

USDA-FOREST SERVICE

FS-2500-8 (6/06)

Initial Request

Date of Report: August 26th , 2014

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 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:** Way Fire**B. Fire Number:** CA-CND-003148**C. State:** CA**D. County:** Kern**E. Region:** 05**F. Forest:** Sequoia National Forest**G. District:** 54**H. Fire Incident Job Code:** PDJCZ6**I. Date Fire Started:** August 18th , 2014**J. Date Fire Contained:** ~August 28th, 2014**K. Suppression Cost:** 7.75 million**L. Fire Suppression Damages Repaired with Suppression Funds**

1. Fireline waterbarred (miles): 8 miles of hand line, 2 miles of dozer line
2. Fireline seeded (miles): None
3. Other (identify): None

M. Watershed Number: HUC 6: 180300010606 (Kern River/Isabella Lake)**N. Total Acres Burned:** 3,883

NFS Acres (1,990) BLM (1,621) State (0) Private (272)

O. Vegetation Types: Annual Grassland, Mixed Chaparral, Lower Mixed Conifer Forest, Gray Pine Savanna, Live Oak Forest, Buckbrush Chaparral

P. Dominant Soils: Kernville-Faycreek-Rock outcrop complex, 30 to 75 percent slopes: 81%
Stineway-Kiscove association, 30 to 60 percent slopes: 10%

Q. Geologic Types: Mesozoic granitic rocks with a Metamorphic Roof Pendant along the southwestern portion of the fire

R. Miles of Stream Channels by Order or Class: : Perennial = 0 miles, Intermittent = 38.2 miles, Ephemeral = 0 miles

S. Transportation System

Trails: 0 miles Roads: 0 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 269 (7%) (unburned), 1633 (42%) (low), 1868 (48%) (moderate),
89 (3%) (high)

B. Water-Repellent Soil (acres): 1,800

C. Soil Erosion Hazard Rating (acres):
405 (low) 152 (moderate) 1,900 (high) 1,394 (very high)

D. Erosion Potential after fire: 0.15 tons/acre Erosion potential before fire: 1.59 tons/acre

~~E. Sediment Potential (annual erosion rate cu.yds./sq.mi. before and after)~~

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years):	3-6
B. Design Chance of Success, (percent):	80
C. Equivalent Design Recurrence Interval, (years):	2
D. Design Storm Duration, (hours):	6
E. Design Storm Magnitude, (inches):	1.8
F. Design Flow, (cubic feet / second/ square mile):	8.7
G. Estimated Reduction in Infiltration, (percent):	51
H. Adjusted Design Flow, (cfs per square mile):	28.1

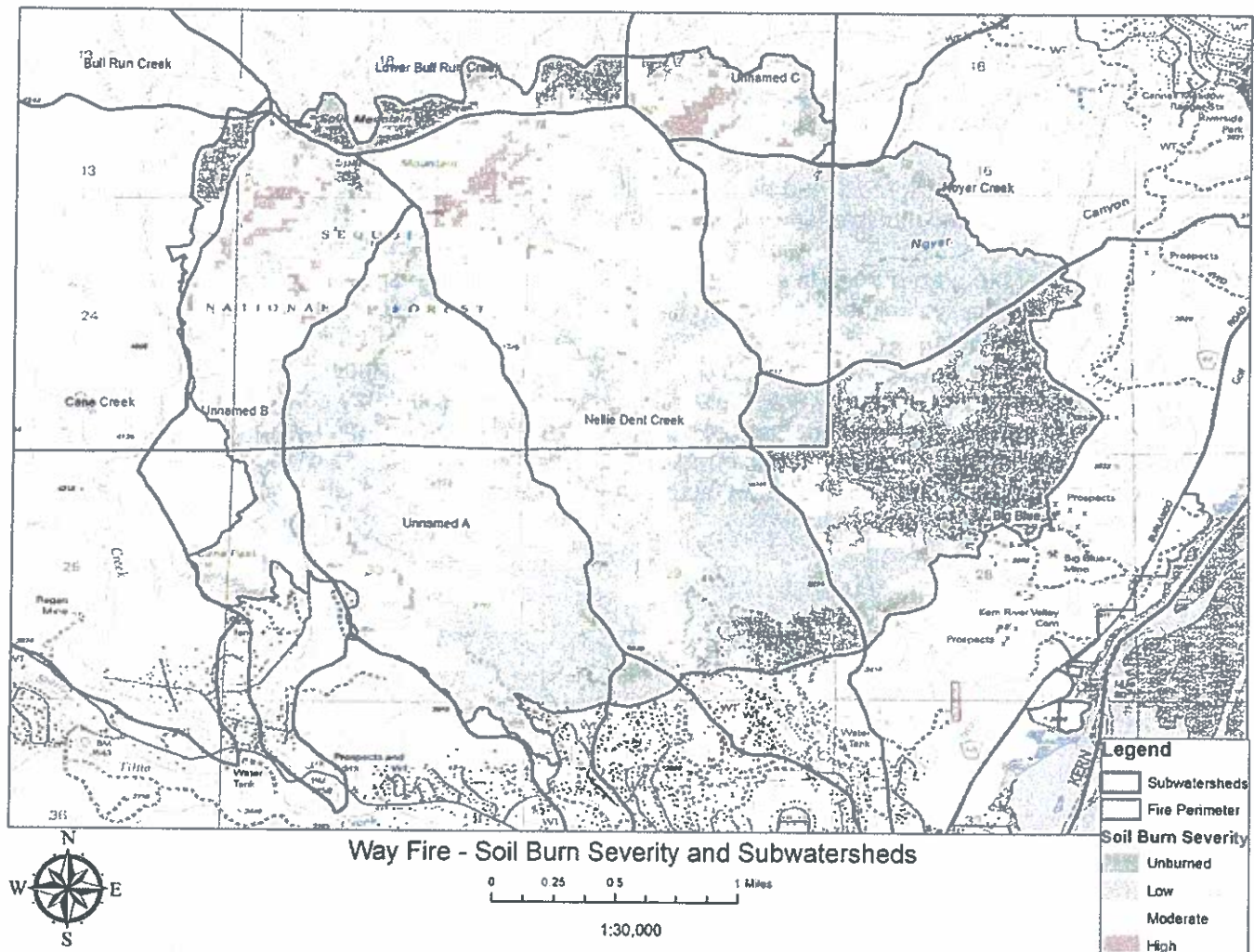
PART V - SUMMARY OF ANALYSIS

Background

The Way Fire began on Monday afternoon, August 18th, 2014, on private land on the north side of Wofford Heights, in the Kern Valley. It quickly spread to the north onto BLM and Forest Service property administered by the Kern River Ranger District, Sequoia National Forest. It was driven primarily by low humidity, topography, and fuel type. The fire also spread east and west, burning back on to Bureau of Land Management and private jurisdictions.

At its height, nearly 1,000 firefighters and support personnel were assigned to the fire along with air force of Type I/Type II helicopters and multiple large air tankers

Approximately 51% of the area burned is at a high and moderate soil burn severity (see soil burn severity map below). The rest of the fire was either low or very low soil burn severity. It is very important to understand the difference between *fire intensity* and *burn severity* as discussed by fire behavior, fuels, or vegetation specialists, and *soil burn severity* as defined for watershed condition evaluation in BAER analyses. Fire intensity or burn severity as defined by fire, fuels, or vegetation specialists may consider such parameters as flame height, rate of spread, fuel loading, thermal potential, canopy consumption, tree mortality, etc. For BAER analysis, we are not mapping simply vegetation mortality or above-ground effects of the fire. Soil burn severity considers additional surface and below-ground factors that relate to soil hydrologic function, runoff and erosion potential, and vegetative recovery.

Way Fire Soil Burn Severity Map:**A. Describe Critical Values/Resources and Threats:**

Potential Values at Risk Several house houses located in Wofford and several roads. State Highway 155 where it crosses Nellie Dent Creek. Several local roads that cross Nellie Dent Creek and other un-named creeks (including Sycamore Road)

Resource Condition Assessment The Way Fire is located on steep, south facing slopes of Split Mountain above the town of Wofford Heights, on the Sequoia National Forest, Kern River Ranger District. The fire is located in the headwaters of Nellie Dent Creek, between Cane Peak on the west and Big Blue Mine on the east. The steep canyon slopes are dominated by mass wasting processes including rock slides, rock falls and debris flows, including several debris slide basins in the head water channels above Wofford Heights. A large alluvial – debris flow fan is located in the lower reaches of the Nellie Dent Creek. The town of Wofford Heights is located on this alluvial fan including several house and roads located near and within the flood plain of the channels in this alluvial fan.

The geology of the fire area includes igneous intrusive and metamorphic rocks. These rocks include the Granite of Kern River and metamorphic rocks including Fairview Metamorphic rocks, which consist of dominantly dark, thick-bedded to massive, quartzite; tuffaceous and other metavolcanic rocks and small

bodies of marble. The lower reaches of Nellie Dent Creek are underlain with alluvium and stream to basin fill deposits

The fire resulted in mostly moderate burn severity on the steep slopes and within the Nellie Dent drainage and several other unnamed channels draining Split Mountain. Several roads and houses in the community of Wofford Heights are located in an alluvial-debris flow fan of Nellie Dent Creek and the other unnamed channels draining Split Mountain. Several houses and roads are located on this alluvial fan. Highway 155 crosses Nellie Dent Creek and several other channel crossings. Debris flow deposits were observed in Nellie Dent Creek in several areas within the fire area.

The United States Geologic Survey conducted a debris flow assessment of the fire area that shows debris flow hazard classes and probability of debris flows occurring for multiple precipitation events including the 2 year, 5 year, 10 year, 25 year and 50 year storm events. The 10 year event was used to evaluate debris flow potential for the fire area (see Figure 2). The Nellie Dent watershed was modeled as having a 40-60% probability of a debris flows occurring in the channel and a potential debris flow of 10,000 to 100,000 m³ for a moderate debris flow hazard. Several structures were identified near the edge of the Nellie Dent Creek, within the flood plain of the channel and several channel/road crossings were identified as a potential threat from debris flows.

Values at Risk and Risk Matrix Table¹

Risk Type	Value at Risk	Potential Threats	Owner ship	Probability of Damage	Magnitude of Conseq.	Risk	Forest Service Treatment Method
Life/ Property	7 Dawson Drive House, Wofford Heights	flooding, debris flow	Private	Possible	Major	High	Meeting Signs Inform NRCS
Life/ Property	55 Merrill House, Wofford Heights	flooding, debris flow	Private	Possible	Major	High	Meeting Signs Inform NRCS
Life/ Property	138 North Adams, Wofford Heights	flooding, debris flow	Private	Possible	Major	High	Meeting Signs Inform NRCS
Life/ Property	Houses along Nellie Dent Ck. (Abby Lane & Sycamore Rd)	flooding, debris flow	Private	Likely	Major	Very High	Meeting Signs Inform NRCS
Life/ Property	House in Big Blue Creek	flooding, debris flow	Private	Unlikely	Moderate	Very Low	None
Life/ Property	Houses in Big Blue North	flooding, debris flow	Private	Unlikely	Major	Low	None
Life/ Property	Culvert/Low Water Crossing Noyer Canyon	flooding, debris flow	Private	Possible	Minor	Low	None

Life/ Property	Culvert/Low Water Crossing Big Blue North (Plater Road)	flooding, debris flow	Private	Possible	Minor	Low	None
Life/ Property	Culverts, Kernville (4)	flooding, debris flow	Kern County Roads	Unlikely	Moderate	Low	None
Life/ Property	Culvert/Crossings, Highway 155 (3)	flooding, debris flow	Cal Trans	Possible	Moderate	Intermediate	Inform Ca Trans
Life/ Property	Culvert/Crossings, Nellie Dent Creek (3)	flooding, debris flow	Private/Kern County Roads	Possible	Moderate	Intermediate	Inform Kern Co. Roads
Life/ Property	Culvert/Crossings, Un-named Creek A (4)	flooding, debris flow	Private/Kern County Roads	Possible	Moderate	Intermediate	Inform Kern Co. Roads
Life/ Property	Culvert/Crossings, Un-named Creek B (3)	flooding, debris flow	Private/Kern County Roads	Unlikely	Moderate	Low	Inform Kern Co. Roads
Natural Resources	Soil Productivity.	Erosion	FS/BLM	Possible	Minor	Low	None
Natural Resources	Water Quality Lake Isabella	Impairment Sediment	FS/BLM Private	Very Likely	Minor	Low	None
Natural Resources	Vegetation Recovery	flooding, debris flow	BLM	Likely	Minor	Low	None

Note: All houses will be analyzed below along with other values at risk with intermediate, high, or very high risk ratings. State, County and private property requires interagency coordination. The risk matrix below, Exhibit 2 of Interim Directive No.: 2520-2010-1, was used to evaluate the Risk Level for each value identified during the Assessment:

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

Threats to Life and Property

The combined factors of burned watersheds directly above private property, large volumes of loose, stored sediment in channels and on the steep slopes, moderate and high soil burn severity with water repellency, and the location of property in the floodplains/alluvial fans directly below those watersheds indicate a high risk to life and property creating an emergency situation.

7 Dawson Drive House, Wofford Heights

Risk Assessment –Life and Infrastructure

Probability of Damage or Loss: **Possible**. The house is located immediately adjacent to the active channel. Increased flows may damage residence and/or undermine the foundation through scouring of the foundation.

Magnitude of Consequence: **Major**. Flooding and potentially debris flows in Un-named Creek B are very likely and could endanger the homeowner(s) and their property.

Risk Level: **High**

55 Merrill Road House, Wofford Heights

Risk Assessment –Life and Infrastructure

Probability of Damage or Loss: **Possible**. The house is located immediately adjacent to the active channel. Increased flows may damage the residence by undermining the foundation through scouring of the foundation.

Magnitude of Consequence: Moderate. **Major**. Flooding, scouring of the foundation, and potential debris flows in Un-named Creek A are very likely and could endanger the homeowner(s) and their property.

Risk Level: **High**

138 North Adams, Wofford Heights

Risk Assessment –Life and Infrastructure

Probability of Damage or Loss: **Possible**. The house is located immediately adjacent to the active channel. Increased flows may damage the residence by undermining the foundation through scouring of the foundation.

Magnitude of Consequence: Moderate. **Major**. Flooding, scouring of the foundation, and potential debris flows in Un-named Creek A are very likely and could endanger the homeowner(s) and their property.

Risk Level: **High**

Houses along Nellie Dent Ck. (Abby Lane & Sycamore Rd)

Risk Assessment –Life and Infrastructure

Probability of Damage or Loss: **Likely**. There is a threat to life and property from debris flows that have a Moderate Debris Flow Hazard.

Magnitude of Consequence: Moderate. **Major**. Flooding, scouring of the foundation, and potential debris flows in Nellie Dent Creek are very likely and could endanger the homeowner(s) and their property.

Risk Level: **Very High**

House in Big Blue Creek

Risk Assessment – Life and Infrastructure

Probability of Damage or Loss: **Unlikely**. House is located on a rise in the alluvial fan and will most likely not be directly affected by increased flows from the active channel.

Magnitude of Consequence: **Moderate**. Some water could channel down the PG&E Road above and behind this house and cause some minor flooding and water damage.

Risk Level: **Very Low**

Houses in Big Blue North off Plater Road

Risk Assessment – Life and Infrastructure

Probability of Damage or Loss: **Unlikely** Houses seem to be far enough above and away from the active channel to be safe in increased flows.

Magnitude of Consequence: **Major** Houses and occupants could be impacted in the event of a channel shift during increased flows.

Risk Level: **Low**

Culverts on Highway 155 and Berlando in Wofford Heights (3)

Risk Assessment – Life and Infrastructure

Probability of Damage or Loss: **Possible** Culverts could become plugged with increased bulked up flows and overtop road causing erosion damage to roadway. This in turn could create the potential for damage to cars and their occupants.

Magnitude of Consequence: **Moderate** If Caltrans is not informed of the potential risk of flooding/debris flows, life and infrastructure could be impacted.

Risk Level: **Intermediate**

Culvert/Low Water Crossings across Nellie Dent Creek (3)

Risk Assessment – Life and Infrastructure

Probability of Damage or Loss: **Possible** Culverts could become plugged with increased bulked up flows and overtop road causing erosion damage to roadway. This in turn could create the potential for damage to cars and their occupants.

Magnitude of Consequence: **Moderate** If the Kern County Roads department is not informed of the potential risk of flooding/debris flows, life and infrastructure could be impacted.

Risk Level: **Intermediate**

Culvert/Low Water Crossings across Un-named Creek A (4)

Risk Assessment – Life and Infrastructure

Probability of Damage or Loss: **Possible** Culverts could become plugged with increased bulked up flows and overtop road causing erosion damage to roadway. This in turn could create the potential for damage to cars and their occupants.

Magnitude of Consequence: **Moderate** If the Kern County Roads department is not informed of the potential risk of flooding/debris flows, life and infrastructure could be impacted.

Risk Level: **Intermediate**

Emergency Determination – An emergency exists at the cluster of houses between Abby Lane and the upper Sycamore Road/Nellie Dent channel crossing. There is a threat to life and property from debris flows that have a Moderate Debris Flow Hazard, 40-60% probability of debris flows occurring, with a potential for debris flow volumes from 10,000 – 100,000 yds³. An emergency exists for Sycamore Road at the upper

crossing of Nellie Dent Creek. There are two other road crossings of Nellie Dent Creek on Sycamore Road and Burlando Road. These two road channel crossings could possibly be damaged by debris flows in Nellie Dent Creek with a potential for moderate damage. The over risk for these two road channel crossing is intermediate.

Threats to Water Quality

None

Threats to Threatened, Endangered and Sensitive Wildlife Species

None

Threats to Ecosystem Stability/Soil Productivity

None

Threats to Vegetation Recovery

None

Threats to Cultural Resources

None

B. Emergency Treatment Objectives:

Identified Houses along Nellie Dent, Un-named A, and Un-named B Creeks

1. Treatment Type: Warn people who live in the area of potential debris flow hazards. Warning should consist of a letter of warning to the owners of the houses along Nellie Dent, Un-named A, and Un-named B Creeks. The letters should describe the debris flow potential and what could happen to their house and anybody in the house if a debris flow occurs.
2. Treatment Objective: To limit exposure of people to debris flow hazards coming down Nellie Dent, Un-named A, and Un-named B Creeks. Notification of the potential of debris flows to occur and potential storms that could result in debris flows that could damage the houses and pose a threat to life in the houses.
3. Treatment Description: Coordinate with Kern County Emergency Agencies to warn them of hazards to people and houses along Nellie Dent, Un-named A, and Un-named B Creeks; issue press release notifying people of potential flood and debris flows coming off of fire area; hold public meeting to inform people of the hazard. Install debris flow warning signs along Sycamore Road and other roads downslope of the fire area.
4. Treatment Cost: 4 day salary for GS-11 - \$350.00 for a total of \$1400 for coordination with county agencies and conducting public meeting and writing press release. Debris flow warning signs: 4 signs@ \$350 per sign = \$1400. Total cost of treatment \$2,800. Use Wyman Act to justify purchase of signs or recommend to county to install warning signs.
5. Probability of Completing Treatment Prior to Damaging Storm or Event:

Land (slope) % Channel % Roads__% Trails__% Public Safety 100 %

Road Crossings along Nellie Dent Creek

1. Treatment Type (including monitoring if applicable): Warning of Debris Flow Hazards along roads below fire area.
2. Treatment Objective: The treatment objective is to increase the awareness of the private property owners, Natural Resource Conservation Service (NRCS), Kern County Roads, and Cal Trans of the potentially hazardous conditions resulting from the fire.
3. Treatment Description: Coordinate with Kern County Roads, and Cal Trans to make them aware of debris flow hazards along channel crossings.
4. Treatment Cost: 2 Day salary for GS-11 - \$350 per day = \$750.

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

Land N/A % Channel N/A % Roads/Trails N/A % Protection/Safety 90 %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land			
Channel			
Roads/Trails			
Protection/Safety	75%	50%	25%

E. Cost of No-Action (Including Loss):

Potential loss of life at one or several houses in the community of Wofford Heights and along Sycamore Road if people are not contacted and warned of potential debris flow hazards.

F. Cost of Selected Alternative (Including Loss): \$10,000

G. Skills Represented on Burned-Area Survey Team:

☒ Hydrology ☒ Soils ☒ Geology ☐ Range ☐ Recreation
☐ Forestry ☐ Wildlife ☐ Fire Mgmt. ☐ Engineering ☐ Lands
☐ Contracting ☐ Ecology ☒ Botany ☒ Archaeology ☐ Hazmat
☐ Fisheries ☐ Research ☐ Landscape Arch ☐ GIS

Team Leader: Fletcher Linton: Sequoia National Forest

Email: flinton@fs.fed.us

Phone: (559) 784-1500 x1185

Core Team

Fletcher Linton (Team Lead, Botanist)
 Eric Nicita (Soils)
 Tim Kelly (Archaeologist)
 Josh Courter (Hydrologist)
 Chris Ryan (BLM rep)
 Alan Gallegos (Geology)

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.)

Implementation and Interagency Coordination Team

This treatment is to provide for logistics, interagency coordination and tracking of treatment implementation.

Interagency coordination started during the fire and continued throughout the BAER Assessment. A need for continuing this coordination by providing the BAER Assessment Report, specialist reports and attending meetings is anticipated. In addition, meetings detailing potential physical responses and impacts from the fire that may influence safety downstream of the fire area will be needed with various agencies/groups, such as those listed below for the following values at risk:

- NRCS –Wofford Heights Residences
- Kern County-Culverts/Low Water Crossings
- Caltrans-Highway 155 and Burlando Road crossings
- National Weather Service – Fire Area Weather Alerts

Implementation/Interagency Team Cost

Item	Unit	Unit Cost	# of Units	Cost
BAER Coordinator	Days	\$350	5	\$1,750
Assistant District Ranger Coordination	Days	\$450	2	\$900
PAO Public Meeting Coordination	Days	\$350	5	\$1,750
Vehicle mileage	Miles	\$0.55	1000	\$550.00
Debris Flow Warning Signs:	Signs	\$350.00	4	\$1,400
Total Cost				\$6,350

Part VI – Emergency Stabilization Treatments and Source of Funds

Initial

Click red icons for notes.	NFS Lands					Other Lands				Money Left Total \$
Line Items	Units	Unit Cost	# of Units	BAER \$	Spent \$	# of Units	Fed \$	# of Units	Non Fed \$	
A. Land Treatments										
	ea	0	0	0	\$0		\$0		\$0	\$0
Subtotal Land Treatments				0	\$0		\$0		\$0	\$0
B. Channel Treatments - none										
				\$0	\$0		\$0		\$0	\$0
Subtotal Channel Treatments				\$0	\$0		\$0		\$0	\$0
C. Road and Trails-none										
					\$0		\$0		\$0	\$0
Subtotal Road & Trails					\$0		\$0		\$0	\$0
D. Protection/Safety - none										
Implementation/Interagency Team	ea	\$4,400	0	\$4,950	\$0		\$0		\$0	\$0
Debris Flow Warning Signs	ea	\$350	4	\$1,400	\$0		\$0		\$0	\$0
Subtotal Protection				\$6,350	\$0		\$0		\$0	\$0
E. BAER Evaluation										
Assessment Team	0520	H5BAER	---	---	\$11,898	---	\$0	---	\$0	\$0
	---	---	---	---	\$0	---	\$0	---	\$0	\$0
Subtotal Evaluation				---	\$11,898	---	\$0	---	\$0	\$0
F. Monitoring										
Subtotal Monitoring				\$0	\$0		\$0		\$0	\$0
G. Totals				\$11,898	\$0		\$0		\$0	\$0
						Comments:				
Total for this request				\$18,282						

PART VII - APPROVALS

1. 
Forest Supervisor (signature)

2 SEP 2014
Date

2. 
Regional Forester (signature)

9/5/2014
Date

