MEMORANDUM

TO: Forest Practices Board

FROM: Leslie Lingley, Forest Practices Science Team Lead

DATE: January 14, 2011

STATUS REPORT: Watershed Analysis Mass Wasting Prescription revision

During its May 10, 2010 meeting, the Mass Wasting Prescriptions subcommittee of the Forest Practices Board directed staff to analyze and report on several tasks relating to Watershed Analysis Mass Wasting Prescription reanalysis as required under WAC 222-22-090. Results of this work, which involved all affected stakeholders, are summarized below.

I. Applying the Recommended Prioritization Scheme: Previously developed and approved criteria were used to establish a prioritized list of the 52 approved watershed analyses and to schedule re-analyses. The six criteria and brief explanations of methods used to quantify rankings are presented below. Prioritization of these watersheds and specific ranking criteria are given in Attachment A.

- *Criteria 1 - Potential threat to public safety*

  Because of time and other constraints, the background rate for landslides was used as a proxy for the potential threat to public safety. The number of landslides in each watershed's mass wasting landslide inventory was normalized for area and time (i.e., the duration of the air photo record used in the original watershed analysis). Because of the reconnaissance nature of the prioritization study, this criterion is primarily qualitative.

- *Criteria 2 – Activity level of forest practices activities within the watershed*

  The level of activity in each watershed was determined by querying all Forest Practices Applications submitted between January 1, 1995 and June 1, 2010 and normalizing for area (includes all Class II, III, IV-General and IV-Special applications).

- *Criteria 3 - Significant storm events producing high numbers of landslides*

  Four watersheds subjected to the December 2007 storm and five affected by the January 2009 storm experienced extensive landsliding. Relative spatial-densities for landslides in these watersheds were used as a ranking criterion for prioritization. The landslide density data were derived from aerial reconnaissance investigations published by the Department's Division of Geology and Earth Resources.

- *Criteria 4 - Stakeholder input*

  DNR formally sought stakeholder input for watersheds that are considered unusually important and might merit higher priority for review and reanalysis. The Northwest Indian Fisheries Commission responded with a list of 14 such watersheds (eight of which had approved watershed analyses) that they regarded as high priority for reanalysis. No other watersheds were identified by stakeholders.

- *Criteria 5 - Previous Watershed Analysis reviews*

  Those landowners who have documented five-year reviews and have provided a schedule for future five-year reviews are not included in the priority list. Some landowners with individual Habitat Conservation Plans (HCP) are subject to over-riding requirements for Habitat Conservation Plan review.

- *Proposed Criteria 6 – The absence of mass wasting prescriptions for harvest and or road construction*

  All 52 approved watershed analyses contain mass wasting prescriptions for harvest and road construction. Prescriptions range from very specific to vague. Hence, this criterion was not used in the prioritization process.

II. Identifying Landowners Choosing to Sponsor a Reanalysis: In August 2010, DNR sent 115 letters inquiring as to whether affected landowners might be willing to: 1) Sponsor a watershed reanalysis, 2) Participate in a reanalysis, or 3) Choose to withdraw Watershed Analysis mass wasting prescriptions and instead utilize the standard mass wasting rules (WAC 222-16-050d). (See Attachment B) Sixty two landowners chose option 3, and six chose option 2. Forty seven landowners have yet to respond.

III. Finalizing Mass Wasting Reanalysis Methods: A third draft of this document was sent to stakeholders on January 7, 2011, along with a request for timely and final written comments. A meeting is scheduled for February 15, 2011 to discuss and approve a final version.

IV. Distributing the Prioritized List of Watersheds and Providing Tentative Schedules for Watershed Reanalysis Sponsors (Attachment C). We will distribute this list to landowners and meet with those who will conduct a reanalysis. Forest Practices will provide training for qualified expert analysts, start up materials, and required mapping standards during June 2011. Kick off meetings will be held in the Regions shortly thereafter. Forest Practices anticipates the first round of reanalyses to begin in July 2011.

Please contact me at leslie.lingley@dnr.wa.gov or 360-902-2138 if you have any questions.

Forest Practices Board Meeting February 08, 2011 Attachment A: Prioritization of Watershed Analysis Mass Wasting Prescription Reanalysis

Priority Ranking	Approved Watershed Analysis	Region	Original Sponsors*	Prioritization Elements: Criterion #1 — Landslide Background Rates (using WSA LSI counts, area, and years of photo years)	Criterion #2 — FPA density #FPAs/mile^2	Criterion #3 — 2007 Storm ranks of 4 watersheds (landslide density)	Criterion #3 — 2009 Storm ranks of 5 watersheds (landslide density)	Criterion #4 — Tribal interest	Totals — Total Ranks	Criterion #5 — Previous Reviews	Criterion #5 — Schedule for Reviews
1	Acme	NW	Crown	6	2	10	3	1	22		
2	North Elochoman	PC	DNR State Lands	2	8	3	10	5	28		
3	Stillman Creek	PC	Weyerhaeuser	13	4	2	10	5	34	2000	
4	Skookum Creek	NW	Merril & Ring-Green Crow	5	9	10	10	1	35		
5	Chehalis Headwaters	PC	Weyerhaeuser	3	22	1	10	5	41	2000	
6	Kosmos	PC	West Fork Timber (Murray Pacific)	10	17	10	1	5	43	2001, 2006	2011
7	Hutchinson	NW	DNR Regulatory	20	3	10	10	1	44		
8	Hansen Creek	NW	DNR Regulatory	15	5	10	10	5	45		
9	Warnick	NW	DePaul/ Trillium	31	1	10	5	1	48		
10	Hoko	OLY	Rayonier/ Crown Pacific	24	7	10	10	1	52		
10	North Fork Calawah	OLY	Rayonier	1	26	10	10	5	52		
11	Kennedy Creek	PC	DNR Regulatory	23	11	4	10	5	53		
12	Lake Whatcom	NW	DNR State Lands	12	19	10	10	5	56		
13	Fall River	PC	Weyerhaeuser	26	6	10	10	5	57		
14	Connelly Creek	PC	West Fork Timber (Murray Pacific)	14	27	10	2	5	58	1996, 2002, 2007	2012
15	Jordan - Boulder	NW	DNR State Lands	25	10	10	10	5	60		
15	Willapa Headwaters	PC	Weyerhaeuser	19	16	10	10	5	60		
16	Tolt	SPS	Weyerhaeuser	29	12	10	10	5	66		
17	Hazel	NW	DNR Regulatory	16	31	10	10	1	68		
17	Upper Skookumchuck	PC	Weyerhaeuser	32	15	10	10	1	68		
17	Vesta - Little North	PC	Weyerhaeuser	18	25	10	10	5	68		
18	Kiona Creek	PC	West Fork Timber (Murray Pacific)	17	33	10	4	5	69	2002, 2006	2011
19	WF Tilton and Nineteen Creek	PC	West Fork Timber (Murray Pacific)	9	36	10	10	5	70	2003, 2008	2013
20	East Fork Tilton	PC	West Fork Timber (Murray Pacific)	35	13	10	10	5	73	2000, 2005	2010
21	Lester	SPS	Plum Creek	21	29	10	10	5	75		
21	Upper Coweeman	PC	Weyerhaeuser	36	14	10	10	5	75		
21	West Fork Satsop	PC	Green Diamond (Simpson)	4	46	10	10	5	75		
22	Naches Pass	SE	DNR Regulatory	7	48	10	10	5	80		
23	Griffin - Tokul	SPS	Weyerhaeuser	38	18	10	10	5	81		
24	South Fork Skokomish	SPS	Green Diamond (Simpson)	8	51	10	10	5	84		
25	Sekiu Coastal	OLY	DNR Regulatory	34	32	10	10	1	87		
25	Upper Green River - Sunday Creek	SPS	Plum Creek	22	40	10	10	5	87		
26	Silver	PC	West Fork Timber (Murray Pacific)	11	52	10	10	5	88	2004, 2009	2014
27	Panakanic	SE	Champion	41	24	10	10	5	90		
28	Huckleberry Creek	NE	DNR Regulatory	33	34	10	10	5	92		
28	Mineral - North Fork Mineral	PC	West Fork Timber (Murray Pacific)	30	37	10	10	5	92	2003, 2008	2013
28	Quartz Mountain	SE	Plum Creek	28	39	10	10	5	92		
28	Woods Creek	NW	DNR State Lands	46	21	10	10	5	92		
29	West Kitsap	SPS	DNR Regulatory	48	20	10	10	5	93		
30	North Fork Teanaway	SE	American Forest Land (Boise)	39	30	10	10	5	94		
31	Palix	PC	Rayonier	47	23	10	10	5	95		
32	Keechelus Lake - Mosquito Creek	SE	Plum Creek	27	49	10	10	5	101		
33	Ahtanum	SE	DNR Regulatory	42	35	10	10	5	102		
34	South Fork Touchet	SE	DNR Regulatory	37	42	10	10	5	104		
35	Thompson Creek	NE	DNR Regulatory	52	28	10	10	5	105		
36	Big Creek	SE	Plum Creek	40	43	10	10	5	108		
37	Sol Duc	OLY	DNR Regulatory/ USFS	49	38	10	10	5	112		
38	Big Sheep Creek	NE	Boise	45	45	10	10	5	115		
39	Naneum	SE	DNR Regulatory	44	47	10	10	5	116		
40	Sinlahekin - SF Toats Coulee	NE	DNR State Lands	51	41	10	10	5	117		
41	Big Quilcene	OLY	DNR Regulatory/ USFS	43	50	10	10	5	118		
42	Upper Little Klickitat	SE	Western Pacific (Boise)	50	44	10	10	5	119		

***Colors are to group sponsors of more than one Watershed Analysis**

Criteria Explanations

WSA= watershed analysis

LSI = landslide inventory

FPA = Forest Practices Application

mile^2 = square miles

Criterion #1: We didn't have the time or means to determine where and how landslides had threatened public safety throughout the areas of all 52 watersheds. So a background rate of landsliding ***could*** be a surrogate for the ***potential*** to threaten public safety. In order to attain a background rate we used the number of landslides identified in the watershed analysis mass wasting modules. These inventories also identify the years of air photo coverage used. We divided the numbers of landslides by the area of square miles and again by the number of years of aerial photography used to normalize for area and time. Then we assigned a rank of #1 to the watershed with the highest landslide background rate. As the rates decreased the ranking number increased. So #1 is the highest priority.

Criterion #2: We queried our records to provide the number of applications that have been submitted from January 1995 to July 2010. These counts were then divided by the watershed area in square miles to get a rate of activity by area. Then we assigned a rank of #1 to the watershed with the highest rate of activity. As the rates decreased the ranking number increased.

Criterion #3: Large storms occurred in 2007 and 2009 in Western Washington. The Division of Geology and Earth Resources produced landslide maps for each storm using air reconnaissance mapping. Four approved watershed analyses (highlighted in gray) were affected in 2007 (14 watershed administrative units (WAUs) experienced extensive landsliding). Five of 20 WAUs that were affected in 2009 (highlighted) were in areas of approved watershed analyses. We ranked the watersheds by the highest numbers of landslides for each year. All other watersheds were assigned a rank of #10 in order to show that they were not affected by the storms.

Criterion #4: Stakeholders responded to DNR requests regarding which watersheds they considered important for mass wasting reanalysis. The North West Indian Fisheries Commission provided a list of 14 watersheds. Issues for their selections ranged from areas with heavy storm impacts, landslides from culverts and roads, and general abundance of mass wasting. Eight of their choices were in approved watershed analysis areas and ***they*** all received a rank of #1 (hIghlighted in blue). Others were assigned a rank of #5 to inidcate a lower level of concern.

Criterion #5: West Fork Timber (formerly known as Murray Pacific) has been conducting watershed analysis five-year reviews since 1996. They have provided a schedule for continuing five-year reviews to DNR. They have an Habitat Conservation Plan that is administered by the US Fish and Wildlife Service. Their approved watershed analyses will not be included in the prioritization schedule.

Total Ranks: Ranking of all the criteria was added to create a prioritization of all 52 approved watershed analyses. The top numbers are the first selections for reanalysis. There are some instances in which the total ranks are the same, so for these watersheds you will see two #10's and two #17's etc. in the column labled "Priority Ranking".

Attachment B
Generic Landowner Inquiry Letter
FP Board Meeting 2-8-2011

August 11, 2010

Owner Name
Named #1 Industry
Any #1 Street
Any #1 City, WA 98XXX

Subject: Watershed Analysis Mass Wasting Prescription Review – Your Watershed Analysis (WSA)

Dear Mr. Owner,

In the mid-late 1990's there were 52 watershed analyses across the state that were conducted by multiple scientists including biologists, hydrologists, foresters, and geologists. The objectives of these analyses were to assess resource issues and develop prescriptions to address watershed specific resources. One of the many modules in the watershed analysis was specific to mass wasting. Landslide maps, designations of unstable slope areas, and specific recommendations to protect resources from the impacts of landsliding were products of that module.

Our records indicate that *Named #1 Industry* owns land within the area of the Forest Practices (FP) approved your Watershed Analysis.

It was the intention under WAC 222-22-090 that completed WSAs undergo periodic reviews and, if necessary, make revisions to ensure resources were protected. However, very few reviews of completed WSAs have been conducted. The lack of reviews in combination with the impact of recent large storm events emphasizes the need for WSA reviews. Therefore, earlier this year, the Forest Practices Board supported staff recommendations to prioritize and schedule Mass Wasting Prescription Reviews, and to develop a standardized review process.

The FP Program is working with interested parties to develop a mass wasting prescription review process. The methods will be very similar to the analysis process outlined in the mass wasting section of the FP Board Manual 11 "Standard Methodology for Conducting Watershed Analysis" at http://www.dnr.wa.gov/Publications/fp_wsa_manual_appa.pdf

We know at a minimum the following will be required for a mass wasting prescription review:

- ✓ A revised landslide inventory and an analysis of the mass wasting prescription effectiveness, and
- ✓ A report that answers a series of questions similar to those posed in the original watershed analysis.

The FP Program has prioritized all 52 approved WSAs and is setting up a schedule for these reviews. The original sponsor for your watershed analysis was the FP Program, which is no longer funded to sponsor watershed analyses for multiple landowners. We are requesting the current landowners, which include DNR State Trust lands, Name #1 Industry, and Named #2 Industry to sponsor the review. However, in order to determine which reviews will progress, we are asking for your help to make one of the three choices listed below:

Attachment B, FP Board Meeting 2-8-11

1. Volunteer to sponsor a mass wasting prescription review, solely or in conjunction with other substantial landowners (as outlined in WAC 222-22-040 (3)) http://www.dnr.wa.gov/Publications/fp_rules_ch222-22wac.pdf . Be advised, in order to successfully sponsor a review, a landowner must supply a "qualified expert" as defined by the FP rules (See WAC 222-10-030 (5)) at http://www.dnr.wa.gov/Publications/fp_rules_ch222-16wac.pdf).
2. Volunteer to be a participant in the review sponsored by another landowner by providing relevant geologic expertise, or sharing responsibilities.
3. Decide to withdraw the mass wasting prescriptions and agree to use the Forest Practices rule identified landforms and the associated avoidance/mitigation strategy.
    a. You can find the particulars of these landforms in WAC 222-16-050 (1) at http://www.dnr.wa.gov/Publications/fp_rules_ch222-16wac.pdf and in the Forest Practices Board Manual 16 at http://www.dnr.wa.gov/Publications/fp_board_manual_section16.pdf

Withdrawing mass wasting prescriptions or completing a review will require State Environmental Policy Act (SEPA) review. SEPA requires state and local agencies to consider the likely environmental consequences of a proposal before approving or denying the proposal. More information can be found at http://www.ecy.wa.gov/programs/sea/sepa/e-review.html .

The names and contact information for other substantial landowners in the Your Watershed are provided below. We encourage you to correspond with these landowners to confer about your available choices.

Landowner Name	Phone	Address
DNR Region State Lands Assistant Manager:	360.XXX.XXXX Fax: 360.XXX.XXXX	Region Office Any #2 St. Any #2 City, WA 98284
Named #2 Industry Mr. Timber	360.XXX.XXXX	Any #3 St. Any #3 City, WA 98273

Enclosed is a self addressed post card with the three landowner options described above. Please indicate your preference no later than September 7, 2010 so we can start scheduling reviews.

I know there may be numerous questions regarding this letter. The Forest Practices Science Team comprised of licensed engineering geologists will be involved in the Mass Wasting Prescription reviews and I will be your main contact. Please don't hesitate to call me.

Sincerely,

Leslie Lingley, LEG #229
Forest Practices Science Team Lead
Forest Practices Division
Washington State Department of Natural Resources (DNR)
360-902-2138 (office)
360-489-2891 (cell) or
Leslie.Lingley@dnr.wa.gov

Forest Practices Board Meeting 2-8-2011, Attachment C: Prioritization and Scheduled Start Dates for Reanalysis

Priority Ranking	Approved Watershed Analysis	Region	Original Sponsors*	Number of Landowners owning ≥ 10% Non Federal Forest Lands	*Numbers of landowners for each choice* Option 1 Spponsor WSA Reanalysis	Option 2 Participate in a WSA Reanalysis	Option 3 With-draw MW Rxs, and use Standard Rules	Number of landowners that didn't reply	Dates of Previous 5-Year Reviews	Schedule for Tentative Start Date
1	Acme	NW	Crown	3	0	0	2	1		July-11
2	North Elochoman	PC	DNR State Lands	6	0	0	4	2		July-11
3	Stillman Creek	PC	Weyerhaeuser	2	0	0	0	2	2000	July-11
4	Skookum Creek	NW	Merril & Ring-Green Crow	3	0	0	2	1		July-11
5	Chehalis Headwaters	PC	Weyerhaeuser	2	0	0	1	1	2000	February-12
7	Hutchinson	NW	DNR Regulatory	3	0	0	2	1		February-12
8	Hansen Creek	NW	DNR Regulatory	3	0	0	2	1		February-12
9	Warnick	NW	DePaul/ Trillium	2	0	0	1	1		February-12
10	Hoko	OLY	Rayonier/ Crown Pacific	5	0	1	2	2		February-12
10	North Fork Calawah	OLY	Rayonier	3	0	0	2	1		July-13
12	Lake Whatcom	NW	DNR State Lands	3	0	0	2	1		July-13
13	Fall River	PC	Weyerhaeuser	2	0	0	1	1		July-13
15	Jordan - Boulder	NW	DNR State Lands	4	0	0	2	2		July-13
15	Willapa Headwaters	PC	Weyerhaeuser	2	0	0	1	1		July-13
17	Upper Skookumchuck	PC	Weyerhaeuser	1	0	0	0	1		February-13
17	Vesta - Little North	PC	Weyerhaeuser	1	0	0	0	1		February-13
21	Lester	SPS	Plum Creek	5	0	0	2	3		February-13
21	Upper Coweeman	PC	Weyerhaeuser	1	0	0	0	1		February-13
22	Naches Pass	SE	DNR Regulatory	2	0	0	0	2		February-13
25	Sekiu Coastal	OLY	DNR Regulatory	4	0	0	1	3		July-13
25	Upper Green River - Sunday Creek	SPS	Plum Creek	1	0	0	0	1		July-13
27	Panakanic	SE	Champion	4	0	0	3	1		July-13
28	Quartz Mountain	SE	Plum Creek	1	0	0	0	1		July-13
29	West Kitsap	SPS	DNR Regulatory	3	0	0	2	1		July-13
31	Palix	PC	Rayonier	2	0	0	0	2		February-14
32	Keechelus Lake - Mosquito Creek	SE	Plum Creek	2	0	0	1	1		February-14
33	Ahtanum	SE	DNR Regulatory	3	0	0	2	1		February-14
34	South Fork Touchet	SE	DNR Regulatory	2	0	0	1	1		February-14
35	Thompson Creek	NE	DNR Regulatory	3	0	1	1	1		February-14
36	Big Creek	SE	Plum Creek	1	0	0	0	1		July-15
37	Sol Duc	OLY	DNR Regulatory/ USFS	4	0	0	3	1		July-15
38	Big Sheep Creek	NE	Boise	2	0	2	0	0		July-15
40	Sinlahekin - SF Toats Coulee	NE	DNR State Lands	5	0	0	1	4		July-15
41	Big Quilcene	OLY	DNR Regulatory/ USFS	4	0	0	3	1		July-15
Approved Watershed Analyses not included in the schedule above										
6	Kosmos	PC	Murray Pacific						2001, 2006	July-05
14	Connelly Creek	PC	Murray Pacific						1996, 02, 07	July-05
18	Kiona Creek	PC	Murray Pacific						2002, 2006	July-05
19	WF Tilton and Nineteen Creek	PC	Murray Pacific						2003, 2008	July-05
20	East Fork Tilton	PC	Murray Pacific						2000, 2005	July-05
26	Silver	PC	Murray Pacific						2004, 2009	July-05
28	Mineral - North Fork Mineral	PC	Murray Pacific						2003, 2008	July-05
11	Kennedy Creek	PC	DNR Regulatory	2	0	0	2	0	Will use standard rules	
16	Tolt	SPS	Hancock (Weyerhaeuser)	1	0	0	1	0	Will use standard rules	
17	Hazel	NW	DNR Regulatory	5	0	0	4	1	Will use standard rules	
21	West Fork Satsop	PC	Simpson-Green Diamond	1	0	0	1	0	Will use standard rules	
23	Griffin - Tokul	SPS	Hancock (Weyerhaeuser)	1	0	0	1	0	Will use standard rules	
24	South Fork Skokomish	SPS	Simpson-Green Diamond	1	0	0	1	0	Will use standard rules	
28	Woods Creek	NW	DNR State Lands	2	0	0	2	0	Will use standard rules	
28	Huckleberry Creek	NE	DNR Regulatory	3	0	2	1	0	Will use standard rules	
30	North Fork Teanaway	SE	American Forest Land (Boise)	1	0	0	1	0	Will use standard rules	
39	Naneum	SE	DNR Regulatory	3	0	0	3	0	Will use standard rules	
42	Upper Little Klickitat	SE	Western Pacific (Boise)	1	0	0	1	0	Will use standard rules	
			Totals	115		6	62	47		
			*Colors are to group sponsors of more than one Watershed Analysis							