Date of Report: June 24, 2020

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: Sawtooth Fire

B. Fire Number: AZ-TNF-001306

C. State: AZ

D. County: Maricopa and Pinal

E. Region: 3

F. Forest: Tonto National Forest

G. District: Mesa

H. Fire Incident Job Code: P3M5FN

I. Date Fire Started: May 30, 2020

J. Date Fire Contained: June 17, 2020

K. Suppression Cost: $5,286,834

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

1. **Fireline repaired (miles):** Click here to enter text.
2. **Other (identify):** Click here to enter text.

M. Watershed Numbers:

Table 1: Acres Burned by Watershed

HUC #	Watershed Name	Total Acres	Acres Burned	% of Watershed Burned
150601060107	La Barge Creek	27388.22	4202.136	15%
150501000404	Hewitt Canyon	19807.59	3155.716	16%
150501000801	Whitlow Canyon	23724.26	12001.67	51%
150501000802	Apache Land Tank-Rittenhouse Dam	30162.65	3638.125	12%

N. Total Acres Burned:

Table 2: Total Acres Burned by Ownership

OWNERSHIP	ACRES
NFS	14,918

OWNERSHIP	ACRES
OTHER FEDERAL (LIST AGENCY AND ACRES)	
STATE	9,737
PRIVATE	74
TOTAL	24,729

O. Vegetation Types: Sonoran Desert, Sonoran Desert riparian

P. Dominant Soils: Ustic Torrifluvents, sandy-skeletal, mixed, thermic; Ustic Haplargids, clayey-skeletal, mixed, superactive, hyperthermic; Ustalfic Petrocalcids, fine-loamy, mixed, superactive, thermic; Ustic Haplargids, loamy-skeletal, mixed, superactive, thermic; Lithic Ustic Haplargids, loamy-skeletal, mixed, superactive, hyperthermic; Lithic Ustic Torriorthents, non-acid, loamy-skeletal, mixed, superactive, thermic; Ustic Haplargids, clayey-skeletal, mixed, superactive, thermic;

Q. Geologic Types: Mostly rhyolitic tuff with some granite and to a lesser extent, assorted metasedimentary rocks

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	0
INTERMITTENT	20
EPHEMERAL	97
OTHER (DEFINE)	0

S. **Transportation System:**
Trails: *National Forest (miles):* 20.5 *Other (miles):* 0
Roads: *National Forest (miles):* 4.46 *Other (miles):* 4.7

PART III - WATERSHED CONDITION

A. Burn Severity (acres): Based on fire perimeter polygon in BARC package, 6/4/20

Table 4: Burn Severity Acres by Ownership

Soil Burn Severity	NFS	Other Federal (List Agency)	State	Private	Total	% within the Fire Perimeter
Unburned	1,639	0	1,199	7	2,846	12.3%
Low	8,117	0	6,958	65	15,139	65.4%
Moderate	3,628	0	1,536	5	5,169	22.3%
High	1	0	0	0	0	<1%
Total	13,384	0	9,693	77	23,154	

B. Water-Repellent Soil (acres): 24,720 acres. Due to lack of field verification, it is assumed that the entire burned area is water repellent due to pre-existing hydrophobic conditions that are natural to these ecosystems.

C. Soil Erosion Hazard Rating: Low: 609 Moderate: 2,465 High: 10,259 (FS OWNERSHIP ONLY)

D. **Erosion Potential:** 0.21 tons/acre Sediment Potential: 8 cubic yards/square mile

F. Estimated Vegetative Recovery Period (years): 5-10 years

G. Estimated Hydrologic Response (brief description): Hydrologic response from the burn scar will be minimal compared to pre-fire conditions. There are no sub-basins that were modelled that had increases over

80% from pre-burn conditions. This is in part because the watersheds had high volumes of rates of runoff pre-fire.

PART V - SUMMARY OF ANALYSIS

Introduction/Background
A burned area reflectance classification (BARC) map was provided on 6/4/20. A remote verification process was conducted, which included comparing the BARC to false color composite satellite images, as well as an aerial photo of the fire taken by drone on 6/7/20. The BARC map was converted to a soil burn severity map on 6/8/20, with no changes made to the class breaks suggested by GTAC.

Three watersheds - La Barge Creek, Hewitt Canyon, and Whitlow Canyon – were modelled using HEC HMS and Apache Land Tank-Rittenhouse Dam was modelled using Wildcat 5. There are two subwatersheds within Hewitt Canyon (W370a and W380) and one within La Barge Canyon (B7) that have modeled increased flows of 80% and 55% respectively. The most significant increases were for the 2 year (50% chance) storms and no watershed had increases of greater than 50% for the 25 or 100 year storm. Models considered the continuing impacts of the Woodbury burn scar, and were also run to account for reburn in the La Barge and Whitlow Canyon watersheds. Accounting for reburn increased flows in the La Barge B7 watershed from 50% to 72% for the two-year storm, but did not significantly impact any other subwatersheds. Based on values at risk and HEC HMS/Wildcat 5 model outputs, flow estimates to determine flash flood risk using the Reed-Schaffner equation for the first large storms post-fire were calculated for three areas above trails and roads. Flash flood risk for the area below subasin W370 is high to extreme for the 2 to 10 year event and high for the 10 year event below B7 at the Dutchman's Trail and B6 at the Peralta Trail. For more information and maps of the subasins refer to hydrology specialist report.

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. Risk to human life and safety exist on Coffee Flat and Millsite trails in particular due to flash flooding and rock fall and all trails within the burn scar generally because of the changed environmental conditions. Risk is also present on FSR 1900 and 1935 due to their location along drainages that are likely to have increased flooding.
2. **Property (P):**Despite high risk to property, including some roads and trails in and adjacent to the burned area, flood control measures are not warranted for all properties with a high probability of damage or loss because many trails and roads experience low visitor use during the hot summer months when we would expect monsoon rainfall events.
3. **Natural Resources (NR):**
    a. Soil Productivity – Predicted post-fire erosion rates for each TEU within the fire perimeter (FS ownership) are well below tolerance soil loss values. Probability of damage or loss of soil productivity is very unlikely. Magnitude of consequences resulting from loss of soil productivity would be low – if damage to soil productivity occurs, it would likely have minimal, localized effects.
    b. Native plant communities - Although high soil burn severity represents <1% of the total burned area, the plant communities within the burned area as well as across the Sonoran Desert are not fire adapted, and therefore mortality of the long lived, characteristic species can be expected. Traditionally, fire has not been considered a part of the disturbance regime

for Sonoran Desert ecosystems. It is only recently that fire departed states are being recognized, since the introduction of non-native annual grasses which provide the mechanism for fire to spread in such sparsely vegetated ecosystems. Characteristic species include CAGI10 (Carnegiea gigantea) and PAMI5 (Parkinsonia microphylla). There are no possible treatments that would exclude red brome, a common annual invasive within the burned area.
Click here to enter text.

4. **Cultural and Heritage Resources:**Accuracy of heritage site locations is uncertain in the burn scar, making risk determinations challenging. The one site that is in an area at increased risk of flooding is a rock art site with petroglyphs, that has presumably have been wet before, only adverse effect may be from increased sediment load and increased abrasion.

B. Emergency Treatment Objectives: To warn Forest users of the risk of increased flooding.

C. Probability of Completing Treatment Prior to Damaging Storm or Event:
Land Click here to enter text. **Channel** Click here to enter text.
Roads/Trails Click here to enter text. **Protection/Safety** 95%

D. Probability of Treatment Success

Table 6: Probability of Treatment Success

	1 year after treatment	***3 years after treatment***	***5 years after treatment***
Land			
Channel			
Roads/Trails			
Protection/Safety			

E. Cost of No-Action (Including Loss): Click here to enter text.

F. Cost of Selected Alternative (Including Loss): Click here to enter text.

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Mike Martinez
Email: michael.a.martinez@usda.gov **Phone(s)**: 602-499-5818

Forest BAER Coordinator: Kelly Mott Lacroix
Email: kelly.mottlacroix@usda.gov **Phone(s):** 480-601-6218

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

Skill	**Team Member Name**
Team Lead(s)	Mike Martinez
Soils	Rob Ballard
Hydrology	Kelly Mott Lacroix
Engineering	Michelle Tom
GIS	Theresa Nallick
Archaeology	Travis Bone
Weeds	Ryan Nicholas
Recreation	Jason Scow
Other	Kelly Kessler, Wildlife Biologist

H. Treatment Narrative: Land Treatments: No land treatments are proposed. Risk

Channel Treatments: Click here to enter text.**Roads and Trail Treatments:** Click here to enter text.**Protection/Safety Treatments:** Signage to be placed on high risk trails**I. Monitoring Narrative:** Click here to enter text.

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											
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Land Treatments				$0	$0			$0		$0	$0
B. Channel Treatments											
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Channel Treatments				$0	$0			$0		$0	$0
C. Road and Trails											
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Road and Trails				$0	$0			$0		$0	$0
D. Protection/Safety											
30x30 Entering Burned Area	signs	110	6	$660	$0			$0		$0	$660
12x18 Warning…etc	signs	28	12	$336	$0			$0		$0	$336
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Protection/Safety				$996	$0			$0		$0	$996
E. BAER Evaluation											
Initial Assessment	Report			---	$7,500			$0		$0	$7,500
				$0	$0			$0		$0	$0
Insert new items above this line!				---	$0			$0		$0	$0
Subtotal Evaluation				$0	$7,500			$0		$0	$7,500
F. Monitoring											
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Monitoring				$0	$0			$0		$0	$0
G. Totals				$996	$7,500			**$0**		**$0**	**$8,496**
Previously approved											
Total for this request				**$996**							

PART VII - APPROVALS

1._____

Forest Supervisor Date