

Lick Creek Fire (OR-UMF-658)

&

Green Ridge Fire (OR-UMF-659)

Combined Suppression Repair Plan

**Pomeroy Ranger District**

**Umatilla National Forest**

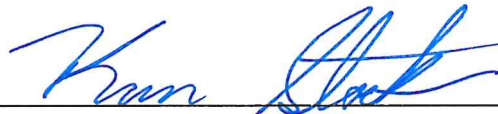
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Umatilla National Forest Resource Advisor

Approved By:



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Incident Commander – IMT



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Umatilla Forest Agency Administrator



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Pomeroy District Ranger

## Lick Creek & Green Ridge Suppression Repair Plan

### **OVERVIEW**

This repair plan is only applicable to those portions of the Lick Creek and Green Ridge fires administered by the Umatilla National Forest. Repairs to non-Forest Service lands are not described in this plan and are the responsibility of the Washington Department of Natural Resources under their existing agreements with applicable landowners and the direction of the IC. This plan outlines both general guidelines for the repair of fire suppression damage as well as some site-specific direction found in the associated repair map and tracking table. The guidelines are provided to direct repair work and provide a framework for such work. The plan recognizes that not all situations are covered under this guidance and that site-specific conditions will require good judgment and common sense to prevail in instances where these guidelines are not appropriate.

The National Interagency Fire Center ArcGIS Online and Arc Collector applications (AGOL) will be used to identify, map, and track suppression repair actions. Additional repair measures may be identified during the repair process and will be added to this plan as addenda if needed. The appropriate team or unit will be responsible for approval of addenda and completion of associated work.

Implementation of this fire suppression repair plan will be compliant with all pertinent rules and regulations regarding fire suppression activities and is to comply with management direction and standards and guidelines in the Umatilla National Forest Land and Resource Management Plan. Prescriptions for the treatment of the various fire suppression activities, as well as the responsibility for implementation are indicated in the following narrative.

Due to the size and complexity of the incident, this plan will utilize a phased implementation process. Refer to attached suppression repair maps for specific repair points.

### **FINANCIAL TRACKING**

Suppression repairs will be financially tracked according to which fire, Green Ridge or Lick Creek, the repair activities are taking place on. For instance, a resource ordered to the Green Ridge fire may engage in suppression repair activities on Lick Creek if that shift is tracked and charged accordingly to Lick Creek financial code.

### **REPAIR OBJECTIVES**

**Purpose and Need** – Management goals for this plan are to repair areas disturbed by fire suppression activities to prevent, minimize, or remediate adverse impacts caused by suppression activities. To the extent feasible, suppression impacts on federally managed lands shall be repaired to their pre-suppression condition and function.

### **GOALS**

- Provide for the safety of employees performing suppression repair work.
- Ensure that all activities are consistent with Umatilla National Forest Land and Resource Management Plan, and all other relevant Federal laws and Forest Service policy
- Maintain good relationships and communication with the public, cooperators, adjacent landowners and permittees.
- Protect cultural and heritage resource sites.
- Protect and restore all Federally listed and Forest Service Sensitive plant populations.

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- Minimize erosion and maintain soil productivity, water quality and aquatic habitat.
- Minimize and repair any suppression related damage to roads, capital investments, structures, and facilities.
- Prevent the spread and establishment of non-native invasive plant populations.

**Coordinate all repair actions and final inspections with local Resource Advisor for consistency with this plan**

**District botany staff will coordinate with other district staff to plan, purchase, and implement native seed application in repair areas."**

Provide information to the Resource Advisor regarding any constructed containment lines, retardant misapplications to water, suppression damaged structures, fences, gates, troughs, cattle guards, signs, roads, , federally endangered and Forest Service Sensitive Plants and any discoveries of archaeological features or artifacts.

**Responsibility:** The Incident Management Team (IMT) will be responsible for implementing suppression repair activities as listed in General Repair Guideline, Site Specific Guidelines, and other sections detailed in this document. All repairs should be inspected to ensure that they meet the stated objectives and conform to the below guidelines. Resource Advisors will work with IMT Suppression Divisions to ensure implementation meets expectations and specifications outlined in this document.

The Umatilla National Forest will be responsible for determination of effects and implementation of necessary mitigations to comply with the National Historic Preservation Act and the Endangered Species Act. District botany staff will coordinate with other district staff to plan, purchase, and implement native seed application in repair areas and will coordinate with implementation staff to ensure that areas of disturbance in sensitive plant populations are repaired to mitigate impacts due to fire suppression

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### **General Repair Standards (refer to hard copy or Arc Collector repair map and spreadsheet)**

- Pick up and remove all garbage, including unneeded flagging and signs from fire lines, staging areas, drop points, helispots, draft/dip sites, and spike camps.
  
- **Dozer lines**
  - Primary perimeter containment lines will not be fully repaired until after a season ending event or otherwise considered no longer needed (fire contained or out). Some water bars or other hydrologic stabilization may be implemented prior to containment. Interior lines and those alternate or contingency lines deemed no longer necessary may be repaired at the approval of the Incident Commander and the local Fire Management Officer.
  
  - Repair trenched or constructed dozer line by pulling back berm to the natural contour of the slope and covering with any available vegetation to reduce channeling water and erosion. Water bar according to Appendix A below. Block and camouflage access points to avoid the creation of social trails or roads. Distribute concentrations of slash. Reinstall removed water bars along existing roads. Breakup dozer push areas and scatter debris. Remove all soil that has been pushed into these intermittent and perennial drainages, meadows, and springs. Streams should match natural upstream and downstream conditions. Do NOT remove trees or slash from streams.
    - **Lick Creek:** 40,416 feet (7.65 miles) of dozer line or dozer improved road on federal land.
    - **Green Ridge:** 104,417 feet (20 miles) of dozer line or dozer improved road on federal land.
  
- **Handline**
  - Primary perimeter containment lines will not be fully repaired until after a season ending event or otherwise considered no longer needed (fire contained or out). Some water bars or other hydrologic stabilization may be implemented prior to containment. Interior lines and those alternate or contingency lines deemed no longer necessary may be repaired at the approval of the Incident Commander and the local Fire Management Officer.
  
  - Repair trenched or constructed handline by pulling back berm to the natural contour of the slope and covering with any available vegetation to reduce channeling water and erosion. Water bar according to table below. Block and camouflage access points to avoid the creation of social trails or roads. Distribute concentrations of slash. Reinstall removed water bars along existing trails.
    - **Lick Creek:** Approximately 1,000 feet of handline on federal land.

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- **Green Ridge:** 52,756 feet (10 miles) of handline on federal land.

### Landings/Parking Areas

- Pull in dozer berms around new landings and scatter mulch and/or slash.
- Coordinate with Forest botanists on specific seeding and rehabilitation needs.
- Coordinate with district invasive weeds specialist for treatment needs.

### Fences/Gates

- Reestablish and repair all damaged fence structures, including posts, wire, gates, locks, etc. to pre-fire functional condition.
  - **Lick Creek:** On federal land, there are approximately 3.5 miles of damaged fence along the exterior of the fire that was damaged by suppression activities. Refer to Suppression Repair Map for details. Acquire S# for future material and labor.

### Trails

- Reestablish and repair all drainage structures, including drain dips, waterbars, culverts, etc. to pre-fire functional condition.
- Reestablish trail footprint where damaged by suppression.
  - **Lick Creek Fire:**
    - **North South ATV Trail #3285:** Impacted by dozer line and construction of mechanical fuel break. Work with READ and local trail specialist to return trail to prior function. Refer to Umatilla Forest Motor Vehicle Use Map for designated use. Reestablish appropriate blockage at trail/road intersections to prevent access to vehicles larger than authorized ATV's.
  - **Green Ridge Fire:**
    - **Mount Misery Trail #3113:** Wilderness trail used as fuel break, included chainsaw use. Coordinate with Wilderness trail manager to restore trail to standard consistent with wilderness values. This may include flush cutting stumps, scattering material away from trails or other disguising of impacts.
    - **Salter Trail #3139:** Trail used as handline. Work with trail manager to repair trail to prior state.
    - **Meadow Creek Trail #3123:** Mixed use trail used as fuel break. Work with trail manager to repair trail to prior state.

### Roads

- Reestablish and repair all drainage structures, including ditches, drain dips, waterbars, culverts, etc. to pre-fire functional condition.
- Use water trucks and graders to return the following roads to original surface conditions. Consider obtaining S# and waiting for fall/spring moisture. If available and not already accomplished during grading, excavators should be used for ditch

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clearing along these road segments.

- **Lick Creek:** 40 road (15 miles), 42 road (8 miles), 43 road (6 miles)
- **Green Ridge:** 46 road (10 miles), 47 road (4 miles), 4022 (4 miles), 4016 (3.5 miles)
- Close gates on all roads that were closed prior to fire suppression activity. Reconstruct berms or barriers on all closed roads that were opened for control or contingency.
- Reestablish and repair all road signage to pre-fire functional condition.
- Coordinate with district invasive weeds specialist for treatment needs.

### **Mechanical Fuel Break**

- Masticate or cut to less than 12" height all damaged stems/staubes along 40, 42, 43, 4304. Where fire damaged soils are present masticate only what the machine can reach from the road.
- Use excavator to pile fuel break deck/landing slash from Clearwater to Misery on 40, 44, 43 roads as well as on the 46 road from 4610 South to end of fuel break slash piles.
- Evaluate skid trails for need to place logs or other debris to prevent vehicle access and

### **Draft and Dip Sites**

- All water sources used for fire suppression will be returned to pre-fire conditions to the extent possible, unless needed for continued mop-up and patrol. Do not "re-fill" any water source unless specifically instructed by Resource Advisor.
- Ensure any suppression related re-routing, damming or other interruptions in water source are removed to re-establish prior natural flow and hydrologic function.
- Evaluate clean-up for all pump sites for spilled fuel/oil. If spills are found, contact the Resource Advisor for an appropriate cleanup strategy.

### **Wrapped Structures**

- Consult with Archeologist regarding removal of structure wrap.
  - Ensure all staples, tape or other materials are carefully removed without damaging siding, trim, shingles or any other component of the structure.

### **Native plant seeding**

- Use locally appropriate native grass and forb seed on dozer lines and all other areas of disturbance after slash piling work is completed. Consider seeding all areas that are at risk of erosion and/or invasion of non-native invasive plants. Coordinate timing, species prescriptions, and implementation techniques with botany staff.

### **Non-native Invasive Plant Prevention and Treatment**

- To reduce the risk of introduction and spread of non-native invasive plants, coordinate with district non-native invasive plant specialist and district botanist to include preventative measures in all repair activities.
- Follow the Pacific Northwest Region Invasive Plant Program Preventing and Managing Invasive Plants Record of Decision Standards for Prevention. The applicable standards are:

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- Standard 1: Prevention of invasive plant introduction, establishment and spread will be addressed in watershed analysis; roads analysis; fire and fuels management plans, Burned Area Emergency Recovery Plans; emergency wildland fire situation analysis; wildland fire implementation plans.....
- Standard 2: Actions conducted or authorized by written permit by the Forest Service that will operate outside the limits of the road prism (including public works and service contracts), require the cleaning of all heavy equipment (bulldozers, skidders, graders, backhoes, dump trucks, etc.) prior to entering National Forest System Lands.
- Standard 3: Use weed-free straw and mulch for all projects, conducted or authorized by the Forest Service, on National Forest System Lands. If State certified straw and/or mulch is not available, individual Forests should require sources certified to be weed free using the North American Weed Free Forage Program standards, or a similar certification process.
- Standard 7: Inspect active gravel, fill, sand stockpiles, quarry sites, and borrow material for invasive plants before use and transport. Treat or require treatment of infested sources before any use of pit material. Use only gravel, fill, sand, and rock that is judged to be weed free by District or Forest weed specialists.
- Standard 8: Conduct road blading, brushing and ditch cleaning in areas with high concentrations of invasive plants in consultation with District or Forest-level invasive plant specialists, incorporate invasive plant prevention practices as appropriate.

### **Rare Plant Site Protection**

"Suppression Repair activities may cause further damage to Federally listed and Forest Service Sensitive Plant populations. Before initiating repair activities, consult with the district botanist to ensure that all documented sensitive plant populations and high probability habitat are protected from further damage. If any additional rare plant populations are found, consult with the botanist to mitigate any potential negative impacts."

### **Cultural Site Protection**

"Repairs" cause further damage to archaeological sites and hinders their evaluation. No repair work may commence within known heritage and archaeological resource sites boundaries without consultation with heritage staff and the lead Resource Advisor to the fire. Where repairs are allowed, it must be done by hand. See attached suppression repair map for guidance.

Stage 1: Repair damage to archaeological sites as prescribed by the REAF archaeologist.

Stage 2: Conduct site assessments for all sites discovered and/or damaged as a result of suppression activities. Conduct National Registry of Historical Places determinations of eligible sites adversely damaged as a result of suppression activities

- If any cultural resources are found during mop-up or repair, work should cease in that area and the site should be reported to the Resource Advisor who will advise mitigating measures before continuing work.
- Areas marked on the attached map as high or moderate severity of impact should utilize alternative mop-up techniques.



### Appendix A. Waterbar Guidelines

When locating and building water bars, place them the right **distance** apart, at a **diagonal** to the fireline, so that they **divert**, then **discharge**, then **dissipate** the energy of the flowing water. Be sure to make them deep enough so they'll be durable, and that soil does **not block** the water bar outlet.

- **Distance:** To ensure that excess runoff cannot accumulate, waterbars must be placed the proper distance apart, based on the slope of the fireline. This breaks up the area that accumulates runoff, keeping it small enough to prevent damage. Erosion potential depends on slope and the provided table that gives the maximum distance between waterbars, or between a waterbar and the next upslope drainage break.
- **Diagonal:** A diagonal waterbar has a gentle slope along its base that leads the water off. Build them at 15-30 degrees from horizontal and drained away from the fire burned area if possible
- **Divert:** A good waterbar will divert the water off the fireline. To do this the waterbar must be sufficiently deep to handle all the flow for as long as it is needed. Excavation is much more effective than fill in making a durable and effective waterbar (a ditch or a dip beats a dike)
- **Discharge:** A good waterbar is not a dam – it must have an open outlet.
- **Dissipate:** A good waterbar should dissipate the flow just below the outlet to exhaust its eroding power and cause it to filter into the soil. This may require placing slash, rock, or debris below the outlet, or fudging a bit on distance to take advantage of natural features that will dissipate the water's erosive energy.

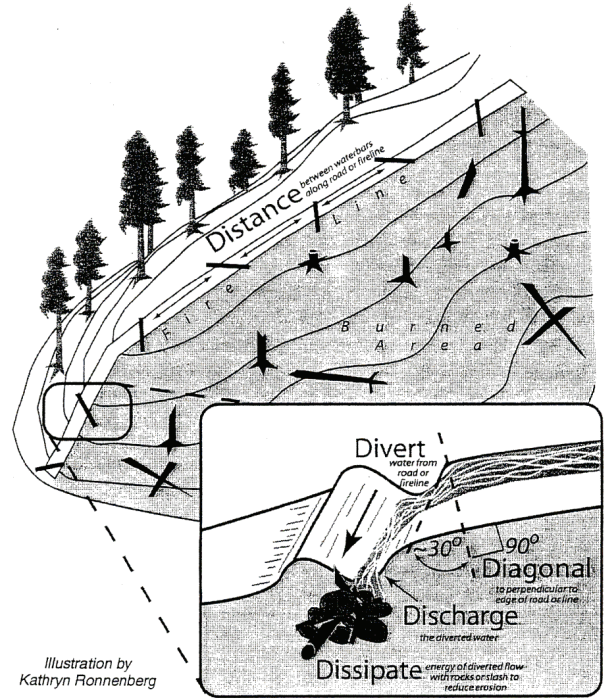


Figure 1: Example of properly constructed waterbar on fire line.

Table 1: Guidance on waterbar construction.

Dozer Line	Handline
<ul style="list-style-type: none"> <li>• &lt;20% grade – 100 foot spacing</li> <li>• &gt;20%-40% grade – 50 foot spacing</li> <li>• &gt;40% grade – 25 foot spacing</li> <li>○ Cut water bars at least one foot deep</li> <li>○ Cut water bars towards green on exterior dozer line</li> </ul>	<ul style="list-style-type: none"> <li>• &lt;20% – 100 foot spacing</li> <li>• 20%-40% – 50 foot spacing</li> <li>• &gt;40% – 25 foot spacing</li> <li>○ Cut water bars at least 6 inches deep</li> <li>○ Cut water bars toward green on exterior handline</li> </ul>



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**Appendix B: SITE SPECIFIC SUPPRESSION REHABILITATION BY DIVISION**

Table 1: Lick Creek/Green Ridge Fire suppression repair instructions and tracking sheet

Label	Feature Category	Comments	Repair Status	Repair Comments	Length Feet	Length Miles	Repaired?
L001	Completed Dozer Line	Merritt via email.	Repair Needed	Pull in berms, install water bars at appropriate intervals according to suppression repair plan. Reseed as needed	3368	0.6379	
L002	Completed Dozer Line		Repair Needed	Needs to be repaired to specs described in the suppression repair plan. READ Marquardt	3856	0.7303	
L003	Completed Dozer Line	dozer line on 2 track nonsystem road ties into Grizzly Fire dozer line, needs archy review	Repair Needed	pull beams, seed, water bars on slope off of FR4608, block entrance and scatter slash and logs	2004	0.3795	
L004	Completed Dozer Line		Repair Needed	Repair to specs in suppression repair plan. READ Marquardt	1926	0.3648	
L005	Completed Dozer Line	Plumbed with hose lay	Repair Needed	7/28 pull berms, use physical barrier at top to block vehicular traffic- READ Roe	3541	0.6706	
L006	Completed Dozer Line	dozer line cutting off road bend, 100 foot fuel break on Interior side	Repair Needed	7/28 remove cut merch logs, pull berms, repair dozer pushouts, block vehicle access, water bar as necessary. Additionally, in adjacent fuel break repair any areas of soil disturbance greater than a single non dug in track- Aaron Roe	1494	0.2830	
L007	Completed Dozer Line	2 blades	Repair Needed	Type 2/3?? Excavator with thumb pull berm, place logs. Reynolds 8/29	3899	0.7384	
L008	Completed Dozer Line		Repair Needed		6566	1.2436	

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L009	Completed Dozer Line		Repair Needed	Type 2/3?? Excavator with thumb pull berm , place logs. Reynolds 8/29	1828	0.3462	
L010	Completed Dozer Line		Repair Needed	Type 2/3?? Excavator with thumb pull berm , place logs. Reynolds 8/29	2264	0.4288	
L011	Completed Dozer Line	With 30 feet mastication	Repair Needed	Type 3 Excavator with thumb pull berm , place logs.	6421	1.2161	
L012	Completed Dozer Line		Repair Needed	Type 2/3?? Excavator with thumb pull berm, place logs. Reynolds 8/29	1170	0.2216	
L013	Completed Dozer Line		Repair Needed		102	0.0193	
L014	Completed Dozer Line		Repair Needed		86	0.0163	
L015	Completed Dozer Line		Repair Needed		123	0.0233	
L016	Completed Dozer Line		Repair Needed	Berms will need to be pulled in and water bars established at appropriate intervals. Appropriate closures will need to be constructed where the line will be accessible by open roads. Meadow areas will need to be reseeded and monitored for noxious weeds.	13933	2.6388	
	Completed Dozer Line		Repair Needed	Abels Dozer Line on FS land	2554	0.4837	
	Completed Dozer Line		Repair Needed		10560	2.0000	
	Completed Dozer Line		Repair Needed		790	0.1496	
	Completed Dozer Line		Repair Needed		4063	0.7695	
	Completed Dozer Line		Repair Needed		805	0.1525	
	Completed Dozer Line		Repair Needed		46	0.0087	

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Completed Dozer Line		Repair Needed		142	0.0269	
Completed Dozer Line		Repair Needed		104	0.0197	
Completed Dozer Line		Repair Needed		99	0.0188	
Completed Dozer Line		Repair Needed		225	0.0426	
Completed Dozer Line		Repair Needed		934	0.1769	
Completed Dozer Line		Repair Needed		128	0.0242	
Completed Dozer Line		Repair Needed		404	0.0765	
Completed Dozer Line		Repair Needed		586	0.1110	
Completed Dozer Line		Repair Needed		380	0.0720	
Completed Dozer Line		Repair Needed		146	0.0277	
Completed Dozer Line		Repair Needed		196	0.0371	
Completed Dozer Line		Repair Needed		266	0.0504	
Completed Dozer Line		Repair Needed		701	0.1328	
Completed Dozer Line		Repair Needed		3607	0.6831	
Completed Dozer Line		Repair Needed		1122	0.2125	
Completed Dozer Line		Repair Needed		2150	0.4072	
Completed Dozer Line		Repair Needed		538	0.1019	
Completed Dozer Line		Repair Needed		883	0.1672	

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	Completed Dozer Line		Repair Needed		821	0.1555	
	Completed Dozer Line		Repair Needed		1532	0.2902	
	Completed Dozer Line		Repair Needed		1740	0.3295	
	Completed Dozer Line		Repair Needed		1191	0.2256	
	Completed Dozer Line		Repair Needed		1227	0.2324	
	Completed Dozer Line		Repair Needed		3632	0.6879	
	Completed Dozer Line		Repair Needed		335	0.0634	
	Completed Dozer Line		Repair Needed		790	0.1496	
	Completed Dozer Line		Repair Needed		201	0.0381	
	Completed Dozer Line		Repair Needed		1220	0.2311	
	Completed Dozer Line		Repair Needed		255	0.0483	
	Completed Dozer Line		Repair Needed		1085	0.2055	
	Completed Dozer Line		Repair Needed		759	0.1438	
	Completed Dozer Line		Repair Needed		3414	0.6466	
	Completed Dozer Line		Repair Needed		365	0.0691	
	Completed Dozer Line		Repair Needed		1840	0.3485	
				<b>Total</b>	<b>104417</b>	<b>20</b>	
L018	Completed Fuel Break	fuel break along west butte tr.	Other - See Comments	scatter slash	2192	0.4152	
				<b>Total</b>	<b>2192</b>	<b>0.4152</b>	

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L019	Completed Hand Line	Line is plumbed from top to bottom with hose lay	Repair Needed	Pull in berms, install water bars at appropriate intervals according to suppression repair plan. Reseed as needed	7115	1.3475	
L020	Completed Hand Line		Repair Needed		3440	0.6515	
L021	Completed Hand Line		Repair Needed		2393	0.4532	
L022	Completed Hand Line		Repair Needed		2356	0.4462	
L023	Completed Hand Line	line for slop over	Repair Needed		18	0.0034	
L024	Completed Hand Line	hand line around rec structures	Repair Needed		57	0.0108	
L025	Completed Hand Line	hand line around rec structures	Repair Needed		25	0.0047	
L026	Completed Hand Line	hand line around rec structures	Repair Needed		42	0.0080	
L027	Completed Hand Line	hand line around rec structures	Repair Needed		202	0.0383	
L028	Completed Hand Line	hand line around rec structures	Repair Needed		72	0.0136	
L029	Completed Hand Line	hand line around rec structures	Repair Needed		90	0.0170	
L030	Completed Hand Line	hand line around rec structures	Repair Needed		85	0.0161	
L031	Completed Hand Line	hand line around rec structures	Repair Needed		29	0.0055	
L032	Completed Hand Line	hand line around rec structures	Repair Needed		99	0.0188	
L033	Completed Hand Line	hand line around rec structures	Repair Needed		29	0.0055	
L034	Completed Hand Line	hand line around rec structures	Repair Needed		105	0.0199	
L035	Completed Hand Line	hand line around rec structures	Repair Needed		11	0.0021	
L036	Completed Hand Line	hand line around rec structures	Repair Needed		83	0.0157	

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L037	Completed Hand Line	hand line around rec structures	Repair Needed		37	0.0070	
L038	Completed Hand Line	hand line around rec structures	Repair Needed		58	0.0110	
L039	Completed Hand Line	hand line around rec structures	Repair Needed		32	0.0061	
L040	Completed Hand Line	hand line around rec structures	Repair Needed		65	0.0123	
L041	Completed Hand Line	hand line around rec structures	Repair Needed		64	0.0121	
L042	Completed Hand Line	hand line around rec structures	Repair Needed		57	0.0108	
L043	Completed Hand Line	hand line around rec structures	Repair Needed		34	0.0064	
L044	Completed Hand Line	hand line around rec structures	Repair Needed		30	0.0057	
L045	Completed Hand Line	hand line around rec structures	Repair Needed		39	0.0074	
L046	Completed Hand Line	hand line around rec structures	Repair Needed		52	0.0098	
L047	Completed Hand Line	hand line around rec structures	Repair Needed		51	0.0097	
L048	Completed Hand Line	hand line around rec structures	Repair Needed		48	0.0091	
L049	Completed Hand Line	hand line around rec structures	Repair Needed		84	0.0159	
L050	Completed Hand Line	hand line around rec structures	Repair Needed		15	0.0028	
L051	Completed Hand Line	hand line around rec structures	Repair Needed		33	0.0063	
L052	Completed Hand Line	hand line around rec structures	Repair Needed		71	0.0134	
L053	Completed Hand Line	hand line around rec structures	Repair Needed		32	0.0061	
L054	Completed Hand Line	hand line around rec structures	Repair Needed		165	0.0313	



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L055	Completed Hand Line		Repair Needed		287	0.0544	
L056	Completed Hand Line		Repair Needed		3466	0.6564	
	Completed Hand Line		Repair Needed		734	0.1390	
	Completed Hand Line		Repair Needed		1777	0.3366	
	Completed Hand Line		Repair Needed		2532	0.4795	
	Completed Hand Line		Repair Needed		1183	0.2241	
	Completed Hand Line		Repair Needed		895	0.1695	
	Completed Hand Line		Repair Needed		849	0.1608	
	Completed Hand Line		Repair Needed		1249	0.2366	
	Completed Hand Line		Repair Needed		2413	0.4570	
	Completed Hand Line		Repair Needed		9504	1.8000	
	Completed Hand Line		Repair Needed		241	0.0456	
	Completed Hand Line		Repair Needed		2485	0.4706	
	Completed Hand Line		Repair Needed		393	0.0744	
	Completed Hand Line		Repair Needed		2355	0.4460	
	Completed Hand Line		Repair Needed		670	0.1269	
	Completed Hand Line		Repair Needed		1042	0.1973	
	Completed Hand Line		Repair Needed		83	0.0157	
	Completed Hand Line		Repair Needed		123	0.0233	
	Completed Hand Line		Repair Needed		406	0.0769	
	Completed Hand Line		Repair Needed		399	0.0756	
	Completed Hand Line		Repair Needed		745	0.1411	
	Completed Hand Line		Repair Needed		427	0.0809	
	Completed Hand Line		Repair Needed		498	0.0943	
	Completed Hand Line		Repair Needed		439	0.0831	
	Completed Hand Line		Repair Needed		343	0.0650	
				<b>Total</b>	<b>52756</b>	<b>10</b>	

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L058	Completed Road as Line	Prepped	Repair Needed	pull ditch where suppression related slash	6368	1.2061	
L059	Other	route to spike camp and porta john	Repair Needed	non system route needs rehab, water bars, seed, scatter slash	617	0.1169	
L060	Other	Salter Ridge Trail - Original route used as handline for the most part in this section with the exception of an approximately 500 foot section that cuts across a switchback near the bottom 1/4 of the trail.	Repair Needed	Pull in berms on section that cuts across switch back and install water bars as appropriate. Disguise line with slash to discourage use as social trail and reduce erosion.	7401	1.4017	
L061	Repair Line		Repair Needed	slope about 40% will require waterbars in addition to standard for remainder	411	0.0778	

### FIRE SUPPRESSION REPAIR COST ESTIMATE SHEET

A cost estimator sheet was developed and used on this incident to provide timely advice to the IMT regarding the potential costs of suppression repair. The cost estimator sheet, Table 2, shows the known suppression features not yet repaired and the details regarding the approximate cost to restore them. Specific suppression repair instructions for each piece of known and surveyed control line are listed in Table 1.

Table 2: Lick Creek and Green Ridge, fire suppression repair cost estimate sheet

Description of Work	Units	Cost per Unit	Units Lick Cr	Units Green Ridge	Cost to Repair Lick Cr	Cost to Repair Green Ridge
Dozer line repair	Mile	\$3,000	7.5	20	\$22,500	\$60,000
Machine Piling slash	Day	\$ 1800	2	5	\$3,600	\$9,000
Mastication of fuel break stumps/staub	Mile	\$3800	5	5	\$19,000	\$19,000
Range Fence Suppression Damage Repair	Mile	\$10,000	3.5		\$35,000	
Hand Crew work/Handline repair	Days	\$12,000	1	2	\$12,000	\$24,000
Native seeding Dozer lines and	lbs	\$15	240	600	\$3,600	\$9,000

## Lick Creek & Green Ridge Suppression Repair Plan

other disturbed areas						
Grading the gravel roads in the fire area and those used for access	Miles					
Total					\$95,700	\$121,000

Dozer line repair w/ excavator estimated at 0.5-1 mile/day.

Mastication estimated at 1 mile/day.

Seeding estimated at 20 lb./ac or 30lb./mi

IMT Cost Unit Leader Provided following costs. May not accurately reflect non-fire contracted rates available to Forest at later date. Uncertain if includes transport costs.

Excavator=\$1800/day

Grader=\$3300/day

Tender=\$1400/day

Masticator=\$3800/day

20 per. Crew=\$12,000