

Date of Report: Sept 12, 2012

BURNED-AREA REPORT
(Reference FSH 2509.13)**PART I - TYPE OF REQUEST****A. Type of Report**

- ☒ 1. Funding request for estimated emergency stabilization funds
☐ 2. Accomplishment Report
☐ 3. No Treatment Recommendation

B. Type of Action

- ☒ 1. Initial Request (Best estimate of funds needed to complete eligible rehabilitation 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: Chips Fire B. Fire Number: CA-PNF-1001
C. State: California D. County: Plumas
E. Region: 05 F. Forest: Plumas and Lassen
G. District: Mount Hough (PNF) and Almanor (LNF) H. Fire Incident Job Code: P5G32E
I. Date Fire Started: July 29, 2012 J. Date Fire Contained: August 31, 2012
K. Suppression Cost: \$50,500,000 (as of Sept 5, 2012)
L. Fire Suppression Damages Repaired with Suppression Funds
 1. Fireline waterbarred (miles): As of Sept 10: Dozer line, 70 miles; Hand line, 5 miles
 2. Fireline seeded (miles): 0
 3. Other (identify): 0
M. Watershed Number: 180201210501 (Upper Yellow Creek), 180201210502 (Lower Yellow Creek), 180201210603 (Milk Ranch Creek, N Fork Feather), 180201210601 (Chips Creek), 180201210408 (Mosquitio Creek, N Fork Feather), 180201210407 (Clear Creek, N Fork Feather), 180201210302 (Butt Valley Reservoir, Butt Creek)
N. Total Acres Burned: 75,431
 NFS Acres: 66,669 total (48,297 Plumas, 18,372 Lassen) Federal (0) State (0) Private (8,762)

O. Vegetation Types: Sierra mixed conifer consisting of White fir - Douglas fir forest alliance and Ponderosa pine forest alliance. The shrub layer is dominated by deer brush and whitethorn. The portion of the fire that was burned in the Storrie fire is early seral forest with very few conifers currently, dominated by dense growth of deer brush and other shrubs.

P. Dominant Soils: Skalan-Deadwood-Kistirn Families Complex

Q. Geologic Types: Shale and schist (Shoofly formation), basalt, metavolcanics, serpentine, ultramafics, and glacial deposits.

R. Miles of Stream Channels by Order or Class:

Ephemeral and Intermittent: 241 miles Perennial: 104 miles Total: 345 miles

S. Transportation System

Roads (National Forest System): 222 miles Roads (NFS, County, Private): 256 miles

Trails (motorized): 29 miles Trails (non-motorized): 23 miles

PART III - WATERSHED CONDITION

(see attached spreadsheet)

A. Burn Severity (acres): 23,137 (unburned/very low) 26,804 (low) 21,674 (moderate) 3,816 (high)
30% (unburned/very low) 35% (low) 29% (moderate) 6% (high)

Burn Severity	Plumas NF (acres)	Lassen NF (acres)	Private (acres)	Total (acres)	Percent of Burned Area (%)
Very Low/ Unburned	12,939	6,656	3,542	23,137	30%
Low	17,078	6,437	3,289	26,804	35%
Moderate	15,216	4,595	1,863	21,674	29%
High	3,064	684	68	3,816	6%
Total =	48,297	18,372	8,763	75,431	100%

B. Water-Repellent Soil (acres): 1,060

C. Soil Erosion Hazard Rating (acres):
32,764 (low) 32,316 (moderate) 10,253 (high)) 98 (very high)

D. Erosion Potential: 37 tons/acre

E. Sediment Potential: 23 tons/acre

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 3

B. Design Chance of Success, (percent): 80

C. Equivalent Design Recurrence Interval, (years):	<u>10</u>
D. Design Storm Duration, (hours):	<u>6</u>
E. Design Storm Magnitude, (inches):	<u>4.5</u>
F. Design Flow, (cubic feet / second/ square mile):	<u>88</u>
G. Estimated Reduction in Infiltration, (percent):	<u>23</u>
H. Adjusted Design Flow, (cfs per square mile):	<u>107</u>

PART V - SUMMARY OF ANALYSIS

Description of Post-Fire Watershed Condition.

The Chips Fire burned a total of 75,401 acres of mostly steep, rocky side slopes. Central portions of Lower Indian Creek, Chips Creek, Pauls Creek, Cub Creek, Deer Creek, Clear Creek, and Mosquito Creek were impacted by high intensity fire during major runs of the incident. Over the remainder of the burned area, the fire generally created a mosaic pattern of burn intensities.

Overall, roughly one-third of the fire area burned at moderate or high severity. For these more-intensely burned areas, Burned Area Reflectance Classification (BARC) satellite imagery indicated an approximate one-third/two-third split between high and moderate severity, respectively. This assessment was supported by an aerial survey. However, many of the areas indicated by the BAER imagery to be burned at high severity were reduced to moderate soil burn severity after on-the-ground visits by BAER soil scientists. The revised areas were in the "new burn", i.e. ground that had not been burned by the 2000 Storrie Fire. While high severity areas indicated by the BARC in the new burn exhibited complete consumption of ground cover and duff and complete consumption of canopy, on-the-ground surveys in some areas of the new burn indicated a "fast" burn that heated the soils only to very shallow depths (1/2-inch to 1-inch) and little hydrophobicity in the soils. These areas were downgraded to moderate soil burn severity. However, watershed response in these areas is expected to be significant, with increased runoff and debris flows expected over the next one to three runoff seasons due to reduced ground cover, duff storage, and infiltration capacity and high occurrence of post-burn debris within and near stream channels (see photo below). Within the Storrie Fire "re-burn", and in several areas of the new burn, areas indicated by BARC imagery to have burned at high severity were found, on the ground, to exhibit high soil burn severity, with high hydrophobicity and deeper soil burn depths.

Burned area drainages are in very steep, inner gorge terrain, where rock fall is common and debris torrents the primary mechanism of sediment transport. Watersheds in the Chips Fire area have little in the way of floodplains, meadows, and other low gradient areas to attenuate flood events and debris flows. All of these drainages flow to the North Fork Feather River and Highway 70 upstream of Pacific Gas and Electric Company's (PG&E's) Rock Creek Dam or to the North Fork along Caribou Road. PG&E's Rock Creek Reservoir has attained sediment storage and transport equilibrium and cannot store additional sediment. Highway 70 must pass the flows from these drainages through individual culverts and bridges. The bridge on Caribou Road at the mouth of Mosquito Creek is undersized. The occurrence of high flows bulked with sediment (including debris torrents) is expected to be high for at least three to five years following the burn. Particular larger drainages of concern are Mosquito, Clear, and Indian Creeks. Wildfire areas on the Forests usually experience near complete hydrologic recovery ("Estimated Vegetative Recovery Period") within three to five years following the burn. An additional risk

is the increased likelihood of rocks and other debris falling from the canyon slopes onto the Highway 70 and Caribou Road.



An area along a tributary to Mosquito Creek. This area was indicated to be high burn severity by BARC imagery but was revised to moderate severity after on-the-ground visits. However, due to complete consumption of ground cover and vegetative canopy, watershed response is expected to be extreme in these areas, with increased runoff and higher debris delivered to stream channels.

Debris torrents commonly occur during exceptionally high streamflow events in most of the drainage channels impacted by the burn. Evidence of debris flow deposits were observed in many areas of the wildfire area, but most debris channels were cleaned out in the 1997 floods. Since then, the watershed response to multiple fires have begun to re-mobilize source material, and now with the Chips Fire, the channels and source material is increasing to where during another major storm event, large debris flows down the major drainages (Chips, Indian, Mosquito, and Yellow Creek, and the Upper North Fork of the Feather River to a lesser extent), could produce debris flows with large quantities of material. The risk to human health and safety due to debris flow is low during normal precipitation events, but very high during a major storm event. The increased runoff potential caused by high burn intensities within the smaller watersheds and subwatersheds has increased the likelihood that debris torrents can occur. The impacts caused by most debris flow occurrences would be localized, but those channels directly flowing to Highway 70 would likely cause damage. In addition, the small community at the mouth of Indian Creek and at the upper end of the Rock Creek Reservoir could experience damage from large amounts of sediment deposition at that location if a large storm event occurs before hydrologic recovery takes place. This risk would decrease each year. The Indian Creek community could expect this type of damage any year, even without the burn, but for the next several years, this likelihood is greater, although likely not to the same magnitude as what occurred in the January 1, 1997 storm.

A. Describe Critical Values/Resources and Threats:

Human Life / Safety:

- There is a potential for roadside hazard trees and rock fall along many of the roads in and adjacent to the burn. The threat is to life and safety of road users, obstruction of roadway drainage courses, and denial of access until roads can be cleared.
- Caribou Road is situated within the inner gorge of the upper North Fork of the Feather River. Due to its placement within the inner gorge, rock fall is a constant hazard. Areas above the Caribou Road burned predominately with low to moderate severity. Due to the fire activity, rock fall has increased along the road, but due to the fact that the burn was of low severity, much of the rock

produced in the upper slopes is not able to reach the road due to the vegetation that still exists on the slope. What is reaching the road is being generated from the road cut and the slopes immediately above, and velocities of the falling rock are greatly mitigated. Rock fall analysis was performed with the Colorado Rock Fall Simulation Program, using cross sections derived from 10 meter digital elevation models. The analysis showed that the potential for larger rock reaching the road from the slopes above the inner gorge was very low. Rock fall within the inner gorge is likely, and will require constant cleanup and maintenance, and will cause a potential driving hazard.

- Highway 70 will see an increase in rock fall due to the Chips Fire over the next few years, but it will likely not be a significant increase. Rock fall between Belden and Chips Creek will likely reach the road, with the predominate rock size seen in the field as being 1-foot diameter or less. As erosional processes continue on the slopes, rocks may dislodge and roll down the slopes onto Highway 70. Most of the rock fall that will be seen will be from the cut slopes, and along much of Highway 70, there is a ditch that catches the majority of rock. Larger rock failures along the cut slope could have significant consequences, especially if the dislodged boulder were to enter the roadway directly in front of a moving vehicle.
- A rock fall analysis was performed on the slopes above Queen Lilly and North Fork NFS Campgrounds above the Caribou road. The analysis shows that there is a significant rock fall hazard to the Queen Lilly Campground and a moderate rock fall hazard to the North Fork Campground. At Queen Lilly Campground, field reconnaissance shows a significant amount of vegetation on the slopes above the campground, which is not allowing rock fall to reach the campground or the road at the velocities that are shown in the analysis. If the vegetation is removed, the risk to the campground is high; otherwise the risk is moderate to low. For the North Fork Campground, field reconnaissance shows a moderate amount of vegetation on the slopes above the road and campground, but that there is still a possibility that rock fall could reach the road and campground sites adjacent to the road. If the vegetation is removed, the risk to the campground will increase, but rock fall from the slopes in its current condition is unlikely.
- The occurrence of burned hazard trees was evaluated at National Forest System campgrounds (Gansner Bar, North Fork, Queen Lilly, and Myrtle Flat). Hazard trees were identified that pose a substantial risk to people in and around the North Fork Campground.
- Burned trees that present an imminent hazard were observed along the 7 miles of Pacific Crest Trail that runs through the burned area. This section of the PCT is visited by more than 1,000 hikers and equestrians each year.

Property:

- Forest Service System road infrastructure represents a significant government investment and asset. The value of the road system varies depending on road designs, maintenance and service levels, with the estimated value of the existing road system being \$50,000 to \$250,000 per mile. In many areas of the fire, particularly along the 80 miles located within and below areas of moderate and high burn severity, the ground cover was mostly consumed. Precipitation in these areas combined with the lack of vegetation and ground cover is expected to result in increased, flashy, runoff; down slope movement of fine ash and sediment; rock fall, and possible debris flow until vegetation is reestablished. In the areas of light and moderate burn severity some brush remains with ground cover partially consumed. The increase in runoff in these locations will be far lower but transport of woody debris will increase significantly until vegetation is reestablished. Roadway ditches, overside drains, natural drainage culverts and cross drains are at risk of losing their drainage function and diverting water onto the roadway when becoming clogged with debris during post burn storm events.
- Approximately 16 miles of trail along the Pacific Crest, Ben Lomond, Indian Springs, and Soda Creek Trails are situated in areas of high and moderate burn severity. Along much of these trail

segments, the trail prism lacks adequate drainage features necessary to accommodate the anticipated increased runoff from uphill slopes. There are several places where burned root systems threaten to undermine and collapse the trail, which will result in concentrated runoff channeling and intensified tread loss. The increased number of trees and debris that have fallen in and across trail tread are expected to redirect and concentrate surface water flows, causing increased trail erosion. Stream crossings are clogged with debris and there is at least one culvert that is no longer functional.

- The small community along Highway 70 at the mouth of Indian Creek could experience damage from large amounts of sediment and debris deposition that could block the channel, causing the creek to flow through the community. This community could expect this type of damage any year, even without the burn, but for the next several years, this likelihood is greater. Additionally, there is a water system that diverts domestic use water to this community. The diversion pipe is supported by braced two by fours, and is located within the drainage. The watershed above Little Indian Creek burned at a moderate to high severity, and during any moderate storm event it is likely that the water system will be damaged.
- Increased stream flow, debris, and sediment from burned lands may threaten PG&E facilities, including PG&E roads and transmission lines. The top of the drainage above the Ponderosa Flat campground on Butt Valley Reservoir had moderate to high severity burn areas. Within the campground, there are a number of sites that are very near the main drainage going through the campground. The area above the Cool Springs campground had a low to moderate burn intensity, but there are also campgrounds near or almost within the drainage. During the high precipitation time of year, there is a high probability that the campsites will flood, although it is unlikely that these campgrounds would be open or occupied at these times of year. The PG&E Caribou powerhouse has a large landslide that was stabilized by PG&E. The fire above the powerhouse appears to have a moderate burn severity. This could increase the infiltration rates near the landslide. While mobilization of the landslide is unlikely due to the fire, there is an increased risk associated with the fire, and the consequences would be catastrophic since the landslide remobilizing would likely do significant damage to the turbines that are directly below the slide. Finally, there is a small concrete structure to divert water to a water system located on the 27N26C road and the French Creek drainage above Caribou that provides water to the PG&E facilities at Caribou. The area above this drainage burned with low to moderate severity. Even so, the inlet to this water system will likely fill with sediment and will require increased maintenance. It is unlikely that this structure will be lost as a result of the fire.

Natural Resources:

- Several noxious weed plant species are known to occur within the Chips fire, including yellow starthistle, spotted knapweed, Canada thistle, Scot's brom, medusahead, and bull thistle. Some invasive weeds are much more threatening to the native or naturalized plant communities than others. Invasive weeds are very effective at occupying disturbed soil and displacing native plants and habitat. Non-native invasive weeds have the potential to displace native vegetation, degrade habitat for other plants and animals, and lower ecosystem stability. If any weeds were introduced, they would likely take advantage of the disturbance associated with the fire and displace native vegetation, degrade habitat function and lower ecosystem stability. The lack of native vegetation in burned area and the disturbed soil provide habitat that is highly susceptible to infestation by noxious weeds.
- Two Research Natural Areas lie within the Chips Fire. Approximately 70 acres (5%) of the Soda Ridge Research Natural Area burned at high severity. Approximately 1% of the Green Island Research Natural Area burned at high severity. Roughly 120 acres (20%) of this RNA burned in the Chips Fire and most of the RNA was burned in the Storrie Fire of 2000.

Cultural Resources:

- Three archaeological sites are within moderate to high burn severity areas where increased runoff, erosion, flooding, or debris flow pose a significant threat. Two of the sites are prehistoric and one is historic. Both of the prehistoric sites are located near each other on the Lassen NF in a drainage just north of Grizzly Creek. The historic site is located on the Plumas NF in the Deer Creek drainage. All 3 of these sites are potentially eligible for the National Register of Historic Places.

The risk matrix below, Exhibit 2 of Interim Directive No.: **2520-2010-1**, was used to evaluate the Risk Level for each critical value identified during the BAER assessment. Resultant risk determinations of high and very high constitute an emergency to critical values due to the burned area.

Probability of Damage or Loss	Magnitude of Consequences		
	Major	Moderate	Minor
	RISK		
Very Likely	Very High	Very High	Low
Likely	Very High	High	Low
Possible	High	Intermediate	Low
Unlikely	Intermediate	Low	Very Low

Human Life / Safety Risk Assessment:

- Hazard Trees at NFS Campgrounds and along NFS roads

The probability of hazard trees falling along NFS roads and in the North Fork Campground is possible. The potential consequence if trees were to strike areas visitors in these areas is major. The risk of this threat is high.

- Rock Fall at NFS Campgrounds and along NFS roads

Most Forest Service roads do not have a substantial increase in rock fall hazard. The exceptions are some of the roads within the high severity burn areas of Soda and Mosquito creeks which include the 26N25, 26N26, 27N27 and the 27N26 roads. Roads near Seneca could also see an increase in rock fall over the next few years, but it will likely not be significant when compared to pre-fire conditions. The probability of rock falling along NFS roads or into the Queen Lilly and North Fork Campgrounds is possible. The potential consequence if rocks were to strike areas visitors in these areas is major. The risk of this threat is high.

- Hazard Trees along Pacific Crest Trail

The probability of hazard trees falling along the Pacific Crest Trail is likely. The potential consequence if trees were to strike areas hikers or equestrians on the trail is major. The risk of this threat is very high.

- Rock Fall along Highway 70 and Caribou Road

The probability of rock fall within the inner gorge of Caribou Road and along the cut slope of Highway 70 is likely and slightly higher than under the pre-burn condition. The potential consequence if rocks were to strike areas visitors in these areas is major. The risk of this threat is very high.

Property Risk Assessment:

- Forest Service System roads

The probability of increased streamflow, debris, and sediment causing loss of drainage function on NFS roads and causing significant erosion of the road infrastructure is likely. The magnitude of property damage is moderate to substantial. The risk of this threat is high to very high.

- Forest Service System trails

The probability of increased streamflow, debris, and sediment causing loss of drainage function on NFS trails and causing significant erosion of the trail infrastructure is likely. The magnitude of property damage is moderate. The risk of this threat is high.

- The small community along Highway 70 at the mouth of Indian Creek

The probability of sediment and debris deposition that would cause impacts to the structures of this community is possible and to the water system is very likely. The potential consequence of these impacts is moderate. The risk of this threat is high.

Natural Resources Risk Assessment:

- Native or naturalized plant communities

There is a very likely probability of spread and introduction of invasive noxious weeds into areas disturbed by fire. Damage to these plant communities would be considerable and long-term. The risk of this threat is very high.

Cultural and Heritage Resources Risk Assessment:

- Three cultural resource sites

There is a likely probability that increased runoff, erosion, flooding, or debris flow produced by the fire could damage these sites. Damage to the sites could be considerable and long-term. The risk of this threat is high.

B. Emergency Treatment Objectives.

Treatments are prescribed to protect investments in NFS road and trail infrastructure by providing drainage facilities that will control runoff and debris and prevent substantial erosion damage to the road and trail prisms. Treatment objectives also include protecting human life and safety by providing strategically-placed warning signs for hazard tree and rock fall threats and by falling small amounts of hazard trees in heavily-frequented visitor areas. Native and naturalized plant communities are to be protected by inspecting disturbed areas for newly established noxious and invasive weed occurrences and treating these infestations by hand or, where permissible, chemically. Treatments at the three cultural sites are designed to prevent damage due to increased runoff, erosion, flooding, or debris flow from the burned area. Since resources are available to implement treatments this fall, the probability of completing treatments prior to the first major damage-producing storm is predicted to be 100%, with a small limitation for road and trail treatments due to the slight possibility that significant precipitation will occur significantly earlier in the season than is typical.

C. Probability of Completing Treatment Prior to First Major Damage-Producing Storm:

Land n/a % Channel n/a % Roads/Trails 90 % Other 100 %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	80	90	90

(plant communities)			
Channel	n/a		
Roads	80	90	90
Trails	80	90	90
Other (Heritage Sites)	90	100	100

E. Cost of No-Action (Including Loss): \$2,200,000

F. Cost of Selected Alternative (Including Loss): \$886,910

G. Skills Represented on Burned-Area Survey Team:

<input checked="" type="checkbox"/> Hydrology	<input checked="" type="checkbox"/> Soils	<input checked="" type="checkbox"/> Geology	<input type="checkbox"/> Range
<input type="checkbox"/> Forestry	<input checked="" type="checkbox"/> Wildlife	<input type="checkbox"/> Fire Mgmt.	<input checked="" type="checkbox"/> Engineering
<input type="checkbox"/> Contracting	<input type="checkbox"/> Ecology	<input checked="" type="checkbox"/> Botany	<input checked="" type="checkbox"/> Archaeology
<input type="checkbox"/> Fisheries	<input checked="" type="checkbox"/> Recreation	<input type="checkbox"/> Landscape Arch	<input checked="" type="checkbox"/> GIS

Team Leader

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Core BAER Team Members

Dave Young, Soil Scientist, R5 No. Zone
Kurt Sable, Hydrologist, Plumas NF
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Eric Bredemann, Archaeologist, Plumas NF
Jonathan Berry, Geologist, Plumas NF
Craig Kusener, Road Engineer, Plumas NF
Randen Nagel, Road Engineer, Lassen NF
Laura Ketcham, Recreation Specialist, Plumas NF
Antonio Duenas, Team Leader Trainee, Plumas NF

BAER Team Trainees

Kelby Gardiner, Soil Specialist, Plumas NF
Emily Fudge, Hydrologist, Lassen NF
Tim Kellison, Botanist, Lassen NF
Alden Neel, Archaeologist, Lassen NF
Ryan Nupen, Geologist, Plumas NF
Francisco Rico, Road Engineer, Plumas NF

Other Contacts

Mike Momber, Senior Planner, PG&E
Joe Blackwell, Plumas County Public Works
Dan Martynn, USDA - Natural Resources Conservation Service

H. Treatment Narrative:

Protection/Safety Treatments:

- To alert visitors and USFS personnel of hazard tree dangers along roads, install warning signs at strategic locations where the NFS road system enters the burned area and at the termini of heavily frequented NFS roads within the burned area
- Install warning signs describing the rockfall hazard at all access points for the Caribou Road (27N26) and along the road

- Inform Caltrans of potential hazard along Highway 70 due to rockfall and debris flows from affected drainages
- Install warning signs describing the rockfall hazard at all access points on NFS roads 26N25, 26N26, and 27N26
- Install warning signs at entry points of Pacific Crest Trail and other NFS trail, and also along these trails, describing the hazards associated with hiking and camping in the burned area, including rockfall, debris flow, flooding and hazard trees
- Fall imminent hazard trees along 6 miles of the Pacific Crest Trail and in the North Fork Campground
- Inform PG&E of the increased risk of flooding at both the Ponderosa Flat Campground and Cool Springs Campground due to the loss of vegetation within the adjacent watersheds. Inform PG&E of the possibility of increased rockfall from the slope adjacent to the residences at Caribou. Inform PG&E of the likelihood of increased sediment entering the water system weir above the residences at Caribou.
- Inform the owners of residential structures in the community at the mouth of Little Indian Creek (along Highway 70) and owners of that community's water system weir and plumbing of the likelihood of damage or loss of the water system and damage to property due to increased flow and debris transport within the watershed. Refer these owners to USDA-NRCS for possible emergency protection programs.
- Install warning signs describing the rockfall hazard at NFS campgrounds (North Fork and Queen Lilly). Prohibit use of camp sites adjacent to the Caribou Road in the North Fork Campground for a minimum of 12 months to mitigate potential rockfall
- Prohibit camping at the dispersed campsite at the mouth of Mosquito Creek due to flooding hazard. Monitor the Mosquito Creek bridge crossing on road Caribou Road (27N26) during storm events.

Item	Unit	Unit Cost	# of Units	Cost
Road and Campground Hazard Warning Signs	Sign (incl labor)	\$450	42	\$18,900
Trail Hazard Warning Signs	Sign (incl labor)	\$150	17	\$2,550
Coordination with Adjacent Stakeholders				\$1,000
Hazard Tree Falling at North Fork campground	Lump sum	\$2,250	1	\$2,250
Hazard Tree Falling on Pacific Crest Trail	mile	\$875	6	\$5,250

Land Treatments: Detect new infestations of noxious and invasive weeds while small enough to effectively eradicate and prevent the long-term establishment of new infestations. Hand treat infestations that are found. Chemical treatment is permissible at certain administrative sites.

Item	Unit	Unit Cost	# of Units	Cost
GS-11 Botanist	day	\$400	10	\$4,000
GS-9 Botanist	day	\$300	8	\$2,400
GS-9 Botanist / Herbicide Applicator	day	\$300	15	\$4,500
GS-5 Bio Technician	day	\$180	60	\$10,800

Herbicides				\$2,000
Mileage	mile	\$0.40	6000	\$2,400
Total Cost for FY2013				\$26,100

Two cultural resource sites would be hand-mulched to minimize surface erosion and the third site would have a silt fence installed to prevent flooding, sediment, and debris impacts.

Item	Unit	Unit Cost	# of Units	Cost
Materials and Forest Service staff to hand-mulch two cultural resource sites	site	\$4,000	2	\$8,000
Materials and Forest Service staff to construct 75 to 100 feet of silt fence to protect one site	site	\$2,500	1	\$2,500

Roads Treatments: Road treatments would be performed on 80 miles of road within and immediately downstream of moderate and high burn severity areas. Treatments include installation of water control features (water bars and rolling dips) to protect the road surface and prevent wash-out of the road prism by adequately dispersing the increased runoff from burned areas. Stream crossing treatments include flared culvert metal end sections to funnel debris through existing culverts and trash rack structures at culvert inlets to catch debris from burned areas. Existing culverts which are drastically undersized would be replaced with rock ford crossings or larger culverts. Relief dips at stream crossings are a highly cost-effective measure to protect the road from washing out if the stream crossing culvert plugs. Road repair was performed post-fire on roads within the burn. Roads were graded, but drainage function was not fully restored and drain inlets/outlets were not cleaned. BAER treatments would restore drainage function that was not addressed by the suppression repair team. Selected roads would be patrolled during storm events, clearing rock and debris fall during the event to reduce the potential damage to the road from stream/water capture. Patrols would check the road conditions when safe for travel, and deploy a backhoe to assist in the removal of rock and debris. See the Engineer's specialist report for specific road treatments.

Road Treatment	Unit	# of Units	Unit Cost	Cost
Restore Drainage Function Open Road	mile	29	\$800	\$ 23,200.00
Hazard Tree Mitigation for Worker Safety	lump sum			\$ 9,500.00
Drivable Waterbar	each	10	\$400	\$ 4,000.00
Relief Dip at Culvert Crossings	each	111	\$1,500	\$ 166,500.00
Rolling Dip	each	52	\$600	\$ 31,200.00
Low Water Crossing (ford)	each	27	\$1,500	\$ 40,500.00
Riser Pipe	each	6	\$1,000	\$ 6,000.00
Maintain Culvert inlets & outlets	each	43	\$750	\$ 32,250.00
Trash Rack Structure	each	10	\$1,500	\$ 15,000.00
Mitered CMP Inlet(riser pipe)	each	4	\$1,000	\$ 4,000.00
Metal End Section 18"	each	3	\$2,400	\$ 7,200.00
Metal End Section 24"	each	13	\$2,800	\$ 36,400.00
Metal End Section 36"	each	5	\$3,200	\$ 16,000.00
Metal End Section 48"	each	2	\$4,700	\$ 9,400.00

Install Drainage Armor	cubic yard	280	\$300	\$ 84,000.00
Install Hardened Crossing	each	30	\$300	\$ 9,000.00
Install and Repair Overside Drains	each	2	\$3,900	\$ 7,800.00
Remove and upsize Culverts	each	11	\$14,000	\$ 154,000.00
Storm Patrol	mile	19	\$4,000	\$ 76,000.00
		TOTAL		\$ 731,950.00

Trail Treatments: In order to protect the ongoing investment of NFS trail system infrastructure, trail stabilization measures would take place on sections of trail running through moderate to high burn severity areas as well as sections of trail below moderate to high burn severity slopes. Sections of trail with sustained grade through burned areas would be treated with appropriate drainage features. Treatments would include rolling dips and out-sloping. Rock water-bars and spillways are also appropriate in some locations. These methods will add stability and greatly reduce tread erosion. Undermined areas of trail would be collapsed and filled with appropriate material in order to minimize tread loss during runoff events. Trees and debris would be removed from the trail tread in order to allow surface water to flow freely through drainage features. Debris would be removed from stream crossings and culverts in order to direct the flow of surface water off of the trail. Before any treatment commences, hazard trees would be identified and felled in order to ensure worker safety.

Item	Unit	Unit Cost	# of Units	Cost
Outsloping, drainage feature construction, debris removal	mile	\$5,000	16	\$80,000

I. Monitoring Narrative:

Land Treatments: All three cultural resource sites would be inspected for success the first year following treatment. The integrity of the sites and evidence of off-site rill or gully erosion would be examined. Before / after photos would help to document the degree of effectiveness.

Item	Unit	Unit Cost	# of Units	Cost
GS-9 Archaeologist and one Archaeological Technician for treatment effectiveness monitoring	day	\$500	6	\$3,000

Trail Treatments: Monitoring of all treated portions of non-motorized trails would be executed following the first runoff season to investigate the effectiveness of treatments. The integrity of the trail tread and evidence of off-site rill or gully erosion would be examined. Before / after photos would help to document the degree of effectiveness. See the trail monitoring form in Appendix A of the recreation specialist's report. Additionally, the 29-mile network of motorized OHV trails within the burn perimeter would be monitored for one year in order to accurately assess erosion and trail integrity vulnerabilities.

Item	Unit	Unit Cost	# of Units	Cost
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GS-9 Recreation Specialist for non-motorized trail treatment effectiveness monitoring	day	\$300	7	\$2,100
GS-9 Engineer for motorized trail monitoring	day	\$300	4	\$1,200

Road Treatments: Monitoring of a sample of treated roads would be executed following the first runoff season to investigate the effectiveness of treatments. The stability of the road prism and evidence of off-site rill or gully erosion or loss of road surface would be examined. Before / after photos would help to document effectiveness. See the road monitoring form in Appendix A of the Engineers report.

Item	Unit	Unit Cost	# of Units	Cost
GS-9 Engineer for road treatment effectiveness monitoring	day	\$300	7	\$2,100

Part VI – Emergency Stabilization Treatments and Source of Funds

NFS Lands				
Line Items	Unit	Average Unit Cost	# of Units	BAER Funds
A. Lands Treatments				
Weed detection survey and treatment	one season (2013)	\$26,100	1	\$26,100
Archeology site protection	Total			\$10,500
<i>Subtotal Land Treatments</i>				\$36,600
B. Channel Treatments NONE				
<i>Subtotal Channel Treatments</i>				\$0
C. Roads and Trails				
Road drainage maintenance and treatments	Mile	\$2,400	80	\$192,000
Stream crossing treatments	Mile	\$3,314	140	\$463,960
Trail stabilization treatments	Mile	\$5,000	16	\$80,000
<i>Subtotal Roads and Trails</i>				\$735,960
D. Protection and Safety				
Road & campground hazard warning signs	Each	\$450	42	\$18,900
Trail hazard warning signs	Each	\$150	17	\$2,550
Falling of imminent hazard trees at North Fork Campground	Total	\$2,250	1	\$2,250
Falling of imminent hazard trees along Pacific Crest Trail	Mile	\$875	6	\$5,250
Patrols for Storm Induced Road Hazards	Mile	\$4,000	19	\$76,000
Interagency Coordination	Total	\$1,000	1	\$1,000
<i>Subtotal Protection and Safety</i>				\$105,950
E. BAER Assessment				
Assessment Team	Each	\$	1	\$47,300
<i>Subtotal Assessment</i>				\$47,300
F. Monitoring				
Treatment effectiveness monitoring at cultural sites	Total	\$3,000	1	\$3,000
Treatment effectiveness monitoring along non-motorized trails	Total	\$2,100	1	\$2,100
Motorized trail monitoring	Total	\$1,200	1	\$1,200
Road treatment effectiveness monitoring	Total	\$2,100	1	\$2,100
<i>Subtotal Monitoring</i>				\$8,400
G. Totals				
Previously Approved				n/a
Totals for this Request				\$886,910

BURNED-AREA REPORT
Chips Fire: Plumas and Lassen National Forests

PART VII - APPROVALS

/s/ Earl Ford
Forest Supervisor (signature)

9/12/12
Date

/s/ Jerry Bird
Forest Supervisor (signature)

9/12/12
Date

for [Signature] Anne Wade Evans
Regional Forester (signature)

9/18/12
Date

