USDA-FOREST SERVICE FS-2500-8 (6/06)

Date of Report:

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

[X] 1. Funding request for estimated emergency stabilization funds
[ ] 2. Accomplishment Report
[ ] 3. No Treatment Recommendation

B. Type of Action

[X] 1. Initial Request (Best estimate of funds needed to complete eligible stabilization measures)

[ ] 2. Interim Report #____
[ ] Updating the initial funding request based on more accurate site data or design analysis
[ ] Status of accomplishments to date

[ ] 3. Final Report (Following completion of work)

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: **Little Queens**

B. Fire Number: ID-SNF-0389

C. State: ID

D. County: Elmore

E. Region: Intermountain

F. Forest: Boise and Sawtooth National Forests

G. District: Idaho City and SNRA

H. Fire Incident Job Code: P4HV1T 0414

I. Date Fire Started: 08/17/2013

J. Date Fire Contained:

K. Suppression Cost: $4,950,000

L. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles):
2. Fireline seeded (miles):
3. Other (identify):

M. Watershed Number:

Number	(HUC6) Watershed	Area (acres) Burned	% burned
170501110204	Bald Mountain Creek – Middle Fork Boise River	591	4.0%
170501110203	Black Warrior Creek	3191	24.5%
170501110105	James Creek – Middle Fork Boise River	3617	21.2%
170501110302	Johnson Creek	374	2.2%
170501110201	Little Queens River	10512	89.4%
170501110202	Queens River	9949	47.9%
170501110101	Rock Creek – Middle Fork Boise River	13.4	<1%

N. Total Acres Burned:
NFS Acres(27,887) Other Federal (0) State (0) Private (0)

O. Vegetation Types: The fire perimeter encompasses a wide range of elevations and climatic zones from approximately 4500 feet along the Boise River to 9000+ feet in alpine areas of the Sawtooth Range. Vegetation is dominated by coniferous forest consisting of Douglas Fir and Ponderosa Pine at lower elevations, transitioning to Lodgepole Pine, Sub-Alpine Fir, and Whitebark Pine at higher elevations. Aspen stands occur throughout the area. A wide variety shrubs and grasses exist throughout the fire perimeter.

P. Dominant Soils:
Soils on the Little Queens Fire consists of Idaho Batholith parent materials of the Sawtooth Mountains. Erosion and dissection of these geologic formations are ongoing as a result of continuous uplift. The soils that have formed on these erosional surfaces are quite variable. Landtype characteristics are generally moderately deep fluvial lands with long parallel ridges which are moderately steep to steep on non-timbered slopes that have been deeply incised by intermittent concentrations of overland flow cutting into weathered granite bedrock resulting in weakly developed soil profiles. Textures typically range from skeletal sandy clay loams to clay loams. Soils that have an argillic horizon are generally developed on less steep, more stable slopes at lower elevations with less precipitation.

Q. Geologic Types: The geology of the fire area is dominated by Idaho Batholith granitic rocks of the Sawtooth Mountains. This formation is approximately 70-80 million years old and is composed of uplifted granodiorite. The area topography includes the U-shaped glaciated valleys with moderate to steep gradient valley bottoms, dissected by sharp ridges and high peaks.

R. Miles of Stream Channels by Order or Class:
Perennial: 53.9 Intermittent: 53.8

S. Transportation System

Trails: 33.8 total - 27.4 (STF)/6.4 (BOF)miles Roads: 25.6 (BOF) miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 8,818(low) 6,767 (moderate) 4,380 (high)

B. Water-Repellent Soil (acres): 4,380

C. Soil Erosion Hazard Rating (acres):
(low) (moderate) (high)

D. Erosion Potential: tons/acre

E. Sediment Potential: cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 4-5

B. Design Chance of Success, (percent): 70

C. Equivalent Design Recurrence Interval, (years): 10

D. Design Storm Duration, (hours): 2

E. Design Storm Magnitude, (inches): 1.0

F. Design Flow, (cubic feet / second/ square mile): 7.9

G. Estimated Reduction in Infiltration, (percent): 34

H. Adjusted Design Flow, (cfs per square mile): 23.0

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:
This Report addresses effects resulting from the Little Queens Fire that burned on lands managed by the U.S. Forest Service (USFS). Response actions were prepared in accordance with the Forest Service Manual (FSM) 2500 Watershed and Air Management Chapter 2523 Emergency Stabilization-Burned Area Emergency Response and FSM Interim Directive No.: 2500-2013-1.

The objective of this BAER assessment was to identify imminent post-wildfire threats to human life and safety, property and critical natural or cultural resources and take immediate actions to manage unacceptable risks. This assessment used methodology within Forest Service directives, Exhibit 01 and 02 were used to guide the development of values important to the local agencies and the risk to those values. The team determined risk by assessing the probability for post-fire damage and the magnitude of consequences if damage occurred. The team assumed there will be risks with or without treatment and potential actions are to reduce risks to acceptable levels.

The identified values at risk and estimated levels of post fire risk to values are shown table below. This represents all values found at risk and highlights FS Critical BAER Values.

1. Human Life and Safety (HLS):

a. **Very High Risk** to Forest Service employees and Forest visitors within the fire perimeter. Potential threats to human life and safety due to post fire runoff events and/or debris flows, falling trees/snags, burned out stump holes, and rock fall. Forest Service employees and Forest visitors could encounter these threats along Forest roads (FH082, NFS 205 and 206) and trails (Queens River, Little Queens River, Black Warrior Cr, and others), at campgrounds (Queens River Campground, Queens River Transfer Camp) or trail heads (Queens River, Joe Daley, Black Warrior). (Treatments: safety signs)

b. **High Risk** to Emergency Ingress and Egress due to the potential for roads to be washed out or covered with fallen trees and debris, thereby delaying or preventing escape from flood events and the response of emergency services. The community of Atlanta is accessed by Forest Highway 082 which passes through the fire area. In addition, other roads provide access to developed facilities such as campgrounds and trailheads (Treatments: Road Drainage Reconstruction, Culvert Replacements, and Storm Patrols).

2. Property

a. **Very High Risk to road and trail infrastructure within the fire perimeter with damage expected to existing infrastructure from increased runoff, erosion, and debris flows. There are approximately 36 miles of trail and 22 miles of road within the burn perimeter that are susceptible to post wildfire storm events. Of the 36 miles of trail, over 30 are within designated wilderness. Risk for substantial damage to existing trails is considered very high as flooding, debris flows, and erosion is imminent. Of the 30 miles of trail within the Sawtooth Wilderness, approximately 13 miles are considered at substantial risk. Infrastructure at risk includes the Queens River, Little Queens River, Black Warrior Cr, Joe Daley trails (see recreation treatment specification form). Because of the remote location combined with wilderness designation**

restrictions on the methods of travel and the types of equipment that can be used, the cost of BAER treatments on the wilderness trails is considerably higher than on non-wilderness trails. All equipment must be hauled in using pack animals and all work must be done by hand as no mechanized equipment can be used to install drainage features, remove hazard trees etc. In addition, Very High risk to road and bridge infrastructure with substantial damage is expected because flooding, debris flows, and erosion is imminent. The highest risk is associated on roads and with stream crossings. Travel routes having the greatest concern are: FR 083, 206, 205, and 205N. (Treatments: Road Drainage Reconstruction, Culvert Replacements, Trail Drainage Construction and Reconstruction, Road and Trail Storm Patrols).

3. **Natural Resources**
   a. **Very High Risk** to native and naturalized plant communities and plant diversity due to the threat from spread of noxious and invasive plant species. There are 6 non-native invasive plant species known to occur within or adjacent to the burned area. Dalmatian toadflax *(Linaria dalmatica),* Butter & Eggs *(Linaria vulgaris),* rush skeletonweed (*Chondrilla juncea*), diffuse knapweed (*Centaurea diffusa*) Canada thistle *(Cirsium arvense*), and Spotted knapweed *(Centaurea maculosa)* are the most widespread species and have the highest risk of potential spread into the burn. These species are very aggressive and have a very high potential to adversely affect hundreds of acres as well as wilderness values of the designated Sawtooth Wilderness. Most populations to date occur along existing and decommissioned roads and trail systems. The Sawtooth Wilderness is considered to be weed free because of proactive management to irradicate infestations as soon as they are identified. Because some staging areas used during the fire were infested with weeds, the potential for transport of weed seed into the wilderness and backcountry areas of the fire is very high. Failure of natural regeneration of native species within burned and/or disturbed areas could exacerbate potential for noxious weed establishment and spread severly impacting native plant communities. (Treatment EDRR)
   b. **Very High Risk** and **high risk** to soil productivity and hydrologic function within areas that burned at moderate to high severity due to the threat from increased sediment delivery to water channels and riparian areas resulting from trail and road and trail surface erosion and potential road crossing overtop at culvert locations. The probability for accelerated erosion is very likely with subsequent mass erosion, hillslope sedimentation, and mud flows. The loss of overstory vegetation, effective ground cover, and surface organic matter will leave the soil resource susceptible to erosive forces for 5 to 7 years. Considerable impacts to soil productivity are expected from the erosion of exposed soil and nutrient-rich ash off-site. Additional, indirect threats to soil productivity include impacts from unauthorized motorized vehicle access across NFS lands and intrusions into the wilderness due to the loss of physical and vegetative screens that previously limited access. (Treatments: Road Drainage Reconstruction, Culvert Replacements, Trail drainage construction and reconstruction, Road and Trail Storm Patrols).
   a. **Very High Risk** to listed bull trout and bull trout critical habitat from increased sedimentation, channel instability, loss of in-channel large woody debris, debris flows, streambank instability, loss of riparian vegetative cover, degraded in-channel habitat integrity, increased stream temperature, and decreased water quality. All major streams in the burn area are designated critical bull trout habitat. Loss of riparian vegetative cover and changes in soil productivity could affect stream shading, water temperature and bank stability for several years. Post-fire sediment and debris flows are likely with the potential to compromise bull trout spawning, food availability and water quality. Approximately 36 miles of trail and 22 miles of road within the burn perimeter are at very high risk for channeling sediment into stream reaches designated as critical habitat. All road/stream crossings within the Little Queens Fire are on tributaries of the Middle Fork Boise River which is designated bull trout habitat, and predicted post fire flows exceed their hydraulic capacity. (Treatments: Road Drainage Reconstruction, Culvert Replacements, Trail drainage construction and reconstruction, Road and Trail Storm Patrols).
4. **Cultural and Heritage Resources**

   High Risk to cultural resource sites within the burn perimeter as a result of increased potential for looting resulting from increased public access to sites and exposure of previously concealed artifacts and features, and loss of sites and/or site integrity as a result of erosion, runoff, and flash flooding from post wildfire storm events. There are numerous cultural resources sites within the Little Queens fire perimeter, of particular concern are historic mine sites within the Atlanta

area. The burned area has resulted in exposure of previously hidden artifacts and features due to loss of vegetation and increased surface visibility. Looting within fire perimeters is a well-documented post wildfire effect and has the potential to affect integrity of sites eligible for listing on the National Register of Historic Places and that are important to Shoshone-Paiute Tribes and Shoshone-Bannock Tribes. In addition, post wildfire storm events have the potential to further expose sites and/or impact sites as a result of surface runoff and debris flows. Treatments (Protection-enforcement Patrols)

B. Emergency Treatment Objectives: Reduce threats to personal injury and/or human life of visitors using select system roads or trails.

- Warn users of Forest roads and trails of hazards present in the burned area.
- Protect or minimize damage to National Forest System investments within the burned area. Minimize damage to key system travel routes within the fire boundary.
- Protect or mitigate potential post-fire impacts to critical natural resources and significant cultural resources within or downstream from the burned area.
- Control expected invasion of noxious weeds within and adjacent to the area where soils/vegetation was disturbed as a result of suppression activities.

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

Land __ % Channel ___ % Roads/Trails _50_ % Protection/Safety _90_ %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land			
Channel			
Roads/Trails	70	80	90
Protection/Safety	70	80	90

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

F. Cost of Selected Alternative (Including Loss): 277,851**(see VAR)**

Response actions are proposed to minimize the risk to human life and safety, property, native or naturalized plant communities, soil productivity and hydrologic function, and cultural and heritage resources. The proposed treatments are designed to ensure past investments in property (roads and trails) and resource protections (treatments to control weeds around the boundary of the Sawtooth Wilderness) are not adversely affected by post fire conditions.

G. Skills Represented on Burned-Area Survey Team:

[X] Hydrology	[X] Soils	[X] Geology	[X] Range	[ ]
[ ] Forestry	[X] Wildlife	[ ] Fire Mgmt.	[X] Engineering	[ ]
[ ] Contracting	[ ] Ecology	[X] Botany	[X] Archaeology	[ ]
[X] Fisheries	[ ] Research	[ ] Landscape Arch	[ ] GIS	

Team Leader:

Email: Phone:

H. **Treatment Narrative:**

Several response actions were considered to attain the objective of emergency stabilization, however, only 7 were considered feasible and effective at reducing risks to values. Treatments proposed for the Little Queens Fire are described below

Land Treatments:

Noxious/Invasive Species Treatment

General Description: Monitor and treat (Early Detection & Early Response, EDRR) noxious and invasive weed infestations on NFS lands associated with suppression activities and BAER treatments. Dalmation Toadflax, Skeleton Weed, Spotted Knapweed, Diffuse Knapweed, Canada Thistle, and Butter & Eggs are the primary species of concern to invade the burn; cheatgrass and medusahead are already a concern due to their presence prior to the wildfire near and within the burn area, especially in the lower elevations, off-forest.

Location/(Suitable) Sites: Roads and trails within and leading into the Little Queen's Fire used for travel with existing weed populations. Areas used during suppression operations that would receive treatment include: all handline and dozerline, helispots, drop points, medevac sites, basecamps, and ICP. These areas are not contiguous; they are disjunct and isolated. The wildfire burned in portions of the Sawtooth Wilderness which will require use of non-motorized travel (i.e. pack stock) and overnight camping to conduct the weed control activities.

Design/Construction Specifications:

1. Monitor disturbed areas during growing seasons for spread. Conduct two surveys of the area within the first year following the fire by small ground crews, driving and hiking. Two separate surveys, late spring and early to mid-summer to detect the variety of weed species that may emerge in this ecosystem based on weed biology.

2. If spread of noxious and invasive weeds is identified, then plan and design treatment.

3. Select mechanical or chemical treatment dependent upon weed species and location. With chemical treatments, determine appropriate herbicide, application rate, and application timing based on specific weed being treated and access to the location of the infestation.

4. Consideration for sensitive habitat when selecting appropriate herbicide.

Purpose of Treatment Specifications: This treatment is necessary to reduce the potential for establishment of new noxious weed infestations in highly susceptible burned areas, prevent spread of existing infestations, and prevent increase in weed density in existing infestations. This treatment is designed with the goal to ensure that natural recovery of the native perennial grasses and forbs is not affected by noxious weeds.

Describe Treatment Effectiveness Monitoring: Follow-up monitoring would be needed in subsequent years if new or expanded weed populations are discovered during the 1st year BAER treatments.

Channel Treatments:
None

Roads and Trail Treatments:

Road Drainage Reconstruction

General Description: Roughly 22 miles of roads were found to be at risk from post fire events. due to expected increase in flows and hillslope erosion. The minimal treatments required to maintain road drainage in preparation for increased runoff include outsloping, drain dips, waterbars, overflow structures, culvert installation, debris racks, culvert cleaning, ditch cleaning, roadside streambank stabilization, corrugated inlet guard, and road template reshaping. Refer to the BAER Treatments catalog for more detailed descriptions of each of these treatments.

Location/Suitable Sites: The roads listed below were found to have or will have road drainage issues and at a minimum will require all or part of the treatments listed in section 'A'. The roads are listed individually and represent approximately 22 miles of the 29 miles within the fire perimeter:

FH #082 (4.6 miles to be treated)
Debris Racks: 5 Each
Culvert Cleaning: 26 Each
Road Template Reshaping/Ditch Cleaning: 4.6 Miles

NFSR #205 (9.2 miles to be treated)
Debris Racks: 5 Each
Culvert Cleaning: 17
Construct/Reconstruct Drain Dips: 89 Each
Road Template Reshaping/Ditch Cleaning: 9.2 Miles

NFSR #205E (1.1 miles to be treated)
Culvert Cleaning: 5 Each
Construct/Reconstruct Waterbars: 32 Each
Road Template Reshaping/Ditch Cleaning: 1.1 Miles

NFSR #205G (1.4 miles to be treated)
Culvert Cleaning: 4 Each
Construct/Reconstruct Water Bar: 39 Each
Road Template Reshaping/Ditch Cleaning: 1.4 Miles

NFSR #205K (0.4 miles to be treated)
Construct/Reconstruct Drain Dips: 5 Each
Road Template Reshaping/Ditch Cleaning: 0.4 Miles

NFSR #205N (2.4 miles to be treated)
Culvert Cleaning: 6 Each
Construct/Reconstruct Drain Dip: 12 Each
Road Template Reshaping/Ditch Cleaning: 2.4 Miles

NFSR #205N4 (0.6 miles to be treated)
Debris Racks: 2 Each
Culvert Cleaning: 2 Each
Construct/Reconstruct Drain Dip: 2 Each
Road Template Reshaping/Ditch Cleaning: 0.6 Miles

NFSR #206 (2.3 miles to be treated)
Culvert Cleaning: 13 Each
Road Template Reshaping/Ditch Cleaning: 2.3 Miles

Design/Construction Specifications: This treatment will include a "system" of design/construction methods depending on the prisms current condition. The details of this treatment are provided in the engineering assessment report and associated specifications and will be completed per Forest Service standards. Details for the following actions are described in the BAER Treatments catalog or FHWA Standard Specifications for Roads and Bridges on Federal Highway Projects (FP-03) with Forest Service supplemental specifications:

1. Outsloping
2. Drain Dips (with or without armor)
3. Waterbars
4. Overflow Structures
5. Culvert Installation
6. Debris Racks
7. Culvert Cleaning
8. Ditch Cleaning
9. Roadside Streambank Stabilization
10. Corrugated Inlet Guard

Generally, reshape the road surface to provide positive drainage to ditches and culverts. Remove berm where water will flow off roadbed and repair large ruts in the middle of the roadbed that channel water downgrade.

Purpose of Treatment Specifications: This treatment protects the critical value of **Property**, specifically the road infrastructure, critical value of **Human Life and Safety** related to egress and ingress, and Riparian Areas due to potential impacts from increased sediment flow and stream channel erosion.

Additionally, protection of the road infrastructure will minimize sediment delivery into the watersheds that run into the Middle Fork Boise River which contain listed fish species (bull trout).

Describe Treatment Effectiveness Monitoring: Monitor roads and culverts after storm events for possible obstructions and damage and initiate maintenance.

Culvert Replacements

General Description: The treatment is for the replacement of existing culverts at stream crossings and along inside ditches on Forest Roads. Following post-fire streamflow analysis, the pipe crossings were identified as being undersized due to the anticipated increase in flows from the burned watersheds above the crossings and pose an unacceptable risk to the road infrastructure and other critical values. These culverts will be removed and upsized in order to pass the increased flows that are anticipated from future storm events. Where appropriate, the replacement culverts will be designed for aquatic species passage with stream simulation material. Eight of the 29 ditch relief drainage structures associated with FH082 (15" pipes) are currently undersized for post-fire flows, plugged, or have rusted out barrels. These structures are proposed for replacement because of anticipated increased flows associated with post-fire conditions is expected to overwhelm these pipes causing increased ditch scour and erosion that would lead to blowouts/sedimentation along the Middle fork Boise River which is designated critical Bull Trout habitat.

Locations/Suitable Sites: *Refer to BAER Treatment Map.* The following table lists culverts that are undersized or are non-functioning and are to be removed and replaced. The roads identified to require a culvert replacement have been designated as Maintenance Level 2 or above.

Culverts to be Removed and Replaced		
Location	Existing	Replacement Size
FH #082 Sta. 37+10	15" x 26'	18" x 26'
FH #082 Sta. 75+40	12" x 34'	18" x 34'
FH #082 Sta. 81+70	15" x 38'	18" x 38'
FH #082 Sta. 139+00	15" x 38'	18" x 38'
FH #082 Sta. 183+20	15" x 32'	18" x 32'
FH #082 Sta. 192+40	15" x 36'	18" x 38'
FH #082 Sta. 225+10	15" x 36'	24" x 38'
FH #082 Sta. 233+60	15" x 32'	18" x 34'
FR #205 Sta. 32+20	24" x 28'	36" x 28'
FR #205 Sta. 41+70	24" x 26'	36" x 26'
FR #205 Sta. 60+90	15" x 36'	18" x 36'
FR #205 Sta. 95+80	24" x 40'	36" x 40'
FR #205 Sta. 98+00	24" x 40'	36" x 40'
FR #205 Sta. 120+00	15" x 36'	18" x 40'
FR #205 Sta. 121+50	18" x 40'	36" x 40'
FR #205 Sta. 294+20	15" x 30'	18" x 30'
FR #205 Sta. 414+40	24" x 30'	42" x 30'
FR #206 Sta. 13+00	18" x 34'	24" x48'

Design/Construction Specifications:

1. Forest Service personnel will monitor and direct the work. The design and specifications written will be site specific for each culvert installation. Contract specifications shall conform to *FP03-Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects* and Forest Service Supplements. Where appropriate, the replacement stream crossing design complies with the Forest Service San Dimas criteria for Aquatic Organism Passage at Road –Stream Crossings.
2. Replacement of culverts shall include setting up traffic control, excavating and removing the existing culvert off of Forest Service lands, hauling away any excess excavated material to an approved waste site, reconstructing the stream channel with stream simulation material, and reconstructing the road prism.

Purpose of Treatment Specifications

Human Life and Safety (Public Safety of Forest Visitors and FS administrative personnel), Property (Forest Roads and Bridges),Water Quality, Impacts to Riparian and downstream critical bull trout habitat.

The purpose of this treatment is to reduce the risk of pipe failure and associated sediment delivery to critical resources. Roads within the Little Queens Fire contain numerous drainage structures that cross intermittent and perennial streams or facilitate proper road drainage design located in watersheds that have a moderate to high burn severity. These streams now have the potential for increased runoff and debris flows. These increases in flows to the existing crossings may result in plugging culverts or exceeding their maximum flow capacity. In certain cases, the inadequately sized culverts pose an unacceptable risk to the road infrastructure (property) and other critical values (impacts to water quality, Critical Bull Trout Habitat, and riparian areas from the additional erosion, primarily from the road fill slopes). Increased runoff resulting from burned slopes and stream channels which are adjacent to roads may cause damage to roadway surfaces, drainage structures, or block roads with debris. In certain cases, the inadequately sized culverts pose unacceptable risks to property, water quality, and human life and safety, it is beneficial and appropriate to remove and upsize the pipe and reconstruct the channel.

Treatment Effectiveness Monitoring

Monitoring will be conducted by district personnel and/or members of the Forest Engineering staff. Monitoring will consist of visiting the site after high intensity thunderstorms and/or after spring run off to ensure the replacements culverts are functioning as designed. In addition, photos will be taken during the site visits and a photo log will be established.

Trail Drainage and ReconstructionTreatments

General Description: The purpose of this treatment is to prevent erosion and further failure of the 36.15 miles of trail that are within areas that have high or moderate burn severity or are located downslope of areas within the drainage that have high or moderate burn severity. Many of the trails in the burned area are at high risk due to the burning of tread stabilizing vegetation, including: brush, stumps, roots and logs. Treatments include reconstructing destabilized tread, installing rolling dips, waterbars, and rock waterbars. Treatments are needed to provide for human health and safety, sustainability of the trail, and to prevent impacts to nartual resources should the trails erode or fail. Because of the remote location combined with wilderness designation restrictions on the methods of travel and the types of equipment that can be used, the cost of BAER treatments on the wilderness trails is considerably higher than on non-wilderness trails. All equipment must be hauled in using pack animals and all work must be done by hand as no mechanized equipment can be used to install drainage features, remove hazard trees etc.
Location: Trail sections located primarily within or directly down slope from high / moderate severity burned areas. Boise NF – Segments of the following trails located within the fire perimeter (5.8 miles): Black Warrior, Eagle Creek and Nein Meyer Creek/Johnson Creek Trails
Sawtooth NF - Segments of the following trails located within the fire perimeter in the Sawtooth Wilderness (30.35): Little Queens, Queens River and Joe Daley Trails. Of the 30 miles of trail within the Sawtooth Wilderness, approximately 13 miles are considered at substantial risk. Infrastructure at risk includes the Queens River, Little Queens River, Black Warrior Cr, Joe Daley trails (see recreation treatment specification form).
Design/Construction Specifications: Storm patrols will be conducted by two, two-person crews (one Boise crew and one Sawtooth crew) after spring runoff and after storm events over the next two years. Two four-person crews (one Boise crew and one Sawtooth crew) will complete initial installation of needed drainage features (approximately 20 drainage features per mile of trail within or below hillslopes burned at high or moderate severity) and fill voids in the trail tread (approximately 8 voids per mile of trail along trail segments burned at high and moderate severity) that could channel water. The four-person crews will complete installation of additional features and clean/maintain drainage features as needed based on results of storm patrols completed by the two-person storm patrol crews.
Drainage features will be constructed in accordance with FSH 2309.18
Purpose of Response Action: Trails within burn perimeter are excellent conveyors for routing significant volumes of water and sediment to nearby streams if drainage facilities are not adequate to process increased runoff. All streams within the burned area are designated as critical habitat for listed bull trout. Maintenance of existing water bars & drainage dips, and installation of new drainage structures is needed to effectively route water from the trail surface. These treatments are expected to reduce

undesirable impacts to soil and water quality by preventing increased erosion and sedimentation into critical stream habitat. Predicted increases in surface runoff/overland flow are expected to erode soils from the burned area and deliver sediment to adjacent streams. Additionally, voids in the trail tread created by burned out stump holes may act to channel runoff underneath existing trail tread eroding trail tread resulting in delivery of even greater amounts of sediment to nearby steams. Installing additional drainage features, maintaining existing features, and filling voids in the trail tread should ensure increased runoff and over surface flows will not destroy trail tread, compromise human health and safety, and contribute sediment to steams impacting water quality and critical habitat for listed bull trout and sensitive fish species.

- **Human life and safety of visitors, private residents, and agency personnel**
- **Forest trails (property)**
- **Critical Habitat – Bull Trout**
- **Water quality**

Treatment Effectiveness Monitoring: District and SO personnel will monitor trails after spring run-off and precipitation events to ensure existing drainage structures are effective and ready to handle the next precipitation event.

Protection/Safety Treatments:

Safety Signs

General Description: This treatment will design and install burned area warning signs, highway warning signs, and directional signs to warn and guide traffic through roads and trails within the burned area. The treatment is consistent with the language provided in the BAER Treatments Catalog.

Applicable Locations or Sites:

Refer to BAER Treatment Map for the spatial locations.

Locations on FS lands for burned area warning signs on major entry points are (4 total):

On Forest Highway 82, at the junction with NFSR 204
On Forest Highway 82, at the junction with NFSR 289
On NFSR 206 at the junction with Forest Highway 82
On NFSR 205 at the junction with NFSR 205N

Locations on FS lands for burned area warning signs or safety placards at developed recreation sites and/or trails are (4 total):
Joe Daley Trailhead
Queens River Transfer Camp
Black Warrior Trailhead
Eagle Creek Trailhead

Locations on FS lands for secondary safety sign for user awareness of lack of trail tread (1 total):
Joe Daley Trailhead

Design/Construction Specifications:

- "Entering Burned Area" warning signs along the roads shall measure, at a minimum, 4 feet by 4 feet and consist of 0.08" aluminum, sheeted in high intensity orange with black letters. The "ENTERING BURNED AREA" lettering shall be a minimum of 5 inches in height and all remaining lettering shall be a minimum of 3.5 inches in height.
- Traffic Warning and Road Closure Signs shall conform to the M.U.T.C.D. standards and shall be installed per Federal Highway Safety Standards.
- User awareness for lack of trail tread sign shall be indicate that users need to proceed with "Extreme Caution."

Purpose of Treatment: The overall purpose of this treatment is to reduce risks to the value of **Human Life and Safety** by warning motorists of existing threats while traveling the authorized road and trail routes within and downstream of the burned area. Warning signs will advise travelers of threats to humans that include increased risks of falling trees and limbs, rolling rocks, and flash floods due to moderate and severe soil burn severity. Directional signs and trail route marker signs will safely direct motorists to their destination without taking a wrong turn, especially during emergency or severe weather conditions.
Treatment Effectiveness Monitoring: Monitoring consists of observations to identify repair/maintenance and replacement needs to ensure objectives of the treatment are being met.

Storm Patrols
General Description: The patrols are used to identify those road problems such as plugged culverts and washed out roads and to clear, clean, and/or block those roads that have received damage. The storm patrollers shall have access to at least a backhoe and dump truck that can be used when a drainage culvert is plugged or soon to be plugged, and to repair roads which are exhibiting severe surface erosion. Due to the presence of bridges in the Little Queens River drainage and the potential for floating debris to cause damage to those structures, the patrols will also monitor the movement of large woody debris and make a determination of whether or not the material should be removed before it contacts bridge piers or abutments.
Applicable Locations or Sites: The patrols should first focus on those roads and bridges that receive the most traffic, are of more value to the transportation system, and/or have high-risk structures that are prone to storm damage. Not listed in any order of preference, these roads include the following:

- FH 082 (Middle Fork Boise River Road)
- NFSR 206(Little Queens River Road)
- NFSR 205 (China Basin Road)
- NFSR 205N (NRA Access Road)

Design/Construction Specifications

3. FS personnel will direct the work.
4. Immediately upon receiving heavy rain and during significant spring snowmelt the FS will send out patrols to identify road hazard conditions – obstructions such as rocks, sediment, washouts, and plugged culverts, so the problems can be corrected before they worsen or jeopardize forest road users.
5. The road patrols shall bring in heavy equipment necessary to mechanically remove any obstructions from the roads and culvert inlets and catch basins where necessary. All excess material and debris removed from the drainage system shall be placed outside of the bank-full stream channel where it cannot re-enter the stream.

Purpose of Treatment: The purpose of this treatment is to evaluate the condition of roads and bridges (**Property**) to identify and implement repairs needed to maintain and/or repair damage to road surfaces and flow conveyance structures (culverts, bridges) across roads. The early detection of storm-caused road damage and rapid repair is needed: 1) to reduce threats to human life and safety for those traveling the routes; and 2) to maintain integrity of NFS roads and minimize greater monetary loss that could be incurred should minor impacts to roads go untreated.
Describe Treatment Effectiveness Monitoring: Monitor the storm-patrol response time to ensure objectives are being met. Identify the type of storm event that mobilizes material.

Cultural and Heritage Resources

Resource Protection-Enforcement Patrols
General Description: There are numerous known cultural resources sites in the Little Queens Fire. The general area encompasses the lands north of the Middle Fork Boise River. The effect of the fire on the visibility of these sites is unknown. Looting of cultural sites would adversely affect this resource.

Location/(Suitable) Sites: *Refer to BAER Treatment Map.* Cultural resources of particular concern are historic mining sites on NFS lands in the Atlanta area. The Forest Service Manual (2523.02, 2523.1 Exhibit 01) identifies cultural resources as a critical value for the purposes of BAER.

Purpose of Treatment Specifications: The purpose of resource protection patrols is to reduce or mitigate the risk of archeological looting, erosion, runoff, and flash flooding on significant cultural resources in the Little Queens Fire that can damage or destroy site integrity.

Archeological sites determined eligible for listing on the National Register of Historic Places and that are of importance to the Shoshone-Paiute Tribes and Shoshone-Bannock Tribes. During the Trail Creek Fire in 2000, FS archeologists observed and photographed looters on cultural resources sites during the BAER condition assessment conducted for that event. Unauthorized artifact collection (i.e. looting) is a pervasive, persistent, and well-documented activity in Idaho. Exposure of previously hidden artifacts and features due to vegetation loss and increased ground surface visibility increase the potential for looting and/or erosion that affect site integrity. Weekly to bi-weekly patrols will prevent possible looting to sites by establishing a regular presence in the area and monitoring for hydrologic threats that may need immediate management action.

Describe Treatment Effectiveness Monitoring: The patrols will document changes to the site in terms of artifact and feature composition that indicate archeological looting, runoff, and flash flooding is occurring and could affect site integrity. The results of the patrols will be used to determine if additional management action is required to protect these sites.

I. **Monitoring Narrative:** All treatments will be monitored for at least one year after implementation to ensure that risks to values are properly addressed by the treatments and that no undesireable outcomes are resulting from the treatment actions.

Part VI – Emergency Stabilization Treatments and Source of Funds - Boise NF Interim

			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										
				$0	$0		$0		$0	$0
Noxious/Invasive Treat	acres	10.71	1,300	$13,923	$0		$0		$0	$13,923
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$13,923	$0		$0		$0	$13,923
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 Treat.				$0	$0		$0		$0	$0
C. Road and Trails										
Road Storm Patrols	day	1454	10	$14,540						$14,540
Culvert Replacement	unit	2589	18	$46,602						$46,602
Road Drainage Recons	miles	3320	22	$73,040	$0		$0		$0	$73,040
Trail Storm Proofing, Ir	miles	1,839	5.8	$10,666	$0		$0		$0	$10,666
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$144,848	$0		$0		$0	$144,848
D. Protection/Safety										
Safety Signs	sign	497	8	$3,976	$0		$0		$0	$3,976
n/Enforcement patrols	day	184	35	$6,440	$0		$0		$0	$6,440
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$10,416	$0		$0		$0	$10,416
E. BAER Evaluation										
				---			$0		$0	$0
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				---	$0		$0		$0	$0
F. Monitoring										
			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				$169,187	$0		**$0**		**$0**	**$169,187**
Previously approved										
Total for this request				**$169,187**						

Part VI – Emergency Stabilization Treatments and Source of Funds - Sawtooth NF Interim # ___

			NFS Lands				Other Lands			All
sites		Unit	# of		Other	# of	Fed	# of	Non Fed	Total
Line Items	Units	Cost	Units	BAER $	$	units	$	Units	$	$
A. Land Treatments										
Noxious/Invasive Treat	acres	18.25	2040	$37,230	$0		$0		$0	$37,230
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$37,230	$0		$0		$0	$37,230
B. Channel Treatments										
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Channel Treat.				$0	$0		$0		$0	$0
C. Road and Trails										
Trail Storm Proofing, Ir	miles	4,754	13	$61,802	$0		$0		$0	$61,802
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$61,802	$0		$0		$0	$61,802
D. Protection/Safety										
Safety Signs	sign	599	7	$4,193	$0		$0		$0	$4,193
Heritage Res. Protecti	day	184	35	$6,440	$0		$0		$0	$6,440
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$10,633	$0		$0		$0	$10,633
E. BAER Evaluation										
				---			$0		$0	$0
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				---	$0		$0		$0	$0
F. Monitoring										
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$0	$0		$0		$0	$0
G. Totals				$109,665	$0		**$0**		**$0**	**$109,665**
Previously approved										
Total for this request				**$109,665**						

PART VII - APPROVALS

1. /s/ Cecilia R. Seesholtz — 11/22/13
   Boise Forest Supervisor (signature) — Date

2. /s/ Rebecca S. Nourse — 11/22/13
   Sawtooth Forest Supervisor (signature) — Date

3. Teresa Raff (for) — 12/12/13
   Regional Forester (signature) — Date