Enclosure 1. Project Design Features for Invasive Plant Treatments.

PDF Reference	Design Feature	Purpose of PDF	Source of PDF
F	**Herbicide Applications**		
F1a	Herbicides would be used in accordance with label instructions and advisories, except where more restrictive measures are required as described herein. Herbicide applications would only treat the minimum area necessary to meet site objectives. Herbicide formulations would be limited to those containing one or more of the following 10 active ingredients: chlorsulfuron, clopyralid, glyphosate, imazapic, imazapyr, metsulfuron methyl, picloram, sethoxydim, sulfometuron methyl, and triclopyr.	To limit potential adverse effects on people and the environment.	Standard 16, 2005 R6 ROD; Pesticide Use Handbook 2109.14
F1b	Herbicide application methods include wicking, wiping, injection, spot, and broadcast, as permitted by the product label and these Project Design Features. The use of triclopyr is limited to spot and hand/selective methods. Herbicide carriers (solvents) are limited to water and/or specifically labeled vegetable oil.	To limit potential adverse effects on people and the environment.	Standard 16, 2005 R6 ROD; Pesticide Use Handbook 2109.14
F2	Herbicide use would comply with standards in the Pacific Northwest Regional Invasive Plant Program – Preventing and Managing Invasive Plants FEIS (2005), including standards on herbicide selection, restrictions on broadcast use of some herbicides, tank mixing, licensed applicators, and use of adjuvants, surfactants and other additives.	To limit potential adverse effects on people and the environment.	2005 R6 ROD Treatment Standards
F3	POEA surfactants, urea ammonium nitrate or ammonium sulfate would not be used in applications within 150 ft of surface water, wetlands or on roadside treatment areas having high potential to deliver herbicide.	To protect aquatic organisms.	The distance of 150 ft was selected because it is wider than the largest buffer and incorporates the Aquatic Influence Zone for fish bearing streams.
F4	Lowest effective label rates would be used for each given situation. NPE surfactant would not be broadcast at a rate exceeding 0.5 active ingredient per acre, Other classes of surfactants besides NPE would be favored wherever they are expected to be effective. In no case would imazapyr be applied at a rate exceeding 0.70 lbs. a.i./ac. (pounds of active ingredient per acre).	To eliminate possible herbicide or surfactant exposures of concern to human health, wildlife, and/or fish.	SERA Risks Assessments, Appendix Q of the R6 2005 FEIS SERA Risk Assessment for imazapyr demonstrates that no exposures of concern are plausible.
F5	Herbicide applications would occur when wind velocity is between 2 and 8 miles per hour. During application, weather conditions would be monitored periodically by trained personnel.	To ensure proper application of herbicide and reduce drift.	These restrictions are typical so that herbicide use is avoided during inversions or windy conditions.

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F6	To minimize herbicide application drift during broadcast operations, use low nozzle pressure; apply as a coarse spray, and use nozzles designed for herbicide application that do not produce a fine droplet spray, e.g., nozzle diameter to produce a median droplet diameter of 500-800 microns.	To ensure proper application of herbicide and reduce drift.	These are typical measures to reduce drift. The minimum droplet size of 500 microns was selected because this size is modeled to eliminate adverse effects to non-target vegetation 100 ft or further from broadcast sites (see Chapter 3.2 for details).
H	**Soils, Water and Aquatic Ecosystems**		
H1	Herbicide use buffers have been established for perennial and wet intermittent steams; dry streams; and lakes and wetlands. These buffers are depicted in the tables below. Buffers vary by herbicide ingredient and application method. Tank mixtures would apply the largest buffer as indicated for any of the herbicides in the mixture.	To reduce likelihood that herbicides would enter surface waters in concentrations of concern. Comply with R6 2005 ROD Standards 19 and 20.	Buffers are based on label advisories, and SERA risk assessments. Buffer distances are based on the Berg's 2004 study of broadcast drift and runoff to streams, along with Washington State Dept. of Agriculture's DOA's 2003-2005 monitoring results.
H3	No use of picloram or Triclopyr BEE, and no broadcast of any herbicide on roadside treatment areas that have a high risk of herbicide delivery.	To ensure herbicide is not delivered to streams in concentrations that exceed levels of concern. Not broadcasting far reduces potential for exposure because spot and selective method substantially reduce potential for off site impacts, drift, and other herbicide delivery mechanisms to water (runoff, leaching). No use of picloram and triclopyr BEE eliminates potential for these herbicides through the road ditch network.	SERA Risk Assessments, R6 2005 FEIS Fisheries Biological Assessment
H4	Aquatic- labeled herbicides or herbicides associated with lower risk to aquatic organisms would be applied using spot or hand/selective methods within 15 ft of wet roadside ditches. For treatments of target vegetation emerging out of the wet roadside ditch only aquatic labeled herbicides would be used.	To ensure herbicide is not delivered to streams in concentrations that exceed levels of concern. Not broadcasting far reduces potential for exposure because spot and selective method substantially reduce potential for off site impacts, drift, and other herbicide delivery mechanisms to water (runoff, leaching). Resrictions on herbicide selection avoids potential for herbicides to reach a threshold of concern.	SERA Risk Assessments R6 2005 FEIS and Fisheries Biological Assessment BPA Columbia River Biological Opinion

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H5	Vehicles (including all terrain vehicles) used to access or implement invasive plant projects would remain on roadways, trails, parking areas or other disturbed areas to prevent damage to riparian vegetation and soil, and potential degradation of water quality and aquatic habitat.	To protect riparian and aquatic habitats.	BPA Columbia River Biological Opinion
H8	No more than one application of picloram would be made within a 2-year period, except to treat areas missed during initial application.	To reduce the potential for picloram to enter surface and/or ground water and/or accumulate in the soil. Picloram has the highest potential to impact organisms in soil and water, and tends to be more persistent than the other herbicides.	SERA Risk Assessment. Based on quantitative estimate of risk from worst-case scenario and uncertainty.
H9	No more than one application of sulfometuron methyl would be made within a 1-year period, except to treat areas missed during initial application.	To reduce the potential for sulfometuron methyl accumulation in the soil. Sulfometuron methyl has some potential to impact soil and water organisms and is second most persistent.	SERA Risk Asessments. Based on quantitative estimate of risk from worst-case scenario and uncertainty.
H10	Lakes and Ponds –- No more than half the perimeter or 50 percent of the vegetative cover or 10 contiguous acres around a lake or pond would be treated with herbicides in any 30-day period.	To reduce exposure to herbicides by providing some untreated areas for some organisms to use.	SERA Risk Asessments. Reduces exposure to herbicides by providing untreated areas for organisms to use. Abates risks associated with worst-case scenarios and uncertainty regarding effects to reptiles and amphibians.
H13	Within the exception of hand/select methods, herbicides would be applied at typical (or lower) rates within Aquatic Influence Zones.	To ensure herbicide exposures are below thresholds of concern for aquatic ecosystems.	SERA Risk Assessments, Biological Assessment
H14	Treatments above bankfull, within the aquatic influence zone (riparian area), would not exceed 10 acres along any 1.5 mile of stream reach within a 6th field subwatershed in any given year. In addition, treatments below bankfull would not exceed 6 acres total within a 6th field subwatershed in any given year.	Limits the extent of treatment within the Aquatic Influence Zone so that adverse effects are within the scope of analysis.	Analysis based on SERA risk assessment worksheets and emergent vegetation analysis completed for the Cranberry Bog and Middle Hoh River. Ten acres is based on GLEAM model factors.
J1	**Bald Eagle**		
J1-a	Treatment of areas within 0.25 mile, or 0.50 mile line-of-sight, of bald eagle nests would be timed to occur outside the nesting season of January 1 to August 31, unless treatment activity is within ambient levels of noise and human presence (as determined by a local specialist). This seasonal restriction may be waived if a biologist determines by appropriate surveys that nest sites are not active that year.	To minimize disturbance to nesting bald eagles and protect eggs and nestlings	Bald Eagle Management Guidelines for OR-WA (Anonymous); U.S. Fish and Wildlife Service 2003, p. 9
J1-b	Noise-producing activity above ambient levels would not occur between October 31 and March 31 during early morning or late afternoon within 0.25 mile, or 0.50 mile line-of-sight, of known winter roosts and concentrated foraging areas. Disturbance to daytime winter foraging areas would be avoided.	To minimize disturbance and reduce energy demands during stressful winter season	Bald Eagle Management Guidelines for OR-WA (Anonymous); Olympic National Forest Programmatic BO (U.S. Fish and Wildlife Service 2003, p. 9)

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J2	**Spotted Owl**		
J2	Chainsaw use within 65 yards, and mower or heavy equipment use within 35 yards, of any nest site, activity center, or un-surveyed suitable habitat will be timed to occur outside the nesting season of March 1 to July 15, unless treatment activity is within ambient levels of noise and human presence (as determined by a local specialist). There is no seasonal restriction on the use of roadside broadcast sprayers.	To minimize disturbance to nesting spotted owls and protect eggs and nestlings	Olympic National Forest Programmatic BO (U.S. Fish and Wildlife Service 2003)
J3	**Marbled Murrelet**		
J3-a	Chainsaw or motorized tool use within 45 yards, and mower or heavy equipment use within 35 yards of any known occupied site or un-surveyed suitable habitat would will be timed to occur outside April 1 to August 5, unless treatment activity is within ambient levels of noise and human presence (as determined by a local specialist). There is no seasonal restriction on the use of roadside broadcast sprayers.	To minimize disturbance to nesting marbled murrelets and protect eggs and nestlings	Olympic National Forest Programmatic BO (U.S. Fish and Wildlife Service 2003)
J3-b	After August 5 and before April 1, activities generating noise above 92 dB may occur within the disturbance distances listed above, but must still be conducted between 2 hours after sunrise and 2 hours before sunset.	To minimize disturbance to marbled murrelets returning to nest tree during the late breeding season.	Olympic National Forest Programmatic BO (U.S. Fish and Wildlife Service 2003)