

Appalachian National Scenic Trail	1. WORK PROJECT/ACTIVITY ROCK WORK	2. LOCATION National Forests in North Carolina & Cherokee National Forest	3. Unit NFsNC: Appalachian RD, Grandfather RD, Pisgah RD, Nantahala RD CNF: Watauga RD & Unaka RD s
JOB HAZARD ANALYSIS (JHA) References-FSH 6709.11 and -12 OSHA !Instructions on Reverse)	4. NAME(S) OF ANALYST(S) Drew Ford	5. Work Supervisor Forest Safety Officer	6. DATE PREPARED July 20, 2021
7. TASKS/PROCEDURES	8. HAZARDS, POTENTIAL HAZARDS/ INJURY SOURCE	9. ABATEMENT ACTIONS OR PROCEDURES Engineering Controls • Substitution • Administrative Controls • PPE	
Move, handle, install, and transport rock by hand, hand cart, bucket, basket sling, and/or wheelbarrow.	Lack of planning/ communication	<ul style="list-style-type: none"> • Prior to moving rock, develop communication methodology with all working in and around the travel route. • Instructions should come from one predesignated person (leader) while working in teams of two or more. • Select and communicate the route to be used and communicate route to all affected within the route. • Always maintain good communication throughout transportation of rocks. • Prior to beginning, always notify anyone working below you (such as on switchbacks) when you start and stop moving rocks. • Utilize/create gravity positive situations to help move/place rocks in desired manner. • Study your rock prior to handling/moving it. Determine best way to move rock with the least amount of effort and communicate with team. 	
	Injury to back	<ul style="list-style-type: none"> • Work in teams whenever necessary. • The appropriate number of workers should be used to move materials. This decision may vary between individuals or determined by the on-site supervisor. • If inadequate personnel is available, refrain from activities. • Always use sound ergonomic lifting/moving techniques. • Never move/lift more weight than is personally manageable. • When appropriate, use tools such as rock bars and fulcrum points to move rocks. 	

	Injury to hands/fingers	<ul style="list-style-type: none"> • Always wear appropriate gloves. • Workers should use either rock bars or hand lifting techniques to minimize the potential for injuries to hands. • Keep hands clear of pinch points. • Keep in constant communication with others when working in potentially compromising situations. • Whenever possible, use a tool to place fulcrum or shim rocks.
	Injury to head/eyes	<ul style="list-style-type: none"> • Hard hats must be worn at all times if working below another worker. • Keep rock bars away from your head/eyes at all times. • Ensure rock bar is always being operated to the side of your head. Never pull rock bars directly toward your head/eyes.
	Loss of control of material	<ul style="list-style-type: none"> • Trail workers need to stay aware of their surroundings, the location of other crew members and other trail users while moving materials. • Post lookouts or guards to limit crew and visitor access to high-work areas when loss of control is possible. • When moving rocks or applying leverage, workers should position themselves in such a way as to minimize their exposure. Position yourself on the uphill side of the rock whenever possible. • Consider using chock/shim stones to facilitate partial lifts. • Consider the use of secondary restraints to ensure safe materials movement on slopes. • Do not haul/move rock in areas uphill of other workers and visitors. Communicate with workers working below when bringing rocks down a hillside. Ensure all workers are clearly out of harm's way before beginning to move rocks.
	Injury to legs/feet	<ul style="list-style-type: none"> • Workers need to maintain constant awareness of their feet in relation to objects being moved and avoid placing them under materials. • Place feet securely when moving materials. • Knee pads/shin guards are recommended when installing/placing rocks.

	Inappropriate use of tools	<ul style="list-style-type: none"> • Workers should never straddle, sit, or stand on rock bars while in use. • When utilizing wheelbarrows and/or hand carts keep the load easily manageable. If, by chance, you lose control of your load, it is better to let the load fall rather than risk straining your back in an attempt to save it. • Be prepared for sudden or unexpected loss of bite (contact with rock and/or fulcrum) - always use sturdy/secure fulcrum points and/or chock rocks with rock bars. • When utilizing buckets use two equally weighted smaller loads rather than one heavy load. • When using only one bucket it is safer to bear-hug the load rather than carry it on one side- keep the weight close to your body. • Secure rocks when operating hand carts. • Do not carry buckets above your head. • If needed, use two people to load equipment. • Tilt wheelbarrow on it side to load larger rocks.
	Tool/equipment condition	<ul style="list-style-type: none"> • Inspect hauling tools/equipment prior to operation. • Ensure axles / tires are in working condition. • Check all nuts and bolts. • Check for burs or splinters • Ensure rock bars are not been Vwarped. • Inspect all slings, ropes, and associated hardware.
Quarrying, cutting, splitting, crushing, and shaping rock	Flying debris/tools	<ul style="list-style-type: none"> • Always wear appropriate eye protection. Face shield recommended. • Ensure all tools/equipment are in safe working condition. • Communicate with surrounding workers prior to beginning work; Let them know flying debris actions are taking place. • Stop work if anyone without PPE approaches your work area. Ensure visitors are at a safe distance from work area. • All personnel in close proximity to shaping or splitting operations need to be in full PPE. • When crushing rock, manage your swing so that fly rock and your tools will be directed away from you and others. • Workers need to maintain a minimum of 10-foot radius safety circle. • Ensure your swing zone is free of obstructions.

	Cuts, lacerations, punctures, abrasions, and blunt force trauma	<ul style="list-style-type: none"> • Always wear appropriate gloves. • Freshly cut stone is extremely sharp, and workers need to exercise caution while handling or moving this material. • Rock tools should be frequently ground or filed so that no sharp edges (mushroom) or burrs develop. • All personnel in close proximity to shaping or splitting operations need to be in full PPE. • Baseball catcher type shin guards are recommended when crushing rocks.
	Injury to back	<ul style="list-style-type: none"> • Work in teams whenever necessary. • The appropriate number of workers should be used to move material and/or equipment. This decision may vary between individuals or determined by the on-site supervisor. • If insufficient personnel are available, refrain from activities. • Always use sound ergonomic lifting/moving techniques. • Never move/lift more weight than is personally manageable.
	Loose / unstable footing	<ul style="list-style-type: none"> • Continuously ensure that your footing is firm and stable. • Clear work area often to reduce the chance of tripping or falling.
	Injury to joints (Carpal Tunnel)	<ul style="list-style-type: none"> • Work in teams whenever possible. • When performing crushing, pounding, and/or chiseling actions, switch hands often, and vary the types of activities performed to limit exposure to repetitive motion injuries.
10. LINE OFFICER SIGNATURE & DATE		11. TITLE
		National Forests in North Carolina, Appalachian District Ranger JENNIFER BARNHART Digitally signed by JENNIFER BARNHART Date: 2022.09.14 08:32:24 -04'00'
		National Forests in North Carolina, Grandfather District Ranger NICHOLAS LARSON Digitally signed by NICHOLAS LARSON Date: 2022.05.24 11:45:33 -04'00'
		National Forests in North Carolina, Pisgah District Ranger DAVID CASEY Digitally signed by DAVID CASEY Date: 2022.09.30 11:02:04 -04'00'
		National Forests in North Carolina, Nantahala District Ranger MATTHEW WASKEY Digitally signed by MATTHEW WASKEY Date: 2022.10.05 13:44:34 -04'00'
		Cherokee National Forest, Watauga District Ranger
		Cherokee National Forest, Unaka District Ranger

JHA Instructions (References-FSH 6709.11 and .12)

The JHA shall identify the location of the work project or activity, the name of employee(s) writing the JHA, the date(s) of development, and the name of the appropriate line officer approving it. The supervisor acknowledges that employees have read and understand the contents, have received the required training, and are qualified to perform the work project or activity.

Blocks 1, 2, 3, 4, 5, and 6: Self-explanatory.

Block 7: Identify all tasks and procedures associated with the work project or activity that have potential to cause injury or illness to personnel and damage to property or material. Include emergency evacuation procedures (EEP).

Block 8: Identify all known or suspect hazards associated with each respective task/procedure listed in Block 7. For example:

- a. Research past accidents/incidents
- b. Research the Health and Safety Code, FSH 6709.11 or other appropriate literature.
- c. Discuss the work project/activity with participants
- d. Observe the work project/activity
- e. A combination of the above

Block 9: Identify appropriate actions to reduce or eliminate the hazards identified in Block 8. Abatement measures listed below are in the order of the preferred abatement method:

- a. Engineering Controls (the most desirable method of abatement). For example, ergonomically designed tools, equipment, and furniture.
- b. Substitution. For example, switching to high flash point, non-toxic solvents.
- c. Administrative Controls. For example, limiting exposure by reducing the work schedule; establishing appropriate procedures and practices.
- d. PPE (least desirable method of abatement). For example, using hearing protection when working with or close to portable machines (chain saws, rock drills portable water pumps)
- e. A combination of the above.

Block 10: The JHA must be reviewed and approved by a line officer. Attach a copy of the JHA as justification for purchase orders when procuring PPE.

Blocks 11 and 12: Self-explanatory.

Emergency Evacuation Instructions (Reference FSH 6709.11)

Work supervisors and crew members are responsible for developing and discussing field emergency evacuation procedures (EEP) and alternatives in the event a person(s) becomes seriously ill or injured at the worksite.

Be prepared to provide the following information:

- a. Nature of the accident or injury (*avoid using victim's name*).
- b. Type of assistance needed, if any (*ground, air, or water evacuation*)
- c. Location of accident or injury, best access route into the worksite (*road name/number*), identifiable ground/air landmarks.
- d. Radio frequency(s).
- e. Contact person.
- f. Local hazards to ground vehicles or aviation.
- g. Weather conditions (*wind speed & direction, visibility, temp*).
- h. Topography.
- i. Number of person(s) to be transported
- j. Estimated weight of passengers for air/water evacuation.

The items listed above serve only as guidelines for the development of emergency evacuation procedures.

JHA and Emergency Evacuation Procedures Acknowledgment

We, the undersigned work leader and crew members, acknowledge participation in the development of this JHA (*as applicable*) and accompanying emergency evacuation procedures. We have thoroughly discussed and understand the provisions of each of these documents:

SIGNATURE	DATE	SIGNATURE	DATE
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Work Leader
