

MINIMUM REQUIREMENTS ANALYSIS FRAMEWORK WORKBOOK

“...except as necessary to meet minimum requirements for the administration of the area for the purpose of this Act...”

— Section 4(c), Wilderness Act of 1964

Introduction

The Minimum Requirements Analysis (MRA) is designed to examine whether a project truly needs to occur in wilderness, and if so, how to accomplish it with the least impact to the wilderness resource. The framework below is intended to help managers: 1) evaluate actions proposed in wilderness involving a use otherwise prohibited by the Wilderness Act; and 2) consider appropriate choices about administrative actions they might take. Like the previous version of this document (the Minimum Requirements Decision Guide (MRDG)), the MRA Framework (MRAF) is based on the Wilderness Act and is consistent with agency policy. The MRAF incorporates lessons learned by agency employees as they used the MRDG over the years. The goal of the MRAF is to help provide consistency in the way wilderness-managing agencies consider actions to address threats to wilderness, and to ensure that agencies strive to preserve wilderness character through their on-the-ground decisions.

This document is intended for uses prohibited by Section 4(c) of the Wilderness Act in designated wilderness, but it can be used to analyze all projects in wilderness. Check agency policy to determine if this workbook may be appropriate for other proposals in wilderness.

If applicable, per agency policies, collaborate and coordinate with associated Tribe(s) and/or Tribe(s) with historical, treaty, or related ties to the area.

Note: For each fillable field, click or tap on the arrow that will appear to the left of the Word “HELP” for more instructions. Please read the [full instructions](#) before proceeding. Delete this note before finalizing the document.

Title

Gallagher Surveyor Tree in Washakie Wilderness

Step 1: Determine If Administrative Action May Be Necessary

Issue Statement

Before the establishment of the National Forests, efforts to manage forest lands took several forms, including the Forest Reserve Act of 1891, which established a number of Forest Reserves. One of these became known as the Yellowstone Forest Reserve which later became part of the Shoshone National Forest in northwest Wyoming. In 1893 a survey party led by P.M. Gallagher, Montana US Deputy Surveyor, completed a boundary survey of the east and south sides of the timber reserve surrounding Yellowstone National Park; now the Washakie Wilderness in the Shoshone National Forest, and the Teton Wilderness in the Bridger-Teton National Forest.

The Gallagher party began by establishing a base point at Yellowstone Lake on August 3, 1893. By late September, the survey had completed the eastern boundary and begun moving westward along the southern boundary of the Public Forest Reserve. The survey party encountered very rugged terrain making surveying difficult. By early October, they were working along the western slopes of the South Fork of the Shoshone River in country that Gallagher reports in his field notes as “extremely rough and broken, and were further delayed by inclement weather that warranted a five day delay in fieldwork.” Gallagher further wrote (p. 158) that, “A heavy snow storm prevailed during the 3rd, 4th, 5th, 6th, and 7th of October without interruption day or night, rendering it impossible to take a sight or do any work, and making it necessary to gather boughs to feed the pack stock. During this time I camped on the head of a small stream about ½ mile south of the flag at Sta. K, at an altitude of 10,500 ft. The snow fall at this time was in the neighborhood of 5 ft. Arriving at the flag at Sta. K on the morning of October 8th, 1893, I found it marked by an X cut in the rock by my flagman.”

Accounts of a marked tree prompted a visit to a high mountain meadow by fire personnel during the 2013 Hardluck fire. A subsequent monitoring visit by Ron Ostrom, then Shoshone National Forest Law Enforcement Officer, in 2015 provided clear photographic images of the marked trees and provided a definite link between this location and the Gallagher survey. In September, Ostrom guided Shoshone Forest archaeologist Kyle Wright and Park County Historic Preservation Commission (PCHPC) chair Larry Todd to the site to complete basic documentation and a Wyoming Cultural Properties form.

In addition to the Gallagher Party Surveyor Tree, hereafter “Surveyor Tree,” which was dated to October 3, 1893, there are three other incised trees. The second tree is also from the 1894 Gallagher survey (August 26 - September 22) and is inscribed with a date of either 10/8/1884 or 10/8/1894. The third tree is reported to have “copycat” inscriptions and dated to 1916, and the fourth has six inscriptions and has no date but is suspected to be from the early 1900s.

This site provides tangible evidence of the Gallagher survey party and is noteworthy physical evidence of the development of public land management in the United States.

The Surveyor Tree, a now deceased Englemann spruce, has prompted attention and interest from partners and State agencies, primarily the Wyoming State Parks, Historic Sites, and Trails, and the Wyoming State Legislature, which has inspired considerable interest in removal of the Surveyor Tree from the wilderness. The State of Wyoming is concerned with the susceptibility of the Surveyor Tree’s inscriptions to the forces of nature (i.e., fire, wind, decomposition) and has drawn up a proposal to remove the tree from the wilderness. Wyoming Governor Mark Gordon articulated the State’s opinion that the Surveyor Tree is a significant historical relic that tells the story of the formation of public lands, in particular for the formation of the Shoshone National Forest (which was the first designated forest in the National Forest System), the Bridger-Teton National Forest, and Yellowstone National Park (the nation’s first national park). This project will recognize and share a unique “slice of life” of the ten people who surveyed in what is now Wyoming’s wilderness.

The interest and sense of urgency in saving the Surveyor Tree have been gaining momentum, especially in the Wyoming legislature where legislators have successfully requested funding to extract, preserve, and display the Surveyor Tree in the Wyoming State Museum located in Cheyenne, Wyoming, and ultimately reside in the Buffalo Bill Center of the West Museum in Cody, Wyoming.

The State proposes digitally capturing the inscriptions on the Surveyor Tree and three co-located trees containing using 3D scanning. Additionally, the state proposes extracting the scarred but clearly inscribed portion of the Surveyor Tree and transporting it to Wyoming’s Capitol where it will be preserved and displayed for public exhibit in the Capitol Extension between 2028 and 2029. Display of the Surveyor Tree is considered by the State to be an important historical marker of the 135th anniversary of the inscription of the tree and the original survey expedition of 1893. The State is interested in using the preserved inscribed tree as a centerpiece in its exhibit telling the history of the Greater Yellowstone Ecosystem and its inhabitants.

HELP - “Issue Statement”

Options Outside of Wilderness

Is this issue wilderness dependent, or can an action occur outside of wilderness to properly resolve the issue now or over time?

HELP – “Options”

Can the issue be resolved or addressed outside of wilderness?

☐ YES

STOP – EXPLAIN BELOW AND DO NOT TAKE ACTION

☒ NO

EXPLAIN BELOW AND PROCEED TO THE NEXT SECTION

The Surveyor Tree is located approximately 53 air miles southwest of Cody, Wyoming within the Washakie Wilderness, sitting at an elevation of approximately 9,021 feet. In order to complete the State’s request to preserve the inscriptions on the Surveyor Tree, personnel will need to access the area and extract the Surveyor Tree’s inscription-bearing midsection. The issue the project is to resolve is whether administrative action is necessary to manage a historic cultural resource located within the Washakie Wilderness that may be vulnerable to natural degradation. Preserving the inscriptions in a museum setting will ensure that the tangible relic will be intact and sustained and no longer vulnerable to the harsh environments. In addition to preserving the inscriptions, the inscriptions will be displayed for public viewing, education, and interpretation in the State Museum, and ultimately Buffalo Bill’s Center of the West Museum. Displaying the inscriptions in a museum setting will provide the public a unique opportunity to have a first-hand experience with a tangible piece of history and more directly learn about an important point in history through.

Criteria for Determining Necessity

HELP - “Determining Necessity”

Do any of the criteria below apply?

A. Wilderness Character

Based on the Issue Statement, are any of the qualities of wilderness character degraded, impaired, or threatened to a degree that it is necessary to analyze potential action otherwise prohibited by Section 4(c) to address the issue?

UNTRAMMELED

Select your answer.

☐ YES

☒ NO

The Washakie Wilderness has been managed to avoid trammeling actions as much as possible. The Washakie Wilderness has been “managed with administrative restraint” limiting the trammeling actions that has occurred. (Washakie Wilderness, Wilderness Character Narrative, 2025) Historic and modern trammeling actions in the Washakie include commercial livestock grazing, actions related to wildlife, and fire management. Range allotments for livestock were present in the wilderness at the time of designation and remain active today. The area surrounding the Surveyor Tree is not located in an allotment but rather located over 10 miles north of the closest active allotment. Past wildlife trammeling actions include fish stocking in the main tributaries and grizzly bear collaring actions at the moth sites scattered throughout the Washakie Wilderness. Of these actions, collaring activities occurred in the lofty peaks in close proximity to the Surveyor Tree’s location. The last fire event that occurred within proximity to the Surveyor Tree was in 2013, when the fire perimeter was located approximately 2 miles away. (USFS WCM NRM Module, 2026) There has been no trammeling actions recorded in recent history in the area surrounding the Surveyor Tree. The inscriptions carved onto the trees are the extent of the trammeling actions that have occurred in the past 100 years, of which the resulting damage would be localized to the inscription area, exposing the trees to disease, which may accelerate the natural ecological life cycle of the trees. The possible acceleration of the natural degradation of the trees will not directly or indirectly impact the untrammeled character.

HELP - “Untrammeled” Definition

HELP - “Untrammeled” Explanation

UNDEVELOPED

Select your answer.

☐ YES ☒ NO

The Surveyor Tree and other inscribed trees in the grove show evidence of humans on the landscape by early surveyors, but the inscriptions on these trees would likely not be noticed by visitors unless they were sought out because of how remote and difficult it is to get to this site. Two of the four trees bear the inscriptions made by surveyors who were working in the area, and while the inscriptions are permanent, they are evidence of human movement through the area rather than permanent development. Further, these inscriptions were in place before the Washakie Wilderness was established and are potentially eligible for listing in the National Register of Historic Places.

HELP - “Undeveloped” Definition

HELP - “Undeveloped” Explanation

NATURAL

Select your answer.

☐ YES ☒ NO

The inscriptions on the trees do not interfere with the wilderness' ecological systems and existing impacts to natural character are confined to the trees bearing the inscriptions.

HELP - "Natural" Definition

HELP - "Natural" Explanation

OUTSTANDING OPPORTUNITIES FOR SOLITUDE or PRIMITIVE and UNCONFINED RECREATION

Select your answer.

☐ YES ☒ NO

The presence of the inscriptions on the Surveyor Tree do not directly or indirectly degrade, impair, or threaten the outstanding opportunities for solitude or primitive and unconfined recreation.

HELP - "Outstanding Opportunities for Solitude or Primitive and Unconfined Recreation" Definition

HELP - "Solitude or Primitive and Unconfined Recreation" Explanation

OTHER FEATURES OF VALUE

Select your answer.

☒ YES ☐ NO

The Surveyor Tree serves as a tangible connection to recorded history of the surveying events which delineated the now eastern Bridger-Teton/western Shoshone National Forest boundaries and the formation of public lands. The Surveyor Tree, through its inscriptions, provides context to delineation and early management of what is now the Washakie Wilderness. The inscriptions are exposed to the natural elements, which are especially harsh in a high alpine environment such as this, and will continue to naturally degrade through the natural ecological processes such as blowdown, fire, and natural

decomposition, thus compromising the resource. These natural processes could permanently destroy the inscriptions on the Surveyor Tree if the tree remains in place, thus losing the cultural and historical context and connection of the development of Wyoming's Federal public lands.

HELP - "Other Features of Value" Definition

HELP - "Other Features of Value" Explanation

B. Valid Existing Rights

Select your answer.

Is action necessary to satisfy a valid existing right? If so, cite the specific right, terms and conditions, and source.

☐ YES ☒ NO

The proposed action does not address or satisfy any valid existing rights.

HELP - "Valid Existing Rights" Definition

HELP - "Valid Existing Rights" Explanation

C. Special Provisions of Wilderness Legislation

Is action necessary to satisfy a special provision in wilderness legislation (i.e., Section 4(d) of the Wilderness Act of 1964 or subsequent wilderness-enabling laws) that requires action? Cite law and section.

☐ YES ☒ NO

Action is not necessary to address or satisfy a special provision in the Wilderness Act of 1964, Public Law 92-476, or Public Law 98-550 (Wyoming Wilderness Act of 1984).

HELP - "Special Provisions" Explanation

D. Requirements of Other Federal Laws

Not including special provisions found in wilderness-enabling laws, does another Federal law, by itself or as implemented or interpreted through EO, court order, etc., require action? Cite law and section.

☒ YES ☐ NO

The National Historic Preservation Act (NHPA) requires federal agencies to consider the effects of their actions (undertakings) on historic properties, specifically through the Section 106 process, which involves identification of resources, consultation with

stakeholders, and resolution of adverse effects. Agencies must "stop, look, and listen" before approving, funding, or permitting projects, ensuring historic preservation values are considered early in planning. Per correspondence with the Wyoming State Historic Preservation Office, the Surveyor Tree is eligible for the National Register as a "contributing element" to site 48PA3471 and will be subject to review under the Section 106 of the NHPA. Specifically, the Wyoming State Historic Preservation Office notes that "the removal of contributing elements from the National Register eligible sites is considered an adverse effect to the site."

The Archaeological Resources Protection Act (ARPA) provides protections for archaeological resources on public or tribal lands, which the Act considers to be "material remains of past human life or activities which are of archaeological interest" and at least 100 years in age. The Surveyor Tree meets this definition. Although ARPA does not require the removal of the Surveyor Tree, if nothing is done it will eventually degrade into a form that is not recognizable, thus losing its historical significance. An ARPA permit would need to be granted by the relevant Federal land manager, the Shoshone NF, for its removal.

HELP - "Requirements of Other Federal Laws" Explanation

Step 1: Determination – Is Administrative Action Necessary in Wilderness?

Based on the responses and detailed explanations in A through D above, is there a need to proceed to Step 2? If at least one criterion in B through D in Step 1 has been met, or at least one quality of wilderness character is threatened, check the "Yes" box and provide a thorough explanation of the rationale described in A through D. It may also be helpful to describe in this determination how action would be consistent with the public purposes of wilderness or satisfy a specific agency obligation. If none of the criteria have been met, action is NOT necessary. Check the "No" box, explain why the proposed project does not meet the criteria, and stop your analysis.

☒ YES

EXPLAIN BELOW AND COMPLETE STEP 2 OF THE MRAF

☐ NO

STOP – EXPLAIN BELOW AND DO NOT TAKE ACTION

Under the guide of the Wilderness Act of 1964, wilderness areas preserve features that are of scientific, educational, scenic, or historical value.

Historic sites in wilderness can hold immense cultural and educational value. These sites can serve as importance links to the past, offering insights into the lives, traditions, and innovations of those who previously inhabited or traversed the landscape. As such,

historic sites are an integral part of wilderness character and contribute positively to the preservation of wilderness quality.

The Surveyor Tree is identified as an “other features of value” as it connects to the recorded history of surveying the east and south sides of the timber reserve surrounding Yellowstone National Park; now the Washakie Wilderness in the Shoshone National Forest, and the Teton Wilderness in the Bridger-Teton National Forest, and serves as a relic of the development and establishment of public lands.

Section 110 (16 U.S.C. § 470h-2(a)) of the National Historic Preservation Act (NHPA) requires Federal agencies to assume responsibility for the preservation of historic properties or resources that fall under the agency’s jurisdiction, ensuring they are managed with consideration for their historic values. Additionally, federal agencies must carry out their programs and projects in accordance with the purposes of the NHPA (16 U.S.C. § 470h-2(d)). Agencies must manage and maintain historic properties under ownership or control in a way that preserves their historic, archaeological, architectural, and cultural values.

If the Surveyor Tree continues to naturally degrade through the forces of nature such as blowdown, fire, and natural decomposition, it is likely that the inscriptions in the tree will become difficult to recognize and ultimately disappear. This alteration of the inscriptions may diminish the historical integrity of the Surveyor Tree and the cultural context and connection of the development of Wyoming’s Federal public lands that the Surveyor Tree provides. Administrative action is necessary to mitigate the imminent and irrecoverable impacts and to allow the Forest Service to preserve this historically significant resource.

HELP - “Determination” Explanation

Step 2: Determine the Minimum Activity

Other Direction

*Is there “special provisions” language in legislation or other congressional direction that explicitly allows consideration of (but does not require) a prohibited use? (Step 1 has a similar question in Section C, but that question is specific to other legislation requiring action in wilderness; this question is specific to other legislation addressing **consideration of prohibited uses**).*

AND/OR

Has the issue been addressed or prescribed in agency policy, management plans, or legal directive (e.g., treaty, EO, court order, or other binding agreement with federal, state, or local agencies or authorities)?

☒ YES

DESCRIBE OTHER DIRECTION

☐ NO

SKIP TO “UNCONTROLLABLE TIMING REQUIREMENTS” BELOW

MISCELLANEOUS PROVISIONS IN THE WYOMING WILDERNESS ACT OF 1984 (Public Law 98-550): SEC. 505. (a) Within the areas described in sections 201 and 301, and within any previously-designated components of the National Wilderness Preservation System in the State of Wyoming, and in furtherance of the purposes of the Wilderness Act, section 6 of the National Forest Management Act, the Archaeological Resources and Protection Act, and the Historic Preservation Act, the Secretary shall cooperate with the Secretary of the Interior and with agencies and institutions of the State of Wyoming, in conducting a cultural resources management program. (b) Such program shall have as its purpose the protection of archaeological sites and interpretation of such sites for the public benefit and knowledge, and compliance with all Federal and State historic and cultural resource preservation statutes, regulations, guidelines, and standards, insofar as these activities are compatible with the purposes for which the affected lands were designated as wilderness or special management areas.

FSM 2300 - RECREATION, WILDERNESS, AND RELATED RESOURCE MANAGEMENT; CHAPTER 2320 – WILDERNESS MANAGEMENT: 2323.8 - Management of Cultural and Historic Resources; 2323.82 – Policy: “1) Cultural resources are available for scientific study to the extent that the study is consistent with the concept of wilderness, the intent of the Wilderness Act, and cultural resource management objectives. 2) Cultural resources are available for recreational, scenic, scientific, educational, conservation, and historic uses, consistent with management as wilderness.”

2326 - USE OF MOTORIZED EQUIPMENT OR MECHANICAL TRANSPORT IN WILDERNESS; 2326.04b - Regional Forester: “The Regional Forester is responsible for approving: 1) Transportation and supply by aircraft, air drop, motor boat, or mechanical transport for situations that meet the conditions under items 2, 4, or 5, in FSM 2326.1.”

2326.1 - Conditions Under Which Use May Be Approved: “5. To meet minimum needs for protection and administration of the area as wilderness, only as follows: a) delivery or application problem necessary to meet wilderness objectives cannot be resolved within reason through the use of nonmotorized methods. b) An essential activity is impossible to accomplish by nonmotorized means because of such factors as time or season limitations, safety, or other material restrictions.”

SHOSHONE NATIONAL FOREST LAND MANAGEMENT PLAN (2015 REVISION):
The Revised Shoshone Forest Plan contains guidance in preserving and managing heritage resources, specifically states, “Heritage resources are preserved and enhanced for the benefit of present and future generations. Archaeological and historic resources are intact, stable, and, when appropriate, made accessible to the public.”
Relevant goals for heritage resources are:

HERT-GOAL-01: Protect heritage resources from human activities, wildfire, and other natural disturbances.

HERT-GOAL-02: Opportunities for education, research, traditional use, and stewardship are provided.

HERT-GOAL-06: Artifacts removed from National Forest System lands will be curated at professional facilities with official curation agreements in place.

HELP - “Other Direction” Description

Uncontrollable Timing Requirements

What, if any, are the considerations that would dictate timing of the action?

The Surveyor Tree is located in a very remote area within the Washakie Wilderness and within close proximity to the eastern Teton Wilderness (Bridger-Teton NF) boundary. The closest trailhead (Cabin Creek Trailhead) is located approximately 23 miles from the Surveyor Tree at an elevation of 9,021 feet. Weather conditions at such an altitude are erratic and can drastically change in moments. The window of opportunity to safely access the site is limited to only a few months a year, primarily July through September.

HELP – “Uncontrollable Timing Requirements” Description

Workflow Components

What are the distinct components or phases of the action?

Component 1	Trail crew travels to Surveyor Tree site, prepares helispot site, and mitigates trail hazards
Component 2	3D Scan Crew is transported via stock to the Surveyor Tree site over two days: Day 1: Cabin Creek Trailhead to Purvis/Borner Meadows (base camp), Day 2: Base camp to Surveyor Tree site
Component 3	3D scan the Surveyor Tree and accompanying trees, validate data

Component 4	3D Scan Crew is transported back from site via stock over two days: Day 1: Surveyor Tree site to base camp to validate data if not validated at Surveyor Tree site Day 2: Base camp to Cabin Creek Trailhead
Component 5	Crew prepares tree felling site and sling load site
Component 6	Sawyers fell Surveyor Tree and prepare Surveyor Tree's inscription-bearing midsection for transport
Component 7	Remove inscription-bearing midsection from site via helicopter
Component 8	Felling and sling load sites are naturalized, tree stump and surrounding footprint is naturalized
Component 9	Crew is packed back to trailhead

HELP - "Workflow Components"

Feasibility of Alternatives

Only include feasible alternatives in this section. Some alternatives that are not feasible may warrant documentation in the "Alternatives Considered but Dismissed" section to provide a brief description and explanation of why it was dismissed and not considered in detail.

Possible reasons for dismissal include alternatives that are [impossible](#), have [unacceptable impacts](#), are [unsafe](#), are proven [ineffective](#), have [excessive costs](#), or whose [timing](#) would cause degradation to wilderness character.

The alternatives should also be reasonable. For example, there is no need to include helicopters in an alternative for equipment transport when that equipment can be easily carried by people or pack stock along a maintained trail.

Refer to the [MRAF instructions](#) regarding [alternatives](#) and the effects to each of the comparison criteria.

HELP - Certain "Feasibility of Alternatives" Definitions

Impossible

Unacceptable Impacts

Unsafe

Ineffective

Excessive Costs

Timing

Alternatives

Step 2: Alternatives

Alternative 1:

No Action. The Surveyor Tree and inscription-bearing midsection will continue to be managed and preserved in situ.

Component Methods

How will each of the components of the action be performed under this alternative?

Component	Workflow Components	Component Methods for this Alternative
1	No crew will be utilized to scan or remove Surveyor Tree or inscription-bearing midsection	No livestock or equipment will be utilized to scan the Surveyor Tree or remove the inscription-bearing midsection

HELP - "Component Methods"

HELP - "Workflow Components"

Description of the Alternative

What are the details of this alternative? When, where, and how will the action occur?

What mitigation measures will be taken? Provide a complete narrative description of the Component Methods identified above.

Under the No Action Alternative the Surveyor Tree will continue to be managed and protected in situ and remain in the Washakie Wilderness.

Wilderness Character

Component Number	For each component number, indicate the impact the method for this alternative will have on each of the five qualities of Wilderness: Positive = P, Negative = N, No Effect = 0 <i>Describe in detail the impacts to each of the five qualities in the narrative section below</i>	Untrammeled	Undeveloped	Natural	Solitude or Primitive and Unconfined	Other Features of Value
1	No crew will be utilized to scan the Surveyor Tree or remove the inscription-bearing midsection	0	0	0	0	P/N

*What is the effect of each Component Method on the qualities of wilderness character?
What [mitigation measures](#) will be taken? Include cumulative impacts in the explanation.*

UNTRAMMELED: Explain the intensity of the action that would intentionally control, manipulate, or hinder the conditions or processes of ecological systems:

There are no impacts to trammeling under this alternative.

HELP - Untrammeled

UNDEVELOPED: Explain the effects to this quality in terms of how “the imprint of man’s work [would] remain substantially unnoticeable,” and how wilderness will continue to be in contrast with other areas of “growing mechanization”:

There are no impacts to undeveloped character under this alternative.

HELP - Undeveloped

NATURAL: Explain the effects to this quality in terms of protection, degradation, or restoration of natural conditions:

There are no impacts to the natural character under this alternative.

HELP - Natural

OUTSTANDING OPPORTUNITIES FOR SOLITUDE OR PRIMITIVE and UNCONFINED RECREATION: Explain how opportunities for visitors to experience solitude or a primitive and unconfined type of recreation will be protected or degraded. As appropriate, describe solitude, primitive recreation, and unconfined recreation separately:

There are no impacts to the outstanding opportunities for solitude or primitive and unconfined recreation quality under this alternative.

HELP - Outstanding Opportunities

OTHER FEATURES OF VALUE: Explain any effects to features of scientific, educational, scenic, or historical value that are not accounted for in the above qualities, including cultural and paleontological resources that are integral to wilderness character:

Under this alternative, managing and protecting the Surveyor Tree in situ will continue to uphold wilderness character. In its current location the Surveyor Tree is a defining element of wilderness character as it links historic land surveying practices and the evolution of public land management. However, the Surveyor Tree will continue to be exposed and vulnerable to the elements of nature, increasing the inevitable risks of irreparable damage or destruction by natural causes.

HELP - Other Features of Value

② Mitigation Measures Help

Mitigation Measures

Examples of Mitigation Measures re: Untrammeled Quality

Examples of Mitigation Measures re: Undeveloped Quality

Examples of Mitigation Measures re: Natural Quality

Examples of Mitigation Measures re: Outstanding Opportunities for Solitude or Primitive Unconfined Recreation Quality

Examples of Mitigation Measures re: Other Features of Value Quality

Alternative 2:

3D scan and collect data for potential future reproduction of the Surveyor Tree. Remove the inscription-bearing midsection from the Surveyor Tree utilizing a crosscut saw and transport the midsection out utilizing helicopter.

Component Methods

How will each of the components of the action be performed under this alternative?

Component	Workflow Components	Component Methods for this Alternative
1	Trail crew travels to Surveyor Tree site, mitigates trail hazards, and complete necessary preparation work for helispot site at Borner Meadows.	Trail crew hikes in utilizing stock support, completes any necessary preparation work for helispot site at Borner Meadows, and mitigates trail hazards utilizing traditional skills (i.e., crosscut saws).
2	3D Scan Crew is transported via stock to site over two days	Transport 3D Scanning Crew and equipment via livestock from Cabin Creek Trailhead to Purvis/Borner Meadows area (base camp) and then to Surveyor Tree site: Day 1: Cabin Creek Trailhead to the base camp Day 2: Base camp to site
3	3D scan the Surveyor and accompanying trees, validate data	3D Scanning Crew scans trees utilizing state-of-the-art scanning equipment and validate data.
4	3D Scan Crew is transported back from site via stock over two days. Validate data if unable to at Surveyor Tree site	Transport 3D Scanning Crew and equipment via livestock from Surveyor Tree site to base camp. Validate data if unable to at Surveyor Tree site, then Cabin Creek Trailhead: Day 1: Site to base camp. Validate data if unable to at Surveyor Tree site Day 2: Base camp to Cabin Creek Trailhead

Component	Workflow Components	Component Methods for this Alternative
5	Sawyer crew prepares Surveyor Tree felling and sling load sites	Sawyer crew fell trees and vegetation near the Surveyor Tree to clear a window free of obstacles that could damage the Surveyor Tree during felling. Additionally, the crew will clear vegetation to create a safe sling load site. All felling will be done using traditional skills (crosscut saws).
6	Sawyer crew fell Surveyor Tree and prepare inscription-bearing midsection for transport	Sawyer crew fell Surveyor Tree and prepare it for transport utilizing traditional skills (crosscut saws).
7	Felling corridor, tree stump, and surrounding footprint is naturalized	Sawyer crew naturalizes sites by scattering woody debris currently at the site to remove indications and traces of activities.
8	Transport Wyoming State Forestry Division (WSFD) Helicopter Crewmembers (HECM) to Boulder Basin Trailhead via helicopter, conduct high and low-level reconnaissance flights, assess and approve helispot site (landing one).	Helicopter will fly from Cody, Wyoming to Boulder Basin Trailhead and drop HECMs off. Helicopter manager and pilot will conduct a high-level and low-level reconnaissance flight around the area of the sling load site, then assess and approve the location of the helispot site at Borner Meadows, which will require a landing. Fly back to Boulder Basin Trailhead.
9	Transport HECMs to the helispot site in Borner Meadows via helicopter (landing two). HECMs hike to sling load site.	Fly HECMs from Boulder Basin Trailhead to Borner Meadows and drop off HECMs at helispot. After HECMs are dropped, fly back to Boulder Basin Trailhead. HECMs will hike to sling load site.

Component	Workflow Components	Component Methods for this Alternative
10	Upon notification from HECMs, helicopter will fly to the sling load site and the crew will secure the inscription-bearing midsection on a longline (landing three). The helicopter will transport the inscription-bearing midsection to Boulder Basin Trailhead. Sling load site is naturalized.	Once the HECMs reach the sling load site, they will call in the helicopter via radio. Helicopter will arrive at the sling load site and hover as HECMs secure the inscription-bearing midsection to longline (third landing). The helicopter will transport the inscription-bearing midsection to Boulder Basin Trailhead. Crew naturalize site by scattering woody debris currently at site to remove indications and traces of activities.
11	Hike back to Borner Meadows.	Crews hike back to Borner Meadows
12	Transport HECMs back to Cody, Wyoming (landing four). FS Crew travels back to trailhead	HECMs notify helicopter, which is on standby at Boulder Basin Trailhead. Helicopter will pick up HECMs, which will be the fourth landing, and transport back to Cody, Wyoming. FS Crew travels back to Cabin Creek Trailhead utilizing livestock.

HELP - "Component Methods"

HELP - "Workflow Components"

Description of the Alternative

What are the details of this alternative? When, where, and how will the action occur?

What mitigation measures will be taken? Provide a complete narrative description of the Component Methods identified above.

Project activities will begin with a trail crew preparing the helispot site, clearing the route that leads to the Surveyor Tree site, and once at the site, preparing the felling and sling load sites.

Identify and Prepare Helispot Site

A helispot, often requiring a crew manager to manage traffic and passengers, is a temporary, secure, and prepared landing spot, particularly used in wildfire scenarios for dropping off crews (helitack) or transporting resources. The site must be level and clear of trees, wires, and debris. Two possible locations within the Washakie Wilderness were evaluated as potential Helispot Sites:

1. Borner Meadows – This site is located approximately 16 miles from Cabin Creek Trailhead along the South Fork Trail and serves as a safe landing site.

However, it is a long distance away as it is approximately 6 miles southeast of the project site.

2. Meadow at the head of Robinson Creek – This location is at the head of Robinson Creek and from imagery, appears to be a suitable landing site. It is approximately 1.5 miles northeast of the Surveyor Tree but is separated by terrain making access to the site very difficult to negotiate.

It was determined that Borner Meadows will serve as the helispot location due to the absence of obstacles and the even terrain ensuring safe helicopter operations. The cutting crew will evaluate and do necessary preparation work (i.e., brushing and clearing) to ensure safe landing.

Mitigation of Trail Hazards

A trail crew of up to six members with livestock support will focus route clearing along a two-mile stretch of the route where there is high consequence travel* leading to the Surveyor Tree. The crew will spend up to three days on this work, which will include log out, brushing, and minimal spot-upgrade tread work utilizing traditional skills (i.e., crosscut saws, primitive rigging). This stretch is located approximately 3.5 miles northwest of the intersection of the route with the South Fork Trail. It is anticipated that five days will be needed for travel and trail work: one day to access the base camp (located approximately 16 to 18 miles southwest of the Cabin Creek Trailhead along the Pervis/Borner Meadows area along the South Fork River), three days for trail work, and one day to ride back from the base camp to Cabin Creek Trailhead.

****High Consequence Travel:** Travel in which hazards in and along the trail corridor threaten health and safety, exhibiting a high risk of injury to forest users or livestock unless mitigation work (i.e. trail clearing, tread improvement, grade reduction, retaining wall construction, and/or rerouting) is undertaken.*

3D Scanning

After trail hazards are mitigated, the three-member 3D scanning crew and associated personnel, including up to three guides/horse wranglers and 12 stock (six riding stock and six packing stock), will depart from the Cabin Creek Trailhead and ride to the base camp.

On the second day, the 3D scanning crew and guide will ride approximately six miles to the Surveyor Tree and 3D scan the trees. This work will include scanning the Surveyor Tree and three other trees located within 150-foot radius, which is anticipated to take approximately 4 – 6 hours. The scanning equipment will require solar charging units, lithium batteries, 3D scanning equipment, tripods, and computers. Scanning activities will involve identifying photo points around the trees to stage the 3D scanners. The scanners are standard surveying equipment ranging from the size of a large PC tower to an aluminum soda can and mounted on tripods. After scanning the trees from the photo points, the images will later be stitched together utilizing specific software on a laptop. After scanning is completed, the crew will ride back to the base camp. Validating the data, which can occur at the trees' location or at the base camp, will include the scanning equipment, extra batteries and charging bank, and laptop

computers. On day three, the scanning crew will ride back to Cabin Creek Trailhead and the trail crew will prepare the felling and sling load sites.

Site Preparation Work and Tree Felling

During the fall of 2025, two Forest Service personnel assessed the Surveyor Tree and surrounding area to determine tree resilience (strength and durability for felling and transporting) and the preparation work needed to ensure a safe felling window that is free of obstacles. They also assessed alternative sling load sites and what was needed to ensure safe helicopter operations.

Prepare Surveyor Tree Felling Site, Fell Surveyor Tree

The fall 2025 assessment found that the Surveyor Tree is approximately 80 feet tall, leans to the south and east and is surrounded by 20 to 50 foot trees.

Approximately 10 small diameter trees and two larger diameter trees (22-24 inches at dbh) along the southerly aspect of the Surveyor Tree will need to be felled and cleared in order to ensure a safe felling window for the Surveyor Tree. Two escape routes have been identified to the northeast and northwest of which will require minimal clearing and brushing.

Inscription-bearing Midsection Removal

The face cut would be oriented 16 inches directly above the inscription, requiring a two-foot to three-foot platform for the sawyer to stand on. The bottom cut (made after the upper portion of the Tree is felled) will be located six inches below the inscription. The diameter at the base cut is 51 inches, and the diameter at the top cut is 39 inches. The overall dimensions of the inscription-bearing midsection will be 60 inches in height by 45 inches in width, resulting in a trunk weight of 1,200 to 1,500 pounds. To safeguard the inscriptions from damage during felling, sawyers will use wedges and secure the Surveyor Tree with rigging ropes. Once the Surveyor Tree is safely felled, the inscription-bearing midsection will be moved to a meadow that is suitable to serve as the sling load site.

After the Surveyor Tree is felled, relocated, and prepared for transportation, the crew will naturalize the stump and surrounding area to minimize the contrasting unnatural elements created by the site preparation activities and encourage successful vegetative recovery.

Prepare Sling Load Site

The Surveyor Tree is located at an elevation of 9,023 feet surrounded by uneven terrain and trees standing at a range of 20 feet to 50 feet, which introduces challenges in identifying a suitable helicopter sling load site.

A sling load site is a dedicated area for attaching cargo via a longline to a helicopter for external transport in an area where a helicopter cannot land (e.g., thick forest or a cliffside). The conditions require a large, open area to ensure safety during longline operations. The cargo is hooked on to the helicopter while

it hovers, eliminating the need for the aircraft to land. Three potential sling load locations were identified:

Site 1: A meadow located approximately 140 feet northwest of the Surveyor Tree, where the distance from the center of the clearing to the nearest snag is approximately 50 to 60 feet. Of the three evaluated sites, this site has fewest snags in close proximity to the landing location.

Site 2: A meadow located approximately 75 feet south of the Surveyor Tree, where the distance from the center of clearing to the nearest snag is approximately 25 to 30 feet. There are a large number of snags surrounding this location, with 80-foot snags to the north, and 40- to 50-foot snags to the south and west. The project may require that 10 small trees (<12" DBH), 1 – 2 larger trees (23" DBH), and potentially the Surveyor Tree be felled to the south which will compromise this site.

Site 3: A meadow located approximately 100 feet north of the Surveyor Tree, of which several large snags, some of which contain historical inscriptions, are within close proximity of the meadow.

Tree felling, site preparation, and naturalization will be accomplished utilizing traditional skills and equipment (e.g., crosscut saws), and is anticipated to take two days.

After the inscription-bearing midsection is transported out of the area the crew will complete any remaining naturalization by scattering existing woody debris to restore a natural appearance and will reduce contrasting elements of form, line, color, and texture.

Transport Wyoming State Forestry Division (WSFD) Helicopter Crewmembers (HECM) to Helispot

Once the Surveyor Tree is prepared for extraction, a Type II helicopter will be dispatched from Cody, Wyoming to the Boulder Basin Trailhead with up to five personnel: helicopter pilot, helicopter manager, and up to three WSFD HECMs. The HECMs will be dropped off at the Boulder Basin Trailhead and then the helicopter will depart to the sling load site, generally following the primary drainage corridors (South Fork and Younts Creek) at a cruising altitude of approximately 1,000 feet above the surface. When the helicopter reaches the site, it will conduct a high-level reconnaissance flight (approximately 1,000 feet) around the site and another low-level reconnaissance flight (at approximately 300 feet) to assess the sling load site. After the reconnaissance flights, the helicopter will fly back to Borner Meadows to assess and approve the helispot site, which will include a landing to assess compatibility and determine if the site is suitable. After approval of the helispot site, the helicopter will fly back to Boulder Basin Trailhead, pick up the HECMs, and transport them to the helispot site where they will be dropped off. The helicopter will then fly back to the Boulder Basin Trailhead as the HECMs hike six miles to the sling load site and completes any

remaining preparation work for transport. The helicopter will be on standby at the trailhead waiting for the HECMs to radio in and inform the inscription-bearing midsection is ready for transport.

Transport the Inscription-bearing Midsection Utilizing Aerial Support

A type II helicopter will be utilized to transport the Surveyor Tree's inscription-bearing midsection from the sling load site to Boulder Basin Trailhead. All aerial operations will be based out of Cody, Wyoming and the Boulder Basin Trailhead. Prior to operations, the helicopter will complete two reconnaissance flights: one high-level flight to assess the broader project area and aerial dynamics, and another low-level flight to assess the immediate project area and the task. Once the trail crew and the HECMs have prepared the inscription-bearing midsection for transport, they will call dispatch to request the helicopter. Once the helicopter reaches the sling load site, it will hover at approximately 150 feet and communicate with the HECMs as the inscription-bearing midsection is prepared for lift. Once the inscription-bearing midsection is ready for lift, the helicopter will transport the inscription-bearing midsection back to Boulder Basin Trailhead. The helicopter will follow the larger drainages, primarily Younts Creek drainage and the South Fork corridor, to ensure a safe flight. It is anticipated that the helicopter will cruise at an altitude of up to 1,000 feet. The inscription-bearing midsection will be unloaded onto an industrial-grade truck at the Boulder Basin Trailhead, which will transport it to Cheyenne, Wyoming. It is anticipated that total aerial support within the wilderness will take up to one hour.

The following table quantifies the number of personnel and number of days needed to complete the project under this alternative. Refer to the project location map found in Appendix A.

Table 1 - Project Logistics

Component	Description	Staff	Duration (days)	Mechanized/Motorized
Transport crew to and from site, prepare helispot site, trail work, tree felling and sling load site preparation	Trail crew transported to and from project site from Cabin Creek Trailhead via stock.	6 staff and 12 stock (6 riding stock, 6 packing stock)	2	None
	Trail clearing to ensure safe access; make necessary preparations for helispot site at Borner Meadows.		3	None

	Clear an area to create an unobstructed felling corridor for the Surveyor Tree; clear the sling load site of snags.		1	None
	Fell Surveyor Tree, relocate inscription-bearing midsection to sling load site and prepare for extraction, Naturalize stump and felling corridor; Naturalize sling load site after helicopter transports inscription-bearing midsection away from site, ride back to the base camp, then to Cabin Creek Trailhead.			None
Transport 3D scanning crew to and from project area; scan trees	3D scanning crew and associated staff ride to the base camp from Cabin Creek Trailhead.	6 staff 12 stock (6 riding stock, 6 packing stock)	1	None

	Ride to scanning site from the base camp and scan Surveyor Tree and surrounding trees, validate data. Ride back to the base camp. Validate data if unable to at the Surveyor Tree site.		1	None
	Depart when project is completed.		1	None
HECMs utilize helispot, extract tree	Helicopter conducts high and low-level reconnaissance flights to assess helispot site (landing one).	5 staff (1 helicopter pilot, 1 helicopter manager, 3 HECMs).	*0.1 <i>*anticipated total flight time will be one hour out of a 10-hour day.</i>	One helicopter. Will require one landing.
	Transport HECMs to Borner Meadows (landing two). HECMs hike to sling load site.			One landing second landing)
	Helicopter flies in, crew loads inscription-bearing midsection onto longline via sling load (landing three), and transports inscription-bearing midsection to Boulder Basin Trailhead. HECMs hike			One landing (third landing)

	back to Borner Meadows.			
	Helicopter flies to Borner Meadows, picks HECMs up (landing four), flies to Cody, Wyoming			One landing (fourth landing)
Total		17 Staff 24 Stock	9.1 days	Four helicopter flights and landings

Wilderness Character

Component Number	For each component number, indicate the impact the method for this alternative will have on each of the five qualities of Wilderness: Positive = P, Negative = N, No Effect = 0 <i>Describe in detail the impacts to each of the five qualities in the narrative section below</i>	Untrammeled	Undeveloped	Natural	Solitude or Primitive and Unconfined	Other Features of Value
1	Trail crew travel to site and makes necessary preparation work for helispot site at Borner Meadows and mitigate trail hazards	0	0	N	N	0
2	3D Scan Crew transported via stock to site	0	0	0	N	0
3	3D Scan the Surveyor Tree and accompanying trees, validate data	0	N	0	N	P
4	3D Scan Crew transported back from site via stock, validate data if unable to at Surveyor Tree site	0	N	0	N	0
5	Sawyer crew prepares felling and sling load sites	0	0	N	N	0
6	Sawyer crew fell and prepare inscription-bearing midsection for transport	0	0	N	N	N
7	Felling corridor, tree stump, and surrounding footprint is naturalized	0	0	P	N	0

Component Number	For each component number, indicate the impact the method for this alternative will have on each of the five qualities of Wilderness: Positive = P, Negative = N, No Effect = 0 <i>Describe in detail the impacts to each of the five qualities in the narrative section below</i>	Untrammeled	Undeveloped	Natural	Solitude or Primitive and Unconfined	Other Features of Value
8	Transport HECMs to Boulder Basin Trailhead by helicopter, conduct high and low-level reconnaissance flights, assess and approve helispot site.	0	N	0	N	0
9	Transport HECMs to helispot by helicopter, HECMs hike to the sling load site	0	N	0	N	0
10	Upon notification from HECMs, helicopter will arrive at the sling load site, HECMs secure Surveyor Tree's inscription-bearing midsection to longline, helicopter transports inscription-bearing midsection to Boulder Basin Trailhead. Complete remaining naturalization work at the sling load site	0	N	P	N	N/P
11	Hike back to Borner Meadows.	0	0	0	N	0
12	Transport HECMs and FS Crew back to Cody, Wyoming	0	N	0	N	0

*What is the effect of each Component Method on the qualities of wilderness character?
What [mitigation measures](#) will be taken? Include cumulative impacts in the explanation.*

UNTRAMMELED: Explain the intensity of the action that would intentionally control, manipulate, or hinder the conditions or processes of ecological systems:

No human actions under this alternative will intentionally control, manipulate, or hinder the conditions or processes of ecological systems.

HELP – “Untrammeled”

UNDEVELOPED: Explain the effects to this quality in terms of how “the imprint of man’s work [would] remain substantially unnoticeable,” and how wilderness will continue to be in contrast with other areas of “growing mechanization”:

This alternative, which includes use of high-detail 3D laser scanning technology, will interfere with the undeveloped character within a 30-foot to 50-yard proximity of the Surveyor Tree. In addition, noise generated during helicopter transport, reconnaissance, extraction and transport of the Surveyor Tree to the Boulder Basin Trailhead will affect the undeveloped character for a considerable distance from the sling-load site and along the flight path to the drop-off location.

The 3D scanning equipment, including computers and charging banks, will be observed within the immediate proximity of the scanning and data validation activities. Outside of the immediate area, the topography and surrounding vegetation will screen the equipment from casual observer. Interference with the undeveloped character will be temporary and is anticipated to last no more than 6 to 8 hours; up to 6 hours to scan the trees, and another 2 hours of data validation either at the trees’ location or at the camp.

The helicopter flights and landings in wilderness will temporarily and negatively degrade the undeveloped character within noise-disturbance corridor extending a considerable distance from the source (helicopter) at the helispot site, around the Surveyor Tree’s sling load site, and along the flight path. Aerial activity under this contingency will require four landings (three at the helispot site, and one at the sling load site as the longline is considered a landing), and approximately a total of one hour of flight time in wilderness. Helicopters can produce up to 120 decibels (dB) at the source, however the level of noise diminishes rapidly with distance and obstructions such as vegetation. The presence of the helicopter, primarily observed through the noise, smells, and unnatural and developed physical features contrasting against the natural settings would interfere with and compromise the undeveloped wilderness character, with the greatest impact observed at the helispot site. This helispot site is approximately 700 feet from the South Fork Trail and it’s possible that trail users may see one of the three landings planned for that location in the contingency plan. Decibel levels would be approximately 120 dB at the landing site, which the noise levels will be noticed by users along the South Fork Trail. The sling load site would represent the next most impactful source of interference, where the noise levels will be sustained longer and within close proximity to the ground as the helicopter hovers while the HECMs attach the inscription-bearing midsection onto the longline. Noise levels from the helicopter would be observed during an approximately one-hour window, which includes two reconnaissance flights and three flights and three landings to transport the HECMs and transfer the Tree to the Boulder Basin Trailhead. The greatest impact will be observed at the helispot site, followed by the sling load site, and then the drainages along the flight path (primarily along the

South Fork Trail and Fall Creek, Saddle Creek, Needle Creek Trails that intersect with the South Fork Trail).

After the project is completed, crews and all project equipment, including computers and 3D scanner, will be packed back to Cabin Creek Trailhead. The disruption to undeveloped character from electronic equipment will be restored once this equipment leaves the wilderness.

HELP – “Undeveloped”

NATURAL: Explain the effects to this quality in terms of protection, degradation, or restoration of natural conditions:

The primary negative impacts to natural character include cutting and clearing downed timber, with concentrated efforts along a two-mile section of high consequence travel along the access route, the creation of a tree felling window, and preparation work at the helispot site. These actions negatively impact natural character due to their manipulation of the natural vegetation. Changes to vegetative density are anticipated to be negligible and undiscernible to visitors, but along the sections of the route where logging and brushing will occur, changes to vegetation may be observed as unnaturally cut vegetation scattered along segments of the route’s corridor. This impact to the natural character is anticipated to be minimal and largely temporary as the clearing of the area for the Surveyor Tree felling and sling load sites will be naturalized by scattering any woody debris, and the access route to the Surveyor Tree will not be maintained.

The permanent removal of the Surveyor Tree will impact the natural character within the immediate area of the actual Surveyor Tree site, but adherence to the mitigation measures will minimize impacts to natural character.

Following removal of the Surveyor Tree the access route to the site will not be maintained, allowing for natural ecological processes to reclaim the route.

HELP – “Natural”

OUTSTANDING OPPORTUNITIES FOR SOLITUDE OR PRIMITIVE and UNCONFINED RECREATION: Explain how opportunities for visitors to experience solitude or a primitive and unconfined type of recreation will be protected or degraded. As appropriate, describe solitude, primitive recreation, and unconfined recreation separately:

Project activities will be visible to visitors as personnel, livestock, scanning equipment, and supplies will use the South Fork Trail to access the Camp and the non-forest system trail to access the project site. The increase in use associated with project

preparation (trail hazard mitigation, tree felling and sling load preparation, and 3D scanning) will be intermittently noticeable along the first 16 to 18 miles of the South Fork Trail as crews travel to and from the Purvis/Borner Meadows area and will also be apparent to visitors passing through the camp area. The greatest levels of interference with outstanding opportunities for solitude will occur during route hazard-mitigation activities, including tree-felling operations, sling-load preparation, and the felling and staging of the Surveyor Tree. The increased concentration of human and stock presence—both in sight and sound—within these areas will contrast with the surrounding semi-primitive and primitive wilderness settings. This contrast will be further amplified given that the project area lies more than 16 miles from the nearest trailhead, meaning that visitors would anticipate a wilderness experience in this location.

3D scanning work and subsequent data validation will be observed in the immediate vicinity of the project area, which will be within a few feet to approximately 50 yards from the Surveyor Tree. Interferences to solitude will be observed as personnel stage the 3D scanning equipment at multiple photo point locations to scan the trees. This interference is anticipated to be negligible due to the remoteness of the project area from the South Fork Trail, low visitation levels at the project site, and the minimal contrasting elements of form, line, color, and texture created from the scanning equipment. Interferences with solitude will be observed primarily through the increase of human and stock presence in the base camp, along the access route, and in the project area.

The use of aerial support to extract and transport the inscription-bearing midsection will generate the most substantial interference to outstanding opportunities for solitude and primitive recreation over the course of the project. Noise created by the helicopter will temporarily compromise wilderness character along the flight paths, the helispot site, and the lift site. Additionally, a sound corridor where the helicopter is anticipated to be audible may extend a considerable distance beyond the helicopter. Beyond this distance noise levels are anticipated to blend in with the surrounding natural setting. Helicopter landings and hovering will generate sustained noise levels of approximately 120 dB at the source, creating a noise-disturbance corridor that may be audible at considerable distances. The greatest interference will be observed by users along the South Fork Trail during helicopter landings at the helispot, located roughly 700 feet from the trail. Noise generated during hovering while the HECMs attach the inscription-bearing midsection may affect fewer visitors due to the site's remoteness from Forest System trails; however, this disturbance will occur in a primitive wilderness setting, where standards for maintaining wilderness character are more stringent. Although more frequent helicopter landings will result in greater interference with opportunities for solitude and primitive recreation, these effects are anticipated to be brief. The reconnaissance flights, transportation of the HECMs, and loading and aerial

extraction of the inscription-bearing midsection are expected to compromise outstanding opportunities for solitude and primitive recreation for up to one hour.

The project in its entirety will consist of a total of up to 17 personnel and 24 stock along the trails, camp, and the project location for up to 9.1 days (refer to Table 1 - Project Logistics). Although this is below the group and livestock limit (20 people and 30 stock), the project will temporarily interfere with outstanding opportunities for solitude and primitive recreation character along the South Fork Trail, the non-Forest System trail spurring from the South Fork Trail leading to the Surveyor Tree location, the general Surveyor Tree area, and along the helicopter flight paths. Although livestock use is recognized as an allowable use in the wilderness, this activity will increase presence of people and stock along the trails leading to the project area. Additionally, although increased use along the South Fork Trail, Purvis/Borner Meadows area, and adjacent trails will remain within the prescribed semi-primitive wilderness recreation standard, it may nonetheless interfere with opportunities for solitude and primitive recreation, particularly during periods of low visitor use. This interference may be amplified along the access route and at the Surveyor Tree site, where primitive standards create the expectation of fewer social encounters.

Following removal of the inscription-bearing midsection the access route to the site will not be maintained, allowing for natural ecological processes to reclaim the route reducing the amount of use.

HELP – “Outstanding Opportunities”

OTHER FEATURES OF VALUE: Explain any effects to features of scientific, educational, scenic, or historical value that are not accounted for in the above qualities, including cultural and paleontological resources that are integral to wilderness character:

Under this alternative, the inscriptions will be preserved utilizing 3D scanning technology. This technology increases the available options for interpretation and education, such as touch screen exhibits, and for the trees to be recreated in a 3D format. Enhancing visibility, interpretation, and education will provide visitors the opportunity for greater connection to the historical events that led to current land management practices and to the creation of the Washakie Wilderness. In addition, extracting the inscription-bearing midsection from the Wilderness to be preserved in an off-site controlled environment will preserve the inscriptions and prevent them from disappearing through the natural ecological processes.

The Surveyor Tree, anchored in its current location, functions as a defining element of wilderness character by linking historic land surveying practices and the evolution of

public land management. Removing the inscription-bearing midsection will compromise the contextual relationship with the Washakie Wilderness as the Surveyor Tree will no longer be a feature of value thus compromising the contextual significance it contributes to the area's natural and historical values.

HELP - Other Features of Value

① Mitigation Measures Help

Mitigation Measures

Examples of Mitigation Measures re: Untrammeled Quality

Examples of Mitigation Measures re: Undeveloped Quality

Examples of Mitigation Measures re: Natural Quality

Examples of Mitigation Measures re: Outstanding Opportunities for Solitude or Primitive Unconfined Recreation Quality

Examples of Mitigation Measures re: Other Features of Value Quality

Alternative 3:

3D scan and collect data for potential future reproduction of the Surveyor Tree. Remove the inscription-bearing midsection from tree utilizing chainsaws, transport midsection out utilizing helicopter.

Component Methods

How will each of the components of the action be performed under this alternative?

Component	Workflow Components	Component Methods for this Alternative
	<i>Example: Transportation of personnel to the project site.</i>	<i>Example: Workers walk to work site.</i>
1	Trail crew travels to Surveyor Tree site, mitigates trail hazards, and completes necessary preparation work for helispot site at Borner Meadows.	Trail crew hikes in utilizing stock support, completes any necessary preparation work for helispot site at Borner Meadows, and mitigates trail hazards utilizing chainsaws.
2	3D Scan Crew is transported via stock to the site over two days.	Transport 3D Scanning Crew and equipment via stock from Cabin Creek Trailhead to the base camp and then to Surveyor Tree site. Day 1: Cabin Creek Trailhead to the base camp. Day 2: Base camp to the site.
3	3D scan the Surveyor Tree and accompanying trees, validate data.	3D Scanning Crew scans trees utilizing state-of-the-art scanning equipment and validate data.
4	3D Scan Crew is transported back from the site via stock over two days. Validate data if unable to at Surveyor Tree site	Transport 3D Scanning Crew and equipment via livestock from Surveyor Tree site to base camp. Validate data if unable to at Surveyor Tree site, then Cabin Creek Trailhead: Day 1: Site to base camp. Validate data if unable to at Surveyor Tree site Day 2: Base camp to Cabin Creek Trailhead

Component	Workflow Components	Component Methods for this Alternative
5	Sawyer crew prepares Surveyor Tree felling and sling load sites.	Sawyer crew will fell trees and vegetation near the Surveyor Tree and clear a window free of obstacles that could damage the Surveyor Tree during felling. Additionally, the crew will clear vegetation to create a safe sling load site. All felling will be done using chainsaws.
6	Sawyer crew fell and prepare inscription-bearing midsection for transport.	Sawyers fell and prepare inscription-bearing midsection for transport utilizing chainsaws.
7	Felling corridor, tree stump, and surrounding footprint is naturalized	Sawyer crew naturalizes sites by scattering woody debris currently at the site to remove indications and traces of activities.
8	Transport HECMs to Boulder Basin Trailhead via helicopter, conduct high and low-level reconnaissance flights, assess and approve helispot site (landing one).	Helicopter will fly from Cody, Wyoming to Boulder Basin Trailhead and drop HECMs off. Helicopter manager and pilot will conduct a high-level and low-level reconnaissance flight around the sling load site, then assess and approve the location of the helispot site at Borner Meadows, which will require a landing. Fly back to Boulder Basin Trailhead.
9	Transport HECMs to the helispot site in Borner Meadows via helicopter (landing two). HECMs hike to sling load site.	Fly HECMs from Boulder Basin Trailhead to Borner Meadows and drop off HECM crew at helispot. After HECMs are dropped, fly back to Boulder Basin Trailhead. HECMs will hike to sling load site.

Component	Workflow Components	Component Methods for this Alternative
10	Upon notification from HECMs, helicopter will fly to the sling load site and the crew will secure the inscription-bearing midsection on a longline (landing three). The helicopter will transport the inscription-bearing midsection to Boulder Basin Trailhead. Sling load site is naturalized.	Once the HECMs reach the sling load site, they will call in the helicopter via radio. Helicopter will arrive at the sling load site and hover as HECMs secure the inscription-bearing midsection to longline (third landing). The helicopter will transport the inscription-bearing midsection to Boulder Basin Trailhead. Crew naturalize site by scattering woody debris currently at site to remove indications and traces of activities.
11	Hike back to Borner Meadows.	Crews hike back to Borner Meadows
12	Transport HECMs back to Cody, Wyoming (landing four). FS Crew travels back to trailhead.	HECMs notify helicopter, which is on standby at Boulder Basin Trailhead. Helicopter will pick up HECMs, which will be the fourth landing, and transport back to Cody, Wyoming. FS Crew travels back to Cabin Creek Trailhead utilizing livestock.

HELP - "Component Methods"

HELP - "Workflow Components"

Description of the Alternative

What are the details of this alternative? When, where, and how will the action occur?

What mitigation measures will be taken? Provide a complete narrative description of the Component Methods identified above.

Project activities will begin with a trail crew preparing the helispot site, clearing the route that leads to the Surveyor Tree site, and once at the site, preparing the felling and sling load sites.

Mitigate Trail Hazards and Prepare Helispot

A trail crew of up to six members with livestock support will focus route clearing along a two-mile stretch of the route where there is high consequence travel. The crew will spend up to two days on this work, which will include log out, brushing, and minimal spot-upgrade tread work utilizing chainsaws. This stretch is located approximately 3.5 miles northwest of the intersection of the route with the South Fork Trail. It is anticipated that it will take four days to complete all needed trail work: one day to access the base camp, which is located approximately 16 to 18 miles southwest of the Cabin Creek

Trailhead along the Pervis/Borner Meadows area along the South Fork River, two days for trail work, and one day to ride back from the base camp to Cabin Creek Trailhead.

As identified in Alternative 1, Borner Meadows will serve as the helispot location due to the absence of obstacles and the even terrain ensuring safe helicopter operations. The crew will evaluate and do necessary preparation work (i.e., brushing and clearing) to ensure safe landing.

3D Scanning

After trail hazards are mitigated, the three-member 3D scanning crew and associated personnel, including up to three guides/horse wranglers and 12 stock (six riding stock and six packing stock), will depart from the Cabin Creek Trailhead and ride to the base camp.

On the second day, the 3D scanning crew and guide will ride six miles to the Surveyor Tree and will 3D scan the trees. This work will include scanning the Surveyor Tree and three other trees location within a 150-radius, which is anticipated to take approximately four to six hours. The scanning equipment will require solar charging units, lithium banks, lithium batteries, 3D scanning equipment, tripods, and computers. Scanning activities will involve identifying photo points around the trees to stage the 3D scanners. The scanners are standard surveying equipment ranging from the size of a large PC tower to an aluminum soda can and mounted on onto tripods. After scanning the trees from the photo points, the images will later be stitched together utilizing specific software on a laptop. After scanning is completed, the crew will ride back to Livingston Camp. Validating the data, which may occur either at the trees' location or at the base camp, will include the scanning equipment, extra batteries and charging bank, and laptop computers. On day three, the crew will ride back to Cabin Creek Trailhead, which at that time the trail crew will be preparing the felling and sling load sites.

Site Preparation Work and Tree Felling

During the fall of 2025, two Forest Service personnel assessed the Surveyor Tree to determine tree resilience (strength and durability for felling and transporting) and the preparation work needed to ensure a safe felling window that is free of obstacles. They also assessed alternative sling load sites and what needed to be done to ensure safe helicopter operations.

Prepare Surveyor Tree Felling Site, Fell Surveyor Tree

The fall 2025 assessment found the Surveyor Tree is approximately 80 feet tall, leans to the south and east and is surrounded by 20 to 50 foot trees.

Approximately 10 small diameter trees and two larger diameter trees (22-24 inches at dbh) along the southerly aspect of the Surveyor Tree will need to be felled and cleared in order to ensure a safe felling window for the Surveyor Tree. Two escape routes have been identified to the northeast and northwest of which will require minimal clearing and brushing.

Inscription-bearing Midsection Removal

The face cut would be oriented 16 inches directly above the inscription, requiring a two-foot to three-foot platform for the sawyer to stand on. The bottom cut (made after the upper portion of the Tree is felled) will be located six inches below the inscription. The diameter at the base cut is 51 inches, and the diameter at the top cut is 39 inches. The overall dimensions of the inscription-bearing midsection will be 60 inches in height by 45 inches in width, resulting in a trunk weight of 1,200 to 1,500 pounds. To safeguard the inscriptions from damage during felling, sawyers will use wedges and secure the Surveyor Tree with rigging ropes. Once the Surveyor Tree is safely felled, the inscription-bearing midsection will be moved to a meadow that is suitable to serve as the sling load site.

After the Surveyor Tree is felled, relocated, and prepared for transportation, the crew will naturalize the stump and surrounding area to minimize the contrasting unnatural elements created by the site preparation activities and encourage successful vegetative recovery.

Prepare Sling Load Site

As identified in alternative two, the inscription-bearing midsection will need to be relocated to a location suitable to serve as a safe sling load site. In order to ensure that the sling load site is safe and free from obstacles, dead trees that may break and scatter from the helicopter's rotor wash may need to be removed. Based on prior site visits it is thought that these trees are decadent and that approximately 10 small diameter trees need to be cleared from the site. A discussion of the potential site locations for a sling load site can be found in Alternative 2.

Tree felling, site preparation, and naturalization will be accomplished by certified sawyers utilizing chainsaws and is anticipated to take two days.

After the midsection is transported out of the area the crew will complete any remaining naturalization by scattering existing woody debris to restore a natural appearance and reduce contrasting elements of form, line, color, and texture.

Transport HECMs to Helispot

Once the Surveyor Tree is prepared for extraction, a Type II helicopter will be dispatched from Cody, Wyoming to the Boulder Basin Trailhead with up to five personnel: helicopter pilot, helicopter manager, and up to three HECMs. The HECMs will be dropped off at the Boulder Basin Trailhead and then the helicopter will depart to the sling load site, generally following the primary drainage corridors (South Fork and Younts Creek) at a cruising altitude of approximately 1,000 feet above the surface. When the helicopter reaches the site, it will conduct a high-level reconnaissance flight (approximately 1,000 feet) around the site and another low-level reconnaissance flight (at approximately 300 feet) to assess the sling load site. After the reconnaissance

flights, the helicopter will fly back to Borner Meadows to assess and approve the helispot site, which will include a landing to assess compatibility and determine if the site is suitable. After approval of the helispot site, the helicopter will fly back to Boulder Basin Trailhead, pick up the HECMs, and transport them to the helispot site where they will be dropped off. The helicopter will then fly back to the Boulder Basin Trailhead as the HECMs hike six miles to the sling load site and completes any remaining preparation work for transport. The helicopter will be on standby at the trailhead waiting for the HECMs to radio in and inform the Tree is ready for transport.

Transport the inscription-bearing midsection Utilizing Aerial Support

A Type II helicopter will be utilized to transport the Surveyor Tree's inscription-bearing midsection from the sling load site to Boulder Basin Trailhead. All aerial operations will be based out of Cody, Wyoming and the Boulder Basin Trailhead. Prior to operations, the helicopter will complete two reconnaissance flights: one high-level flight to assess the broader project area and aerial dynamics, and another low-level flight to assess the immediate project area and the task. Once the trail crew and the HECMs have prepared the inscription-bearing midsection for transport, they will call dispatch to request the helicopter. Once the helicopter reaches the sling load site, it will hover at approximately 150 feet and communicate with the HECMs as the inscription-bearing midsection is prepared for lift. Once the inscription-bearing midsection is ready for lift, the helicopter will transport the inscription-bearing midsection back to Boulder Basin Trailhead. The helicopter will follow the larger drainages, primarily Younts Creek drainage and the South Fork corridor, to ensure a safe flight. It is anticipated that the helicopter will cruise at an altitude of up to 1,000 feet. The inscription-bearing midsection will be unloaded onto an industrial-grade truck at the Boulder Basin Trailhead, which will transport it to Cheyenne, Wyoming. It is anticipated that total aerial support will take up to one hour in the wilderness.

The following table quantifies the number of personnel and number of days needed to complete the project under this alternative. Refer to the project location map found in Appendix A.

Table 2 - Project Logistics

Component	Description	Staff	Duration (days)	Mechanical/Motorized
Transport crew to and from site, prepare helispot site, trail work, tree felling and sling load site preparation	Trail crew transported to and from project site from Cabin Creek Trailhead via stock.	6 staff, 12 stock (6 riding stock, 6 pack stock)	2	None
	Trail clearing to ensure safe access; make necessary preparations for		2	Utilize chainsaws

	helispot site at Borner Meadows.			
	Clear a clearing to ensure unobstructed felling corridor for the Tree; clear sling load site of snags.		1	Utilize chainsaws
	Fell tree, relocate inscription- bearing midsection to sling load site and prepare for extraction; naturalize stump and felling corridor; naturalize sling load site after helicopter transports inscription- bearing midsection away from site; ride back to the base camp, then to Cabin Creek Trailhead.			Utilize chainsaws
Transport 3D scanning crew to and from project area; scan trees	3D scanning crew and associated staff ride to the base camp from Cabin Creek Trailhead.	6 staff 12 stock (6 riding stock, 6 packing stock)	1	None

	Ride to scanning site from the base camp and scan Surveyor Tree and surrounding trees, validate data. Ride back to the base camp. Validate data if unable to at the tree site.		1	None
	Depart when project is completed.		1	None
HECM Crew utilize helispot, extract tree	Helicopter conducts high and low-level reconnaissance flights to assess helispot site (landing one).	5 staff (1 helicopter pilot, 1 helicopter manager, 3 HECMs).	*0.1 <i>*anticipated total flight time will be one hour out of a 10-hour day.</i>	One helicopter. Will require one landing.
	Transport HECMs to Borner Meadows (landing two). HECMs hike to sling load site.			One landing second landing)

	Helicopter flies in, crew loads inscription-bearing midsection onto longline via sling load (landing three), and transports inscription-bearing midsection to Boulder Basin Trailhead. HECMs hike back to Borner Meadows.			One landing (third landing)
	Helicopter flies to Borner Meadows, picks HECMs up (landing four), flies to Cody, Wyoming.			One landing (fourth landing)
Total		17 staff 24 stock	8.1 days	Chainsaws, four helicopter flights and landings in Wilderness

Wilderness Character

Component Number	For each component number, indicate the impact the method for this alternative will have on each of the five qualities of Wilderness: Positive = P, Negative = N, No Effect = 0 <i>Describe in detail the impacts to each of the five qualities in the narrative section below</i>	Untrammeled	Undeveloped	Natural	Solitude or Primitive and Unconfined	Other Features of Value
1	Trail crew travel to site and makes necessary preparation work for helispot site at Borner Meadows and mitigate trail hazards	0	N	N	N	0
2	3D Scan Crew transported via stock to site	0	0	0	N	0
3	3D Scan the Surveyor and accompanying trees, validate data	0	N	0	N	P
4	3D Scan Crew transported back from site via stock, validate data if unable to at the Surveyor Tree site	0	N	0	N	0
5	Sawyer crew prepares felling and sling load sites	0	N	N	N	0
6	Sawyer crew fell and prepare inscription-bearing midsection for transport	0	N	N	N	N
7	Felling corridor, tree stump, and surrounding footprint is naturalized	0	N	P	N	0
8	Transport 2 HECM crew to Boulder Basin Trailhead by helicopter, conduct high and low-level reconnaissance flights, assess and approve helispot site.	0	N	0	N	0
9	Transport HECM crew to helispot by helicopter, HECM crew hikes to the sling load site	0	N	0	N	0
10	Upon notification from HECM, helicopter will arrive at the sling load site, HECM secures inscription-bearing midsection to longline, helicopter transports Tree to Boulder Basin Trailhead. Complete remaining naturalization work at the sling load site	0	N	P	N	N/P

Component Number	For each component number, indicate the impact the method for this alternative will have on each of the five qualities of Wilderness: Positive = P, Negative = N, No Effect = 0 <i>Describe in detail the impacts to each of the five qualities in the narrative section below</i>	Untrammeled	Undeveloped	Natural	Solitude or Primitive and Unconfined	Other Features of Value
11	Hike back to Borner Meadows.	0	0	0	N	0
12	Transport HECMs and FS crew back to Cody, Wyoming	0	N	0	N	0

What is the effect of each Component Method on the qualities of wilderness character? What [mitigation measures](#) will be taken? Include cumulative impacts in the explanation.

UNTRAMMELED: Explain the intensity of the action that would intentionally control, manipulate, or hinder the conditions or processes of ecological systems:

No human actions under this alternative will intentionally control, manipulate, or hinder the conditions or processes of ecological systems.

HELP – “Untrammeled”

UNDEVELOPED: Explain the effects to this quality in terms of how “the imprint of man’s work [would] remain substantially unnoticeable,” and how wilderness will continue to be in contrast with other areas of “growing mechanization”:

Under this alternative, impacts will be similar as those analyzed in Alternative 2 with the additional impacts from utilizing chainsaws for trail hazard mitigation, tree felling, and sling load and tree felling site preparation work. Utilizing chainsaws will compromise the undeveloped character by introducing unnatural elements of smell, sight, and sounds against the surrounding natural elements. Noise levels of a typical gas-powered chainsaw ranges from 90 – 120 decibels (dB) as measured at the location of the chainsaw and the noise level rapidly decreases with distance and obstructions such as vegetation. Utilizing motorized tools will allow for an efficient means of felling and clearing trees and vegetation, thus minimizing the duration of the activities that interfere with undeveloped character. Adherence to the mitigation measures will minimize the impacts created during and after trail and site preparation work.

Under this alternative, impacts to the undeveloped character created from 3D scanning activities will be the same as those analyzed under Alternative 2.

Under this alternative, the Surveyor Tree will be cut down and prepared by certified sawyers utilizing chainsaws and moved to a site suitable for a helicopter to sling load the inscription-bearing midsection onto a longline for transport to the Boulder Basin Trailhead. As analyzed above, disturbances of chainsaw work (sight, smell, and noise) will interfere with the undeveloped character at the immediate work site. The duration needed to fell and prepare the Surveyor Tree utilizing chainsaws will require less time than utilizing traditional skills.

Under this alternative, impacts to the undeveloped character created from helicopter operations will be the same as those analyzed in Alternative 2.

After the project is completed, crews and all project equipment (computers, 3D scanner, etc.) will be packed back to Cabin Creek Trailhead. The undeveloped character within this proximity will improve once the equipment leaves the wilderness.

HELP – “Undeveloped”

NATURAL: Explain the effects to this quality in terms of protection, degradation, or restoration of natural conditions:

Under this alternative, impacts to the natural character created from helispot preparation, hazard mitigation work along the trail, tree felling window and sling load site preparation work, and tree felling will be the same as those analyzed under Alternative 2.

HELP – “Natural”

OUTSTANDING OPPORTUNITIES FOR SOLITUDE OR PRIMITIVE and UNCONFINED RECREATION: Explain how opportunities for visitors to experience solitude or a primitive and unconfined type of recreation will be protected or degraded. As appropriate, describe solitude, primitive recreation, and unconfined recreation separately:

Impacts to outstanding opportunities for solitude and primitive recreation from proposed activities will be similar to those analyzed in Alternative 2. However, the impacts from trail and site preparation work will not be isolated to the specific work site, but will be noticeable in a larger corridor due to the noise created by chainsaws. Noise from chainsaws will be limited the amount of time that chainsaws are in active use, meaning that it is anticipated that noise from chainsaws will be intermittent bursts short in short duration rather than sustained noise.

Impacts to outstanding opportunities for solitude and primitive recreation created from extracting and transporting the inscription-bearing midsection are the same as those analyzed in Alternative 2.

The project in its entirety will consist of a total of up to 17 personnel and 24 stock along the trails, camp, and project location for up to 8.1 days, one day less than Alternative 2. (See Table 2 - Project Logistics). Although this is below the group and livestock limit (20 people and 30 stock), the project will temporarily interfere with outstanding opportunities for solitude and primitive recreation character along the South Fork Trail, the non-Forest System trail spurring from the South Fork Trail leading to the Surveyor Tree location, the general Surveyor Tree area, and along the helicopter flight paths. Although livestock use is recognized as an allowable use in the wilderness, this activity will increase presence of people and stock along the trails leading to the project area. Additionally, although increased use along the South Fork Trail, Purvis/Borner Meadows area, and adjacent trails will remain within the prescribed semi-primitive wilderness recreation standard, it may nonetheless interfere with opportunities for solitude and primitive recreation, particularly during periods of low visitor use. This interference may be amplified along the access route and at the Surveyor Tree site, where primitive standards create the expectation of fewer social encounters. Further, the intensity of impacts to outstanding opportunities are greater in Alternative 3 due the noise produced by chainsaws, however the overall duration of impacts to outstanding opportunities is less in Alternative 3 since crews and pack stock will be in the wilderness for one less day.

Following removal of the inscription-bearing midsection the access route to the site will not be maintained, allowing for natural ecological processes to reclaim the route reducing the amount of use.

HELP – “Outstanding Opportunities”

OTHER FEATURES OF VALUE: Explain any effects to features of scientific, educational, scenic, or historical value that are not accounted for in the above qualities, including cultural and paleontological resources that are integral to wilderness character:

Under this alternative, the inscriptions will be preserved utilizing 3D scanning technology. This technology increases the available options for interpretation and education, such as touch screen exhibits, and for the trees to be recreated in a 3D format. Enhancing visibility, interpretation, and education will provide visitors the opportunity for greater connection to the historical events that led to current land management practices and to the creation of the Washakie Wilderness. In addition, extracting the inscription-bearing midsection from the Wilderness and preserving it in an

off-site controlled environment will preserve the inscriptions and prevent them from disappearing through natural ecological processes.

The Surveyor Tree, anchored in its current location, functions as a defining element of wilderness character by linking historic land surveying practices and the evolution of public land management. Removing the inscription-bearing midsection will compromise the contextual relationship with the Washakie Wilderness as the Surveyor Tree will no longer be a feature of value thus compromising the contextual significance it contributes to the area's natural and historical values.

HELP - Other Features of Value

② Mitigation Measures Help

Mitigation Measures

Examples of Mitigation Measures re: Untrammeled Quality

Examples of Mitigation Measures re: Undeveloped Quality

Examples of Mitigation Measures re: Natural Quality

Examples of Mitigation Measures re: Outstanding Opportunities for Solitude or Primitive Unconfined Recreation Quality

Examples of Mitigation Measures re: Other Features of Value Quality

Alternative 4:

Contingency Plan: If extraction of the inscription-bearing midsection via a longline cannot proceed safely or as scheduled, this alternative would permit the extraction and transport of the inscription-bearing midsection out utilizing helicopter at a later time due to unforeseen project delays.

Component Methods

How will each of the components of the action be performed under this alternative?

Component	Workflow Components	Component Methods for this Alternative
1	Crew rides to Borner Meadows from Cabin Creek Trailhead and prepare, if necessary, helispot site.	FS crew rides to Borner Meadows from Cabin Creek Trailhead, and prepares, if necessary, helispot site.
2	Transport WFSD HECMs to Boulder Basin Trailhead via helicopter, conduct high and low-level reconnaissance flights, assess and approve helispot site (landing one).	Helicopter will fly from Cody, Wyoming to Boulder Basin Trailhead and drop HECMs off. Helicopter manager and pilot will conduct a high-level and low-level reconnaissance flight around the sling load site, then assess and approve the location of the helispot site at Borner Meadows, which will require a landing. Fly back to Boulder Basin Trailhead.
3	Transport HECMs to the helispot site in Borner Meadows via helicopter (landing two).	Fly with HECMs from Boulder Basin Trailhead to Borner Meadows and drop off HECMs at helispot. After HECMs are dropped, fly back to Boulder Basin Trailhead. HECMs will hike to the sling load site.
4	Upon notification from HECMs, helicopter will fly to the sling load site and the crew will secure the inscription-bearing midsection on a longline (landing three). The helicopter will transport the inscription-bearing midsection to Boulder Basin Trailhead. Sling load site is naturalized.	Once the HECMs reach the sling load site, they will call in the helicopter via radio. Helicopter will arrive at the sling load site and hover as HECMs secure the inscription-bearing midsection to longline (third landing). The helicopter will transport the inscription-bearing midsection to Boulder Basin Trailhead. Crew naturalize site by scattering woody debris currently at the site to remove indications and traces of activities.

Component	Workflow Components	Component Methods for this Alternative
5	Hike back to Borner Meadows.	Crews hike back to Borner Meadows.
5	Transport HECMs back to Cody, Wyoming (landing four). FS crew rides back to Cabin Creek Trailhead.	HECMs notify helicopter, which is on standby at Boulder Basin Trailhead. Helicopter will pick up crew, which will be the fourth landing, and transport back to Cody, Wyoming. FS crew travels back to Cabin Creek Trailhead utilizing livestock.

HELP - "Component Methods"

HELP - "Workflow Components"

Description of the Alternative

What are the details of this alternative? When, where, and how will the action occur?

What mitigation measures will be taken? Provide a complete narrative description of the Component Methods identified above.

A contingency plan is needed to be able to respond should a situation arise where the helicopter needs to land in wilderness since the activity would occur in an unpredictable high elevation environment, or nationwide wildland fire conditions require minimal non-emergency helicopter availability, thus requiring this work to occur in a compressed schedule. The proposed activity in Alternatives 2 and 3 include many components that are reliant on one another and correctly timing all the project components will be essential.

Executing this project in a variable and unpredictable environment or timeline requires a contingency plan to allow for adapting to a break in the synchronization and delaying of one or more of the following project components in reaction to unforeseen events, such as a weather event grounding the helicopter, blowdown blocking access along the cleared route, 3D scanning equipment not operating, helicopters unavailable due to wildfires, or injuries incurred from accessing the Surveyor Tree or during trail clearing or site preparation work. This contingency adds operational flexibility between components, making project implementation more adaptive and achievable. The contingency outlines the strategy for utilizing a helicopter to extract the inscription-bearing midsection at a later time independent of and not synchronized with the other components needed for extraction. The contingency plan is initiated once it is determined that a helicopter will be dispatched later than the initially planned time after the sawyer crew fell and prepare the Surveyor Tree and the sling load site. This alternative serves as the contingency plan if an unforeseen event occurs.

Identify and Prepare Helispot Site

As identified in Alternative 1, Borner Meadows will serve as the helispot location due to the absence of obstacles and the even terrain ensuring safe helicopter operations. A Forest Service (FS) crew will ride in from Cabin Creek Trailhead to Borner Meadows to evaluate and do necessary preparation work (i.e., brushing and clearing) to ensure safe landing.

Transport WSFD HECM to Helispot

Once it is determined that the project can proceed (i.e., available helicopter, suitable weather conditions), a Type II helicopter will be dispatched from Cody, Wyoming to the Boulder Basin Trailhead with up to five personnel: helicopter pilot, helicopter manager, and up to three HECMs. The HECMs will be dropped off at the Boulder Basin Trailhead and then the helicopter will depart to the sling load site, generally following the primary drainage corridors (South Fork and Younts Creek) at a cruising altitude of approximately 1,000 feet above the surface. When the helicopter reaches the site, it will conduct a high-level reconnaissance flight (approximately 1,000 feet) around the site and another low-level reconnaissance flight (at approximately 300 feet) to assess the sling load site. After the reconnaissance flights, the helicopter will fly back to Borner Meadows to assess and approve the helispot site, which will include a landing to assess compatibility and determine if the site is suitable. After approval of the helispot site, the helicopter will fly back to Boulder Basin Trailhead, pick up the HECMs, and transport them to the helispot site where they will be dropped off. The helicopter will then fly back to the Boulder Basin Trailhead as the HECMs, accompanied by the FS escorts, hike six miles to the sling load site and complete any remaining preparation work for transport. The helicopter will be on standby at the trailhead waiting for the HECMs to radio in and inform the inscription-bearing midsection is ready for transport.

Transport the Inscription-bearing Midsection Utilizing Aerial Support

Upon notification from the HECMs, the helicopter will fly to the sling load site via the South Fork and Younts Creek drainages and hover approximately 150' over the site as the HECMs secure the inscription-bearing midsection to the longline. Once the inscription-bearing midsection is ready for lift, the helicopter will transport the inscription-bearing midsection back to Boulder Basin Trailhead. The helicopter will follow the larger drainages, primarily Younts Creek drainage and the South Fork corridor, to ensure a safe flight. It is anticipated that the helicopter will have an approximate cruising altitude of up to 1,000 feet. The inscription-bearing midsection will be unloaded onto an industrial-level load truck at Boulder Basin Trailhead, which will transport the inscription-bearing midsection to Cheyenne, Wyoming. It is anticipated that aerial support will take up to one hour.

After the inscription-bearing midsection is transported out of the area the crew will complete any remaining naturalization by scattering existing woody debris to restore a natural appearance and reduce contrasting elements of form, line, color, and texture, then hike back to the helispot site.

Upon arrival at Borner Meadows, the HECMs will dispatch the helicopter to pick them up and fly back to Cody, Wyoming. The FS crew will ride back to Cabin Creek Trailhead.

The following table quantifies the number of personnel and number of days needed to complete the project under this alternative. Refer to the project location map found in Appendix A.

Table 3 - Project Logistics

Component	Description	Staff	Duration (Days)	Mechanized/Motorized
FS crew transported to Borner Meadows, prepare helispot site.	FS crew ride to Borner Meadows from Cabin Creek Trailhead via stock	3 FS staff, 6 stock (3 riding stock, 3 pack stock)	1	None
	Make necessary preparations to secure safe helispot site			None
Transport WSFD HECMs to helispot, extract inscription-bearing midsection	Helicopter conducts high and low-level reconnaissance flights to assess helispot site (landing one).	5 staff (1 helicopter pilot, 1 helicopter manager, 3 HECMs).	1 <i>*Anticipated total flight time will be one hour.</i>	One helicopter. Will require one landing.
	Transport HECMs to Borner Meadows (landing two). HECMs, escorted by FS, hike to sling load site.			One landing second landing)
	Helicopter flies in, crew loads inscription-bearing midsection onto longline via sling load (landing three), and transports inscription-bearing midsection to Boulder Basin Trailhead. HECMs hike back to Borner Meadows.			One landing (third landing)
	Helicopter flies to Borner Meadows, picks HECMs up (landing four), flies to Cody, Wyoming			One landing (fourth landing)
FS crew transported back to Cabin Creek Trailhead	FS crew rides back to Cabin Creek Trailhead		1	
Total		8 staff	3 Days	Four flights

	6 Stock		Four landings
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Wilderness Character

Component Number	For each component number, indicate the impact the method for this alternative will have on each of the five qualities of Wilderness: Positive = P, Negative = N, No Effect = 0 <i>Describe in detail the impacts to each of the five qualities in the narrative section below</i>	Untrammeled	Undeveloped	Natural	Solitude or Primitive and Unconfined	Other Features of Value
1	Transport FS crew to Borner Meadows and make final helispot preparations	0	0	N	N	0
2	Transport HECMs to Boulder Basin Trailhead by helicopter, conduct high and low-level reconnaissance flights, assess and approve helispot site.	0	N	0	N	0
3	Transport HECMs to helispot by helicopter, HECMs hike to the sling load site	0	N	0	N	0
4	Upon notification from HECMs, helicopter will arrive at the sling load site, HECMs secure inscription-bearing midsection to longline, helicopter transports inscription-bearing midsection to Boulder Basin Trailhead. Complete remaining naturalization work at the felling site and sling load site.	0	N	P	N	N/P
5	Hike back to Borner Meadows.	0	0	0	N	0
6	Transport HECMs and FS crew back to Cody, Wyoming	0	N	0	N	0

What is the effect of each Component Method on the qualities of wilderness character? What [mitigation measures](#) will be taken? Include cumulative impacts in the explanation.

UNTRAMMELED: Explain the intensity of the action that would intentionally control, manipulate, or hinder the conditions or processes of ecological systems:

Human actions under this alternative will not intentionally control, manipulate, or hinder the conditions or processes of ecological systems.

HELP – “Untrammeled”

UNDEVELOPED: Explain the effects to this quality in terms of how “the imprint of man’s work [would] remain substantially unnoticeable,” and how wilderness will continue to be in contrast with other areas of “growing mechanization”:

Under this alternative, a helicopter will be used to transport the WSFD HECMs to and from an authorized helispot location in Borner Meadows and will transport the inscription-bearing midsection out of the wilderness to the Boulder Basin Trailhead at a later time. Under this alternative, impacts to the undeveloped character created from helicopter operations will be the same as those analyzed in Alternative 2, however, any interference from the aerial operations will occur at a time separate from the project’s original implementation.

HELP – “Undeveloped”

NATURAL: Explain the effects to this quality in terms of protection, degradation, or restoration of natural conditions:

Impacts to the natural character are anticipated to be temporary and minor. Specifically, impacts would be concentrated at the helispot site and would involve clearing vegetative debris away from the helispot location. Impacts to the natural character are anticipated to be negligible and largely temporary as the areas cleared for the sling load and helispot sites will be naturalized by scattering any woody debris.

HELP – “Natural”

OUTSTANDING OPPORTUNITIES FOR SOLITUDE OR PRIMITIVE and UNCONFINED RECREATION: Explain how opportunities for visitors to experience solitude or a primitive and unconfined type of recreation will be protected or degraded. As appropriate, describe solitude, primitive recreation, and unconfined recreation separately:

Interference to outstanding opportunities for solitude and primitive recreation will occur as project personnel and associated stock will be observed along the South Fork Trail, Borner Meadows, access route to the Surveyor Tree, and the sling load location. Helispot preparation and tree extraction will be observed as up to three FS personnel and six stock are present along the South Fork Trail, Borner Meadows, the access route, and the sling load site. Additional personnel presence will be observed as up to

three WSFD HECMs are transported to Borner Meadows via helicopter, accompany the FS crew to the sling load site along the access route, back to Borner Meadows after the inscription-bearing midsection is extracted, and transported back to Cody, Wyoming via helicopter. Total time personnel, stock, and helicopter use will be observed will be 3 days. Refer to Table 3 - Project Logistics.

Utilizing aerial support will be the same as those analyzed in Alternatives 2 and 3, however, any interference from the aerial operations will occur at a time separate from the project's original implementation. The increased concentration of human and stock presence—both in sight and sound—within these areas will contrast with the surrounding semi-primitive and primitive wilderness settings. This contrast will be further amplified given that the project area lies approximately 23 miles from the nearest trailhead, meaning that visitors would anticipate and expect a wilderness experience in this location.

The contingency in its entirety will consist of a total of up to 8 personnel and 6 stock along the trails, camp, and the project location for up to 3 days (refer to Table 3 - Project Logistics), and helicopter use for a cumulative duration of one hour. Although this is below the group and livestock limit (20 people and 30 stock), the project will temporarily interfere with outstanding opportunities for solitude and primitive recreation character along the South Fork Trail, the non-Forest System trail spurring from the South Fork Trail leading to the Surveyor Tree location, the general Surveyor Tree area, and along the helicopter flight paths. Although livestock use is recognized as an allowable use in the wilderness, this activity will increase presence of people and stock along the trails leading to the project area. Additionally, although increased use along the South Fork Trail, Borner Meadows, and adjacent trails will remain within the prescribed semi-primitive wilderness recreation standard, it may nonetheless interfere with opportunities for solitude and primitive recreation, particularly during periods of low visitor use. This interference may be amplified along the access route and at the Surveyor Tree site, where primitive standards create the expectation of fewer social encounters.

HELP – “Outstanding Opportunities”

OTHER FEATURES OF VALUE: Explain any effects to features of scientific, educational, scenic, or historical value that are not accounted for in the above qualities, including cultural and paleontological resources that are integral to wilderness character:

Under this alternative, extracting the inscription-bearing midsection from the Wilderness to be preserved in an off-site controlled environment will preserve the inscriptions and prevent them from disappearing through the natural ecological processes. In addition,

under alternatives two and three, the inscriptions on the trees will be preserved utilizing 3D scanning technology which allows the ability to provide for electronic interpretation and education, such as touch screen exhibits or 3D reproduction of the inscriptions, enhancing the visibility, interpretation, and education will augment the connections visitors have with the historical events leading to current land management and connecting with the wilderness and associated character.

However, the Surveyor Tree, anchored in its current location, functions as a defining element of wilderness character by linking historic land surveying practices and the evolution of public land management. Removing the inscription-bearing midsection will compromise the contextual relationship with the Washakie Wilderness as the Surveyor Tree will no longer be a feature of value thus compromising the contextual significance it contributes to the area's natural and historical values.

HELP - Other Features of Value

② Mitigation Measures Help

Mitigation Measures

Examples of Mitigation Measures re: Untrammeled Quality

Examples of Mitigation Measures re: Undeveloped Quality

Examples of Mitigation Measures re: Natural Quality

Examples of Mitigation Measures re: Outstanding Opportunities for Solitude or Primitive Unconfined Recreation Quality

Examples of Mitigation Measures re: Other Features of Value Quality

Step 2: Alternatives Considered but Dismissed

What alternatives were considered but dismissed? [Why were they dismissed?](#)

[Explain:](#)

Create a 3D replica of the Surveyor Tree using scanning technology and leave the Surveyor Tree in wilderness

Under this alternative, the inscriptions on the Surveyor Tree would be preserved utilizing 3D scanning which increases the available options for interpretation and education, such as touch screen exhibits, and for the Surveyor Tree to be recreated in a 3D format. Replicating the Surveyor Tree would allow for an increase in display and interpretation, increasing the connection of visitors to the historical events leading to current land management and connecting with the Wilderness and associated character. The Surveyor Tree, anchored in its current location, functions as a defining element of wilderness character by linking historic land surveying practices and the evolution of public land management.

Although 3D scanning will preserve the inscriptions, the Surveyor Tree will continue to be exposed and vulnerable to the elements of nature, increasing the inevitable risks of irreparable damage or destruction by a catastrophic event, which would result in the loss of a piece of history. The alternative to 3D scan and not remove the inscription-bearing midsection was considered and discussed amongst the Working Group, composed of the Shoshone National Forest, Wyoming State Parks and Cultural Resources, the University of Wyoming, and the Wyoming State Museum. In these discussions, project partners stated that the Wyoming Legislature intended for the physical inscription-bearing midsection to be removed so that it could be preserved in a museum setting. While a digital replica could be used for interpretation, the main driver for the project was the preservation of the inscription-bearing midsection, given its historical significance and risk of loss. The 3D scan, first and foremost, serves as mitigation for the adverse effect of affecting an archeological site by removing the inscription-bearing midsection or potential damage during the extraction of the inscription-bearing midsection.

Utilize stock to transport the inscription-bearing midsection out of the wilderness

Three alternatives using pack stock to transport the Surveyor Tree's inscription-bearing midsection out of the wilderness were considered but dismissed due to safety concerns, as the weight of the section of the inscription-bearing midsection exceeds the weight capacity for stock. Direction from Wilderness Connect in the MRA FAQ page states that "the safety of Wilderness visitors and/or workers (agency personnel, partners,

volunteers, and/or contractors) is of utmost importance and must be a priority in every action taken... Only a hazard that can't be fully or reasonably mitigated should be considered a possible decision driver... If a safety concern can't be adequately mitigated and a decision to take action is made, then the decision might be justified on the basis of safety" (Wilderness.net, 2024).

Replicate the Surveyor Tree utilizing 3D scanning technology, remove inscription-bearing midsection utilizing crosscut or traditional skills, and transport out utilizing livestock/pack string.

After taking specific measurements and collecting data to determine the durability and weight of the Surveyor Tree's inscription-bearing midsection, it was determined that removing either the inscription-bearing midsection, or a cross-section slab of only the inscriptions is not a viable alternative. If the tree trunk (60" x 45") in its entirety was to be removed, it is estimated that the weight would range from 1,200 to 1,500 lbs. In order to safely utilize pack animals, the weight must be evenly distributed and not exceed a total of 400 lbs. In addition, segments of the route leading to the Surveyor Tree have been identified as high consequence travel, meaning that health and safety risks pose an imminent danger to both the livestock and the riders. When Forest Service personnel accessed the Surveyor Tree site to assess the tree and preparation work, they were forced to unload the mules to travel through sections of the access route due to a steep and narrow gully, and encountered other hazards such as steep sidehills, talus rock to cross, and multiple "pack knocker" trees on downhill side of trail. Even if pack stock could carry the weight of the inscription-bearing midsection, substantial trail tread work and trail prism widening would be needed. It is also highly unlikely that it would be possible to cut the inscription-bearing midsection down to a packable weight while maintaining all inscriptions and its structural integrity.

Replicate the Surveyor Tree utilizing 3D scanning technology, remove inscription-bearing midsection utilizing chainsaw, and transport inscription-bearing midsection out utilizing livestock/pack string.

The outcome under this alternative would be the same in that the weight of the inscription-bearing midsection is significantly higher than the weight threshold of the livestock, and in addition, trail conditions to the Surveyor Tree would expose both the livestock and riders to unnecessary health and safety risks.

Replicate the Surveyor Tree utilizing 3D scanning technology, remove inscription-bearing midsection utilizing chainsaw or crosscut saw/traditional skills, and transport inscription-bearing midsection out utilizing livestock/pack string.

Another option for removing the inscription-bearing midsection from the site is to carve out a 44" x 35" slab from the tree stump. The face cut would be oriented three inches

above and below the inscription, and six inches to the left and right of the inscription, resulting a slab weight ranging from 200 to 250 pounds. This alternative was dismissed because the weight cannot be evenly distributed onto the stock without splitting the inscription-bearing midsection in half and furthermore, the probability of the inscription-bearing midsection fracturing and breaking during handling due to the checks along the inscription face is extremely high.

Identify a Skid Landing Site

A skid landing site refers to a landing area optimized for helicopters with skids which allows for landing on unimproved, uneven, or soft surfaces. The purpose of a skid landing site is to land on rough terrain, in tight, high-elevation, or remote areas and includes full, "toe-in" (resting just the tips of the skids on a ridge), or hovering when the terrain is too steep or dangerous for full touchdown. A gravel bar along Younts Creek approximately 300 feet southeast of the Surveyor Tree was identified as a potential skid landing site. The area is 100 feet across, keeping the crew and helicopter safe from nearby snags. However, upon further evaluation, it was determined that there is no safe skid landing site due to uneven gravel and wind dynamics typical of high elevation environments. There was an attempted skid landing in 2013 during the Hardluck Fire at this approximate location, but due to extreme safety concerns the landing was not attempted again.

Utilize Forest Service HECMs

Forest Service employees possess a diverse array of skills that enhance operational efficiency, support the execution of a broad range of projects and duties, and reduce exposure to high-risk activities. This project requires personnel with multiple competencies, including certified sawyer qualifications, traditional tool proficiency, trail construction and maintenance capabilities, and HECM certification. Deploying individuals who hold these combined skills enables the formation of a self-sufficient crew of up to four personnel, thereby reducing overall exposure by eliminating the need for multiple trips.

The Type II helicopter assigned to this project is managed by the Wyoming State Forestry Division (WSFD), whose policies require the presence of WSFD-certified HECMs during all helicopter operations, regardless of whether Forest Service personnel also possess HECM certifications. Consequently, consideration of an alternative approach utilizing a small, multi-skilled Forest Service crew was dismissed, as it would not conform to established policy.

HELP - "Why Were They Dismissed?"

HELP - "Explain"

Step 2: Determination – What is the Minimum Activity?

Refer to the [MRAF instructions](#) before identifying the selected alternative and explaining the rationale for its selection.

Selected Alternative

Alternative 2, and if needed, Alternative 4 (contingency plan)

Alternative 2: 3D scan and collect data for potential future reproduction of the Surveyor Tree. Remove the inscription-bearing midsection from the Surveyor Tree utilizing a crosscut saw and transport out via helicopter.

Explain rationale for selection, including a comparison of the selected alternative with other alternatives:

Alternative 2 is the alternative that results in the fewest negative impacts to wilderness character while still meeting the need to extract the midsection of the Tree.

Alternative One (no action): The project in its entirety will not be implemented, which will not result in adverse impacts nor interference to wilderness characteristics. However, the other features of value may decline as natural processes continue to break down the inscriptions. Although preserving the Surveyor Tree in situ will continue to maintain the historical context of the area, the inscriptions will continue to be exposed and vulnerable to the elements of nature, increasing the inevitable risks of irreparable damage or destruction. This impact is further heightened in that the inscriptions will not be captured by 3D scanning.

Alternative Two (3D scanning and removal of Surveyor Tree's inscription-bearing midsection via crosscut saw and helicopter): The duration of this alternative is anticipated to be approximately 9.1 days, which includes packing support, mitigation of trail hazards, 3D scanning, project site prep, 4 helicopter flights and landings, and extraction of the inscription-bearing midsection to Boulder Basin Trailhead. Trail and project site work will utilize traditional skills, which will cause fewer negative impacts to undeveloped character and opportunities for solitude and unconfined recreation. However, Alternative 2 would likely result in negative impacts to all wilderness characteristics except untrammeled, and it is anticipated that each component would negatively impact opportunities for solitude and unconfined recreation. By comparison, Alternative 3 will have augmented impacts caused by chainsaw use, and Alternative 1 only has a potential negative impact to other features of value due to deterioration of the inscriptions due to natural processes.

Alternative Three (3D scanning and removal of Surveyor Tree's inscription-bearing midsection via chainsaw and helicopter): The duration of this alternative is anticipated to be approximately 8.1 days, which includes packing support, mitigation of trail hazards, 3D scanning, project site prep, 4 helicopter flights and landings, and extraction of the inscription-bearing midsection to Boulder Basin Trailhead. Utilizing chainsaws rather than traditional skills to mitigate trail hazards and to prepare the project site would result in additional negative impacts to undeveloped character and outstanding opportunities of solitude and unconfined recreation compared to Alternative 2. Alternative 3 would result in greater noise impacts during multiple phases, which would be observable in wider geographic area than Alternative 2 due to the use of the chainsaws. However, while the intensity of impacts to outstanding opportunities are greater in Alternative 3 than in Alternative 2 due to the noise produced by chainsaws, the overall duration of impacts to outstanding opportunities is less in Alternative 3 since crews and pack stock will be in the wilderness for one less day. By comparison, Alternative 1 only has a potential negative impact to other features of value due to deterioration of the inscriptions due to natural processes.

Alternative Four (contingency plan): Impacts from Alternative 4 will be created through the use of aerial support and the presence of project personnel and stock, of which impacts will be the same as Alternative 2 and 3, only observed at a separate time from the remainder of the project operations. Additional activities in Alternative 4 include additional ingress/egress of FS staff and WSFD HECMs to the helispot site and the sling load locations utilizing South Fork Trail and the access route.

Ultimately, although longer in duration, analysis in Step 2 suggests that Alternative 2 would have fewer impacts to wilderness character than Alternative 3. The use of chainsaws as proposed in Alternative 3 would prove to be more efficient with trail and site preparation work but would spatially interfere with the undeveloped character and outstanding opportunities for solitude in a larger noise-disturbance corridor. Utilizing traditional skills would reduce noise impacts.

Component	Alt 1: No action	Alt 2: 3D scan, remove Tree with crosscut and helicopter	Alt 3: 3D scan, remove Tree with chainsaw and helicopter	Alt 4: contingency plan should tree extraction be delayed
Trail crew travels to Surveyor Tree site, prepare helispot site, and mitigate trail hazards.	no impacts	Traditional skills	Chainsaw	N/A
3D Scan Crew is transported via stock to Tree site over two days: Day 1: Cabin Creek Trailhead to Purvis/Borner Meadows (base camp), Day 2: Base camp to Surveyor Tree site	no impacts	• Stock support • Utilize base camp	• Stock support • Utilize base camp	N/A
3D scan the Surveyor Tree and accompanying trees, validate data	no impacts	• Depart camp • 4-6 hours to scan 4 trees • Validate data	• Depart camp • 4-6 hours to scan 4 trees • Validate data	N/A
3D Scan Crew is transported back from site via stock over two days: Day 1: Tree site to base camp to validate data if not validated at Tree site Day 2: Base camp to Cabin Creek Trailhead	no impacts	• Depart for camp • Validate data (if unable to at trees' site)	• Depart for camp • Validate data (if unable to at trees' site)	N/A
Crew prepares tree felling site and sling load site	no impacts	Prepare sites utilizing traditional skills	Prepare sites utilizing chainsaws	N/A
Sawyers fell Surveyor Tree and prepare inscription-bearing midsection for transport	no impacts	• Prepare helispot • Prepare felling corridor • Fell Surveyor Tree • Utilize crosscut and primitive rigging	• Prepare helispot • Prepare felling corridor • Fell Surveyor Tree • Utilize chainsaws and rigging	N/A
Felling corridor, tree stump, and surrounding footprint is naturalized	no impacts	• Naturalize by scattering debris • Utilize traditional skills	• Naturalize by scattering debris • Utilize chainsaws	N/A

Remove inscription-bearing midsection from site via helicopter	no impacts	• High-level and low-level reconnaissance flights • Test landing at helispot site • Drop HECMs off at helispot site • Secure inscription-bearing midsection to longline • Helicopter transports inscription-bearing midsection to Boulder Basin TH	• High-level and low-level reconnaissance flights • Test landing at helispot site • Drop HECMs off at helispot site • Secure inscription-bearing midsection to longline • Helicopter transports inscription-bearing midsection to Boulder Basin TH	• High-level and low-level reconnaissance flights • Test landing at helispot site • Drop HECMs off at helispot site • Secure inscription-bearing midsection to longline • Helicopter transports inscription-bearing midsection to Boulder Basin TH • An additional trip is needed for FS crew to access Borner Meadows and escort WSFD HECMs to sling load location as a result of project delay.
Complete any remaining naturalization at the sling load site	no impacts	• Naturalize by scattering debris	• Naturalize by scattering debris	• Naturalize by scattering debris
FS Crew is packed back to trailhead, WSFD HECMs transported back to Cody, Wyoming	no impacts	• FS Crew transported back utilizing stock • Pick HECMs up at helispot site, fly back to Cody, Wyoming • Four helicopter flights in wilderness • Four helicopter landings in wilderness	• FS Crew transported back utilizing stock • Pick HECMs up at helispot site, fly back to Cody, Wyoming • Four helicopter flights in wilderness • Four helicopter landings in wilderness	• *FS Crew transported back utilizing stock • Pick HECMs up at helispot site, fly back to Cody, Wyoming • Four helicopter flights in wilderness • Four helicopter landings in wilderness

		Approximately 1 hour of flight time in wilderness	Approximately 1 hour of flight time in wilderness	Approximately 1 hour of flight time in wilderness *The FS crew is an additional crew as a result of the project delay.
Total Days	0	9.1	8.1	3.1
Total Personnel	0	17 staff, 24 stock	17 staff, 24 stock	8 staff, 6 stock*
Total Flights	0	4	4	4
Total Landings	0	4	4	4
Total Flight Time	0	1 hour	1 hour	1 hour
Range of Disturbance	0	Disturbance corridors created from helicopter along flight paths and multiple landings at sling load and helispot sites	- Disturbance corridors created from helicopter along flight paths and multiple landings at sling load and helispot sites - Cumulative disturbance corridors created from chainsaws along access route, Surveyor Tree site, sling load site, and helispot	- Disturbance corridors created from helicopter along flight paths and multiple landings at sling load and helispot sites - Additional project personnel present and observed in semi-primitive and primitive settings at a later time due to project delay.

Approved?	Prohibited Use	Quantity, Timing, Frequency, or Duration
☐	Mechanical Transport:	
☐	Motorized Equipment:	
☐	Motor Vehicles:	
☐	Motorboats:	
☐	Landing of Aircraft:	Four landings in wilderness, one hour of flight time (landings: Helispot inspection, deliver HECMs, longline, retrieve HECMs)
☐	Temporary Roads:	
☐	Structures:	
☐	Installations:	

Describe mitigation measures as well as monitoring and reporting requirements, if appropriate:

Synchronize all project components (trail work, 3D scanning, Tree extraction) to minimize time spent by work crews in wilderness and impacts to solitude.

Implement the project (hazard route mitigation, 3D scanning, tree felling preparation, tree felling, and inscription-bearing midsection extraction) during a time when Wilderness visitation use is low.

All trail hazard mitigation (logout, brushing, and tread work) will be to the minimum necessary to provide for safe travel on the route from the junction with the South Fork Trail to the Tree site.

Restore tree felling window and sling load sites. Scatter existing woody debris to restore a natural appearance and reduce any contrasting elements of form, line, color, and texture.

Utilize intersecting cuts on the tree stump to promote and accelerate natural decomposition and to minimize contrasting elements of line, form, color, and texture exhibited from the stump against the surrounding settings.

Wrap the inscription-bearing midsection with a protective cover prior to transport to minimize damage to the inscriptions.

Utilize webbing/netting to transport the inscription-bearing midsection out of the wilderness to minimize damage to the inscriptions.

HELP - "Explain Rationale for Selection"

Approvals

Project Title (from page 2):

Gallagher Surveyor Tree in Washakie Wilderness

Refer to agency policies for the following signature authorities:

Prepared by:

Paul Rau

Forest Outdoor Recreation Planner

Signature _____

Date _____

Reviewed by:

Casey McQuiston

Wapiti, Clarks Fork, Greybull District Ranger

Enter reviewer comments here.

Signature _____

Date _____

Reviewed by:

Kenneth W. Coffin

Shoshone Forest Supervisor

Signature _____

Date _____

Enter reviewer comments here.

Approved by:

Signature _____

Rocky Mountain Regional Forester

Date 7/15/26

Appendix A – Project Location Map

