

Date of Report: 9/17/21**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)
Due to the large size and complexity of the Caldor Fire, the BAER team is submitting a Preliminary Request just for roads and life and safety in order to allow the Eldorado National Forest (ENF) and the Lake Tahoe Basin Management Unit (TMU) to move forward with some treatment logistics while the assessment is completed. This request lacks detailed specifics about the locations of the treatments; however, the treatments would be "prescription by design," meaning that only roads and recreation sites in areas with threats would be addressed. Those sites or road segments in relatively stable areas (ridges, etc.) would not be addressed at this time. This is a specific, focused request to mobilize critical resources.

- ☐ 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:** Caldor**C. State:** CA**E. Region:** 05**G. District:** Amador RD, Pacific RD, Placerville RD, TMU**I. Date Fire Started:** 8/14/21 @ 1854**K. Suppression Cost:** \$ TBD**L. Fire Suppression Damages Repaired with Suppression Funds (estimates)**

1. Fireline repaired (miles): TBD
2. Other (identify): TBD

B. Fire Number: CAENF 024030**D. County:** Eldorado, Amador, Alpine**F. Forest:** Eldorado, Lake Tahoe Basin Management Unit**H. Fire Incident Job Code:** P5N8GM21**J. Date Fire Contained:** estimated 9/27/21 (currently 70% as of 9/15/21 @ 0937)

M. Watershed Numbers

Table 1. Acres of Burned by Watershed				
HUC #	Watershed Name	Total Acres	Acres Burned	% of Watershed Burned

N. Total Acres Burned

Table 2. Total Acres Ownership – Caldor Fire	
Ownership	Acres
NFS	176,693
BLM	2,036
State	200
Private	40,184
TOTAL	219,113

O. Vegetation Types

Dominant vegetation communities within the burn perimeter are as follows: TBD
<https://wildlife.ca.gov/Data/CWHR>).

P. Dominant Soils

Dominant soil types consist of: TBD

Q. Geologic Types

TBD

R. Miles of Stream Channels by Order or Class - TBD

Table 3. Miles Of Stream Channels By Order Or Class	
Stream Type	Miles Of Stream
Perennial	336
Perennial (Regulated)	2
Intermittent	300
Other (Canal, aqueduct, flowline under waterbody)	17
Total	655

S. Transportation System - TBD

Table 4. Miles of Road and Trail by Jurisdiction	
Type	Miles
Trails (National Forest)	TBD
Trails (Non-NF)	TBD
Roads (National Forest)	992
Roads (Non-NF)	TBD

PART III - WATERSHED CONDITION**A. Burn Severity (acres)**

Table 5. Summary of Burn Severity By Ownership					
Ownership	Soil Burn Severity (Acres)				
	Unburned / Very Low	Low	Moderate	High	Total
Forest Service	10,724	68,190	73,849	23,931	176,693
Private or Other	2,517	18,111	14,865	4,691	40,184
Bureau of Land Management	15	725	1,279	16	2,036
State Lands	23	130	47	-	200
Grand Total	13,278	87,156	90,040	28,639	219,113

B. Water-Repellent Soil (acres)

Water-Repellent Soil: TBD

C. Soil Erosion Hazard Rating

TBD

D. Erosion Potential

TBD

E. Sediment Potential

Sediment Potential: TBD

F. Estimated Vegetative Recovery Period (years)

TBD

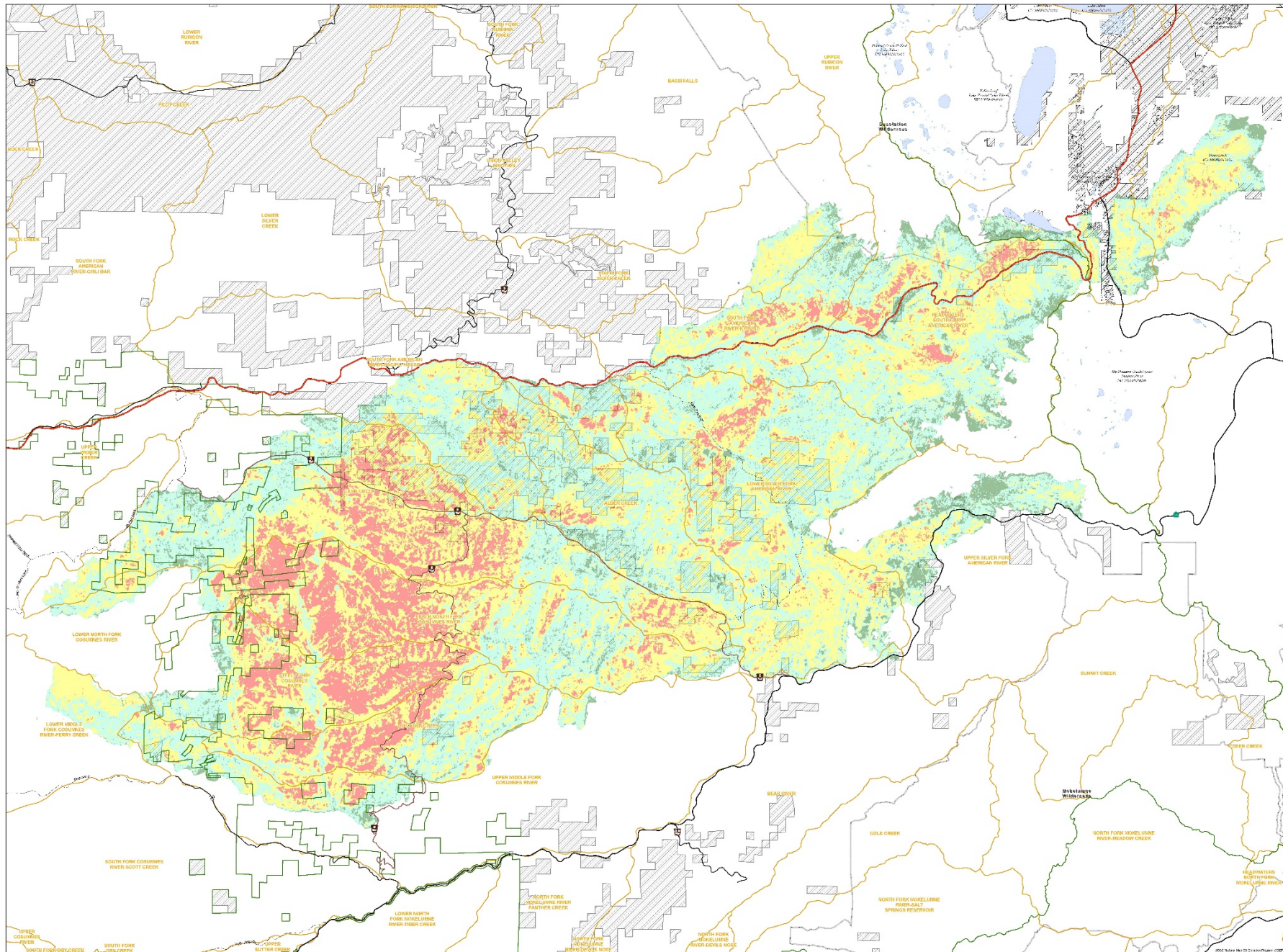
G. Estimated Hydrologic Response

TBD

H. Geology/Geologic Response

Debris flow initiations could happen regardless of post-fire conditions. In this case, post-fire conditions will not be the main reason for debris flow initiations, but will exacerbate the issue. Removal of vegetation by the fire, has exposed and weakened soils, changing hydrophobic conditions. Also, rocks on slopes have lost their supportive vegetation. These post-fire conditions in addition to ample supply of woody debris will exacerbate debris flow events occurring in this burn area.

Due to these post-fire conditions, some roads and trails in the burn area are at risk from rolling rocks, debris flows, and hyper-concentrated floods. Risks to human life, roads, and trails, is elevated in some areas in and downstream of the Caldor Fire. Based on the above, special attention and caution is recommended in areas where people are traveling through, working, or recreating in or below the burned areas during and after storm events.



PART IV - SUMMARY OF ANALYSIS

Introduction/Background The Caldor Fire started on August 14th about 2 miles east of Omo Ranch and 4 miles south of Grizzly Flat. The fire is on the Eldorado National Forest and the Lake Tahoe Basin Management Unit and in three counties (Eldorado, Alpine, and Amador). The drought, combined with dry, hot weather and strong winds, has resulted in very active fire behavior.

On September 8th, a BAER team began assessing the western portion of the fire that has low/no fire activity. The initial team consisted of soil scientists, hydrologists and geologists focused on mapping soil burn severity and assessing imminent post-fire threats to human life and safety, property, and natural resources. Additional BAER specialists, including road engineers, aquatic biologists, archeologists, botanists, and recreation managers have now engaged to assess specific threats in more detail.

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

Table 6. 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)

Based on the potential for debris flows, flooding, rock falls, burned trees, etc., the BAER team identified a **serious risk** to public, employees, and cooperator staff in the Caldor Fire area. Details are contained below and within the Watershed characterization in the Section III G.

2) Property

BAER Critical Values at risk for property include forest roads, trails (motorized and non-motorized), recreation sites, and irrigation and diversion infrastructure.

a) Property – Roads

Overview: There are approximately 992 miles of National Forest System Roads (NFSR) within the fire perimeter. All these roads are suitable for high-clearance. The majority of the NFS Roads throughout the burned watersheds are likely to be impacted by runoff, sediment, and debris derived from burned areas. Road drainage features are at risk from adjacent burned watersheds. Increased runoff and sediment from the burned areas can negatively affect the road prism, damaging the road, eroding land downslope of the road and routing flow and sediment directly to stream channels. Road failure can also contribute to failure of infrastructure downstream. Culverts associated with these roads are at risk of plugging from debris carried down channels from burned watersheds.

Priority roads for treatment include main artillery roads that access the fire and provide access for partners such as Southern California Edison and Fresno County that access critical hydroelectric and hydropower infrastructure. These roads are all paved: North South Road (10N83), Capps Reservoir Road (9N30), Bonetti Road (10N55), Grizzly Caldor Road (09N73), Wrights Lake Road

(11N26) and Bear Meadow Loop (09N46). With approximately 992 miles of Forest roads and winter approaching the Forest is prioritizing only the highest of high priority routes for treatment.

Roads proposed for treatment exhibit an unacceptable risk of failure that warrant specific treatments to help mitigate this risk. The forest has a vested interest in preserving access on these roads for the administration of National Forest lands and to minimize roads contributing to additional post-fire watershed response.

Roads within the Caldor Fire (based on 9/15/21 perimeter)	
Maintenance Level	Miles
1 - Basic Custodial Care (Closed)	286
2 - High Clearance Vehicles	522
3 - Suitable For Passenger Cars	147
4 - Moderate Degree Of User Comfort	26
5- High Degree Of User Comfort	22
Grand Total	1003

Forest Service Roads with Caldor Fire – by Soil Burn Severity	
Soil Burn Severity	Miles
High	141
Low	412
Moderate	396
Unburned / Very Low	53
Grand Total	1002

3) Natural Resources (NR)

Water Quality for Municipal and Domestic Use

At this point, an undetermined number of structures (including approximately 140 recreation residence structures) burned on National Forest lands. In addition, burned vehicles and other burned debris are scattered throughout the fire concentrated along the Hwy. 50 corridor. Burned material of unknown origin is likely to mobilize during storm events potentially causing hazardous materials to enter water courses and spread on National Forest lands.

Many of the burned structures are adjacent to water courses such as Recreation Residences near South Fork American River and associated tributaries. Numerous Forest Service facilities burned such as Grizzly Flat fire station and infrastructure in campsites, picnic areas and other developed sites.

4) Cultural Resources

B. Emergency Treatment Objectives

- Provide for public safety
- Limit damage to property
- Limit loss of soil productivity and provide for natural vegetative recovery
- Road and trail treatments to protect investment in infrastructure and limit post-fire watershed response

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

- **Land:** n/a
- **Channel:** n/a

- **Roads/Trails:** 80%
- **Protection/Safety:** 100%

D. Protection/Safety

Table 7. Probability of Treatment Success			
Type of Treatment	Time After Treatment		
	1 year	3 years	5 years
Land			
Channel			
Roads/Trails			
Protection/Safety			

E. Cost of No-Action (Including Loss)

Human Health and Safety: Human Life and Safety do not have a market value, but an injury would exceed \$1,000,000, providing a substantial benefit/cost ratio.

Property: The cost to rebuild sections of the road after they are washed out, eroded, or buried includes estimates to bring in material to build up the damaged roads. The cost of not treating the proposed roads is over \$100,000 per mile providing at least a 25:1 benefit/cost ratio. This does not include the lost value to project management, fire suppression, and recreation.

Land Treatments - Native and Naturalized Plant Communities: TBD

Cultural and Heritage Resources: TBD

F. Cost of Selected Alternative (Including Loss)

Using VAR Lite Cost/Benefit tool: Costs include ****, EDRR. Minimizing risks to Life and Safety. Cost/Benefit spreadsheet is included in 2500-8 approval package.

Table 8. Cost of Selected Alternative	
Total Treatment Cost	
Expected Benefit of Treatment	
Implied Minimum Value	

G. Skills Represented on Burned-Area Survey Team

Table 9. Skills on the BAER Team				
<input checked="" type="checkbox"/> Soils	<input checked="" type="checkbox"/> Hydrology	<input checked="" type="checkbox"/> Engineering	<input checked="" type="checkbox"/> GIS	<input checked="" type="checkbox"/> Archaeology
<input checked="" type="checkbox"/> Weeds/Botany	<input checked="" type="checkbox"/> Recreation	<input checked="" type="checkbox"/> Fisheries/Aquatics	<input checked="" type="checkbox"/> Wildlife	<input checked="" type="checkbox"/> Trails
<input checked="" type="checkbox"/> Other: PAO	<input checked="" type="checkbox"/> Geology			
Table 10. BAER Team Members by Skill*				
Skill	Team Member Name			
Team Lead(s)	Todd Ellsworth. todd.ellsworth@usda.gov ; 760-937-2033; Marc Stamer. marc.stamer@usda.gov ; 909-486-1724			
Assistant Lead(s)	Katie Vinzant. katharine.vinzant@nps.gov ; 760 937-2870			
Logistics/Finance	Robin Eliason. Robin.eliason@usda.gov ; 909-878-3908			
Forest BAER Coordinator	Eric Nicita. eric.nicita@usda.gov ; 530-748-5827			
Soils & Hydrology & Geology	Eric Nicita, Curtis Kvamme, Tracy Weddle, Edgar Martinez, Vincent Pacific, Nicole Bringolf			
GIS	Deb Tatman, Virginia Emly			
Engineering	Rocio Espinoza, Pablo Gonzalez, Antonio Cabrera, Justin Humble			
Archaeology	Jordan Serin, Charles Hutcheson			
Botany/Weeds	Katie Vinzant, Emma Williams			

Table 10. BAER Team Members by Skill*	
Skill	Team Member Name
<i>Recreation</i>	Chip Morrill, Tyler Segura, Karl Goodwin, Del Orme, Matt Daniels
<i>Wildlife</i>	Robin Eliason
<i>Hazmat</i>	Casey Shannon
<i>Aquatic Wildlife</i>	Jeff Mabe
<i>PAO</i>	Cathleen Thompson

H. Treatment Narratives

Land Treatments

TBD

Channel Treatments

TBD

Road Treatments

Road drainage features are at risk from adjacent burned watersheds. Increased runoff and sediment from the burned areas can negatively affect the road prism, damaging the road, eroding land downslope of the road and routing flow and sediment directly to stream channels. Road failure can also contribute to failure of infrastructure downstream. Culverts associated with these roads are at risk of plugging from debris carried down channels from burned watersheds. Proposed road treatments include drainage structure cleaning, reestablishing rolling dips and leadoff ditches, installation of overside drains, installing additional culverts next to existing culverts with hydro-excavation, reshaping low water crossings, installation of riprap armoring and spillways, culvert inlet basin cleaning, berm removal, outsloping, and riprap armoring at strategic locations. Focusing on areas of high and moderate burn severity (BARC map – Validating), areas that are midslope that have a high risk of damage from post-fire watershed response.

Treatment Objectives: The primary objectives of the road and infrastructure treatments are to:

- Protect and stabilize Forest Service infrastructure at risk of damage as a result of increased sedimentation, stream diversion, and erosion from the fire.
- Reduce risk to water quality and other natural resources by reducing risk of infrastructure contamination, damage, and failure.
- Mitigate public safety hazards along NFS roads.
- Reduce risk to downstream infrastructure where possible.
- Protect road crews from the threat of falling trees.

1. Road Drainage Stabilization

Road drainage stabilization involves cleaning or armoring of existing drainage structures to help ensure road drainage performs optimally. This work will be accomplished through contractor equipment and labor. In addition, this treatment includes felling of hazard trees in forested areas that pose a threat to crews.

Road Treatments #1: Road Drainage Stabilization				
Item	Unit	Unit Cost	# of Units	Cost
Mobilization – 10% standard for this area	Lump Sum	\$ 38,680	1	\$ 38,680
Restore and maintain Drainage Function of road existing drainage structures, culverts, lead off ditches and rolling dips-	Mile	\$2,500	134	\$ 335,000
Total				\$373,000

2. Road Drainage Structure Replacements/Improvements

Road drainage structure improvements involves replacing existing deficient structures and installation of additional drainage structures to help ensure road drainage performs optimally. This work will be accomplished with contractor equipment and labor.

Road Treatments #2: Road Drainage Structure Replacements/Improvements				
Item	Unit	Unit Cost	# of Units	Cost
Mobilization – 10% - standard for this area	Lump Sum	\$ 6,551	1	\$ 6,551
Enhance existing culverts with Risers (snorkels) to increase capacity. 18-24" culverts	Each	\$ 3,500	5	\$17,500
Additional culverts using hydro-excavation	Each	\$5,000	4	\$20,000
Enhance existing culverts with winged inlets 18-24" culverts	Each	\$ 2,000	7	\$14,000
Riprap downstream of culverts and crossings to protect road	CY	\$275	27	\$7,425
Total				\$65,476

3. Contract Preparation and Administration

Preparation, administration and oversight of road work contracts.

Road Treatments #4: Contract Administration				
Item	Unit	Unit Cost	# of Units	Cost
GS11 Engineer	Day	\$450	20	\$9,000
Total				\$9,000

Trail Treatments

TBD

Protection/Safety Treatments

1) Burned Debris Stabilization

Stabilize prioritize areas adjacent to water bodies. The treatment will entail installation of straw wattles and/or sandbags around selected sites at high risk of moving material into waterbodies. This treatment is intended to contain the burned material and limit human and animal exposure until material can be removed.

Protection/Safety Treatment #1: Burned Debris Stabilization – burned structures)				
Item	Unit	Unit Cost	# of Units	Cost
Administration, Travel, and Materials				
1 GS-11 Hydrologist	Days	\$450	5	\$2,250
2 GS-7 Recreation Tech.	Days	\$325	10	\$6,500
Stabilization Supplies (wattles, stakes and sand bags) and	Each	\$7500	1	\$7,500
Total Cost				\$16,250

2.Warning Signs: Warning signs would need to be installed to warn road users of the unmitigated dangers present in the FS fire areas (Eldorado and LTBMU). Posting signs in critical ingress and egress areas of the burned to alert the public to potential dangers of falling trees, increased runoff, hazardous rockfall.

Cost: \$15,000

Protection/Safety Treatment: Treatment Implementation Leader

The suite of proposed treatments needs dedicated staff to properly guide implementation recommended by the Caldor BAER Team. This request is to ensure someone is available to guide implementation for

the larger package of treatments anticipated in the Interim #1 request. We anticipate requesting funding to fill out a 120 day detail in the Interim #1 request. The lack of staffing and expertise to implement BAER treatments presents a concern to implement treatments in a timely manner.

Tablexxx. Protection/Safety Treatment #8: Treatment Implementation Leader				
Item	Unit	Unit Cost	# of Units	Cost
Team Leader Salary - Planning, logistics, etc.	Days	\$640	20	\$12,800
Per Diem				\$3,200
Total Cost				\$ 16,000

I. Monitoring NarrativeTBD

PART V – EMERGENCY STABILIZATION TREATMENTS AND SOURCE OF FUNDS

Table 1: Cost for El Dorado National Forest

			NFS Lands				Other Lands			All
		Unit	# of		Other		# of	Fed	# of	Non Fed
Line Items	Units	Cost	Units	BAER \$	\$		units	\$	Units	\$
A. Land Treatments										
	days			\$0	\$0			\$0		\$0
	days			\$0	\$0			\$0		\$0
<i>Insert new items above this line!</i>				\$0	\$0			\$0		\$0
<i>Subtotal Land Treatments</i>				\$0	\$0			\$0		\$0
B. Channel Treatments										
				\$0	\$0			\$0		\$0
				\$0	\$0			\$0		\$0
<i>Insert new items above this line!</i>				\$0	\$0			\$0		\$0
<i>Subtotal Channel Treatments</i>				\$0	\$0			\$0		\$0
C. Road and Trails										
Road Drainage Stabilization	miles	2,768	130	\$359,840	\$0			\$0		\$0
Drainage Structures	Each	5,487	12	\$65,844	\$0			\$0		\$0
Contracting	each	9,000	1	\$9,000						\$9,000
	miles			\$0						
	Days			\$0						
	days			\$0						
<i>Insert new items above this line!</i>				\$0	\$0			\$0		\$0
<i>Subtotal Road and Trails</i>				\$434,684	\$0			\$0		\$0
D. Protection/Safety										
burned debris	days	1625	7	\$11,375	\$0			\$0		\$0
Warning signage	each	13,000	1	\$13,000	\$0			\$0		\$0
implementation lead	days	20	640	\$12,800						\$12,800
	each			\$0						
	days			\$0						
	days			\$0						
	each			\$0						
	each			\$0						
<i>Insert new items above this line!</i>				\$0	\$0			\$0		\$0
<i>Subtotal Protection/Safety</i>				\$37,175	\$0			\$0		\$0
E. BAER Evaluation										
Initial Assessment	Report			---	\$0			\$0		\$0
				\$0	\$0			\$0		\$0
<i>Insert new items above this line!</i>				---	\$0			\$0		\$0
<i>Subtotal Evaluation</i>				\$0	\$0			\$0		\$0
F. Monitoring										
Road monitoring	days			\$0	\$0			\$0		\$0
				\$0	\$0			\$0		\$0
<i>Insert new items above this line!</i>				\$0	\$0			\$0		\$0
<i>Subtotal Monitoring</i>				\$0	\$0			\$0		\$0
G. Totals				\$471,859	\$0			\$0		\$0
Previously approved										
Total for this request				\$471,859						

Table 2: Cost for Lake Tahoe Basin Management Unit

			NFS Lands				Other Lands			All
		Unit	# of		Other		# of	Fed	# of	Non Fed
Line Items	Units	Cost	Units	BAER \$	\$		units	\$	Units	\$
A. Land Treatments										
	days			\$0	\$0			\$0		\$0
	days			\$0	\$0			\$0		\$0
<i>Insert new items above this line!</i>				\$0	\$0			\$0		\$0
<i>Subtotal Land Treatments</i>				\$0	\$0			\$0		\$0
B. Channel Treatments										
				\$0	\$0			\$0		\$0
				\$0	\$0			\$0		\$0
<i>Insert new items above this line!</i>				\$0	\$0			\$0		\$0
<i>Subtotal Channel Treatments</i>				\$0	\$0			\$0		\$0
C. Road and Trails										
Road Drainage Stabilization	miles	2,768	5	\$13,840	\$0			\$0		\$0
	Each			\$0	\$0			\$0		\$0
	each			\$0						
	miles			\$0						
	Days			\$0						
	days			\$0						
<i>Insert new items above this line!</i>				\$0	\$0			\$0		\$0
<i>Subtotal Road and Trails</i>				\$13,840	\$0			\$0		\$0
D. Protection/Safety										
burned debris	days	1,625	3	\$4,875	\$0			\$0		\$0
Warning signage	each	2,000	1	\$2,000	\$0			\$0		\$0
implementation lead	days	5	640	\$3,200						\$3,200
	each			\$0						
	days			\$0						
	days			\$0						
	each			\$0						
	each			\$0						
<i>Insert new items above this line!</i>				\$0	\$0			\$0		\$0
<i>Subtotal Protection/Safety</i>				\$10,075	\$0			\$0		\$0
E. BAER Evaluation										
Initial Assessment	Report			---	\$0			\$0		\$0
				\$0	\$0			\$0		\$0
<i>Insert new items above this line!</i>				---	\$0			\$0		\$0
<i>Subtotal Evaluation</i>				\$0	\$0			\$0		\$0
F. Monitoring										
Road monitoring	days			\$0	\$0			\$0		\$0
				\$0	\$0			\$0		\$0
<i>Insert new items above this line!</i>				\$0	\$0			\$0		\$0
<i>Subtotal Monitoring</i>				\$0	\$0			\$0		\$0
G. Totals				\$23,915	\$0			\$0		\$0
Previously approved										
Total for this request				\$23,915						

PART VI - APPROVALS**09/21/2021**

Forest Supervisor
Jeff Marsolais, Eldorado National Forest

Date

**09/23/21**

Acting Forest Supervisor
Gwen Sanchez, Lake Tahoe Basin Management Unit

Date