Date of Report: November 21, 2022

BURNED-AREA REPORT

WOODTICK FIRE 2022
SALMON-CHALLIS NATIONAL FOREST

Woodtick Fire, 9/8/2022 (photo from inciweb)

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: Woodtick Fire

B. Fire Number: ID-SCF-022097

C. State: Idaho

D. County: Lemhi

E. Region: 4 (Intermountain)

F. Forest: Salmon-Challis NF

G. District: Middle Fork

H. Fire Incident Job Code:

I. Date Fire Started: July 14, 2022

J. Date Fire Contained: *est* November 5, 2022

K. Suppression Cost: $5,910,000

L. Fire Suppression Damages Repaired with Suppression Funds (estimates):

1. **Fireline repaired (miles):** Unknown at this time
2. **Other (identify):**

M. Watershed Numbers:

Table 1: Acres Burned by Watershed

HUC #	Watershed Name	Total Acres	Acres Burned	% of Watershed Burned
170602060304	Duck Creek-Camas Creek	18914	3624	19%
170602060303	West Fork Camas Creek	25297	5314	21%
170602060305	Woodtick Creek-Camas Creek	22410	2512	11%

N. Total Acres Burned:

Table 2: Total Acres Burned by Ownership

OWNERSHIP	ACRES
NFS	11,420
OTHER FEDERAL	0
STATE	0
PRIVATE	30
TOTAL	11,450

Note: The total acreage reported in this BAER report differs from the acreage reported on inciweb.com (9598 acres) because it includes some unburned areas within the fire perimeter that are not included in the mapping shown on inciweb.

O. Vegetation Types: Approximately 83% of the burned area consists of forested cover types, with the dominant tree species being Douglas Fir. Sparse forests exist on south aspects, while thicker forest cover exists on northern aspects. Approximately 16% of the burned area consists of open slopes, including bunchgrass, fescue, shrub, and barren cover types.

Cover Types	Acres	Percent
Douglas-fir	4101	35.8%
Lodgepole Pine	2541	22.2%
Whitebark Pine	839	7.3%
Barren	751	6.6%
Spruce/Fir	661	5.8%
Bunchgrass/Fescue	639	5.6%
Fescue/Conifer	624	5.4%
Ponderosa Pine	391	3.4%
Conifer/Fescue	290	2.5%
Fescue	194	1.7%
Dry Shrub/Bunchgrass	167	1.5%
Grass/Forb	159	1.4%
Bunchgrass	31	0.3%
Mountain Mahogany	29	0.3%
OTHER COVER TYPES	34	0.3%
TOTAL	**11,450**	

P. Dominant Soils: Soils in the burned area are described based on Landtypes shown in the table below.

Landtype Description	Landtype	Acres	Percent
Strongly dissected mountain slopelands- timbered, moderately deep to deep- loamy to sandy-skeletal soils	VF28	2058	18.0%
Strongly dissected cryoplanated mountain slopes- moderately deep skeletal sandy and loamy soils	109c	1492	13.0%
Moderately dissected mountain slopelands, shallow to moderately deep- loamy to sandy-skeletal soils	VF21	1139	9.9%
Moderately dissected glacial sideslopes- timbered, shallow to moderately deep- loamy to loamy-skeletal soils	VG23	1102	9.6%

Oversteepened canyonlands- timbered, shallow to moderately deep- loamy-skeletal soils	VF13	1066	9.3%
Strongly dissected mountain slopelands, shallow to deep- loamy-skeletal to sndy-skeletal soils	VF26	863	7.5%
Rocky ridge land	113	764	6.7%
Weakly dissected glacial sideslopes, shallow to moderately deep- loamy to sandy-skeletal soils	VG16	639	5.6%
Steep benchy glacial headland, shallow to deep- loamy-skeletal to sandy-skeletal soils	VG04	409	3.6%
Glacial rocky ridgeland- timbered, moderately shallow to deep- loamy-skeletal soils	VG08	406	3.6%
Moderately dissected glacial sideslopes, shallow to moderately deep- loamy to sandy-skeletal soils	VG21	311	2.7%
Moderately dissected mountain slopelands- timbered, shallow to deep- loamy-skeletal and sandy-skeletal soils	VF23	222	1.9%
Oversteepened canyonlands, shallow to moderately deep- loamy-skeletal soils	VF11	205	1.8%
Scoured cirque basins- shallowto moderately deep- loamy-skeletal soils	VG01	188	1.6%
Valley train moraines, moderately deep to deep- loamy-skeletal soils	VD31	170	1.5%
Weakly dissected glacial trough land- shallow sandy skeletal soils	111a-1	168	1.5%
OTHER LANDTYPES		247	2.2%
TOTAL		**11,450**	

Q. Geologic Types: Geologic types in the burned area are defined by Landtype Geology.

Volcanic Landtypes	9631 acres	84%
Granitic Landtypes	1492 acres	13%
Quartzite Landtypes	168 acres	1%
Alluvial Landtypes	89 acres	1%
Mixed Landtypes	70 acres	1%

R. Miles of Stream Channels by Order or Class:

Table 3: Miles of Stream Channels by Order or Class

STREAM TYPE	MILES OF STREAM
PERENNIAL	15.2
INTERMITTENT/EPHEMERAL	26.8

S. Transportation System:

Trails: *National Forest (miles):* 10.0 miles (non-motorized) *Other (miles):* 0

Roads: *National Forest (miles):* 0.2 miles (closed) *Other (miles):* 0

PART III - WATERSHED CONDITION

A. Burn Severity (acres):

BARC Model: The BAER Team used BARC (Burned Area Reflectance Classification) data derived from the Forest Service Remote Sensing Applications Center (RSAC) as a basis for analyzing burn intensity (vegetative scorch) and burn severity (fire impacts to the soil). BARC data were derived from a comparison of Landsat 9 OLI-2 satellite imagery on 9/19/2022 with pre-fire Landsat 8 OLI satellite imagery from 9/24/2021. The original classification thresholds of the BARC model are as follows:

Original BARC thresholds: Unburned/Undetectable 0-64, Low 65-114, Moderate 115-198, High 199+

Field sampling of burn severity (soil burn severity testing) was not conducted on the Woodtick Fire because of extreme difficulty in accessing the burned area and the lack of values at risk that would necessitate emergency treatments. Analysis of fire behavior and photographs suggests that the majority of the fire burned at low intensity, with slow growth occurring throughout the duration of most of the fire and a few areas of moderate and high intensity burn corresponding to wind-driven runs. This information suggests

that burn intensity as shown on the BARC is fairly accurate. However, it is unknown how burn intensity as shown in the BARC data relates to burn severity impacts to the soil. For this assessment, we assume that burn severity is roughly equivalent to burn intensity, based on similar findings in other wildfires in the area.

Table 4: Burn Severity Acres by Ownership

Soil Burn Severity	NFS	Other Federal (List Agency)	State	Private	Total	% within the Fire Perimeter
Unburned	3,578	0	0	8	3587	31.3%
Low	4,930	0	0	21	4951	43.2%
Moderate	2,159	0	0	1	2159	18.9%
High	753	0	0	0	753	6.6%
Total	**11,420**	**0**	**0**	**30**	**11,450**	

B. Water-Repellent Soil (acres): Approximately 800 acres. Water repellent soils are likely present in areas of high burn severity in certain cover types, as well as some areas of moderate burn severity where heavy ground fuels caused extended periods of smoldering.

C. Soil Erosion Hazard Rating: Landtype Association Erosion Hazard Ratings for the burned area are shown in the table below:

LTA Erosion Hazard Rating	Acres	Percent
Low	89	1%
Moderate	3927	34%
High	7435	65%
Very High	0	0%
TOTAL	**11,450**	

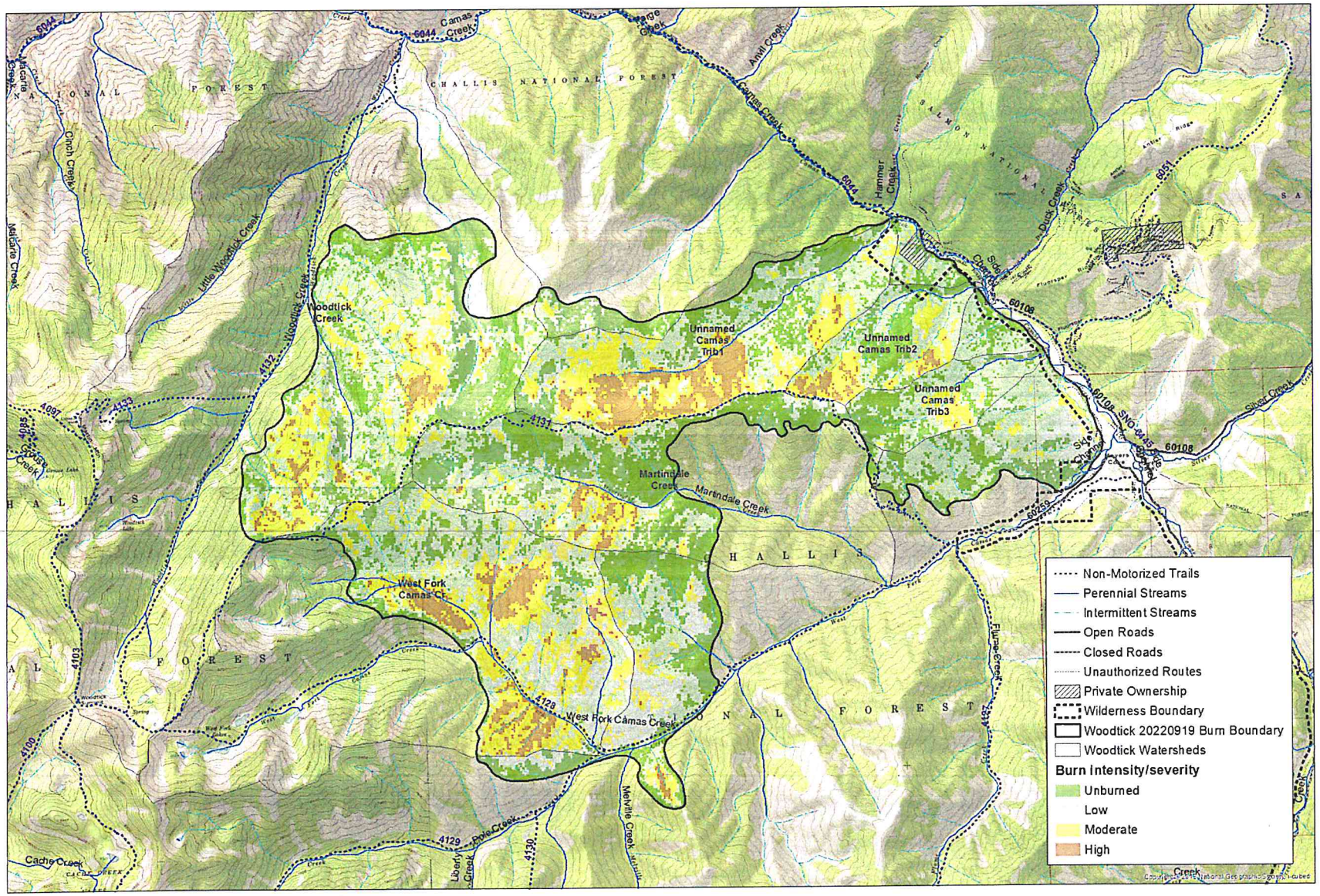
D. Erosion Potential: N/A

E. Sediment Potential: N/A

F. Estimated Vegetative Recovery Period (years): 1-3 (grasses), 2-5 (woody), 10-50 (conifers)

G. Estimated Hydrologic Response (brief description): Approximately 75% of the burned area consists of unburned/undetectable or low severity burn. Minimal changes in terms of hydrologic processes are expected in these areas. Areas where the fire did burn at moderate and high severity are located within the headwaters of West Fork Camas Creek and an unnamed tributary to Camas Creek (at Red Spar Mine). The potential for post-fire debris flow events in these two drainages is moderate if a short duration, high intensity rainstorm were to occur over this area, as a result of high and moderate burn severity on some of the upper slopes and the steep (>45%) slopes that are present throughout almost the entire burned area. Potential debris flow events are likely to be localized, and any influxes in sediment and/or streamflow would be attenuated in Camas Creek, resulting in low risk of downstream effects.

WATERSHED	Acres Outside of burned area	Unburned acres/%	Low severity acres/%	Moderate severity acres/%	High severity acres/%
Martindale Creek (2883 acres)	1268 44%	800 28%	588 20%	172 6%	55 2%
Unnamed Camas Trib1 (1763 acres)	79 4%	362 21%	620 35%	434 25%	268 15%
Unnamed Camas Trib2 (613 acres)	3 1%	167 27%	243 40%	149 24%	51 8%
Unnamed Camas Trib3 (483 acres)	3 1%	177 37%	251 52%	50 10%	3 1%
West Fork Camas Cr (4716 acres)	2501 53%	258 5%	1000 21%	703 15%	254 5%
Woodtick Creek (8307 acres)	5803 70%	876 11%	1032 12%	485 6%	111 1%



Burn Intensity/Severity Map for the Woodtick Fire, Salmon-Challis National Forest

Map created 10/13/2022 by the Salmon-Challis National Forest Woodtick Fire BAER Team. BARC Data and Fire Perimeter from analysis of Landsat 9 satellite data, by USDA Forest Service, Geospatial Technology and Applications Center, BAER Imagery Support Program. BARC imagery date: 9/19/2022. This map shows burn intensity (vegetative scorch) derived from BARC data, Burn intensity not field verified. Burn severity was assumed to be roughly equivalent to burn intensity. Burn Boundary Acreages: 11,450 acres. Some additional fire growth has likely occurred since 9/19/2022.

PART V - SUMMARY OF ANALYSIS

Introduction/Background

The Woodtick Fire started on July 14, 2022 as a result of lightning. The fire burned for the remainder of the summer, primarily smoldering at low intensity, but at times making small wind-driven runs. 97.4% of the fire is within the Frank Church River of No Return Wilderness. The eastern edge of the fire borders Camas Creek, where private property and roads exist. Firefighters conducted backburn operations along this edge of the fire to protect private property and prevent spread of the fire across Camas Creek and into the Camas Creek/ Meyers Cove area. Despite extremely dry fuels and low humidites, fire behavior was typical of lightning-caused fires in the Frank Church River of No Return Wilderness, resulting in a mosaic burn across varied fuel types largely dependent on aspect.

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):

BAER Value: Human life and safety on or in close proximity to burned NFS lands
What is at Risk: Human life and safety
Probability: Possible
Consequences: Major
Risk: High
Comments: Increased hillslope erosion, rockfall, and hazard trees are likely throughout the burned area. Most of the burned area is in remote Wilderness, with Wilderness trails being the only developed access into the area. Backcountry users will be exposed to various post-fire hazards in the short term (1 to 3 years) including rockfall, root holes, and flood/debris flow hazards during storm events. These hazards will diminish after the first few years, but deadfall will likely be a persistent hazard in this area as a result of the fire for the next 10+ years.

2. Property (P):

BAER Value: Buildings, water systems, utility systems, road and trail prisms, dams, wells, or other significant investments on or in close proximity to burned NFS lands
What is at Risk: Wilderness Trails
Probability: Possible
Consequences: Moderate
Risk: Intermediate
Comments: The West Fork Camas Creek Trail (#4128) and the Woodtick Ridge Trail (#4131) cross through significant portions of the burned area. Post-fire risks to trails include erosion and potential loss of trail as a result of post-fire runoff, soil erosion, and/or debris flows. The highest risk to trails occurs where trails are situated within any high severity burned area, or within or below steep slopes burned at moderate severity. High risk may also occur to trails that are located adjacent to streams in drainages that burned at moderate and high severity. It is important to implement drainage control on these trails in order to prevent loss of the trail investment.

- About 0.5 miles of the West Fork Camas Creek Trail follows West Fork Camas Creek below a slope burned at moderate and high severity (but located on the other side of the creek). This de-stabilized slope above the creek could result in runoff and erosion during storm events that could potentially affect the channel of West Fork Camas Creek and the adjacent trail.

- The Woodtick Ridge Trail primarily follows a prominent ridgeline. About 1.5 miles of this trail is within and adjacent to moderate and high severity burn located on the north side of the ridge.

3. Natural Resources (NR):

BAER Value: Soil productivity and hydrologic function on burned NFS lands
What is at Risk: Soil erosion and stream channel function
Probability: Likely
Consequences: Minor
Risk: Low
Comments: Increased soil erosion will likely occur, particularly in areas of high burn severity and steep slopes. Ground cover will likely recover quickly (1-3 years) in low and moderate severity burned area, and over a period of 3 to 5 years in high severity burned areas, and longer on steep slopes burned at high severity. Post-fire flooding and/or debris flows are possible, with the potential to deposit large amounts of mud, gravel, rocks, and trees in West Fork Camas Creek and Camas Creek. Some of these effects could propagate downstream. Because debris flows are part of the natural balance in this system and have created many of the morphologic features in this area, this will not alter the overall balance of this high fire frequency system in terms of hydrologic function.

BAER Value: Critical habitat or suitable occupied habitat for federally listed threatened or endangered terrestrial, aquatic animal or plant species on or in close proximity to buned NFS lands
What is at Risk: Chinook, Steelhead, and Bull Trout Habitat
Probability: Likely
Consequences: Minor
Risk: Low
Comments: Populations of Chinook salmon, steelhead, and bull trout are present in Camas Creek and West Fork Camas Creek. Bull trout and steelhead are also present in the lower portion of Martindale Creek. The fire appeared to mimic natural fire patterns that would have historically occurred in this area and are critical to developing and maintaining quality fish habitat and fish populations by introducing woody debris and spawning gravel to the river system through increased erosion and debris flow events. Although debris flows may impact localized fish populations in the short term, the fire did not generate any large-scale risks to critical fish values.

BAER Value: Native or naturalized communities on NFS lands where invasive species or noxious weeds are absent or present only in minor amounts
What is at Risk: Spread of invasive species
Probability: Likely
Consequences: Moderate to Major
Risk: Intermediate/High
Comments: The burned area is susceptible to colonization by invasive species. The species known to be present in the area have the potential to disrupt native plant community reestablishment in areas otherwise uninfested by noxious weeds. However, no emergency conditions exist at this time within the burned area.

4. Cultural and Heritage Resources:

BAER Value: Cultural resources on NFS lands which are listed on or potentially eligible for the National Register of Historic Places
What is at Risk: Historic Properties
Probability: Possible
Consequences: Major
Risk: High
Comments: Numerous cultural resources are located within and adjacent to the burned area. Some of these cultural resources are eligible for listing on the National Register of Historic Places (NRHP). Impacts by fire-induced erosion or looting may damage or destroy the

archaeological record and the depositional context important to the site's significance and information potential. Most historic properties located within the burned area are considered at low risk from post-fire erosion or flood events due to their location outside of drainages that burned at a high intensity. However, one historic property is possibly at risk for looting and additional assessment will be needed in early summer 2023 to evaluate the risk.

B. Emergency Treatment Objectives:

- Reduce the risk of loss of Forest trail infrastructure.

C. Probability of Completing Treatment Prior to Damaging Storm or Event:
Land: N/A
Channel: N/A
Roads/Trails: 80%
Protection/Safety: N/A

D. Probability of Treatment Success

Table 6: Probability of Treatment Success

	1 year after treatment	3 years after treatment	5 years after treatment
Land	N/A	N/A	N/A
Channel	N/A	N/A	N/A
Roads/Trails	80%	70%	70%
Protection/Safety	N/A	N/A	N/A

E. Cost of No-Action (Including Loss): Estimated cost to replace 2 miles of Wilderness trails is $48,000.

F. Cost of Selected Alternative (Including Loss): The total cost of proposed treatments is $20,000. Implementing the proposed treatments would reduce the probability of experiencing loss by 0.50, and the expected benefit of treatment would be $24,000. Treatment is justified.

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: David Deschaine
Email: david.deschaine@usda.gov **Phone(s):** (208)756-5171

Forest BAER Coordinator: David Deschaine
Email: david.deschaine@usda.gov **Phone(s):** (208)756-5171

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

Skill	Team Member Name
Team Lead(s)	Dave Deschaine
Soils	Deanna Stever
Hydrology	Bill MacFarlane
Engineering	N/A
GIS	Bill MacFarlane
Archaeology	Audrey Westmoreland
Weeds	Tommy Gionet
Recreation	Nick Schade
Fisheries	Christine Stewart

H. Treatment Narrative:

Land Treatments: No BAER treatments proposed at this time.

Channel Treatments: No BAER treatments proposed at this time.

Roads and Trail Treatments:

Wilderness Trail stabilization/storm-proofing

Based on an analysis of the burn severity within the Woodtick Fire burn area and slope data, the trails listed in the table below have been identified as being "at risk" from post-fire flooding, erosion, or debris flows and the forest will have the capacity to work on these trails early in the 2023 season if funded through BAER. The segments identified for project work are those within or downslope from areas burned at moderate and/or high severity, particularly on steep slopes, based on the burn severity mapping.

Drainage features will be constructed, and other stabilization measures taken on trails that have a high risk of loss or damage due to increased runoff expected within the first year following fire. Previous fires on the Salmon-Challis NF have shown that moderate and high burn severity areas have a high potential to impact existing trail systems. Treatments are proposed to reduce unacceptable risks within high severity burned areas and steep slopes burned at moderate and high severity.

Trail stabilization project work identified within the Woodtick Fire burn area is for approximately 2 miles of trail on 2 different trail segment and the proposal is to utilize a partnership agreement with a youth conservation corps for 2 hitches. A youth conservation corps costs approximately $15,000 per hitch and a hitch consists of 8 days. Total cost requested from BAER funding for Wilderness trail stabilization needed due to the Woodtick Fire is $20,000. An additional $10,000 of non-BAER funding will be used to fund the remainder of the 2 hitches, for additional non-emergency trail work in the burned area.

TRAIL #	TRAIL NAME	MILES	BAER funding requested	Non-BAER funding	TOTAL
4128	WEST FORK CAMAS CREEK	0.5	$20,000	$10,000	$30,000
4131	Woodtick Ridge	1.5			
	TOTAL	2.0	$20,000	$10,000	$30,000

The trail work will be implemented on trails lacking adequate drainage features for anticipated increased runoff by field crews using appropriate equipment and will include construction of wood and rock water bars, dip-drains, and rolling dips, as well as armoring of stream/drainage crossings. The work will follow Forest Service trail specifications, and the proposed trail work will be the minimum required to prevent serious erosion and/or loss of the trail infrastructure. Treatments will follow design specifications in the Burned Area Emergency Response Treatments Catalog (USDA Forest Service, 2006). The number of structures to be constructed will depend on burn severity, soil type, trail slope, and topography. Drainage structures will not be required along the entire length of each of these trail segments, however we expect the need for a significant number of drainage structures due to the steep slopes and fire severity.

All of the trail work will be completed by the end of August 2023, with the expectation that the trails would be stabilized prior to the high magnitude thunderstorms that typically occur in the late summer.

Protection/Safety Treatments: No BAER treatments proposed at this time.

I. Monitoring Narrative:

Proposed trail treatment areas will be monitored during routine visits by Wilderness patrol. No additional BAER funding is requested.

PART VI – EMERGENCY STABILIZATION TREATMENTS AND SOURCE OF FUNDS

			NFS Lands			Other Lands				All
Line Items	Units	Unit Cost	# of Units	BAER $	Other $	# of units	Fed $	# of Units	Non Fed $	Total $
A. Land Treatments										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$0	$0		$0		$0	$0
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 Stabilization	Miles	10,000	2	$20,000	$0		$0		$0	$20,000
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road and Trails				$20,000	$0		$0		$0	$20,000
D. Protection/Safety										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Protection/Safety				$0	$0		$0		$0	$0
E. BAER Evaluation										
Initial Assessment	Report	$400	1	---	$400		$0		$0	$400
				$0	$0		$0		$0	$0
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				$0	$400		$0		$0	$400
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				$20,000	$400		**$0**		**$0**	**$20,400**
Previously approved										
Total for this request				**$20,000**						

PART VII - APPROVALS

1. Charles A. Mark — 11/29/22

Forest Supervisor — Date