

National Park Service  
U.S. Department of the Interior

Great Basin National Park  
Nevada



# Johnson Lake Mine Historic District Stabilization

## Environmental Assessment

September 2014



## Summary

Great Basin National Park (GRBA) proposes to perform stabilization on structures and features within the Johnson Lake Mine Historic District. The project is intended to remediate and prevent structural deterioration of wooden mine buildings, improve drainage, provide trail improvements and fuels reduction, improve site and visitor protection, perform archeological testing, and provide improved interpretation and outreach. This action would help the park meet requirements under the Organic Act and National Historic Preservation Act.

The Johnson Lake Mine is an historic tungsten mine located on the east slope of the South Snake Range in the Snake Creek watershed. The Johnson Lake Mine Historic District was listed in the National Register of Historic Places (NRHP) in 1995. The District covers 205 acres in the central portion of GRBA, ranging in elevation from 8,240 –11,760 ft.

An Environmental Assessment (EA) has been prepared. Two alternatives are presented: Alternative 1, the no-action alternative; and, Alternative 2, the proposed action.

The Alternative 2 is recommended as the Preferred Alternative. This alternative would have short- and long-term minor impacts to soils and stream flow characteristics; and long-term moderate to major beneficial impacts to archeological resources, historic structures, cultural landscapes, and long-term management of cultural resources. Long-term benefits derived from this project outweigh short-term impacts. Alternative 2 was deemed the environmentally preferred alternative.

There will be a 30-day comment period on the EA. Comments may be submitted online at: <http://parkplanning.nps.gov/Johnson>, or in writing to the following address:

Planning  
Great Basin National Park  
100 Great Basin National Park  
Baker, NV 89311

## **ABBREVIATIONS**

ACHP – Advisory Council on Historic Preservation  
APE-Area of Potential Effect  
CEQ-Council on Environmental Quality  
CFR-Code of Federal Regulations  
CLI-Cultural Landscape Inventory  
CRM-Cultural Resource Management  
EA-Environmental Assessment  
GMP-General Management Plan  
GRBA- Great Basin National Park  
IPM-Integrated Pest Management  
NEPA-National Environmental Policy Act  
NHPA-National Historic Preservation Act  
NPS-National Park Service  
NRHP-National Register of Historic Places  
PEPC-Planning, Environment and Public Comment  
PL-Public Law  
SHPO- State Historic Preservation Office  
USC-United States Code  
USDA – United States Department of Agriculture

## Table of Contents

Summary.....	2
ABBREVIATIONS.....	3
Table of Contents .....	4
List of Figures .....	5
List of Tables.....	5
1.0 PURPOSE AND NEED.....	6
1.1 INTRODUCTION .....	6
1.1.1 PROJECT BACKGROUND .....	6
1.2.1 BACKGROUND OF THE PARK.....	6
1.2 PURPOSE AND NEED.....	6
1.3 PROJECT GOALS .....	7
1.4 PROJECT AREA LOCATION .....	7
1.5 SCOPE OF EA .....	7
Figure 1 – Map of the Project Area .....	8
1.6 RELATED LAWS, LEGISLATION AND MANAGEMENT GUIDELINES .....	9
1.7 ISSUES AND IMPACT TOPICS.....	10
1.7.1 INTERNAL AND EXTERNAL SCOPING.....	10
1.7.2 ISSUES AND IMPACT TOPICS IDENTIFIED FOR FURTHER ANALYSIS .....	10
1.7.3 IMPACT TOPICS CONSIDERED BUT DISMISSED.....	10
2.0 ALTERNATIVES .....	11
2.0.1 ALTERNATIVE 1-NO-ACTION .....	11
2.0.2 ALTERNATIVE 2-PROPOSED ACTION-JOHNSON LAKE MINE HISTORIC DISTRICT STABILIZATION .....	11
2.1 MITIGATION .....	13
2.2 ALTERNATIVES AND ACTIONS CONSIDERED BUT DISMISSED.....	13
2.3 IMPACT SUMMARY .....	14
2.4 ENVIRONMENTALLY PREFERRED ALTERNATIVE .....	15
3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES .....	15
3.1 INTRODUCTION .....	15

3.1.1 GENERAL METHODS FOR ANALYZING IMPACTS.....	16
3.1.2 THRESHOLDS FOR IMPACT ANALYSIS .....	17
3.1.3 CUMULATIVE IMPACTS ANALYSIS.....	17
3.1.4 GEOGRAPHIC ANALYSIS AREA .....	18
3.2 AFFECTED ENVIRONMENT AND ANALYSIS OF ALTERNATIVES .....	18
3.2.1 GEOLOGIC RESOURCES-SOILS.....	18
3.2.2 STREAMFLOW CHARACTERISTICS .....	21
3.2.3 ARCHEOLOGICAL RESOURCES.....	23
3.3.4 PREHISTORIC/HISTORIC STRUCTURES.....	26
3.2.5 LONG-TERM MANAGEMENT OF RESOURCES OR LAND/RESOURCE PRODUCTIVITY.....	30
4.0 LIST OF PREPARERS AND CONTRIBUTORS .....	33
4.1 LIST OF RECIPIENTS AND REVIEW OF EA.....	33
5.0 REFERENCES .....	35
Appendix A-Scoping Brochure .....	37
Appendix B-News Release.....	39

**List of Figures**

Figure 1 – Map of the Project Area .....	8
--	---

**List of Tables**

Table 1 - Mitigations for Johnson Lake Mine Historic District Stabilization.....	13
Table 5 - Impact Summary.....	14
Table 6 - Cumulative Impacts.....	17

## **1.0 PURPOSE AND NEED**

### **1.1 INTRODUCTION**

This EA has been prepared for the Johnson Lake Mine Historic District Stabilization project for Great Basin National Park (GRBA). The Planning, Environment and Public Comment (PEPC) number for the project is 49513. The office preparing this document is the Resource Management Division at GRBA.

#### **1.1.1 PROJECT BACKGROUND**

This EA discloses the environmental consequences of the proposed action for the Johnson Lake Mine Historic District Stabilization project. Impact topics include: soils; stream flow characteristics; archeological resources, historic structures, cultural landscapes, and long-term management of resources.

#### **1.2.1 BACKGROUND OF THE PARK**

The authorizing legislation for GRBA was signed on October 27, 1986, which incorporated two areas: a 76,460-acre portion of the Humboldt-Toiyabe National Forest and the former 640-acre Lehman Caves National Monument. Included is Wheeler Peak at 13,063 ft. elevation which overlooks two basins; Spring and Snake Valleys. GRBA also manages an 80-acre administrative site in the town of Baker, Nevada. The park is predominantly bordered by Bureau of Land Management lands.

#### Purpose and Significance of GRBA

GRBA was established "...to preserve for the benefit and inspiration of the people a representative segment of the Great Basin of the Western United States possessing outstanding resources and significant geologic and scenic values ..." The park boasts the second highest peak in the state of Nevada, Wheeler Peak, at 13,063 ft. It also is home to the highly decorated Lehman Caves, along with 42 other caves. Several old-growth bristlecone pine groves are nestled at high elevations, with trees dated over 3,000 years old. The park also contains numerous prehistoric and historic archeological sites eligible to the National Register of Historic Places (NRHP).

GRBA has a rich cultural heritage. Native Americans have called the area home for over 13,000 years. More recent settlers of European descent have lived in the area for over 150 years. Less than 5% of the park has been surveyed for archeological sites. Within these areas the parks Cultural Resource Management (CRM) staff have recorded over 200 archeological sites associated with both the prehistoric and historic occupation of the area. Of these recorded sites over 75% are eligible or listed in the NRHP.

### **1.2 PURPOSE AND NEED**

Mining in the Johnson Lake area began in 1908, tungsten was discovered in 1915, and mining continued in the area through 1950. The Johnson Lake Mine Historic District was listed in the National Register of Historic Places in 1995 due to its archeological significance. Following completion of a Cultural Landscape Inventory in 2009, the 205 acre site was further recognized for its association with important patterns of history on a local level.

The historic district includes both prehistoric and historic components. The majority of the site is comprised of artifacts and features associated with early 20<sup>th</sup> century tungsten mining. Other archeological sites within the project area include prehistoric and historic archeological sites.

The purpose of the proposed project is to stabilize historic mining structures and enhance visitor experience within the 205 acre Johnson Lake Mine Historic District. This action is needed in accordance with the park's General Management Plan to protect the structures and associated resources from further deterioration from the influences of harsh winter weather conditions, erosion and to minimize the risks of wildland fire.

Decision to be made: The decision to be made is to either leave the Johnson Lake Mine Historic District in its present state and allow it to deteriorate through benign neglect; or to stabilize, maintain, protect, and interpret the assets associated with the site.

### **1.3 PROJECT GOALS**

The goals of this project are to perform stabilization and maintenance activities; monitoring; interpretation and education for park visitors; and to protect the district from further deterioration. Many of the proposed treatments are described in a 2014 NPS internal report, Preliminary Condition Assessment and Treatment Considerations for the Johnson Lake Mine Historic District (see References).

### **1.4 PROJECT AREA LOCATION**

The Johnson Lake Mine Historic District is in the headwaters of the North Fork of Snake Creek in the central part of GRBA (Figure 1). The historic district covers an area approximately 205 acres in size with approximately 4 miles of maintained trails.

### **1.5 SCOPE OF EA**

This EA analyzes one action alternative and the No-action Alternative and discloses the environmental consequences to impact topics generated through the scoping process. It fully describes the purpose and need for action, project alternatives, existing conditions in the project area, and mitigation measures designed to minimize impacts on the environment.

This EA was prepared pursuant to the National Environmental Policy Act (NEPA) of 1969 (42 U.S.C. 4341 et seq.), as amended in 1975 by P.L. 94-52 and P.L. 94.83. Additional guidance includes NPS Director's Order 12 (NPS, 2001a) which implements Section 102(2) of NEPA and the regulations established by the CEQ (40 CFR 1500-1508). The project must comply with requirements of NEPA as well as other legislation that governs land use, natural resource protection, and other policy issues within the park.

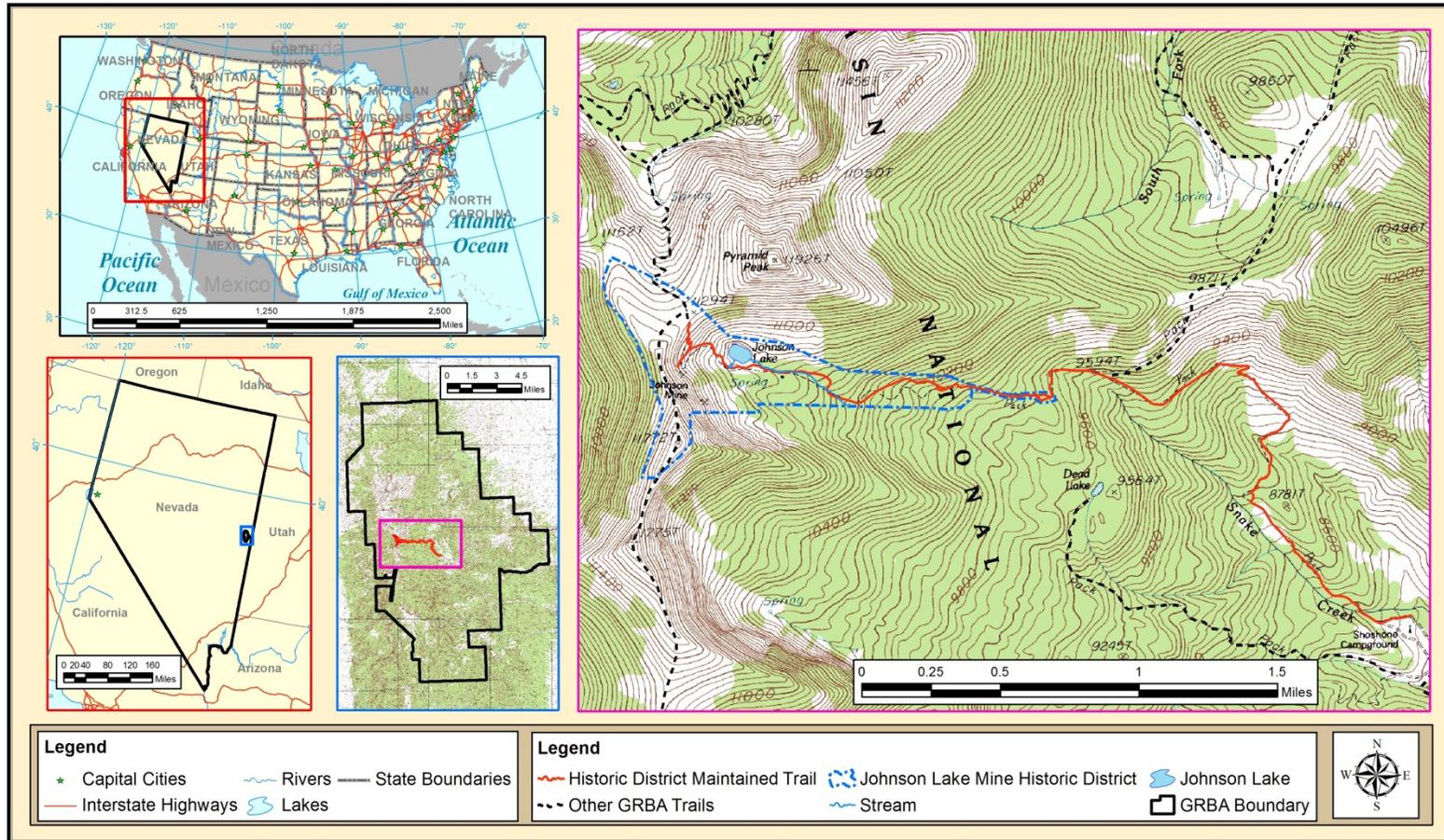


Figure 1 – Map of the Project Area

## **1.6 RELATED LAWS, LEGISLATION AND MANAGEMENT GUIDELINES**

Many regulations and Executive Orders are typically addressed in NEPA documents. The following is a summary of several relevant guidance documents and regulations that apply to actions considered in this EA.

### National Park Service (NPS) Organic Act

The NPS Organic Act directs the NPS to manage units “to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such a manner as will leave them unimpaired for the enjoyment of future generations.” (16 U.S.C. § 1) The Organic Act prohibits actions that permanently impair park resources unless a law directly and specifically allows for the acts. An action constitutes an impairment when its impacts “harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources and values.” (Management Policies 1.4.3)

National Historic Preservation Act of 1966, as amended (NHPA) (16 USC 470 et. sequential)  
Congressional policy set forth by the NHPA includes preserving “the historical and cultural foundations of the Nation” and preserving irreplaceable examples important to our national heritage to maintain “cultural, educational, aesthetic, inspirational, economic and energy benefits.”

### NPS’s Director’s Order-28 Cultural Resource Management Guideline

The guidelines require that the NPS manage cultural resources in its custody through effective research, planning, and stewardship. Included in Directors Orders (DO)-28 is the requirement to consult with Tribes about any project that might have interest including ethnographic resources identified as any, “site, substance, object landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it”.

### NPS’s Director’s Order-28A, Archeology, 2004

“As one of the principal stewards of America's heritage, the NPS is charged with the preservation of the commemorative, educational, scientific, and traditional cultural values of archeological resources for the benefit and enjoyment of present and future generations.”

### NPS 2006 Management Policies

NPS Management Policies 2006 include direction for preserving and protecting cultural resources, natural resources, processes, systems, and values (NPS 2006). Although management policies are not applicable to non-NPS lands, it is the goal of the NPS to avoid or minimize potential impacts to resources to the greatest extent practicable consistent with the management policies.

### Archeological Resources Protection Act of 1979

This act (PL 96-95, 93 Stat. 712, 16 USC Section 470aa et seq. and 43 CFR 7, subparts A and B, 36 CFR) secures the protection of archeological resources on public or Indian lands and fosters increased cooperation and exchange of information between private, government, and the

professional community in order to facilitate the enforcement and education of present and future generations. It regulates excavation and collection on public and Indian lands. It requires notification of Indian tribes who may consider a site of religious or cultural importance prior to issuing a permit.

## **1.7 ISSUES AND IMPACT TOPICS**

### **1.7.1 INTERNAL AND EXTERNAL SCOPING**

Internal Scoping was conducted on December 12, 2013 through an interdisciplinary team meeting of GRBA staff. Preliminary issues identified were:

1. Geologic resources-soils, bedrock, streambeds, etc.
2. Stream flow characteristics
3. Archeological resources
4. Prehistoric/Historic structures
5. Cultural Landscapes
6. Long-term management of resources or land/resource productivity

The park conducted public scoping from November 12, 2013 to December 12, 2013 by sending out a scoping brochure by mail or email to over 120 individuals, including parks, businesses and other agencies. The project was also posted on the park website and the NPS PEPC website. In addition, a press release was emailed to 11 newspapers and television stations.

One letter was received during public scoping. The majority of the comments noted in that letter are similar to the Impact Topics in the following sections 1.7.2 and 1.7.3 and many are addressed as part of the Alternative 2-Johnson Lake Mine Historic District Stabilization. One comment noted in the letter is addressed in Alternative 1-No-action, and one comment was outside the scope of the project and therefore was not analyzed.

### **1.7.2 ISSUES AND IMPACT TOPICS IDENTIFIED FOR FURTHER ANALYSIS**

1. Geologic resources - How would trail construction, archeological testing, and transportation of logs for repair of log structures impact soils?
2. Stream flow characteristics - How would re-routing the stream to a previously existing channel alter stream flow characteristics?
3. Archeological resources - How would the Johnson Lake Mine Historic District Stabilization project affect archeological resources?
4. Prehistoric/historic structures - How will the project affect the National Register of Historic Places eligibility for the historic district?
5. Cultural landscapes - How would the Johnson Lake Mine Historic District Stabilization project affect cultural landscapes?
6. Long-term management of resources or land/resource productivity - What would be the effect of the proposed action on the long-term management of cultural resources?

### **1.7.3 IMPACT TOPICS CONSIDERED BUT DISMISSED**

Water quality or quantity - The stabilization project would not include any ground disturbing actions near any water bodies.

1. Floodplains or wetlands - No floodplains or wetlands are associated with the project.
2. Unique fish or fish habitat – No Bonneville Cutthroat Trout are within the project area.
3. Ethnographic resources - No ethnographic resources are associated with the project.

## **2.0 ALTERNATIVES**

### **2.0.1 ALTERNATIVE 1-NO-ACTION**

The No-action Alternative would not include stabilization or maintenance of the Johnson Lake Mine Historic District. Log structures would continue to deteriorate, the trail to Johnson Lake would continue to erode, and trees growing adjacent to the log structures could fall on these structures, causing serious damage. An increase in natural vegetation of fir and spruce could create a dense forest limiting effective wildland fire suppression. Site and visitor protection would be minimal. Education and outreach would be limited.

### **2.0.2 ALTERNATIVE 2-PROPOSED ACTION-JOHNSON LAKE MINE HISTORIC DISTRICT STABILIZATION**

The Proposed Action would perform stabilization and maintenance of the Johnson Lake Mine Historic District to protect it from further deterioration. This will include stabilizing the structures, trail maintenance and construction, reducing fuels around the structures, periodic monitoring of the sites, archeological testing and educating park visitors on historic mining uses.

#### Structure stabilization

There are six log cabin structures in various stages of ruin located within the Johnson Lake Mine Historic District. The structures would be stabilized using the Secretary of Interior's Standards for the Treatment of Historic Properties (see References for website). Stabilization of structures would include replacement in kind of rotted logs, improvement of water drainage around structures, the application of borates to the logs of the structures, and the excavation of fill around the structures. Replacement in kind requires that logs of a similar size be used to replace the rotten logs located within the structures. All trees removed for structure protection and stabilization efforts would be flush cut with the ground. Improving the drainage of water around the structures will require some surface digging to channel the water around the structures. Borates will be applied to the logs of the structures in order to protect them from further deterioration by insects and humidity. The application of borates would only be performed by a certified pesticide applicator, contractor, or NPS staff, using NPS Integrated Pest Management (IPM) principles. Fill around the structures would be excavated to remove rotten logs that have been buried due to natural infilling. All fill would be screened, the general location recorded, and any artifacts found would be collected and catalogued by park CRM staff.

#### Trail Maintenance and Construction

There are approximately 4 miles of maintained trails located within the Johnson Lake Mine Historic District. Maintenance on all of these trails will take place during the project. Trail Maintenance would include tread work, replacement and installation of water bars, and removal of hazard trees. Rock and/or log water bars would be replaced or installed as needed to channel

water off of the trail. A re-route of approximately 1 mile in length would be constructed between the beneficiation area and the residential area of the mine. If a re-route is constructed the existing trail would be left in place with minor improvements. These improvements may include the installation of water bars to help keep this portion of the trail from further deterioration. The existing trail would remain in place to protect the historic integrity of the original access to the site.

### Fuels Reduction

To effectively protect the historic district from potential damage by fire, fuels around the site would be thinned and removed. Deteriorated logs from the structures would be replaced with materials from dead and down, dead and standing, or live standing trees. Potentially hazardous trees near the structures would also be removed, to alleviate the danger of trees falling and damaging the structures. All trees removed for fuels reduction or for stabilization efforts would be flush cut with the ground.

Other vegetation, such as smaller trees and bushes, impacting the structural integrity of the buildings would also be removed. Measures would be taken, where possible, to keep vegetation from growing in and around the foundations of the structures. These methods may include the installation of landscaping fabric or the treatment of plants with herbicide. Herbicide treatments would only be performed by or at the direction of a certified pesticide/herbicide applicator, contractor or NPS staff, using the NPS IPM principles (see References for website).

### Site and Visitor Protection

Site and visitor protection would include signage and monitoring. Signs would be specially designed and installed to provide visitors with safety and etiquette messages for visiting historic mine sites. These low profile signs would be placed near mining features and in high visitor use areas. The signs would be designed to maintain the historic and visual integrity of the site. Park protection staff, CRM staff, and volunteers would periodically monitor the site throughout the timeframe of the project to discourage vandalism.

### Archeological Testing

Archeological testing would take place at selected locations throughout the historic district. Testing may include up to 45 archeological test units being excavated within the historic district. Test units will vary in size and might include standard 1 meter square units, 2 meter square units, or a 1 meter by 2 meter trenches. Disturbance of the site due to archeological testing would not exceed 70 square meters which is less than 1/10<sup>th</sup> of 1% of the total historic district. Archeological testing would assist archeologists in interpreting the functions of features located throughout the site. This information would be used in the development of interpretive materials.

### Education and Outreach

Interpretive materials would be created and published in a variety of mediums, including: signs, brochures, the park website, and other social media produced by the park. Up to four interpretive wayside exhibit signs and a new trailhead sign would be produced as part of this project. The

wayside exhibit signs would be low profile, placed at various locations throughout the district, and would be designed not to detract from the historic integrity of the site. The interpretive materials would describe the history and archeology of the mine, the archeological methods for recording and documenting the mine, and the historic preservation efforts to protect the mine from further deterioration.

## 2.1 MITIGATION

Mitigation measures to protect resources apply to the Proposed Action.

Table 1 – Mitigation for Johnson Lake Mine Historic District Stabilization

Resources Area	Mitigation	Responsible Party
Soils	Trail to be constructed at grades required to minimize erosion and surface disturbance. Trail tread to be sloped outwardly to shed water. Water bars, turnouts, and/or steps to be installed on the trail as erosion controls.	Maintenance
Soils	Soil disturbance from historic stabilization work requires installation of silt fencing, wattles, or weed free straw as appropriate. Archeological testing will be back-filled as soon as feasible.	Resource Management
Fuel Reduction	Stumps of trees felled in the project area as a result of project work will be flush cut. Stumps remaining as a result of historic activities will be left intact.	Resource Management
Archaeological Resources	Ground disturbing activities in the vicinity of archeological resources require archeological monitoring and testing; accepted archeological professional standards will be used during archeological testing.	Cultural Resources Staff
Historic Properties	Follow the Secretary of Interior’s Standards for structure stabilization; provide archeological monitoring and testing for any ground disturbing activities in the vicinity of historic structures, and use accepted archeological professional standards during archeological testing.	Cultural Resources Staff
Cultural Landscapes	Follow the Secretary of Interior’s Standards for structure stabilization, provide archeological monitoring and testing for any ground disturbing activities within the cultural landscape; and use accepted archeological professional standards during archeological testing.	Cultural Resources Staff

## 2.2 ALTERNATIVES AND ACTIONS CONSIDERED BUT DISMISSED

An alternative and action that was considered but dismissed was to install water bars to minimize the effects of erosion instead of re-routing the trail above the Mill Site. This alternative was dismissed after careful consideration since the trail re-route would be a more effective mitigation to erosion.

## 2.3 IMPACT SUMMARY

Table 2 – Impact Summary

<b>Impact Topic</b>	<b>Alternative 1-No-action</b>	<b>Alternative 2-Johnson Lake Mine Historic District Stabilization</b>
<p><b>Geologic resources – soil, bedrock, streambeds, etc.</b> How would trail construction, archeological testing, and transportation of logs for repair of log structures impact soils?</p>	<p>Under Alternative 1-No-action, no additional impacts to soils would occur in the project area. The historic disturbances in the area would continue to cause long-term negligible adverse effects due to continuing slow soil erosion.</p>	<p>Under this alternative there would be short-term minor adverse, and long-term negligible adverse effects to soil resources.</p>
<p><b>Stream flow characteristics</b> How would re-routing the stream to former existing channel alter stream flow characteristics?</p>	<p>Under the No-action alternative, the impacts to stream flow characteristics would be long-term minor and adverse.</p>	<p>This alternative would result in long-term minor beneficial impacts to stream flow characteristics.</p>
<p><b>Archeological resources</b> How would the Johnson Lake Mine Historic District Stabilization project affect archeological resources?</p>	<p>The No-action Alternative would have long-term negligible adverse impacts on the archeological resources located within the APE.</p>	<p>Alternative 2 would produce short-and long-term minor to major beneficial impacts on the archeological resources located in the APE.</p>
<p><b>Prehistoric/historic structures</b> How will the project affect the National Register of Historic Places eligibility for the historic district?</p>	<p>The No-action Alternative would have long-term moderate to major adverse impacts on the historic structures located within the APE and will eventually compromise its eligibility for the National Register of Historic Places.</p>	<p>Alternative 2 would produce short-and long-term minor to major beneficial impacts on historic structures located within the APE and would help maintain its eligibility on the National Register of Historic Places.</p>
<p><b>Cultural landscapes</b> How would the Johnson Lake Mine Historic District Stabilization project affect cultural landscapes?</p>	<p>The No-action Alternative would have long-term moderate to major adverse impacts on the cultural landscape located within the APE.</p>	<p>Alternative 2 would produce short-and long-term minor to major beneficial impacts on the cultural landscape located within the APE.</p>
<p><b>Long-term management of resources or land/resource productivity</b> What would be the effect of structure stabilization and trail maintenance/construction on the long-term management of the Johnson Lake Mine Historic District for the park?</p>	<p>The No-action Alternative would have long-term moderate to major adverse impacts on the long-term management of cultural resources located within the APE.</p>	<p>Alternative 2 would produce short-and long-term minor to moderate beneficial impacts on the long-term management of cultural resources located within the APE.</p>

## **2.4 ENVIRONMENTALLY PREFERRED ALTERNATIVE**

The CEQ Regulations implementing NEPA and the NPS NEPA guidelines require that “the alternative or alternatives which were considered to be environmentally preferable” be identified (Council on Environmental Quality Regulations, Section 1505.2). Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative that best protects, preserves, and enhances historic, cultural, and natural resources.

The CEQ defines the environmentally preferred alternative as “...the alternative that will promote the national environmental policy as expressed in the National Environmental Policy Act’s §101.” Section 101 of the National Environmental Policy Act states that “... it is the continuing responsibility of the Federal Government to ... (1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations; (2) assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings; (3) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences; (4) preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity, and variety of individual choice; (5) achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life’s amenities; and (6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.”

The NPS has determined that the environmentally preferred alternative for this project is Alternative 2-Stabilization and Maintenance of Johnson Lake Mine Historic District. The environmentally preferred alternative is the alternative that will promote the national environmental policy expressed in NEPA (sec 101 (b) states “it is the continuing responsibility of the federal government to use all practicable means, consistent with other essential considerations of national policy “ to avoid environmental degradation, preserve historic, cultural, and natural resources, and “ promote the widest range of beneficial uses of the environment without undesirable and unintentional consequences”

## **3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES**

### **3.1 INTRODUCTION**

The Affected Environment section describes the resources in GRBA that will be affected as a result of the implementation of the proposed Johnson Lake Mine Historic District Stabilization alternative.

The resource descriptions provided in this chapter serve as a baseline with which to compare the potential effects of the management actions considered in this EA. The Environmental Consequences portion of each impact topic analyzes both beneficial and adverse impacts that will result from implementing any of the alternatives described in Chapter 2: Alternatives.

The analysis includes: impact thresholds (negligible, minor, moderate, and major), methods used to analyze impacts, and the analysis methods used for determining cumulative effects. As required by the CEQ, a summary of the environmental consequences of each alternative is provided in Chapter 2: Alternatives.

### **3.1.1 GENERAL METHODS FOR ANALYZING IMPACTS**

The NPS based the impact analyses and conclusions on scientific literature; information and insights provided by NPS experts, other agencies, and the public; and best professional judgment.

For each impact topic, impacts are defined in terms of thresholds of effect, context, intensity, duration, and timing. Impacts and cumulative effects are discussed in each impact topic. Definitions of intensity levels vary by impact topic. Where it is not specifically stated otherwise under each impact topic, the following definitions apply.

Under each impact topic is a brief description of relevant components of existing conditions and information for determining the effects of implementing each alternative. The effects based on the following factors:

- Type:* Whether the impact would be beneficial or adverse.
- Intensity:* Identify the intensity of the effect as negligible, minor, moderate, or major. Intensity is defined individually for each impact topic.
- Duration:* Duration of impact is analyzed independently for each resource. Depending on the resource, impacts may last for the construction period, a single year, or other time period. For purposes of this analysis, impact duration is described as short- or long-term as defined for each resource.
- Short-term:* Impacts are temporary, transitional, or construction-related impacts associated with project activities.
- Long-term:* Impacts are typically those effects that would last several years or more or would be permanent.
- Context:* Context is the setting within which an impact would occur.
- Local impacts:* Would generally occur within the immediate vicinity of the proposed project.
- Regional impacts:* Would occur on surrounding lands and/or in adjacent communities.
- Impact:* The following types of impact must be considered and examined for any park proposal and alternatives.

*Direct Impact:* Effects are caused by an action and occur at the same time and place as the action.

*Indirect Impacts:* Effects are caused by the action and occur later or farther away, but are still reasonably foreseeable.

*Cumulative Impacts:* Effects of the alternatives in conjunction with past, present, or reasonably foreseeable future actions.

### **3.1.2 THRESHOLDS FOR IMPACT ANALYSIS**

The intensity and duration of effects vary by resource; therefore, the definitions for each impact topic are described separately before each impact topic. These definitions were formulated through the review of existing laws, policies, and guidelines; and with assistance from park, region and other resource specialists.

### **3.1.3 CUMULATIVE IMPACTS ANALYSIS**

The CEQ regulations for implementing NEPA require the assessment of cumulative impacts in the decision-making process for federal actions. A cumulative impact is described in CEQ, Regulation 1508.7, as follows:

A “cumulative impact” is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Cumulative impacts are considered for both the No-action and Action alternatives. Cumulative impacts were determined by combining the effects of the alternative with other past, present, and reasonably foreseeable future actions with the effects of the alternatives. The following table lists of actions that could result in cumulative impacts.

Table 3 – Cumulative Impacts

Action	Description	Resources Potentially Affected
<b>Past Projects and Human Impacts</b>		
Mining Activities	Extensive mining-associated disturbance, construction of building and operations earthworks, road construction, alteration of stream flows, timbering, mineral ore processing	Soils Stream flow characteristics
Recreational Camping and Hiking	A rustic campsite located at Shoshone Campground Snake Creek. Campsite and parking used to access the Johnson Lake Trail	Soils Archeological resources Recreation and visitor services
Trail Maintenance on Johnson Lake Trail	The Johnson Lake Trail is regularly maintained by NPS	Soils Native Plants
<b>Present Projects</b>		
Recreational Hiking	Johnson Lake Trail is regularly used by park visitors to access the backcountry	Soils Archeological resources Recreation and visitor services
Trail Maintenance on Johnson Lake Trail	Limited trail maintenance currently being performed on Johnson Lake Trail	Soils Archeological resources Native Plants
Snake Creek Improvements and Recreational Enhancement	Rehabilitate rustic campsites along Snake Creek road and construct additional hiking trails	Soil disturbance and erosion Archeological resources Water quality
<b>Future Projects</b>		
Native Bonneville Cutthroat Trout Restoration in Snake Creek	Native Bonneville Cutthroat Trout to be reintroduced into Snake Creek in the near future	Soil disturbance Non-native fish

### 3.1.4 GEOGRAPHIC ANALYSIS AREA

The geographic area for the analysis of impact considered in this EA encompasses 205 acres in GRBA. Stabilization activities would be generally concentrated in areas identified in Figure 1.

## 3.2 AFFECTED ENVIRONMENT AND ANALYSIS OF ALTERNATIVES

### 3.2.1 GEOLOGIC RESOURCES-SOILS

#### Affected Environment

GRBA lies in the Basin and Range Geologic Province. Bedrock in the immediate project area consists of intruded Mesozoic granite and bedded Early Cambrian Prospect Mountain Quartzite. These rock formations do not contain significant paleontological resources. Geologic features and landforms present nearby are distinctive features formed by alpine glaciation. These include a cirque (the Johnson Lake cirque), a tarn (Johnson Lake), a horn (Pyramid Peak), and glacial moraines in the valley floor east of Johnson Lake.

Soils within the project area are mapped as Jumble-Lemcave-Gaia association (USDA, 2009), which are soils that have been strongly influenced by glacial processes at high elevation. They are developed in or on glacial till and contain predominantly fragmented quartzite and granite with very minor amounts of sandy loam. Surfaces are moderately to steeply sloping. Runoff rates are high and surfaces are well-drained. The uppermost inch of these soils results predominantly from recent accumulation of decomposing plant debris. Below this the loamy soil structure is highly modified by an unsorted mix of angular gravels and cobbles. The surface of the soil profile is very susceptible to sheet and rill erosion, but immediately below that erosion rates are generally slowed by the dense angular mix of very large grain sizes.

Ecological site descriptions for these soils identify high aesthetic values and recreational uses that include hiking, camping, and wildlife observation. Steep slopes and the fragile soil-vegetation complex inhibit many other forms of recreation including use of off-road vehicles. Therefore, trail construction should include well-designed grades and adequately spaced water bars. Soil disturbances should be mitigated as soon as possible to avoid or limit erosion.

Currently the most direct trail access to the Johnson Lake mill and mine is from the Johnson Lake Trailhead following the canyon bottom uphill. This trail follows an abandoned unimproved road trace historically constructed and used by mine workers. The trail crosses the main canyon drainage and has become washed out in some places due to seasonal high runoff.

## **Environmental Consequences**

### **Impact Criteria and Thresholds**

The area of consideration for this topic is the project area. Defining potential impacts from management actions is based on professional judgment and experience with similar actions. The thresholds of change for the intensity of an impact are defined as follows:

<b>Impact Intensity</b>	<b>Intensity Description</b>
<b>Negligible</b>	The effects to soils would be below or at the lower levels of detection. Any effects on productivity or erosion potential would be slight.
<b>Minor</b>	An action's effects on soils would be detectable. It would change the soil profile in a relatively small area and it would not appreciably increase the potential for erosion of additional soil beyond that which naturally occurs. If mitigation were needed to offset adverse effects, it would be relatively simple to implement and would likely be successful.
<b>Moderate</b>	An action would result in a change in quantity or alteration of the topsoil, overall biological productivity, or the potential for erosion to remove small quantities of additional soil. Changes to localized ecological processes would be of limited extent. Mitigation measures would probably be necessary to offset adverse effects and would likely be successful
<b>Major</b>	An action would result in a change in the potential for erosion to remove large quantities of additional soil, alterations to topsoil, and overall biological productivity in a relatively large area. Key ecological processes would be altered, and landscape-level changes would be expected. Mitigation measures to offset adverse effects would be necessary, extensive, and their success could not be guaranteed.

Short-term: Recovers in one to three years or less.

Long-term: Takes more than three years to recover.

### **Alternative 1-No-action**

#### Impact analysis

No-action would be taken in this alternative; therefore there would be no additional impacts to soil resources. Current rates of erosion at the junctures of drainages and the old road/trail would continue.

#### Cumulative Impacts

Previous human use in the project area has resulted in construction of a two-track gravel road, mining roads, and surface modifications for placement of structures, adits, and mill area. Soils in these areas were disturbed years ago, but are now relatively stabilized and are being eroded at a relatively slow rate. A few short segments of the road are being washed out by seasonal runoff through local drainages. The trail would not be rerouted to avoid that area. There are no reasonably foreseeable impacts in the area from other planned projects. Cumulative impacts under the no-action alternative would continue to be long-term minor and adverse.

#### Conclusion

A trail reroute around the washed out road area would not be built and no log dragging or excavations would occur under Alternative 1-No-action. No additional impacts to soils would occur in the project area. The historic disturbances in the area would continue to cause long-term minor adverse impacts due to continuing soil erosion.

## **Alternative 2- Proposed Action**

### Impact analysis

The Proposed Action would result in construction of approximately a mile of trail, controlled archeological testing, and surface disturbances from moving and placing logs required for cabin stabilization. Therefore, surface soils would likely be removed or disturbed along a trail route about 3 feet (0.9 meter) wide by approximately one mile (1.6 kilometers) in length and in a few other significantly smaller areas in the historic rehabilitation work area. The trail would be constructed at grades required to minimize erosion and surface disturbance. Erosion controls would be installed on the trail, such as water bars, turnouts, or steps. Erosion controls such as silt fencing, wattles, or weed free straw would be applied as individual situations dictate.

Archeological testing would be back-filled as soon as feasible. Short-term impacts to soils would be minor. Long-term impacts to soils resulting from implementation of the Proposed Action would be negligible and adverse.

### Cumulative Impacts

Previous human disturbances in the project area are as noted above in Cumulative Effects of the No-Action Alternative. Cumulative impacts to soils under the Proposed Action (Alternative 2) would continue to be long-term minor and adverse.

### Conclusion

Under Alternative 2, the Proposed Action, there would be short- and long-term minor impacts to soil resources.

## **3.2.2 STREAMFLOW CHARACTERISTICS**

### **Affected Environment**

The outlet stream of Johnson Lake connects with Snake Creek, located on the east side of the South Snake Range. Snake Creek contains about 18 km (11 mi) of stream within GRBA and a catchment area of nearly 53 km<sup>2</sup> (20 mi<sup>2</sup>). The outlet stream is ephemeral, only running from spring thaw until about July or August during a year with average precipitation.

Downstream, about 200 m from Johnson Lake, a section of stream channel less than 20 m long runs beside an historic structure. This is an area where the stream is braided, and water flows in different channels in different years. The stream channel is generally about 0.3 m deep with a mostly cobble substrate.

The current Johnson Lake Trail crosses the stream channel, as would any potential reroute. There would be no alterations to the stream banks or substrate.

### **Environmental Consequences**

#### Impact Criteria and Thresholds

The following definitions of impact intensity are used in the analysis of effects on stream flow characteristics:

<b>Impact Intensity</b>	<b>Intensity Description</b>
<b>Negligible</b>	The action would not create measurable impacts. Changes to stream flow characteristics would not be noticeable.
<b>Minor</b>	The action would create slight measurable impacts, such as a small amount of stream bank erosion or slight change in stream substrate. The change would be small, localized, and of little consequence. Mitigation to offset adverse effects would be required and would be effective.
<b>Moderate</b>	The action would cause detectable impacts, such as erosion of a moderate part of the stream bank or a moderate change in stream substrate. The change would be measurable and of consequence to the resource but more localized. Mitigation to offset adverse effects could be extensive, but would likely be successful.
<b>Major</b>	The action would cause significant changes in stream flow and/or cause erosion of stream banks to the extent that the stream channel would become channelized. Key-ecosystem processes may be permanently altered.

Short-term: Recovers in one to three years or less.

Long-term: Takes more than three years to recover.

### **Alternative 1-No-action**

#### Impact Analysis

Under the No-action alternative, the Johnson Lake Mine project would not be completed, and stream flow characteristics would not change.

#### Cumulative Impacts

Mining activities have altered the nearby environment over the years, adding a dam to the lake and changing stream flow by using small rock dams. The dam has changed the timing and magnitude of stream flow in the area, so that different vegetation and wildlife are favored. These changes have resulted in long-term minor adverse localized impacts to the stream flow characteristics in the area of the historic structures.

#### Conclusion

Under the No-action alternative, the impacts to stream flow characteristics would be long-term minor and adverse due to cumulative impacts.

### **Alternative 2- Proposed Action**

#### Impact Analysis

Under the Proposed Action, the stream channel closest to the historic structure would be diverted into an adjacent, channel to help protect the structure from being undermined. The stream previously flowed in this channel and would likely again in the future. The water diversion would be accomplished by placing rocks in the channel. The affected area is less than 20 m long. This action would have negligible short- and long-term impacts to stream flow characteristics.

### Cumulative Impacts

Miners have altered the nearby environment over the years, adding a dam to the lake and changing stream flow by using small rock dams. The dam has changed the timing and magnitude of stream flow in the area, so that different vegetation and wildlife are favored. These changes have resulted in long-term minor adverse impacts to the stream flow characteristics in the area of the historic structures.

### Conclusion

This alternative is expected to result in long-term minor adverse impacts to stream flow characteristics, largely due to the cumulative impacts.

## **3.2.3 ARCHEOLOGICAL RESOURCES**

### **Affected Environment**

The Area of Potential Effect (APE) encompasses the entire Johnson Lake Mine Historic District, the Johnson Lake Trail and a 20 meter buffer zone on either side of the trail. Located within this area are five additional cultural resource sites. The historic district includes both prehistoric and historic components. Historic components are associated with the historic Johnson Lake Mine, which was an early 20<sup>th</sup> century tungsten mine. The associated historic artifacts and features encompass the majority of the site. Other archeological sites within the APE include prehistoric and historic sites. The GRBA General Management Plan (GMP) states that the objective of cultural resource management is to protect and interpret the park's cultural, historic and ethnographic resources in accordance with Park Service policies. The NPS will give consideration to and apply appropriate protection measures to the historic district and its associated artifacts and features in their development plans consistent with Section 106 of the NHPA of 1966, as amended.

The area of consideration for this topic is defined in accordance with the Advisory Council on Historic Preservation's (ACHP) regulations implementing Section 106 of NHPA, the APE is determined as the geographic area within which an undertaking may directly or indirectly cause alteration in the character or use of historic properties (36 CFR 800.16(d)). The APE for analysis of effects to cultural resources for the Johnson Lake Mine Historic District Stabilization project is defined as the immediate project area with the defined buffer. Direct impacts include any ground disturbing activity, including trail maintenance and construction, archeological testing, and excavations of sill logs for historic structure stabilization. Indirect impacts may include alteration of the historic setting and increased recreational visitation to high visibility features such as historic structures and features. Areas where an increase in recreational visitation can be expected will also be considered in the APE for cumulative and long-term effects.

### Archeological Resources

The Johnson Lake Mine Historic District was listed in the National Register of Historic Places in 1995 under criterion D for its archeological significance and its potential to yield important information. In 2009 a Cultural Landscape Inventory of the site was completed. In this inventory it was recommended that the site also be considered eligible under criterion A for its association with events significant to broad patterns of history on a local level. National Register evaluations have been completed on two of the five additional sites, for the purposes of this project all

archeological resources will be treated as eligible. Evaluations for all sites will be completed or reviewed and updated in consultation with the Nevada State Historic Preservation Office (SHPO) as required by Section 106 of NHPA. Recommendations for avoiding, minimizing, or mitigating potential effects to the historic district will be completed in consultation with the Nevada SHPO as required by Section 106 of NHPA.

### Historic Properties

Human history of the Great Basin spans over 13,000 years. Within GRBA prehistoric and historic sites provide a sample of the full span of North American history. The archeologically defined periods include: the Paleo-Indian beginning 13,500 to 11,000 years ago; the Archaic from 11,000 to 2,000 years ago; the Late Archaic from 2,000 years ago until Euro-American contact (early to middle 1800s). The Late Archaic period includes the archeologically defined Formative period, manifested in this area by the Fremont Culture practicing horticulture from 2,000 to 600 years ago. Native cultures present at the time of Euro-American contact remain in the area today and recognize ethnographically significant resources in the Park. Sites from the more recent Historic period represent the trend of development identified in varying levels of documentary history. Within the Park, historic themes identified in the NPS Historic Resource Study by Unrau (1990) are represented by sites, structures, and features. Some of the represented themes include Mormon settlement, ranching, government survey, mining, and government administration (U.S. Forest Service and NPS) of recreation and resources.

Historic Properties are defined by the NHPA Title III Sec. 301 (5), (*16 U.S.C. 470w (5)*) "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the NRHP: such terms include artifacts, records, and remains which are related to such district, site, building, structure, or object (16 U.S.C. Section 470(w)(5)). Also included are properties of traditional religious and cultural importance to any Native American tribe if that property meets defined National Register criteria.

The Johnson Lake Mine Historic District and five additional historic properties are located within the APE of the Johnson Lake Mine Historic District Stabilization project. The six historic properties include both prehistoric and historic sites with contributing features. Of these two are prehistoric, two are historic, and two have both prehistoric and historic components.

## **Environmental Consequences**

### Impact Criteria and Thresholds

Defining potential impacts from management actions is based on professional judgment and experience with similar actions. The thresholds of change for the intensity of an impact are defined as follows:

Impact Intensity	Intensity Description
<b>Negligible</b>	Impact is barely perceptible and not measureable. Significant character-defining attributes of historic properties (including the informational potential of archaeological resources) are not appreciably diminished by the undertaking. For Section 106 of NHPA the determination of effect for a negligible impact would be <i>no historic properties affected</i> .
<b>Minor</b>	Impact is perceptible and measureable. The effects remain localized and confined to a single element contributing to the significance of a larger national register property/district, or archaeological site(s) with low to moderate data potential. Alteration of a feature(s) would not diminish the overall integrity of the resource and the property may still be eligible for the National Register of Historic Places. For Section 106 of NHPA the determination of effect for a minor impact would be <i>no adverse effect</i> .
<b>Moderate</b>	Impact is sufficient to alter character-defining features of historic properties, generally involving a single or small group of contributing elements, or archaeological site(s) with moderate to high data potential. The overall integrity of the resource would be diminished; the property may not retain its National Register eligibility. For Section 106 of NHPA the determination of effect for a moderate impact would be an <i>adverse effect</i> .
<b>Major</b>	Impact results in a substantial and highly noticeable change in character-defining features of historic properties, generally involving a large group of contributing elements and/or individually significant property, or archaeological site(s) with high to exceptional data potential seriously diminishing the overall integrity of the resource to the point where it is not eligible for the National Register. For Section 106 of NHPA the determination of effect for a major impact would be an <i>adverse effect</i> .

Short-term: Less than 5 years

Long-term: Greater than 5 years

### **Alternative 1-No-action**

#### Impact analysis

Under Alternative 1, the No-action alternative, the proposed Johnson Lake Mine Historic District Stabilization Project would not be implemented. No project-related disturbance would occur and no related identified impacts would occur. The finding of effect for NHPA Section 106 would be “no historic properties affected.” However, without implementation of the stabilization project gradual deterioration of the historic properties and archeological resources in the APE would continue which would have long-term, negligible, impacts on the archeological resources located in the APE.

#### Cumulative Impacts

Impacts to archeological resources would be negligible under the No Action Alternative.

#### Conclusion

The ‘No-action’ alternative would have long-term negligible impacts on the archeological resources located within the APE.

### **Alternative 2- Proposed Action**

### Impact Analysis

Alternative 2, the Proposed Action, would involve ground disturbance through the excavation and manipulation of surface and subsurface soils by performing the following tasks: structure stabilization, trail maintenance, trail construction, fuels reduction, and archeological testing. Any ground disturbance has the potential to harm important archeological resources. Ground disturbance in the vicinity of the archeological resources would be monitored by park archeologists. Accepted archeological professional standards would be used during ground disturbance activities performed during archeological testing. Mitigations include archeological monitoring and testing for any ground disturbing activities in the vicinity of archeological resources. Alternative 2 has the potential to produce short- and long-term negligible impacts on archeological resources.

### Cumulative Impacts

Ground disturbing activities will have negligible impacts on archeological resources located within the APE.

### Conclusion

Implementation of Alternative 2, the Proposed Action would have short- and long-term negligible impacts on archeological resources.

## **3.3.4 PREHISTORIC/HISTORIC STRUCTURES**

### **Affected Environment**

The Affected Environment for these resources is defined in Section 3.2.4 Archeological Resources.

### Historic Structures

The Johnson Lake Mine Historic District has six standing structures which are on the park's List of Classified Structures. They are listed as contributing elements in the NRHP form for the Johnson Lake Mine Historic District.

### **Environmental Consequences**

#### Impact Criteria and Thresholds

Defining potential impacts from management actions is based on professional judgment and experience with similar actions. The thresholds of change for the intensity of an impact are defined as follows:

Impact Intensity	Intensity Description
<b>Negligible</b>	Impact is barely perceptible and not measureable. Significant character-defining attributes of historic properties (including the informational potential of archaeological resources) are not appreciably diminished by the undertaking. For Section 106 of NHPA the determination of effect for a negligible impact would be <i>no historic properties affected</i> .
<b>Minor</b>	Impact is perceptible and measureable. The effects remain localized and confined to a single element contributing to the significance of a larger national register property/district, or archaeological site(s) with low to moderate data potential. Alteration of a feature(s) would not diminish the overall integrity of the resource and the property may still be eligible for the National Register of Historic Places. For Section 106 of NHPA the determination of effect for a minor impact would be <i>no adverse effect</i> .
<b>Moderate</b>	Impact is sufficient to alter character-defining features of historic properties, generally involving a single or small group of contributing elements, or archaeological site(s) with moderate to high data potential. The overall integrity of the resource would be diminished; the property may not retain its National Register eligibility. For Section 106 of NHPA the determination of effect for a moderate impact would be an <i>adverse effect</i> .
<b>Major</b>	Impact results in a substantial and highly noticeable change in character-defining features of historic properties, generally involving a large group of contributing elements and/or individually significant property, or archaeological site(s) with high to exceptional data potential seriously diminishing the overall integrity of the resource to the point where it is not eligible for the National Register. For Section 106 of NHPA the determination of effect for a major impact would be an <i>adverse effect</i> .

Short-term: Less than 5 years

Long-term: Greater than 5 years

### **Alternative 1-No-action**

#### Impact Analysis

Under Alternative 1, the No-action alternative, the proposed Johnson Lake Mine Historic District Stabilization Project would not be implemented. No project-related disturbance would occur and no related identified impacts would occur. The finding of effect for NHPA Section 106 would be “no historic properties affected.” However, without implementation of the stabilization project gradual deterioration of the historic properties in the APE would continue which would have long-term, minor to moderate, adverse impacts on the historical structures.

#### Cumulative Impacts

Previous weathering and deterioration of the contributing elements of the Johnson Lake Mine Historic District has produced long-term moderate to major adverse impacts to those historical structures.

#### Conclusion

The ‘No-action’ alternative would have long-term major adverse impacts on the historic structures located within the APE.

## **Alternative 2- Proposed Action**

### Impact Analysis

Alternative 2, the Proposed Action, would involve ground disturbance through the excavation and manipulation of surface and subsurface soils by performing the following tasks: structure stabilization, trail maintenance, trail construction, fuels reduction, and archeological testing. Alternative 2 would have short- and long-term moderate to major beneficial impacts on historic structures through the stabilization and protection of these resources.

### Cumulative Impacts

Previous weathering and deterioration of the contributing elements of the Johnson Lake Mine Historic District has produced long-term minor to moderate adverse impacts on the historic structures. Stabilization work will reverse or greatly diminish this natural deterioration. Taken together the impacts to historic structures resulting from implementation of the Proposed Action and past, present, and future cumulative impacts would be short-and long-term moderate to major and beneficial.

### Conclusion

Implementation of Alternative 2, the Proposed Action would reduce or reverse previous adverse impacts from natural degradation. The resulting impacts of Alternative 2, the Proposed Action, would be short- and long-term minor to major and beneficial.

## **3.3.6 CULTURAL LANDSCAPES**

### **Affected Environment**

The Affected Environment for these resources is defined in Section 3.2.4 Archeological Resources.

### Cultural Landscapes

A Cultural Landscape Inventory (CLI) of the Johnson Lake Mine Historic District was completed in 2009, which recommends that the site should be preserved and maintained.

### **Environmental Consequences**

#### Impact Criteria and Thresholds

Defining potential impacts from management actions is based on professional judgment and experience with similar actions. The thresholds of change for the intensity of an impact are defined as follows:

Impact Intensity	Intensity Description
<b>Negligible</b>	Impact is barely perceptible and not measureable. Significant character-defining attributes of historic properties (including the informational potential of archaeological resources) are not appreciably diminished by the undertaking. For Section 106 of NHPA the determination of effect for a negligible impact would be <i>no historic properties affected</i> .
<b>Minor</b>	Impact is perceptible and measureable. The effects remain localized and confined to a single element contributing to the significance of a larger national register property/district, or archaeological site(s) with low to moderate data potential. Alteration of a feature(s) would not diminish the overall integrity of the resource and the property may still be eligible for the National Register of Historic Places. For Section 106 of NHPA the determination of effect for a minor impact would be <i>no adverse effect</i> .
<b>Moderate</b>	Impact is sufficient to alter character-defining features of historic properties, generally involving a single or small group of contributing elements, or archaeological site(s) with moderate to high data potential. The overall integrity of the resource would be diminished; the property may not retain its National Register eligibility. For Section 106 of NHPA the determination of effect for a moderate impact would be an <i>adverse effect</i> .
<b>Major</b>	Impact results in a substantial and highly noticeable change in character-defining features of historic properties, generally involving a large group of contributing elements and/or individually significant property, or archaeological site(s) with high to exceptional data potential seriously diminishing the overall integrity of the resource to the point where it is not eligible for the National Register. For Section 106 of NHPA the determination of effect for a major impact would be an <i>adverse effect</i> .

Short-term: Less than 5 years

Long-term: Greater than 5 years

### **Alternative 1-No-action**

#### Impact analysis

Under Alternative 1, the ‘No-action’ alternative, the proposed Johnson Lake Mine Historic District Stabilization Project would not be implemented. No project-related disturbance would occur and no related identified impacts would occur. The finding of effect for NHPA Section 106 would be “no historic properties affected.” However, without implementation of the stabilization project gradual deterioration of the historic properties in the APE would continue which would have long-term, moderate to major, adverse impacts on the Johnson Lake Mine cultural landscape.

#### Cumulative Impacts

Previous weathering and deterioration of the contributing elements of the Johnson Lake Mine Historic District has produced long-term minor to moderate adverse impacts to the Johnson Lake Mine cultural landscape.

#### Conclusion

The ‘No-action’ alternative would have long-term moderate adverse impacts on the Johnson Lake Mine cultural landscape.

## **Alternative 2- Proposed Action**

### Impact Analysis

Alternative 2, the Proposed Action, would involve ground disturbance through the excavation and manipulation of surface and subsurface soils by performing the following tasks: structure stabilization, trail maintenance, trail construction, fuels reduction, and archeological testing. Any ground disturbance has the potential to harm important cultural landscape features. However, Alternative 2 would have short- and long-term minor to major beneficial impacts on the cultural landscape through the stabilization and protection of these resources.

### Cumulative Impacts

Previous weathering and deterioration of the contributing elements of the Johnson Lake Mine Historic District has produced long-term minor to moderate adverse impacts to the archeological resources. Stabilization work will reverse or greatly diminish this natural deterioration. Taken together the impacts to cultural landscapes resulting from implementation of the Proposed Action and past, present, and future cumulative impacts would be short-and long-term moderate to major and beneficial.

### Conclusion

Implementation of Alternative 2, the Proposed Action would reduce or reverse previous adverse impacts from natural degradation. The resulting impacts of Alternative 2, the Proposed Action, would be short- and long-term minor to major and beneficial.

## **3.2.5 LONG-TERM MANAGEMENT OF RESOURCES OR LAND/RESOURCE PRODUCTIVITY**

### **Affected Environment**

The Johnson Lake Mine Historic District is an important cultural resource. It is listed in the NRHP. A CLI of the site was completed in 2009, which states that the site “should be preserved and maintained” by the park. The GMP states that: “sites currently on or eligible for listing in the National Register of Historic Places...would be preserved and interpreted.” The NPS Management Policies also mandate that “the treatment of historic and prehistoric structures will be based on sound preservation practice to enable the long-term preservation of a structure’s historic features, materials, and qualities.” Director’s Order #28A: Archeology states that “archeological resources under NPS stewardship are [to be] conserved, protected, and managed to prevent the impairment of archeological resources or their values.” The NPS Organic Act states that the purpose of national parks, monuments, etc. “is to conserve the...historic objects...therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.” The NPS Organic Acts allows for the disposal of timber “in those cases where...the cutting of such timber is required in order to...conserve...historic objects.”

As is indicated in the paragraph above it is crucial that the park preserve and maintain the Johnson Lake Mine Historic District. Long-term management of the historic district is an integral part of the cultural resource management of the park. The district is a unique cultural resource

and long-term management of it is crucial to the preservation of this site for “the enjoyment of future generations.”

## **Environmental Consequences**

### Impact Criteria and Thresholds

Defining potential impacts from management actions is based on professional judgment and experience with similar actions. The following definitions of impact intensity are used in the analysis of effects on sustainability:

<b>Impact Intensity</b>	<b>Intensity Description</b>
<b>Negligible</b>	Impact is barely perceptible and not measurable. Significant character-defining attributes of historic properties (including the informational potential of archaeological resources) are not appreciably diminished by the undertaking. For Section 106 of NHPA the determination of effect for a negligible impact would be <i>no historic properties affected</i> .
<b>Minor</b>	Impact is perceptible and measurable. The effects remain localized and confined to a single element contributing to the significance of a larger national register property/district, or archaeological site(s) with low to moderate data potential. Alteration of a feature(s) would not diminish the overall integrity of the resource and the property may still be eligible for the National Register of Historic Places. For Section 106 of NHPA the determination of effect for a minor impact would be <i>no adverse effect</i> .
<b>Moderate</b>	Impact is sufficient to alter character-defining features of historic properties, generally involving a single or small group of contributing elements, or archaeological site(s) with moderate to high data potential. The overall integrity of the resource would be diminished; the property may not retain its National Register eligibility. For Section 106 of NHPA the determination of effect for a moderate impact would be an <i>adverse effect</i> .
<b>Major</b>	Impact results in a substantial and highly noticeable change in character-defining features of historic properties, generally involving a large group of contributing elements and/or individually significant property, or archaeological site(s) with high to exceptional data potential seriously diminishing the overall integrity of the resource to the point where it is not eligible for the National Register. For Section 106 of NHPA the determination of effect for a major impact would be an <i>adverse effect</i> .

Short-term: Less than 5 years

Long-term: Greater than 5 years

### **Alternative 1 – No-action**

#### Impact Analysis

Under Alternative 1, the ‘No-action’ alternative, the proposed Johnson Lake Mine Historic District Stabilization Project would not be implemented. No project-related disturbance would occur and no related identified impacts would occur. Without stabilization the cultural resource would continue to naturally degrade. The ‘No-action’ alternative would have long-term major, adverse impacts on the long-term management of cultural resources located within the project area.

### Cumulative Impacts

Previous weathering and deterioration of the contributing elements of the Johnson Lake Mine Historic District has produced long-term minor to moderate adverse impacts to cultural resources at Johnson Lake Mine.

### Conclusion

The 'No-action' alternative would have long-term major adverse impacts for the long-term management of the cultural resources located with the project area.

## **Alternative 2 – Proposed Action**

### Impact Analysis

Under the Proposed Action, a detailed protection and treatment plan for the historic structures of the Johnson Lake Mine Historic District will be completed. Cultural resources would be stabilized against natural decay for many years to come. Alternative 2 would have long-term minor to moderate beneficial impacts on the long-term management of cultural resources.

### Cumulative Impacts

Results of past present and future actions include both adverse and beneficial long-term impacts. Implementation of Alternative 2, the Proposed Action would have the effect of reversing many of the previous adverse effects. Taken together all these actions would provide long-term minor to moderate beneficial impacts to the long-term management of cultural resources in the park.

### Conclusion

The resulting impacts of Alternative 2, the Proposed Action, would result in long-term minor to moderate beneficial impacts on the long-term management of cultural resources located within the project area.

#### **4.0 LIST OF PREPARERS AND CONTRIBUTORS**

The following is a list of agencies and organizations that will receive a notice of availability or a copy of the EA. Additionally, 20 individuals and organizations will have received a notice of availability; and the press release announcing availability will have been sent to 14 area newspapers and radio stations for release as a public service announcement. A complete list of names on the NPS mailing list and press release list for this project is in the project file and is available from the issuing office.

##### **Preparers**

Elizabeth Cristobal, Environmental Protection Specialist  
Karla Jageman, Archeologist  
Eva Jensen, Cultural Resources Program Manager

##### **Contributors**

Gorden Bell, Environmental Protection Specialist  
Patrick Mingus, Vegetation Coordinator  
Gretchen Baker, Ecologist  
Cari Kreshak, Pacific West Regional Section 106 Coordinator  
Randall Skeirik, Historical Architect, NPS Vanishing Treasures Program, Intermountain Regional Office

#### **4.1 LIST OF RECIPIENTS AND REVIEW OF EA**

##### **Tribes**

Ely Shoshone Tribe  
Goshute Business Council  
Southern Paiute Consortium, Kaibab Paiute Tribe  
Southern Paiute Tribe, Indian Peaks Band  
Southern Paiute Tribe of Utah

##### **Federal Agencies**

Bureau of Land Management, Ely District Office  
Natural Resources Conservation Service, Ely Service Center  
U.S. Fish and Wildlife Service, Reno Office  
U.S. Forest Service, Ely Ranger District

##### **Elected Officials**

U.S. Senator Harry Reid  
U.S. Senator Dean Heller  
U.S. Representative Dana Titus  
U.S. Representative Steven Horsford  
U.S. Representative Mark Amodei  
Nevada State Senator Pete Goicoechea  
Nevada State Senator Dean Rhoads  
Nevada State Assemblyman John Ellison

**State Agencies**

Nevada Department of Wildlife, Reno  
Nevada State Department of Conservation  
State Historic Preservation Officer

**Regional, County, and Municipal Agencies**

Baker Citizens Advisory Board  
White Pine County Chamber of Commerce

**Organizations**

Great Basin Chapter of Trout Unlimited  
Great Basin National Heritage Area  
Great Basin National Park Foundation  
National Parks Conservation Association, Las Vegas  
Toiyabe Chapter of the Sierra Club

**General Postings**

U.S. Post Office, Baker  
U.S. Post Office, Garrison

**Libraries**

The following is a list of libraries and public venues where the public can access this EA and review the document onsite.

EskDale Center  
White Pine County Library

## 5.0 REFERENCES

[DOI] Department of the Interior, National Park Service, Integrated Pest Management (IPM) Manual, Accessible online at: <http://www.nature.nps.gov/biology/ipm/>

[DOI] Department of the Interior, National Park Service, Internal Document, Vanishing Treasures Program, 2014. Johnson Lake Mine Historic District: Preliminary Condition Assessment and Treatment Considerations. 35 pp.

[DOI] Department of the Interior, Secretary of Interior Standards-Treatment of Historic Properties. Accessible online at: <http://www.nps.gov/history/hps/tps/standguide/>

Unrau, H. D. 1990. *Basin and Range: A History of Great Basin National Park, Nevada*. Denver, Colorado: Department of the Interior, National Park Service. 690 pp.

[USDA] United States Department of Agriculture, Natural Resources Conservation Service. 2009. Soil of Great Basin National Park, Nevada. Accessible online at: [http://soils.usda.gov/survey/printed\\_surveys/](http://soils.usda.gov/survey/printed_surveys/)

## **6.0 APPENDICES**

## Appendix A-Scoping Brochure



### Public Comments During Scoping

We welcome your comments about the Proposed Johnson Lake Historic District Stabilization Project.

Your comments will assist us in identifying issues and developing alternatives for this project during the NEPA process.

Please post your comments online at:  
[www.parkplanning.nps.gov/Johnson Lake](http://www.parkplanning.nps.gov/JohnsonLake)

Or

Send written comments to:  
**Attention: Planning**  
**Great Basin National Park**  
**100 Great Basin National Park**  
**Baker, NV 89311**

Comments should be received no later than:

**December 12, 2013**



National Park Service  
Great Basin National Park  
100 Great Basin National Park  
Baker, NV 89311



## PUBLIC SCOPING

### Proposed Johnson Lake Mine Historic District Stabilization Project

2014



## Johnson Lake Mine Historic District Stabilization Project

### Background & History:



The Johnson Lake Mine is a historic tungsten mine located on the eastern slope of the South Snake Range in the Snake Creek

watershed. The Johnson Lake Mine Historic District was listed on the National Register of Historic Places (NRHP) in 1995. The District covers 205 acres in the central portion of Great Basin National Park, ranging in elevation from 8240—11,760 ft. A Cultural Landscape Inventory was completed in 2009.

Mining operations began at the site in 1908 and continued through 1950. Throughout much of this period the mine remained a small operation. In 1915 tungsten was discovered at the site, leading to the most profitable period over the next 20 years. In 1935 an avalanche destroyed facilities and curtailed operations.

There are four major activity areas located within the historic district. These are the extraction or mining area, the residential area, the beneficiation or milling area, and the transportation corridor that led to the mine. Historic features include adits, prospecting pits, loading platforms, an aerial tramway, machinery, an earthen dam, tent platforms, privy depressions, roads, and six standing log structures. Log structures include a cook-house, mill, residences, and livestock shelter.

### Proposed Action:

The proposed action would perform stabilization and maintenance of the Johnson Lake Mine Historic District to protect it from further deterioration. There are six components to this project, these include 1) structure stabilization, 2) trail maintenance and construction, 3) fuels reduction, 4) site and visitor protection, 5) archeological testing, and 6) education and outreach. This a multi-year project.

#### 1) Structure stabilization

Six log cabins in varying stages of deterioration are located within the historic district. Stabilization of the structures may include: replacement in kind of rotted logs, improving water drainage around the structures, applying borates to reduce the decaying process, and excavating fill around the structures.

#### 2) Trail maintenance and construction

There are approximately 4.25 miles of trails within the historic district. Trail maintenance will be performed on all of the trails and may include tread work; (removal of plants and rocks and importation of dirt), replacement and installation of water bars, and removal of hazardous trees along trails. Re-routing of trails may be necessary in areas where there is extensive damage to the existing trail.

#### 3) Fuels reduction

Vegetation around the six structures consists mostly of an overstory of varying age classes of Engelmann spruce with an understory of grasses and forbs. Engelmann spruce towers over, and in

many instances grows immediately adjacent to the structures. Trees and other vegetation around the structures will be removed to effectively protect the structures in the historic district from wildland fires and potential damage from tree fall.

#### 4) Site and visitor protection

Presently, there is limited signage and monitoring to prevent human caused damage to structures and features within the historic district. Low profile signs will be placed near mining features and high use areas to provide information on safety and etiquette for visiting historic sites. Site monitoring will be increased.

#### 5) Archeological testing

To accurately interpret and use this information to educate park visitor's on the historic district, archeological testing of up to 45 test units may be conducted.

#### 6) Education and outreach

The Johnson Lake Historic District possesses an abundance of information on early 20th century mining operations within Great Basin National Park. This information will be used to educate park visitors at the site, or those taking a virtual tour through social media, and brochures. In addition, park rangers may use information about the site when conducting school and interpretive programs at visitor centers and during campground programs.

## Appendix B-News Release



National Park Service  
U.S. Department of the Interior

100 Great Basin National Park  
Baker, Nevada 89311

775-234-7331 phone  
775-234-7269 fax

---

### Great Basin National Park News Release

Release Date: Immediate  
Contact: Gorden Bell  
Phone Number: (775) 234-7540  
Date: November 12, 2013

#### **Comments Requested for Proposed Johnson Lake Mine Historic District Stabilization Project**

Great Basin National Park is currently seeking issues and comments for the proposed Johnson Lake Mine Historic District Stabilization project. Your issues and comments will assist us in developing an environmental analysis consistent with the National Environmental Policy Act (NEPA).

The proposed action would perform stabilization and maintenance of the Johnson Lake Mine Historic District to protect it from further deterioration. There are six components to this project these including 1) structure stabilization, 2) trail maintenance and construction, 3) fuels reduction, 4) site and visitor protection, 5) archeological testing, and 6) education and outreach. This is a multi-year project.

Information is also available on the National Park Service Planning, Environment & Public Comment (PEPC) website at: <http://parkplanning.nps.gov/>. This website provides access to current National Park Service plans, environmental impact analyses, and related documents on public review. Comments may be submitted through the PEPC website.

Mailed comments will also be accepted. Please submit comments no later than December 12, 2013 to Attn: Planning, 100 Great Basin National Park, Baker, NV, 89311. If you would like to be added to the park's NEPA mailing list, please contact [beth\\_cristobal@nps.gov](mailto:beth_cristobal@nps.gov) or call 775-234-7331 x264.

-NPS-

---

EXPERIENCE YOUR AMERICA

The National Park Service cares for special places saved by the American people so that all may experience our heritage.



As the nation's principal conservation agency, the Department of the Interior has responsibilities for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historic places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.