Date of Report: August 30, 2022

YETI FIRE BURNED-AREA REPORT

PART I - TYPE OF REQUEST

A. Type of Report

☒ 1. Funding request for estimated emergency stabilization funds
☐ 2. No Treatment Recommendation

B. Type of Action

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

☐ 2. Interim Request #___
☐ Updating the initial funding request based on more accurate site data or design analysis

PART II - BURNED-AREA DESCRIPTION

A. Fire Name: Yeti

B. Fire Number: CA-KNF-006200

C. State: CA

D. County: Siskiyou

E. Region: 05

F. Forest: 05 **-** Klamath National Forest

G. District: Happy Camp, Oak Knoll

H. Fire Incident Job Code: P5PX6X (0505)

I. Date Fire Started: July 29, 2022

J. Date Fire Contained: 98% (As of 8/29/2022)

K. Suppression Cost: 16.6 million

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

		Repair Status
Feature Category	Total	Completed - Inspected
Completed Dozer Line	23.196	11.149
Completed Hand Line	6.190	
Completed Road as Line	17.347	

Table 1: Fire Suppression Damages

M. Watershed Numbers:

HUC14 Drainages within the Yeti Fire burn perimeter, acres burned at different soil burn severities, and percent moderate and high SBS.

HUC 14 Names	Total Acres	Acres Burned	% Watershed Burned	Unburned	Low SBS	Moderate SBS	High SBS	% Moderate & High SBS
China Creek	6,189	308	5%	5881 (95%)	271 (4.4%)	32 (0.5%)	5 (0.1%)	1%
Ladds Creek-Klamath River	4,761	2,406	51%	2355 (49.5%)	1437 (30.2%)	640 (13.4%)	329 (6.9%)	20%
Seattle Creek-Klamath River	6,261	2,677	43%	3584 (57.2%)	1903 (30.4%)	619 (9.9%)	155 (2.5%)	12%
West Grider Creek-Klamath River	4,026	2,034	51%	1993 (49.5%)	1549 (38.5%)	401 (10%)	84 (2.1%)	12%

Table 2: Watershed Numbers

N. Total Acres Burned:

Table 3: Total Acres Burned by Ownership

OWNERSHIP	ACRES
NFS	7,807
PRIVATE	72
TOTAL	7,879

O. Vegetation Types:

The Yeti fire burned through native vegetative communities ranging in elevation from approximately 1,181 feet around the Klamath river corridor up to 4,259 feet on the top of China Mountain. The main habitat type impacted by the fire is characterized as mixed oak conifer woodlands.

Mixed oak conifer woodlands are dominated by California black oak (Quercus kelloggii Newberry), ponderosa pine (Pinus ponderosa Lawson & C. Lawson), Jeffrey pine (Pinus jeffreyi Grev. & Balf.), sugar pine (Pinus lambertiana Douglas), and Douglas-fir (Pseudotsuga menziesii Mirb. & Franco) as overstory species. The understory was primarily composed of Pacific madrone (Arbutus menziesii Pursh.), incense cedar (Calocedrus decurrens (Torr.) Florin), big leaf maple (Acer macrophyllum Pursh), canyon live oak (Quercus chrysolpeis Liebm.), and Pacific dogwood (Cornus nuttallii Audubon). Dominant shrubs included manzanita (Arctostaphylos spp.), deer brush (Ceanothus integerrimus Hook. & Arn.), and poison oak Toxicodendron diversilobum (Torr. & A. Gray) Greene).

P. Dominant Soils:
The soils within the Yeti Fire formed from complex parent material within a geological unit containing undifferentiated metamorphic rock. The accuracy of the soils mapped within the Klamath soil survey is questionable so is not listed here. However, important characteristics that drive hydrologic response include loam soil texture with high rock content and a moderately deep to deep soil depth. The most important aspect of the soils within Yeti is extreme slopes. The average slope is approximately 60% with slopes commonly over 100 percent.

Q. Geologic Types:
The fire lies within the Klamath Mountains Physiographic Province and is underlain predominantly by Paleozoic and Mesozoic metavolcanic and metasedimentary rock, along with minor amounts Quaternary sediments in the valleys. Tectonic processes accreted numerous terranes to the western margin of North America and three of these occur within the fire area: the Rattlesnake Creek, Condrey Mountain, and Western Klamath Terranes.

Belt/Assemblage	Age	Terrane/Formation	Rock type
Western Paleozoic & Triassic	Triassic	Rattlesnake Creek	Metavolcanics plus Metasediments, Peridotite
Western Paleozoic & Triassic	Jurassic	Condrey Mountain	Metavolcanics plus Metasediments, Graphite Schist, Greenschist, Blueschist, Serpentinite
Western Paleozoic & Triassic	Jurassic	Western Klamath (Galice Formation)	Metavolcanics, Metasediments, Micaceous Schist, Metagraywacke
Pleistocene / Holocene Fluvial Deposits	Quaternary	Superjacent to Terranes in Canyons and Klamath River Valley	Sedimentary, Fluvial, Alluvium / Colluvium

Table 4: Rock Units within the Yeti Fire

Most of the geologic terranes of the Klamath Mountains are weak and prone to landslides. Rapid uplift, high precipitation, and seismic activity to the west have created a landscape with abundant deep-seated landslides, many of which occupy several square miles. Most of these larger complexes are dormant under present climatic and seismic conditions though some from tens to hundreds of acres in size are known to be active. Both the dormant and active landslides are very important parts of the landscape since they are often the source of debris slides during wet winters, and the debris slides in turn can generate debris flows. Post-fire debris flows triggered by the rapid influx of sediment from rills and gullies typical of places like southern California and the Rockies are less common in this region but could be generated under a short duration, high intensity storm, as monsoon summer storms.

Miles of Stream Channels by Order or Class:

Table 5: Miles of Stream Channels by Order or Class

STREAM TYPE	MILES OF STREAM
PERENNIAL	7.6
INTERMITTENT	17.3
EPHEMERAL	5.9
OTHER (DEFINE)	0

R. Transportation System:
Trails: *National Forest (miles):* 0 *Other (miles):*
Roads: *National Forest (miles):* 27.6 *Other (miles):*

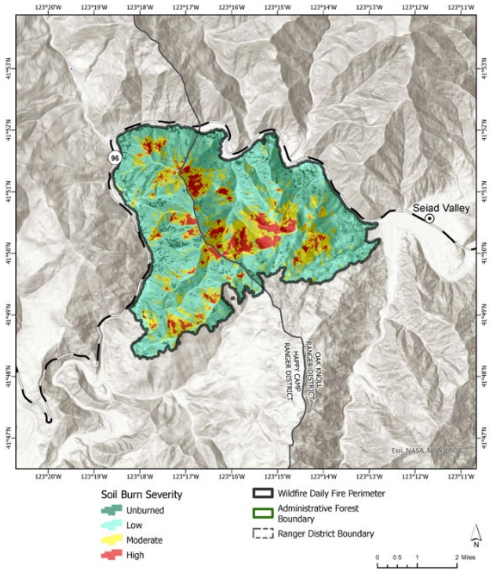
PART III - WATERSHED CONDITION

A. Burn Severity (acres):

Table 6: Burn Severity Acres by Ownership

Soil Burn Severity	NFS	Other Federal (List Agency)	State	Private	Total	% within the Fire Perimeter
Unburned	435	0	0	19	454	6
Low	5,109	0	0	52	5,161	65
Moderate	1,691	0	0	1	1,692	22
High	572	0	0	0	572	7
Total	7,807	0	0	72	7,879	100

Figure 1



B. Water-Repellent Soil (acres): hydro/soils

Water repellency will increase on approximately 2,400 acres.

C. Soil Erosion Hazard Rating:

Use Erosion Potential

D. Erosion Potential:

The modelled erosion rates were relatively high in the fire area and is primarily driven by much higher slopes, high precipitation rates, and finer soil textures which produce higher erosion values.

2-year event = 12 tons/acre
5-year event = 20 tons/acre
10-year event = 27 tons/acre

These are relatively high erosion values considering the Soil Burn Severity being dominated by Moderate and Low SBS. There will likely be high sediment delivery into the Klamath River; however, vegetation recovery is likely to be rapid due to high precipitation. Needle fall from trees in areas burned at Moderate SBS is also expected to rapidly ameliorate erosion.

E. Sediment Potential:
Based on USGS debris flow modeling it appears that under conditions of a peak 15-minute rainfall intensity storm of 24 millimeters per hour (0.95 inches/hour) corresponding to a 1-year storm, Ladds creek, some side drainages contributing to West Grider Creek and a few other drainages flowing directly into the Klamath River are predicted to initiate debris flows with high (60-80%) or very high (80-100%) probabilities. It is important to note that flooding is far more of a concern in drainage basins exceeding 8 square kilometers in contributing area. Streams that exceed an upslope area of 8 square kilometers are defined as “watch streams”.

Under this same magnitude of storm, predicted volumes in Ladds Creek and West Grider Creek range for the most case from 10K-100K cubic meters (Table 7). Most other channels in the burn area are predicted to produce volumes ranging from 1K to 10K cubic meters or less.

Regarding combined hazard, the USGS debris flow model estimates a wide range hazard in channels impacted by the Yeti Fire, with highest combined hazards in Ladds Creek, moderate combine hazard along West Grider Creek, and low to moderate combined hazard in all other channels impacted by the Yeti Fire.

Many watersheds in the burn area require rainfall rates greater than 24 mm/h to exceed a 50% likelihood of debris-flow occurrence. High hazard areas as Ladds Creek watershed require more modest rainfall rates between 20 and 24 mm/h to exceed a 50% likelihood of debris flow occurrence.

These conditions leading potentially for the geological hazards described above will stay in affect till vegetation in the burned watersheds re-establishes itself, which depending on rain and other conditions, could take 2-5 years after the fire.

F. Estimated Vegetative Recovery Period (years): Due to the low – moderate burn severity of the Yeti fire, vegetative recovery for herbaceous and hardwood species is anticipated to occur within 3 years. High severity pockets of the fire may take up to 5 years, particularly if erosional storms wash away soil seed banks.

G. Estimated Hydrologic Response (brief description):
Watershed Response

Annual precipitation ranges between 46 to 64 inches, primarily arriving between November and March although summer thundershowers do occur. Topography within the Yeti Fire area is steep and mountainous rising from 1181 feet at the Klamath River to 4,189 - 4,269 feet at the high points of Evans Mountain and China Peak. Only 18% of the assessment area is within the rain-snow transition zone (3,500-6,500 feet) located within proximity of the two predominant peaks and extending ridgelines. Most precipitation is received in the form of rain from large frontal storms and can last several days. Snow occurs in moderate amounts at elevations above 3,000 feet. Below 4,000 feet snow does not remain on the ground for long periods and permanence of snowpacks are dependent on seasonal climatic phenomena. Seasonal snow accumulations may melt and reaccumulate numerous times throughout the winter period. Snow accumulation versus rainfall effects the magnitude of post-fire watershed response, slowing runoff and favoring infiltration. It is important to note, however, that rain-on-snow events while infrequent do occur within the elevation zone and can result in significant damage. Topography is mountain valley formation where elevations within the assessment area change quickly over short distances ranging between 1,181 and 4,269 feet.

Damaging Storms:

Although not the only types of storms that could occur, likely damaging storms within the burn area are: 1) short duration, high intensity storms which frequently trigger debris flows (ex. monsoonal thunderstorms); 2) warm, long duration storms related to atmospheric rivers; and 3) rain-on-snow events (also linked to atmospheric rivers). Short duration, high intensity storms will pose a localized risk to smaller catchments and nearby areas downstream. The longer duration and rain-on-snow storm events could cause flooding in the larger watersheds and higher order streams.
Hydrologic Processes:

Fire causes impacts to several hydrologic processes including reduction in interception, transpiration, and infiltration, and increased runoff (due to lack of litter and decreased surface roughness). Removal of vegetation and changes to soil such as increases in hydrophobicity, changes in soil structure, and removal of duff, organic matter, and roots alters these processes and ultimately lead to increases in runoff, peak flows and erosion. These alterations are typical of soils classified as having incurred moderate to high soil burn severity. Needle cast potential is usually observed in areas with moderate and low soil burn severity. In areas that burned at moderate soil burn severity but that lack needle cast having no groundcover or interception, moderate soil burn severity areas may respond to storm events like areas with high soil burn severity. Given the large percentage of moderate and high soil burn severity as well as lack of needle cast potential and steep slopes, watershed response will be moderate to high in some catchments (Table 6).
Increases in runoff and bulking of flows across the burn area at selected pour points are expected to increase in magnitude by 1.5 to 2.1 times compared to normal.

Table 7: Modeled pre- and post-fire flows at select pour points for the 2-yr peak flows.

A) Discharge estimated for smaller watersheds using Wildcat model (Poursheds)

				2 yr. RI Peak Flow				
HUC 14 Drainage	**PP#**	**Modeled Pour Point**	**% of Mod & High SBS**	**Pre-Fire Q (CFS)**	**Post-Fire Q (CFS)**	**Post-Fire Bulked Q (CFS)**	**Bulked Q Compared to Pre-Fire Q (Time increase)**	**Flood Hazard Rating**
West Grider Creek-Klamath River (18010206110307)	PP1	West Grider Ck Above Lower Houses	13	820	1,007	1,259	1.5	MODERATE
Ladds Creek-Klamath River (18010209020203)	PP2	Ladd's Ck - Klamath River	58	539	908	1,135	2.1	HIGH

Channel crossings, floodplains, and low-lying areas have an inherent risk of flooding which will be exacerbated by the fire. Increased runoff and sediment delivery (ex. surface erosion, sediment-laden flows, and debris flows) can lead to channel migration and braiding across valley bottoms in flood events. Lateral channel migration can erode cut banks and undercut slopes, streamside trees, and banks. Aggradation can increase probability of channel migration and flooding by reducing channel capacity within banks. Dormant channels may be reactivated in post-fire runoff events. This makes prediction of hazardous flow paths within a floodplain difficult and results in a hazardous zone, versus point or line.

Changes in hydrologic processes can also lead to slope instability and result in post-fire debris flows, mudflows, and other mass wasting (as described under geologic response). In turn, debris flows can cause secondary effects such as localized flooding due to damming rivers with sediment and debris, forced migration of the channel around the debris flow deposit, and/or aggradation increasing localized flood risk. Areas at risk of these secondary effects are depositional zones at the base of burned slopes or downstream of steep catchment outlets. The southern portion of the fire is more likely to experience secondary effects of debris flows than the northern area due to slope and geology type.

Watershed response in the burn area will pose a very high risk to life, safety, and infrastructure. The combination of increased flows, sediment loads, and woody debris increase the volume of post-fire flows, which could negatively impact culverts, constructed channel ways, and other infrastructure designed to pass “normal” flows. It is important to note that downstream areas that experience regular flooding or difficulty controlling drainage during small storms will be very likely to experience flooding and/or failure in post-fire storms. Bulking and increased flows may cause channels to flood, divert, or migrate to areas that do not usually flood.

Water Quality: Wildfires primarily affect water quality through increased sedimentation. As a result, the primary water quality constituents or characteristics affected by this fire include color, sediment, suspended material, and turbidity. Floods and debris flows can entrain large material, which can physically damage infrastructure

associated with beneficial uses of water (e.g., water conveyance structures; hydropower structures; transportation networks). The loss of riparian shading and the sedimentation of channels by floods and debris flows may increase stream temperature. Fire-induced increases in mass wasting along with extensive vegetation mortality can result in increases in floatable material such as large woody debris. Post-fire delivery of organic debris to stream channels can potentially decrease dissolved oxygen concentrations in streams. Fire-derived ash inputs can increase pH, alkalinity, conductivity, and nutrient flux (e.g. ammonium, nitrate, phosphate, and potassium), although these changes are generally short lived.

PART V - SUMMARY OF ANALYSIS

Introduction/Background

The Yeti Fire started on July 29, 2022 from a lightning strike in Siskiyou County burning between the communities of Seiad and Happy Camp, California. The fire includes National Forest System lands (NFS), within Region 5, on the Klamath National Forest (KNF), in the Happy Camp and Oak Knoll ranger districts. Additionally, the fire spread primiraly across National Forest System lands, with 7,807 acres burned and 72 acres of private burned for a total of 7,879 acres.

Table 8: Burn Severity Acres by Ownership

Soil Burn Severity	NFS	Other Federal (List Agency)	State	Private	Total	% within the Fire Perimeter
Unburned	435	0	0	19	454	6
Low	5109	0	0	52	5161	65
Moderate	1691	0	0	1	1692	22
High	572	0	0	0	572	7
Total	7807	0	0	72	7879	100

Although the majority of the fire burned at a low burn severity of 65%, the fire did see a moderate soil burn severity of 22%, with a high burn severity of 7% (Table 7). As a result, flows from the burned areas are expected to increase and may be bulked up with sediment, ash and woody debris. There are some large watersheds within the burned area which could produce significant increase in outflows given the right precipitation event.

The fire was wind and slope driven and moved across the landscape quickly through the shrubs with low heat effects to the soils. There are a lot of steep rocky slopes and potential for debris flows and rockfall within the burn. Most areas under shrub type vegetation lost some amount of soil but remaining surface soils still have roots intact with very little sign of deeper heat into the ground. The timebered areas in the drainaiges generally burned hotter with longer residence time which resulted in burning of surface fuels and more heat energy moving into the soil. Within the high severity burned areas, there are deeper effects to the soil roots and structure.

As of report date, the fire is 98% contained at 7,886 acres. A BAER assessment team began burn severity mapping field reconnistance on Friday, August 12 to verify the imagery received from the Burned Area Reflectance Classification (BARC), with the core BAER team starting assessment on Thursday, August 18.

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

Table 9: 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**	

1. Human Life and Safety (HLS):

- *Forest Visitors Safety:*
  The BAER team identified potential threats to Forest visitors/recreating public, and agency personnel (visiting or post-fire treatments) that are within or downstream/downslope of burned slopes, especially those with a moderate-high burn severity, from flooding and debris flows, hazard trees, loss of ingress and egress along/at roads. The probability of damage or loss is **possible or likely**, resulting from hazard trees along travel routes within the burn area have not been mitigated. Likewise, there are numerous locations within the burn area or directly below moderate/high burn severity that are now at risk from flash flooding, debris flows, and rockfall. The magnitude of consequences is **major**, as a tree strike or entrapment could lead to serious injury or loss of life. As such, the risk is considered **high/very high.**

  - BAER funds are requested to treat these risks

  BAER recommends the Forest install warning signs at all ingress locations of the fire.

2. **Property (P):***NFS Roads (46N56, 46N81, 45N83Y)*

   There is a threat to NFS road prisms from increased runoff, erosion, and debris flows. Undersized and inadequate drainage structures are not expected to convey the expected increase in post-fire runoff and erosion and may damage Forest Service road infrastructure. The probability of damage or loss is **likely,** because the identified NFS road prisms are expected to receive increased overland flow and accelerated erosion concentrating on route segments downslope from areas burned at moderate and high severity. The magnitude of consequences is **moderate.** Increased runoff could lead to failure of these road segments, which could constitute a loss of Forest Service infrastructure and increased sediment delivery to streams and rivers downslope. The resulting risk is **high.**

   - BAER funds are requested to treat these risks.

   BAER recommends repairing functional conditions of drainage features and conduct storm inspection and response.

3. **Natural Resources (NR):**Native and naturalized plant communities, where invasive noxious weeds were absent or in trace amounts, from contingency suppression activities.

   - *Fire Suppression Activities*
     High likelihood of spread and introduction of invasive and noxious weeds into areas disturbed by suppression impacts (dozer lines, hand lines, drop points, helispots, etc.) which pose a threat to native and naturalized plant communities. The probability of damage or loss is **likely**, because areas of exposed soil due to fire suppression activities are susceptible to weed invasion and spread. There are several small weed infestations known along access roads. No weed washing stations were established for the first week of the fire incident. Increased fire traffic during suppression may have brought vehicles and equipment in contact with known weed infestations and spread them into the burned areas. The magnitude of consequences is **moderate.** Introduction and expansion of weeds can suppress native vegetation recovery and lead to a loss of native and naturalized plant communities. Vegetation type conversion to annual grasslands and expansion of weeds into areas disturbed by fire suppression and within the burned area are likely; potentially increasing fire frequency. The resulting risk is **high.**

     - BAER funds are requested to treat these risks.

   Designated critical habitat for SONCC Coho salmon, a Federal ESA-listed fish species, and habitat suitable for UKTR Spring Chinook salmon (candidate species):

- **Low** risk for loss of designated Critical Habitat for Coho salmon and habitat suitable for spring-run Chinook, a Candidate species. Impacts to habitat may occur from accelerated erosion, flood events, and debris flows that increase sediment delivery, decrease future large wood recruitment, and scour channels. Additionally, where riparian shade has been lost, water temperatures may increase. With a focus upon locales within the fire area with moderate to high SBS, the probability of post-fire impacts to habitat is Unlikely; and magnitude of consequences is Moderate.

  Within the fire area, site-specific concerns associated with roads in higher SBS locations could result in downslope or downstream impacts to aquatic habitat. For Yeti Fire, no specific priority post-fire risk mitigation need was identified. In association with moderate and high SBS, the road system has been identified as high risk in regard to life/safety and high risk for Forest Service property loss.

  - *Treatment Recommendations:* Support engineering recommendations of implementing storm patrols to assess the road system as required and determine if there are post-storm failures that need attention. This activity will result in secondary benefits to Coho Critical Habitat and habitat suitable to Spring Chinook.

4. Cultural and Heritage Resources: Eligible and potentially eligible sites

Watersheds denuded by the fire can cause erosion, debris flow, and storm run-off, which can cut through archaeological sites, damaging cultural deposits, or undermine structures and features. Surface artifacts can be moved or buried by erosion degrading their integrity or causing them to go unrecognized during future surveys. These impacts may destroy cultural resources or alter the context of surface and subsurface cultural remains vital to any scientific analysis or interpretation. The probability of damage or loss is **possible**, because watersheds denuded by the fire can cause erosion, debris flow and storm run-off, which can cause cut through archeological sites, damaging cultural deposits, or undermine structures and features. Surface artifacts can be areas of exposed soil due to fire suppression activities are susceptible to identification. The magnitude of consequences is **minor.** The resulting risk is **low.**

- Treatment recommendation is district monitoring of sites.

B. Emergency Treatment Objectives:

- Mitigate and protect, to the extent possible, threats to personal injury or human life of forest visitors and Forest Service employees by raising awareness through posting hazard warning signs on roads, reinforcing road tread, improving road drainage, and communicate hazard of flooding and debris flow. Communicate to cooperating agencies and community groups.

- Protect or minimize damage to NFS investments in road infrastructure by installing drainage features capable of withstanding potential increased stream flows and/or debris flows. Minimize damage to key NFS travel routes.

- Protect or mitigate potential post-fire impacts to critical cultural resources within the burned area.

- Treat invasive plants that are a threat to native and naturalized ecosystems by minimizing the expansion of existing populations in the burned area and control of expected invasion of noxious weeds within and adjacent to the area where soils/vegetation was disturbed as a result of the fire and fire suppression activities.

- Assist cooperators, other local, State, and Federal agencies with the interpretation of the assessment findings to identify potential post-fire impacts to communities and residences, domestic water supplies, public utilities and other infrastructure.

C. Probability of Completing Treatment Prior to Damaging Storm or Event:
Land: 95%
Channel: n/a
Roads/Trails: 90%
Protection/Safety: 100%

D. Probability of Treatment Success

Table 10: Probability of Treatment Success

	1 year after treatment	*3 years after treatment*	*5 years after treatment*
Land	80	50	35
Channel	N/A	N/A	N/A
Roads/Trails	85	90	90
Protection/Safety	85	95	100

E. Cost of No-Action (Including Loss): $695,800

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 if washed out, eroded, or buried includes estimates to bring in material to build up the damaged roads. The cost of not treating the proposed 8.1 miles of road under moderate to high burn severity is approximately $145,800 not including the effect on forest management, fire suppression, and recreation.

Land Treatments – Native and Naturalized Plant Communities: Approximately $100,000. As such, the benefit/cost ratio exceeds 1.8% (considering loss).

Cultural and Heritage Resources: Economic values cannot be placed on the loss of cultural and heritage resources. The cultural or historic resource at risk is eligible, or potentially eligible, for listing on the National Register of Historic Places (HRHP). No emergency treatment is requested but monitoring and natural recovery is recommended.

F. Cost of Selected Alternative (Including Loss): $31,895

P1: The cost to treat 8.1 miles of road within the assessment area is $14,175. Detail costs are included in the assessment project record Engineering Report.

Table 11: Initial Storm Inspection and Response Cost Estimate

TREATMENT	UNIT	UNIT COST	# OF UNIT	TOTAL COST
STORM INSPECTION AND RESPONSE	Mile	$1,750	8.10	$14,175
TOTAL				**$14,175**

HLS1: The cost for warning signs is $900. Detail costs are included in the assessment project record Engineering Report.

Table 12: Initial Road Warning Sign Cost Estimate

TREATMENT	UNIT	UNIT COST	# OF UNIT	TOTAL COST
INSTALL WARNING SIGNS	EA	$150	6	$900
TOTAL				$900

*Unit cost includes materials only, Base 8 hours not included.

NR1: Native and Naturalized Plant Communities:
Total cost of treating 14.3 miles of contingency dozer line and 5 drop points all on Forest lands, related to suppression repair activities is $16,820. Cost estimates are based on the standard calculation of $1,000 per mile.

Table 13: Miles and numbers of suppression created disturbances during the Yeti fire.

Feature	Klamath NF	Private	Approx. Total
Completed Dozer Line	20.5	2.7	23.2
Completed Hand Line	5.4	0.8	6.2
Completed Road as Line	16.4	0.9	17.4
Drop Point	10	4	14

Table 14: Native and Naturalized Plant Communities:

COST ESTIMATE YETI BAER - KLAMATH NATIONAL FOREST				
Weed Assessment Area	Risk Rating			Cost
	Probability of Damage or Loss	Magnitude of Consequences	Risk	
Contigency	Likely	Moderate	High	$16,820
TOTAL				**$16,820**

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader: Brian Hansen and Brad Rust
Email: brian.c.hansen@usda.gov **Phone(s):** 775-224-9960

Forest BAER Coordinator: Bill Wall
Email: william.wall@usda.gov **Phone(s):** 530-643-3058

Team Members: *Table 15: BAER Team Members by Skill*

Skill	Team Member Name
Team Lead(s)	Brian Hansen (t)
Soils	Eric Nicita
Hydrology	Anna Chinchilli, Jesse Merrifield, Kyle Wright

Skill	Team Member Name
Geology	Yani Schwartz, Dennis Veich
Engineering	Larry Arrington, Sam Marano, John Weddle III
GIS	Daniel Reinkensmeyer
Archaeology	Bob Grate
Weeds	Erin Lonergan
Recreation	Jennifer Womack
Fisheries	Maija Meneks
Logistics	Cathy Carlock

H. Treatment Narrative:

Land Treatments:

Native and Naturalized Plant Communities: EDRR surveys on 14.3 miles of contingency dozer line and 5 drop points of KNF lands based on values at risk, current infestation sizes, and areas that were disturbed by suppression activities, resulting in unacceptable risks to natural resources. The weed risk to native plant community recovery can be mitigated at low cost by implementing EDRR within the first year after the fire. New, small weed infestations located during EDRR surveys will be manually treated upon discovery. Existing infestations found to be expanding due to the fire or fire suppression activities would be re-mapped and evaluated for treatment.

Channel Treatments: N/A

Roads and Trail Treatments:

RD-1 Storm Inspection and Response
Roads that are in and below areas of moderate/High burn severity need to be monitored during and after storm events. Storm inspections and response will ensure the existing drainage features are functioning, clean the area to ensure they continue to function in the future, and maintain and/or repair any damage to the road surface due to runoff and sediment delivery.

Protection/Safety Treatments:

HLS-1 Entering Burn Area Warning Signs
“Entering Burn Area” signs are needed to alert the public of possible threats to their life and safety that exist within or downstream of a burned area. The signs contain language specifying items to be aware of when entering a burn area such as falling trees and limbs, rolling rocks, and flash floods. Signs are placed in entry points that are expected to receive high use, or popular roads used for recreating. Signs will be attached to t-posts and removed once hazards are mitigated.

I. **Monitoring Narrative:** N/A

PART VI – EMERGENCY STABILIZATION TREATMENTS AND SOURCE OF FUNDS

			NFS Lands				Other Lands			All
		Unit	# of		Other	# of	Fed	# of	Non Fed	Total
Line Items	Units	Cost	Units	BAER $	$	units	$	Units	$	$
A. Land Treatments										
EDRR - Suppression	Project			$16,820	$0		$0		$0	$16,820
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$16,820	$0		$0		$0	$16,820
B. Channel Treatments										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Channel Treatments				$0	$0		$0		$0	$0
C. Road and Trails										
Storm Inspection and Response	Project			$14,175	$0		$0		$0	$14,175
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road and Trails				$14,175	$0		$0		$0	$14,175
D. Protection/Safety										
Hazard Warning	Project			$900	$0		$0		$0	$900
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Protection/Safety				$900	$0		$0		$0	$900
E. BAER Evaluation										
Initial Assessment	Report			$37,696	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				---	$0		$0		$0	$0
Subtotal Evaluation				$37,696	$0		$0		$0	$0
F. Monitoring										
				$0	$0		$0		$0	$0
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Monitoring				$0	$0		$0		$0	$0
G. Totals				$31,895	$0		**$0**		**$0**	**$31,895**
Previously approved										
Total for this request				**$31,895**						

PART VII - APPROVALS

1. RACHEL SMITH Digitally signed by RACHEL SMITH Date: 2022.09.26 09:11:10 -07'00'

Forest Supervisor Date