USDA-FOREST SERVICE FS-2500-8 (6/06)

JBruggink edit 10/19/2006 Date of Report: 10/11/2006

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

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

B. Type of Action

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

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

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

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: Snow Canyon

B. Fire Number: UTNMS 001098

C. State: UT

D. County: Davis

E. Region:R4

F. Forest: Wasatch-Cache

G. District: Salt Lake

H. Fire Incident Job Code: C6MJ

I. Date Fire Started: 09/14/2006

J. Date Fire Contained: 09/15/2006

K. Suppression Cost: .5 million (est.)

L. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles): 1.5 miles
2. Fireline seeded (miles):
3. Other (identify):

M. Watershed Number: Great Salt Lake

N. Total Acres Burned:
NFS Acres(270) Other Federal (0) State (0) Private (7)

O. Vegetation Types: Gambel Oak

P. Dominant Soils: Ridd rocky sandy loam, 30 to 70% slopes, eroded and Kilburn-Francis association, 30 to 50% slopes, eroded.

Q. Geologic Types : Archean schist and gneiss, Holocene and Pleistocene landslide deposits, Pleistocene Lake Bonneville Group

R. Miles of Stream Channels by Order or Class:
Perennial – 1.5 Intermittent – None Ephemeral – 1 miles

S. Transportation System

Trails: .5 miles Roads: none

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 240 (low) 0 (moderate) 30 (high)

B. Water-Repellent Soil (acres): 15

C. Soil Erosion Hazard Rating (acres): Low erosion is less than 5 tons/acre
120 (low) 120 (moderate) 30 (high)

D. WEPP Erosion Potential: high severity: 32 tons/acre , moderate severity: 1 ton/acre

E. WEPP Sediment Potential: high severity: 32 tons/acre, moderate severity: 1 ton /acre

PART IV - HYDROLOGIC DESIGN FACTORS

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): 1

E. Design Storm Magnitude, (inches): 1.25

F. Design Flow, (cubic feet / second/ square mile): .7

G. Estimated Reduction in Infiltration, (percent): 55

H. Adjusted Design Flow, (cfs per square mile): 8.7

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats: On October 6 and 7, 2006, the Fernwood Picnic area administrative site was damaged by a debris flow coming from Crooked Hollow, one of the small severely burned watersheds in the Snow Canyon Fire. The access road to the Layton City culinary water source in Crooked Hollow was severely damaged by this same debris flow. The debris flow resulted from only a 2 year return period storm, although significant antecedent precipitation had occurred. The Crooked Hollow hiking trail, a forest service system trail, was a major contributor to the sediment load of the October 6 debris flow, due to the filling up and failure of waterbar drainage structures on the trail. Off forest, this same debris flow damaged Layton City storm sewers and city streets, as well as private homes and driveways. Although in most

cases the damage was minor and easily repaired, until the watershed and vegetation recovers, the potential for more serious damages to occur from a larger storm event remains.

B. Emergency Treatment Objectives: Reduce the sediment loading to Crooked Hollow by cleaning and repair of existing trail drainage structures on the Crooked Hollow system trail and on the access road to Crooked Hollow spring culinary water source. Protection of downstream property values by assuring that flood flow and sediment from a 25 year return period storm event within Crooked Hollow remains within its banks as well as the banks of South Fork Kays Creek.

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

Land **50** % Channel **80** % Roads/Trails **80** % Protection/Safety ___ %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land			
Channel			
Roads/Trails			
Protection/Safety			

E. Cost of No-Action (Including Loss): **estimated** $70,000. Based upon replacement of FS picnic facility and trail work to repair post fire runoff events. The no-action alternative presents the possibility of severe damage to a Forest Service recreation facility (Fernwood Picnic Area) and system trails (Bonneville Shoreline Trail and Crooked Hollow Trail) if a large thunderstorm were to cause serious flooding downslope of the fire**.** If flooding were to occur when the facilities were in use, there would be a potential for damage to private vehicles parked in the facility, as well as the potential for injury to users. Closure of the facility would mitigate the hazard to life and property, but not the potential for damage to FS facilities.

F. Cost of Selected Alternative (Including Loss): **$14,700**

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Paul Flood

Email: pflood@fs.fed.us Phone: 801.236.3440 FAX: 801.524.3172

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.)

Land Treatments: None proposed.

Channel Treatments: Removal of a debris jam, and repair of breached channel bank, from a section of an unnamed perennial tributary to the South Fork of Kays Creek. This work will be done by Layton City.

Roads and Trail Treatments:

(1) Removal of existing 18 inch diameter culvert from the section of Bonneville Shoreline Trail immediately south of the Upper Trailhead parking lot at Fernwood Picnic Area. Excavation of the channel to a depth where a 48 inch diameter culvert can be installed. The larger culvert is intended to accommodate and pass the flow within this perennial unnamed tributary to the South Fork of Kays Creek from a 25 year return period, 1 hour magnitude storm event.

(2) Protection of an administrative access trail to a Layton City culinary water source under special use permit. This access trail was damaged during a post fire flood event that occurred when an unnamed perennial tributary to South Fork Kays Creek became obstructed with debris and the bank breached. The proteciton work will consist of smoothing out gullies in the road surface and re-constructing breached water/dips. This work is intended to insure that peak flows in Crooked Hollow stay within the channel, and also to reduce the sediment delivery and loading of the Crooked Hollow channel, and the magnitude of any future debris flows due to the fire that may occur there. This work would be done cooperatively by Layton City and USDA-Forest Service.

(3) Cleaning of existing waterbar drainage structures on the Crooked Hollow and repair of gullied sections and blown out waterbars. This work is intended to re-establish effective drainage of the trail, and reduce the concentration of overland flow from any size future rain event into recently damaged and gullied areas of trail. This is also intended to reduce the sediment delivery and loading of the Crooked Hollow channel, and the magnitude of any future debris flows that may occur there.

Protection/Safety Treatments:

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.)

Monitoring of one of the severely burned areas on the fire will occur in 2007 to determine the rate of natural recovery of the gambel oak, and therefore the effect of not applying land treatments as this relates to recovery of eroson preventing ground cover.

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

			NFS Lands				Other Lands			All
		Unit	# of		Other	# of	Fed	# of	Non Fed	Total
Line Items	Units	Cost	Units	BAER $	$	units	$	Units	$	$
A. Land Treatments										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
				$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										
channel repair	each	9,000	1		$9,000		$0		$0	$9,000
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Channel Treat.				$0	$9,000		$0		$0	$9,000
C. Road and Trails										
(1) admin road repair	miles	15,000	0.5	$1,500	$6,000		$0		$0	$7,500
(2) culvert replace	each	7,500	1	$7,500	$0		$0		$0	$7,500
(3) trail drainage	miles	2000	2	$4,000	$0		$0		$0	$4,000
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$13,000	$6,000		$0		$0	$19,000
D. Protection/Safety										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$0	$0		$0		$0	$0
E. BAER Evaluation				$0	5500					$5,500
				---			$0		$0	$0
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				---	$0		$0		$0	$0
F. Monitoring										
Flood	days	340	5	$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$0	$0		$0		$0	$0
G. Totals				$13,000	$15,000		**$0**		**$0**	**$33,500**
Previously approved										
Total for this request				**$13,000**						

PART VII - APPROVALS

1. /s/David R. Myers for Faye Krueger — 10/18/2006
   Forest Supervisor (signature) — Date

2. /s/ Cathy Beaty for Jack Troyer — 10/23/2006
   Regional Forester (signature) — Date