

(Reference FSH 2509.13)

P. Dominant Soils: Lithic Ustochrepts (1,754 ac.), Typic Ustochrepts (174 ac.), Fluventic Ustochrepts (30 ac.)

Q. Geologic Types: Permian sedimentary rocks. Gray to tan, cherty limestone of Kaibab and Toroweap Formations, and underlying white to tan, fine-grained Coconino Sandstone (gypsum; mudstone; dolomite; orthoquartzite)

R. Miles of Stream Channels by Order or Class: 3.7 miles of 1st order streams; 1.5 miles of 2nd order streams; 2.6 miles of 3rd order streams.

S. Transportation System

Trails: 0.25 miles Roads: 6.71 miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres): 540 (unburned/very low) 769 (low) 545 (moderate) 104 (high)

B. Water-Repellent Soil (acres): approximately 30 percent of high severity burn acres (i.e., 31 ac.)

C. Soil Erosion Hazard Rating (acres):
84 (low) 768 (moderate) 1,106 (high)

D. Erosion Potential: 12.5 tons/acre

E. Sediment Potential: 9,600 cubic yards / square mile

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 3

B. Design Chance of Success, (percent): 80

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

D. Design Storm Duration, (hours): 0.5 hr.

E. Design Storm Magnitude, (inches): 1.25 in.

F. Design Flow, (cubic feet / second/ square mile): 950

G. Estimated Reduction in Infiltration, (percent): 10

H. Adjusted Design Flow, (cfs per square mile): 30

PART V - SUMMARY OF ANALYSIS

A. Describe Critical Values/Resources and Threats:

There are known populations of cheatgrass, Russian thistle, and Scotch thistle in close proximity to the fire perimeter. These invasive and noxious weeds have been recently treated with herbicides, but the potential exists for these weeds to invade burned areas.

Approximately 12 archaeological sites within fire perimeter are at risk of erosion, damage from falling trees (i.e. site disturbance caused by wind-throw that uproots trees), or human disturbance.

There is high potential for loss of soil productivity and sediment delivery to a perennial spring and an ephemeral drainage as a result of sheet, rill and gully erosion. This spring and ephemeral drainage are tributaries to Kanab Creek.

B. Emergency Treatment Objectives:

- Protect at-risk soils and watershed resources from degradation as a result of post-fire effects by preventing soil loss and sediment delivery to a streamcourse that is a tributary of Kanab Creek.
- Protect archaeological/heritage resources from erosion, disturbance by Forest visitors, or damage from falling trees by seeding archaeological sites to provide protective vegetative cover and removal of burned trees around at-risk sites.
- Prevent spread of noxious weeds (i.e., cheatgrass, Russian thistle, and Scotch thistle) into and within the fire perimeter.
- Protect Slide Spring from degradation by preventing sediment, ash and debris from adversely affecting the spring flow and infrastructure.
- Protect Spring Trail from storm water run-on and erosion.

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

Land 70 % Channel % Roads/Trails % Protection/Safety %

D. Probability of Treatment Success

| | Years after Treatment | | |
|-------------------|-----------------------|-----|-----|
| | 1 | 3 | 5 |
| Land | 80 | 85 | 90 |
| Channel | N/A | N/A | N/A |
| Roads/Trails | N/A | N/A | N/A |
| Protection/Safety | N/A | N/A | N/A |

E. Cost of No-Action (Including Loss): Based on a commercial value of \$50.00 per cubic yard for topsoil and a potential soil loss rate of 12.5 tons per acre, the cost of the No Action Alternative would be approximately \$304,000 in areas proposed for treatment. The No Action alternative would also result in degradation of surface water quality in Kanab Creek, a tributary to the Colorado River as a result of sediment delivery and increased surface water turbidity. Topsoil loss would reduce long-term grazing capacity and forage production for wildlife, particularly mule deer. Finally, the opportunity to gain information on the lives of indigenous people within the fire affected area would be lost if archaeological/heritage resources are not protected.

F. Cost of Selected Alternative (Including Loss): \$27,200.00

G. Skills Represented on Burned-Area Survey Team:

| | | | |
|--|--|--|---|
| <input type="checkbox"/> Hydrology | <input checked="" type="checkbox"/> Soils | <input type="checkbox"/> Geology | <input checked="" type="checkbox"/> Range |
| <input checked="" type="checkbox"/> Forestry | <input checked="" type="checkbox"/> Wildlife | <input checked="" type="checkbox"/> Fire Mgmt. | <input type="checkbox"/> Engineering |
| <input type="checkbox"/> Contracting | <input checked="" type="checkbox"/> Ecology | <input 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 |

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H. **Treatment Narrative:**

(Describe the emergency treatments, where and how they will be applied, and what they are intended to do. This information helps to determine qualifying treatments for the appropriate funding authorities. For seeding treatments, include species, application rates and species selection rationale.)

Land Treatments: Drill seed approximately 30 acres and broadcast seed approximately 50 acres of highly erodible soils with severe burn severity on moderate slopes and along two drainages within the fire perimeter that burned at moderate and high severity to prevent sheet and rill erosion and to serve as a filter strip to capture sediments that could otherwise be transported to Slide Spring and Kanab Creek. Estimated cost - \$13,500.00 drill seeding and \$2,900 for broadcast seeding. Total: \$16,400

Spring Protection: Slide Spring is at very high risk of being buried with ash flows, sediment, and debris from moderate and high burn severity areas. The spring box and pipeline are also at risk of being filled with this debris. Slide Spring provides water to the FS Hatch Cabin via a 4.5 mile pipeline in the bottom of Kanab Creek Wilderness. This is the only human water source for the entire north end of Kanab Creek Wilderness. A small diversion structure will be constructed with on-site natural materials around the spring source, spring box, and pipeline \$1,500.00

Noxious weeds detection and treatment on an estimated 40 acres (cheatgrass, Russian thistle and Scotch thistle) within the fire perimeter to prevent spread of these weeds into burned areas. Estimated cost - \$4,000.00

Remove trees surrounding approximately 12 archaeological sites that are at imminent risk of falling, causing damage to cultural and historic resources. Apply native seed to these sites (approximately 1-2 acres total for all sites). Estimated cost – \$2,400.00.

Conduct invasive and noxious weeds monitoring (4 days at \$350.00 per day).

Channel Treatments: N/A

Roads and Trail Treatments: Slide Canyon Trail stabilization and drainage structures to prevent storm run-on and erosion of the trail ~ 0.5 miles. (0.25 miles within the fire and 0.25 below the fire). This is the only access to Slide Spring. Estimated cost: \$1,500.00

Protection/Safety Treatments: N/A

I. **Monitoring Narrative:**

(Describe the monitoring needs, what treatments will be monitored, how they will be monitored, and when monitoring will occur. A detailed monitoring plan must be submitted as a separate document to the Regional BAER coordinator.)

NOXIOUS WEED DETECTION /MONITORING

The purpose of weed detection and treatment is to identify the spread of noxious weeds from any currently known locations of noxious weeds. Noxious weed species generally will be treated at the same

time they are discovered. The North Kaibab Ranger District Range Specialist will implement the monitoring strategy. This treatment includes reconnaissance for any new individuals of noxious weeds within and adjacent to the fire perimeter and along roads used for fire suppression activities. Noxious weeds will be sprayed with herbicide as they are discovered. New weed locations will be documented with GPS positions and photographed when possible. The weed surveys will occur four times during the growing season, preferably monthly from May through August. This frequency should allow weeds to be detected and treated before they reach full maturity and set seed.

SEEDING EFFECTIVENESS

Seeded areas will be assessed semi-annually to determine germination success and percentage of effective ground cover. Areas below seeded sites will be assessed for soil deposition/creep and sediment transport into drainages.

SLIDE SPRING and TRAIL

Slide spring and the Spring Canyon Trail will be visited semi-annually to evaluate trail stability and spring function.

ARCHAEOLOGICAL SITES

Archaeological site treatments (seeding and tree removal) will be visited semi-annually to assess site stability and concealment from public view.

Part VI – Emergency Stabilization Treatments and Source of Funds

Interim #

| Line Items | Units | Unit Cost | NFS Lands | | Other \$ | Other Lands | | | All Total \$ |
|--|-------|-----------|------------|----------|----------|-------------|--------|-----------------------|--------------|
| | | | # of Units | BAER \$ | | # of units | Fed \$ | # of Units Non Fed \$ | |
| A. Land Treatments | | | | | | | | | |
| Drill seeding | acre | 450 | 30 | \$13,500 | \$0 | | \$0 | \$0 | \$13,500 |
| Broadcast Seeding | acre | 58 | 50 | \$2,900 | \$0 | | \$0 | \$0 | \$2,900 |
| Archaeological site | site | 200 | 12 | \$2,400 | | | \$0 | \$0 | \$2,400 |
| Spring Protection | site | 1,500 | 1 | \$1,500 | | | \$0 | \$0 | \$1,500 |
| Weed detect & treat | acre | 100 | 40 | \$4,000 | \$0 | | \$0 | \$0 | \$4,000 |
| <i>Insert new items above this line!</i> | | | | \$0 | \$0 | | \$0 | \$0 | \$0 |
| Subtotal Land Treatments | | | | \$24,300 | \$0 | | \$0 | \$0 | \$24,300 |
| B. Channel Treatments | | | | | | | | | |
| | | | | \$0 | \$0 | | \$0 | \$0 | \$0 |
| <i>Insert new items above this line!</i> | | | | \$0 | \$0 | | \$0 | \$0 | \$0 |
| Subtotal Channel Treat. | | | | \$0 | \$0 | | \$0 | \$0 | \$0 |
| C. Road and Trails | | | | | | | | | |
| Trail Stabilization | miles | 3000 | 0.5 | \$1,500 | \$0 | | \$0 | \$0 | \$1,500 |
| | | | | \$0 | \$0 | | \$0 | \$0 | \$0 |
| <i>Insert new items above this line!</i> | | | | \$0 | \$0 | | \$0 | \$0 | \$0 |
| Subtotal Road & Trails | | | | \$1,500 | \$0 | | \$0 | \$0 | \$1,500 |
| D. Protection/Safety | | | | | | | | | |
| | | | | \$0 | \$0 | | \$0 | \$0 | \$0 |
| <i>Insert new items above this line!</i> | | | | \$0 | \$0 | | \$0 | \$0 | \$0 |
| Subtotal Structures | | | | \$0 | \$0 | | \$0 | \$0 | \$0 |
| E. BAER Evaluation | | | | | | | | | |
| | | | | \$1,600 | | | \$0 | \$0 | \$0 |
| <i>Insert new items above this line!</i> | | | | --- | \$0 | | \$0 | \$0 | \$0 |
| Subtotal Evaluation | | | | --- | \$0 | | \$0 | \$0 | \$0 |
| F. Monitoring | | | | | | | | | |
| Treatmt Effectiveness | days | 350 | 4 | \$1,400 | \$0 | | \$0 | \$0 | \$1,400 |
| <i>Insert new items above this line!</i> | | | | \$0 | \$0 | | \$0 | \$0 | \$0 |
| Subtotal Monitoring | | | | \$1,400 | \$0 | | \$0 | \$0 | \$1,400 |
| G. Totals | | | | \$27,200 | \$0 | | \$0 | \$0 | \$27,200 |
| Previously approved | | | | | | | | | |
| Total for this request | | | | \$27,200 | | | | | |

PART VII - APPROVALS

1. /s/ Michael R. Williams
Forest Supervisor (signature)

8/17/2012
Date

2. /s/ Karen Carter (for)
Regional Forester (signature)

8/22/12
Date