Date of Report: 10/8/2019

SOUTH FIRE BURNED-AREA REPORT

PART I - TYPE OF REQUEST

A. Type of Report

☒ 1. Funding request for estimated emergency stabilization funds
☐ 2. No Treatment Recommendation

B. Type of Action

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

☐ 2. Interim Request #___
☐ Updating the initial funding request based on more accurate site data or design analysis

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: South Fire

B. Fire Number: CA-SHF-001209

C. State: California

D. County: Tehama

E. Region: R5

F. Forest: SHF

G. District: Yolla Bolly

H. Fire Incident Job Code: P5MRD419

I. Date Fire Started: 9/5/2019

J. Date Fire Contained: Pending at 62%

K. Suppression Cost: $9.1 Million

L. Fire Suppression Damages Repaired with Suppression Funds (estimates): Click here to enter text.

1. **Fireline repaired (miles):** 22.99
2. **Other (identify):** 5 drop points, 1 helispot, 1 repeater, and 9 water source locations.

M. Watershed Numbers:

Table 1: Acres Burned by Watershed

HUC #	Watershed Name	Total Acres	Acres Burned	% of Watershed Burned
4	Cottonwood	603609.7	5252.75	.87
5	South Fork Cottonwood Creek	157852.6	5252.75	3.33
7	Cedar Creek-Cold Fork	4517.98	.20	0.00
7	Maple Creek	5781.53	6.34	0.11
7	Sulphur Creek	6808.17	13.85	0.2
7	Long Gulch-Tomhead Gulch	5515.62	719.08	13.04
7	Devils Hole Gulch-South Fork Cottonwood Creek	11104.9	811.66	7.31
7	Slides Creek-South Fork Cottonwood Creek	6658.71	1119.53	16.81
7	Elkhorn Creek-South Fork Cottonwood Creek	10880.84	2582.10	23.73

N. Total Acres Burned:

Table 2: Total Acres Burned by Ownership

OWNERSHIP	ACRES
NFS	2963.03
BLM	1211.81
STATE	0.00
PRIVATE	1077.97
TOTAL	5252.81

O. Vegetation Types: P. Pine, D. Fir, Gray Pine, chaparral

P. Dominant Soils: Neuns, Maymen, Goulding, and Sheetiron

Q. Geologic Types: metasediments and cretaceous marine

R. Miles of Stream Channels by Order or Class:

Table 3: Miles of Stream Channels by Order or Class

STREAM TYPE	MILES OF STREAM
PERRENIAL	4.78
INTERMITTENT	14.80
EPHEMERAL	32.55
OTHER	0

S. **Transportation System:**
Trails: *National Forest (miles):* 3.96 *Other (miles):*
Roads: *National Forest (miles):* 4.26 *Other (miles):*

PART III - WATERSHED CONDITION

A. Soil Burn Severity (acres):

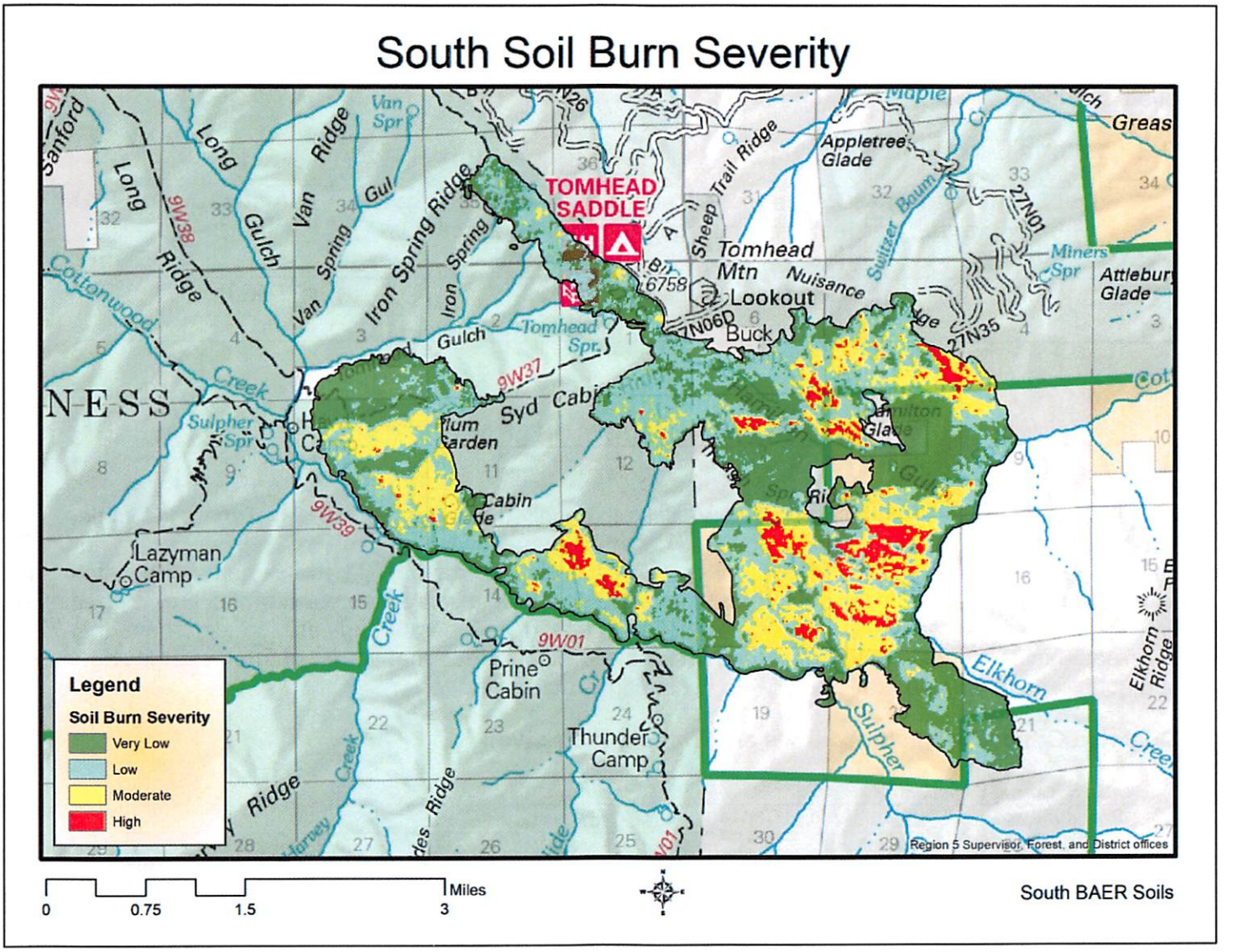

Table 4: Burn Severity Acres

Soil Burn Severity	Total
Unburned	2,083
Low	1,714
Moderate	1,130
High	258
Total	5185

B. Water-Repellent Soil (acres): Water repellency is not present in significant continuous areas. Some low to moderate repellency was noted in scattered areas of high soil burn severity, but was generally very patchy and not typical of any particular soil types.

C. **Soil Erosion Hazard Rating:** 2083 acres of low, 1714 acres of moderate, 1130 acres of high, and 258 acres of very high.

D. **Erosion Potential:** An average winter has the potential to produce 16 tons per acre of hillslope erosion, ranging from 13 to 19 across the fires as a whole. Erosion potential was modeled using FSWEPP-ERMiT.

Sediment Potential: Hillslope erosion was determined to have a 19% chance of sediment delivery potential.

F. Estimated Vegetative Recovery Period (years): 7

G. Estimated Hydrologic Response (brief description): Estimated Vegetative Recovery Period is 7 years; Design Chance of Success is 95 percent; Equivalent Design Recurrence Interval is 2 years; Design Storm Duration is 6 hours.

H. Design Storm Runoff Predictions:

HUC5	**Design Storm Magnitude,** (inches)	**Design Flow,** (cubic feet / second/ square mile)	**Estimated Reduction in Infiltration,** (percent)	**Adjusted Design Flow,** (cfs per square mile)
S Fk Cottonwood	2.2	46 (57)	6 (12)	49 (129)

PART V - SUMMARY OF ANALYSIS

Introduction/Background

The South fire burned 5,211 acres due a lighting strike that ignited on Sept. 5th, 2019 in Tehama Counties. The fires started on a mid-ridgeline and slowly backed down the ridges over time causing a mosaic burn. The South fire assessment area consisted of xx acres of U.S. forestland, xx acres of BLM and xx acres of private lands. Approximately 1,388 acres burned at high and moderate soil burn severity (see soil burn severity map above). The rest of the fires were either low or very low soil burn severity. General trends are forested areas that were north or east-facing slopes were mosaic under-burns. Forested areas that were south or west-facing slopes burned hotter and had tree mortality of 30-60% with ridges burning hotter.

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

Table 5: Critical Value Matrix

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**

1. **Human Life and Safety (HLS):**
   a. Public safety on roads and trails in the burned area due to falling trees and rolling rocks with likely probability and moderate consequences causing high risks to the public.
2. **Property (P):**Wilderness trails suffering trail burnouts and hillslope failures with high probability of damage with moderate magnitude causing high risk to trails. No damage to roads was detected.
3. **Natural Resources (NR):**Spread of invasive weeds due to dozers pushing through known infestation areas creating high risks for infestation on dozer lines.
   b. TESP aquatic species for SF Cottonwood watershed which is expected to have noticeable effects on aquatic habitat. This watershed provides Critical Habitat for steelhead listed under the Endangered Species Act within the fire perimeter. This watershed has Critical Habitat which is expected to receive a strong sediment pulse. Chinook salmon are documented to have occurred on the Forest in SF Cottonwood Creek in the past, and are found downstream of the Forest. However it's unclear if they still reach USFS system waters because no salmon surveys have occurred in recent decades.
4. **Cultural and Heritage Resources:**No values at risk detected.

B. **Emergency Treatment Objectives:**

Land Treatments: Prior to the South fire ignition, the area that was burned as well as areas that had fire suppression activities had very minimal amounts of invasive plant species. Two populations of invasive plants were documented prior to the South fire, and during reconnaissance of the fire, very few new populations were discovered. The 2 species found were woolly mullein (*Verbascum Thapsus*) and bull thistle (*Cirsium arvense*). Nearly all locations where undocumented weeds were discovered coincided with historic dozer lines, confirming the importance of surveying and managing these vulnerable locations.

The natural vegetation and its ability to compete with the competitive nature of invasive plants is at risk. A weed wash station was not set up until the 4th day of the fire, making the threat of introduction of invasive plants likely.

Trail Treatments: Trails are in good condition and no treatments are necessary.

Safety Treatments: Inform the public of the risks of entering a burned area due to falling trees and rolling rocks.

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

Land - **Channel** -
Roads/Trails - **Protection/Safety** 90%

D. **Probability of Treatment Success**

Table 6: Probability of Treatment Success

	1 year after treatment	*3 years after treatment*	*5 years after treatment*
Land	95	90	85
Channel	-	-	-
Roads/Trails	-	-	-
Protection/Safety	95	90	90

E. **Cost of No-Action (Including Loss):** $19,000

F. **Cost of Selected Alternative (Including Loss):** $500**Skills Represented on Burned-Area Survey Team:**

☒ Soils ☒ Hydrology ☐ Engineering ☒ GIS ☐ Archaeology
☒ Weeds ☒ Recreation ☐ Fisheries ☐ Wildlife
☐ Other:

Team Leader:
Email:brad.rust@usda.gov **Phone(s)**530-226-2427

Forest BAER Coordinator:
Email:brad.rust@usda.gov **Phone(s):**530-226-2427

Team Members: *Table 7: BAER Team Members by Skill*

Skill	**Team Member Name**
Team Lead(s)	Brad Rust
Soils	Brad Rust
Hydrology	Christine Mai
Engineering	Alvin Sarimento
GIS	Brandon Zimmerman
Archaeology	-
Weeds	Ashley Knight
Recreation	Ken Graves

Skill	Team Member Name
Other	-

H. Treatment Narrative:

Land Treatments: Weed detection surveys and treatments are recommended to manage the threat of the establishment of invasive plants. Weed surveys will occur in areas of newly disturbed soils such as dozer lines, drop points, staging areas, water drafting sites, helispots, and spike camps. Surveys will occur the following year during the flowering season. Newly discovered populations will be entered into NRIS and treatments will be entered into FACTs. Early detection and rapid response is extremely effective in managing incoming weed infestations. The noxious weed populations that were found in the field were rather sparse and patchy. There were no areas that were too large for a small crew to treat. Because of the isolated patches, there is a very good chance to prevent this weed spread from lining the roads and becoming too large to be effectively managed years from now.

Estimated costs for Weed Detection Surveys

Grade Level	# days	Cost per day	Total
GS-9 Range Specialist	2	225	450
GS-5 Range Technician	4	150	600
GS-4 Range Technician	4	132	528
GS-3 Range Technician	4	120	480
Grand Total			**$2058**

Channel Treatments: none**Roads and Trail Treatments:** none

Protection/Safety Treatments: Until the first winter is passed the wilderness must remained closed for public safety. Closure signs and burn area signs need to be posted to insure the public is aware of the fire emergency and closure. Install 1 large burned area sign at Tomhead Saddle warning of the hazards of falling trees, rolling rocks, debris flows and flooding on trails for a cost of **$500.I. Monitoring Narrative:** None necessary

PART VI – EMERGENCY STABILIZATION TREATMENTS AND SOURCE OF FUNDS

			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										
Noxious Weed Dect. Surve	ea	2,058	1	$2,058	$0		$0		$0	$2,058
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$2,058	$0		$0		$0	$2,058
B. Channel Treatments										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Channel Treatments				$0	$0		$0		$0	$0
C. Road and Trails										
Trail Stormproofing	mi			$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road and Trails				$0	$0		$0		$0	$0
D. Protection/Safety										
BAER Warning Sign - large	ea	500	1	$500	$0		$0		$0	$500
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Protection/Safety				$500	$0		$0		$0	$500
E. BAER Evaluation										
Initial Assessment	Report			---	$2,000		$0		$0	$2,000
				$0	$0		$0		$0	$0
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				$0	$2,000		$0		$0	$2,000
F. Monitoring										
				$0	$0		$0		$0	$0
				$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				$2,558	$2,000		**$0**		**$0**	**$4,558**
Previously approved										
Total for this request				**$2,558**						

PART VII - APPROVALS

1. _____ 10/31/19
Forest Supervisor Date