Forest Service

Angeles National Forest
San Gabriel Mountains National Monument

701 North Santa Anita Avenue
Arcadia, CA 91006-2725
626-574-1613

File Code: 2520 **Date:** September 8, 2015
Route To:

Subject: Warm Fire 2500-8

To: Regional Forester

Attached please find the proposed FS 2500-8 form with our initial funding request for the Warm Fire, which was contained on the Angeles National Forest on August 18, 2015. The funding request summarizes the BAER treatments necessary to address ongoing impacts to public safety, Forest Service property, water quality, soil productivity and vegetation recovery from the fire. The funding requested from this proposal is $35,765.00.

Should you have any questions please contact Katie VinZant, Forest BAER Coordinator at (626) 383-1626 or kvinzant@fs.fed.us.

JEFFREY VAIL
Forest Supervisor

cc: Jeff Tenpas, Wilburn Blount, Julie Uyehara, Katie VinZant, Maria Holguin

USDA-FORESTSERVICE
Short Form, July 2009 B.Roath

FS-2500-8 (6/06)

Date of Report: 09/1/2015

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: Warm

B. Fire Number: CA-ANF-003651

C. State: CA

D. County: Los Angeles

E. Region: 05

F. Forest: Angeles National Forest

G. District: 53

H. Fire Incident Job Code: P5J11N

I. Date Fire Started: 08/16/2015

J. Date Fire Contained: 08/19/2015

K. Suppression Cost: $ 1 M

L. Fire Suppression Damages Repaired with Suppression Funds
1. **Fireline waterbarred (miles)**: 5 dozerline, 5 handline
2. **Fireline seeded (miles)**: 0
3. **Other (identify)**: 0

M. Watershed Number:

N. Total Acres Burned: 300
[300] NFS Acres [0] Other Federal [0] State [0] Private

O. **Vegetation Types**: Cottonwood/sycamore/willow Riparian Woodland, Chamise Chaparral, Mixed Chaparral

P. **Dominant Soils**: Caperton-Capistrano families complex (Map Unit Symbol 33). This complex occupies half of the burn area and is located on slopes of 35% to 80% south of the intermittent creek and Forest Service road 6N32. The Caperton family (and similar soils) is the dominant soil type comprising approximately 60 percent of the soils within this complex. They (Caperton family) are 4 to 20 inches deep over weathered bedrock and are characterized as a gravelly loam. The Hydrologic Soil Group is "D" meaning they have a very slow infiltration rate (high runoff potential) when thoroughly wet and include soils that are shallow over nearly impervious material such as those found in the burn area.

The other half of the burn area consists of the Trigo, granitic substratum-Exchequer families-Rock outcrop complex (Map Unit Symbol 36). This complex located on slopes of 60% to 100% north of the intermittent creek and Forest Service road 6N32. Together, the Trigo, granitic substratum-Exchequer families are the dominant soil types compromising approximately 70 percent of the soils within this complex. They vary in depth between 8 to 17 inches over unweathered and weathered bedrock. The soils are characterized as sandy loam and sandy, gravelly sandy loam. Similar to the Caperton-Capastrano families complex, the Hydrologic Soil Group is "D" meaning they also have a very slow infiltration rate (high runoff potential) when thoroughly wet and include soils that are shallow over nearly impervious material such as those found in the burn area.

Q. **Geologic Types**: Residuum weathered from gneiss (Caperton) and residuum weathered from granodiorite (Trigo and Exchequer).

R. **Miles of Stream Channels by Order or Class**: perennial 0, intermittent 1.5, ephemeral 0.25

S. **Transportation System (FS lands)**

Trails: 0 **miles** **Roads:** 1.5 **miles**

PART III - WATERSHED CONDITION

A. **Burn Severity (acres): (low)** 0 **(moderate) 300 (high) 0**

B. **Water-Repellent Soil (acres): 100**

C. **Soil Erosion Hazard Rating (acres): (low) 0 (moderate) 200 (high) 100**

D. **Erosion Potential: 29.48 tons / acre**

E. **Sediment Potential: 15,095 cubic yards / square mile**

PART IV - HYDROLOGIC DESIGN FACTORS

A. **Estimated Vegetative Recovery Period, (years)**: 10

B. **Design Chance of Success, (percent):** 90

C. **Equivalent Design Recurrence Interval, (years):** 10 year

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

E. **Design Storm Magnitude, (inches):** 1.19

F. **Design Flow, (cfs per square mile):** 157 (pre-fire)

G. **Estimated Reduction in Infiltration, (percent):** 100

H. **Adjusted Design Flow, (cfs per square mile):** 185 (post-fire)

PART V - SUMMARY OF ANALYSIS

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

This Report addresses effects resulting from the Warm Fire that burned on lands managed by the Angeles National Forest. The Angeles National Forest Service response actions were prepared in accordance with the Forest Service Manual (FSM) 2500 Watershed and Air Management Chapter 2523 Emergency Stabilization-Burned Area Emergency Response and FSM Interim Directive No.: 2500-2013-1.

The objective of this BAER assessment was to identify imminent post-wildfire threats to human life and safety, property and critical natural or cultural resources and take immediate actions to manage unacceptable risks. This assessment used methodology within Forest Service directives, which were used to guide the development of values important to the local agencies and the risk to those values. The team determined risk by assessing the probability for post-fire damage and the magnitude of consequences if damage occurred. The team assumed there will be risks with or without treatment and potential actions are to reduce risks to acceptable levels.

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-

Warm Springs Camp-

The camp is located at the intersection of Lake Hughes Rd and US Forest Service (USFS) 6N32. The USFS road runs east-west along an intermittent creek, which was flowing next to the camp. The fire originated from a building inside the camp and moved west into the canyon including a small hillslope directly above the camp. Eight buildings in the camp were destroyed along the southern and western edges of the camp, which are located closest to the 6N32 road, creek, and hillslope. Within the burned building sites, it's assumed the presence of hazardous materials is present and found within the soil. In addition, an 18" culvert in the middle of the camp complex that transports water runoff from the burned hillslope above the camp is plugged.

Probability of damage or loss: Likely. During a site visit, evidence of frequent surface runoff and soil deposition was observed at the camp including hillslope rilling, plugged culvert, soil deposition, and headcutting near the location of the burned buildings. Runoff from the camp is southeast onto 6N32 and the intermittent creek.

Magnitude of consequences: Moderate. The camp is not actively used and the buildings have been boarded up prior to the fire along with a locked gate across the driveway. Property damage from excess sediment and surface runoff is likely from the burned hillslope directly above the camp. The burned buildings are adjacent to the intermittent creek and the possibility of hazardous materials reaching it is also likely. The creek is a tributary to Castaic Lake located approximately 5 miles to the south. Castaic Lake is a state water reservoir that in addition to being a popular recreation destination also provides fresh water to the local communities.

Risk Level: High.

FS Road 6N32-

The USFS road runs east-west along an intermittent creek, which was flowing south of the camp. Stream crossings typically consist of a 72-inch corrugated steel culvert with concrete or block sidewalls. Two stream crossing locations were identified with 48-inch culverts that were either fully or partially plugged.

Probability of damage or loss: Very Likely. The canyon and surrounding hillslopes has the ability of providing a significant amount of sediment and material into the stream channel as already evidenced by the 2 plugged culverts observed.

Magnitude of consequences: Moderate. Plugged culverts will redirect flows around the culvert and/or over the top of the road surface resulting in loss of the road crossing, culvert, soils and fill material, riparian vegetation, and channel morphology. In addition, if forced out of its natural channel sediment, debris, and surface flows will cross Lake Hughes Rd preventing access on this well used road.

Risk Level: Very High.

Threats to Soil Quality/Ecosystem Stability-

During field surveys, soil conditions were described, post-fire resource damage conditions were noted, and threats to soil productivity were determined. The magnitude and longevity of fire-related soil effects may be generally inferred from the soil burn severity rating. The overall soil burn severity in the Warm Fire is 0% Low, 100% moderate and 0% high. Soils with moderate soil burn severity have evidence of severe soil heating in isolated patches; these areas have a significant loss of organic soil cover, and surficial char with partial destruction of structure, porosity, and roots.

The post-fire erosion risk was assessed using Rowe, Countryman and Storey (1949). Rowe, Countryman and Storey produced a classic study based on real data collected from many burned and unburned watersheds in Southern California. The Forest Service uses this model to estimate probable erosion rates from southern California watersheds as influenced by fire.

Impacts to soil quality as a result of fire can manifest themselves in significant changes in soil physical, chemical, or biological properties and include breakdown in soil structure, reduced moisture retention and capacity, development of water repellency, changes in nutrient pools cycling rates, atmospheric losses of elements, offsite erosion losses, combustion of the forest floor, reduction or loss of soil organic matter, alterations or loss of microbial species and population dynamics, reduction or loss of invertebrates, and partial elimination (through decomposition) of plant roots. Impacts can lead to undesired changes to site productivity, sustainability, biological diversity, and watershed hydrologic response. Increased accelerated soil erosion, overland flow, and sedimentation are expected at decreasing rates for the next ten years after the fire, until vegetation has sufficiently recovered.

Soils in the burned area are derived primarily from igneous and metamorphic parent materials and have inherently moderate-to-moderately high surface erosion characteristics. The fire completely consumed the vegetative ground cover that dissipates rainfall energy. Even with average precipitation, erosion rates will be accelerated in combination with higher surface runoff efficiencies. A 2- or 5-year rainstorm event occurring during the first two years following the fire will increase the potential for movement of ash and surface topsoil, reducing the soil quality of these sites.

Risk Assessment – Soil Productivity

Probability of damage or loss: Very Likely. The loss of vegetation and plant roots, hydrophobic soil conditions, and N capital will affect site productivity, sustainability, biological diversity, and watershed hydrologic response until vegetation has sufficiently recovered to restore the surface soil-hydrologic function.

Magnitude of consequences: Moderate. The fire has affected the capacity of the soil to function as a vital living ecosystem that sustains plants and animals, absorbs and hold rainwater for use during dryer periods, filter and buffer potential pollutants, and provide habitat for soil microbes to flourish and diversify to keep the ecosystem running smoothly.

Risk Level: Very High.

Threats to Vegetative Recovery-

An emergency exists with respect to vegetative recovery as a result of the threat of post-fire weed introduction and spread. The unknowing introduction and dispersal of invasive weeds into areas disturbed by fire suppression and rehabilitation has the potential to establish large and persistent weed populations. In addition, it is highly likely that existent weed infestations along roadsides will increase in the burn area due to their accelerated growth and reproduction and a release from competition with natives. These weed populations could affect the structure and habitat function of native plant communities within the burn area. It is expected that most native vegetation would recover if weed invasions are minimized.

Approximately 5 miles of dozer line and 5 miles of handline were also constructed outside and within the burn perimeter. In addition to causing an increase in weed invasion, the disturbances caused by dozer/hand lines are expected to create accelerated erosion and soil compaction that may also inhibit the recovery of native plant populations.

Risk Assessment – Vegetation Recovery

Probability of Damage or Loss: Very Likely. This determination is due to the change in watershed response causing sheet and rill erosion of topsoil, mainly in areas disturbed by suppression activities.

Magnitude of Consequence: Major. This determination is due to the high potential for vegetation type conversion to non-native annual grasslands in portions of the fire area that have experienced frequent fire suppression disturbance such as dozer lines, handlines and roadsides.

Risk Level: Very High.

B. Emergency Treatment Objectives (narrative):

Provide for Public Safety and Limit Damage to Property–Warm Springs Camp, 6N32 and water quality within and downstream of the burn area are at greater risk from flash flooding, sedimentation and introduction of hazardous material after the fire. The treatment objective is to deflect and contain sediment, ensure proper drainage flow and contain hazmat to protect these resources.

Noxious Weeds - Reduce the potential for impaired vegetative recovery and introduction/spread of noxious weeds and long-term loss of soil-hydrologic function and processes.

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

Land XXX% **Channel** XXX% **Roads/Trails** XXX% **Protection/Safety** XXX%

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	XX%	XX%	XX%

Channel	XX%	XX%	XX%
Roads/Trails	XX%	XX%	XX%
Protection/Safety	XX%	XX%	XX%

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

F. Cost of Selected Alternative (Including Loss): XXX

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Katie VinZant

Email: kvinzant@fs.fed.us **Phone**:626-574-5268 **FAX**:

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:

Warm Springs Camp K-rail

The burned hillslope directly above the camp has one location of concentrated runoff onto the camp located near the west-northwest corner of the property. Prior evidence of sediment deposition on the property is clearly evident including the prescence of small alluvial fans and a plugged drainage culvert. Approximately fifty (50) feet of K-rail (or jersey barrier) would be placed at/near this location capturing and retaining sediment and runoff effectively minimizing the threat to property and human life, if present. Barrier(s) should remain in place for a minimum of two years and will need to be checked for debris and/or sediment and cleaned out if necessary following every precipitation event.

K-rail Installation Cost

Item	Unit	Unit Cost	# of Units	Cost
K-rail and install	Feet	$200	50	10,000
			Total Cost	**$10,000**

Noxious Weed Detection and Rapid Response

Weed detection surveys and rapid response eradication treatments are to determine whether ground disturbing activities related to the Warm Incident and the fire itself have resulted in new or the expansion of existing noxious weed infestations. With 5 miles of dozerline, 5 miles of handline, 1.5 miles of riparian corridor and 1.5 miles of road in the Warm fire it is expected that new and expanding weed infestations will proliferate in and along these vectors if left unchecked, eventually leading to vegetation type conversion. Surveys and rapid response eradication treatments will begin in 2016 during the flowering periods of weed species. Because of differences in flowering times for all potential species, two visits may be required during the growing season. If timing is such that all the target species are detectable/treatable in one visit, the actual costs would be lower than displayed below. Completion of surveys in riparian areas, dozer lines, roads, staging areas, safety zones and known invasive plant populations would be the first priority. The second survey priorities would be along handlines. Surveys of the general habitats in the burned area would be the lowest priority.

Weed Detection and Rapid Response Cost

Item	Unit	Unit Cost	# of Units	Cost
1 GS-11 botanist	Days	$365	1	$365
2 GS-7 weed technicians	Days	$500	7	$3,500
Supplies	Each	$400	1	$400
Vehicle gas mileage	Miles	$0.58	1000	$580
Vehicle FOR	Month	0.25	350	$100
			Total Cost	**$4,945**

Channel Treatments: none

Roads and Trail Treatments:

Culvert Cleanout at Warm Springs Camp and on 6N32-

Storm inspection and response (previously called storm patrol) is required to keep culverts along USFS 6N32 functional. Currently there are two culvert sizes and installations throughout 6N32 including 72-inch corrugated steel culverts with concrete or block side- and headwalls and 48-inch corrugated steel culverts with no side- or headwalls. Field visits indicate that two 48-inch culverts without headwalls require immediate repair by cleaning out the completely plugged culverts. Since both culverts are buried, once uncovered it may become evident that they are not functional. In this circumstance the culvert crossings will be converted to low water crossings. In addition, Warm Springs Camp has a 18-inch culvert near the location of the proposed K-rail that is completely plugged and requires immediate cleaning out.

Storm inspection and response should be completed in the burn area prior to and following any precipitation event (including snowmelt) capable of mobilizing debris and/or sediment, e.g., greater than 1-inch of rainfall.

Culvert Cleanout Cost

Item	Unit	Unit Cost	# of Units	Cost
Backhoe/excavator &operator	Day	$2000	3	$6000
Tandem dump truck & operator	Day	$1500	1	$1500
2 person crew	Day	$500	3	$1500
Pressure washer and supplies	Day	$300	3	$900
Mobilization and demob	Day	$1000	2	$2000
Contracting administration and inspection	Day	$400	4	$1600
			Total Cost	**$13,500**

Protection/Safety Treatments:

Interagency and Implementation Coordination

Interagency coordination with LA County started during the fire and continued throughout the BAER Assessment and is a critical component to the BAER process. Continuing this coordination by providing the BAER Assessment Report and specialist reports will be necessary. Implementation will require time for the District Resource Officer and BAER Coordinator to ensure the proposed treatments in this report are conducted.

Interagency Team Cost

Item	Unit	Unit Cost	# of Units	Cost
Resource Officer	Days	$400	2	$800
BAER Coordinator	Days	$400	1	$400
			Total Cost	**$1,200**

Warm Springs Camp Hazmat

A preliminary assessment of the Warm Springs Camp has determined that hazardous materials (asbestos, lead and possibly other toxic chemicals) are present within the burned camp footprint. This hazmat is directly (less than 100ft) upslope of a perennial portion of an intermittent stream. It is likely that this hazmat will mobilize during the first sizable precipitation event into a ephemeral drainage (currently headcutting into the hazmat area) that funnels into the main stream channel. Los Angeles County has ownership of these buildings and would ultimately be responsible for the removal of the hazmat, however, it appears that it may be difficult for the County to mobilize in a timely manner to adequately determine exactly what hazmat is present and perform containment/removal. Therefore, for this intitial report the ANF requests that funding for testing of potential hazmat be approved to start the cleanup process. In the meantime, if the County performs the testing any approved BAER funds would not be utilized.

Hazmat Testing Cost

Item	Unit	Unit Cost	# of Units	Cost
Lab test results	test	$2000	1	$2000
			Total Cost	**$2,000**

Barriers for Unauthorized Off Road Vehicle Use

Unauthorized off-highway vehicles recreational activity is a threat to the ecosystem recovery of the area burned by the Warm fire. Erosion, spread of invasive species, disturbance to wildlife, destruction of wildlife habitat, impaired water quality, and risks to public safety can result from unauthorized access. Due to the accessibility of the Warm Fire dozerlines and burned area from FS road 6N32, the current existing signs of off-highway vehicle use in the area, and the LMP focus to protect native vegetation from type conversion, it has been decided that the following treatments are needed: install boulders and fencing at one entrance to the burn area along the intersection of Lake Hughes and the 6N32 roads and ensure these barriers are properly maintained.

Barrier Installation and Maintenance Cost

Item	Unit	Unit Cost	# of Units	Cost
Boulders	Load	$1,500	1	$1,500
Boulder Installation (Labor & Equipment)	Days	$1,160	1	$1,160
Fencing	Foot	$2	25	$50
2 GS-5's Labor and Maintenance	Day	$450	2	$900
1 GS-11 Recreation Specialist	Day	$400	1	$400
Vehicle Mileage	Mile	.55	200	$110
			Total Cost	**$4,120**

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

Line Items	Units	Cost	Units	BAER $	$	units	$	Units	$	$
A. Land Treatments										
K-rail Installation	ea	10000	1	$10,000						$10,000
Noxious Weed Detection Survey	ea	4945	1	$4,945	$0		$0		$0	$4,945
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$14,945	$0		$0		$0	$14,945
B. Channel 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 Channel Treat.				$0	$0		$0		$0	$0
C. Road and Trails										
Culvert Cleanout	ea	13,500		$13,500	$0		$0		$0	$13,500
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$13,500	$0		$0		$0	$13,500
D. Protection/Safety										
Interagency Coordination	ea			$1,200	$0		$0		$0	$1,200
Hazmat Testing	ea			$2,000	$0		$0		$0	$2,000
OHV Barriers	ea			$4,120						$4,120
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$7,320	$0		$0		$0	$7,320
E. BAER Evaluation										
BAER Assessment	hours	50	100	$5,000			$0		$0	$0
Insert new items above this line!				—	$0		$0		$0	$0
Subtotal Evaluation				$5,000	$0		$0		$0	$0
F. Monitoring										
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$0	$0		$0		$0	$0
G. Totals				$35,765	$0		**$0**		**$0**	$35,765
Previously approved										
Total for this request				**$35,765**						

PART VII - APPROVALS

1. _____ 9/8/15
Forest Supervisor (signature) Date

2. Bonnie T. Grant 9/18/15
Regional Forester (signature) Date