted as a result of the project. The department of fish and wildlife may assist in capturing and safely removing fish to free-flowing water if personnel are available. (9) Alteration or disturbance of the banks and bank vegetation shall be limited to that necessary to construct the project. All disturbed areas shall be protected from erosion within seven days of completion of the project using vegetation or other means. The banks shall be revegetated with native or other approved woody species and maintained as necessary to ensure survival. For technical guidance, see board manual section 5 for technical guidance.		Content of this NEW section is from WAC 220-110-120 except (8) is edited for clarity. Some of the terminology was changed for consistency with forest practices rule language.

NEW SECTION **WAC 222-24-046 *Bank protection.** Bio-engineering is the preferred method of bank protection where practicable. Bank protection projects shall incorporate mitigation measures as necessary to achieve no-net-loss of productive capacity of fish and shellfish habitat. The following shall apply to bank protection projects: (1) Bank protection work shall be restricted to work necessary to protect eroding banks. (2) Bank protection material placement waterward of the bankfull width shall be restricted to the minimum amount necessary to protect the toe of the bank, or for installation of mitigation features approved by the department. (3) The toe shall be designed to protect the integrity of bank protection material. (4) Bank sloping shall be accomplished in a manner that avoids release of overburden material into the water. Overburden material resulting from the project shall be deposited so as not to reenter the water. (5) Alteration or disturbance of the bank and bank vegetation shall be limited to that necessary to construct the project. All disturbed areas shall be protected from erosion within seven days of completion of the project using vegetation or other means. The banks, including riprap areas, shall be revegetated with native or other approved woody species and maintained to ensure survival. For technical guidance see board manual section 5 for technical guidance. (6) Fish habitat components such as logs, stumps, and/or large boulders may be required as part of the bank protection project to mitigate project impacts. These fish habitat components shall be installed according to an approved design to withstand 100-year peak flows. (7) When rock or other hard materials are approved for bank protection, the following provisions shall apply: (a) Bank protection material shall be angular rock. The project shall be designed and the rock installed to withstand 100-year peak flows. River gravels shall not be used as exterior armor, except as specifically approved by the department. (b) Bank protection and filter blanket material shall be placed from the bank or a barge. Dumping onto the bank face shall be permitted only if the toe is established and the material can be confined to the bank face.		Content of this NEW section is from WAC 220-110-050, except some of the language in WAC 220-110-050(5) on re-vegetation was replaced by a reference to Board Manual Section 5 Forest Practices Hydraulic Projects.
WAC 222-24-0511 *Small forest landowner road maintenance planning. (5) Fish passage barriers will be assessed on a watershed basis focusing on fixing the worst barriers first. (a) The department's family forest fish passage program is available to assist with the removal, replacement, or repair of fish passage barriers that were installed prior to May 14, 2003. The program includes limits on landowner costs and the opportunity for in-kind contributions. One hundred percent public funding shall be provided if an existing barrier was installed under an approved forest practices application, and <u>or a</u> hydraulic~~s~~ project approval <u>acquired by December 31, 2013</u>, and that barrier becomes a high priority for replacement.		Language changed for clarity about one hundred percent funding in cases where fish barriers related to structures were installed under a prior approved HPA.

WAC 222-30-020 *Harvest unit planning and design. (1) **Pre-application consultation and harvest-related forest practices hydraulic projects.** (a) Landowners contemplating forest practices hydraulic projects related to timber harvest are encouraged to consult with the department and the department of fish and wildlife prior to submitting an application to help ensure that project plans and specifications meet fish protection standards. (b) Harvest-related forest practices hydraulic projects include, but are not limited to, projects associated with: (i) Felling and bucking (WAC 222-30-050); (ii) Cable yarding (WAC 222-30-060); and (iii) Large woody material removal or repositioning (WAC 222-30-062). ~~(12)~~ (13) **Channel migration zones.** No harvest, construction or salvage will be permitted within the boundaries of a channel migration zone except for the construction and maintenance of road crossings in accordance with applicable rules and the creation and use of yarding corridors, consistent with WAC 222-24-020(6), 222-30-060 (1), and 222-30-045(2). ~~And chapter 220-110 WAC (Hydraulic code rule).~~ ~~(13)~~ (14) **Bankfull width.** No harvest or construction will be permitted within the bankfull width of any Type S or F Water or any buffered length of Type Np Water, except for the construction and maintenance of road crossings in accordance with applicable rules and creation and use of yarding corridors, consistent with WAC 222-30-020 *(~~5~~6)~~(a)~~ and 222-24-060 (1). No salvage may take place within the bankfull width of any typed water (see WAC 222-30-045) ~~and chapter 220-110 WAC (Hydraulic code rule)~~.		Again, language is added to emphasize that pre-application consultation is key to successful FPAs that include FPHPs. It is included in the timber harvest section to capture applicants that are not aware that FPHPs may be needed in certain activities associated with timber harvest.
WAC 222-30-021 *Western Washington riparian management zones. (1)(c) (iii) **Large woody debris in-channel placement strategy.** (A) In order to reduce the number of required outer zone leave trees, a landowner may design a LWD placement plan ~~in cooperation with the department of fish and wildlife~~ for department approval prior to submitting a forest practices application. ~~The landowner may reduce the number of trees required to be left in the outer zone to the extent provided in the approved LWD placement plan.~~ The plan must be consistent with guidelines in board manual sections 5 and 26. Landowners are encouraged to consult with the department and the department of fish and wildlife while designing the plan and prior to submitting a forest practices application. (B) Reduction of trees in the outer zone must not go below a minimum of ten trees per acre.		Amends language for clarity and changes references to WDFW for consistency with change in jurisdiction.

(C) If this strategy is chosen, the approved plan must be included in a complete forest practices application ~~must include a copy of the WDFW approved hydraulics project approval (HPA permit)~~.		
WAC 222-30-022 *Eastern Washington riparian management zones. (1)(c) (ii) Outer zone leave tree requirements in section (i) above may be reduced to 5 trees per acre in the ponderosa pine zone, 8 trees per acre in the mixed forest habitat type and 10 trees per acre in the high elevation habitat type, if the landowner voluntarily implements an LWD placement plan consistent with board manual sections 5 and 26. Landowners are encouraged to consult with the department and the department of fish and wildlife while designing the plan and prior to submitting a forest practices application. If this strategy is chosen, the approved plan must be included in a complete forest practices application. ~~must include a copy of the WDFW approved hydraulics project approval (HPA) permit.~~		Language amended for clarity and changes references to WDFW for consistency with change in jurisdiction.
WAC 222-30-050 Felling and bucking. *(1) **Felling along water.** (a) ~~No~~Except when removing or reposition large woody debris per WAC 222-30-062, no trees will be felled into or removed from Type S and F Waters RMZ core zones, sensitive sites, or Type A or B Wetlands except trees which cannot practically and safely be felled outside these areas using techniques in general use. Such felling and removing in Type S or F Waters shall comply with ~~hydraulic project approval of the department of fish and wildlife.~~mitigation measures necessary to achieve no-net-loss of productive capacity of fish and shellfish habitat as follows: (j) Trees shall not be felled into or across the stream, except where approved by the department. (ii) Trees or logs that enter a stream during felling shall remain where they enter unless parts or all of the trees or logs are specifically approved by the department. (iii) If limbs or other small debris enter the stream as a result of felling, they shall be removed concurrently with each change in yarding road or within seventy-two hours after entry into the stream, and placed outside the 100-year flood plain. Limbs or other small debris shall be removed from dry streams prior to the normal onset of high flows. Large woody material which was in place prior to felling shall not be disturbed. (iv) Precautions shall be taken to minimize the release of sediment to waters downstream from the felling activity. See board manual section 5 for technical		Content of (i) through (iv) is from WAC 220-110-160. .

guidance. (2) **Bucking or limbing along water.** No bucking or limbing shall be done on trees or portions thereof lying within the bankfull width of Type S, F or Np Waters, in the RMZ core zones, in sensitive sites, or in open water areas of Type A Wetlands, except as necessary to remove the timber from the water, or unless it is part of a proposal to remove or reposition large woody debris per WAC 222-30-062. Such bucking or limbing in Type S or F Waters shall comply with the ~~hydraulic project approval of the department of fish and wildlife mitigation measures in (1)(a)~~mitigation measures in (1)(a) of this section.		
WAC 222-30-060 Cable yarding. (1) **Type S and F Waters and sensitive sites.** No timber shall be cable yarded in or across Type S or F Waters except where the logs will not materially damage the bed of waters, banks of sensitive sites, or riparian management zones. If yarding across Type S or F Waters is permitted, then yarding is limited to cable or other aerial logging methods. Any work in or above Type S or F Waters requires a h~~ydraulics project approval (HPA)~~an approved forest practices application. Logs must be fully suspended above the water unless otherwise allowed in the applicable ~~HPA~~forest practices application. Yarding corridors must be no wider or more numerous than necessary to accommodate safe and efficient transport of logs. Generally, yarding corridors should be located no closer to each other than 150 feet (measured edge to edge) and should be no wider than 30 feet. Safety is a prime consideration in the location of yarding corridors. Total openings resulting from yarding corridors must not exceed 20% of the stream length associated with the forest practices application. When changing cable locations, care must be taken to move cables around or clear of the riparian vegetation to avoid damage to riparian vegetation. *(2) **Type A or B Wetlands.** No timber shall be cable yarded in or across Type A or B Wetlands without ~~written approval from the department and may require a hydraulic project approval from the department of fish and wildlife~~an approved forest practices application. *(3) **Deadfalls.** Logs which are firmly embedded in the bed or bank of Type S or F Waters shall not be removed or disturbed without ~~a hydraulic project approval from the department of fish and wildlife~~an approved forest practices application. *(4) **Yarding in riparian management zones, sensitive sites, and wetland management zones.** Where timber is yarded from or across a riparian management zone, sensitive site, or wetland management zone reasonable care shall be taken to minimize damage to the vegetation providing shade to the stream or open water areas and to minimize disturbance to understory vegetation, stumps and root systems. Where practical and consistent with good safety practices, logs shall be yarded in the direction in which they lie and away from Type A or B Wetlands or Type S, F or Np Waters until clear of the wetland management zone or riparian		Reflects the change in jurisdiction for hydraulic projects.

management zone. *(5) **Trees or logs that enter a stream during yarding** shall remain where they enter unless parts or all of the trees or logs are specifically authorized to be removed in an approved forest practices application. *(6) **Logs transported across Type S, F, or flowing waters** shall be suspended so no portion of the logs or limbs can enter the watercourse or damage the bed and banks. *(7) **Yarding corridors or full suspension** shall be required to prevent damage to riparian vegetation. *(8) **If limbs or other small debris enter the stream** as a result of yarding of timber, they shall be removed concurrently with each change in yarding road or within seventy-two hours after entry into the stream, and placed outside the 100-year flood plain. Limbs or other small debris shall be removed from dry streams prior to the normal onset of high flows. Large woody material which was in place prior to yarding of timber shall not be disturbed.*(9) Precautions shall be taken to minimize the release of sediment to waters downstream from the yarding activity. See board manual section 5 for technical guidance. *(9) **Precautions shall be taken to minimize the release of sediment** to waters downstream from the yarding activity. See board manual section 5 for technical guidance.		Content of (5) through (9) is from WAC 220-110-160.
NEW SECTION **WAC 222-30-062 *Large woody debris removal or repositioning.** Large woody debris removal or repositioning projects shall incorporate mitigation measures as necessary to achieve no-net-loss of productive capacity of fish and shellfish habitat. The following shall apply to large woody material removal or repositioning: (1) Large woody debris removal from streams shall only be approved where necessary to address safety considerations, or where its removal would not diminish the fish habitat quality of the watercourse. The department may approve the repositioning of large woody debris within the watercourse to protect life and property or as needed to conduct a forest practices hydraulic project. Repositioned large woody material shall be placed or anchored to provide stable, functional fish habitat. (2) Large woody debris removal shall be conducted by equipment stationed on the bank, bridge, or other approved methods. (3) Unless otherwise authorized, large woody debris shall be suspended during its removal so no portion of the large woody debris or limbs can damage the bed or banks. Yarding corridors or full suspension shall be required to avoid damage to riparian vegetation. It may be necessary to cut the large woody debris in place, to a size that allows suspension during removal. (4) Smaller limb and bark debris associated with the large woody debris shall be removed and disposed of so as not to reenter the typed water. (5) Large woody debris embedded in a bank or bed shall be left undisturbed and intact except where authorized for removal. (6) Large woody debris removal or repositioning shall be accomplished in a manner which		Content of this NEW section is from WAC 220-110-150

minimizes the release of bedload, logs, or debris downstream. (7) Depressions created in gravel bars shall be filled, smoothed over, and sloped upwards toward the bank on a minimum two percent gradient.		
WAC 222-30-070 Ground-based logging systems. (1) **Typed waters and wetlands.** (a) Ground-based equipment shall not be used in Type S or F Water, except with approval by the department. ~~and with a hydraulic project approval issued by the department of fish and wildlife~~. Yarding across Type S or F Waters is limited to cable or other aerial logging methods. (e) Locations of temporary stream crossings to Np Waters shall be shown on the base map of the forest practices application. Whenever skidding in or across Type Np or Ns Waters, the direction of log movement between stream banks shall be designed to minimize sediment delivery to the stream. BMPs for stream crossings can be found in the board manual section ~~3~~5. (4) **Deadfalls.** Logs firmly embedded in the bed or bank of Type S or F Waters shall not be removed or disturbed without ~~hydraulic project~~ approval from the department.		Reflects the change in jurisdiction for hydraulic projects.
WAC 222-30-100 Slash disposal or prescribed burning. (5) Removing slash and debris from streams. "Slash" or "debris" which can reasonably be expected to cause significant damage to the public resource shall be removed from Type S, F or Np Waters, to above the 100-year flood level and left in a location or manner minimizing risk of re-entry into the stream, lake or pond and if substantial accumulations of slash exist below the 100-year flood level of Type S, F or Np Waters, slash disposal is required. See WAC 222-16-025 Fish protection standards for general provisions for all forest practices hydraulic projects, and ~~the forest practices~~ board manual section 4, ~~for~~Guidelines for clearing slash and debris from Type Np and Ns Waters.		Clarifies that slash disposal must be accomplished to attain fish protection standards.
WAC 222-34-040 Site preparation and rehabilitation. *(3) **Stream channel realignment.** Where work involves deepening, widening, straightening or relocating the channel; or bulkheading, riprapping or otherwise stabilizing the banks of a Type S or F Water, ~~a hydraulic project approval is always required, and the~~ work shall be done only: (a) In conformance with chapter 220-110 WAC;		Reflects the change in jurisdiction for hydraulic projects. Cites hydraulic code rules for compliance with hydraulic projects not associated with forest practices activities.

WAC 222-50-020 Other agency requirements.		
(1) Many other laws and rules apply to the conduct of forest practices. Other agencies administer some of these other regulatory programs. Permits may be required by such agencies prior to the conduct of certain forest practices. The ~~department will~~ Governor's Office of Regulatory Assistance maintains a list ~~for distribution~~ of state, regional, and local regulatory programs including those that apply to forest practices operations. Affected parties are urged to consult with the specified agencies and independent experts with respect to the regulatory requirements shown on the list.		Correction.
(2) ~~Hydraulics project approval law, chapter 77.55 RCW. A hydraulics project approval must be obtained from the department of fish and wildlife prior to constructing any form of hydraulic project or other work that will use, divert, obstruct, or change the natural flow or bed of any river or stream or that will utilize any of the waters of the state or materials from the stream beds. See chapter 77.55 RCW and WAC 232-14-010.~~		Deletion reflects the change in jurisdiction for hydraulic projects.
(3) Wildlife protection, Title 77 RCW. Nothing in these rules is intended to interfere with any authority of the department of fish and wildlife to protect wildlife under any other statutes or regulations, or under any agreements with landowners.		

PRELIMINARY COST-BENEFIT ANALYSIS
Forest Practices Board
Forest Practices Hydraulic Projects

By Gretchen Robinson, Environmental Planner
Department of Natural Resources
April 2013

The Forest Practices Board (Board) is proposing amendments to Title 222 WAC to carry out 2012 legislation.[1] The legislation integrated hydraulic project approvals (HPAs) for forestry activities into the forest practices application (FPA) and approval process.

CONTEXT

Legislative directive

The purpose of the legislation was, in part, to streamline regulatory processes and achieve program efficiencies. It directed the Board to:

> *…incorporate into the forest practices rules those fish protection standards in the rules adopted under chapter 77.55 RCW, as the rules existed on the effective date of this section, that are applicable to activities regulated under the forest practices rules.*[2]

The proposed rules are intended to fulfill that directive.

Analysis requirements for rule making

Before adopting rules, agencies are required to:

- Determine whether the rule is needed to achieve the general goals and specific objectives of statute;
- Analyze alternatives to rule making and the consequences of not adopting the rule;
- Determine that the probable benefits of the rule are greater than its probable costs, taking into account both the qualitative and quantitative benefits and costs and the specific directives of the statute being implemented; and
- Determine that the rule being adopted is the least burdensome alternative for those required to comply with it that will achieve the goals and objectives.[3]

PROBABLE COSTS AND BENEFITS

This rule making is not expected to impose additional costs for forest landowners (the regulated community) or the public's environmental resources (fish, wildlife, water quality and quantity, and capital improvements of the state). In fact, forest landowners are likely to realize benefits related to a streamlined application process for their forestry-related activities.

[1] Second Engrossed Substitute Senate Bill 6406, chapter 1, laws of 2012 (2ESSB 6406)
[2] RCW 76.09.040(3) as amended by 2ESSB 6406.
[3] Administrative Procedure Act, RCW 34.05.328, Significant legislative rules

Forest landowners

The rule proposal combines forest practices and hydraulic projects into one application rather than two. Currently, forest landowners proposing hydraulic projects associated with forest practices must undergo two processes – the acquisition of a forest practices application (FPA) and a hydraulic project approval (HPA). Under the proposed rules there will be no fee changes because forest practices hydraulic projects are currently exempt from any fees additional to forest practices application fees.[4] Landowners should, in fact, realize cost savings due to the streamlined application led by one state agency rather than two.

Environment

The rule proposal does not create any changes to the environmental protections afforded by the existing hydraulic rules or forest practices rules.

Under the rule proposal, and as dictated by the 2012 legislation, the regulatory jurisdiction for hydraulic projects shifts from the Department of Fish and Wildlife (WDFW) to the Department of Natural Resources (DNR). However, both agencies intend to work together to ensure the appropriate expertise continues to be employed for all hydraulic projects. In accordance with WAC 220-110-085 and proposed WAC 222-20-017, WDFW will review all FPAs involving hydraulic projects in Type S and F Waters, communicate with applicants about any concerns relating to consistency with fish protection standards, and provide comments to DNR prior to DNR's approval or disapproval of an FPA. In addition, WDFW will conduct a concurrence review of the following project types and provide written notification to DNR of its concurrence or non-concurrence of the hydraulic project proposal:

- Culvert installation or replacement, and repair at or below the bankfull width in Type S and F Waters that exceed five percent gradient;
- Bridge construction or replacement, and repair at or below the bankfull width of unconfined streams in Type S and F Waters; or
- Fill within the flood level-100 year of unconfined streams in Type S and F Waters.[5]

The administrative measures described above are intended to ensure that expertise from both agencies is fully utilized to assure the same level of environmental protection that exists under the current regulatory regime.

Alternatives to rule making and the consequences of not adopting a rule

The rule proposal combines forest practices and hydraulic projects into one application process as mandated by the 2012 legislation. The Board must fulfill the legislative mandate to incorporate fish protection standards in the hydraulic code rules (chapter 220-110 WAC) into the forest practices rules. Not adopting rules is, therefore, not an acceptable alternative. However, there is a possible alternative to the rule proposal as drafted. The legislation indicated that fish protection standards could simply be incorporated by reference.[6] Instead, the Board determined it would be more helpful to applicants and other rule users to add the content of the portions of the hydraulic code most likely to be associated with forest practices into the appropriate sections in Title 222 WAC.

[4] RCW 77.55.321 (new RCW enacted under 2ESSB 6406)
[5] RCW 76.09.490
[6] RCW 76.09.040(3)

In summary, there is no acceptable alternative to adopting forest practices hydraulic code rules. The consequence of not adopting rules is that the legislative directive would be unfulfilled and the regulatory efficiencies intended by the legislation would not be realized. An alternative to the proposed rules would be to simply incorporate hydraulic code fish protection standards by reference. The Board has determined this is not an acceptable alternative because forest practices applicants would be obliged to follow two sets of rules instead of one for forest practices proposals that include hydraulic projects.

CONCLUSIONS

The proposed forest practices hydraulic project rules are expected to relieve forest landowners of some administrative costs associated with forest practices proposals that include hydraulic projects.

There are no proposed changes to public resource protections currently afforded separately by forest practices and hydraulic project rules. Importantly, DNR and WDFW will both continue working together to ensure that the appropriate expertise and oversight is employed for all hydraulic projects so there is no change in public resource protection.