Date of Report: **8/08/2014**

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

[X] 1. Funding request for estimated emergency stabilization funds
[ ] 2. Accomplishment Report
[ ] 3. No Treatment Recommendation

B. Type of Action

[X] 1. Initial Request (Best estimate of funds needed to complete eligible stabilization measures)

[ ] 2. Interim Report #____
[ ] Updating the initial funding request based on more accurate site data or design analysis
[ ] Status of accomplishments to date

[ ] 3. Final Report (Following completion of work)

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: **Mills Canyon**

B. Fire Number: **WA-SES-000267**

C. State: **Washington**

D. County: **Chelan**

E. Region: **RO6**

F. Forest: **Okanogan-Wenatchee**

G. Fire Incident Job Code: **PNH7QK (152)**

H. Date Fire Started: **7/8/2014**

I. Date Fire Contained: **08/02/2014**

J. Suppression Cost: **As of 7/24/2014 - $8,780,000**

K. Fire Suppression Damages Repaired with Suppression Funds

1. Fireline waterbarred (miles): **15 - 20**
2. Fireline seeded (miles): **0**
3. Roads: **0**

L. Total Acres Burned: **22,006 Total Acres**

NFS Acres **(11,882)** Other Federal **(2,360)** State **(4,041)** Private **(3,723)**

M. Watershed Numbers:

Watershed	Subwatershed	Total Acres	Ownership	Burned Acres of Ownership and (%)	Low Severity Acres and (%)	Moderate Severity Acres and (%)	High Severity Acres and (%)
Entiat River 1702001002	Mills Creek 170200100209	32,412	**15,915 = USFS**	5398 (34%)	1773 (33%)	2445 (45%)	1180 (22%)
			2,910 = BLM	1035 (36%)	738 (71%)	274 (26%)	23 (2%)
			8,440 = Private	2034 (24%)	1392 (68%)	591 (29%)	51 (3%)
			3,774 = State	2191(58%)	1148 (52%)	879 (40%)	164 (7%)
			1,373 = DFW	0	0	0	0
	Roaring Creek 170200100208	16,280	**9,954 = USFS**	265 (3%)	148 (56%)	116 (44%)	1 (<1%)
			19 = BLM	15 (79%)	15 (99%)	0.1 (1%)	0 (0%)
			5,455= Private	373 (7%)	203 (54%)	167 (45%)	3 (1%)
			852 = State	0	0	0	0
Columbia River 1702001003	Spencer Canyon 170200100306	25,686	**5,767 = USFS**	5233 (91%)	3882 (74%)	1137 (22%)	214 (4%)
			3,244 = BLM	1000 (31%)	958 (96%)	41 (4%)	1 (<1%)
			10,736= Private	814 (8%)	641 (79%)	173 (21%)	0
			1,652 = State	982 (59%)	704 (72%)	250 (25%)	28 (3%)
			1,260 = DFW	612 (49%)	594 (97%)	18 (3%)	0
			63 = DPR	0	0	0	0
	Swakane Creek 170200100305	13,258	**9,586 = USFS**	226 (2%)	209 (92%)	17 (8%)	0
			45 = BLM	0	0	0	0
			176 = Private	0	0	0	0
			748 = State	0	0	0	0
			2,701 = DFW	0	0	0	0

N. Vegetation Types:

The Mills Canyon area is a mixture of low elevation grass and shrub lands and shrub steppe with ponderosa pine and Douglas fir at higher elevations

O. Dominant Soils:

Soils in the burned area are relatively dry in Xeric moisture regime and range from warm to cold in the Mesic, Frigid, and Cryic soil temperature regimes.

Soil Map Units 29 and 30 are the dominant soils with a “High” burn severity rating in the Mills Canyon Fire. Together, they make up the steep slopes of Ardenmont coarse sandy loam soil series. They occur on mountain hillsides of weathered schist bedrock that generally have a northerly aspect. These deep, well drained soils are coarse sandy loams (residuum and colluvium) derived mainly from schist mixed with minor amounts of volcanic ash and loess in the upper part; high amounts of gravel appear below 4 inches deep, appropriate for Hydrologic Soil Group B.

P. Geologic Types:

The metamorphic Swakane geologic formation dominates all but some lower elevations in northeast portions of the burned area. Foliated schist and gneiss and intrusive granodiorite underlie steep, dissected mountain slopes, also named the Chelan Tephra Hills subsection by Bailey (19??).

Q. Miles of Stream Channels by Order or Class: **48 miles total**

(31 miles of Intermittent; 18 miles of perennial; 0 miles unknown)

Miles of Stream by Severity			
Severity	**Intermittent**	**Perennial**	**Grand Total**
High	6	0	7
Moderate	13	3	16
Low	10	12	22
Very Low or Unburned	2	2	4
Total	**31**	**18**	**48**

R. Transportation System

Trails: **0 miles**

Roads: **147 miles total** -

(44 miles – Maintenance Level 1; 44 miles – Maintenance Level 2; 59 miles – Non FS System)

Miles of Road by Severity				
Severity	**Mtce Level 1**	**Mtce Level 2**	**Non FS System**	**Grand Total**
High	10	4	7	21
Moderate	17	18	27	62
Low	14	18	22	53
Very Low or Unburned	3	4	4	10
Total	**44**	**44**	**59**	**147**

PART III - WATERSHED CONDITION

A. Burn Severity (acres): **Very Low (1,823) Low (12,401) Moderate (6,109) High (1,666)**

Soil Burn Severity Mapping was conducted from July 25 to July 28. Validation of the Burned Area Reflective Classification (BARC) occurred from ground visits to predetermined locations from July 26th to July 27th. The ground visits confirmed or adjusted spatial boundaries. BARC values were validated or adjusted based on pre-identified site locations for BARC values of low, moderate and high. Once finalized the BARC mapping showed predominantly low burn severity, however 85% of the High Burn Severity and 69% of the Moderate Burn Severity occurred within the Mills Creek subwatershed primarily in the steep upper reaches.

Watershed	Subwatershed	Total Acres	Burned Acres and (%)	Low Severity Acres and (%)	Moderate Severity Acres and (%)	High Severity Acres and (%)
Entiat River 1702001002	Mills Creek 170200100209	32,412	10,655 (33%)	5048 (16%)	4189 (13%)	1418 (4%)
	Roaring Creek 170200100208	16,280	653 (4%)	366 (2%)	283 (2%)	4 (<1%)
Columbia River 1702001003	Spencer Canyon 170200100306	25,686	8641 (34%)	6779 (26%)	1619 (6%)	243 (1%)
	Swakane Creek 170200100305	13,258	226 (2%)	209 (2%)	17 (<1%)	0 (0%)

B. Water-Repellent Soil (acres): **Total Burned Area (3,110)** **FS Ownership (2,050)**

C. Soil Erosion Hazard Rating (acres):

Total Burned Area	**108 (low[1])**	**14,101 (moderate)**	**7,793 (high)**
Forest Service Ownership	**83 (low[2])**	**6,022 (moderate)**	**5,774 (high)**

D. Erosion Potential: **Prefire: 0.2-0.4 tons/acre** **Post Fire: 3.3-25.9 tons/acre**

There is potential for accelerated erosion from the effects of the fire. Modeling shows that there is a potential for an increase of 16-65 times prefire erosion rates. The increased erodible soil can result in downstream sediment, which can bulk flows resulting in increased flooding impacts. The loss of soil can impair soil productivity in the short and potentially long term future.

E. Sediment Potential: **250 – 2,000 cubic yards/square mile**

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): **5**

B. Design Chance of Success, (percent): **50%**

C. Equivalent Design Recurrence Interval, (years): **25**

D. Design Storm Duration, (hours): **1**

E. Design Storm Magnitude, (inches): **1.0**

F. Design Flow, (cubic feet / second/ square mile): **3 cfs**

G. Estimated Reduction in Infiltration, (percent): **15**

H. Adjusted Design Flow, (cfs per square mile): **260**

PART V - SUMMARY OF ANALYSIS

[1] Low Soil Erosion Hazard Rating includes “not rated” areas such as rock outcrop.
[2] Low Soil Erosion Hazard Rating includes “not rated” areas such as rock outcrop.

A. Describe Critical Values/Resources and Threats:

EMERGENCY DETERMINATION

Once identifying the potential Values-at-risk (VAR), the BAER team evaluated the predicted post-fire effects using the risk matrix outlined Forest Service Manual 2500 Watershed and Air Management; Chapter 2520 Watershed Protection and Management; 2523.1 Exhibit 02 – BAER Risk Assessment . The team's evaluation is noted in the table below:

Mills Canyon BAER Risk Assessment

Probability of Damage or Loss	**Magnitude of Consequences**		
	Major (loss of life or injury to humans; substantial property damage; irreversible damage to critical natural or cultural resources)	**Moderate** (Injury or illness to humans; moderate property damage; damage to critical natural or cultural resources resulting in considerable or long term effects.)	**Minor** (Property damage is limited in economic value and/or to few investments; damage to critical natural or cultural resources resulting in minimal, recoverable or localized effects)
Very Likely (near certain occurrence 90-100%)	Very High	Very High Botanical RNA Soil Productivity	Low Winter Range Invasives
Likely (50-89%)	Very High Entiat River Road Highway 97A Railroad	High County Roads Forest Service Roads	Low
Possible (10-49%)	High	Intermediate Wildlife Guzzlers	Low TES Fish Species; Bull Trout, Steelhead and Spring Chinook Springs, Wetlands, etc
Unlikely (0-9%)	Intermediate	Low	Low

HUMAN LIFE/SAFETY and PROPERTY

Threats to life and safety and property exist in valley bottom areas and in steep burned gulches throughout and downsream from the burned area. Residents and road users will be exposed to increased risk of flooding and debris flow. Houses and other structures, driveways, other private property, Forest Service roads located in valley bottoms adjacent to or in the floodprone areas or near stream channels are at increased risk for flooding and debris flow. In several locations, the roads intersect the steep disected canyons and are at increased risk of damage from debris flows.

ROADS

The Mills Canyon Fire can be separated into two categories from a transportation system: a) maintenance level 1 roads which run mid-slope off of the main collector system and have been closed at the beginning of the road with physical barriers; b) steep maintenance level 2 roads which dissect the watershed connecting the Mills Canyon and Dinkelman Canyon floodplains with the surrounding ridgelines or upper watershed features. Both canyons have a history of debris flow or sediment movement as a result of naturally occurring events and post-fire. Field surveys reaffirmed:

- the potential for overtopping of undersized culverts
- shoot debris flows overtopping or partially washing out downstream road sections

- the potential for surface water to travel along the road prism increase sedimentation and "bulking" of road generated surface flows
- sediment movement off adjacent canyon side slopes depositing within the road prism filling drainage structures, such as drain dips and sags, further damaging the road infrastructure and redirecting run-off in potentially less stable areas

Treatments were identified for each of the primary routes within the fire perimeter; Forest Service Road (FSR) 5200, FSR 5210, FSR 5212, FSR 5213, FSR 5213-120, FSR 5213-125 and FSR 5215. Based on the BAER team's risk rating exercise, the matrix identified that it was important given, a likelihood of damage occurring to the road system and a moderate risk associated with those impacts (rating of HIGH), to concentrate on providing one primary access route, ie. FSR 5200, and to reduce the impacts to and from FSR 5212, which has the highest probability of damage due to proximity to the high severity burn areas. Treatments for the other roads will be provided in the appendix and to the local engineers for use if monitoring indicates that interim funding should be requested.

NATURAL RESOURCES

Hydrology

The primary watershed responses of the Mills Canyon Fire area are expected to include: 1) an initial flush of ash; 2) rill and gully erosion in drainages and on steep slopes within the burned area; 3) flash floods with increase peak flows and sediment deposition. The watershed responses are expected to be dependent on the occurrence of storm and melt events occurring and greatest with initial storm events. The disturbances will become less evident as vegetation is reestablished, providing ground cover and increasing surface roughness. However, the nature of the watersheds within the burn area make them susceptible to large runoff events.

T & E Fisheries

Potential post-fire effects to the Entiat Watershed include: increased water temperature, peak flows and channel scour, surface erosion and sediment delivery, and landslides and debris flows. These post-fire effects may impact the survival of ESA-listed fish eggs, fry, juveniles and adults downstream of the fire. They may also alter habitat and channel conditions. Due to the close proximity of steep drainages within the fire area (Mills Canyon, Dinkelman Canyon, Roaring Creek) the potential for detrimental impacts to listed fish habitat is high.

Invasive Plants

Four noxious weeds are documented within the vicinity of the sensitive plant populations: Dalmatian toadflax (WA state Class B), spotted and diffuse knapweed (WA State Class B), and cheatgrass. Dalmatian toadflax spreads through seeds and rhizomes. Each plant may produce a half million seeds. The seeds are small, about the size of poppy seeds, and are easily tossed through the air as the flower stem is blown in the wind. Diffuse and spotted knapweeds and cheatgrass spread through seeds, which maintain viability for at least 10 years.

Soils

High soil burn severity in the burned area occurs on steep slopes that have lost nearly all canopy cover and have ground cover consisting largely of rock fragments and sparse remnants of grass or small plants. These soil conditions result in increased magnitude and frequency of damaging debris flows.

Ardenmont soils have a "High potential for damage" to soil by fire. There is a relatively high erosion factor (Kw) of 0.32 to 0.24. The forest floor is covered with a 3 cm layer of needles and twigs from tree species managed for Douglas-fir, grand fir, western larch, and ponderosa pine over many fine roots and fungal mycelia.

Much of the Mill's Canyon area has been previously burned by Dinkleman Fire in 1988 and the Swakane Fire in 2010. Post fire events from both fires included substantial debris flows. There is a long history of jammer logging prior to the Dinkleman Fire. Much of the soil resource has already been subject to high erosion rates with loss of A-horizon.

Geology and Hazards

Landslides have occurred in the past on the steep slopes of the Ardenmont soils (ie. one on a north-facing slope south of Mills Canyon, and the other in the headwaters of Spencer Canyon)

Basin and segment hazard and volume probabilities have been provied by the USGS Landslide Hazards Program (http://landslides.usgs.gov/hazards/postfire_debrisflow/2014/20140708mills/)

Cultural

Discussions with the forest archeologists indicate that there are limited heritage resources within the fire perimeter and no emergency mitigation treatments are needed at this time.

B. Emergency Treatment Objectives:

LAND TREATMENTS

Land Treatments to Mitigate the Emergency

It is critical to treat new weed sprouts and seedlings before they have a chance to produce seeds and establish new populations that would reduce Thompson's clover, long-sepal globemallow, and mountain ladies slipper habitat, and directly compete with these rare plants.

ROADS

Road Treatments to Mitigate the Emergency

Implement actions within the Mills Canyon Fire to:

- Ensure safe primary access (ingress and egress) for administrative access within the drainage
- Reduce road-related hazards related to the burned area
- Reduce the potential for accelerated surface runoff damaging Forest Service roads within and directly downstream of the fire areas in headwaters directly affected by the fire
- Reduce the potential for debris "bulking" has a potential debris flow encounters a road-related drainage structure.
- Reduce the potential for roads to act as a conduit for overland flow and increasing sediment loading.

These treatments will provide some level of confidence that administrative and potential public access would have a single useable road for ingress and egreess providing a factor of safety with reduced travel time in case of an emergency.

HUMAN LIFE/SAFETY and PROPERTY

Protection/Safety Treatments to Mitigate the Emergency

Implement actions within the Mills Canyon Fire to:

- Ensure safety of traveling public and agency personnel
- Inform and educate the public
- Provide cooperative assistance to NRCS to install emergency ALERT systems for residences and infrastructure within the Mills Canyon drainage and drainages draining directly onto HWY 97A

C. Probability of Completing Treatment Prior to Damaging Storm or Event:

Land **50** % Channel **n/a** % Roads/Trails **25** % Protection/Safety **90** %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	70	70	70
Channel	n/a	n/a	n/a
Roads/Trails	60	80	80
Protection/Safety	80	90	90

E. Cost of No-Action (Including Loss): **$1,200,000**

F. Cost of Selected Alternative (Including Loss): **$760,000**

G. Skills Represented on Burned-Area Survey Team:

[x] Hydrology	[x] Soils	[ ] Geology	[ ] Range
[ ] Forestry	[ ] Wildlife	[ ] Fire Mgmt.	[X] Engineering
[ ] Contracting	[ ] Ecology	[x] Botany	[X] Archaeology
[x] Fisheries	[ ] Research	[ ] Landscape Arch	[X] GIS

USFS Team Leader: Greg Kuyumjian. Email: gakuyumjian@fs.fed.us Phone: 509-664-9330

A Forest Service BAER team was was assembled to conduct the burned area assesment and the BAER process of evaluating burned area conditions, critical values at risk, threats, risk and treatments was employed. Because the fire burned both NFS and non-federal lands, inter-disciplinary and inter-agency coordination occurred throughout the process. External partners and their agencies are listed below.

Forest Service BAER Team Members (core and extended team)

Forest ServiceTeam Leaded	Greg Kuyumjian
Logistics	Emily Johnson
Soils	Aldo Aguilar

Hydrology	Jennifer Hickenbottom/Matt Karrer
NoxiousWeeds/Botany	Brigitte Ranne (extended team)
Engineering	Peggy Fisher/Jon Jennett/Erica Tarbox
Fisheries	Kate Meyer
GIS	Julia Gower/Chaochung Tsai
Public Information	Cathleen Thompson
Fisheries	Richard Vacirca (extended team)
Cultural Resources	Lindsey Smith (extended team)

External Partners and Contacts

Katherine Rowden	National Weather Service
Amy Hendershot	NRCS
Garrett Fish	NRCS
Chris Sheridan	BLM
Eric Ellis	BLM

H. **Treatment Narrative:**

(Describe the emergency treatments, where and how they will be applied, and what they are intended to do. This information helps to determine qualifying treatments for the appropriate funding authorities. For seeding treatments, include species, application rates and species selection rationale.)

Information/Web manager:
We are requesting money to fund a person to maintain information/web site that was created during BAER assessment. This will cover all of Central Washington BAER assessment area and will be interagency information. $5,000.

Land Treatments:

Invasive Plants

Treatment #L1 - Weed treatment – Treat new weed seedlings and sprouts within the mapped populations of Sensitive plants. Treatments would be spot spraying with picloram, as covered in the Forest-wide Weed EA, or hand grubbing if required to prevent accidental spray of Sensitive plants. Timing: April 2015; Cost: 2 GS-5s for 8 days = $2000 plus supplies = $100 Total: $2100

Treatment #L2 - Weed EDRR – Treat invasive plants within or adjacent to Sensitive plant populations and the Thompson's Clover RNA. Target moderate burned areas and areas adjacent to known infestations. Timing: September/October 2014 Cost: 2 GS 5s @125/day for 4 days = $1000 and GS-9 for 2 days = $600 Total: $1600

Soils

No treatments identified at this time

Channel Treatments:

No treatments identified at this time

Roads and Trail Treatments:

Treatment #R1a – Construct/Improve Armored Drainage Sag: Construct outsloped drain sags with armoring for diverting and removing water off the road surface, as well as draining any roadway ditch. Typical drainage sags are 30-50 ft in length and create a low water trough to redirect drainage flow. Drainage sags are installed in natural grade break in the road prism. Actual spacing of drainage sags will be based on Forest Service Handbook direction and location of topographical features, particularly in areas where active streams are crossing the road. (See definition of FORD)

Treatment #R1b – Construct/Improve Unarmored Drainage Sag: Construct outsloped drain sags for diverting and removing water off the road surface, as well as draining any roadway ditch. Typical drainage sags are 30-50 ft in length and create a low water trough to redirect drainage flow. Drainage sags are installed in natural grade break in the road prism. Actual spacing of drainage sags will be based on Forest Service Handbook direction and location of topographical features, particularly in areas where active streams are crossing the road. (See definition of FORD))

Treatment #R2a – Construct/Improve Armored Drainage Dip: Construct outsloped drain dips with armoring for diverting and removing water off the road surface, as well as draining any roadway ditch. Typical drainage dips or rolling dips on steeper grades (5-12% grades) have a one (1) foot trough depth and range between 120 to 140 feet in length including taper with the cross slope of the roadbed maintained through the dip. Drain dips rely on a mound of soil at the downhill side to stop water. Actual spacing of drainage dips will be based on Forest Service Handbook direction and location of topographical features. (See Appendix for detail)

Treatment #R2b – Construct/Improve Unarmored Drainage Dip: Construct/improve outsloped drain dips for diverting and removing water off the road surface, as well as draining any roadway ditch. Typical drainage dips or rolling dips on steeper grades (5-12% grades) have a one (1) foot trough depth and range between 120 to 140 feet in length including taper with the cross slope of the roadbed maintained through the dip. Drain dips rely on a mound of soil at the downhill side to stop water. Actual spacing of drainage dips will be based on Forest Service Handbook direction and location of topographical features. (See Appendix for detail)

Treatment #R3 – Construct Armored Vented Ford: Construct outsloped drainage feature over existing culverts with armoring to improve the culverts ability to better handle anticipated increases in stream flow including debris, keeps the flow in the same drainage, thus reducing diversion potential and usually prevents a total fill failure. Fords will be located based on locations of existing culverts and length of armor will depend on field conditions at each site. (See Appendix for detail)

Treatment #R4 – Hydrologically close road:

1. Construct/Improve drain dips: Construct drain dips to enable maintenance level 1 roads to better handle expected increases in surface runoff. Drain dips are recommended due to the steepness of the road prism which renders water bars ineffective. Actual spacing of drain dips will be based on Forest Service Handbook direction.
2. Remove Existing Culverts: Remove existing culvert and associated road fill in selected channel or draw locations to reestablish more natural flow pattern and reduce the risk of culvert plugging due to increased sedimentation loading from the upslope fires. Removed road fill to be used to construct a drain dip down gradient of crossing to prevent the risk of further sedimentation from the road.
3. Construct road closure berms.

Treatment #R5 – Fabricate and install gate: Fabricate/purchase and install closure gates and burned area hazard notification signs to inform the public of post-fire conditions and management actions taken to protect the public safety (roads, trails and trailheads). Gates will allow the Forest Service to provide essential access to private lands and protect the public from potential road washouts as a least cost alternative. A gate is to be located at both the valley bottom and ridgeline access points for FS Road 5210 and 5213. An additional gate is needed at FS Road 5215 and FS Road 5200 junction.

Treatment #R6 –Surface Water Management: Clean inlets and outlets of existing relief culverts and those culverts in active stream channels to reduce the buildup of sedimentation which may lead to fill failure along road grades >2% within or directly downslope or downgrade of moderately to high intensity burn areas in areas contiguous with critical fisheries habitat. Treatment includes installation of temporary erosion control during construction.

Treatment #R7 – Storm Patrol: Patrol area during and immediately after storm events to repair, unplug, or aid in drainage of road drainage features along FS Road 5200 to reduce the risk of catastrophic road drainage failure and high sedimentation yield. As the remaining open access for administration and public, it is important to monitor this road. Recommend two person teams to complete the assessment. Days include 5 days for road crew backhoe to complete emergency mitigation action.

Protection/Safety Treatments to Mitigate the Emergency

Treatment #PS1 – Closure and Warning Signs: Fire closure bulletin boards will be installed at the entrance to Mills Canyon off county road 19 along with two other locations at the ridgeline to be determined by the district. Warning signs will include rock fall hazard signs at the lower section of FSR 5200 and will be installed to meet Manual of Uniform Traffic Control Devices (MUTCD) standards.

Treatment #PS2 – ALERT Support: Support installation of two (2) ALERT stations (through EWP) within the fire perimeter with needed site surveys needed for appropriate clearances and preparation of a special use permit. Project will be coordinated with local NRCS and Chelan County.

I. **Monitoring Narrative:**

(Describe the monitoring needs, what treatments will be monitored, how they will be monitored, and when monitoring will occur. A detailed monitoring plan must be submitted as a separate document to the Regional BAER coordinator.)

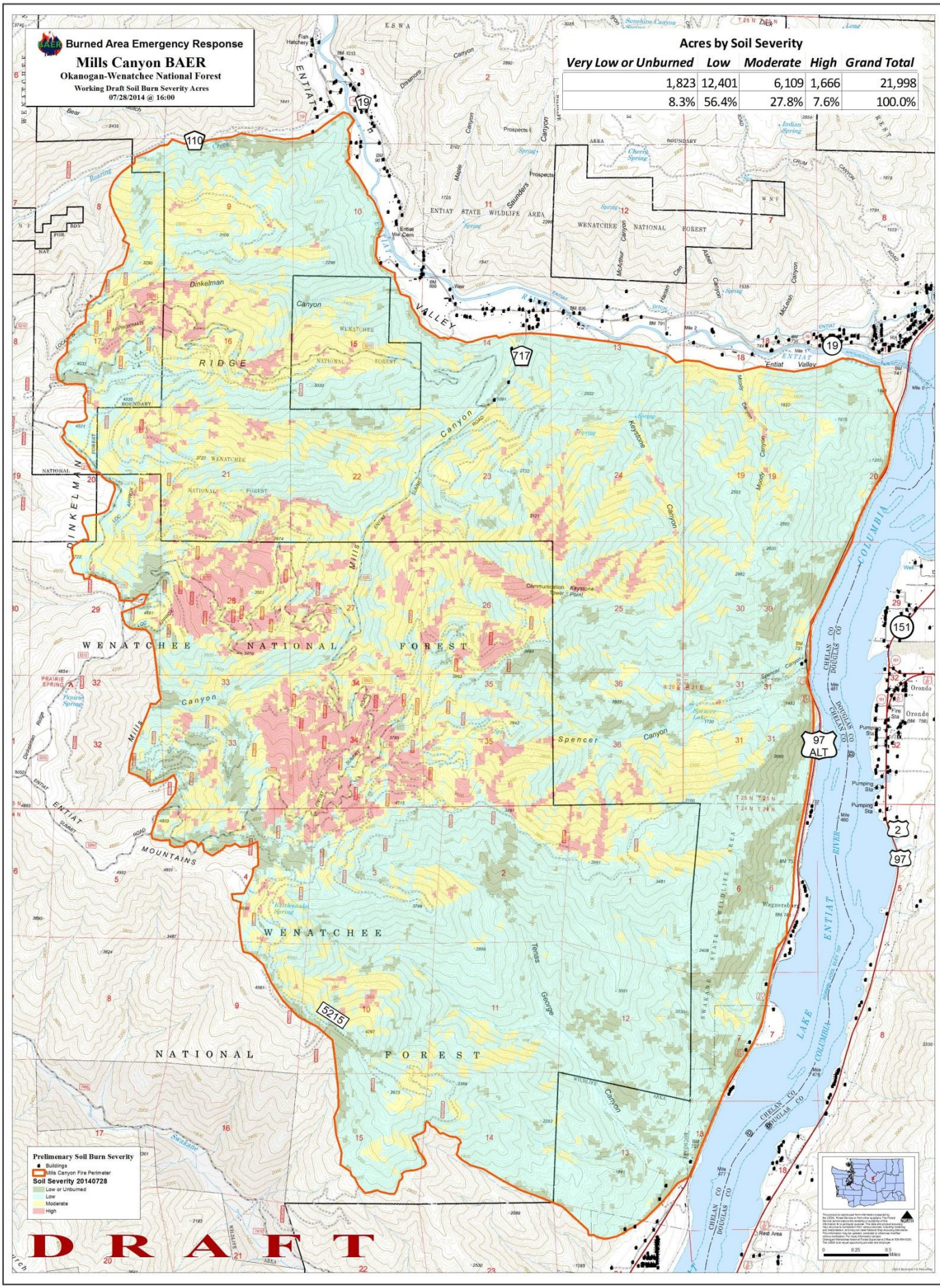
Part VI – Emergency Stabilization Treatments and Source of Funds **Interim #**

Line Items	Units	# of Units	Cost per unit	BAER $	Other $	# of units	Fed $	# of Units	Non Fed $	Total $
A. Land Treatments										
Interagency Liason/web	each	1	5000	$5,000	$0		$0		$0	$5,000
Weed (EDRR) _Spring 2015	each	1	2100	$2,100	$0		$0		$0	$2,100
Weed (EDRR) _Fall 2014	Each	1	1600	$1,600	$0		$0		$0	$1,600
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$8,700	$0		$0		$0	$8,700
B. Channel Treatments										
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Channel Treat.				$0	$0		$0		$0	$0
C. Road and Trails										
Construct/Improve armored drainage sag	each	2	2135	$4,270	$0		$0		$0	$4,270
Construct/Improve unarmored drainage sag	each	5	660	$3,300	$0		$0		$0	$3,300
Construct/Improve armored drainage dip	each	1	1790	$1,790						
Construct/Improve unarmored drainage dip	each	74	690	$51,060	$0		$0		$0	$51,060
Construct armored vented ford	each	1	4130	$4,130	$0		$0		$0	$4,130
Hydrologically close road	mile	5	5343	$26,715	$0		$0		$0	$26,715
Fabricate and install gate	each	5	7140	$35,700	$0		$0		$0	$35,700
Surface Water Management	each	3	1000	$3,000	$0		$0		$0	$3,000
Storm Patrol and mitigation	day	5	1175	$5,875	$0		$0		$0	$5,875
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$135,840	$0		$0		$0	$134,050
D. Protection/Safety										
Closure and Safety Signs	each	1	5700	$5,700	$0		$0		$0	$5,700
ALERT support	each	2	3000	$6,000	$0			2	$54,000	$60,000
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$11,700	$0		$0		$54,000	$65,700
E. BAER Evaluation										
	each	1		---	$40,000		$0		$0	$40,000
Insert new items above this line!				---			$0		$0	$0
Subtotal Evaluation				---	$40,000		$0		$0	$40,000
F. Monitoring										
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$0	$0		$0		$0	$0
G. Totals				$156,240	$40,000		**$0**		**$54,000**	**$248,450**

PART VII - APPROVALS

1. ***/s/ Jason Kuiken (for) Michael L. Balboni*** 8/11/2014
   Forest Supervisor (signature) Date

2. _____ _____
   Regional Forester (signature) Date


Burned Area Emergency Response
Mills Canyon BAER
Okanogan-Wenatchee National Forest
Working Draft Soil Burn Severity Acres
07/28/2014 @ 16:00
Acres by Soil Severity
Very Low or Unburned | Low | Moderate | High | Grand Total
1,823 | 12,401 | 6,109 | 1,666 | 21,998
8.3% | 56.4% | 27.8% | 7.6% | 100.0%
Prelimenary Soil Burn Severity
Buildings
Mills Canyon Fire Perimeter
Soil Severity 20140728
Low or Unburned
Low
Moderate
High
DRAFT

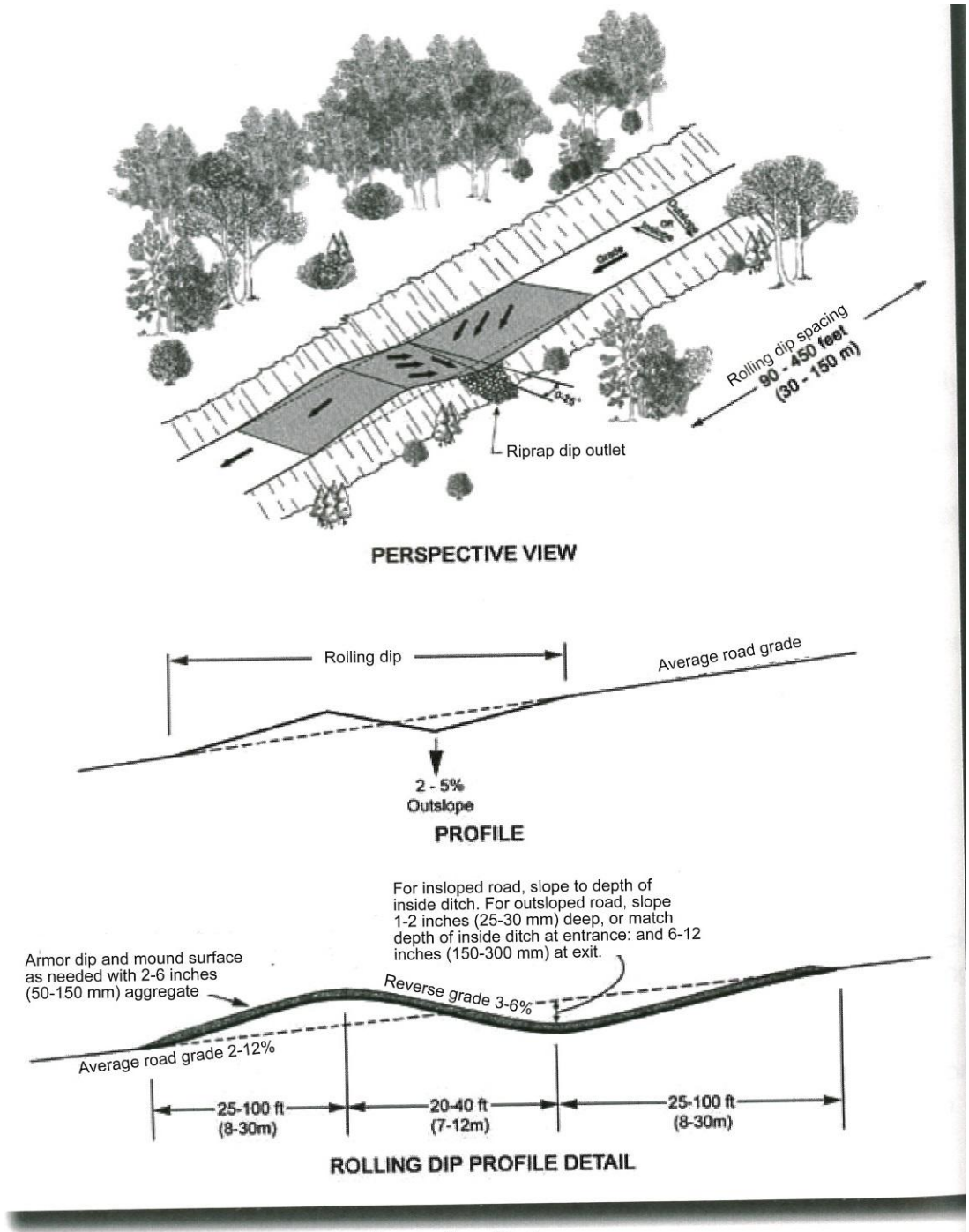


Figure 3-102—Rolling dip perspective and profile form.

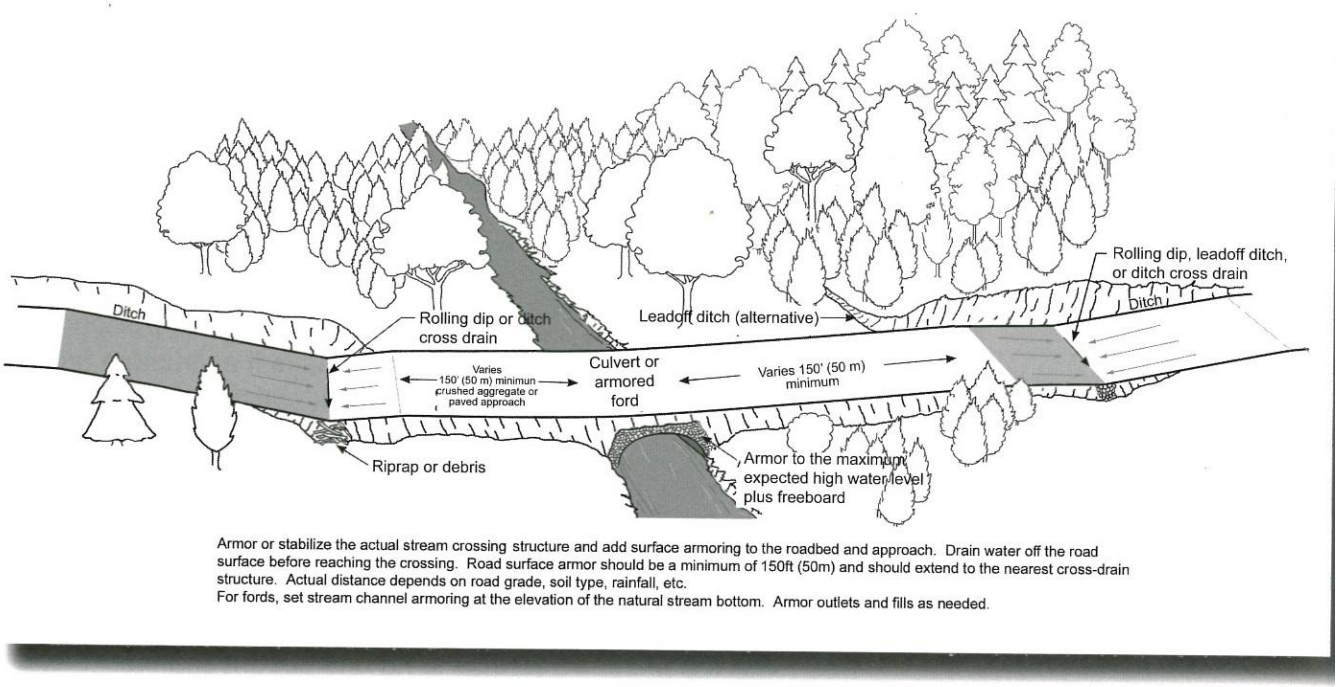


Figure 3-111—Measures to keep sediment out of streams at road-stream crossings.