Date of Report: October 4, 2019

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: Nethker

B. Fire Number: ID-PAF_000500

C. State: Idaho

D. County: Idaho

E. Region: 4

F. Forest: Payette

G. District: McCall

H. Fire Incident Job Code: P4MKF5

I. Date Fire Started: August 4th, 2019

J. Date Fire Contained: September 3rd, 2019

K. Suppression Cost: $13,337,000

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

1. **Fireline repaired (miles):** 30 miles of handline constructed with 25 miles rehabed, 3 miles of dozer line on existing road templates
2. **Other (identify):** Incident base camp, spike camps, drop points were rehabbed. Slash generated from opening closed roads was chipped.

M. Watershed Numbers:

Table 1: Acres Burned by HUC 6th field Watershed

HUC #	Watershed Name	Total Acres	Acres Burned	% of Watershed Burned
170602080502	Summit Creek-Secesh River	27720	1696	6.1%
170602080501	Headwaters Secesh River	29390	659	2.2%

N. Total Acres Burned: 2,360

O. Vegetation Types: The dominant vegetation group is warm, dry subalpine fir followed by persistent lodgepole pine and subalpine fir. Whitebark pine, a FS Sensitive species to central Idaho and exists within the fire area.

P. Dominant Soils: Entic Cryumbrepts, sandy mixed, Typic Cryopsamments, mixed, Typic Cryochrepts, coarse loamy, mixed

Q. **Geologic Types:** The surface geology is dominated by granites of the Idaho Batholith and to a much lesser extent alluvium deposits of unconsolidated boulder, gravel, sand deposits of Holocene and Pleistocene age

R. Miles of Stream Channels by Order or Class:

Table 2: Miles of Stream Channels by Order or Class

STREAM TYPE	MILES OF STREAM
PERRENIAL	3.2
INTERMITTENT	2.2

S. Transportation System:
Trails: *National Forest (miles):* 1.4 *Other (miles):*
Roads: *National Forest (miles): 2.9* *Other (miles):* 0.95 miles of ML4-county road

PART III - WATERSHED CONDITION

A. Burn Severity (acres):

Table3: Burn Severity Acres by Ownership

Soil Burn Severity	NFS	Other Federal (List Agency)	State	Private	Total	% within the Fire Perimeter
Unburned	262	NA	NA	NA	262	11
Low	373	NA	NA	NA	373	16
Moderate	1142	NA	NA	NA	1142	48
High	578	NA	NA	NA	578	24
Total	2356				2356	100

B. Water-Repellent Soil (acres): Soils that burned at a high to moderate severity had a strong hydrophobic layer present at 3 cm depth although unburned areas exhibited a similar strong to moderate hydrophobic layer at similar depth. It is estimated that 80% of the high and moderate severity burn had some degree of water repellency and will influence erosion rates.

C. Soil Erosion Hazard Rating: Moderate (2,355 acres)

D. Erosion Potential: The erosion potential based on ERMiT predictions is 1.0 to 1.1 tons/acre from high to moderate burn severity for a 10-year storm event. There is a 5% chance that sediment delivery will exceed 1.0 ton/acre in the first year after the fire and 1.1 tons/acre after the second year. By the fifth-year sediment delivery would be negligible.

E. Sediment Potential: Approximately 1,800 yd^3 mi^2 of sediment could be generated the first 2 years post-fire). At least 50 percent of this sediment would be delivered to streams during a 10-year 1.5 hr. runoff event.

F. Estimated Vegetative Recovery Period (years): Three to five years for understory recovery

G. Estimated Hydrologic Response (brief description): The equivalent storm design recurrence interval is 10 years having a duration of 1.5 hours that would result in a storm runoff of 1.9 inches. The design flow for an undisturbed watershed (Tributary 1) of 294 acres or 0.46 square miles is 12.4 cfs or 5.7 cfs/mi^2. The fire burn severity adjusted stream flow for this watershed is estimated at 45 cfs or 20.7 cfs/mi^2. The predicted storm type would be a convection storm which are typical throughout the summer and into the fall. The first damaging storm could occur any day.

PART V - SUMMARY OF ANALYSIS

Introduction/Background

The Nethker Fire started by lightnig on the McCall Ranger District on August 4th, 2019. Full containment ocured on September 3rd with a fire perimeter of 2,355 acres. The fire burned within the Secesh River watershed and Lake Creek, both critical habitat for Chinook Salmon, Steelhead and bull trout. Primary transportation routes, Warren Wagon Road and Burgdorf/French Creek Road, have been impacted by the fire.

The primary values at risk from post-fire effects due to the Nethker Fire are: human life and safety, transportation and infrastructure (roads and culverts), water quality, loss of designated critical habitat for ESA-listed Chinook Salmon, steelhead and bull trout and native vegetation communities. The primary threats caused by the fire include increased runoff and accelerated hillslope erosion which is expected to intensify up to 5 years following the fire until the burned watersheds recover. Additional threats include invasive species expansion and colonization, falling trees and rolling rocks, and site integrity of cultural resources.

The Nez Perce Tribe, since time immemorial, has occupied and used over 13 million acres of lands including those managed by the Payette National Forest. The Treaty of 1855 between the Nez Perce Tribe and the United States government explicitly reserved, “the right of taking fish at all usual and accustomed places in common with citizens of the Territory; and of erecting temporary buildings for curing, together with the privilege of hunting, gathering roots and berries, and pasturing their horses and cattle upon open and unclaimed land” (Treaty with the Nez Perces, 1855). Tribal members exert and maintain their treaty-reserved rights to fish, hunt, gather, and pasture livestock at “usual and accustomed places” within their aboriginal territory.

Lake Fork Creek is a watershed that provides habitat for tribal resources, including Chinook salmon, steelhead, and bull trout, all of which are subject to the exercise of Nez Perce Tribe treaty-reserved rights. Tribal members, to this day, fish, hunt, gather, and exert other treaty rights along the Lake Fork Creek drainage. In order to maintain these rights, ecological and biological health and integrity of the watershed and fish populations are necessary.

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

Table 1: 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:

Potential threats to visitors/recreating public, residents of private lands, & Forest Service employees include flooding, hazard trees and rock fall, and loss of ingress and egress. These threats exist along roads downstream or downslope of burned slopes, particularly in areas with a high or moderate soil burn severity. Risk is increased with higher probability in places having greater access and more frequent concentrations of people. Routes with increased risk include: Burgdorf/French Creek Road, Warren Wagon Road, and Ruby Meadows Road leading to a trailhead

Very high risk (likely, major) to **forest visitors and Forest Service employees** traveling on Forest system roads within and adjacent to the burned area - FS 21 (Warren Road) and FS 246 Burgdorf/French Creek (ML3 roads) and FS road 50384 (ML2Ruby Meadows Road) due to the increased threat **of falling trees, rolling rocks, and flash floods** within the burned area. (Public Safety Treatments, PS-01 Warning Signs)

Intermediate risk (unlikely, major) to **forest visitors and Forest Service employees** recreating and working on trails and at trail heads within the burned area. No treatments proposed.

2. **Property**

Road Infrastructure – There are 2.9 miles of National Forest System Roads (NFSR) and an undetermined number of miles of non-system roads within the fire area. Post-burn conditions and the predicted watershed response indicate the potential for increased runoff and overland water flow, with movement of sediment and debris downslope into roadway drainage features such as roadside ditches, culvert inlets, roadway dips and run outs. Once these drainage features become impacted and overwhelmed by the increased runoff, their function fails causing uncontrolled water to divert, with a resulting in major damage to the invested road improvements, loss of road function, and loss of access along some road segments.

Very High (likely, major) and **High Risk** (possible, major) to **NFS road prisms at intermittent and perennial drainages from increased runoff and accelerated erosion**. Undersized culverts and inadequate drainage structures are not expected to convey the expected increase in post fire runoff and erosion and may severely damage Forest Service road infrastructure and will likely result in threats to water quality and designated critical habitat and known spawning habitat for ESA-listed species (Chinook Salmon, steelhead and bull trout). Locations include maintenance level 2 and 3 roads within and adjacent to the burned area. Road Treatments: Road Treatments: RT-01 Culvert Upgrades, RT-02 Road Drainage Storm Proofing.

There is a **high risk** (possible, major) to NFS road prisms from increased overland flow and accelerated hillslope erosion concentrating on road segments downslope from areas burned at moderate and high severity. Damage to or failure of road segments constitute a loss of Forest Service infrastructure, with the accumulated threat of accelerated sediment delivery to adjacent streams impacting designated critical or suitable occupied habitat for ESA-listed aquatic fish species and water quality. RoadTreatments: RT-02 Road Drainage Maintenance.

3. **Natural Resources**

a. Noxious Weeds (EDDR) - **Very High Risk** (very likely, moderate) to **native and naturalized plant communities** including: riparian zones and rangelands with naturally low vegetation cover, and areas that had disturbances caused by suppression activites such as camps, dozer lines and drop points are at risk due to spread of noxious weeds and invasive plant species. Invasive weed species that exist within and adjacent to the fire area that may impact native plant communities include: Spotted knapweed, Rush skeleton weed, Canada thistle, and Oxeye daisy. Land Treatment: L-01 Early Detection and Rapid Response

b. Fisheries: **Very High** (likely, major) to **designated critical habitat (DCH) and/or suitable occupied habitat (SOH)** for three ESA listed fish species, Columbia River Bull Trout (Salvelinus confluentus), **Snake River spring/summer Chinook Salmon** (Oncorhynchus tshawytscha) and **Snake River steelhead** (O. mykiss), which occur within the Nethker Fire area and with direct proximity to Lake Creek Trib 1 and 2 and Secesh Trib 3. Lake Creek and the Secesh River are known spawning habitat for Chinook Salmon and likely spawning habitat for steelhead. Tributaries of Lake Creek and the Secesh River are known Bull Trout spawning habitat and steelhead and Chinook Salmon rearing habitat. Potential threats include short- and long-term modification of

suitable occupied or designated critical habitat due to **channel scouring from increased stream flows, accelerated erosion, increased sediment delivery, debris flows, and potential stream channel diversion down road prisms**, primarily within watersheds associated with moderate and high burn severity areas. Treatments: RT-01 Culvert Upgrades, RT-02 Road Drainage Reconstruction.

4. **Cultural and Heritage Resources**
   Low Risk (unlikely, moderate) to **critical Cultural and Heritage Resources** within the burn perimeter.

B. Emergency Treatment Objectives:

A. Reduce unacceptable risks to critical and occupied habitats of federally listed species. Chinook Salmon, Bull Trout and steelhead are distributed throughout the Nethker Fire area and many streams within the fire perimeter are designated critical habitat for all three listed fish species.

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

Land – 80% **Channel** - NA
Roads/Trails – 80% **Protection/Safety** – 90%

D. Probability of Treatment Success

Table 2: Probability of Treatment Success

	1 year after treatment	*3 years after treatment*	*5 years after treatment*
Land	80	80	90
Channel	NA		
Roads/Trails	80	90	90
Protection/Safety*	90	80	70
	* Initially, visitors will heed the warning signs. Complacency is expected after the initial year unless there is a damaging event.		

E. Cost of No-Action (Including Loss): $205,820

F. Cost of Selected Alternative (Including Loss): $79,931

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader:
Email:John Dixon **Phone(s)208.634.0639**

Team Members:*Table 3: BAER Team Members by Skill*

Skill	Team Member Name
Team Lead(s)	John Dixon
Soils	John Dixon
Hydrology	John Dixon
Engineering	Ben Dreier
GIS	Steve Penny
Archaeology	Molly Eimers
Weeds	Brain McMorris
Recreation	Jenni Blake
Other	Fisheries- Luke Ferguson

H. Treatment Narrative:

Land Treatments:

L-01 EDRR (Early Detection and Rapid Response): EDRR is necessary to prevent the establishment and spread of noxious weeds and non-native invasive species into the burned area. EDRR will be used to prevent new noxious weed infestations and ensure the natural recovery of native perennial grasses and forbs is not affected by the establishment of noxious weeds or invasive species. This treatment will also ensure the ecological indicators (soil stability, hydrologic function, and biotic integrity) are functioning properly during the natural recovery period on lands administered by the FS. Chemical treatment of new and existing noxious weed infestations will reduce the likelihood of their spread to disturbed areas and help to re-establish high quality wildlife habitat within the burn.

The Nethker Fire includes designated critical habitat and suitable occupied habitat for Chinook Salmon, steelhead, and bull trout. It also includes habitat for whitebark pine, Blandow's bogmoss, little grapefern, and lanceleaf grapefern. EDRR is necessary to protect the integrity of these habitats from the expansion of noxious weeds.

The fire is a disturbance that provides a receptive avenue for the spread of noxious weeds and/or invasive species. Noxious weeds and non-native invasive species are a concern for biodiversity. Weed invasion is a potentially threatening process leading to competition and habitat modification. Plant communities and native species likely to be at greatest risk from weed invasion are those which occupy weed-prone habitats, such as riparian zones, rangelands with naturally low vegetation cover, and disturbed areas adjacent to and near existing weed infestations. On the Nethker Fire disturbances caused by suppression forces (dozer lines, drop points, etc.) and transportation routes (roads and trails) are the main vectors for noxious weed invasion. This treatment mitigates this risk by allowing for an early means of detecting new noxious weed occurrences and a quick response for control.

Critical areas for this treatment include riparian habitat, roads, dozer lines, pit reservoirs, ephemeral drainages and burned areas where suppression vehicles and equipment traveled through known noxious weed/non-native invasive plant species populations. Disturbed areas within and along the fire perimeter, such as dozer lines, hand lines, staging areas, helispots, and safety zones will also be prioritized for monitoring. The 1,532 priority acres for EDRR are as follows:

EDRR Suppression - fire points @ 190 acres; constructed handlines @ 120 acres; constructed dozer lines 18 acres. EDRR BAER - 1,204 acres of highly susceptible burned area where noxious weeds are absent or in low abundance.

EDRR Cost Estimate

Item	UOM	Unit Cost	# of Units	Total Cost
EDRR Suppression	Acres	$29.99	328	$9,835.00
EDRR BAER	Acres	$8.45	1204	$10,175.00

Channel Treatments: NA

Roads and Trail Treatments:

RT-01 Culvert Upgrades: The purpose of this treatment is to reduce the risk of pipe failure and road infrastructure loss and the associated sediment delivery to downstream critical resources such as designated critical habitat for listed fish species. The locations selected for this treatment contain drainage structures that are undersized and in watersheds that experienced moderate to high burn severity and have the potential for increased runoff and debris flows. These increases in flows pose a threat to the existing crossings which may result in plugging culverts or exceeding their maximum flow capacity. Potential consequences include increased erosion and debris delivery to designated critical occupied habitat of three listed fish species; Chinook Salmon, steelhead and bulltrout and known spawning area for Chinook Salmon. Fine sediment delivery due to the failure of these crossing would likely result in entombing and suffocation of Chinook Salmon, which are currently present downstream in Lake Creek and the Secesh River.

Additionally, as the culvert on Lake Creek Trib #1 is likely a migration barrier to migration for Bull Trout, steelhead and juvenile Chinook Salmon, upgrading this culvert to an AOP would open approximately 0.2 miles of stream habitat within the Lake Creek drainage. Since the Forest Plan requires that all culverts installed in existing or potential fish bearing streams must provide for aquatic species passage, the cost to repair the loss of this crossing structure following a flood event would be equal to the proposed treatment cost.

<u>The following site locations are where the pipes will be replaced:</u>

- Road 246- UTM 11 T E585970 N5012805. Unnamed tributary to Lake Creek (Lake Creek Trib #1) (Figure 1) which is DCH for Chinook Salmon, steelhead and bulltrout. Remove the existing pipe and replace with a 48” equivalent pipe arch install below stream grade and place stream simulation material in pipe to provide for fish passage.

- Road 246- UTM 11 T E586092 N5012567. Unnamed tributary to Lake Creek (Lake Creek Trib # 2) (Figure 1) which is DCH for Chinook Salmon, steelhead and bulltrout. Remove the existing pipe and replace with a 36” equivalent pipe arch.

- Road 21 (Warren Wagon Road)- UTM 11 T E587626 N5012377. Unnamed tributary to the Secesh River (Secesh Trib #3) (Figure 1) which is DCH for Chinook Salmon, steelhead and bulltrout. Remove the existing pipe and replace with a 36” equivalent pipe arch.

Culvert Upgrades Cost Estimate

Item	UOM	Unit Cost	# of Units	Total Cost
Trib 1	each	$30,000	1	$30,000
Trib 2	each	$4,800	1	$4,800
Trib 3	each	$4,800	1	$4,800
			Total	$39,600

RT-02 Road Drainage Storm Proofing: Increased runoff resulting from burned slopes impacting stream channels adjacent to roads will damage roadway surfaces, drainage structures, and increase associated threats to Human Life and Safety (loss of ingress/egress) and Natural Resources (damage to spawning areas and designated critical habitat for Chinook Salmon, steelhead and bultrout).

Roads within the fire perimeter are at **high risk** of drainage system failure due to the expected increase in flows. The minimal treatments required to remedy these issues are:

Culvert Cleaning – Culvert cleaning includes the cleanout of catchment basins, inlets and outlets. The cleanout of catchment-basins below the inlet of the culvert is done to capture the sediment transported from the channel or ditch. Capturing the sediment will help in preventing the culvert inlet from being partially plugged or completely buried. Culvert outlet cleanout is done to remove any material that would impede the flow of water through the outlet of the culvert.
Ditch Cleaning – The cleanout of drainage ditches is required to remove any debris that may deflect the flow out of the ditch and also to ensure the flow reaches the outflow structure.
Drain Dips / Waterbars – modify the road drainage by altering the template and allowing surface flows to run off the road to prevent any excessive erosion of the surface. Waterbars are more abrupt and is recommended for roads that do not receive any or very little traffic.

Road Drainage Storm Proofing Cost Estimate

Item	UOM	Unit Cost	# of Units	Total Cost
RT-02	mile	$1,800	2.9	$5,220

RT-03 Storm Patrols-Roads: The overall purpose of this treatment is to reduce the potential for loss and further damage to Forest roads and bridges as a result of storm events. This treatment is in lieu of installing new road drainage structures by keeping existing structures functioning during the emergency period following post fire events. In addition, the treatment reduces the risk to designated critical or suitable occupied habitat for bulltrout and Chinook Salmon by mitigating the additional loss of infrastructure and associated sediment/debris that in turn causes an impact to water quality and riparian areas.

Roads within the fire perimeter contain drainage structures that cross intermittent and perennial streams located in watersheds that have a moderate to severe soil burn severity. These streams now have the potential for increased runoff and debris flows. These increases in flows pose a threat to the existing crossings which may result in plugging culverts or exceeding their maximum flow capacity. If these flows plug drainage structures, the result will likely be additional erosion and debris further down the drainage due to the failures of the fill slopes of the roads.

The purpose of the treatment is to implement work needed to reduce the potential for damage or failure of road surfaces and flow conveyance structures (culverts, bridges) across roads in order to provide safe access across FS lands. Engineering and District personnel, including engineering equipment operators, will respond to roads within the fire perimeter during or after high-intensity summer thunderstorms and spring snow-melt. Patrols will inspect road surface condition, ditch erosion, and culverts/inlet basins for capacity to accommodate runoff flows. As required, the patrols will take action with the heavy construction equipment to minimize the damage to the infrastructure and threat to Forest travelers and administrative personnel.

Road Storm Patrols Cost Estimate

Item	UOM	Unit cost	# of units	Total Cost
Road Storm Patrols	days	$1,130	10	$11,300

Protection/Safety Treatments

PS-01 Hazard Warning Signs: The overall purpose of this treatment is to reduce risks to human life and safety by warning motorists and/or Forest visitors of existing threats while traveling within and downstream of the burned area.

Hazard Warning Signs Cost Estimate

Item	UOM	Unit Cost	# of Units	Total Cost
Entering Burned Area sign	each	$200	3	600

BAER Assessment & Implementation Consultation:

Associated activities obligated under ID-FSM2520-2019-1 need to be considered in the BAER funding request when emergency response actions are authorized. These are accumulated tasks above the normal program of work and generally not accounted for in out-year program planning. Because implementation of approved BAER response actions trigger these required tasks and the unit's allocated budget does not account for these obligations, BAER funding is the appropriate authorization to ensure this consultation is completed.

Implementation Tracking & Required Reporting of Authorized Emergency Response Actions

	Rate	Days	Cost
BAER Leader (GS-11)	$400	5	$2,000

Emergency Consultation on Implementation of Authorized Emergency Response Actions

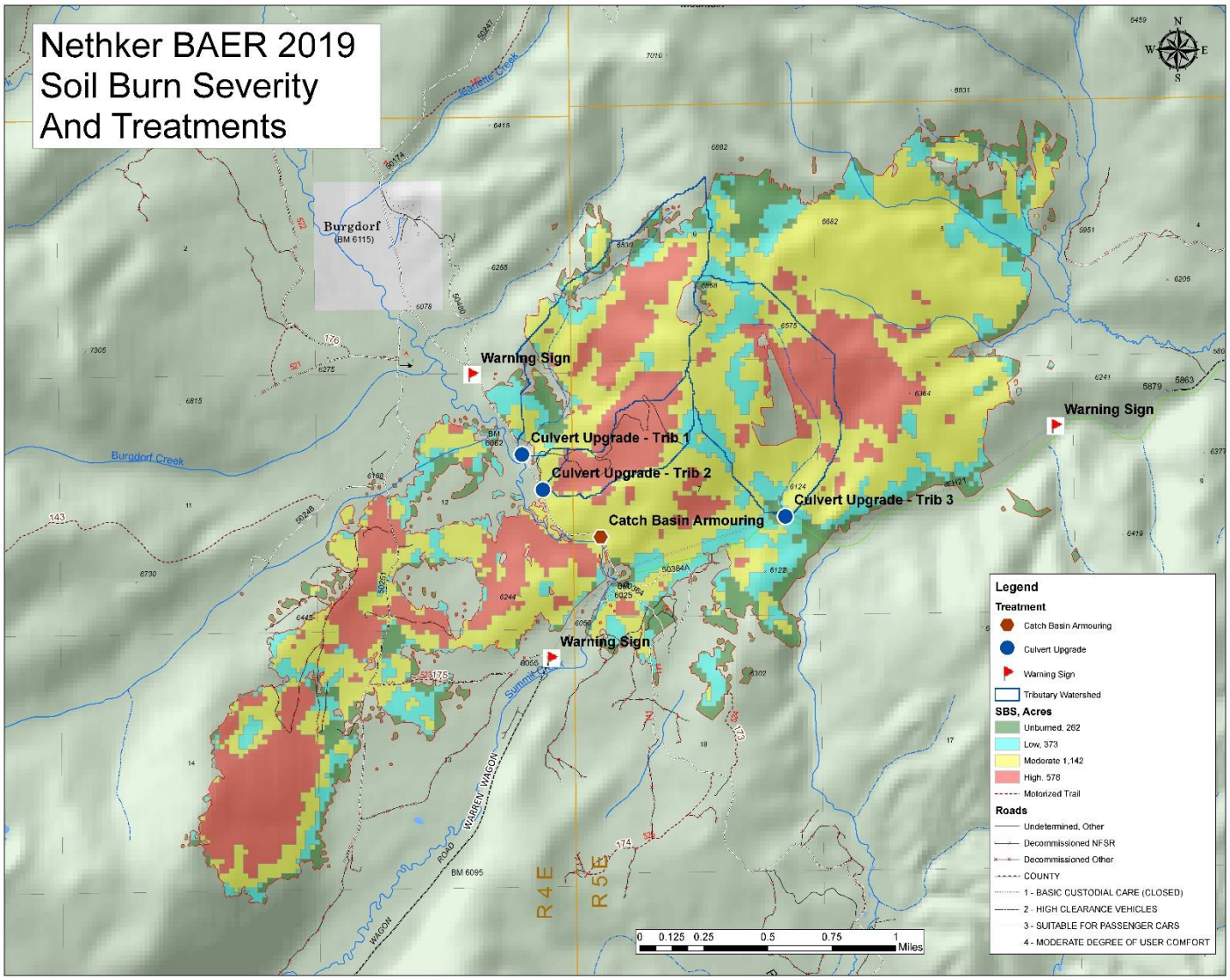
	Rate	Days	Cost
Fish Biologist (GS-11)	$400	1	$400

NHPA Compliance for Implementation of Authorized Emergency Response Actions

	Rate	Days	Cost
Archeologist (GS-11)	$400	2	$800
		Total Cost	**$3,200**

I. Monitoring Narrative: NA

Nethker Fire Burn Area Severity and BAER Treatment



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										
L-01 EDRR Suppression	acres	30	328	$9,837	$0		$0		$0	$9,837
L-01 EDRR BAER	acres	8	1204	$10,174	$0		$0		$0	$10,174
				$0	$0		$0		$0	$0
Subtotal Land Treatments				$20,011	$0		$0		$0	$20,011
B. Channel Treatments										
None				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Subtotal Channel Treatments				$0	$0		$0		$0	$0
C. Road and Trails										
RT-01 Culvert Upgrade	each	30,000	1	$30,000	$0		$0		$0	$30,000
RT-01 Culvert Upgrade	each	4,800	2	$9,600	$0		$0		$0	$9,600
RT-02 Road Drainage Stor	miles	1,800	3	$5,220	$0					$5,220
RT-03 Road Storm Patrols	days	1,130	10	$11,300	$0		$0		$0	$11,300
				$56,120	$0		$0		$0	$56,120
Insert new items above this line!										
Subtotal Road and Trails				$0	$0		$0		$0	$0
D. Protection/Safety					$0		$0		$0	$0
PS-01 Warning Signs	sign	200	3	$600	$0		$0		$0	$600
Subtotal Protection/Safety				$600	$0		$0		$0	$600
Insert new items above this line!										
				---	$0		$0		$0	$0
E. BAER Evaluation					$0		$0		$0	$0
Initial Assessment	Report	8,000	1		$0		$0		$0	$8,000
Coordination & Consultatio	lump sum	3,200	1	$3,200	$0		$0		$0	$3,200
Subtotal Evaluation				$3,200	$0					$11,200
Insert new items above this line!				$0	$0		$0		$0	$0
F. Monitoring				$0	$0		$0		$0	$0
None				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring										
G. Totals				$79,931	$0		**$0**		**$0**	**$87,931**
Previously approved										
Total for this request				**$79,931**						

PART VII - APPROVALS

TAWNYA BRUMMETT
Acting Forest Supervisor

1. Forest Supervisor Sept 10 2019___ Date