

Date of Report: 10/07/2016

BURNED-AREA REPORT
(Reference FSH 2509.13)**PART I - TYPE OF REQUEST****A. Type of Report**

- ☒ 1. Funding request for estimated emergency stabilization funds
- ☐ 2. Accomplishment Report
- ☐ 3. No Treatment Recommendation

B. Type of Action

- ☒ 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: Soup 1 & 2 Fires of the Complex B. Fire Number: CA-MDF-000905
- C. State: California D. County: Modoc
- E. Region: 05 F. Forest: Modoc
- G. District: Warner Mt (53) H. Fire Incident Job Code: P5KQV5
- I. Date Fire Started: 09/17/2016 J. Date Fire Contained: Estimated 10/10/2016
- K. Suppression Cost: Ongoing current estimate \$5.4 million
- L. Fire Suppression Damages Repaired with Suppression Funds
 - 1. Fireline waterbarred (miles): 6 miles
 - 2. Fireline seeded (miles): 0
 - 3. Other (identify): Affected Arch site was repaired

M. Watershed Numbers:

Soup 1: 18020002010201

Soup 2: 18020002010201, 18020002010202, 18020002010203, 18020002010204,
18020002010205

N. Total Acres Burned:

☒ NFS Acres ☐ Other Federal ☐ State ☒ Private

Soil Burn Severity (SBS) Acres by Land Status					
Land Owner	Very Low SBS (Acres)	Low SBS (Acres)	Moderate SBS (Acres)	High SBS (Acres)	Total Burned (Acres)
Modoc NF	608	685	1,053	282	2,628
Private	1	7	21	0	29

See map in Appendix A

O. Vegetation Types:

The Soup Complex impacted a variety of different plant communities and environments. Most of the fire area is classified as white fir, mixed conifer-fir, and mountain sagebrush, but a variety of other plant communities occur within the area.

Soup 1 is dominated by Eastside Pine. Soup 2 is dominated by mixed conifer stands with sage steppe communities, aspen stands, and wet meadows interspersed within the portions located in the South Warner Wilderness.

P. Dominant Soils:

Ninety-nine percent of the Soup 1 Fire was in the SMARTS-MASCAMP FAMILIES association, 40 to 60 percent slopes. See Table 2 for dominant soils in Soup 2.

Table 2

Dominant Soils - Soup 2 Fire	Acres
SMARTS-MASCAMP FAMILIES association, 40 to 60 percent slopes	494
LAMONDI-SMARTS DEEP FAMILIES complex, 20 to 40 percent slopes	352
SUPERVISOR-CHEADLE FAMILIES-ROCK OUTCROP association, 15 to 35 percent slopes	330
GALLATIN-BEHANIN DEEP-DUNCOM FAMILIES complex, 5 to 30 percent slopes	323
ANTONE-BEARSKIN-SMARTS FAMILIES association, 2 to 20 percent slopes	315
SMARTS-MASCAMP-DEMASTERS DEEP FAMILIES association, 20 to 40 percent slopes	291
DEMASTERS DEEP-SMARTS DEEP FAMILIES complex, 1 to 20 percent slopes	207
SMARTS-MASCAMP-DEMASTERS DEEP FAMILIES association, 2 to 20 percent slopes	114

One hundred percent of the soil surface texture in the Soup 1 Fire was a very cobbly loam. In the Soup 2 Fire, eighty-seven percent of surface textures were loams with rock contents ranging from stony to very cobbly. The gravel content varied from 10 percent to 30 percent.

Q. Geologic Types:

Soup 1: Basalt and basaltic andesite with a small sliver of tuff on the eastern flank

Soup 2: The entire fire is composed of basalt and andesite flows. The flows in the eastern half of the fire often have prominent columnar jointing, but are locally glassy and flow-banded.

Dan Munger, Forest Geologist, was consulted as to the potential for debris flows in the Soup Complex area. He said the risk was low (D. Munger, pers. comm. to Alvin Sarmiento)

R. Miles of Stream Channels by Order or Class:

Flow Regime by Severity (Miles)					
Flow Regime by Land Status	Very Low Severity (Miles)	Low Severity (Miles)	Moderate Severity (Miles)	High Severity (Miles)	Total (Miles)
Modoc NF					
Ephemeral	.07	.03	.02		.12
Intermittent	.11	.13	.46		0.7
Perennial	.73	1.07	.84		2.64

S. Transportation System:

Trails: 3.8 miles

FS Roads: 0.73 miles

County Road: 0

Miles of Trail by Severity					
	Very Low Soil Burn Severity (Miles)	Low Soil Burn Severity (Miles)	Moderate Soil Burn Severity (Miles)*	High Soil Burn Severity (Miles)	Total Burned (Miles)
Modoc NF	1.1	.7	1.6	0.4	3.8

*In conifer stands, moderate soil burn severity areas have 100 percent tree mortality and have the same hazard to forest visitors as high soil burn severity mortality areas

PART III - WATERSHED CONDITION

A. Burn Severity (acres):

Soil Burn Severity Acres by Watershed								
HUC 14	HUC Name	Very Low SBS (Acres)	Low SBS (Acres)	Moderate SBS (Acres)	High SBS (Acres)	Total Watershed Burned (Acres)	Total Watershed Area (Acres)	Percent Watershed Burned
18020002010205	Lower Mill Creek	162	214	415	215	1006	6780	15
18020002010204	Poison Creek	66	81	61	8	216	2809	8
18020002010203	Slide Creek	91	43	22	1	157	1110	14
18020002010202	Upper Mill Creek	136	141	159	13	449	5876	8
18020002010201	Soup Creek	152	180	345	20	697	6196	11

B. Water-Repellent Soil (acres):

Soup 1 - 64 acres

Soup 2 - 1,160 acres

C. Soil Erosion Hazard Rating (acres):

Soil Erosion Hazard Rating	Total Acres
Soup 1	
Moderate	1.4
High	0.7
Very High	131.1
Soup 2	
Moderate	1,359.8
High	634.4
Very High	530.8

- D. Erosion Potential:** The majority of both fires have similar soils with loam surface textures. The ERMIT modelling appeared to underestimate erosion potential, so the following values were estimated for the dominant soils

11.34 tons/acre was derived for the soils dominated by loams, which is 100 percent of the area in the Soup 1 Fire and 87 percent of the area in Soup 2.

- E. Sediment Potential:** 5,443.2 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

- A. Estimated Vegetative Recovery Period, (years):** 5 years
- B. Design Chance of Success, (percent):** 75%
- C. Equivalent Design Recurrence Interval, (years):** see table below
- D. Design Storm Duration, (hours):** 12 hours
- E. Design Storm Magnitude, (inches):** 2.49 inches
- F. Design Flow, (cubic feet / second/ square mile):** see table below
- G. Estimated Reduction in Infiltration, (percent):** 23%
- H. Adjusted Design Flow, (cfs per square mile):** see table below

HUC14 Watershed		Qp2			Qp5			Qp10		
Name	HUC	Pre	Post	Ratio	Pre	Post	Ratio	Pre	Post	Ratio
Soup Creek	18020002010201	62	77	1.24	125	156	1.24	185	230	1.24
Upper Mill Creek	18020002010202	111	130	1.17	224	263	1.17	332	389	1.17
Slide Creep	18020002010203	35	40	1.15	71	82	1.15	105	121	1.15
Poison Creek	18020002010204	51	60	1.17	103	121	1.17	153	180	1.17
Lower Mill Creek	18020002010205	58	82	1.42	117	167	1.43	173	246	1.43

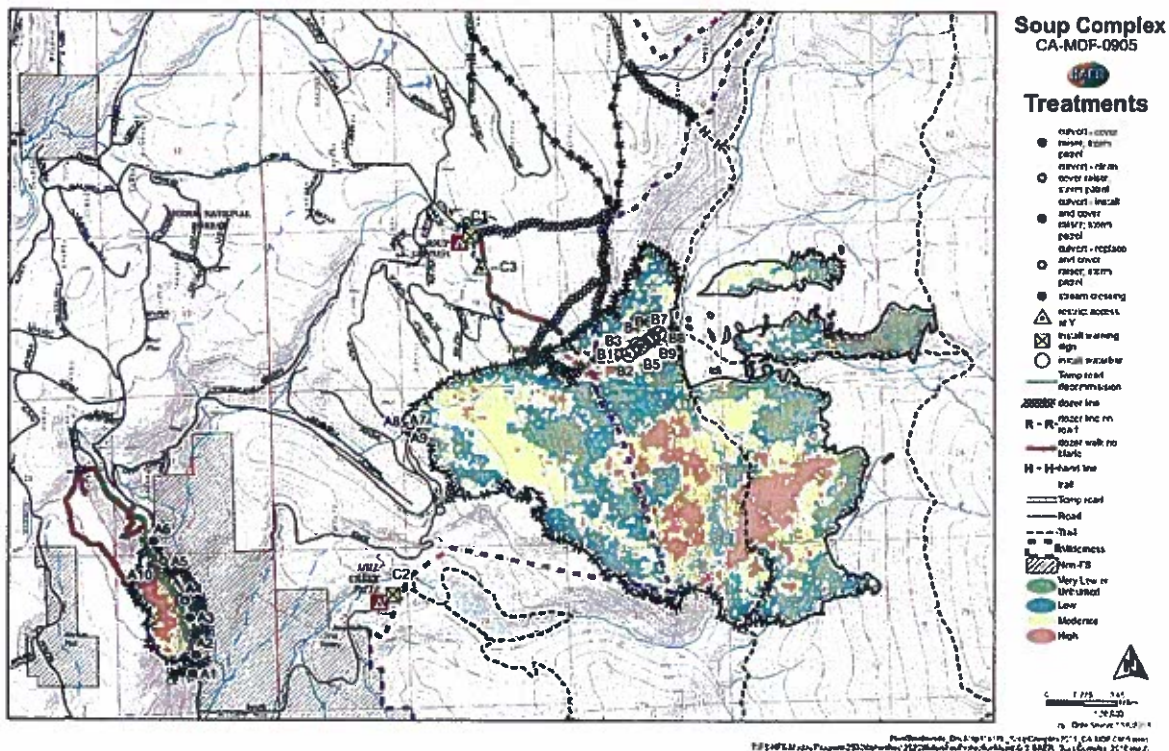
PART V - SUMMARY OF ANALYSIS

- A. Describe Critical Values/Resources and Threats Narrative:**

The Soup Complex is located near the southern end of the Warner Mountain Ranger District. Soup 1 is directly upslope from the northwest corner of Jess Valley, a large private inholding with several full time residences. There is a residence due east of this fire; however, the house and associated buildings are buffered from sediments and increased flows by a private road at the base of the fire, Soup Creek, and its associated meadow.

A BAES on the team, who is qualified to assess hazard trees, documented several areas with hazard trees from the fire along the West Warner Road (42N05) that would be of concern to forest visitor safety. In addition, the forest engineer had concerns for road stability with the increased erosion potential from the areas sustaining moderate and high soil burn severity. These concerns will be partially ameliorated by a non-system road that bissects the fire. However, this road also holds hazards to forest users because of its design; therefore, it is recommended for closure using BAER treatments under the safety section.

The Soup 2 Fire is north and east of the eastern edge of Jess Valley. The eastern half of the fire falls within the South Warner Wilderness. There are full time residences directly downstream of Mill Creek (see map below). Although Clear Lake is located between the residences and the fire, there were concerns over increased peak flows and decreases in water quality affecting this area.



As with the West Warner Road, there are hazards for forest user safety along the Mill Creek and Slide Creek trails in the areas sustaining moderate and high soil burn severity. These areas are characterized by coniferous stands with 100 percent tree mortality, intermediate slopes, and significant amounts of rock.

In addition, there are concerns about the stability of the trails and a creek crossing along the Soup Creek Road (40N24) associated with the increased erosion potential from strong hydrophobic soils with little to no soil cover and minimal expected needle cast in large expanses.

Values at Risk:

The risk matrix below, Exhibit 2 of Interim Directive No.: **2520-2010-1**, was used to evaluate the Risk Level for each value identified during the Assessment:

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

Human Life and Safety

I. Roads

- **High Risk**
- Probability of Damage or Loss: **Likely**
- Magnitude of Consequences: **Moderate**

In the section of the West Warner Road (42N05) affected by Soup 1, it is likely that storms would provide increased runoff and sediment delivery to the road prism, due to the moderate to high soil burn severity in the area. If not mitigated, runoff and sediment delivery to the road prism would cause a safety issue to road users and increase the chance of injury. The 42N05 road (West Warner Road) is managed as a Forest Distinctive Route and a primary Forest Road. Signage is recommended to mitigate the risk.

II. Trails

- **Very High Risk**
- Probability of Damage or Loss: **Likely**
- Magnitude of Consequences: **Major**

Trails present the largest exposure to hazard trees considering forest infrastructure and use patterns in burned areas. Lower Mill Creek trail contains a large number of hazard trees in areas sustaining both moderate and high soil burn severities; consequently there will be increased hazards along this section of trail in the near future. Stump and root holes along the lower Mill Creek section present another hazard to travel in the area, although most are outside the tread.

Another trail section of concern is the western edge of Slide Creek trail, due to its proximity to the Soup Springs campground. Concentrated use and higher exposure to day hikers and equestrian users can be expected here. Signage at the wilderness trailheads is recommended to mitigate the risk along both trails, since recreationists often use these areas as part of loops originating at all of the South Warner Wilderness gateways.

Potential Loss of Forest Property

I. Roads

- **High Risk**
- Probability of Damage or Loss: **Likely**
- Magnitude of Consequences: **Moderate**

On both the 42N05 and 40N24 roads, it is likely that storms would provide increased runoff and sediment delivery to the road prism, due to the moderate to high soil burn severities upslope from the road. Protection of the cross-drain culvert inlets is necessary to handle the increased runoff and sediment delivery. If it is not mitigated, the cross-drain culverts would not function as intended and cause damage to the road prism. The 40N24 is a ML 3 road and accesses the Soup Springs Campground. Storm proofing and Storm patrol are recommended to mitigate the risk.

II. Trails

- **High Risk**
- Probability of Damage or Loss: **Likely**
- Magnitude of Consequences: **Moderate**

The majority of emergency stabilization needs exist along the Slide Creek trail in an area that sustained moderate soil burn severity with 100 percent tree mortality. A small number of dead and down trees resulting from the fire are blocking the trail, but at this time travel around these obstacles presents no problems.

From the wilderness boundary on the Slide Creek trail to the intersection with the Mill Creek trail exists the area of greatest concern. Within this section there exists a trail segment with a 1,800

foot run and an elevation change of 200 feet. Representing the steepest grade along any of the trail sections that were burned, there is significant potential for erosion in this area. In addition most of the trail found here tends to follow the fall line representing an additional challenge to erosion control.

Closing these trails to the public does not appear to be necessary at this time. Due to the relative proximity to popular campgrounds as well as a frequent destination for hunting parties, equestrian and foot traffic, demand is likely to stay high and enforcement difficult.

Natural Resources

I. Hydrology

- **Low Risk**
- Probability of Damage or Loss: **Possible**
- Magnitude of Consequences: **Minor**

There is a low risk to Mill Creek Watershed and waterbodies therein. Based on Qp10, there is a projected increase in discharge of 23% overall. Total peak discharge after a Qp10 event is below the pre-fire peak discharge for a Qp25 event. Water quality may be affected in Clear Lake and the pond upstream from Clear Lake; however, this would be temporary. Meadows along Mill Creek, stabilizing vegetation, and Clear Lake would dissipate energy from high flows.

Treatments Recommended - None. Due to the low risk, lateness of the season, and a large portion of the affected watershed being in the wilderness, no treatments are proposed.

II. Soil productivity

- **High Risk**
- Probability of Damage or Loss: **Likely**
- Magnitude of Consequences: **Moderate**

After a fire there is the threat of increased soil erosion, which can have significant effects on site productivity. Allowable Soil Loss from the Soil Survey ranged from 1 ton per acre to 3 tons per acre. The predicted soil loss in the areas sustaining moderate to high soil burn severities is almost four times that value. There are 96 acres where this could occur on the Soup 1 fire and 1,260 acres on the Soup 2 Fire. This value corresponds to the areas sustaining moderate and high soil burn severities.

Treatments Recommended - None. The presence of a non-system road and a system road (which is in the process of self decommissioning) will act as sediment traps. In addition, Clear Lake and the ponds to the west will act as a sediment traps, minimizing water quality issues to down stream residences in Jess Valley.

III. Federally listed species

- **No risk**

There are no federally listed plant, terrestrial animal, or aquatic species within the Soup Complex. In addition, there are no anticipated downstream effects, since Jess Valley will provide a sediment trap for the South Fork of the Pit River.

Treatments Recommended - None

IV. Native or naturalized plant communities

- **Very High Risk**
- Probability of Damage or Loss: **Very Likely**
- Magnitude of Consequences: **Moderate**

Within and adjacent to the various fire perimeters, approximately 23.6 miles of fire bull dozer line and hand lines were created or used for fire suppression. A weed-wash station was requested mid-way through the active fire; however, the order was cancelled for logistical purposes and a **weed-wash station was not procured**.

Due to the potential introduction of invasive noxious weeds into the entire Soup Complex area, it is very likely there will be negative impacts to the ecological stability of native plant communities. Although many native plants respond favorably to fire, noxious weeds can threaten the plant diversity of the area by infesting the unique habitats of rare and uncommon plant species, reducing the abundance of other native plant species, and forming monocultures less resistant and resilient to naturally occurring disturbances. The Soup Complex fires impacted a variety of different plant communities, ranging from quaking aspen meadows to dense white fir forests.

The unknowing introduction of invasive noxious weeds into areas disturbed by fire suppression and rehabilitation has the potential to establish persistent weed populations. The lack of a weed-wash station heightens the probability of contaminated resources used for fire suppression spreading noxious weed propagules. Forest Service direction is to minimize the establishment of non-native invasive species to prevent unacceptable degradation of the burned area. Consequently, assessment of roads, dozer lines, drop points, and safety zones is necessary to detect the spread and introduction of weeds in the first year after fire. Assessing the establishment of weeds and treating small outlying populations before they expand, will prevent the weeds from becoming serious threats to the recovery of native plants.

Any new noxious weed populations established in the fire area also threaten all nearby public and private lands. Agricultural lands around the fire area may be degraded due to noxious weed spread. Water quality may also be threatened when noxious weeds displace native riparian and wetland plant species.

It is likely that invasive species were spread into un-infested areas and/or dormant seed banks were reactivated in this location as a result of the use of potentially contaminated equipment and the disturbance of known noxious weed sites. The consequences are moderate, because

spread and introduction of noxious weeds in this location would cause damage to critical natural resource values, which would result in long term adverse effects. Due to the lack of a weed-wash station for suppression vehicles, the extant weed populations, and location in proximity to recreation trails, there is a very high risk of severely degraded botanical/natural resources, and their connected ecosystem services.

Cultural Resources

- **No risk**

There are no values at risk relating to Cultural Resources within the Soup Complex.

Treatments Recommended – No BAER treatments are recommended. However, it is recommended that the Arc site impacted by a bulldozer during suppression efforts be monitored to determine the efficacy of repairs to the site in deterring looting.

B. Emergency Treatment Objectives Narrative

Proposed Treatments

I. Protect human life and safety

Signage - It is recommended that signs warning the public of the hazards of travel within the burned area are placed along the 42N05 within the Soup 1 fire perimeter and at the trailheads for the South Warner Wilderness; some of the trailheads have multiple access points. The signs will warn recreationists and motorists of increased hazards due to post fire conditions including: falling snags, rolling debris, and flooding.

Blocking Access of Non-system road - In addition, blocking access of the unauthorized road that parallels the 42N05 road is needed to eliminate vehicular access. Eliminating access to the unauthorized road would prevent injury to road users as the road is not properly designed to handle storm events.

II. Protect Forest Service investment in road and trail infrastructure

A. Roads

1) Storm Proofing – The 42N05 and 40N24 are expected to see an increase in runoff and sediment delivery to the road prism due to moderate to high burn severity and steep terrain of the Soup 1 and Soup 2 fires. Most of the cross-drain culverts have pipe risers in place, but other cross drain culverts will need similar treatment to mitigate against the higher runoff and sediment delivery due to the fire.

The cross-drain culverts would need to be cleaned to prepare for upcoming storms. Installing and replacing culvert pipe inlet risers will be needed to mitigate against the higher runoff and

sediment delivery and plugging of the culverts. The cross-drain culvert outlets would be armored with riprap to protect slope and erosion of the roadbed as well as protect the private property below the 42N05 road.

2) Storm Patrols – The 42N05 and 40N24 are within a moderate to high burn severity. There will be a future threat to travelers along the roads due to the increased sediment delivery and the potential for culverts to plug with sediment.

Storm Patrol would allow the forest to monitor the road drainage structure treatments to ensure the pipe risers are functioning, clean the culverts to ensure they continue to function in the future, and maintain and/or repair any damage to the road surface due to the sediment delivery.

B. Trails

Storm Proofing – Although high severity burned areas were examined in the lower Mill Creek drainage, the majority of emergency stabilization needs exist along the Slide Creek trail in an area typed as moderate soil burn severity. Along Mill Creek, complete consumption of ladder fuels and younger fir stands leaves little immediate damage to the trail. It is likely that due to the number of standing dead trees along the trail corridor there will be an increase in work load to keep this trail clear in the near term. Stump and root holes along the lower Mill Creek section present another hazard to travel in the area, although most are outside the tread. A small number of dead and down trees resulting from the fire are blocking the trail, but at this time travel around these obstacles presents no problem.

From the wilderness boundary on the Slide Creek trail to the intersection with the Mill Creek trail exists the area of greatest concern. Within this section, there exists a trail segment with a 1,800 foot run and an elevation change of 200 feet. Representing the steepest grade along any of the trail sections that were burned, there is significant potential for erosion in this area. In addition, most of the trail found here tends to follow the fall line representing an additional challenge to erosion control.

Closing these trails to the public does not appear to be necessary at this time. Due to the relative proximity to popular campgrounds as well as a frequent destination for hunting parties, equestrian and foot traffic, demand is likely to stay high and enforcement difficult.

III. Protect ecological values

Control of Noxious Weeds - Noxious weed detection surveys and concurrent treatment (hand-pulling) of any small noxious weed populations located during surveys will be conducted for all roads, dozer lines, staging areas, and drop points affected by the Soup Complex fires. Surveys will begin in 2017 within the Soup Complex perimeter primarily during the flowering period of weed species. The first priority will be to survey extant weed populations to evaluate the fire impact on population size and vigor. The second priority will be to conduct surveys along roads, hand lines, and drop points. Surveys of general habitats in the burned area will be the lowest priority. Results will be documented and entered into the NRIS database.

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

There is a 50% chance of implementing storm proofing of trails in the wilderness, due to late timing of the fire (end of September) and the assessment team's ability to get established.

Land: N/A **Channel:** N/A **Roads/Trails:** 80%/50% **Protection/Safety:** 90%

D. Probability of Treatment Success

Treatment Areas	Years after Treatment		
	1	3	5
Land	N/A	N/A	N/A
Channel	N/A	N/A	N/A
Roads/Trails	90	95	100
Protection/Safety*	90	85	80
* Initially, visitors will heed the warning, but complacency is expected in the years following. Blocking the non-system road is expected to have 100 percent probability of success.			

E. Cost of No-Action (Including Loss): (calculated from the Values at Risk (VAR) tool)

Roads: Construction/reconstruction - estimated at \$54,795 for total miles.

Trails: Construction (used to estimate value for severe storm damage) and Reconstruction - estimated at \$21,000 for the total area impacted.

Weeds: Non-market value. Cost of no action - would be loss of native plant communities and ecosystem stability, which would be a major long-term consequence, costing vastly more input to recover later.

F. Cost of Implementation (Including Loss): (calculated from the Values at Risk (VAR) tool)

Map Zone	Cost Roads	Cost Trails	Cost/Benefit Ratio
A (Soup 1)	\$13,500	N/A	1.8
B (Soup 2 outside SWW)	\$3,500	N/A	2.3
C (Soup 2 inside SWW)	N/A	\$1,900	10.6

G. Skills Represented on Burned-Area Survey Team:

<input checked="" type="checkbox"/> Hydrology	<input checked="" type="checkbox"/> Soils	<input type="checkbox"/> Geology	<input type="checkbox"/> Range
<input checked="" type="checkbox"/> Forestry	<input checked="" type="checkbox"/> Wildlife	<input type="checkbox"/> Fire Mgmt.	<input checked="" type="checkbox"/> Engineering
<input type="checkbox"/> Contracting	<input type="checkbox"/> Ecology	<input checked="" type="checkbox"/> Botany	<input checked="" type="checkbox"/> Archaeology
<input type="checkbox"/> Fisheries	<input type="checkbox"/> Research	<input type="checkbox"/> Landscape Arch	<input checked="" type="checkbox"/> GIS

Team Leader: Mary Rasmussen-Flores**Email** mflores@fs.fed.us**Phone:** (530) 279-8318**FAX:** (530) 279-8309**Team:**

Mary Flores, Team Leader and Soil Scientist

Cathy Carlock, Logistics and Forest BAER Coordinator

Celia Yamagiwa, Forest GIS Specialist

Alvin Sarmiento, Forest Roads Engineer Trainee.

Matt Smith, Forest Assistant Botanist trainee

Nick Semenza, Forest Hydrologist trainee

Paul Bach, Recreation/Trails Trainee

Jenna Matthews, BLM Archeologist

Susan Frye, Archeologist Trainee and REAF on Soup Complex

Don Mason, BAES and Recreation Trainee

Dave LeBlanc, BAES/escort

Kenny Heald, BAES/escort

Chris Bielecki, Forest Engineer and BAES, provided mentoring

Pam Bumsted, Forest Archeologist (consultant)

Sue Goheen, Forest Soil Scientist (consultant)

Dan Munger, Forest Geologist (consultant)

H. Treatment Narrative:**Land Treatments:** None**Channel Treatments:** None

1. Protect human life and safety

Signage - It is recommended that signs warning the public of the hazards of travel within the burned area are placed along the 42N05 within the Soup 1 fire perimeter and at the trailheads for the South Warner Wilderness; there are multiple access points at some of the trailheads, requiring more than one sign. The signs will warn forest users of increased hazards due to post fire conditions including, but not limited to falling snags and rolling debris.

Non-system road closure - In addition, blocking access to the unauthorized road that parallels the 42N05 road is needed to eliminate vehicular access. Eliminating access to the unauthorized road would prevent injury to road users as the road is not properly designed to handle storm events.

2. Protect Forest Service investment in road and trail infrastructure

Roads

Storm Proofing - Most of the cross-drain culverts along 42N05 and 40N24 have pipe risers in place, but other cross drain culverts will need similar treatment to mitigate against the higher runoff and sediment delivery due to the fire.

The cross-drain culverts would need to be cleaned to prepare for upcoming storms. The cross-drain culvert outlets would be armored with riprap to protect slope and erosion of the roadbed as well as protect the private property below the 42N05 road. Installing and replacing culvert pipe inlet risers will be needed to mitigate against the higher runoff and sediment delivery, and plugging of the culverts.

To eliminate vehicular access to the unauthorized road within Soup 1, an earth berm/boulders will be placed at both ends of the roadway dependent upon the availability of on-site material.

Storm Patrols - The 42N05 and 40N24 are within a moderate of high soil burn severity, which has 100 percent tree mortality. There is a future threat to travelers along the roads, due to the increased erosion and potential for culverts to plug with sediment.

Storm Patrol would allow the forest to monitor the road drainage structure treatments to ensure the pipe risers are functioning, clean the culverts to ensure they continue to function in the future, and maintain and/or repair any damage to the road surface due to the sediment delivery.

Trails

Clean existing trail drainage structures on 6 miles of trails that are within High and Moderate soil burn severity areas to ensure optimum functionality. Install 9 drainage structures along 1,800 feet of trail to protect water quality and minimize damage to the infrastructure. Work must be performed prior to snowfall in order to be functional for spring melt or a seasonal rain-on-snow event that could compromise trail infrastructure.

3. Protect ecological values

Control of Noxious Weeds

Noxious weed detection surveys and concurrent treatment (hand-pulling) of any small noxious weed populations located during surveys will be conducted for all roads, dozer lines, staging areas, and drop points affected by the Soup Complex fires. These areas will be surveyed for evidence of introduction or spread of noxious weeds. If any new or outlying populations are found in these surveys, a supplementary request for noxious weed treatment will be submitted.

Surveys will begin in 2017 within the Soup Complex perimeter primarily during the flowering period of weed species. All locations of weed species will be documented and mapped using GPS equipment, and hand pulling of small weed occurrences would be implemented at the time of inspection. Results will be documented and entered into the NRIS database.

PART VII - APPROVALS

1. Ann G. Moore
Forest Supervisor (Modoc NF) (signature)

10/14/2016
Date

2. Bennie T. Bryant
R5 Regional Forester (signature)

10/17/2016
Date

I. Monitoring Narrative:

Monitoring the efficacy of storm proofing activities along the wilderness trails will be conducted by the Forest as part of the Trails Maintenance Program of Work. No other activities required effectiveness monitoring.

Part VI - CA-MDF-000905 - Emergency Stabilization Treatments and Source of Funds

Line Items	Units	Unit Cost	# of Units	BAER \$	Other \$	# of Units	Fed \$	# of Units	Non Fed \$	Total \$
A. Land Treatments										
EDRR Noxious Weeds	hrs/mi	\$20	260	\$5,200	\$0		\$0		\$0	\$5,200
				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Land Treatments</i>				<i>\$5,200</i>	<i>\$0</i>		<i>\$0</i>		<i>\$0</i>	<i>\$5,200</i>
B. Channel Treatments										
				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Land Treatments</i>				<i>\$0</i>	<i>\$0</i>		<i>\$0</i>		<i>\$0</i>	<i>\$0</i>
C. Road and Trails										
Drainage feature	each	\$10	119	\$1,190	\$0		\$0		\$0	\$1,190
Storm proofing	each	\$7,500	1	\$7,500	\$0		\$0		\$0	\$7,500
				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Road & Trails</i>				<i>\$8,690</i>	<i>\$0</i>		<i>\$0</i>		<i>\$0</i>	<i>\$8,690</i>
D. Protection/Safety										
Trail hazard signs	each	\$9	10	\$90	\$0		\$0		\$0	\$90
Road berm installation	each	\$2,500	1	\$2,500	\$0		\$0		\$0	\$2,500
Storm patrol	each	\$7,000	1	\$7,000	\$0		\$0		\$0	\$7,000
				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Structures</i>				<i>\$9,590</i>	<i>\$0</i>		<i>\$0</i>		<i>\$0</i>	<i>\$9,590</i>
E. BAER Evaluation										
Region 5 only							\$0		\$0	\$0
FY 2016	each	\$6,265	1	\$6,265	\$0		\$0		\$0	\$6,265
FY 2017		\$15,397	1	\$15,397	\$0		\$0		\$0	\$15,397
				\$0	\$0		\$0		\$0	\$21,662
<i>Subtotal Evaluation</i>				<i>\$21,662</i>	<i>\$0</i>		<i>\$0</i>		<i>\$0</i>	<i>\$21,662</i>
F. Monitoring										
				\$0	\$0		\$0		\$0	\$0
<i>Subtotal Monitoring</i>				<i>\$0</i>	<i>\$0</i>		<i>\$0</i>		<i>\$0</i>	<i>\$0</i>
G. Totals				\$45,142	\$0		\$0		\$0	\$45,142
Previously approved				\$0	\$0		\$0		\$0	\$0

Appendix A - Soil Burn Severity Map

