Date of Report: 11/01/2012, 4/11/13, and 6/28/13

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)

[X] 2. Interim Report # 2 .
[ ] 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: Pole Creek Fire

B. Fire Number: OR-DEF-000537

C. State: OR

D. County: Deschutes

E. Region: R6

F. Forest: Deschutes National Forest

G. District: Sisters Ranger District

H. Fire Incident Job Code: P6G7ZZ

I. Date Fire Started: September 9, 2012

J. Date Fire Contained: October 17, 2012

K. Suppression Cost: $17,790,000 (as of 10/16/12)

L. Fire Suppression Damages Repaired with Suppression Funds

1. **Fireline waterbarred (miles)**: Approximately 13.5 miles of hand line and 24 miles of dozer line have been identified as of 10/17/12. All lines are expected to be rehabilitated (waterbarred, brushed, berms pulled in) by the end of the season. An additional 16.9 miles of road was also used for fire line. Treatments included preparation for burnout operations by thinning out the understory trees and brush. These materials are now being chipped as a part of the suppression rehab.
2. **Fireline seeded (miles):** None seeded at this time.
3. **Other (identify):** Safety zones, staging areas, and drop points are in the process of being rehabilitated. Road drainage installed where suppression activities warranted doing so.

M. Watershed Numbers:

Subwatershed	Watershed	Subwatershed Number	High	Low	Moderate	Underburned or Unburned	Total Subwatershed Burned	Total Subwatershed Acres	Total Watershed Burned
Headwaters Whyschus Creek	Whychus Creek	170703010701	265	2,924	4,062	2,229	9,554	22,764	42%
Lower Trout Creek	Whychus Creek	170703010706	3	161	220	66	450	20,056	2%
Three Creek	Deep Canyon	170703010601	41	1,547	1,415	1,042	4,047	18,790	22%
Upper Trout Creek	Whychus Creek	170703010703	0	1,220	184	920	2,325	12,100	19%
Upper Whychus Creek	Whychus Creek	170703010702	98	3,521	4,016	2,179	9,819	18,305	54%
			406	9,374	9,897	6,505	26,196	92,016	28%

N. Total Acres Burned: 26,196 Total (as of 10/16/2012 reported by Fire Information Officer)
[26,196] NFS Acres [0] Other Federal [0] State [0] Private

Subwatershed Name	Subwatershed Number	Total Subwatershed Acres	Acres In Fire	Percent Subwatershed Burned
Headwaters Whychus Creek	170703010701	22,764	9,526	42%
Lower Trout Creek	170703010706	20,056	457	2%
Three Creek	170703010601	18,790	3,999	21%
Upper Trout Creek	170703010703	12,100	2,351	19%
Upper Whychus Creek	170703010702	18,305	9,863	54%
		92,016	**26,196**	**28%**

O. Vegetation Types: The high elevation forests in the wilderness include lodgepole pine, mountain hemlock and subalpine fire vegetation types. Mid elevation forests occurring near the wilderness boundary are throughout a large portion of the fire area are a mix of wet mixed conifer and dry mixed conifer. Common species in the wet and dry mixed conifer types include: ponderosa pine, white fir and lodgepole pine. On the north east edge of the fire there is a small amount of ponderosa pine vegetation type.

P. Dominant Soils: Soils within the fire's perimeter are mostly derived from volcanic ash soil parent materials and are classified as Vitrixerands and Vitricryands. Other soil types to note in the fire's perimeter include about 1100 acres of nearly level wetlands (Cryofibrists).

Q. Geologic Types: Geology is composed of primaraly glacial scoured lava flows covered by 2 to 3 feet of course volcanic ash.

R. Miles of Stream Channels by Order or Class:

Subwatershed	Ditch	Ephemeral	Intermittent	Perennial	Grand Total
Headwaters Whychus Creek			12	147	**159**
Lower Trout Creek			1	1	**2**
Three Creek		1			**1**
Upper Trout Creek		1	1	5	**7**
Upper Whychus Creek	1	4	7	45	**57**
Grand Total	**1**	**6**	**21**	**198**	**226**

S. Transportation System

Trails: 0 miles **Roads:** See table below

Miles of Road by Severity	
Severity	Miles
Unburned	39
Low	48
Moderate	47
High	0.9
Grand Total	134.9

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 6505 **(underburn/unburned)** 9374 **(low)**
9897 **(moderate)** 406 **(high)**

NOTES – Resource conditions on the Deschutes National Forest resulting from the Pole Creek Fire were reviewed in the field when the fire was 85% contained with some remaining small fire activity in the Three Sisters Wilderness. The BAER team used a Burned Area Reflectivity Classification (BARC) image acquired on October 6, 2012, to help make initial field assessments. This data was then adjusted based on field reconnaissance to calculate soil burn severity and vegetation mortality.

B. Water-Repellent Soil (acres): It was determined that under dry conditions erosion detachability and runoff rates would become slightly elevated as a result of hydrophobic soil conditions incurred by the fire. Once wetted however, repellency diminishes substantially. Considering this, it is estimated that the post-fire infiltration rate is decreased by about 5% over approximatly 10,305 acres.

C. Soil Erosion Hazard Rating (acres): 19,385 **(low)** 6,549 **(moderate)** 261 **(high)**

D. Erosion Potential: 4 **tons/acre**

E. Sediment Potential: 3,500 **cubic yards/square mile**

PART IV - HYDROLOGIC DESIGN FACTORS

Note: see appendix for modeled flows throughout the fire

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

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

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

D. Design Storm Duration, (hours): 0.5

E. Design Storm Magnitude, (inches): 0.67 to 0.77

F. Design Flow, (cubic feet / second/ square mile): 86 to 99

G. Estimated Reduction in Infiltration, (percent): 1 to 5

H. Adjusted Design Flow, (cfs per square mile):87 to 104 (Note – this value only includes adjusted flow based on reduction in soil infiltration. When accounting for loss of evapotranspiration, interception and ground surface storage of water the expected 2 year flows are expected to increase by as much as 31% (see Hydrology report)).

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats (narrative):

Interim Report #2 identifies the need for an additional 25 acres of aerial application of biomass within the Pole Creek drainage and is described using green font.

The following critical values/resources and threats are a combination of those identified in the initial 2500-8 request as well as additional treatments pertinent to this supplemental request. Supplemental requests are in red font. The initial 2500-8 was approved in November of 2012.

Natural and Cultural Resources

- Whychus, Snow and Pole Creek side slopes – The side slopes adjacent to Whychus, Snow and Pole Creek were assessed to determine the probability of sediment delivery and subsequent water quality degradation to these streams. Whychus and Snow Creek are classified as T&E streams and Pole Creek is a water supply for agricultural use and the City of Sisters; however the City currently withdraws water from groundwater wells closer to town, but maintains the right to use the water in Pole Creek if necessary.

  Slopes were assessed based on percent gradient, proximity to live water, burned soil severity rating, and vegetation mortality. Based on slope and soil burn severity alone, there are approximately 4,207 acres that have a *Likely* potential for slope erosion given a storm event. Of these 4,207 acres, approximately 200 acres were singled out given their proximity to aquatic resources and the probability of sediment delivery to Whychus, Snow and Pole Creeks. The magnitude of consequence would be *Moderate*, resulting in considerable damage to downstream T&E species and habitat as well as potential degradation to the City of Sister's water supply. The risk is classified as *High*.

  Studies have shown that non-channelized sediment flow rarely travels more than 300ft across slopes (USFS 1995). Thus, proposed mulching treatments would only occur along narrow strips adjacent to streams that have a high potential to increase sediment delivery to these streams. Treatments would also be limited to areas of high and moderate burn intensity and on slopes greater than 15 percent (see proposed treatment map).

  Mulching provides immediate ground cover and protects soils from erosion and nutrient capital loss. Mulching can reduce downstream peak flows by absorbing rainfall and

allowing water repellency to break down. Mulch helps to secure seeds that are either stored in the soil or applied as an emergency treatment by maintaining a favorable moisture and temperature regime for seed germination and growth (BAER Treatments Catalog, 2006).

Through fire suppression prep work, a lot of roadside vegetation was thinned to reinforce the perimeter fire lines. Much of this material was chipped and stockpiled in various locations for potential rehabilitation use. See Photo 1. The mulch material is a mix of fine chips, needles, larger shreds and small branches. Photo 2 shows some of the side slopes that would be treated with mulch. **Recommended Treatment (L1 Aerial Application of Biomass)**

Figure 1: A sample of the native mulch material stockpiled at the Pole Creek Fire.

Pole Creek fire burned at a moderate to high severity over much of the upper pole creek drainage. Specific values at risk in the pole creek drainage include water quality, aquatic species, private agricultural water rights, and the fact that pole creek is the back-up municipal water source for the City of Sisters. The combination of moderate to high burn severities and steep slopes in this drainage has resulted in an additional 25 acres being identified as high priority for biomass applications.

Figure 2: Photo of area adjacent to Snow Creek with moderate to high burn intensity and slopes greater than 15 percent.

Federally Protected Native plant communities at risk from invasive plant introduction/spread

- Whychus Late Successional Reserve, Three Sisters Wilderness, and Whychus Creek Wild and Scenic River corridor – Native plant communities in these three federally protected areas are biological reserves of high ecological value. Habitats in these areas are threatened by the expansion of invasive plant populations which exist in the wildfire area or may have been introduced by wildfire activities. There are 7 invasive plant sites in or adjacent to the fire area. Multiple vectors for invasive plant spread exist in the area such as water flows, wind, animals, and vehicles. BAER Monitoring conducted in 12 previous wildfires in the past 10 years on the Sisters Ranger District has shown that known weed sites can expand rapidly in the favorable conditions following wildfires. Field observations have shown that even low severity burn areas can be invaded by noxious weeds. Many known weed sites in fire areas have increased in size. Small sites and new starts on dozer lines have been reduced in size by early detection and control. Early detection of new starts or expansions is the most economical means of weed management. There is a *Likely* probability of damage or loss to desirable plant communities from the spread of invasive weeds with post-fire bare soil conditions. The magnitude of consequence is *Moderate* resulting in a *High* risk. **Recommended Treatment (L2 Weed Detection and Early Treatment).**

- There are no treatments proposed within the supplemental request for the sole protection of natural or cultural values. However, the supplemental road and trail treatments proposed in the Roads and Trail section below are not only for the protection of the road and trail prism infrastructure, but also for protection of critical natural resources as they relate to the road/trail infrastructure being compromised. See road and trail treatment descriptions below for inclusion and discussion of the critical natural resources related to each road/trail treatment area.

Channel Treatments

- Pole Creek Water Supply – The Pole Creek Ditch supplies water to Patterson Ranch. The City of Sisters also has municipal water rights from Pole Creek. The Pole Creek catchment was burned with a high to moderate severity over approximately one third of the watershed. The resulting change in live tree canopy and exposed soil is expected to result in a 29% increase in the 2 year flows at the Pole Creek diversion location. The ditch is not dsesigned to withstand this increase in flow and will certainly be over topped and could cause erosion to roads downstream. This, combined with a substantial increases in fine sediment load in Pole Creek post fire, can result in a high risk of impacts to federally listed Threatened and Endangered steelhead spawning habitat in Whychus Creek. Flood events are *Likely* to occur and overflow into the ditch will exceed the capacity of the ditch. The magnitude of the effect is *Major* and will add to the upper watershed sediment load and damage to the diversion infrastructure. This results in a *High Risk* to Whychus Creek steelhead habitat. Also the water quality used by the ranch and the city could be impacted. **Recommended Treatment (C1. Water Supply Protection).**

- None

Roads and Trail Treatments

Roads

The roads that were identified as critical values (that were able to be accomplished prior to snowfall of 2012) were already funded and treated in October and November of 2012. The treatments identified in red font below were identified in the initial BAER assessment but were not able to be accomplished prior to winter weather, therefore were not submitted in 2012.

There are several levels of risk associated with the loss or damage to property due to post fire environmental conditions related to increased flow magnitudes, culverts plugging and overtopping, debris flows, and erosion. There in an increased risk of sedimentation into downstream fisheries and impacts to domestic and municipal water systems. To assess the potential for road related storm damage and associated sedimentation the BAER Team focused on work that could be accomplished in the next three weeks.

- Forest Road 16 – This Maintenance Level 4 road is the main access to Three Creeks Lakes and associated campgrounds and trailheads. A majority of this road is paved asphalt with a smaller gravel section at the end of the route. In a storm event, it is anticipated that water will travel down Forest Road 1600700 and channel down the paved section of Forest Road 16.

  The probablity of damage is *Very Likely*, and the magnitude of consquense is *Moderate* resulting in a *Very High* risk determination. This was rated based on the probablity of sediment and debris transferring from Road 1600700 down to Road 16. This could result in damage to the pavement of the 16 Road and an increased risk of injury to the public. Road 16 is a heavily traveled road by the general public and the possiblity of a motor vehicle accident resulting in injury could occur if sediment and debris is present on the road and or the road is damaged by the channeled runoff from the 1600700 Road.

  Recommended Treatment R1
  - **Install waters bars on intervals along the 1600700 Road consistent with Forest manual direction.**
  - **Storm proof drainage culverts and reshape ditches along the 16 Road to assist in more effective storm flow dispersion.**

- Forest Road 15 – This Maintenance Level 2 gravel road is the main access to Pole Creek Trailhead, and one of two access roads to the Whychus Creek Canyon area and Three Creek Wilderness. The Pole Creek crossing on Forest Road 1526200 is a series of 3 culverts.

  The probablity of damage is *Very Likely*, and the magnitude of consquense is *Moderate* resulting in a *Very High* risk determination. This was rated based on the fact that Road 15 is a heavily traveled by the general public. The potential of a motor vehicle accident resulting in injury could occur if sediment, debris or even a road wash out is present. There is also the potential of sediment deposits being conducted down Road 15 and eventually ending up in Pole Creek.

  Recommended Treatment R2
  - **Reshape ditches to assist in more effective storm flow dispersion**
  - **Storm proof culverts**
  - **Installation of (5) armor dips**

- **Remove culverts and install armored low water ford at the existing crossing. Reshape road prism on Forest Road 1526200 Jct at the Pole Creek crossing to direct and dissipate energy of increased stream flows at this location. Culverts got plugged and blew out in an October storm, before initial funds were available. The low water crossing was not able to be completed due to winter weather conditions and not enough funds to complete.**

- Forest Road 1514 at Pole Creek – This Maintenance Level 2 gravel road connects Forest Road 15 with Forest Road 16 and traverses through Whychus Creek Canyon. There is a culvert located at the crossing of Pole Creek that will be effected by the increased flows, calculations indicate the culvert will be over capacitated and as a result will overflow onto the road at the 1513 intersection causing damage to the existing road and sedimentation into pole creek.

  Approximately 3798 acres (46%) of the area upstream of this culvert burned with high and moderate severity. Greater than 75% of the trees on these acres are expected to be dead. Based on the auto-delineation peak flow calculation tool from Oregon Water Resources Department (www.oregon.gov/owrd) the 2-yr event for Pole Creek at this location is approximately 65 cfs and the 2-yr post-fire flow is expected to be approximately 84 cfs (29% increase). The current capacity of the culvert is approximately 40 cfs.

  To prevent damage to the existing culvert and road this winter we are recommending BAER dollars be used to storm proof the ditches adjacent to the culvert and install an armored drainage dip to accommodate anticipated increased flows resulting from the fire. The probablity of damage is *Very Likely*, and the magnitude of consquense is *Moderate* resulting in *Very High* risk determination. This was rated based on the crossing of Pole Creek along Road 1514. The potential of a creek overflow at the crossing point could cause extensive road damage and release a high concentration of sediment, from a point source perspective, into Pole Creek.

  Recommended Treatment R3
  - **Storm proof ditches and road prism to distribute increased flows.**
  - **Storm proof culvert by removing vegetation directly upstream and potential sediment plug.**
  - **Culvert at Pole Creek – install armored drainage dip east side of the culvert to direct and disperse energy of increased flows to mitigate immediate concerns to this area.**

- Forest Road 1514 at Snow Creek - The contributing watershed area above this pipe is 3,411 acres. Of these acres approximately 2114 acres (62%) burned with high and moderate severity. Greater than 75% of the trees on these 2114 acres are expected to be dead. Based on the auto-delineation peak flow calculation tool from Oregon Water Resources Department (www.oregon.gov/owrd) the 2-yr event for Snow Creek is approximately 60 cfs and the 2-yr post-fire flow is expected to be approximately 84 cfs. Current capacity of this culvert is approximately 40 cfs.

  The Snow Creek culvert is scheduled to be replaced with a larger culvert next spring. This work was already scheduled prior to the fire and will be paid for through a funding source other than BAER dollars. To prevent damage to the existing culvert and road this winter we are recommending BAER dollars be used to storm proof the ditches adjacent to the culvert and

installing an armored drainage dip to accommodate anticipated increased flows resulting from the fire. Without this preventive treatment the probablity of damage is *Very Likely*, and the magnitude of consquense is *Moderate* resulting in a *Very High* risk determination.

Recommended Treatment R4

- **Storm proof ditches and road prism to distribute increased flows**
- **Culvert at Snow Creek – install armored drainage dip east side of the culvert to direct and disperse energy of increased flows to mitigate immediate concerns to this area.**

- Forest Road 1526 at Pole Creek – The current capacity of the culvert at the Pole Creek 1526 junction is approximately 30 cfs. There is some known history of this pipe plugging from debris and ice jams. The contributing watershed area above this pipe is 3,667 acres. Of these acres approximately 1980 acres (54%) burned with high and moderate severity. Greater than 75% of the trees on these acres are expected to be dead. Based on the auto-delineation peak flow calculation tool from Oregon Water Resources Department (www.oregon.gov/owrd) the 2-yr event for Pole Creek at this location is approximately 33 cfs and the 2-yr post-fire flow is expected to be approximately 44 cfs.

  To prevent damage to the existing culvert and road this winter we are recommending BAER dollars be used to storm proof the ditches adjacent to the culvert and install an armored drainage dip to accommodate anticipated increased flows resulting from the fire. The probablity of damage is *Very Likely*, and the magnitude of consequence is *Moderate* resulting in a *Very High* risk determination. This was rated based the crossing of Pole Creek along Road 1526. The potential of a creek overflow at the crossing point could cause extensive road damage and release a high concentration of sediment, from a point source perspective, into Pole Creek.

  Recommended Treatment R5

  - **Storm proof ditches and road prism to distribute increased flows.**
  - **Storm proof culvert by removing vegetation directly upstream and potential sediment plug.**
  - **Culvert at Pole Creek – install armored drainage dip east side of the culvert to direct and disperse energy of increased flows to mitigate immediate concerns to this area.**

- Forest Road 1024 – This Maintenance Level 2 gravel road is the main access to Millican Crater Trailhead. If a 25 year event were to occur, the likelihood of significant damage is likely. This road has a consistent grade of around 7% and is located at the edge of a burn.

  The probablity of damage is *Likely*, and a magnitude of consequence is *Moderate* resulting in a *High Risk* determination. This was rated based on the possiblity of moderate to major road damage along the higher road grades. As mentioned before, this is an access point to a popular trailhead.

  Recommended Treatment R6

  - **Forest Road 1024 – Storm proof culverts**

- **Install armor drainage dips along the road for approximately 2 miles to assist with drainage along with the culverts, spaced according to Forest Service manual direction.**

- Storm Patrol – The rain-on-snow event elevation band includes the road system within the Pole Creek Fire. Storm patrols with backhoe assistance are requested for all collector roads within the fire area. The request includes employee time, culvert cleaning by a backhoe, and dump truck assistance.

  Recommended Treatment R7
  - **Storm patrol with backhoe assistance are requested for – 20 days**

- Forest Roads 16 and 1600700 – Forest road 16 is a paved road that serves as the primary access route from the town of Sisters, OR to Three Creeks Lake and several other recreational destinations including the Three Sisters Wilderness.

  Some preliminary drainage work was funded in the intial 2500-8 to address this area, and additional funds are requested to complete the needed work to reduce the risk of road related runoff due to post-fire conditions. Along the lower portion of the 1600700 road and at the junction of the 16/1600700 road there is a threat of post-fire sediment and overland flow jeopardizing the integrity of both roads and posing a safety risk for human life and property (especially along the 16 road). The 1600700 road has a high probabilty of increased overland flow and sediment delivery from the post-fire conditions that exist up slope. The post-fire storm in October of 2012 showed substantial sediment delivery down this road and onto the paved 16 Road. The drainage capacity at the junction of these two roads is not adequate to pass expected increases in water and sediment across the 16 Road.

  The probablity of damage to both roads is *Very Likely*, and the magnitude of consequence is *Moderate* resulting in a *Very High* risk determination to loss of infrastructure and risk of injury to the public. Road 16 is a heavily traveled road by the general public and the possiblity of a motor vehicle accident resulting in injury could occur if sediment and debris is present on the road and or the road is damaged by the channeled runoff from the 1600700 Road.

  Recommended Treatment R1
  - **Install 7-10 additional water bars along the 1600700 Road to more effectively disperse water off the road and minimize the loss of road prism and the amount of sediment transported to the 16 road.**
  - **Improve cross drain culvert capacity on the 1600700 Road by digging out debris and sediment at cross drain inlets.**
  - **Reshape ditches along the 16 Road to assist in more effective storm flow.**
  - **Install cross drain culvert on the 16 Road to get water more effectively across the road.**

- Forest Roads 15 and 1500700 – The 15 Road is a maintenance Level 2 gravel road and is the main access to Pole Creek Trailhead, and one of two access roads to the Whychus Creek Canyon area and the Three Sisters Wilderness. The 1500700 Road takes off from the Pole Creek Trailhead and is another route that accesses the Three Sisters Wilderness.

Some preliminary drainage work was funded in the intial 2500-8 to address this area prior to the first storm, and additional funds are requested to complete the needed work to reduce the risk of road related runoff due to post-fire conditions.

A section of both roads (about 3000 total lineal feet) are in need of additional cross drainage due to the post-fire threat to the road prisms. The probablity of damage to both roads from post-fire conditions is *Very Likely*, and the magnitude of consquense is *Moderate* resulting in a *Very High* risk determination. This was rated based on the fact that both roads are heavily traveled by the general public. The potential of a motor vehicle accident resulting in injury could occur if sediment, debris or a road wash out were to occur. The 15 road also parallels Pole Creek which is the backup City of Sisters water supply, is a tributary to a T&E occuppied stream (Whychus Cr) and has designated water rights to adjacent landowners for agriculture. One of the main diversions off Pole Creek was reinforced and storm-proofed with approved funds from the intial 2500-8. This proposed treatment would partially protect that investment (by minimizing the potential for road failure) as well as the aforementioned T&E species and their associated habitats downstream in Whychus Cr and the backup municipal water supply.

Recommended Treatment R2

- **Improve capacity of drainage ditches along 2000 feet of the 15 Road and install 3 additional drain dips in the road to assist in more effective storm flow dispersion. Install 3 additional armored drainage dips on the 1500700 Road and improve capacity of ditches along 1000 feet of road.**
- **Install one 24 inch cross drain pipe on the 15 Road to get better flow capacity underneath the road.**

- Forest Road 1526200 at Pole Creek Crossing – This crossing consisted of 3 small 15-inch culverts. The BAER assessment team was going to recommend removing the culverts in the initial request, but they got plugged and blew out during a post fire storm event in October of 2012. The road prism was washed out and now presents a safety hazard to vehicular traffic. Some preliminary work was funded in the intial 2500-8 to address this area as well as the adjacent 15 and 1500700 roads, however funds were not enough to complete the needed work on this crossing to make it safe before winter weather set in. Additional funds are requested to complete the needed work to reduce the risk of damage to life and property. The crossing is immediately adjacent to the Pole Creek Trail Head and parking area. The probability of human injury or property damage is *Likely* and the magnitude of consequence is *Moderate* resulting in a *High* risk determination.

Recommended Treatment R3

- **Construct a low water crossing that includes hardening the stream channel and excavating vehicular approach and exit from stream to make the crossing safe.**

- Forest Road 1514 at Pole Creek Crossing – This Maintenance Level 2 gravel road connects Forest Road 15 with Forest Road 16 and traverses through Whychus Creek Canyon. The culvert at this location is currently a 48-inch round pipe with a heavily armored inlet and approximately 7-8 feet of fill over the pipe. The current capacity of this pipe is approximately 40 cfs. On October 15th, 2012 this culvert was plugged and water overtopped the 1514 road. Bankfull width of Pole Creek at this location is approximately 12

feet and the culvert is undersized per R6 protocol. This protocol currently states that the pipe should be at least bankfull width and under the forthcoming Aquatic Restoration Biological Opinion (ARBO) will soon be 1.5 times bankfull width for Rosgen C and E channel types and 1.2 for Rosgen A and B channel types. Calculations indicate the culvert will be over capacitated and as a result will overflow onto the road at the 1513 intersection causing damage to the existing road and sedimentation into pole creek (as seen during the October 15, 2012 storm event).

Approximately 3798 acres (46%) of the area upstream of this culvert burned with high and moderate severity. Greater than 75% of the trees on these acres are expected to be dead. Based on the auto-delineation peak flow calculation tool from Oregon Water Resources Department (www.oregon.gov/owrd) the 2-yr event for Pole Creek at this location is approximately 65 cfs and the 2-yr post-fire flow is expected to be approximately 84 cfs (29% increase). The current capacity of the culvert is approximately 40 cfs.

There was not enough time to install this culvert in 2012 due to snowfall and winter weather conditions. However, to prevent damage to the road and downstream resources (irrigation diversion, T&E habitat and species, backup municipal water supply) during the winter of 2012 we installed an armored drain dip with funds approved in the initial 2500-8 to accommodate anticipated increased flows resulting from the fire.

Given that the current capacity of this culvert is about 40 cfs, the probability of damage or loss to the culvert and associated road prism from the culvert being undersized is *Very Likely* with a magnitude of consequence being *Moderate* resulting in a *Very High* risk determination.

Recommended Treatment R4

- **Replace existing undersized culvert with a 16 foot box culvert to accommodate expected post-fire increased flows and accommodate the 100 yr. flood. This treatment will also protect downstream T&E species and habitat in Whychus Cr as well as protect the municipal water supply and approved and implemented BAER treatments (i.e. Pole Cr Diversion Structure).**

- Forest Road 1526 – The 1526 road runs through an area with generally steeper slopes and with a high concentration of ground that experienced high and moderate burn severities upslope of the road. The road parallels Whychus Creek for approximately 2 miles which is designated as a T&E stream and is the concentration of restoration efforts in the Sisters area.

  Given the post-fire burn conditions, the probability of damage or loss to the 1526 road is *Very Likely* with a magnitude of consequence being *Moderate* resulting in a *Very High* risk determination.

  Recommended Treatment R5

  - **Improve road drainage by installing drain dips/water bars to protect the road prism and downstream T&E resources**
  - **Upsizing 15-inch cross drain culvert with a 24-inch culvert to protect the road prism and prevent sediment input into T&E stream (Whychus Cr).**

- Forest Roads 1516 and 1516500 – These roads run along the east slopes of Whychus Creek (T&E) and have inadequate ditch capacity given the expected post-fire runoff conditions upslope of these roads. The roads are at risk to erosion and potential wash-out due to post-fire conditions upslope of these roads. There is also a risk of sediment input into a T&E stream (Whychus Cr) from a failure to these roads.

  Given the post-fire runoff conditions upslope of these roads, the probability of damage or loss to these roads is *Likely* with a magnitude of consequence being *Moderate* resulting in a *High* risk determination.

  Recommended Treatment R6
  - **Improve drainage ditch capacity along ½ mile of road prism to protect road prism and T&E resources downstream.**

Recreation Outside of Wilderness

Figure 3: Portions of the Metolious-Windigo Horse Trail showing loss of drainage structures and potential for erosion.

- Trail System Emergency Drainage Control and Tread Stabilization – The Metolious-Windigo Horse Trail received a significant amount of fire related damage to trail tread and erosion control devices (wooden water bars). The segment of trail surveyed (from upper Three Creeks Snow Park to Park Meadow trail) received severe fire damage along most of its length. The critical issue for this trail is damage to the trails tread and drainage structures. This, as indicated by a minimal amount of rain that fell in Sept during the fire, is highly susceptible to water channeling and erosion. The hydrophobic condition of the severely burned soils coupled with the slope and terrain along this trail will result in severe sheet flow onto and down the trail. To protect the values at risk, rock and log water bars and check dams will need to be installed and in some areas the trail berms will need to be pulled in to prevent water from concentrating in the trail.

  Without treatment, the probability of impacts to significant investments on or in close proximity to the burned National Forest lands is *Very Likely*, and the magnitude of consequences is *Moderate* leading to a *Very High* risk determination. **Recommended Treatment (R8 Trail System Emergency Drainage and Tread Stabilization).**

- Wilderness and Non-Wilderness Trais within the Pole Creek Fire – Approximatly 22 miles of wilderness and non-wilderness trails within the Pole Creek Fire experienced high to moderate levels of soil burn severity. Trail specialists have identified 12 miles of that trail system that are considered to be severally impacted and in critical need of treatment.

Prioritization for treatment was given to locations that had: (1) moderate or high burn severity and lacked adequate drainage; (2) trail locations with sustained grades; (3) trails where previous drainage structures were damaged by fire; and (4) trails near stream crossings with diversion potential. Tread work completed with BAER funds will not be used to bring trails up to pre-fire standards, but rather to stabilize and prevent unacceptable damage to the resource, and to repair/replace drainage improvements that are necessary to prevent degradation to the resource.

Initial emergency trail work was funded in 2012 in the amount of $6400. That work was completed last fall. The following treatments were also identified in the initial BAER request, but not requested due to not having enough time to implement prior to winter weather conditions.

Given the post-fire conditions, the probability of damage or loss to this 12 miles of trail is *Very Likely* with a magnitude of consequence being *Moderate* resulting in a *Very High* risk determination.

Recommended Treatment T1

- **Improve trail drainage on 12 miles of wilderness and non-wilderness trails within the Pole Creek Fire by installing drain dips/water bars to help stabilize trails in high risk areas and prevent damage to other resources.**

Human Life and Safety

- City of Sisters – Whychus Creek flows through the Town of Sisters. Upstream of town (near the gaging station) the valley type transitions from a moderately steep confined valley to a lower gradient wider valley. Within this wider valley there are several private residences as well as most of the City of Sisters that reside on the floodplain of Whychus Creek.

  A flood in 1980 on Whychus Creek resulted in approximately 2,000 cfs through the City of Sisters and is the largest on record. The December 1964 flood of Whychus Creek is the second largest on record coming in at approximately 1,980 cfs. This flood resulted from unusually intense rain on frozen topsoil, augmented by snow-melt in the valley and surrounding mountains. Debris deposition on agricultural land, damaged irrigation diversions, personal property damages to residents of Sisters and extensive bank erosion resulted from that flood. Since 1964 there have been several larger floods over 1,000 cfs.

  Post-fire flow magnitudes are expected to increase within Whychus Creek due to more water available for runoff from less vegetative evapotranspiration, interception and loss of ground cover storage. The changes in flow frequency, duration and magnitude are difficult to put a value on due to the vast number of variables. However what we do know is that 22% and 19% of the Upper Whychus subwatersheds (i.e Upper Whychus Cr and Headwaters Whychus Cr subwatersheds) experienced a stand-replacement type fire (some of this vegetation was previously dead from the mountain pine beetle). This degree of tree mortality alone will result in significantly more water available for runoff to Whychus Creek and through the City of Sisters.

Based on the auto-delineation peak flow calculation tool from Oregon Water Resources Department (www.oregon.gov/owrd) the 2-yr event for Whychus Creek at this location is approximately 562 cfs (with a 95% upper and lower confidence interval of 508 and 620, respectively). Calculations indicate the 2-yr post-fire flow is expected to be approximately 739 cfs (31% increase).

Most of the City of Sisters resides on the floodplain of Whychus Creek, however the stream channel dimensions through town can accommodate approximately 2000 cfs (approximately a 100-yr flood) and any flow above this would access the large floodplain area of Sisters with anticipated slower velocities and lower depths of water to not cause significant risk to structures and human life. **No Treatment Recommended.**

- Caution signs – Potential loss of or injury to human life exists throughout the fire area due to post-fire environmental conditions primarily due to hazard trees and the potential for post-fire debris flows and floods. The probability of loss or injury to human life from debris flows/floods is *Possible* with the magnitude of consequences being *Moderate* resulting in an *Intermediate* risk. **Recommended Treatments (P1 Caution signs).**

- Forest Road 1514 – There is a 2.5 mile section along the 1514 road that has numerous hazard trees due to post-fire conditons. The road has been part of a larger administrative closure over the winter. This closure will be re-opened in April or May as most imminent hazard trees have been dealt with. However this stretch of road is unique. This section of road is in a riparian area with a 303(d) listed stream (for temperature) and in a Wild and Scenic Cooridor with archaeological concerns. All identified hazard trees have not been addressed due to the aforementioned land designation restrictions and concerns.

  Given the post-fire hazard tree conditions (i.e. >75% mortality) along this stretch of road, the probability of damage or loss to human life and property is *Possible* with a magnitude of consequence being *Major* resulting in a *High* risk determination

  Recommended Treatment P1
  - **Install two temporary and reusable gates to keep vehicles out of the area for protection of human property and life. Gates would include signs leading up to the gate that inform users that the road is closed.**

B. Emergency Treatment Objectives (narrative):

The critical values and the objectives of proposed treatments to protect critical values are outlined in the aforementioned section (Section A of this report). The primary objective of this Burned Area Emergency Response Report is to recommend prompt actions deemed reasonable and necessary to effectively protect, reduce or minimize significant threats to human life and property and prevent unacceptable degradation of natural and cultural resources. The application of these BAER treatments would minimize on-site and downstream damages to the identified values at risk. The emergency treatments being recommended by the Pole Creek Fire BAER Team are specifically designed to achieve these results.

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

Land 90**%**, N/A **Channel** N/A, N/A **Roads/Trails** 50%, 70% **Protection/Safety** 90**%,** 90%

D. Probability of Treatment Success

	Years after Treatment		
	1	**3**	**5**
Land	80%; N/A	90%; N/A	90%; N/A
Channel	N/A; N/A	N/A; N/A	N/A; N/A
Roads/Trails	80%; 80%	90%; 90%	90%; 90%
Protection/Safety	80%: 80%	90%; 90%	90%; 90%

E. Cost of No-Action (Including Loss): $2.6 million**;** $1.2 million

F. Cost of Selected Alternative (Including Loss): $268,165; $202,650

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Terry Craigg - Region 6 – Soil Scientist, Deschutes NF, Sisters RD

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Team:

Terry Craigg – Team Lead
Todd Reinwald – Soil Scientist
Peter Sussmann – Soil Scientist
Cari Press – Hydrologist
Jason Gritzner – Hydrologist
Rob Tanner – Hydrologist
Mike Riehle – Fisheries
Adam Clark – Archaeologist
Paul Claeyssens – Archaeologist
Don Walker – Engineering
Maret Pajutee – Botanist/Invasive Species
Charmane Powers – Botanist/Invasive Species (trainee)
Marlo Fisher – Botanist/Invasive Species (trainee)
Kirk Flannigan – Recreation
Bob Hennings – Recreation (trainee)
Dorothy Thomas (R6) – GIS
Bernie Knotts – GIS (trainee)
Bobbie bates - Vegetation

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.)

Natural and Cultural Resource Treatments

L1: Aerial Application of Biomass – Aerial Application of Mulch to approximately 200 total acres along Whychus, Snow and Pole Creek. We are requesting $170,000 for aerial application of mulch and an additional $12,000 to transport the biomass to desired location. Maximum desired application depth of the mulch would be one-inch or less. A 1-inch application depth would equate to approximately 135 yd^3 per acre. **Cost estimate $182,000.**

This report requests emergency stabilization funds to apply biomass to an additional 25 acres in the Pole Creek drainage. **Additional funding needs: $25,000.**

L2: Weed Detection and Early Treatment – This treatment would involve assessing new invasive weeds within the fire area and treating them prior to spread. Requesting 20 employee days and vehicle/dump costs. **Cost estimate $5,465**.

None

Channel Treatments

C1: Water Supply Protection – This treatment would include stabilizing the split in the channel where water is diverted into the Pole Creek Ditch. This treatment would add a rock structure at the diversion point that would stabilize the flow entering the ditch and ensure that flood flow would pass into the natural stream channel. The debris jam would be removed and placed into the floodplain below. The diversion head gate structure would be secured with berms so the overflow is directed back to the natrual stream channel. A remnant ditch that diverts flood flow back into the Pole Creek ditch downstream of the headgate will be pulled to floodplain elevation. This work will require the use of an excavator and dump truck. Rock source is 6 miles away at a native rock pit on National Forest Land. This work will be completed this fall before winter and rain on snow events are likely to occur. This work will prevent future floods from overtoping the ditch and causing damage to national forest system roads downstream, and steelhead habitat downstream in Whychus Creek. The project will also reduce sedimentation to the water supply of Pole Creek for ranchers and the City of Sisters. **Cost estimate $9,200.**

None

Roads and Trail Treatments

R1: 16 Road

- Storm proof drainage culverts and reshape ditches to assist in more effective storm flow dispersion.
- Install waters bars on intervals consistent with Forest manual direction**.**
- **Cost estimate $5000**

R2: 15 Road

- Reshape ditches to assist in more effective storm flow dispersion

- Storm proof culverts
- Installation of (5) armor dips
- Remove culverts and install armored low water ford at the existing crossing. Reshape road prism on Forest Road 1526200 Jct at the Pole Creek crossing to direct and dissipate energy of increased stream flows at this location.
- **Cost estimate $20,000**

R3: Road 1514 at Pole Creek

- Storm proof ditches and road prism to distribute increased flows.
- Storm proof culvert by removing vegetation directly upstream and potential sediment plug.
- Culvert at Pole Creek – install armored drainage dip east side of the culvert to direct and disperse energy of increased flows to mitigate immediate concerns to this area.
- **Cost estimate $5000**

R4: Road 1514 at Snow Creek

- Storm proof ditches and road prism to distribute increased flows
- Culvert at Snow Creek – install armored drainage dip east side of the culvert to direct and disperse energy of increased flows to mitigate immediate concerns to this area.
- **Cost estimate $5,000**

R5: Road 1526 at Pole Creek

- Storm proof ditches and road prism to distribute increased flows.
- Storm proof culvert by removing vegetation directly upstream and potential sediment plug.
- Culvert at Pole Creek – install armored drainage dip east side of the culvert to direct and disperse energy of increased flows to mitigate immediate concerns to this area.
  Cost estimate $5000

R6: Road 1024

- Forest Road 1024 – Storm proof culverts
- Install armor drainage dips along the road for approximately 2 miles to assist with drainage along with the culverts, spaced according to Forest Service manual direction.
- **Cost estimate $10,000**

R7: Storm Patrol

- Storm patrols with backhoe assistance are requested for – 20 days
  - **Cost estimate $5,450**

R8: Non-WildernessTrail System Emergency Drainage and Tread Stabilization –
Non Wilderness trails affected by the fire that will require treatment:

- Metolius Windigo Trail (99)

Emergency treatments would include replacing/rebuilding native material (wood and stone) drainage features, redefining treadwidth/outslope, and reinforcing stream crossings along 2 miles of the trail. $3,200/mile is being requested. **Cost estimate $6400**.

R1: Forest Roads 16 and 1600700

- Install 7-10 additional waters bars on the 1600700 Road to more effectively disperse water off the road and minimize the loss of road prism and amount of sediment transported to the 16 road.
- Improve cross drain culvert capacity on the 1600700 Road by digging out debris and sediment at cross drain inlets.
- Reshape ditches along the 16 Road to assist in more effective storm flow.
- Install cross drain culvert on the 16 Road to get water more effectively across the road.
- **Requesting $7,400**

R2: Forest Roads 15 and 1500700

- Improve capacity of drainage ditches along 2000 feet of the 15 Road and install 3 additional drain dips in the road to assist in more effective storm flow dispersion. Install 3 additional armored drainage dips on the 1500700 Road and improve capacity of ditches along 1000 feet of road.
- Install one 24 inch cross drain pipe on the 15 Road to get better flow capacity underneath the road.
- **Requesting $10,800**

R3: Forest Road 1526200 at Pole Creek Crossing

- Construct a low water crossing that includes hardening the stream channel and excavating vehicular approach and exit from stream to make the crossing safe.
- **Requesting $4,100**

R4: Forest Road 1514 at Pole Creek Crossing

- Replace existing undersized culvert with a 16 foot box culvert to accommodate expected post-fire increased flows and accommodate the 100 yr. flood. This treatment would mitigate potential threats to downstream T&E species and habitat in Whychus Cr as well as protect the backup municipal water supply and also protect a BAER approved and implemented treatment done in the Fall of 2012 (i.e. Pole Cr Diversion Structure). This treatment was implemented approximately 300 feet downstream of this crossing.
- **Requesting $145,000**

R5: Forest Road 1526

- Improve road drainage by installing drain dips/water bars to protect the road prism and downstream T&E resources
- Upsizing 15-inch cross drain culvert with a 24-inch culvert to protect the road prism and prevent sediment input into T&E stream (Whychus Cr).
- **Requesting $4,250**

R6: Forest Roads 1516 and 1516500

- Improve drainage ditch capacity along ½ mile of road prism to protect road prism and T&E resources downstream.
- **Requesting $2,300**

T1: Wilderness and Non-Wilderness Trails within the Pole Creek Fire

- Funding would allow the Deschutes NF to hire the Northwest Youth Corp for 2.5 weeks and to fund 2/GS-5 trail crew employees for 3 weeks each to support the Youth Corp crews.
- **Requesting $22,000**

Human Life and Safety Treatments

P1: Install Caution Signs – This treatment would buy and install burned area caution notification signs (with wooden/steel post when necessary) at strategic locations entering the fire area to inform the public and forest users of post-fire conditions and hazards. Monitoring of signs and replacement as necessary is included in this treatment cost. Treatment is essential and necessary to reduce public exposure to post-fire hazards. Requesting 10 signs ($600), 10 posts ($250) and 10 employee days ($2500). **Cost estimate of $3350**.

P1: Forest Road 1514

- Install two temporary and reusable gates to keep vehicles out of the area (2.5 mile section of road) for protection of human property and life. One gate would be installed at each end of the identified danger area. Cost of gates include signs that inform public that road is closed ahead.
- **Requesting $6,800**

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.)

M1: Effectiveness Monitoring of L1 – Results of the aerial application of biomass (L1) will be monitored by writing a brief report documenting areas where applications occurred, application logistics, storm events following treatments, and comparisons between treated and untreated areas. Cost include time, materials, and vehicle costs; **Cost estimate $6300.**

M2: Effectiveness Monitoring of L2 – Results of the weed prevention treatments (L2) will be monitored by writing a brief report documenting the results of the summer's surveys. This documents implementation and provides valuable documentation of the weed risk from inadequate prevention measures, describes problem areas, and will provide data for future weed control in the area if needed. **Cost included in treatment.**

None requested

Part VI – Emergency Stabilization Treatments and Source of Funds

			NFS Lands				Other La			All
		Unit	# of		Other	# o	Fed	on F		Total
Line Items	Units	Cost	Units	BAER $	$	uni	$	ni	$	$
A. Land Treatments										
L1-Aerial Mulch	acre	200	910	$182,000	$0		$0		$0	$182,000
L2-Weed Detection/Tr	each	5465	1	$5,465	$0		$0		$0	$5,465
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$187,465	$0		$0		$0	$187,465
B. Channel Treatments										
C1-Equipment	day	4	1600	$6,400	$0		$0		$0	$6,400
C1-Hydrologist	day	8	350	$2,800	$0		$0		$0	$2,800
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Channel Treat.				$9,200	$0		$0		$0	$9,200
C. Road and Trails										
R1-Road 16	each	1	5000	$5,000	$0		$0		$0	$5,000
R2-Road 15	each	1	20000	$20,000	$0		$0		$0	$20,000
R3-Road 1514 Pole C	each	1	5,000	$5,000	$0		$0		$0	$5,000
R4-Road 1514 Snow C	each	1	5,000	$5,000						$5,000
R5-Road 1526	each	1	5000	$5,000						$5,000
R6-Road 1024	each	1	10000	$10,000						$10,000
R7-Storm Patrol	day	1	5450	$5,450						$5,450
R8-Trail Drain	mile	2	3200	$6,400						$6,400
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$61,850	$0		$0		$0	$61,850
D. Protection/Safety										
P2-Caution Signs	each	1	3350	$3,350	$0		$0		$0	$3,350
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$3,350	$0		$0		$0	$3,350
E. BAER Evaluation										
BAER Team				$28,600			$0		$0	$28,600
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				---	$0		$0		$0	$28,600
F. Monitoring										
M1-Aerial App Bio	each	1	6300	$6,300						$6,300
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$6,300	$0		$0		$0	$6,300
G. Totals				$268,165	$0		**$0**		**$0**	**$296,765**
Previously approved										
Total for this request				**$268,165**						

Supplemental Requested Treatments and Funds Interim Report #1

			NFS Lands				Other La			All
		Unit	# of		Other	# o	Fed	on F		Total
Line Items	Units	Cost	Units	BAER $	$	uni	$	ni	$	$
A. Land Treatments										
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$0	$0		$0		$0	$0
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										
R1-Rd 16/1600700	each	1	7400	$7,400	$0		$0		$0	$7,400
R2-Rd 15/1500700	each	1	10,800	$10,800	$0		$0		$0	$10,800
R3-Rd 1526200 Pole Cr	each	1	4,100	$4,100	$0		$0		$0	$4,100
R4-Rd 1514 Pole Cr Xing	each	1	145,000	$145,000						$145,000
R5-Rd 1526	each	1	4250	$4,250						$4,250
R6-Rd 1516/1516500	each	1	2300	$2,300						$2,300
T1- Wil/Non-Wil Trails	each	1	22,000	$22,000						$22,000
				$0						$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$195,850	$0		$0		$0	$195,850
D. Protection/Safety										
P1-Rd 1514 Gates/Signs	each	3400	2	$6,800	$0		$0		$0	$6,800
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$6,800	$0		$0		$0	$6,800
E. BAER Evaluation										
BAER Team				$0			$0		$0	$0
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				---	$0		$0		$0	$0
F. Monitoring										
				$0						$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$0	$0		$0		$0	$0
G. Totals				$202,650	$0		**$0**		**$0**	**$202,650**
Previously approved				$0						
Total for this request				**$202,650**						

Supplemental Request Treatments and Funds Interim Report #2

			NFS Lands				Other La		All
		Unit	# of		Other	# o	Fed	on F	Total
Line Items	Units	Cost	Units	BAER $	$	uni	$	hi $	$
A. Land Treatments									
L1-Aerial Mulch	acre	25	1000	$25,000	$0		$0	$0	$25,000
Insert new items above this line!				$0	$0		$0	$0	$0
Subtotal Land Treatments				$25,000	$0		$0	$0	$25,000
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									
				$0					$0
Insert new items above this line!				$0	$0		$0	$0	$0
Subtotal Road & Trails				$0	$0		$0	$0	$0
D. Protection/Safety									
Insert new items above this line!				$0	$0		$0	$0	$0
Subtotal Structures				$0	$0		$0	$0	$0
E. BAER Evaluation									
BAER Team				$0			$0	$0	$0
Insert new items above this line!				---	$0		$0	$0	$0
Subtotal Evaluation				---	$0		$0	$0	$0
F. Monitoring									
				$0					$0
Insert new items above this line!				$0	$0		$0	$0	$0
Subtotal Monitoring				$0	$0		$0	$0	$0
G. Totals				$25,000	$0		**$0**	**$0**	**$25,000**
Previously approved				$0					
Total for this request				**$25,000**					

PART VII - APPROVALS

1. Forest Supervisor (Deschutes NF) (signature) Date

2. Regional Forester (R6) (signature) Date