USDA-FOREST SERVICE FS-2500-8 (7/00)

Date of Report: August 3, 2018

BURNED-AREA REPORT
(Reference FSH 2509.13)

PART I - TYPE OF REQUEST

A. Type of Report

[x] 1. Funding request for estimated WFSU-SULT funds
[ ] 2. Accomplishment Report
[ ] 3. No Treatment Recommendation

B. Type of Action

[x] 1. Initial Request (Best estimate of funds needed to complete eligible rehabilitation 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: Valley Fire

B. Fire Number: CA-BDF-010610

C. State: CA

D. County: San Bernardino

E. Region: 05

F. Forest: San Bernardino NF

G. District: 53 Front Country Ranger District

H. Date Fire Started: July 6, 2018

I. Date Fire Contained: Transitioned to Type 3 Forest Incident on July 16, 2018 at 28% containment

J. Suppression Cost: ~$7,000,000 (as of 7/18/2018 SitRep)

K. Fire Suppression Damages Repaired with Suppression Funds
1. Fireline waterbarred (miles):
2. Fireline seeded (miles): 0
3. Other (identify):

Fire features on Forest Land Only:

Fire Points	Count
Dip Site	1
Helispot	5
Mobile Weather Unit	2
Grand Total	**8**

Fire Lines	Miles
Brush/Chip Completed	10.4
Completed Dozer Line	2.6
Completed Hand Line	5.9
Forest Road Mastication	2.4
Road as Completed Line	0.2
Uncontrolled Fire Edge	4.9
Grand Total	**26.4**

L. Watershed Number:

- Mill Creek (180702030501)

M. Total Acres Burned: 1342 acres
NFS Acres (1240 acres) Other Federal ( ) State ( ) Private (102 acres)

N. Vegetation Types Vegetation in the burn area was comprised primarily of lower montane mixed chaparral and birchleaf mountain mahogany in the lower elevations, with mixed conifer, scrub oak and canyon live oak at higher elevations, and big cone Douglas fir in drainages at both high and low elevations. Much of the vegetation is sparse with pockets of denser oak and chaparral. A number of rock faces and scree slopes exist within the fire area which do not support vegetation.

O. Dominant Soils:

Soil Type	Key	Percentage
Lithic Xerorthents-Springdale family-Rubble land association, 50 to 100 percent slopes	DhG	97.0
Wilshire-Oak Glen, dry families association, 2 to 15 percent slopes	FsD	1.0
Rock outcrop, 30 to 100 percent slopes	Rs	2.0
Riverwash	Rw	0.0

P. Geologic Types:

Geology	Key	Percentage
Quartz monzonite	qm	40
Gneissic rocks	gn	59
Alluvium	Qa	1

Source: Dibblee, T.W., USGS I-431, Geologic map of San Gorgonio Mtn quad, 1964

Mill Creek, the Valley of the Falls Road, and parts of Highway 38 run parallel with the North Branch of the San Andres Fault

Q. Miles of Stream Channels by Order or Class: 2.88 miles of intermittent stream channel

R. Transportation System: no FS road/trail miles within the fire footprint. Valley of the Falls Road (maintained by the County) forms one control line. Highway 38 (maintained by Caltrans) is near to the southwest corner of

the control line. Recreationists enter the area on user-made foot trails to reach Monkeyface Falls and other locations.

Trails: No FS trail miles Roads: No FS road miles

PART III - WATERSHED CONDITION

A. Burn Severity (acres):

77 (unburned, includes rock faces and scree slopes with no vegetation to burn)

461 (low) 641 (moderate) 163 (high)

B. Water-Repellent Soil (acres): The Valley fire experienced wetting rains and landslides twice during the suppression effort which confounded water repellency testing where access allowed on the edges of the burn area.

C. Soil Erosion Hazard Rating (acres): using R5 2509.22-2016-1 Chapter 50

___ (low) ___ (moderate) 1342 (high)

D. Erosion Potential: ERMiT model

Pre-Fire: 1.98 tons/acre; 1st year following: 36.3-42.7 t/ac [18-21 times]; 2nd year: 21.2-27.3 t/ac [10-14 times]

E. Sediment Potential: 735 cubic yards / square mile (RCS model) [11 times normal]

PART IV - HYDROLOGIC DESIGN FACTORS

A. Estimated Vegetative Recovery Period, (years): 3-5 years

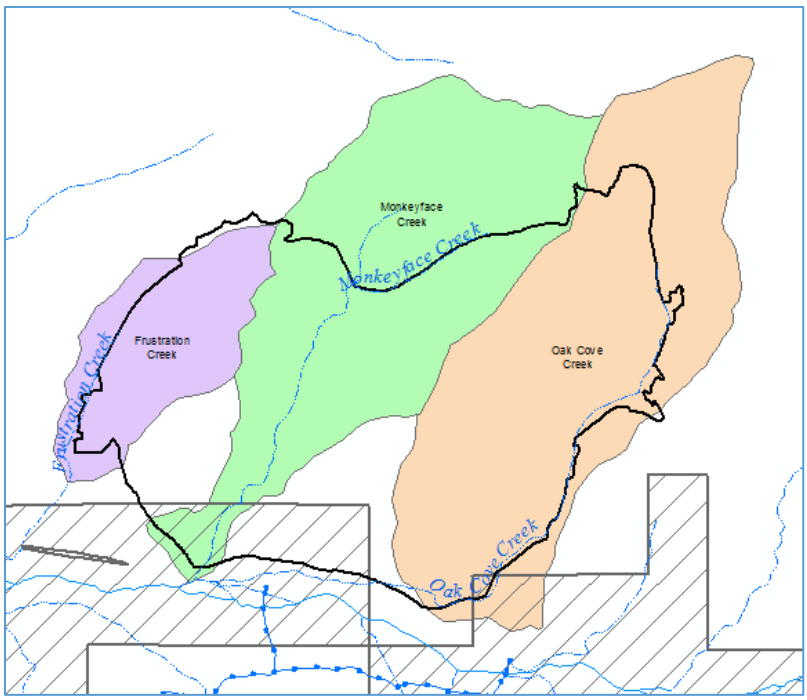
B. Design Chance of Success, (percent): No treatment

C. Equivalent Design Recurrence Interval, (years): 2 year

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

E. Design Storm Magnitude, (inches): 0.67 inches

NOAA Atlas 14, Volume 6, Version 2 for 34.1 degrees x 116.9 degrees, elevation 7320 feet



F & H. Design Flow and Adjusted Design Flow (cubic feet / second/ square mile)

FS WEPP Peak Flow calculator method using Curve Numbers, checked against the USGS Streamstats peak flow equations

Peak discharge (cfs/sq.mi.) increases to the watersheds for the 2-year (Q2), 5-year (Q5), and 10-year (Q10) storm events for the year following the Valley Fire using CN of 64 for unburned, 70 low SBS, 90 for moderate SBS, and 94 for high SBS with water-repellant soils [averaged CN listed in table]

	Normal watershed peak discharge per storm type (cfs/sq.mi.)			**1-year post burn peak discharge per storm type (cfs/sq.mi.) with approximate equivalent recurring storm rank**		
Watershed (average post-fire CN)	**Q2**	**Q5**	**Q10**	**Q2**	**Q5**	**Q10**
Monkeyface Creek (CN=73)	43	162	262	323 (Q15)	490 (Q30)	865 (Q100)
Frustration Creek (CN=80)	69	142	237	588 (Q100)	907 (Q500)	Outside range
Oak Cove Creek (CN=76)	49	154	330	440 (Q25)	680 (Q50)	990 (Q100)

695 ac Monkeyface Ck watershed (Upper 333 ac outside burn area; 29 H, 175 M, 158 L)
243 ac Frustration Ck (and adjacent unnamed) watershed: (60 outside burn, 5 unburned, 41H, 88M, 49L)
798 ac Oak Cove Ck watershed: (Upper 281 outside burn, 29 unburned, 71H, 237M, 180L)

G. Estimated Reduction in Infiltration, (percent): 50%

PART V - SUMMARY OF ANALYSIS

A. Describe Watershed Emergency:

Description of Fire Burned Area:
The burn area has steep, unstable slopes (ranging between 50-80%), and inaccessible cliffs. The area is inherently unstable, with the San Andreas fault in the Mill Creek drainage. There is a history of debris flows in the area whenever a thunderstorm produces sufficient rain. During the Valley fire (on July 7th) a thunderstorm cell set up above the Frustration Creek watershed (on the western side) and produced debris flows with a large black ash component that resulted in closing Highway 38 and the Valley of the Falls road. [No information was acquired as to the intensity of this storm, but the modeling suggests any storm of significance will have a major response.] Further upcanyon and on the eastern edge of the fire, on July 12, a thunderstorm produced a debris flow that closed the Valley of the Falls road. Reports showed 1-2 inches in less than 2 hours. The NOAA Atlas 14 for this area indicates that such a rain intensity falls within the 5-year return interval (which is modeled to produce a 30-year return interval response for Monkeyface Creek or the 50-year return interval response for Oak Cove Creek). Pre-fire rock fall, slumping, and falling debris potential were high within the area.

All stream channels/drainage paths within the catchment are transport systems and very incised. Swales and headwater tributaries are charged with loose alluvium (with high rock content). Material sliding off the hillside is contributing to the increased sediment load within the channels. The stream channels are lined with riparian hardwoods, big cone Douglas fir, and denser vegetation. The riparian areas had lower soil burn severity. When the fire reached the conifers and canyon live oak at the higher elevations, a moderate to high soil burn severity occurred.

Pre-fire The vegetation within the fire perimeter is primarily lower montane mixed chaparral including scrub oak, birchleaf mountain mahogany in the lower elevations, with scrub oak, canyon live oak, and fir dominated mixed conifer at the higher elevations, with big-cone Douglas fir in the drainages.

Soil Burn Severity:
Soil burn severity (SBS) considers surface and below-ground factors that relate to soil hydrologic function, runoff and erosion potential, and vegetative recovery. Soil burn severity is described as the effect of a fire on ground surface characteristics; including char depth, organic matter loss, altered color and structure, and reduced infiltration. It is classified into one of 4 ratings (unburned, low, moderate, and high) using satellite imagery and on-the-ground monitoring to determine post-fire soil burn severity. Soil burn severity can affect vegetative recovery, hydrologic response, and erosion potential. Much of the area had sheer rock faces and scree slopes that had little to no vegetation and were, therefore, unburned. Soil burn severity in the drainage channels and near the edge of the fire was generally low SBS, with the mid-slopes and upper elevation mixed conifer stands exhibiting primarily low and moderate with some high SBS. The canyon live oak stands suffered the highest percentage of the high soil burn severity.

Predicted post-fire recovery of vegetation:
The soil burn severity map when overlaid with the vegetation types, shows that the majority of the high soil burn severity areas were occupied by Canyon live oak and scrub oak which are fire-hardy and quickly re-sprout from above and below ground structures (buds, rhizomes, roots), and are expected to recover relatively quickly (3-10 years).The mixed conifer pine-dominated areas at higher elevations, and in the steep drainages, big cone Douglas fir, on the other hand are dependent on seed gemination and have low recruitment after fire. This might hinder recovery of those areas if the soil burn severity was high, however the majority of these vegetation types experienced low to moderate soil burn severity. Still, regeneration from the seed bank is likely to be slow (20+ years).

Watershed Response and Erosion Hazard Ratings:

Rowe, Countryman, and Storey (1949) method

The hydrologic model designed by Rowe, Countryman, and Storey (RCS), 1949 (Table 55), was used to estimate post-fire increases in peak flows and annual sediment delivery. Kinoshita, Hogue, and Napper, 2014 validated continued use and applicability of this model for Southern California. The model designed by RCS provides data

for pre- and post-fire discharges and erosion rates in southern California watersheds. Individual rates for various subwatersheds were developed over long observation periods.

Hydrologic design information for the RCS hydrologic model is based on the 24 hour duration storm. The 2 year, 24 hour duration storm anticipated for these subwatersheds is 5.01 inches (NOAA, 2018). However, although the RCS model is based on the 24 hour duration storm, the anticipated storm expected to occur within the fire burned area that could produce damaging post-fire effects is a short duration, high intensity storm (used as the design storm), especially given the date of the storm (early summer).

FS WEPP tools for sediment yield (ERMiT) and peak flow using Curve Number methods

The Erosion Risk Management Tool (ERMiT) uses Water Erosion Prediction Project (WEPP) technology as the runoff and erosion calculation engine. WEPP simulates both interrill and rill erosion processes and incorporates the processes of evapo-transpiration, infiltration, runoff, soil detachment, sediment transport, and sediment deposition to predict runoff and erosion at the hillslope scale (Flanagan and Livingston, 1995). The ERMiT interface uses multiple runs of WEPP over a range of input parameters to predict event sediment delivery in probabilistic terms on burned and recovering forest, range, and chaparral lands. This ERMiT User Manual provides the information needed to access, run, and interpret ERMiT output; however, the conceptual framework of the model has not been included. (https://www.fs.fed.us/rm/pubs/rmrs_gtr188.pdf)

To predict peak runoff from total storm runoff:

1. Run ERMiT for climate and hillslope typical of the watershed.
2. Note the return period runoff volume from first ERMiT table (Rainfall Event Rankings and Characteristics From Selected Storms).
3. Estimate the peak runoff rate from the runoff volume using the TR-55 method.

Changing the length and steepness of the hillslope is unlikely to change the predicted runoff amount. It will make a bit of difference in erosion.

The SCS-TR55 method has been widely used to estimate peak runoff rates from small rural and urban watersheds (SCS, 1986). This method of estimating peak runoff rate is applicable to watersheds that are smaller than 900 ha and with average slopes greater than 0.5 percent with one main channel or two tributaries with nearly the same time of concentration. (Fangmeier et al., 2006. 5.16-TR55 Method For Estimating Peak Runoff Rate.)

Kirpich formula

$t_c = 0.0078\left(\frac{L^{0.77}}{S^{0.385}}\right)$	time of concentration

http://www.ajdesigner.com/phptimeconcentration/kirpich_equation_time_concentration.php#ajscroll

where: time of concentration (minutes), L is flow length in feet, S is slope and is unitless (= L/H or flow length / elevation difference).

Three pour points were delineated for modeling erosion and hydrologic response. Peak flow increases for the 2-year storm in the burned catchments are estimated to increase 7 to 9 times higher than normal, acting more closely to a 15 to 25 year peak flow, except for Frustration Creek which models a 2-year event as a 100-year response. During the fire, a thunderstorm cell over the Frustration Creek portion of the fire produced enough debris to shut down Highway 38. Annual erosion rates are predicted to increase as much as 11 times above normal. In general, the areas affected by the fire will experience significant increases in sediment delivery and runoff. This supports the field observations of debris flow, landslide, and other mass wasting potential. Given

that the stream channels in the area are predominately transport systems, sediment delivery is expected to be very high.

Erosion hazard ratings were determined for the area using the method as described in the Forest Service Handbook. Most of the area ranks as high to very high, intensified even more by post-fire effects.

Recreation factors:
Most of the terrain is inaccessible due to slope. No authorized trails exist within the area, but the public is known to park along the Valley of the Falls road and hike to Monkeyface Falls (mapped as being on the edge of NFS lands and private lands). Frustration Creek is known to have a rock climbing location which is accessed directly next to Highway 38, where a turnout allows the public to park. During the BAER evaluation, rock climbers were observed in the Caltrans debris catchment basin.

Caltrans Frustration Creek sediment control basin next to Highway 38

Geologic Response:

A. Mass Wasting

Risk of debris flows has been increased as a result of the fire. Debris flows can mobilize with destructive force 100-1,000,000 cubic yards of rock, sediment, organic material from hillslopes and steep stream channels and have very rapid velocities measured in miles per hour.

The USGS provided estimates of debris-flow likelihood, volume, and combined hazard for several design storms with a range of peak 15-minute intensities within the geodatabase. Peak 15-minute intensities range from 12 mm/h to 40 mmh-1 in 4 mmh-1 increments. Estimates are calculated at two scales: the stream segment scale (segment of stream with a maximum length of 200m) and for drainage basins (at algorithm defined pour points). Our maximum drainage area size for calculating the predictions is 8 square kilometers, the largest basin area we have identified as producing a debris flow in our empirical database. 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, yet are still susceptible to flood and possibly debris-flow hazards, are included in the geodatabase as “watch streams.” We also provide estimates that can be used to guide the initial establishment of rainfall intensity-duration thresholds for storm peak intensities of 15-, 30-, and 60-minute durations.

Our models utilize data regarding topography (using 10m DEMs), burn severity (from you folks and/or RSAC/EROS), soil properties (STATSGO), and rainfall. The specific equations and variable descriptions can

be found at our website on the scientific background page:
http://landslides.usgs.gov/hazards/postfire_debrisflow/background2016.php

Most of the stream segments and basins in the burn area have a moderate to high likelihood of debris flow at a peak 15-minute rainfall intensity of 24 mmh^{-1}. These basins also have a modeled volume of up to 100,000 m^3.

On-the-ground observations across the burn indicated that the area could be subject to debris flows, landslides, or other mass wasting events. The erosion hazard ratings are very high. Many tributaries have sediment laden channels that burned with moderate soil burn severity, lack ground cover, and have high rock and small boulder content. This material is likely to mobilize in a storm event without the vegetation left to stabilize it. The timing of the risk from debris flows is not limited to winter but will extend throughout the first three years until vegetation can re-establish. A monsoonal thunderstorm is common in the fire burn area (high intensity, short duration storm) during summer months. Given the fire occurred in early summer, a summer thunderstorm is very likely to occur and has potential to result in additional debris flow.

B. Rock Fall:

The terrain is very steep, averaging over 50 percent slope for most of the fire burned area, with slopes as steep as 75 percent and above. The sheer rock faces can be vertical (200 percent). The fast upward growth of the mountains is caused by the San Andreas Fault and the granitic and metamorphic rocks are already showing signs of fracture. In the vicinity of the origin of the fire, there was evidence of spalding. The many scree slopes continue to have downward movement with the removal of the vegetation on the edges. There are areas of cliffy rock outcrops that pose as rock fall threats. The instability that existed before the fire and will increase because of the fire.

Values At Risk, Threat, and Risk Determination

VALUES AT RISK	THREAT	PROBABILITY	MAGNITUDE	DETERMINATION
1. Life and Public Safety				
1a. Public use of Fire burn area on NFS	Debris flow, flooding, erosion, rock fall.	**Possible**	**Major**	**High Risk**
1b. Entry within the burn area on private land	Debris flow, flooding, rock fall	**Very Likely**	**Major**	**Very High Risk**
1c. Use of roads (Highway 38 and Valley of the Falls)	Debris flow, erosion.	**Very Likely**	**Major**	**Very High Risk**
2. Property				
2a. Highway 38	Debris flow, erosion.	**Possible**	**Major**	**High Risk**
2b. Valley of the Falls Road	Debris flow, erosion.	**Possible**	**Major**	**High Risk**
3. Natural Resources				
3a. Natural Revegetation	Invasive weeds	**Likely**	**Moderate**	**High Risk**
3b. Water Quality	Increase in sediment and ash.	**Very Likely**	**Minor**	**Low Risk**

Additional Site Descriptions:
Crafton Water Department uses a private road (numbered 1S08 though it is not on NFS lands) from the intersection of Highway 38 and Valley of the Falls Blvd to access water development.

Private Housing developments are located downslope of the burn area, though across the Mill Creek wash. The channels in the area are very incised and are expected to handle the increased runoff from the fire. However, cutbanks of large channel turns are not armored and slopes could be undercut.

While the channels in the area are deep and incised, large debris flows can be unpredictable. Large accumulations of sediment can fill in channels and redirect runoff. There is some potential for nearby communities to lose road access due to debris flows.

Two temporary RAWS stations were installed during the fire suppression efforts. These stations are remaining until such time as the Forest leadership or fire organization chooses to remove them.

B. Emergency Treatment Objectives:

VALUES AT RISK	DETERMINATION	RECOMMENDED TREATMENT
1. Life and Public Safety		
1a. Public use of Fire burn area on NFS	**High Risk.**	**Safety:** • **Post signage of post-fire hazards in the area.** • **Post information on FS social media and public websites.** **Coordinate with local NGO groups to disseminate safetyu information to the public.**
1b. Entry within the burn area on private land	**Very High Risk.**	**Public outreach. Interagency coordination. Contact County and appropriate recreation groups.**
1c. Use of roads (Highway 38 and Valley of the Falls)	**Very High Risk.**	**Public outreach. Interagency coordination. Contact Caltrans and County**
2. Property		
2a. Highway 38	**High Risk.**	**Public outreach. Interagency coordination. Contact Caltrans**
2b. Valley of the Falls Road	**High Risk.**	**Public outreach. Interagency coordination. Contact County.**
3. Natural Resources		
3a. Natural Revegetation	**High Risk**	**Early Detection and Rapid Response surveys and treatment of invasives**
3b. Water Quality	**Low Risk**	**No Treatment**

C. Probability of Completing Treatment Prior to First Major Damage-Producing Storm:

Two debris flow causing storms occurred during the fire suppression efforts. These were very localized events and the fire area has continued potential for generating debris flow and rockfall.

Land 80% Channel ____% Roads ____% Other____ %

D. Probability of Treatment Success

	Years after Treatment		
	1	3	5
Land	60%	90%	95%
Channel	NA	NA	NA
Roads	NA	NA	NA
Other	NA	NA	NA

E. Cost of No-Action (Including Loss):$20,000

F. Cost of Selected Alternative (Including Loss): $4,050

G. Skills Represented on Burned-Area Survey Team:

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

Team Leader:Robert G Taylor

Email: rgtaylor@fs.fed.us Phone: 909-382-2660 FAX:

H. **Treatment Narrative:**

Land Treatments:

Early Detection, Rapid Response weed detection and treatment is proposed.
Forest Service policy mandates the Forest to minimize the establishment of non-native invasive species to prevent unacceptable degradation of the burned area. Several species of invasive weeds are known from the fire area. Goat head (*Tribulus terrestris),* Cheat grass (*Bromus tectorum*), Ripgut brome (*Bromus diandrus*), tocalote (*Cenaurea melitenis*) and tree of Heaven (*Ailanthus altissima*) have been mapped on access routes used by fire suppression equipment. Spanish broom (*Spartium juncea*) is known to occur along the southern burn perimeter and along access routes that were widened by brushing and masticators. Bull thistle (*Circium vulgare*) which has a wind-carried seed, is known to occur just south of one of the currently un-infested dozer lines.

Several types of equipment were used in fire suppression efforts, including dozers, masticators, and excavators. In addition, road brushing was also accomplished with chain saws, pole saws and chippers. It is not possible to know if all this equipment was cleaned prior to arrival. Particularly bulldozers, masticators and chippers are vectors for the introduction and dispersal of invasive weeds into soils disturbed by fire suppression and rehabilitation work. Some of this equipment was local, but new invasive weeds from equipment brought in from other Forests and fires in other states could be introduced in this way. Therefore, the risk of introduction of weeds from outside the area is high.

There is also a high risk of spreading existing known populations of Spanish broom, bull thistle and non-native invasive grasses into areas previously un-infested. Many of the dozer lines in particular were weed-free prior to the fire and are now disturbed, open soil. These disturbed soil areas are vulnerable to invasion by wind-carried seed from nearby known bull thistle infestations Spanish broom which was in seed at the time, is likely to have been picked up and carried by masticators, dozers, chippers, etc. from known infestations along Rt. 38 and Valley of the Falls Road and carried into un-infested areas of dozer lines, road brushing and mastication.

Many annual and biennial weed species germinate and are detectable in the early spring. Control if it is warranted, must occur prior to seed set in early spring to be effective at preventing seed production and further infestation the following year. The Forest is generally not able to hire temporary GS 6 or GS7 biotechs (plants) early enough to get them in the field to do the early weed survey work in March – April. Therefore, it is likely that the early survey work will have to be conducted by a Permanent GS 9 botanist and contracted botanist. The FS temp workers if, they are funded, should be able to do the later season survey work.

There are 2.6 miles of dozer line (which will have to be done on foot); 10 miles of road brushing/chipping, 2.4 miles of roadside mastication, and 3 staging areas (which can be done from a vehicle); and 5.9 miles of hand line and 5 difficult to access helispots, (must be done on foot).

The survey workers should work in pairs for safety reasons due difficult access and steep terrain.

Early Detection, Rapid Response Treatment				
Item	**Unit**	**Unit Cost**	**# of Units**	**Cost**
Early season weed surveys				
1 GS-9 Botanist	Days	$350	2	$700
1 Contract Botanist	Days	$500	2	$1,000
Mid-season weed surveys				
2 GS 7 temp Botanists	Days	$500	2	$1,000
Vehicle Mileage	Miles	$0.50	300	$150
			Total Cost	**$2,850**

Public and Agency Notification of Emergencies: Forest will notify the public and nearby neighborhoods via press releases and FS managed social media and websites of the post-fire effects and hazards. FS will coordinate with local agencies through direct contact. This will include notification and coordination with Caltrans, San Bernardino County (Roads and Flood Control), Santa Ana Regional Water Quality Control Board, recreation groups, and NRCS. Intent is to pass on the information gathered in the BAER report to entities that may be affected by the fire and who may need to conduct a more detailed analysis.

Interagency Coordination				
Item	**Unit**	**Unit Cost**	**# of Units**	**Total**
GS-11 District Rec Officer	Days	$400	2	$800
Signage	Lump Sum	$400	1	$400
			Total Cost	**$1,200**

Channel Treatments: NA

Roads and Trail Treatments: NA

Structures: NA

I. **Monitoring Narrative:**

Weed surveys will begin in early spring 2019 during or prior to, the flowering/seed-set periods of early non-native invasive annual and biennial plant species such as mustards, thistles, and invasive non-native grasses. Surveys will be conducted again later in the season to detect the later sprouting perennial invasive plants like Spanish broom and tree of Heaven. Priority will be given to surveys on dozer lines, areas of road brushing/chipping, areas of roadside mastication, staging areas, handlines within and adjacent to known invasive plant populations, and helispots in that order. At least one of the helispots may not be accessible due to difficult steep terrain.

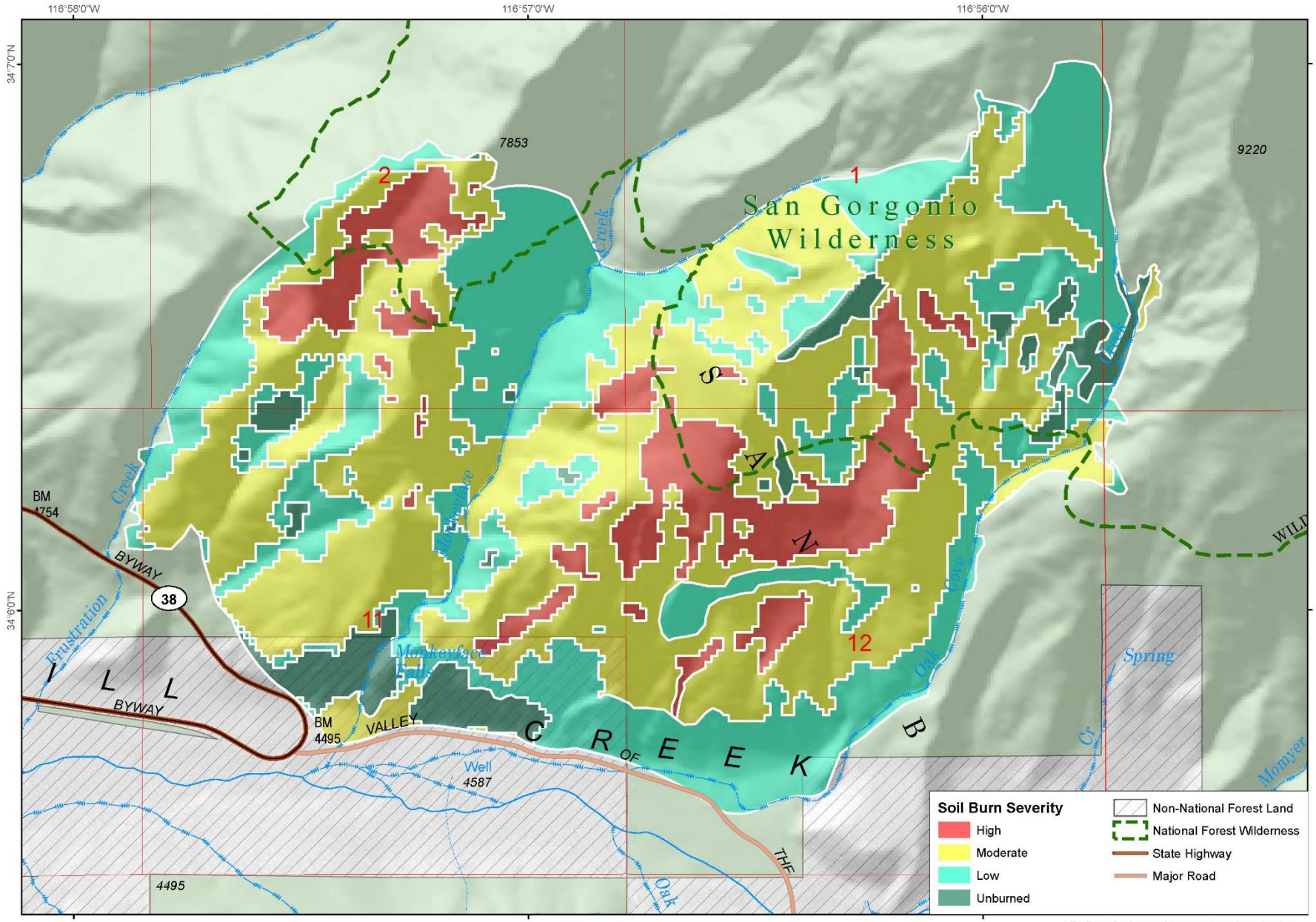
Part VI – Emergency Rehabilitation Treatments and Source of Funds by Land Ownership

			NFS Lands				Other Lands			All
		Unit	# of	WFSU	Other	# of	Fed	# of	Non Fed	Total
Line Items	**Units**	**Cost**	**Units**	**SULT $**	**$**	**units**	**$**	**Units**	**$**	**$**
A. Land Treatments										
ED/RR Treatment	LS	2850	1	$2,850	$0		$0		$0	$2,850
Interagency Coordinati	Day	400	2	$800	$0		$0		$0	$800
Signs	LS	400	1	$400	$0		$0		$0	$400
										$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Land Treatments				$4,050	$0		$0		$0	$4,050
B. Channel Treatments										
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Channel Treat.				$0	$0		$0		$0	$0
C. Road and Trails										
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Road & Trails				$0	$0		$0		$0	$0
D. Structures										
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Structures				$0	$0		$0		$0	$0
E. BAER Evaluation										
Assessment	Team	8000	1	$8,000	$0		$0		$0	$8,000
				$0	$0		$0		$0	$0
Insert new items above this line!				$0	$0		$0		$0	$0
Subtotal Evaluation				$8,000	$0		$0		$0	$8,000
F. Monitoring										
				$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				**$12,050**	**$0**		**$0**		**$0**	**$12,050**

PART VII - APPROVALS

1._____ _____
Forest Supervisor (signature) Date

2. _____ _____
Regional Forester (signature) Date



2018 VALLEY FIRE - BAER Assessment - SOIL BURN SEVERITY (FINAL)

San Bernardino National Forest
Front Country Ranger District

Document Name: 2018_ValleyFireBAER_C_SoilBurnSeverity_7/18/2018.pdf