Date of Report:

September 25, 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: Griffin Fire

B. Fire Number: AZ-TNF-002510

C. State: Arizona

D. County: Gila

E. Region: R03

F. Forest: Tonto NF

G. District: Globe RD

H. Fire Incident Job Code: P3NF4F

I. Date Fire Started: 08/17/2020

J. Date Fire Contained: 9/2/2020

K. Suppression Cost: $4.9 million

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

1. **Fireline repaired (miles):** 3 miles
2. **Other (identify):** Click here to enter text.

M. Watershed Numbers:

Table 1: Acres Burned by Watershed

HUC #	Watershed Name	Total Acres	Acres Burned[1]	% of Watershed Burned
150400070304	Ramboz Wash	25,900	822	3
150400070305	C K Canyon	12,846	180	1
150400070205	Champion Ck	16,753	124	1
150601030606	Middle Pinal Ck	30,464	1,633	5
150400070201	Corral Creek	10,919	192	2
150601030605	Horseshoe Bend Wash	9,042	817	9
15040070202	Upper Sevenmile Wash	27,060	6,193	35
150601030903	Sycamore Cyn – Salt River	24,507	5,368	22

HUC #	Watershed Name	Total Acres	Acres Burned[1]	% of Watershed Burned
150400070204	Upper Sycamore Ck	33,935	910	3
150601030507	Yankee Joe Cyn – Salt River	20,087	644	3

[1]Acres burned are HUC12 watershed acres within the Tonto NF only

N. Total Acres Burned:

Table 2: Total Acres Burned by Ownership

OWNERSHIP	ACRES
NFS	16,347
SAN CARLOS RESERVATION	44,939
STATE	
PRIVATE	12
TOTAL	61,821

O. Vegetation Types: Vegetation types within the burned area include Sonoran desertscrub (710 acres); semi-desert grasslands, juniper grasslands, and pinyon-juniper grasslands (4816 acres); chaparral (2608 acres); and pinyon-juniper-oak and pinyon-juniper woodlands (5444 acres). Additionally, riparian ecosystems make up approximately 494 acres of the burned area, and about 40 acres of Ponderosa pine exist at the higher elevations.

P. Dominant Soils: The dominant surface soil texture within the Griffin fire is a loam, typically with less than 50 percent rock fragments. As is common, a wide variety of soil types exist in the burned area. Alfisols, moderately leached soils with relatively high native fertility, are by far the most dominant soil order. Of those Alfisols, soils that classify as Typic Haplustalfs occur the most. Next in order of dominance are Udic Haplustalfs and Vertic Haplustalfs**.**

Q. **Geologic Types:** Consistent with the complex geology of the area, a variety of geologic formations underlie the burned area. The three most dominant geologic types are late to middle Miocene basaltic rock, middle Proterozoic diabase, and middle Proterozoic granitic 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	0.8
INTERMITTENT	16.4
EPHEMERAL	116
OTHER (DEFINE)	

S. **Transportation System:**
Trails: *National Forest (miles):* 0 *Other (miles):*
Roads: *National Forest (miles):* 13.4 *Other (miles):* 2.9

PART III - WATERSHED CONDITION

A. Burn Severity (acres):

Table 4: Burn Severity Acres by Ownership

Soil Burn Severity	NFS	Other Federal (List Agency)	State	Private	Total	% within the Fire Perimeter[1]
Unburned	2,018			2	2,020	
Low	9,088			7	9,095	

Soil Burn Severity	NFS	Other Federal (List Agency)	State	Private	Total	% within the Fire Perimeter[1]
Moderate	4,997			3	5,000	
High	244			0	244	
Total	16,347			12	16,359	

[1]Burned area acres and percentages represent burned area within perimeter of Tonto NF. Soil Burn Severity was assessed on lands within the TNF only

B. **Water-Repellent Soil (acres):** 5,244

C. **Soil Erosion Hazard Rating:**
Slight – 1475
Moderate – 9,471
Severe – 4,892
Note: 514 acres of riparian ecosystem are not rated for Soil Erosion Hazard

D. Erosion Potential: 2.67 tons/acre **E. Sediment Potential:** 2.67 tons/acre

F. Estimated Vegetative Recovery Period (years): 5

G. Estimated Hydrologic Response (brief description):

Watershed responses include increases in peak flows, the potential for hyper-concentrated flows, and the potential for debris flows. Peak Flow changes are greatest in Grapevine Canyon, Yankee Joe Canyon, and Wood Springs Wash. Peak flow increases range from 49 – 73 percent for the two-year flood, and from 27 – 54 percent for the hundred-year flood from these three watersheds. Smaller increases in peak flows occur from other impacted watersheds.

Hyper-concentrated flows (the first flows from high intensity thunderstorms immediately following the fire) are greatest from Grapevine Canyon. The two-year storm results in high hazard flows from this watershed and the five- and ten-year storms result in extreme flash flood hazard. High flash flood hazard from hyper-concentrated flows also occurs from the ten-year storm in Nugget Wash, Woodhouse Springs Wash, and Sycamore Canyon.

The US Geological Survey has estimated the probability and magnitude of debris flows within and from the burned area and developed a debris flow hazard rating from the combination of these factors for various rainfall intensities for watersheds within the burned area. They have developed debris flow hazard ratings for both watersheds and stream channels. The debris flow hazard analysis shows that most of the Griffin Fire burn area has an estimated low level of debris-flow hazard with areas of moderate debris flow hazard on the west side of the fire. Most drainages and stream reaches require 15-minute rainfall intensities of greater than 1.6 in/hr to exceed a 50% likelihood of producing debris flows. A few larger drainages in the western portion of the burned area have a higher likelihood of producing a debris flow with a 0.8 in/hr or greater rain event.

Short term changes in water quality are expected as ash is washed from burned watersheds and increased peak flows convey increased amounts of sediment from burned watersheds and from channel scouring. Decreased water quality can adversely impact aquatic and riparian habitats for threatened and endangered species.

PART V - SUMMARY OF ANALYSIS

Introduction/Background

The Griffin Fire was a lighting-caused fire that ignited on August 17, 2020 west of Highway 60 approximately 15 miles north of Globe, Az. It merged with the Ginn Fire, another lighting-caused fire that ignited on August 16

in the Apache Mountains 5 miles north of Globe. The fire burned primarily to the north, east and south onto lands administered by the San Carlos Apache Nation where it eventually merged with the Champion Fire, another lightning-caused fire that ignited on August 23. The fire burned a total of 61,821 acres prior to containment on September 2, 2020 of which approximately 25% or 16,347 acres were lands administered by the Tonto National Forest.

The terrain of the Griffin Fire is variable ranging from steep, rocky mountainous terrain to a dissected landscape of hills, terraces and small buttes and mountain features cut by intermittent drainages. Elevations in the fire zone range from 3500 feet to 6910 feet. The burn area extends from the Sonoran desert, semi-desert grassland, and the piñon-juniper-woodland and associated riparian ecosystems.The most common vegetation type is Pinyon-Juniper Oak and Pinyon-Juniper woodlands (5,400 acres), followed by grassland types (4,800 acres) and chaparral (2,600 acres). There are approximately 500 acres of riparian vegetation, primarily in drainage bottoms along intermittent and riparian stream channels. The fire burned primarily with low burn severity (55% of the burned area) followed by moderate burn severity (30% of the burned area). The burned area is crossed by US Highway 60 which travels from Globe to Showlow-Pinetop. In addition to US 60 approximately sixteen miles of Forest Service and other jurisdiction roads cross the burned area. A popular dispersed recreation site (Horseshoe Bend on the Salt River) lies below the burned area and a small Forest Service campground (Jones Water Campground) lies within the burned area. Dispersed camping is also a common activity within and below the burned area. Post-fire flash flooding and debris flows could threaten life and safety of forest users in these areas.

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

- Threats to life and safety on roads, dispersed recreation sites, and the Jones Water Campground from increases in peak flows, hyper-concentrated flows, debris flows, rolling rocks, and falling limbs and trees.
- Threatened and endangered species habitat within or below the burned area include southwestern willow flycatcher and yellow-billed cuckoo. These species occur along the Salt River below the confluence with watersheds that drain the burned area. Suitable habitat exists in Sevenmile Wash. Peak flows, ash, and debris could threaten habitat for threatened and endangered species, particularly in the Salt River.
- Potential for encroachment or expansion of invasive weed species into riparian areas and Sonoran desert exists. Species of concern include: tree-of-heaven, salt cedar, fountain grass, stinknet, and invasive thistles in riparian areas, and fountain grass, Saharan mustard, red brome, and stinknet in the Sonoran desert.
- Post-fire erosion exceeds tolerance levels on 9,498 acres within the burned area but is expected to recover to below tolerance levels in the long term.
- Cultural sites eligible or potentially eligible for inclusion in the National Register of Historic Places exist within or below the burned area. Exposure of these sites by burning of the vegetation that obscured them makes them more vulnerable to vandalism, looting, and erosion.

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):**
   Threats to human life and safety from flooding and debris flows are possible, and the magnitude of consequences are major, and consequently risk is high.
2. **Property (P):**Threats to Forest Service roads from flooding and debris flows are likely but magnitude of consequences is minor and consequently risk is low, Threat to Jones Water Campground is likely, and magnitude of consequences is moderate, and consequently risk is high.

3. Natural Resources (NR):

a. The threat to soil productivity due to erosion modeling, indicates 9,498 acres would exceed soil loss tolerance values within the fire perimeter. Modelled soil loss indicated a moderate magnitude of consequence for some areas, resulting in a high probability of loss to soil productivity. These areas could see long term effects and decreased soil productivity, although overall it is expected to recover over time due to the low overall amount of high severity burn. Due to time of year, the likelihood of seeding effectiveness will be low.

b. Threat of invasive species encroachment into riparian areas and the Sonoran desert is likely and the magnitude of consequences is major, and consequently risk is very high.

4. Cultural and Heritage Resources:

Thirteen cultural and heritage sites were initially identified within the area of potential effect and the fire perimeter. Sites located within the San Carlos Apache Nation are not included in this assessment and presumably will be addressed in a separate BAER document prepared for the nation.

Topographic relief coupled with soil erosion from increased exposure due to a post-fire lack of vegetation cover is a concern for all archaeological sites increasing their exposure to vandalism and looting. As for hydrologic events, the majority of sites are located away from significant drainages and would likely not be affected by the increase of water run-off within those drainages.

Of the 13 previously recorded sites, 2 sites have been determined as Not Eligible to be listed to the National Register of Historic Places. The remaining 11 sites are either Eligible, Potentially Eligible or Unevaluated/Indeterminate and must be considered for treatment.

B. Emergency Treatment Objectives:

- Protect Life and Safety
- Prevent or minimize encroachment of nonnative weed species into valuable riparian and desert ecosystems
- Prevent or minimize damage to critical cultural resources
- Protect Water Quality

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

Land 80% **Channel** N/A
Roads/Trails N/A **Protection/Safety** 80%

D. Probability of Treatment Success

Table 6: Probability of Treatment Success

	1 year after treatment	*3 years after treatment*	*5 years after treatment*
Land	60	70	80
Channel			
Roads/Trails			
Protection/Safety	75	90	90

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

$1.2 million

F. Cost of Selected Alternative (Including Loss):

$600,000

G. Skills Represented on Burned-Area Survey Team:

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

☒ Soils ☒ Hydrology ☒ Engineering ☒ GIS ☒ Archaeology
☐ Other:

Team Leader: Mike Martinez
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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	Nori Koehler, Thomas Giambra
Hydrology	Alexander Makic, Grant Loomis
Engineering	Michelle Tom, Simon Freeman
GIS	Frank Williams
Archaeology	Steve Germick
Weeds	Ryan Nicholas
Recreation	Sheryl Cormack
Wildlife	Camden Bruner, Kelly Wolff (AZGFD)

H. Treatment Narrative:

Land Treatments: Survey for the encroachment of invasive weed species into riparian areas within the burn perimeter and in the Sonoran desert portion of the burned area and implement rapid removal actions if detected.

Consider extending duration of fire closure area into May 2021 to allow natural vegetative recovery to occur to help obscure presence of cultural resources and to reduce likelihood of vandalism and erosion.

Channel Treatments: N\A

Roads and Trail Treatments: N\A

Protection/Safety Treatments: Install warning signs at selected location on roads entering and passing through the burned area. Install road closure structures (Type 3 Barricades) on roads entering particularly hazardous areas within or below the burned perimeter

Pump vault at Jones Water Campground and close campground due to flash flood concerns at the campground and mud, ash, and rolling rock concerns from the burned slopes above the toilet building.

I. Monitoring Narrative:

Inspect presence, condition and effectiveness of signs and closure barriers twice per year for three years.

Inspect vegetation recovery in areas around critical cultural resources sites and sample a representative set of sites for human disturbance three to four times the first year following the fire and provide time to write-up findings.

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											
Weeds EDRR Riparian	acres	27	512	$13,824	$0			$0		$0	$13,824
Weeds EDRR Sonrn Dsrt	acres	7	710	$4,970	$0			$0		$0	$4,970
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Land Treatments				$18,794	$0			$0		$0	$18,794
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											
				$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											
warning signs	ea	300	7	$2,100	$0			$0		$0	$2,100
Closure barriers	ea	300	10	$3,000	$0			$0		$0	$3,000
pump vault toilet	ea	500	1	$500							$500
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Protection/Safety				$5,600	$0			$0		$0	$5,600
E. BAER Evaluation											
Initial Assessment	Report			---	$0			$0		$0	$0
		$8,900	1	$8,900	$0			$0		$0	$0
Insert new items above this line!				---	$0			$0		$0	$0
Subtotal Evaluation				$8,900	$0			$0		$0	$0
F. Monitoring											
inspect barrs & sgns	2x/yr	$500	1	$500	$0			$0		$0	$500
Inspect cultural sites	visits	$500	5	$2,500	$0			$0		$0	$2,500
Insert new items above this line!				$0	$0			$0		$0	$0
Subtotal Monitoring				$3,000	$0			$0		$0	$3,000
G. Totals				$36,294	$0			**$0**		**$0**	**$27,394**
Previously approved											

PART VII - APPROVALS

1._____

Forest Supervisor Date