National Forest Foundation

Building 27, Suite 3, Fort Missoula Road
Missoula, Montana 59804
TEL 406.542.2805
nationalforests.org

Request for Proposals
Pine Canyon Phase 2
Tonto National Forest, Arizona

Background and Statement of Work:

The Pine Canyon Phase 2 Restoration Project is located near the town of Pine, Arizona. Due to years of fire suppression, Pine Canyon exhibits extremely dense forests, posing an increased risk of high severity wildfire and subsequent detrimental impacts to water quality and post fire flooding impacts to the local community. The goal of the overarching Pine Canyon Restoration Project is to restore forest structure, increase overall forest and watershed health, and protect the primary watershed and community of Pine, Arizona. Phase 2 involves mechanical thinning, skidding, processing and hauling across 347 acres.

Information Requested

If interested in submitting a bid for this project, please provide a proposal for the above statement of work by providing:

- technical approach
- work experience
- cost
- capacity for this project
- experience in similar projects

Specific requirements are detailed below.

I. PROJECT OVERVIEW AND REQUIREMENTS

General Specifications

(a) Description of Work – This Request for Proposals is for restoration services related to forest restoration and hazardous fuels reduction, including the following:

1. Mechanical Thinning across 347 acres. Additional specifications are listed in Appendix E.II, F.II, and H.II.
    i. Cut, Skid, and Deck Sawtimber and Non-Sawtimber (9”+ DBH) across 169 acres.

ii. Cut, Skid, and Deck POL (6”-8.9” DBH Mixed Conifer) (6”-10” OK, 6”-14” JX) across 347 acres.
iii. Cut and Skid Biomass (0”-5.9” DBH/DRC & greater than 3’ in height) across 347 acres.
iv. Cut and Skid Shrub Species (0”-12” and greater than 3’ DBH/DRC) across 347 acres.

Processing and Removal across 347 acres. Additional specifications are listed in Appendix E.II, F.II, and H.II.

i. Process and Remove Sawtimber and Nonsawtimber (9“+ DBH). Total volume is estimated at 6,594 tons.
ii. Process and Remove POL (6”-8.9” DBH Mixed Conifer) (6”-10” OK, 6”-14” JX). Total volume is estimated at 2,535 tons.
iii. Process and Remove Biomass and Logging Slash from sawtimber, non-sawtimber, POL, and Shrub species removal (0”-5.9” DBH/DRC) and greater than 3’ in height). Total volume is estimated at 10,036 tons.

2. Landing Route Construction (4,200ft-6,000ft) on USDA Forest Service (USFS) land. Additional specifications are listed in Appendix D.II and E.II.
3. Road Maintenance on USFS land (23,577ft) and on private roads including Camp Lomia and Residential roads(5,800ft). Additional specifications are listed in Appendix D.II and E.II.
4. Close-Out of temporary roads on USFS land (2,500ft-4,600ft). Additional specifications are listed in Appendix E.II.
5. Skid Trail Building (1,500ft) and Skid Trail Decomissioning after removal of timber and biomass. Additional specifications are listed in Appendix E.II.
6. Contractor shall operate within accordance with all operating restrictions and protection measures included in project appendices.

The Contractor shall identify what they can supply in terms of materials, labor, equipment, supplies, supervision, quality control, and incidentals required to complete the work described. The Contractor shall perform all work in a safe and conscientious manner.

(b) Project Location – Work will be conducted on the Payson Ranger District of the Tonto National Forest in Gila County, as described in Appendix C.II Project Map. The project is located just north of (adjacent to) Pine, Arizona. The main access route is located via Pine Creek Canyon Drive, through Camp LoMia (Private Land).

(c) Work Schedule – Work may begin as early as October 1, 2024, following contract finalization and signature. It is expected work will be completed no later than February 28, 2025. Portions of the project area are constrained by seasonal Mexican Spotted Owl (MSO) restrictions and Camp Lomia private land access restrictions. Additionally, there will be no access at the below times:

- March 1 – September 1 annually (MSO LOP’s)
- March 1 – September 30 annually (Camp Lomia restrictions)
- 5pm – 7am daily
- Friday – Sunday during the month of October
- Sundays, holidays, or holiday weekends throughout the year
- The speed limit in the project area is 10mph.

Other Project Requirements and Specifications

(a) Utilities – In many locations there will be no or limited sanitation, water, electrical or housing services available. The Contractor shall make its own arrangements for temporary facilities if needed.

(b) Specifications – Project work shall be accomplished in accordance with the following:

a) Work and machinery shall be confined within project boundaries as indicated on the Project Map found in Appendix C.II.
b) Follow Schedule of Items and Specifications in Appendix E.II.
c) Contractor shall adhere to Timber Removal Specifications as described in Appendix F.II. and shall follow the Silvicultural Prescription of each unit as described in Appendix H.II.
d) Contractor shall adhere to the Guidelines for Operations in Appendix G.II.
e) Road and skid trail construction and maintenance shall be conducted in adherence with Appendix D.II and Appendix G.II.
f) All work shall be in accordance with all project appendices and other applicable local, state and/or federal regulations.

Insurance Requirements

Upon selection of the winning bid, the Contractor agrees that it has and shall maintain the following insurance coverage indicated below. The effective date of all coverage shall precede the start of any work.

a. State minimum workers' compensation insurance coverage for its employees, if any.

b. Broad form general liability, property damage, and automotive liability insurance in the minimum amount of $1,000,000 for bodily injury, death, or damage to property of any person and $2,000,000 for bodily injury, death, or damage to property of more than one person. The Contractor shall name NFF an Additional Named Insured and provide NFF with a certificate of insurance evidencing such coverages, prior to the initiation of the Scope of Services.

c. If the Scope of Services includes professional services as identified herein, Contractor shall also provide professional errors and omissions liability insurance. Professional services for purposes of this section include, but are not limited to performing architecture, engineering, landscape architecture, land surveying or planning, preparation and signing or stamping of drawings, maps, surveys or construction specifications, or design and development of computer software, programs or websites by the Contractor or by subcontractors on behalf of the Contractor, for which professional liability insurance would typically be required. The minimum coverage limits required are $1,000,000 for each claim and $1,000,000 annual aggregate.

Prohibited Telecommunications Services and Equipment

The Contractor is responsible for compliance with the prohibition on certain telecommunications and video surveillance services or equipment identified in 2 CFR 200.216.

Payment/Performance Security

Contractor shall post cash, a letter of credit, bond, or other financial security that is easily convertible into cash in a form acceptable to the NFF, in its sole determination, to assure completion of the work required under any subsequent agreement and payment of all amounts lawfully due to all persons supplying or furnishing to the Contractor or Contractor's subcontractors with labor, laborers, materials, rental machinery, tools or equipment used or to perform the work. Contractor may incorporate required associated costs into mobilization costs or other approved expenses.

a. Work that is classified as construction in accordance with the Miller Act or Little Miller Act or if required per conditions of the funding source, payment and performance bonding will be required in the full amount of any Agreement. For the purposes of this Request for Proposal, construction is defined as "any contract greater than $100,000 for the construction, alteration, or repair of any public building or public work where the federal government is the owner", or

b. If Contractor is not self-performing at least 85% of the total contract value or if the cost of materials is in excess of the larger of $100,000 or 50% of the contract total, payment and performance bonding will be required in the full amount of the agreement, or

c. If the value of the agreement is in excess of $250,000, Contractor will be required to post financial security in a form acceptable to the NFF in the amount of 5% of the total agreement value up to $250,000 in total financial security.

American Made Products. The work associated with this RFP is subject to Build America, Buy America Act. P.L. 117-58, Secs 70911-70917, and as such, domestic content procurement preference requires all iron and steel, manufactured products and construction materials used within the scope of this Agreement, be produced in the United States.

Federal Exclusion Verification

The selected Contractor will be required to affirm that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

Federal Flowdown Provisions

Flowdown Requirements: Any Agreement associated with this RFP may be subject to flowdown requirements under associated federal or state funding agreements, which are included and made part of by this reference.

II. REQUIRED COMPONENTS

Technical Proposal

Please provide a detailed technical approach to the work.

Contractor Qualifications

(a) Past Experience – Please provide a brief explanation of previous work experience with land management agencies.

(b) References – Please provide three professional references that can speak to past performance.

Pricing Schedule

Contractor shall price work according to the schedule below. Prevailing wages are required per conditions of funding sources. **Alternative proposals and bid schedules will be considered.**

	Task/Item	Units	Quantity	Per Unit Cost	Total Cost
2.1*	**Cut and Skid Sawtimber and Non-Sawtimber** (9"+DBH)	Acres	169	*N/A	*N/A
2.2*	**Process and Remove Sawtimber and Non-Sawtimber** (9"+DBH)	Tons	6,594	*N/A	*N/A
2.3*	**Cut and Skid POL** (6"-8.9" DBH Mixed Conifer) (6"-10" OK, 6"-14" JX)	Acres	347	*N/A	*N/A
2.4*	**Process and Remove POL** (6"-8.9" DBH Mixed Conifer) (6"-10" OK, 6"-14" JX)	Tons	2,535	*N/A	*N/A
2.5	**Cut and Skid Biomass** (0"-5.9" DBH/DRC and greater than 3' in height)	Acres	347		
2.6	**Cut and Skid Shrub Species** (0"-12" and greater than 3' DBH/DRC)	Acres	347		
2.7**	**Process and Remove Biomass and Logging Slash** (0"-5.9" DBH/DRC and greater than 3' in height) (Logging Slash from items 2.2 and 2.4) (Incidental volume from Item 2.6)	Tons (Plus Incidental Volume)	10,036		
2.8 ***	**Construction of Landing Routes*** (4,200' proposed by FS, alternative approach accepted, up to 6,000' total)	Feet	4,200-6,000		
2.9	**Construction and Decommission of Additional Skid Trails**	Feet	1,500		
2.10	**Close-Out of all temporary roads**	Feet	2,500-4,600		
2.11	**Maintenance of roads system (USFS Land)**	Feet	22,006		
2.12	**Maintenance of Private Roads (Camp Lomia and Residential (dirt) = 4,600', pavement = 1,200')**	Feet	5,800		
			Total Bid		

*2.1 – 2.4 are included in appraisal for total stumpage value. Contractor will receive gate payment for material of 2.1 – 2.4.

**Bid Price of Item 2. 7 should include the value of the product at the gate.

***Construction Landing routes may vary proposal by proposal. Bids will be on a per foot basis, and contractor will only be paid on agreed upon work completed/actuals.

Stumpage

	Task/Item	Units	Quantity	Min Bid	Your Bid	Total
2.11	**Sawtimber and Non-Sawtimber** (9"+DBH)	CCF	2,086	$0.25		
2.2	**POL** (6"-8.9" DBH Mixed Conifer) (6"-10" OK, 6"-14" JX)	CCF	738	$0.50		

III. SUBMISSION, EVALUATION, AND CONTACTS

Contractor Selection Process

This is a request for proposals only and bids furnished are not offers from the National Forest Foundation. This request does not commit the National Forest Foundation to pay any costs incurred in the preparation or submission of the proposal or to contract for supplies or services.

The NFF will use the Evaluation Factors below to review each submitted bid. Based on the outcomes of that selection process, the NFF will notify successful and unsuccessful bidders by July 24, 2024 and will prepare a separate contract document

Evaluation Factors and Relative Importance

The following criteria will be used in the evaluation of submitted proposals, ordered from highest weighting (level 3) to lowest weighting (level 1).

Level 3 Criteria
- Price / cost
- Equipment and contractor capability
- Timing of when contractor can begin and/or finish the project
- Past performance, references, and USFS feedback
- Timber Value/Stumpage

Level 2 Criteria
- Technical proposal / proposed approach to project
- Overall strategic benefits to meeting NFF goals and grant needs, requirements, and timelines

Level 1 Criteria
- Benefits to the local community
- Relationship to local community

National Forest Foundation

Building 27, Suite 3, Fort Missoula Road
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Point of Contact

Please submit any questions about the project in writing to the Point of Contact.

Caio Vissicaro
National Forest Foundation Northern Arizona Program Forestry Coordinator
cvissicaro@nationalforests.org

Responses will be shared with known interested parties by email or otherwise posted at https://www.nationalforests.org/rfp.

Bid Submission

Submit bids via email to cvissicaro@nationalforests.org by **July 10, 2024.**

Equal Opportunity Provider

In accordance with Federal law and U.S. Department of Agriculture policy, the National Forest Foundation is prohibited from discriminating on the basis of race, color, national origin, sex, age, religion, political beliefs, or disability.

Appendix B

NFF Funding Code: 1596052
NFF Funding Name: SA SPA Pine Canyon Restoration Project

Funder Agreement ID: 23-SA-11031200-042

Flowdown Provisions

U.S. FOREST SERVICE ACKNOWLEDGED IN PUBLICATIONS, AUDIOVISUALS AND ELECTRONIC MEDIA.

Award Recipient or Contractor shall acknowledge U.S. Forest Service support in any publications, audiovisuals, and electronic media developed as a result of this agreement.

COPYRIGHTING.

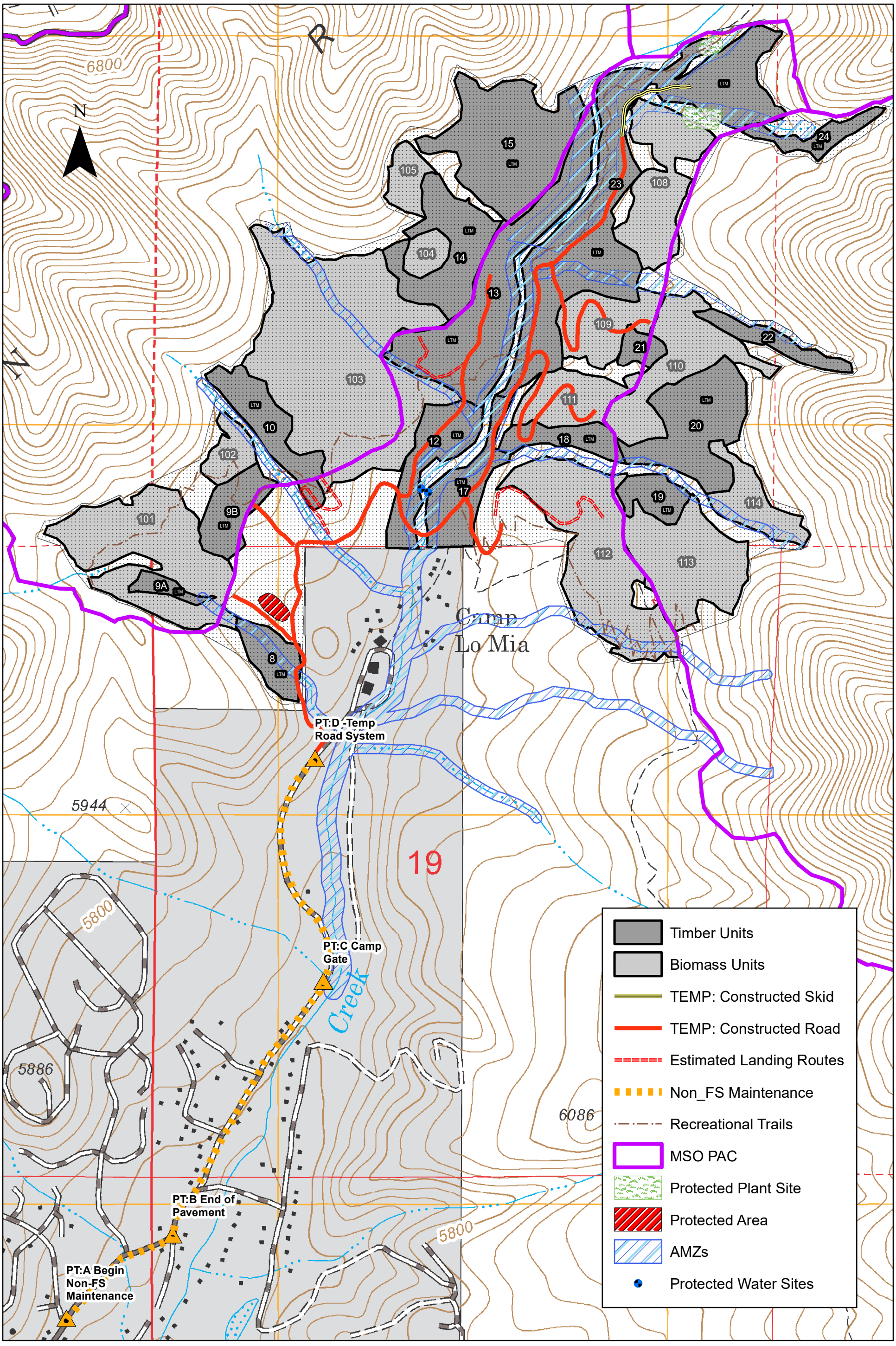
Award Recipient or Contractor is/are granted sole and exclusive right to copyright any publications developed as a result of this agreement. This includes the right to publish and vend throughout the world in any language and in all media and forms, in whole or in part, for the full term of copyright and all renewals thereof in accordance with this agreement. No original text or graphics produced and submitted by the U.S. Forest Service must be copyrighted. The U.S. Forest Service reserves a royalty-free, nonexclusive, and irrevocable right to reproduce, publish, or otherwise use, and to authorize others to use the work for Federal Government purposes. This right must be transferred to any sub-agreements or subcontracts.

This provision includes:

- The copyright in any work developed by Award Recipient or Contractor under this agreement.
- Any right of copyright to which Award Recipient or Contractor purchase(s) ownership with any Federal contributions.

APPENDIX C.II

PCRP: Phase 2
Preliminary Contract Area Map



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APPENDIX D.II
Additional Requirements
Pine Canyon Restoration Project Phase II

D.II.1 Protected Sites.
Operations must avoid all protected resource sites. These are labeled in Appendix C as "Protected Areas", and may be marked using painted white bands or can be flagged upon request.

D.II.2 Street Sweeping.
Contractor is required to periodically utilize street sweepers on the section of road covering 1,200' (PT. A – PT. B, as seen on Appendix C. During the operational period (October 1 – February 28) contractor is required to use a street sweeper **as needed after periods of high precipitation,** to clean public roads. More frequent cleaning may be required depending on how much mud and dirt is tracked into public roads. Contractor will be paid on a per day basis and will only be paid for work completed.

D.II.3 Water Truck.
During periods where the soil is dry the **Contractor** must provide dust abatement throughout the duration of phase II, both on Forest Service and private roads (~4,600' non-Forest Service). This is to avoid dust spreading into the surrounding community.

D.II.4 Temporary Road Building:
Landing routes 3, 4 and 5 shown in the project map (Appendix C) require construction by the **Contractor**, Additional stipulations for road construction are shown below and in Appendix G.

- Next to landing routes to be constructed (proposed by FS, alternative approaches accepted)

D.II.4.1 ESTIMATED TEMP ROADS AND FEATURES TRACKER

Pine Canyon Potential Temporary Road Tracker			
Feature Type	**Feature Name**	**UOM**	**Length/Area**
Landing Route	LR 3	Ft	*2000 ft
Landing Route	LR 4	Ft	*800 ft
Landing Route	LR 5	Ft	*1400 ft
TOTAL ESTIMATED LENGTH		Ft	*4,200 ft

*lengths are estimates and may vary from proposal to proposal, approved locations, actuals built and number of approved landings. Bids will be accepted on a per foot basis, and contractor will only be paid by actual units completed. Distances have been rounded up to the nearest 100 feet.

D.II.5 Plan of Operations for Roads
Annually, prior to start of operations, the **Contractor** will prepare a supplement to the Technical Proposal that shall include a schedule of proposed maintenance and construction progress and a description of planned measures to be taken to provide erosion control for work in progress, including special measures to be taken on any segments of construction not substantially completed prior to periods of seasonal precipitation or runoff. It is expected that Contractor shall use the best available information to check for weather events and have erosion control in place (site wide) prior to said event. The **Contractor** shall submit a revised schedule when they propose a significant deviation from the progress schedule. Prior to beginning construction on any portion of specified roads, the parties shall agree (in writing) on the proposed method of construction and maintenance.

D.II.6 Temp Roads to Landings
Location of Temporary roads to future landing locations shall be agreed upon prior to their construction. No roads shall be constructed within the MSO PAC's as seen on Appendix C, and all roads must be agreed upon in writing, prior to construction. The future site of the landings shall be located on as flat ground as practical, on areas on convex ground with a slight slope away from run-offs or drainages.

D.II.7 Arches and Dozer Blades

Skidding tractors equipped with pull-type arches or dozer blades wider than tractor width or C-frame width, whichever is greater, shall not be used in residual timber outside clearcutting units and other authorized clearings, except on constructed tractor roads or landings, unless there is written agreement that residual timber will not be damaged materially by such use.

D.II.8 Erosion Control Structure Maintenance

During the period of this SPA, **Contractor** shall provide maintenance of soil erosion control structures constructed by **Contractor** until they become stabilized, but not for more than one year after their construction.

APPENDIX E.II
SCHEDULE OF ITEMS
AND
SPECIFICATIONS
PINE CANYON RESTORATION PROJECT PHASE 2

E.II. SCHEDULE OF ITEMS:

Item Number	Description	Unit of Measure	Quantity
2.1*	Cut, & Skid Sawtimber & Non-Sawtimber (9"+ DBH)	Acres (ac)	169
2.2*	Process & Remove Sawtimber and Non-Sawtimber (9"+ DBH)	Tons (t)	6,594
2.3*	Cut & Skid POL (6" – 8.9" DBH Mixed Conifer) (6"-10" OK, 6"-14" JX)	Acres (ac)	347
2.4*	Process & Remove POL (6" – 8.9" DBH Mixed Conifer) (6"-10" OK, 6"-14" JX)	Tons (t)	2,535
2.5	Cut, & Skid Biomass (0" – 5.9" DBH/DRC & greater than 3' in height)	Acres (ac)	347
2.6	Cut, & Skid Shrub Species (0" – 12" and greater than 3' DBH/DRC)	Acres (ac)	347
2.7**	Process & Remove Biomass & Logging Slash (0" – 5.9" DBH/DRC and greater than 3' in height (Logging Slash from items 2.2 & 2.4)) + Incidental volume from Item #2.6 (Shrub Species)	Tons (t)	10,036 + Incidental Volume
2.8***	Construction of Landing routes (roads - may vary)	Feet (ft)	EST. 4,200'-6,000'
2.9	Construction and decommission of additional skid trails	Feet (ft)	1,500'
2.10	Close-Out of all temporary roads	Feet (ft)	EST. 2,500'-4,600'
2.11	Maintenance of roads system (USFS land)	Feet (ft)	23,577
2.12	Maintenance of Private Roads (Camp Lomia and Residential (dirt) = 4,600', pavement = 1,200')	Feet (ft)	5,800

*Included in appraisal for total stumpage value. Contractor will receive gate payment for material of 2.1 – 2.4. Contractor may trade services in lieu of stumpage cash payment.

**Bid Price of Item 2. 7 should include the value of the product at the gate.

***Construction Landing routes may vary proposal to proposal. Bids will be on a per foot basis, and contractor will only be paid on work completed/actuals.

SPECIFICATIONS:

E.II.2.1 CUT AND SKID SAWTIMBER AND NON-SAWTIMBER (9" + DBH)

Item Number 2.1- Cut, skid, and deck designated saw timber and non-sawtimber products on **169 acres**. Estimated **6,594 green tons.**

GENERAL SPECIFICATIONS
Scope of Work: This stewardship project work item requires that designated merchantable trees in all harvest units be cut and whole tree yarded to an agreed upon landings as a ground-based logging operation. Deck merchantable material for removal at agreed upon landings. No merchantable decked material will remain on US Forest Service lands for longer than **30 days** from when the tree(s) was/were cut, unless agreed upon in writing with NFF in coordination with the Forest Service. Boundary and leave trees marked in orange paint will not be cut. **Any and all acres that are estimated to NOT be cut due to slope or access shall be included in proposal, including the estimated area (in acres) and location.** See F.II.5 Cutting Unit Table for a table of harvest units listing acres.

Specifications: See Appendix F for specifications regarding both merchantable tree specifications and tree designation for cutting by harvest unit. See Appendix F.II and G.II for operation guidelines, specifications and conduct of logging requirements.

E.II.2.2 PROCESS AND REMOVE SAWTIMBER AND NON-SAWTIMBER (9" + DBH)

Item Number 2.2- Process and remove designated sawlog, non-sawlog, and product other than log products on **169 acres**. Estimated **6,594 green tons**.

GENERAL SPECIFICATIONS
Scope of Work: This stewardship project work item is to process and transport unscaled merchantable products from the Stewardship Project Area to an approved Scaling location and then on to a processing facility. The estimated volume is 6,594 green tons of sawtimber and non-sawtimber products 9" DBH and greater. No merchantable decked material will remain on US Forest Service lands for longer than **30 days** from when the tree(s) was/were cut, unless agreed upon in writing with NFF in coordination with the Forest Service.

Specifications: See Appendix F.II for detailed weights and Appendix G.II for accountability specifications.

E.II.2.3 CUT AND SKID PRODUCT OTHER THAN LOG (POL) (6"-8.9" DBH MIXED CONIFER, 6"-10" DRC OAK, & 6"-14" DRC JUNIPER)

Item Number 2.3- Cut, skid, and deck designated POL products on **347 acres**. Estimated **2,535 green tons**.

Scope of Work: This stewardship project work item requires that designated POL trees (6' – 8.9" DBH Mixed Conifer, 6" – 10" DRC Evergreen Oaks, & 6" – 14" DRC Juniper Species) in all harvest units be cut and whole tree yarded to an agreed upon landings as a ground-based logging operation. Deck merchantable material for removal at agreed upon landings. No merchantable decked material will remain on US Forest Service lands for longer than **30 days** from when the tree(s) was/were cut, unless agreed upon in writing with NFF in coordination with the Forest Service. Boundary and leave trees marked in orange paint will not be cut. **Any and all acres that are estimated to NOT be cut due to slope or access shall be included in proposal, including the estimated area (in acres) and estimated location.** See F.II.5 Cutting Unit Table for a table of harvest units listing acres.

Specifications: See Appendix F.II for detailed volumes and Appendix G.II for accountability specifications.

E.II.2.4 PROCESS AND REMOVE PRODUCT OTHER THAN LOG (POL) (6"-8.9" DBH MIXED CONIFER, 6"-10" DRC OAK, & 6"-14" DRC JUNIPER)

Item Number 2.4- Process and remove designated POL products on **169 acres**. Estimated **2,535 green tons**.

GENERAL SPECIFICATIONS
Scope of Work: This stewardship project work item is to process and transport unscaled merchantable products from the Stewardship Project Area to an approved Scaling location and then on to a processing facility. The estimated volume is 2,535 green tons of POL (6' – 8.9" DBH Mixed Conifer, 6" – 10" DRC Evergreen Oaks, & 6" – 14" DRC) Juniper Species. No merchantable decked material will remain on US Forest Service lands for longer than **30 days** from when the tree(s) was/were cut, unless agreed upon in writing with NFF in coordination with the Forest Service.

Specifications: See Appendix F.II for detailed volumes and Appendix G.II for accountability specifications.

E.II.2.5 CUT AND SKID BIOMASS

Item Number 2.5- Cut, skid, and pile designated biomass on **347 acres**. Estimated **10,036 green tons**.

Scope of Work: This stewardship project work item requires that designated Biomass (0" – 5.9" DBH/DRC and greater than 3' in height) in all harvest units be cut and whole tree yarded to an agreed upon landings as a ground-based logging operation. Pile merchantable material for removal at agreed upon landings. No piled material will remain on US Forest Service lands for longer than **30 days** from when the tree(s) was/were cut, unless agreed upon in writing with NFF in coordination with the Forest Service. Boundary and leave trees marked in orange paint will not be cut. **Any and all acres that are estimated to NOT be cut due to slope or access shall be included in proposal, including the estimated area (in acres) and location.** See F.II.5 Cutting Unit Table for a table of harvest units listing acres.

Specifications: See Appendix F.II for specifications regarding tree designation for cutting by harvest unit. See Appendix F.II and G.II for operation guidelines, specifications and conduct of logging requirements.

E.II.2.6 CUT AND SKID SHRUB SPECIES

Item Number 2.6- Cut, skid, and pile designated Shrub Species on **347 acres**. Estimated Incidental Volume.

Scope of Work: This stewardship project work item requires that all Shrub Species (Manzanita and Shrub Live Oak) (0" – 12" DRC and greater than 3' in height) in all harvest units be cut and whole tree yarded to an agreed upon landings as a ground-based logging operation. Pile material for removal at agreed upon landings. No piled material will remain on US Forest Service lands for longer than **30 days** from when the tree(s) was/were cut, unless agreed upon in writing with NFF in coordination with the Forest Service. Boundary and leave trees marked in orange paint will not be cut. **Any and all acres that are estimated to NOT be cut due to slope or access shall be included in proposal, including the estimated area (in acres) and location.** See F.II.5 Cutting Unit Table for a table of harvest units listing acres.

Specifications: See Appendix F.II for specifications regarding tree designation for cutting by harvest unit. See Appendix F.II and G.II for operation guidelines, specifications and conduct of logging requirements.

E.II.2.7 PROCESS AND REMOVE BIOMASS, LOGGING SLASH, AND SHRUB SPECIES

Item Number 2.7- Process and remove designated biomass and logging slash on **347 acres**. Estimated **10,036 green tons** + incidental volume of shrub species.

GENERAL SPECIFICATIONS

Scope of Work: This stewardship project work item is to process and transport unscaled biomass, logging slash, and shrub species from the Stewardship Project Area to an approved Scaling location and then on to a processing facility. The estimated volume is 10,036 green tons of 0" – 5.9" DBH/DRC Mixed Conifer, Evergreen Oak, Juniper, and an estimated incidental volume of Shrub Species (Manzanita and Shrub Live Oak). No piled material will remain on US Forest Service lands for longer than **30 days** from when the tree(s) was/were cut, unless agreed upon in writing with NFF in coordination with the Forest Service.

Specifications: See Appendix F.II for detailed volumes and Appendix G.II for accountability specifications.

E.II.2.8 CONSTRUCTION OF LANDING ROUTES

Item Number 2.8- Construct additional landing routes between estimated between 3,900' and 6,000' that are contained in the submitted proposal. Locations must be agreed upon in writing prior to construction. Contractor will be paid on completed work, and actuals may vary from estimates.

E.II.2.9 CONSTRUCTION AND DECOMISSION OF ADDITIONAL SKID TRAILS

Item Number 2.9- Construct and decommission skid trails where rough terrain dictates necessity. **Estimated at 2,000 feet.**

GENERAL SPECIFICATIONS

Scope of Work: This stewardship project work item is to construct skid trails in rough terrain that normal skidding operations are not possible for removal of material in Stewardship Project Area. Locations where normal skidding operations are not possible (I.E. large boulders, steep slopes, etc.) and alternate routes do not exist, additional ground work may be needed. These locations will be proposed by the contractor and approved by NFF in coordination with USFS before work begins. Once constructed skid(s) is/are in place, all erosion control measures will be instituted during operations. When constructed skid trails are no longer needed to complete items of work, skid trails will be decommissioned in accordance with USFS T-Specs and inspected/approved by contract administration upon completion.

Specifications: See Appendix G.II for accountability specifications.

E.II.2.10 CLOSE-OUT OF ALL TEMPORARY ROADS

Item Number 2.9-close-out of all temporary roads.

Scope of Work: This stewardship project work item is for the close-out of up to **TBD** feet of temporary haul roads to facilitate moving merchantable products and biomass to haul routes. During operations, constructed temporary roads must be maintained to facilitate logging operations and maintain erosion control measures. After logging operations are completed, all temporary roads must be maintained in accordance with USFS T-Specs and erosion control measures must be in place. When temporary roads are no longer needed for operations, all temporary roads will be closed-out following specifications in appendix G.II. Coordination with NFF throughout the entire project is critical, as a main goal is to closeout all temporary roads that will not be used in Phase III operations.

Specifications: See Project area map for proposed temporary road locations and Appendix G.II for maintenance, erosions control, and close-out specifications and conduct of logging requirements.

E.II.2.11 MAINTENANCE OF ENTIRE ROADS SYSTEM ON FEDERAL LAND (USFS LAND),

Item Number 2.11-Maintenance of entire road system (USFS land).

Scope of Work: This stewardship project work item is for the maintenance of the entire temporary road system on USFS property, including temporary haul roads to facilitate moving merchantable products and biomass to haul routes. During operations, constructed temporary roads must be maintained to facilitate logging operations and maintain erosion control measures. After logging operations are completed, all temporary roads must be maintained in accordance with USFS T-Specs and erosion control measures must be in place. When temporary roads are no longer needed for operations (including Phase III), all temporary roads deemed as not needed for Phase III operations, will be closed-out following specifications in appendix G.II. Coordination with NFF throughout the entire project is critical, as a main goal is to closeout all temporary roads that will not be used in Phase III operations.

Specifications: See Project area map for proposed temporary road locations and Appendix G.II for maintenance, erosions control, and close-out specifications and conduct of logging requirements.

E.II.2.12 MAINTENANCE OF ROADS SYSTEM ON PRIVATE LAND (CAMP LOMIA & RESIDENTIAL)

Item Number 2.12-Maintenance of the (dirt) road system through Camp LoMia (PT. C – PT. D on Appendix C, PCRP: Phase 2 Preliminary Contract Area Map, ~2,100' of dirt road), including a section of privately owned road from PT. C – PT. B on Appendix C (`2,500' of dirt road) the entrance (~5,255' of private), and street sweeping as needed from PT. B to PT. A on Appendix C (1,200' pavement).

Scope of Work: This stewardship project work item is for the maintenance on portions of the private road system, including ~4,600' of private (dirt) road, and street sweeping ~1,200 of Gila county "Pine Canyon Creek road" as

needed. The temporary haul roads shall be maintained to facilitate “normal” street traffic, and moving merchantable products and biomass to haul routes. During operations roads must be maintained to facilitate logging operations and maintain erosion control measures. After logging operations are completed, this section of private road shall be left in as good or better condition than it was prior to use.

Specifications: See Project area map for road locations and Appendix G.II as a guide for maintenance, and erosion control.

APPENDIX F.II
Timber Removal Specifications
Pine Canyon Restoration Project Phase II

F.II.1 LOCATION AND AREA			
This Stewardship Project Area of:	347	Acres located in:	T 12N, R9E, Sec. 13, 17, 18, 19, & 24 G&SRBM

F.II.2 Utilization Table

This Stewardship Project Area of:	347	Acres					
				Merchantable Tree			
Species	**Product**	**Estimated Quantity**	**Unit of Measure**	**DBH & DRC** ***(inches)***	**Number of Minimum Pieces per Tree**	**Length** ***(feet)***	**Diameter Inside Bark at Small End** ***(inches)***
Mixed Conifer Sawtimber 12+" (WF, DF, PP)	Sawtimber	5,498	Ton	12	1	10	6.0
Mixed Conifer Non-Sawtimber 9-11.9" (WF, DF, PP)	Non-Sawtimber	1,096	Ton	9	1	10	4.0
POL 6-8.9" (PP, DF, WF) 6-10" OK, 6-14" JX)	Product Other Than Log	2,535	Ton	6	1	10	2.0
Biomass 0-5.9" (PP, DF, WF, OK, JX) + All Logging Slash	Biomass	10,036	Ton	N/A	N/A	N/A	N/A
Shrub Species	Biomass	Incidental	Ton	N/A	N/A	N/A	N/A
Total Quantity		**19,165**					

F.II.3 UTILIZATION AND REMOVAL OF INCLUDED TIMBER

"Utilization Standards" for trees and minimum pieces are stated in F.II.2. To meet minimum tree specifications, trees must equal or exceed tree diameters listed in F.II.2 and contain at least one minimum piece. Except for timber required or authorized to be left, **Contractor** shall fell and buck such trees and shall remove from Project Area and present for Scaling all pieces that:

- Meet minimum piece standards in F.II.2 or
- Do not meet such standards, but would have qualified as part of minimum pieces if bucking lengths were varied to include such material

F.II.4 STUMP HEIGHTS

See also G.II.14. guidelines for Operations

Species	Product	Maximum Stump Height (inches)*
PP, DF, WF	Sawtimber, Non-Sawtimber	12
PP, DF, WF	POL, Biomass	6
OK, JX	All	6

F.II.5 CUTTING UNIT TABLE

Timber Units		Biomass and POL Units	
Cutting Unit Number	**Acres**	**Cutting Unit Number**	**Acres**
8	5	101	23
9A/B	8	102	4
10	8	103	51
12	9	104	3
13	24	105	4
14	12	108	14
15	22	109	9
17	8	110	14
18	5	111	8
19	4	112	25
20	15	113	16
21	2	114	7
22	4		
23	39		
24	4		
Totals	**169**		**178**

* No unit 16, 106, or 107.

F.II.6 TIMBER DESIGNATIONS Timber designated for cutting shall be confined to the Stewardship Project Area. No undesignated timber shall be cut without prior notification to and approval of the Forest Service. Prescriptions/timber designations are included later in this subsection.

Designations	Unit Number	Acres
Leave Tree Marking	8-15 17-24	169
Designation by Description	All	347

* Leave Tree Marking Consists of ORANGE Tracer Paint on all Sawtimber, Non-Sawtimber, and Conifer POL trees.
* All Oak, Juniper, and Biomass and some POL are Designation by Description. See F.II.8.2 for detailed specifications.

F.II.7 CUTTING UNIT BOUNDARY DESIGNATION The boundaries of cutting units are designated as shown in the following table. The trees used for boundary designation are not to be cut.

Cutting Unit	Paint Color	Designation
ALL	Orange	Two horizontal bands of orange paint ¾ of the way around the bole (or around the entire bole when adjacent boundaries exist), near DBH, facing into the cutting unit, with two orange vertical stump marks facing the direction of the adjacent boundary trees. Three horizontal bands of orange paint designate cutting unit boundary corners.

F.II.8 TREE DESIGNATION/PRESCRIPTIONS

F.II.8.1- Individual Tree Marking- Leave Tree Designation. In cutting units 8-15 and 17-24, as shown on the Project Area Map (PAM), all live conifer trees meeting minimum tree diameter specifications of F.II.2 are designated for cutting except trees reserved from cutting. Trees reserved from cutting have been marked with

ORANGE tracer paint. No trees with ORANGE tracer paint shall be cut.

F.II.8.2- Designation by Description (DxD). Within all cutting as shown on the PAM, the following criteria shall be used by **Contractor** to designate trees and other products for cutting and removal:

(a) See F.8.3.1 Cutting Unit Guide for specifications. The Project Administrator and NFF will continuously monitor progress. Based upon (the Forest Service or) NFF inspection plots and/or visual inspections, the Project Administrator will immediately notify NFF when adjustments in cutting selection are necessary.

(b) Additional trees to be cut, if any, may be marked by Forest Service or NFF with BLUE tracer paint

(c) Cutting unit boundaries and other trees that shall be left uncut are marked by Forest Service or NFF with ORANGE tracer paint (Boundary trees are marked as described in F.8).

F.II.8.3 Cutting Unit Guide

Cutting Unit	Acres	Product	Method	Description
8-15 & 17-24	169	Sawtimber 12"+ DBH Mixed Conifer	LTM	Orange Tracer Paint
		Non-Sawtimber 9" - 11.9" DBH Mixed Conifer		
		POL 6"-8.9" DBH Mixed Conifer 6"-10" DRC OK & 6"-14" DRC JX		
		Biomass 0"-5.9" DBH Over 3' in Height Mixed Conifer	LTM	Orange Tracer Paint
		POL 6"-10" DRC OK & 6"-14" DRC JX	DXD	See Notes and Unit Prescription
		Biomass 0"-5.9" DBH Over 3' in Height OK and JX	DXD	See Notes and Unit Prescription
		Shrub Species 0"-12" DRC and Over 3' in Height Manzanitta and Scrub Live Oak	DXD	See Notes and Unit Prescription
101-114	178	POL 6"-8.9" DBH Mixed Conifer 6"-9" DRC OK & 6"-9" DRC JX	DXD	See Notes and Unit Prescription
		Biomass 0"-5.9" DBH Greater Than 3' in Height Mixed Conifer	DXD	See Notes and Unit Prescription
		Biomass 0"-5.9" DBH Greater Than 3' in Height OK and JX	DXD	See Notes and Unit Prescription
		Shrub Species 0"-12" DRC and Over 3' in Height Manzanitta and Scrub Live Oak	DXD	See Notes and Unit Prescription

*In **Units 8-15 & 17-24**, all conifer trees designated for retention are marked with orange tracer paint. All other conifer trees not marked with orange tracer paint are designated for removal.

*In **UNITS 8-15 & 17-24**, all evergreen oaks and juniper species are designated for removal by the following description.

*All evergreen oaks from 0" - 10" Diameter Root Collar and 3' in height or greater will be removed.

*All juniper species from 0" – 14" Diameter Root Collar and 3' in height or greater will be removed.

*In **UNITS 101-114,** all trees designated for removal are designated by the following description.

*All evergreen oaks from 0" - 9" Diameter Root Collar and 3' in height or greater will be removed.

*All juniper species from 0" – 9" Diameter Root Collar and 3' in height or greater will be removed.

*POL (6"-8.9" DBH Mixed Conifers) will be designated by the unit prescription (See F.II.9 for DXD unit

criteria)

*In **ALL UNITS**, no Gambel Oak will be cut.

*In **ALL UNITS**, no Riparian Species will be cut.

*In **ALL UNITS**, no Pinyon Pine will be cut.

F.II.9 ACCEPTANCE OF WORK

In Designation by Description cutting units (101-115) the following prescription table will be used as inspection criteria and will be evaluated by NFF and USFS by post cutting plot based inspections before payment is released.

Pine Canyon DxD Unit Inspection Criteria

Units	Residual Spacing	Diameter Cap	Maximum Opening in Brushy Areas	Mandatory Leave Trees
101-105	15-25ft [1,2,3]	9 Inches DBH/DRC[4]	Openings over 1/2 acre need 1 small patch per ½ acre	Riparian and Gambel Oak
108-109	20-30ft [1,2,3]			
110	15-25ft [1,2,3]			
111-112	20-30ft [1,2,3]			
113	15-25ft [1,2,3]		No Maximum Size	

[1] Ensure use of entire spacing range. IE There should be just as many trees 15 ft apart. as 25 ft. apart.
[2] There are situations were spacing cannot be achieved. IE: 3 trees, each 14 ft. apart offers no solution which meets prescription. Operator should use best judgment considering tree form/species.
[3] Presence of trees 9 inches and larger will result in areas where spacing is below minimum.
[4] for clumps of DRC species, utilize the largest stem's diameter to determine diameter cap. The entire clump should be retained or cut

Size Preference	Leave Tree Species Preference	Tree Species	Tree Spacing (bole to bole)
Leave the best available trees (tallest trees with the best tree form and highest crown ratio)	1	Ponderosa pine - **without visible mistletoe infection**	15-25 ft.
	2	Douglas-Fir	
	3	Evergreen Oak (White & Emory)	
	4	Juniper species	
	5	Ponderosa Pine **with mistletoe infection**	
	6	White fir	

***See Appendix H for individual unit prescriptions.**

F.II.10 CONTROL OF OPERATIONS

F.II.10.1 TIMING OF CONTRACT OPERATIONS

Unless otherwise agreed to in writing, **Contractor** operations shall be performed in accordance with the following table and as designated on the PAM.

TIMING OF OPERATIONS		
Cutting Unit	**Operation Condition**	**Purpose**

ALL	No operations allowed within Northern Goshawk Habitat between March 1st and September 30th. (See project area map and F.11.5?)+	Protection of Northern Goshawk
ALL	No operations allowed within Mexican Spotted Owl Habitat between March 1st and August 31st. (See project area map and F.11.5)*	Protection of Mexican Spotted Owl
ALL	If hauling will occur 2 hours prior to sunrise or after sunset Within the sale area the speed limit is 15 mph. (I.3.2.2) between March 1st and August 31.	Hauling speed limit during MSO breeding season for bird safety
All Cutting Units	No operations allowed on the major federal holidays and holiday weekends; Memorial Day, July 4th, and Labor Day unless with written waiver approval by the Forest Service.	Safety and High Use Recreation
Access	No access through Camp Lo Mia from May 15th – August 15th. No access through Camp Lo Mia on all Sundays, major federal holidays and holiday weekends; Memorial Day, July 4th, and Labor Day unless with written waiver approval. No access through Camp Lo Mia from 5pm to 6am. All vehicles shall drive at 10 mph or less on Camp Lo Mia property. No access through Camp Lo Mia from Friday through Sunday for the month of October.	Protection of Private Land (USFS and Camp Lo Mia Access Agreement)

+If the District determines through surveys that goshawks are not nesting the year of a proposed activity or locates a nest and is able to buffer the breeding birds from noise throughout the breeding season, then this restriction would not apply or be adjusted in coordination and agreement of the USFS district biologist. Coordination with the District biologist regarding determinations of nesting status and buffers is required for these activities to occur in a PFA.

*If the District determines through protocol surveys that spotted owls are not nesting the year of a proposed activity or locates a nest and is able to buffer the breeding owls from noise throughout the breeding season, then this restriction may not apply after coordination and approval with the district wildlife biologist and US Fish and Wildlife Service.

F.II.10.2 CONDUCT OF LOGGING

Unless otherwise agreed to in writing, Silvicultural prescriptions and land management objectives shall be conducted and accomplished by the requirements, methods and procedures in accordance with the following table.

CONDUCT OF LOGGING	
TABLE-A	
Cutting Units	**Conduct of Logging**
ALL	1. Trees shall be felled, insofar as safety permits, to angle in the direction of skidding. (BT6.4)

ALL	2. Logs shall be skidded with the leading end free of the ground. (BT6.4)
ALL	3. Purchaser's Operations shall be conducted reasonably to minimize soil erosion. Equipment shall not be operated when ground conditions are such that excessive damage will result. (BT6.6) Skid trails allow up to 6 inches of rutting over no more than 15 percent of length of skid trail. Landings and within 75 feet of landings, rutting depths greater than 10 inches will not be allowed. Rutting on an unsurfaced road will not exceed 8 inches depth for more than 75 linear feet or 10% of road length, whichever is shorter. Rutting in excess of 3 inches depth will not be permitted on surfaced collector or arterial roads. For any other locations within a sale area, if wheel tracks or depressions consistently exceed 2 inches then conditions are too wet to operate in these areas.
ALL	4. Purchaser shall remove from National Forest administered lands products meeting utilization standards within 30 calendar days after felling of trees, unless written authorization to delay such removal is obtained from DFFM in conjunction with the Forest Service. (BT6.4)
ALL	5. The maximum overall width of tractors (rubber-tired and/or track-laying) shall be less than 12 feet. (BT6.4)
ALL	6. Trees designated for cutting and/or logs will be left as rub trees along skid trail corridors as needed to protect young growth and leave trees. Rub trees will be removed upon close-out of skid trail.
ALL	7. Log landings and transfer points shall be limited to existing roads and turnouts unless otherwise agreed to in writing.
ALL	8. To prevent the spread of disease and aquatic invasive species, the contractor shall adhere to the following: All contractor equipment including log trucks, chip cans, service vehicles, water trucks, pickup trucks, cars, trailers, and similar vehicles entering the sale area for the first time, must be clean or completely dry and are subject to inspection by sale administration. If any equipment enters a body of water within the sale area and leaves the sale area, other than the haul route, the equipment must be clean or completely dry before re-entering the sale area. Body of water is defined as any AMZ identified on the contract map with water in it at the time of operation.
ALL	9. Notwithstanding above, hand felling using chainsaws may be required in or adjacent to sensitive areas to protect resources from unnecessary damage.
ALL	10. Harvesting activites would avoid National and forest system trails, if possible. If it is determined necessary to skid across (perpindciularly) a trail, then the trail would be restored to USFS standards (pre-project condition) post-treatment, as much as pratical.
ALL	11. All piles of material from operations must be removed from Forest Service Lands prior to March 1.
ALL	13. Purchaser operations shall include dust abatement considerations agreed upon with NFF and Gila County while operating on county roads.

F.II.10.3 EROSION CONTROL

Where other erosion control measures described in G.22 will not result in satisfactory control of soil movement, **Contractor** will seed areas where the seedbed has been degraded on skid trails, landings, firebreaks, and temporary roads. Seedbed preparation shall consist of surface scarification on roads and landings sufficient for retention of seed, where mutually agreeable. Scarification shall be done to a depth of not less than 4 inches.

Where applicable, seed shall be broadcast evenly at the of **14 pounds of seed per acre**. Application should be during the period of **April 15 to November 30** unless otherwise approved. No application work shall be done during extremely windy or rainy weather, or when the ground is frozen or otherwise unsuitable. Seeding shall be done no more than **15 days** after erosion control work is completed.

The kinds of amounts of seeds to be sown in terms of live pure seed shall be:

EROSION CONTROL SEEDING		
Species of Seed	***Percent of Mix***	***Lbs per Acre***
Sideoats grama	15	2
Blue grama	20	3
Squirrel tail grass	50	7
Green sprangeltop	15	2
TOTAL	**100**	**14**

*Seed mix must be state certified weed free live seed and free of all Penstemon species.
*Substitue species for the preferred species include Mutton grass, Plains love grass, and Junegrass.

F.II.10.4 MEASURING

Pine Canyon Restoration Project was cruised by Region 3 USFS certified cruisers meeting regional specifications and standards.

F.II.10.5 PROTECTION MEASURES NEEDED FOR PLANTS, ANIMALS, CULTURAL RESOURCES, AND CAVE RESOURCES

Areas, known by the Forest Service prior to implementation, needing special measures for the protection of plants, animals, cultural resources, and/or cave resources are shown on the PAM and/or identified on the ground, and shall be treated as follows:

Cultural Resource Protection Measures: Known cultural resources shall be protected, and are identified on the ground with a white band on trees around the perimeter of the site. If other areas are identified by either party, they shall also be protected under this provision as well.

Wildlife and Botanical Protection Measures: Northern Goshawk (NOGO) PFA exist in this project. The project area will be subject to operations restrictions between March 1 and September 30th. See Project Area Map for these areas. However, if a nest is deemed inactive, based on field confirmation by the District Biologist after June 15th of each year, then a written waiver of seasonal restrictions may be granted by the Contracting Officer in writing so operations may continue within the inactive buffer area during that restriction period of that field season. If other areas are identified by either party, they shall be protected under this provision as well.

Mexican Spotted Owl (MSO) PAC areas exist in this sale. The project area will be subject to operations restrictions between March 1 and August 31. See Project Area Map for these areas. If other areas are identified by either party, they shall be protected under this provision as well. No temporary roads will be constructed within the MSO PAC as identified on the project area map. If landings or constructed skid trails are deemed necessarry within the MSO PAC, locations must be approved by district wildlife biologist in accordance with FWS before construction begins.

Cave Resource Protection Measures: Known cave resources have been identified in this sale area and excluded from cutting units using orange boundary paint. Existing and potential future sites identified by either party shall be protected under this provision as well.

a. Unless agreed otherwise, wheeled or track laying equipment shall not be operated in areas identified as needing special measures except on roads, landings, tractor roads, or skid trails. **Contractor** may be required to backblade skid trails and other ground disturbed by **Contractor** operations within such areas in lieu of cross ditching.
b. Unless agreed otherwise, trees will not be felled into areas identified as needing special measures.
c. **Contractor** shall conduct operations in a manner that does not damage or disturb identified areas. In the event that protective measures identified by the Forest Service are for any reason inadequate, the Contracting Officer may delay or interrupt **Contractor** operations, under this agreement, and/or modify this agreement.
d. **Contractor** shall immediately notify the NFF and Forest Service if its operations disturb or damage any area identified as needing special measures and shall immediately halt its operations in the vicinity of such area until the Forest Service authorizes continued operations. In the event that **Contractor** operations disturb or damage an area identified as needing special measures then **Contractor** shall reimburse the Forest Service for the full cost and expense of any evaluative and remedial measures undertaken by the Forest Service in connection? with such disturbance or damage. Such payment shall not relieve **Contractor** from civil or criminal liability under applicable law.

1. Nothing contained in this clause shall establish, or be deemed to establish any express or implied warranty on the part of the Forest Service that the Forest Service has identified all areas with in the Project Area requiring protection, or that measures prescribed by the Forest Service for protection of such areas are adequate.
2. During operations additional areas needing special measures for protection may be discovered or identified;

protective measures may be revised or newly prescribed; and, additional species of plants and/or animals may be added to federal lists of protected species. In such event, the Contracting Officer may delay or interrupt NFF operations, under this agreement, and/or modify this agreement.

3. Discovery by NFF or the Forest Service of additional areas, resources, species, or members of species needing protection shall be promptly reported to the other party.

F.II.10.6 PROTECTION OF LAND SURVEY MONUMENTS

Contractor shall protect all known survey monuments, witness corners, reference monuments, and bearing trees against avoidable destruction, obliteration, or damage during operations. If any known monuments, corners, or accessories are destroyed, obliterated, or damaged by operations, **Contractor** shall hire the appropriate county surveyor or a registered land surveyor to reestablish or restore at the same location the monuments, corners, or accessories at no additional cost to the Government. Such surveyors shall use procedures in accordance with the Bureau of Land Management "Manual of Instructions for the Survey of Public Lands of the United States" for General Land Office surveys and in accordance with State law for others. **Contractor** shall record such survey in appropriate county records.

F.II.11 TEMPORARY ROAD, SKID TRAIL, AND LANDING CONSTRUCTION

Temporary roads, skid trails, and landing construction will be created, maintained, closed, and decomissioned in accordance with USFS T-Specs outlined in appendix G.II. All items are subject to inspection by contract administration and will be inspected and approved by contract administration in accordance with USFS upon completion of closure or decomission.

F.II.12 FOREST SYSTEM TRAILS

Harvesting activites would avoid National and forest system trails, if possible. If it is determined necessary to skid across (perpindciularly) a trail, then the trail would be restored to USFS standards (pre-project condition) post-treatment, as much as pratical.

National and forest system trails will not be used as skid trails or for temporary roads, except where motorized use is already authorized (trails located on open system and administrative roads).

It is acceptable to make perpendicular trail crossings. Trail crossing locations, including those on the Bearfoot and Pine Canyon Trails would be designated and flagged with input from the District Trails Specialist, Recreation Planner or Archaeologist. Crossing of the National and forest system trails will be done sparingly and only if no alternative exists. Trail crossings would be restored to pre-project condition after use.

If trails are temporarily closed due to harvesting, the trail tread will be cleared of all slash prior to reopening the trail.

F.II.13– Scaling Instructions and Specifications.

Name and Date of Governing Instructions:	FSH 2409.11a, National Forest Cubic Log Scaling Handbook, as amended and supplemented. Governing instructions for products contained in E.II.2.

F.II.14– Scaling Services.

Species	Product	Unit of Measure	Site and Geographic Location	Method
All	All	Ton	Location to be determined	Total (100%) Weight Scale

F.II.15 - Advance Deposits.
NFF agree(s) to make advanced deposits in advance of cutting. These deposits may be in the form of cash, acceptable payment bond, earned stewardship credit or any combination thereof. Advanced deposits will be in such amounts as to maintain an unobligated balance sufficient enough to cover the value of timber to be cut. Forest Service and NFF will agree on a systematic approach to provide sufficient advanced deposits.
If the credit balance in the IRSA is less than the amount due for timber, the Forest Service will suspend all or any part of NFF's operations until payment or acceptable payment guarantee is received.

F.II.16- Title Passage.
Scaled: All right, title, and interest in and to any included timber shall remain with the Forest Service until it has been cut, scaled, and removed from the Stewardship Project Area or other authorized cutting area, and paid for, at which time title shall then vest with **Contractor**. Timber cut under cash deposit or acceptable payment guarantee shall be considered to have been paid for. Title to any included timber that has been cut, scaled and paid for, but not removed from the Stewardship Project Area or other authorized cutting area by the **Contractor** on or prior to the termination date, shall remain with the Forest Service.

F.II.17 General Requirements
Equipment Specifications:
The equipment to be used to complete the performance of this contract shall meet the following minimum standards.

Road Grader – Motor patrol, self-propelled, tandem drive, with a mold board not more than fourteen (14) feet or less than twelve (12) feet with a three (3) tooth ripper bar (scarifier).

Crawler Tractor/Dozer – D6 (or greater, negotiable)) with three (3) tooth ripper (scarifier) bar and angle dozer blade (6-way tilt preferred).

Noxious Weeds: All graders, tractor/dozers, and backhoes are to be thoroughly cleaned before entering the National Forest for work on this project. The requirement is designed to decrease the possibility of introducing noxious weed seed onto the National Forest (E 11. – Washing Equipment).

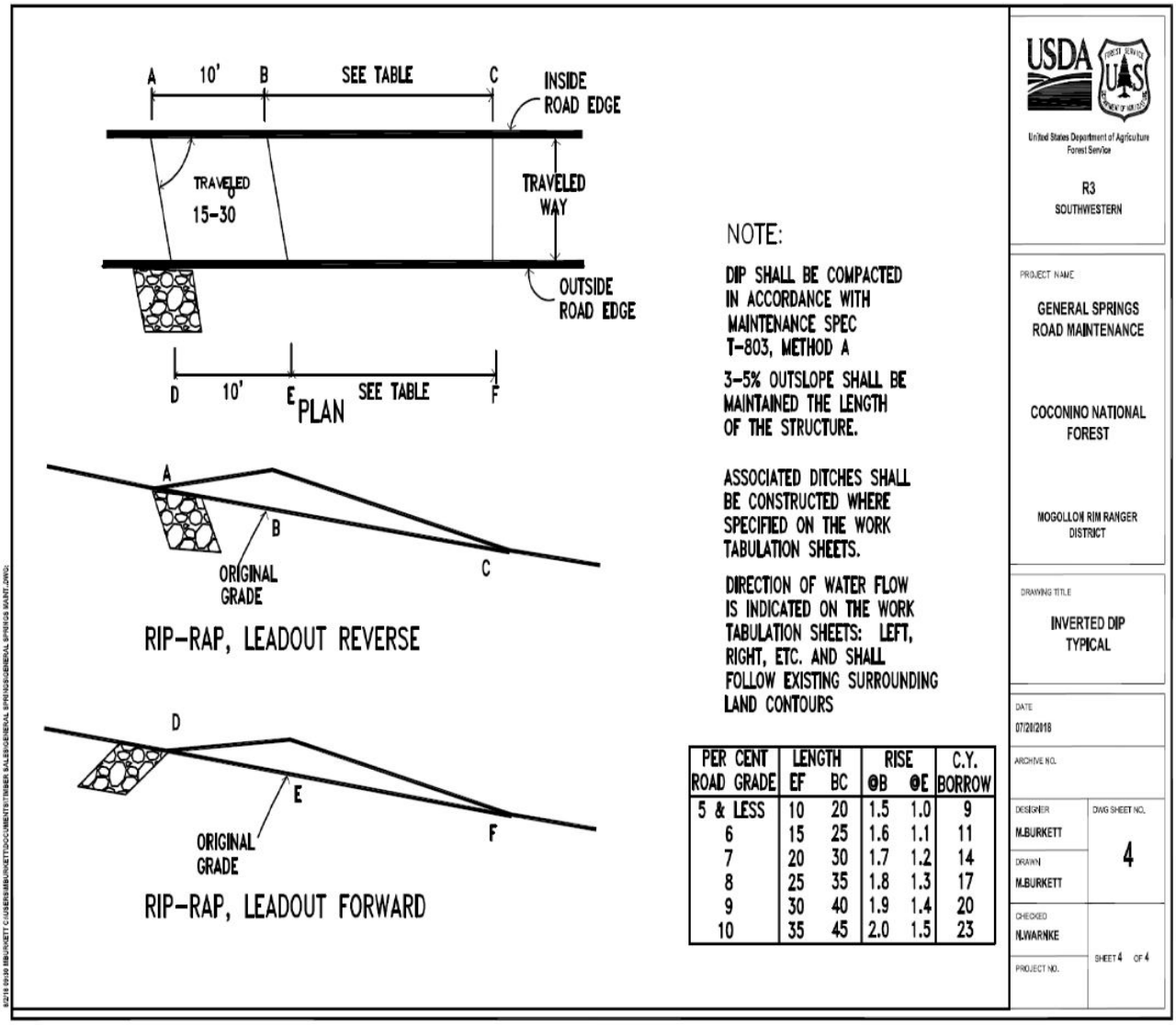
Traffic Control: Traffic control signs, which will be provided by the **Contractor**, must conform to the current edition of the Manual of Uniform Traffic Control Devices (MUTCD). (E 4., Safety)

In the performance of traveled way maintenance, signs shall be located no more than .5 miles before and .5 miles after area of operation. Signs shall be posted only when work is in progress. Local vehicle traffic shall not be obstructed for periods in excess of five (5) minutes.

Bridge Maintenance (where applicable): Clean the deck of any accumulated dirt or gravel, clean deck drains, repair or replace damaged guardrail, repair or replace damaged or rotten deck planks/running planks, patch spalled areas of concrete decks or curbs and replace missing/damaged traffic control signs.

F.II.18 Typicals

The below information indicates agency standards and is relevant to the Pine Canyon Restoration project:



PER CENT ROAD GRADE	LENGTH EF	LENGTH BC	RISE @B	RISE @E	C.Y. BORROW
5 & LESS	10	20	1.5	1.0	9
6	15	25	1.6	1.1	11
7	20	30	1.7	1.2	14
8	25	35	1.8	1.3	17
9	30	40	1.9	1.4	20
10	35	45	2.0	1.5	23

F.II.19 General Maintenance and Grading

a. Inspect the road at regular intervals, especially following periods of heavy rain.

b. Perform maintenance when needed. **DO NOT WAIT!** The longer you wait, the more on-site damage and off-site sedimentation will occur, and repairs will be more costly.

c. Keep ditches and culverts free from debris but maintain erosion resistant surfacing such as grass or rock in the ditches. Remove debris during inspections. Also keep overflow channels clean.

d. Re-grade and shape the road surface periodically to maintain proper surface drainage. Keep the road surface moist during grading. Fill in ruts and potholes with gravel or compacted fill as frequently as possible. Keep rolling dips shaped and graded. Ideally, compact the final graded road surface.

e. Maintain positive surface drainage with an out-sloped (3-5%), in-sloped, or crown roadway section using 2 - 3 % cross slopes (up to 4% is best). Provide cross drainage with culvert pipes or rolling dips. In slippery soils, either in-

slope the road or add aggregate surfacing to the road. Use a crown road section on a wide road with gentle slopes or flat ground to prevent water from standing on the road surface. See Figure 2 below.

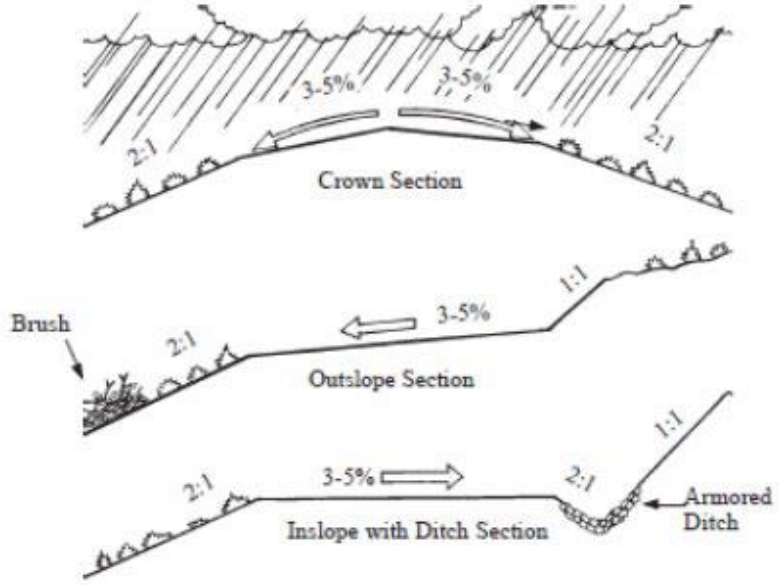


Figure 2: Road surface drainage design.

f. Roll grades or undulate the road profile frequently to disperse water, particularly into and out of stream crossings.

g. Keep the downhill side of the road free from a berm except where a berm is intentionally constructed to control water or traffic.

h. Apply a surface stabilization material, such as aggregate, cobblestone, or pavement, to the road surface to protect the roadbed from damage and reduce the frequency of maintenance needed.

i. Avoid disturbing soil and vegetation if not necessary. Leave as much vegetation (grasses) in ditches, on road shoulder areas, and on cut or fill slopes (especially grasses and low growing brush) as possible. However, ensure sight distance and that the drainage systems still function properly.

j. Remove slide material from the roadway or inside ditches where the material will block normal roadway surface drainage.

k. Avoid widening the road or over-steepening the fill slopes formed by blading surface material off the road.
l. Close the road during very wet conditions or periods of inactivity. If the following guidelines are exceeded, this may be a threshold to either temporarily close the road or schedule heavier maintenance to allow use during wet conditions.

1. Unpaved Local Terminal and Service roads: 6 – 8-inch rutting for a maximum of 75 feet not to exceed 10% of total road length. Where surfacing has been placed on the road, see standard for Collector Road.

2. Collector and Arterial Roads: 3-inch rutting for entire length of road if surfaced. If unsurfaced the guideline will be the same as for Local Service.

3. Drainage: Existing grade dips. If rutted to the point of being non-functional, grade dips will be restored before hauling can continue. Lead-out ditches, roadside ditches, and catch basins will be maintained in a functional state.

F.II.20 Natural Stream Crossings

a. Use drainage structures that best conform to the natural channel and that are as wide as the active stream channel (bankfull width). Minimize natural channel changes and the amount of excavation or fill in the channel.

b. Limit construction activity to periods of low flow in live streams. Minimize use of equipment in the stream. Stay out of the stream!

c. Design structures and use construction practices that minimize impacts on fish and other aquatic species or that can enhance fish passage.

d. Cross drainage channels as infrequently as possible. When necessary, cross streams at right angles except where prevented by terrain features.

e. Keep approaches to stream crossings to as gentle a grade as practical. Roll grades into and out of the crossing to disperse water.

f. Stabilize disturbed soil around crossings soon after construction. Remove or protect fill material placed in the channel and floodplain.

g. Use bridges, low-water fords or improved fords, and large arch pipes with natural stream bottoms wherever possible to maximize flow capacity, minimize the possibility of a plugged pipe, and minimize impacts on aquatic species.

h. Locate crossings where the stream channel is straight, stable, and not changing shape. Bedrock locations are desirable for concrete structures.

i. For overflow protection, construct fills over culverts with an armored low point near the pipe in low fills or add an armored rolling dip on native ground just beyond a large fill to return water to the drainage and prevent off-site damage.

j. Stabilize roadway approaches to bridges, fords, or culvert crossings with gravel, rock, or other suitable material to reduce road surface sediment from entering the stream. Install cross-drains on both sides of a crossing to prevent road and ditch runoff from entering the drainage channel.

k. Construct bridges and culvert fills higher than the road approach to prevent road surface runoff from draining directly into the stream -- but ONLY if likelihood of culvert failure is VERY small. Typically, the crossing should be designed to minimize the amount of fill.

l. Equipment should be clean from weed seeds / plant parts and petroleum products (leaks) working in and around live streams.

F.II.21 Fords and Low Water Crossings

a. Use an adequately long slab or structure to protect the “wetted perimeter” of the natural flow channel. Add protection above the expected level of the high flow. Allow for some freeboard, typically 12 to 18 inches in elevation, between the top of the reinforced driving surface (slab) and the expected high-water level. The flow capacity of a ford, and thus the high-water level, can be estimated using a “Broad-Crested Weir” formula.

b. Protect the entire structure with cutoff walls, riprap, gabions, concrete slabs, or other scour protection. The downstream edge of a ford is a particularly critical location for scour and needs energy dissipaters or riprap protection because of the typical drop in water level off the structure and the accelerated flows across the slab.

c. For simple rock fords, use large graded rock in the roadbed through the creek, large enough to resist the flow of water. Fill the voids with clean, small rock or gravel to provide a smooth driving surface. This small rock will have to be periodically maintained and replaced.

d. Use fords for crossing seasonally dry streambeds or streams with low flows during most periods of road use. Use

improved (vented) fords with pipes or concrete box culverts to pass low water flows. Accommodate fish passage where needed using box culverts with a natural stream channel bottom.

e. Locate fords where stream banks are low and where the channel is well confined. For moderately incised drainages, use improved fords with pipe or box culverts.

f. Place foundations into scour resistant material (bedrock or coarse rock) or below the expected depth of scour. Prevent foundation or channel scour with the use of locally placed heavy riprap, gabion baskets, concrete reinforcement, or dense vegetation.

g. Use well placed, sturdy depth markers at fords to advise traffic of dangerous water depths.

F.II.22 Maintenance of Drainage Systems

a. Use roadway cross-drain structures (either rolling dips, pipe culverts, or open top culverts (flumes) to move water across the road from the inside ditch to the slope below the road. Space the cross-drain structures frequently enough to remove all surface water. Tables in the reference document give recommended cross-drain spacing.

b. Maintain roads with rolling grades to minimize concentration of water. Provide filter strips or infiltration areas to trap sediment between drain outlets and waterways. Keep roads and streams (any natural drainage way) disconnected!

c. Construct **rolling dips** rather than culvert cross-drains for typical, low volume, low speed roads with grades less than 12%. Construct rolling dips deep enough to provide adequate drainage, angled 0-25 degrees from perpendicular to the road, with a 3-5% out-slope, and long enough (50 to 200 feet) to pass vehicles and equipment. In soft soils, armor the mound and dip with gravel or rock, as well as the outlet of the dip. See Figure 3 and Table 1 below.

d. Construct **water bars** on infrequently used roads or closed roads to control surface runoff. Construct frequently spaced water bars angled at 0-25 degrees with an out-slope of 3-5% and a depth of 12 to 18 inches. Spacing of water bars is shown in tables below.

e. Use **catch water ditches** (intercept ditches) across the natural ground above a cut slope only in areas with high intensity rainfall and overland flow. These ditches are useful to capture overland sheet flow before it pours over the cut slope and erodes or destabilizes the cut. However, be aware that catch water ditches that are not properly maintained can become a counterproductive pool for water above the slope, increasing the probability of a slope failure.

f. Avoid the use of **outside ditches**, along the outside edge of the road, except in specific areas that must be protected from sheet flow off the road surface. Preferably, use berms. Note that an outside ditch or berm necessitates additional road width.

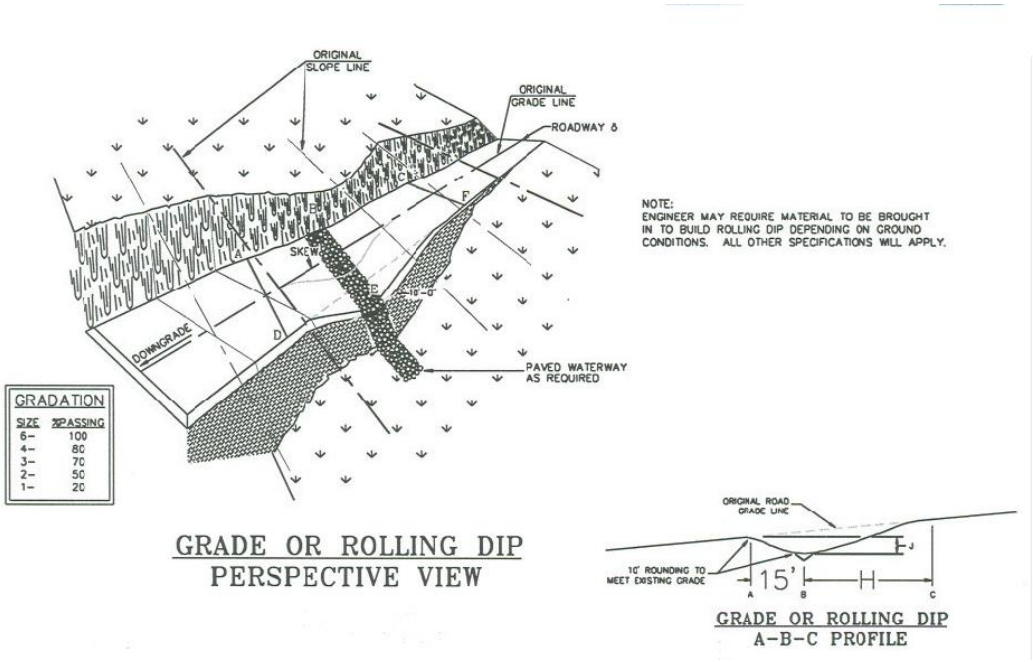
Table 1: Recommended Maximum Distance Between

Rolling Dip or Culvert Cross Drains (feet)

Road Grade %	**Drainage Spacing (ft)**
0-3	250
4-6	165
7-9	130

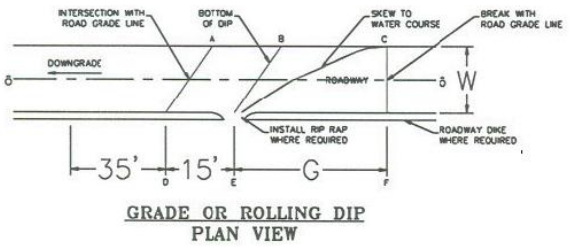
Table 2: Recommended **Water Bar** Spacing (feet)

Road Grade %	**Drainage Spacing (ft)**
0-5	130
6-10	100

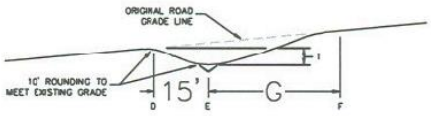


GRADE OR ROLLING DIP
PERSPECTIVE VIEW

GRADE OR ROLLING DIP
A-B-C PROFILE

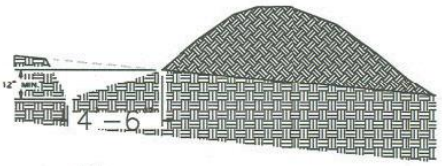


GRADE OR ROLLING DIP
PLAN VIEW



GRADE OR ROLLING DIP
D-E-F PROFILE

TABLE OF ROLLING GRADE DIP DIMENSIONS												
% GRADE OF ROAD	60 – 120 SKEW NUMBER											
	W = 12'				W = 14'							
	LENGTH		DEPTH		LENGTH		DEPTH		LENGTH		DEPTH	
	G	H	I	J	G	H	I	J				
5% & UNDER	60'	50'	1.0'	0.5'	60'	50'	1.0'	0.5'				
6% – 8%	70'	65'	1.5'	0.5'	70'	65'	1.5'	0.5'				



FURROW DITCH
SECTIONAL

Figure 3: Grade Dip Typicals.

F.II.23 Ditch Relief or Cross-Drain Culverts

a. **Protect cross-drain outlets** with rock (riprap) or logging slash to dissipate energy and prevent erosion, or locate the outlet of cross drains on stable, non-erosive soils, rock, or in well vegetated areas.

b. Install **culvert cross-drains** with an angle of 0-30 degrees perpendicular to the road, using an out-slope of 2% greater than the ditch grade to prevent plugging. Use culvert cross-drains on roads with an inside ditch and moderately fast vehicle speeds.

c. **Ditch relief cross-drains should exit at the toe of the fill** near natural ground level, at least 1.5 feet beyond the toe of the fill slope. Armor the pipe outlet. Don't discharge the pipe on unprotected fill material, unstable slopes, or directly into streams.

F.II.23.1 Control at Culvert Inlets & Outlets

1. When ditch grade control is needed, use drop inlet structures with culvert crossdrains to prevent ditch down-cutting or where space is limited against the cut bank. Alternately, use catch basins excavated into firm soil.

2. Discharge culverts and cross-drain dips at natural ground level, on firm, non erosive soil or in rocky or brushy areas. If discharged on the fill slopes, armor outlets with riprap or logging slash, or use down-drain structures. Extend the pipe 1.5 to 3 feet beyond the toe of the fill slope to prevent erosion of the fill material.

3. In erosive soils, armor roadway ditches and leadoff ditches with rock riprap, masonry, concrete lining or, at a minimum, grasses. Ditch dike structures can also be used to dissipate energy and control ditch erosion. Discharge roadway drains in an area with infiltration capability or into filter strips to trap sediment before it reaches a waterway. **Keep the road and streams hydrologically "disconnected."**

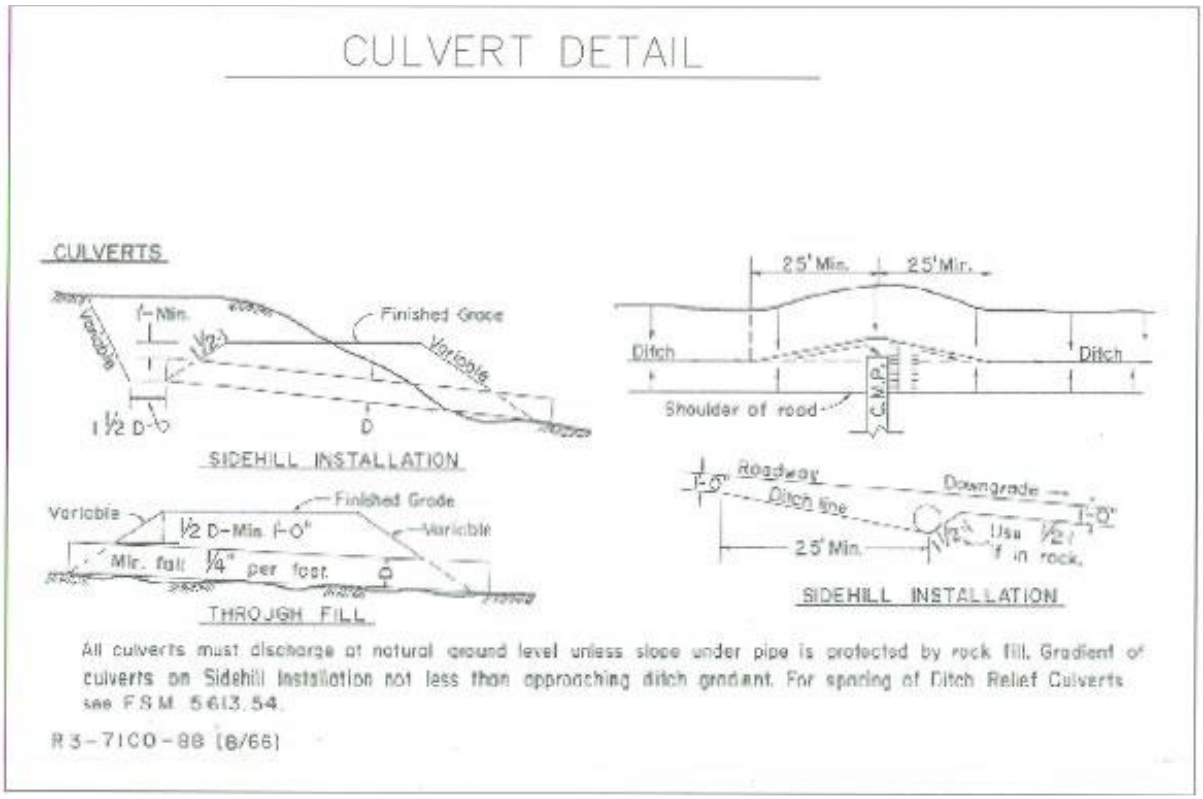


Figure 4: Culvert details.

F.II.24 Drainage Crossing Culverts

a. Install permanent culverts with a size large enough to pass design flood flows plus anticipated debris. Design for 20- to 50-year storm events. Sensitive streams may require designs to pass a 100-year flood. Pipe size can be determined using general design criteria but is ideally based upon site-specific hydrologic analysis.

b. Consider the impacts of any structure on fish passage and the aquatic environment. Select a structure such as a bridge or bottomless arch culvert that is as wide as the ordinary high water width (bankfull width), that minimizes channel disturbance, and that maintains the natural channel bottom material.

c. Make road crossings of natural drainages perpendicular to the drainage to minimize pipe length and area of disturbance.

d. Use single large pipes or a concrete box versus multiple smaller diameter pipes to minimize plugging potential in most channels (unless roadway elevation is critical). In very broad channels, multiple pipes are desirable to maintain the natural flow spread across the channel.

e. For sites with limited height, use “squash pipe” or arch pipes and box culverts that maximize capacity while minimizing height.

f. Use concrete or masonry headwalls on culvert pipes as often as possible. The advantages of headwalls include: preventing large pipes from floating out of the ground when they plug; reducing the length of the pipe; increasing pipe capacity; helping to funnel debris through the pipe; retaining the backfill material; and reducing the chances of culvert failure if it is overtopped.

g. Install culverts long enough so that both ends of the culvert extend beyond the toe of the roadway fill. Alternatively, use retaining walls (headwalls) to hold back the fill slope.

h. Align culverts in the bottom and middle of the natural channel so that installation causes no change in the stream

channel alignment or stream bottom elevation. Culverts should not cause damming or pooling or increase stream velocities significantly.

i. Firmly compact well-graded fill material around culverts, particularly around the bottom half, using placement in layers to achieve a uniform density. Use slightly plastic sandy gravel with fines. Avoid the use of fine sand and silt rich soils for bedding material because of their susceptibility to piping. Pay particular attention to culvert bedding and compaction around the haunches of the pipe. Do not allow the compaction to move or raise the pipe. In large fills, allow for settlement by installing the pipe with camber.

j. Cover the top of metal and plastic culvert pipes with fill to a depth of at least 30 cm to prevent pipe crushing by heavy trucks. Use a minimum cover of two feet of fill over concrete pipe. For maximum allowable fill height, follow the manufacturer's recommendations.

k. Examine stream channels for the amount of debris, logs, and brushy vegetation. In channels with large amounts of debris, consider using a **low-water ford**, oversized pipes, or placing a trash rack upstream of the pipe entrance.

l. Install overflow dips off the side of the culvert in drainage channels with a large fill that could be overtopped. Also use overflow dips on long sustained road grades where a plugged culvert could divert water down the road, plugging subsequent culverts and causing extensive off-site damage.

F.II.25 Roadway Materials and Materials Sources

a. Stabilize the roadway surface on roads that form ruts or ravel excessively. Common surface stabilization techniques include using 4-6 inches of crushed aggregate; local pit run or grid roll rocky material; cobblestone surfacing; wood chips or fine logging slash; or soils mixed and stabilized with cement, asphalt, lime, lignin, chlorides, chemicals, or enzymes.

b. For heavy traffic on soft subgrade soils, use a single, thick structural section consisting of at least 8-12 inches of surfacing aggregate. Alternatively, use a structural section consisting of a 4-12 inch thick layer of base aggregate or coarse fractured rock, capped with a 4-12 inch thick layer of surfacing aggregate. Note that soft clay-rich soils and heavy tire loads may require a thicker structural section. The structural depth needed is a function of the traffic volume, loads and soil type.

c. Maintain a 3 -5 % road cross-slope with insloping, outsloping, or a crown to rapidly move water off the road surface.

d. Grade or maintain the roadway surface before significant potholes, washboarding, or ruts form.

e. Compact the embankment material, road surface material or aggregate during construction and maintenance to achieve a dense, smooth road surface and thus reduce the amount of water that can soak into the road.

f. "Spot" stabilize local wet areas and soft areas with 4-6 inches of coarse rocky material. Add more rock as needed.

g. Stabilize the road surface in sensitive areas near streams and at drainage crossings to minimize road surface erosion.

F.11.26 Roads

The Contractor is authorized to construct and maintain roads, crossings and other transportation facilities and features as needed for conducting treatments on National Forest and other lands where Forest Service has such authority. As used in this Supplemental Project Agreement, "construct" includes "reconstruct."

F.11.27 Forest System (foot) Trail

Temporary road construction shall avoid National and forest system trails, unless otherwise agreed upon with Forest Service. If it is determined necessary to build within the trail, bid should include rehab and repair when road is rehabbed and obliterated.

Contractor will coordinate with Forest Service to close trails within 500 ft of operations.

F.11.28 Best Management Practices – Road Maintenance

4FRI National Forests
Best Management Practices for Road Maintenance
October 5, 2012

The following synopsis is compiled from:

Keller, Gordon and James Sherar. 2003. Low Volume Roads Engineering; Best Management Practices Field Guide. 158 pgs illustrated. Produced for US Agency for International Development (USAID) in cooperation with the Forest Service and Conservation Management Institute, Virginia Polytechnic Institute and State University.

This reference is available electronically (accessed January 2023) from:
https://roadsforwater.org/wp-content/uploads/2020/11/LOW-RESOLUTION-ROADS-BMP-GUIDE.pdf

F.11.29 Key Objectives: Best Management Practices

Best Management Practices are designed to accomplish the following:

a. Produce a safe, cost effective, environmentally friendly, and practical road design that is supported by and meets the needs of the users.

b. Protect water quality and reduce sediment loading into water bodies.

c. Avoid conflicts with land use.

d. Protect sensitive areas and reduce ecosystem impacts.

e. Maintain natural channels, natural stream flow, and maintain passage for aquatic organisms.

f. Minimize ground and drainage channel disturbance.

g. Control surface water on the road and stabilize the roadbed driving surface.

h. Control erosion and protect exposed soil areas.

i. Implement needed slope stabilization measures and reduce mass wasting.

j. Avoid problematic areas.

k. Storm-proof and extend the useful life of the road.

l. Minimize the spread of noxious weeds through pressure washing equipment transported onto Forest lands from other areas.

F.11.29.1 Key Road Maintenance Items: Best Management Practices

Maintenance items that should be performed routinely include:

a. Grading and shaping the roadway surface to maintain a distinct in-sloped, out-sloped, or crown shape to move water rapidly off the road surface.

b. Compacting the graded roadway surface to keep a hard driving surface and prevent the loss of fines. Replace surfacing material when needed. Keep the road surface moist during grading and compacting!

c. Removing ruts through rolling dips and water bars. Reshape the structures to function properly.

d. Cleaning ditches and reshaping them when necessary to have adequate flow capacity. **Do not grade ditches that do not need it!**

e. Removing debris from the entrance and immediately upstream of culverts to prevent plugging and overtopping. Check for damage and signs of piping or scour.

f. Replacing/repairing rock armor, concrete, or vegetation used for slope protection, scour protection, or energy dissipation.

g. Trimming roadside vegetation (brushing) adequately, but not excessively, for sight distance and traffic safety. See Figure 1 below.

h. Replacing missing or damaged road information, safety, and regulatory signs.

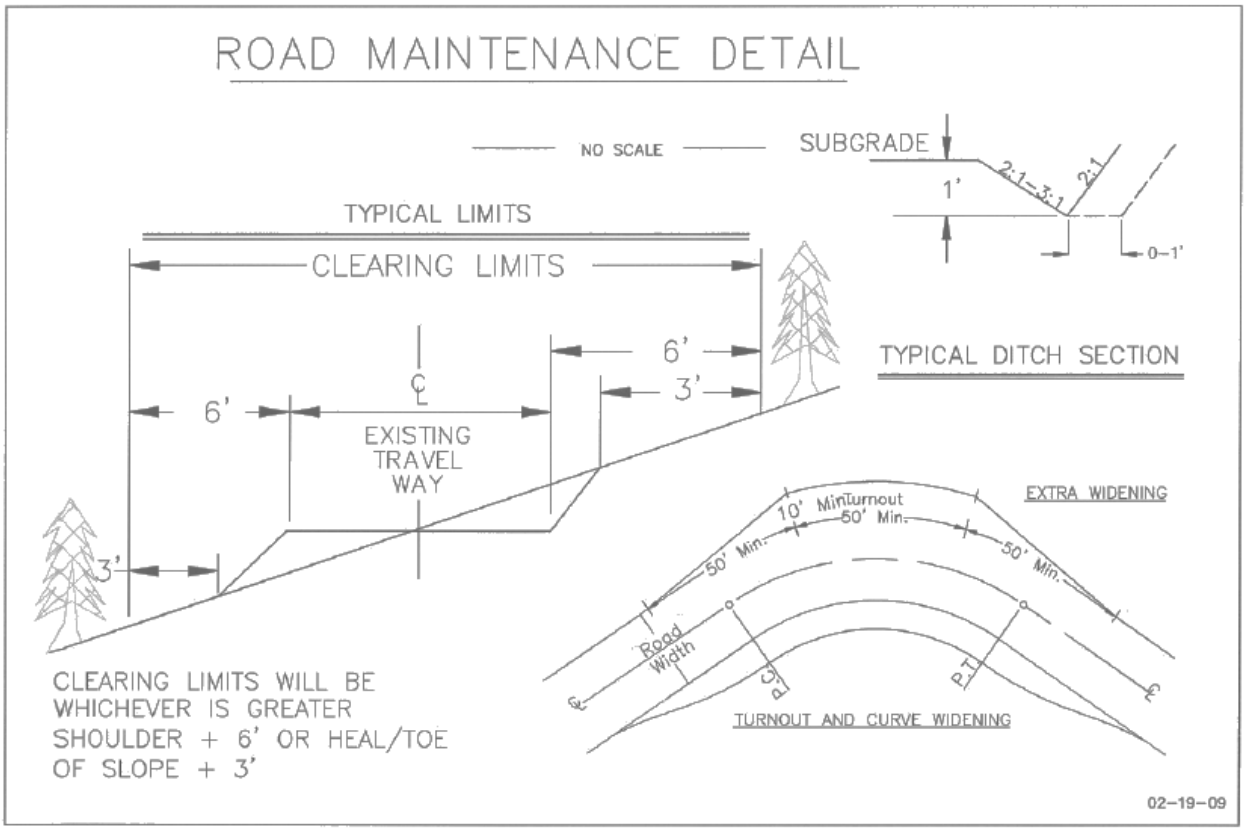


Figure 5: Vegetation clearing limits.

F.II.30– Liability.

Liability for Loss. If Included Timber is destroyed or damaged by an unexpected event that significantly changes the nature of Included Timber, such as fire, wind, flood, insects, disease, or similar cause, the party holding title shall bear the timber value loss resulting from such destruction or damage; except that such losses after removal of timber from the Stewardship Project Area, but before scaling, shall be borne by **Contractor** at current SPA Rates and Required Deposits. Deterioration or loss of value of salvage timber is not an unexpected event.

In the event Included Timber to which Forest Service holds title is destroyed, **Contractor** will not be obligated to remove and pay for such timber. In the event Included Timber to which Forest Service holds title is damaged, the Forest Service shall make an appraisal to determine for each species the difference between the appraised unit value of Included Timber immediately prior to the value loss and the appraised unit value of timber after the loss. Current

SPA Rates in effect at the time of the value loss shall be adjusted by differences to become the redetermined rates. There shall be no obligation for the Forest Service to supply, or for **Contractor** to accept and pay for, other timber in lieu of that destroyed or damaged. This Subsection shall not be construed to relieve either party of liability for negligence.

Limited Liability for Operations Fires.

Maximum Amount of NFF's Obligation per Operation's Fire. Entry should be determined as follows and rounded up to the nearest $100. The minimum amount will be $1,000.00. If State statute or law defines limited liability, use that determination (e.g. Oregon), otherwise calculate the amount using the following formula:

[(1) x (2) + (3) x (4)] x (5) = Maximum Amount of Cooperator's Obligation per Operations Fire. Round up to the next $100.

(1) Equals the number of workers normally required to operate the size of proposed project.

4 Workers

(2) Equals the daily (12 hour) wage rate for semi-skilled (AD-1) firefighter.

$__24__/Hr. x 12 hours = $288

(3) Equals the number of pieces of equipment normally required to operate the size of proposed project that can effectively cut and clear fire lines.

2 Pieces of equipment

(4) Average daily rate for each piece of equipment, including cost of operator, from current local engineering cost guide.

$217/Hr. x 12 hours = $3180/12hr.

(5) Equals the number of days normally required to control and mop up such fires to a point where control lines can reasonably be expected to hold under foreseeable conditions. Minimum is one day and maximum is 10.

5 days

Cooperator's Obligation per Operations Fire,
Maximum Amount: $ 37,560

APPENDIX G.II
GUIDELINES FOR OPERATIONS
Pine Canyon Restoration Project Phase II

The following Guidelines for Operations apply to activities under this SPA, when relevant to the project. These guidelines are intended to clarify the expectations of the parties related to these specific areas of operations.

G.II.1 Stewardship Project Area. (See Appendix C for map). This is the boundary of the Stewardship Project Area as shown in Appendix B and designated on the ground by the Forest Service to meet the anticipated needs of the parties. No operations of any kind will happen outside of the Project Area Boundary identified on the map. The following are identified on the Map:

a) Boundaries of Timber Units and Biomass units.
b) Areas where leave trees are marked to be left uncut (leave tree marked – LTM).
c) Roads where log hauling or use is prohibited or restricted (N/A).
d) Roads and trails to be kept open. (N/A)
e) Improvements to be protected (Protected sites, areas, AMZ's, and MSO PAC)
f) Locations of known wildlife or plant habitat and cave resources to be protected.
g) Streamcourses to be protected.
h) Locations of temporary roads to be kept open. (during operations)
i) Payment units, if required (N/A)

G.II.2 Use of Roads by the Partner. Contractor is/are authorized to use existing temporary National Forest roads and specified roads. The Parties will determine when such use will not cause damage to the roads or National Forest resources.

G.II.3 Plan of Operations for Roads. Annually, prior to start of operations, **Contractor** will prepare a supplement to the Technical Proposal that shall include a schedule of proposed maintenance and construction progress and a description of planned measures to be taken to provide erosion control for work in progress, including special measures to be taken on any segments of construction not substantially completed prior to periods of seasonal precipitation or runoff. **Contractor** shall submit a revised schedule when they propose a significant deviation from the progress schedule.

G.II.4 Protection of Residual Trees. Contractor's operations shall not unnecessarily damage young growth or other trees to be reserved.

G.II.5 Safety. Contractor's operations shall facilitate the Forest Service's safe and practical inspection of **Contractor's** operations and conduct of other official duties on the Stewardship Project Area. **Contractor** has/have all responsibility for compliance with safety requirements for **Contractor**'s employees.

When operations are in progress adjacent or on Forest Service controlled roads and trails open to public travel, **Contractor** shall furnish, install, and maintain all temporary traffic controls that provide the user with adequate warming of hazardous or potentially hazardous conditions associated with operations occurring in the area. The parties shall agree to a specific traffic control plan prior to commencement of work. Devices shall be appropriate to current conditions and shall be covered or removed when not needed.

During periods of general recreation activity within Stewardship Project Area or vicinity, the Forest Service may restrict road construction, timber cutting, yarding, and other harvesting operations to days other than Saturdays, Sundays, and holidays.

LOGGING AND MAINTENANCE OPERATIONS SIGNING STANDARDS

All signs must be manufactured & installed as specified in the FHWA "**Manual on Uniform Traffic Control Devices**" (MUTCD) & FS publication "**Standards for Forest Service Signs & Posters**"(EM 7100-15).

SIGN STANDARDS

SHAPE & COLOR: Generally, signs for logging and maintenance operations are either diamond-shaped or rectangular. All signs are ***reflective orange background with black legend and border*** unless shown otherwise. Handpainted, homemade signs are not legal. Fluorescent paint is not reflectorized.

SUBSTRATE: Sign substrate material may be High Density Overlay (HDO) Plywood, Aluminum, Fiberglass Reinforced Plastic, Corrugated Plastic or Roll-up Fabrics.

SIGN SIZE: Sign size is a factor of speed and MUTCD & FS standards. Where conditions of speed, volume, or special hazard require greater visibility or emphasis, larger signs should be used. Minimum sizes for the most common signs can be found in Figure 4. Refer to the EM-7100-15 for additional sign sizes.

LEGEND: All lettering shall be Series "C" alphabet, conforming to Standard Alphabets for Highway Signs. Letter size is also a function of speed - use letter size and word messages as specified in MUTCD and EM-7100-15.

SIGN PLACEMENT

Signs are to be installed in locations as agreed to in the traffic control plan. All signs are to be removed, covered, or folded when operations are not in progress or the sign message is not applicable. Signs should generally be located on the right-hand side of the roadway. When special emphasis is needed, signs may be placed on both the left and right sides of the road. Sign message shall be clearly visible to road users, mounted on posts or portable sign stands.

LATERAL CLEARANCE

From the edge of the road - 2 foot minimum, where slope limits to less than 6 feet. 6-12 foot preferred.

HEIGHT

Minimum of 7 feet, measured from the bottom of the sign to the near edge of the travelway. The height to the bottom of a supplemental sign mounted below the primary sign will be 6 feet.

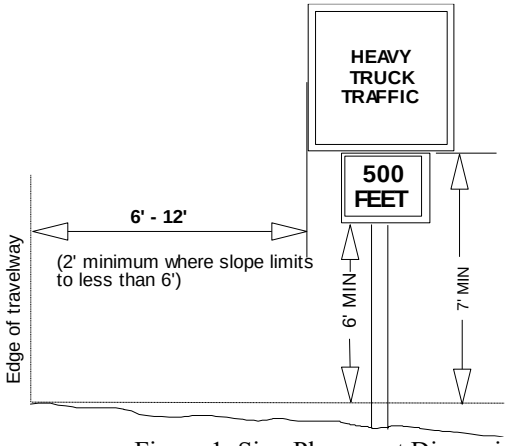


Figure 1: Sign Placement Dimensions

PLACEMENT DISTANCE

Signs must be located 100-500 feet prior to the activity, (both ends if a through road) and maintained at that distance. This distance is based on speed. Refer to Figure 2 , Table II-1, MUTCD, a portion of which is reproduced here, to determine correct placement distance.

Posted or 85 percentile speed MPH	Deceleration to listed advisory speed MPH				
	10	20	30	40	50
20	NA				
25	100				
30	150	100			
35	200	175			
40	275	250	175		
45	350	300	250		
50	425	400	325	225	
55	500	475	400	300	
60	575	550	500	400	300
65	650	625	575	500	375

Figure 2: A Portion of MUTCD TABLE II-1

SIGN SUPPORTS

POSTS: Signs are to be mounted on separate posts. Supplemental signs such as Speed Advisory plates are to be mounted on the

same post as the primary sign. ***Do not mount signs on trees or other signs.*** Posts may be wood, metal, carsonite or similar material. Where sign supports cannot be sufficiently offset from the road edge, supports will meet breakaway standards. Single wood posts with less than 24 square inches do not require breakaway design.

TEMPORARY/PORTABLE SUPPORTS: Portable supports may be used for short-term, short-duration, and mobile conditions. MUTCD defines this time period as one work shift, 12 hours or less. All portable supports must meet MUTCD standards, including breakaway. These must be a minimum of 1 foot above the road surface or more if visibility requires it.

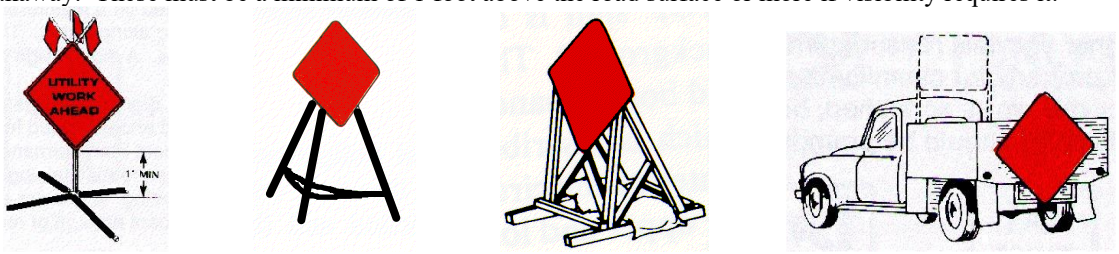


Figure 3: Examples of Temporary/Portable Supports

SIGNS

The following signs meet the intent of the Safety standard. ***This is not a complete listing of signs that may be needed.***

FG20-1-48*

FG20-2-48

FG20-3-42*

FG20-3a-42

FW22-3-30

FW20-1-30*

W21-3-30*

FW21-4a-30

FW11-7-24

W22-1-36*

FW8-6-24

FW11-9a-24

W7-3a-24*

W13-1-18**

W20-7aP-24*

* Specify Distance

** Specify Speed

BM-L-O

BM-R-O

Barricade Markers (See MUTCD for length and stripe size)

G.II.6 Safety (Timber Hauling). Contractor shall secure all products transported by truck with at least two chain or cable wrappers over the load, such wrappers being securely fastened to effectively contain every bolt or log in at least two places.

G.II.7 Accident and Injury Notification. Contractor shall notify Forest Service of any lost time personal injury accident or any accident or vandalism resulting in personal property damage over $400 in value that occurs as a result of or is associated with

Contractor 's Operations.

Contractor shall notify Forest Service and NFF within 8 hours of any personal injury accident. For vandalism and personal property accidents, **Contractor** shall notify Forest Service at the same time notification is given to the state and local law enforcement authorities.

Contractor shall take all reasonable measures after an accident or vandalism event to preserve the scene of the incident and provide information to facilitate a Forest Service investigation.

G.II.8 Sanitation and Servicing. Contractor shall take all reasonable precautions to prevent pollution of air, soil, and water by **Contractor's** operations. Precautions shall include if facilities for employees are established on the Stewardship Project Area, they shall be operated in a sanitary manner. The parties shall agree to the cleanup and restoration of a polluted site. **Contractor** shall maintain all equipment operating on Stewardship Project Area in good repair and free of abnormal leakage of lubricants, fuel, coolants, and hydraulic fluid. **Contractor** shall not service tractors, trucks, or other equipment on National Forest lands where servicing is likely to result in pollution to soil or water. **Contractor** shall furnish oil-absorbing mats for use under all stationary equipment or equipment being serviced to prevent leaking or spilled petroleum-based products from contaminating soil and water resources. **Contractor** shall remove from National Forest lands all contaminated soil, vegetation, debris, vehicle oil filters (drained of free-flowing oil), batteries, oily rags, and waste oil resulting from use, servicing, repair, or abandonment of equipment.

G.II.9 Prevention of Oil Spills. If **Contractor** maintain(s) storage facilities for oil or oil products on the Stewardship Project Area, **Contractor** shall take appropriate preventive measures to ensure that any spill of such oil or oil products does not enter any stream or other waters of the United States or any of the individual States. If the total oil or oil products storage exceeds 1,320 gallons in containers of 55 gallons or greater, **Contractor** shall prepare a Spill Prevention Control and Countermeasures Plan. Such plan shall meet applicable EPA requirements (40 CFR 112), including certification by a registered professional engineer. **Contractor** shall notify the Forest Service and appropriate agencies of all reportable (40 CFR 110) spills of oil or oil products on or in the vicinity of the Stewardship Project Area that are caused by **Contractor's** employees, agents, contractors or their employees or agents, directly or indirectly, as a result of **Contractor**'s operations. **Contractor** will take whatever initial action may be safely accomplished to contain all spills.

G.II.10 Hazardous Substances. Contractor shall notify the National Response Center and Forest Service principal contact of all releases of reportable quantities of hazardous substances on or in the vicinity of the Stewardship Project Area that are caused by **Contractor**'s employees, agents, contractors or their employees or agents, directly or indirectly, as a result of **Contractor**'s operations, in accordance with 40 CFR 302.

G.II.11 Washing Equipment. To prevent the spread of disease and aquatic invasive species, the contractor shall adhere to the following: All contractor equipment including log trucks, chip vans, service vehicles, water trucks, pickup trucks, cars, trailers, and similar vehicles entering the sale area for the first time, must be clean or completely dry and are subject to inspection by sale administration. If any equipment enters a body of water within the sale area and leaves the sale area, other than the haul route, the equipment must be clean or completely dry before re-entering the sale area. Body of water is defined as any AMZ identified on the contract map with water in it at the time of operation.

Contractor shall employ whatever cleaning methods are necessary to ensure that off-road equipment is free of noxious weeds. Equipment shall be considered free of soil, seed, and other such debris when a visual inspection does not disclose such material. Disassembly of equipment components or specialized inspection tools is not required.

As agreed upon, **Contractor** shall inspect equipment at cleaning location, and provide documentation of inspection to the Forest Service.

New infestations of noxious weeds, of concern to Forest Service and identified by either **Contractor** or Forest Service, on the Stewardship Project Area or on the haul route, shall be promptly reported to the other party. **Contractor** and Forest Service shall agree on treatment methods to reduce or stop the spread of noxious weeds when new infestations are found. A current list of noxious weeds of concern to Forest Service is available at each Forest Service office.

G.II.12 Conduct of Logging. Unless otherwise specifically provided herein, **Contractor** shall fell trees designated for cutting and shall remove the portions that meet Utilization Standards, prior to acceptance of work for completion of logging and stewardship projects. Forest Service may make exceptions for occasional trees inadvertently not cut or trees or pieces not removed for good reason, including possible damage to forest resources or gross economic impracticability at the time of removal of other timber.

G.II.13 Felling and Bucking. Felling shall be done to minimize breakage of included timber and damage to residual timber. Unless agreed otherwise, felling shall be done by saws or shears. Bucking shall be done to permit removal of all minimum pieces. **Contractor** may buck out cull material when necessary to produce pieces meeting utilization standards. Such bucked out material shall contain a minimum amount of sound wood, not in excess of the net scale in percentage of gross scale, or based on the merchantability factor. If necessary to assess extent of defect, **Contractor** shall make sample saw cuts or wedges.

G.II.14 Stump Heights. Stumps shall not exceed, on the side adjacent to the highest ground, the maximum heights set forth in Appendix E except that occasional stumps of greater heights are acceptable when **Contractor** and FS determine(s) that they are necessary for safe and efficient conduct of logging. Unless otherwise agreed, **Contractor** shall re-cut high stumps so they will not exceed heights specified in F.II.4.

G.II.15 Bucking Lengths. Trees shall be bucked in various lengths to obtain the greatest utilization of material meeting utilization standards.

G.II.16 Limbing. Trees designated for removal will be whole tree skidded throughout the project area. If limbing must occur before skidding due to safety concerns, contractor must have approval from **Contractor** in accordance with the Forest Service.

G.II.17 Skidding and Yarding. Trees will be whole tree skidded throughout the project area. Products shall not be skidded against reserve trees and tractors shall be equipped with a winch to facilitate skidding.

G.II.18 Rigging. Insofar as practicable, needed rigging shall be slung on stumps or trees designated for cutting.

G.II.19 Landings and Skid Trails. Location of all landings, tractor roads, and skid trails shall be agreed upon by contract administration and in coordination with USFS prior to their construction. The cleared or excavated size of landings shall not exceed that needed for efficient skidding and loading operations.

G.II.20 Arches and Dozer Blades. Skidding tractors equipped with pull-type arches or dozer blades wider than tractor width or C-frame width, whichever is greater, shall not be used in residual timber, except on constructed tractor roads or landings, unless there is written agreement that residual timber will not be damaged materially by such use.

G.II.21 Protection of Streamcourses. Contractor's Operations shall be conducted to prevent debris from entering streamcourses. In event **Contractor** cause(s) debris to enter streamcourses in amounts that may adversely affect the natural flow of the stream, water quality, or fishery resource, **Contractor** shall remove such debris as soon as practicable, but not to exceed 2 days, and in an agreed manner that will cause the least disturbance to streamcourses.

a) Within the project area, there are multiple AMZ sizes. Within the Wildland Urban Interface half mile buffer there are two AMZ sizes. Pine Creek is buffered 75 ft from the bank and all other tributaries are buffered 25ft from the bank. Outside of the Wildland Urban Interface half mile buffer, Pine Creek is buffered 150 feet from the bank and all other tributaries are buffered 50 feet from the bank. All zones are shown on the project area map.
b) Culverts or bridges shall be required on Temporary Roads at all points where it is necessary to cross Streamcources. Such facilities shall be of sufficient size and design and installed in a manner to provide unobstructed flow of water and to minimize damage to stream courses. Trees or products shall not be otherwise hauled or yarded across streamcourses unless fully suspended.
c) Wheeled or track-laying equipment shall not be operated in streamcourses, except at crossings agreed to by **Contractor**, NFF, and the Forest Service or as essential to construction or removal of culverts and bridges.
d) Flow in streamcourses may be temporarily diverted only if such diversion is necessary for **Contractor**'s planned construction and Forest Service gives written authorization. Such flow shall be restored to the natural course as soon as practicable and, in any event, prior to a major storm runoff period or runoff season.
e) When harvesting designated timber within AMZ's, operations shall be conducted perpendicular to the stream bank. Parralell to the stream bank operations shall not be conducted unless otherwise agreed upon by **Contractor** in accordance with the Forest Service.

G.II.22 Erosion Prevention and Control. Contractor's operations shall be conducted reasonably to minimize soil erosion. Equipment shall not be operated when ground conditions are such that excessive damage will result. **Contractor** shall adjust the kinds and intensity of erosion control work done, to ground conditions and weather conditions and the need for controlling runoff. Erosion control work shall be kept current immediately preceding expected seasonal periods of precipitation or runoff.

Prior to periods of accelerated water runoff, especially during the spring runoff and periods of heavy rainfall, **Contractor** shall inspect and open culverts and drainage structures, construct special cross ditches for road runoff, and take other reasonable

measures needed to prevent soil erosion and siltation of streams.

Unless otherwise agreed in writing, **Contractor** shall complete erosion prevention and control work, including streamcourse protection, within 15 calendar days after completion of skidding and/or yarding operations for each landing.

Designation of on the ground work shall be done as promptly as feasible unless it is agreed that the location of such work can be established without marking on the ground.

During periods of accelerated water runoff, especially during the spring runoff and periods of heavy rainfall, **Contractor** shall inspect and open culverts and drainage structures, construct special cross ditches for road runoff, and take other reasonable measures needed to prevent soil erosion and siltation of streams.

When operations are active, erosion control work will be kept current and will be completed as soon as practicable.

G.II.23 Protection of Improvements. So far as practicable, **Contractor** shall protect improvements (such as roads, trails, telephone lines, ditches, and fences):

a) Existing in the operating area,
b) Determined to have a continuing need or use, and
c) Designated on the Map.

Contractor shall protect water improvements (Protected Water Sites) identified on the project area map.

Contractor shall keep roads and trails needed for fire protection or other purposes and designated on the Map reasonably free of equipment and products, slash, and debris resulting from **Contractor**'s operations. **Contractor** shall make timely restoration of any such improvements damaged by **Contractor**'s operations and, when necessary because of such operations, shall move such improvements.

G.II.24 Meadow Protection. Reasonable care shall be taken to avoid damage to the cover, soil, and water in meadows shown on the Map. Vehicular or skidding equipment shall not be used on meadows, except where roads, landings, and tractor roads are approved. Unless otherwise agreed, trees felled into meadows shall be removed by endlining. Resulting logging slash shall be removed where necessary to protect cover, soil, and water.

G.II.25 Wetlands Protection (Springs). Wetlands requiring protection under Executive Order 11990 are shown on the Map. Vehicular or skidding equipment shall not be used in such wetlands, except where roads, landings, and tractor roads are approved.

G.II.26 Temporary Roads. As necessary to attain stabilization of roadbed and fill slopes of temporary roads, **Contractor** shall employ such measures as outsloping, drainage dips, and water-spreading ditches. After a temporary road has served **Contractor**'s purpose, **Contractor** shall give notice to the Forest Service and shall remove bridges and culverts, eliminate ditches, outslope roadbed, remove ruts and berms, effectively block the road to normal vehicular traffic where feasible under existing terrain conditions, and build cross ditches and water bars, as staked or otherwise agreed to. When bridges and culverts are removed, associated fills shall also be removed to the extent necessary to permit normal maximum flow of water. All Temporary roads will be in accordance with the following specifications.

Specification T-800 Definitions

Wherever the following terms or pronouns are used in Specifications T-801 through T-GEN, the intent and meaning shall be interpreted as follows:

800-1.1 - Agreement. Maintenance projects require a mutually acceptable method to resolve the problems, which arise when incompatible situations arise between drawings and specifications and actual conditions on the ground to allow orderly and satisfactory progress of the maintenance.

These specifications have been developed in anticipation of those problem areas and have provided that such changes will be by Agreement.

It is intended that drawings and specifications will govern unless "on-the-ground" conditions warrant otherwise, when specifications call for "Agreement", "agreed", or "approval" such Agreement or approval shall be promptly confirmed in writing.

800-1.2 - Annual Road Maintenance Plan. A plan prepared by various users of one or several roads. The plan is an Agreement on maintenance responsibilities to be performed for the coming year.

800-1.3 - Base Course. Material used to reinforce Subgrade or, as shown on drawings, placed on Subgrade to distribute wheel

loads.
800-1.4 - Berm. Curb or dike constructed to prevent uncontrolled Roadway runoff water from discharging onto embankment slope.
800-1.5 - Borrow. Select Material taken from designated borrow sites.

800-1.6 - Crown, Inslope, and Outslope. The cross slope of the Traveled Way to aid in drainage and traffic maneuverability.
800-1.7 - Culverts. A conduit or passageway under a road, trail, or other obstruction. A culvert differs from a bridge in that it is usually entirely below the elevation of the Traveled Way.
800-1.8 - Drainage Dip. A dip in the Traveled Way which intercepts surface runoff and diverts the water off the Traveled Way. A Drainage Dip does not block the movement of traffic.
800-1.9 - Drainage Structures. Manufactured structures which control the runoff of water from the Roadway including Inslope, overside drains, aprons, flumes, downdrains, downpipes, culverts, and the like.
800-1.10 - Dust Abatement Plan. A table which lists the road, dust palliative, application rates, and estimated number of subsequent applications.
800-1.11 - Lead-off Ditches. A ditch used to transmit water from a Drainage Structure or Drainage Dip outlet to the natural drainage area.
800-1.12 - Material. Any substances specified for use in the performance of the work.

800-1.13 – Pre-haul Maintenance. Road maintenance work which must be accomplished to maintain the roads to a satisfactory condition commensurate with the Purchaser's use, provided Purchaser's Operations do not damage improvements under B/BT6.22 or G/GT.2.2, or National Forest resources and hauling can be done safely. This work will be shown in the Annual Road Maintenance Plan as provided in C/CT5.31# or K/T-F/T3.1#. Pre-haul Maintenance work the Purchaser elects to perform will be in compliance with the Road Maintenance T-Specifications.
800-1.14 - Roadbed. The portion of a road between the intersection of Subgrade and sideslopes, excluding that portion of the ditch below Subgrade.
800-1.15 - Road Maintenance Plan. A table which shows applicable road maintenance specifications to be performed by Purchaser on specific roads.
800-1.16 - Roadside. A general term denoting the area adjoining the outer edge of the Roadway.

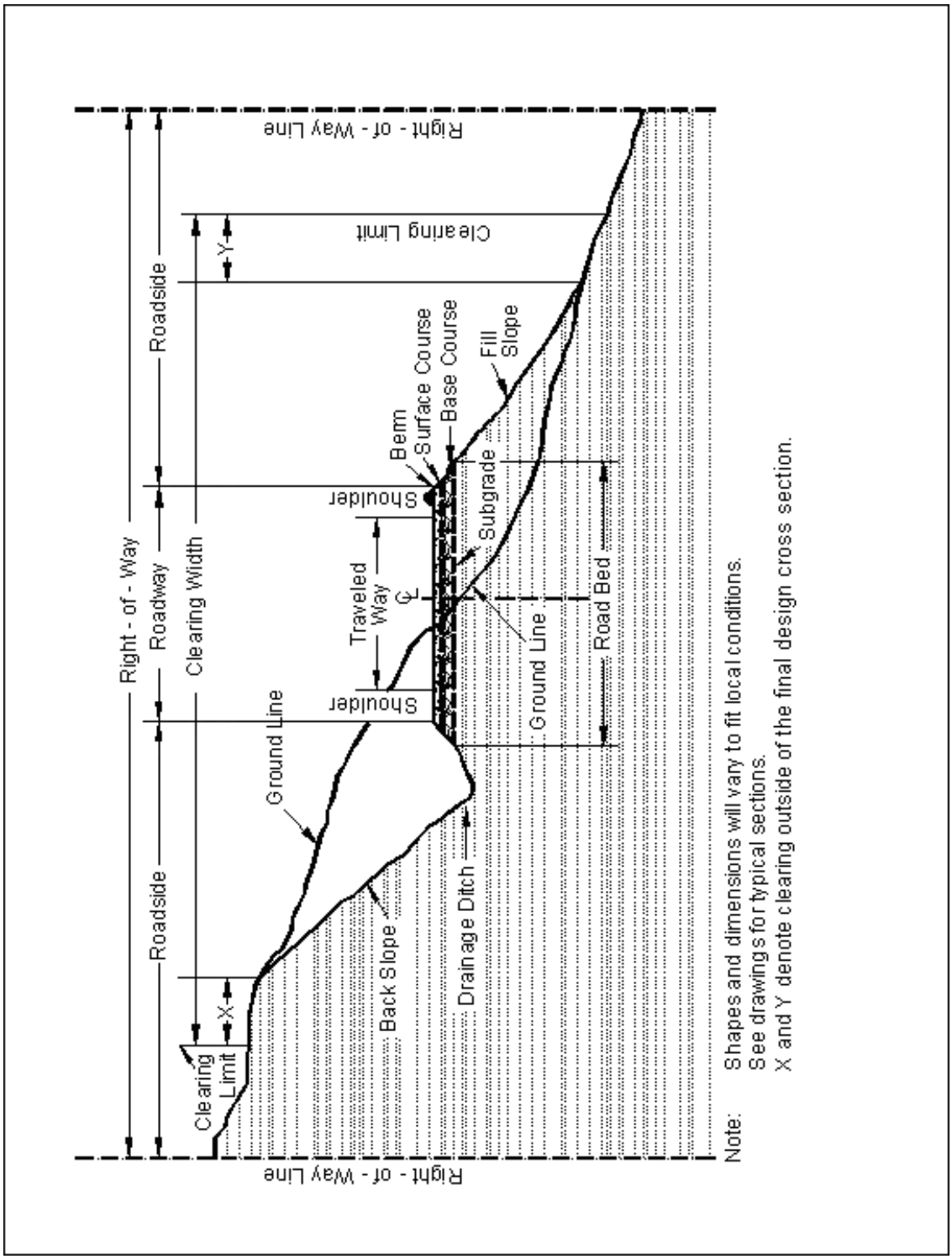
800-1.17 - Roadway. The portion of a road within the limits of excavation and embankment.

800-1.18 - Shoulder. That portion of Roadway contiguous with Traveled Way for accommodation of stopped vehicles, for emergency use, and lateral support of base and Surface Course, if any.
800-1.19 - Slide. A concentrated deposit of Materials from above or on backslope extending onto the Traveled Way or Shoulders, whether caused by mass land movements or accumulated ravelling.
800-1.20 - Slough. Material eroded from the backslope which partially or completely blocks the ditch, but does not encroach on the Traveled Way so as to block passage of traffic.
800-1.21 - Slump. A localized portion of the Roadbed which has slipped or otherwise become lower than that of the adjacent Roadbed and constitutes a hazard to traffic.
800-1.22 - Special Project Specifications. Specifications which detail conditions and requirements peculiar to the individual project.
800-1.23 - Subgrade. Top surface of Roadbed upon which Base Course or Surface Course is constructed. For roads without Base Course or Surface Course, that portion of Roadbed prepared as the finished wearing surface.
800-1.24 - Surface Course. The Material placed on Base Course or Subgrade primarily to resist abrasion and the effects of climate. Surface Course may be referred to as surfacing.
800-1.25 - Surface Treatment Plan. A table which lists the roads and surface treatments to be applied.

800-1.26 - Traveled Way. That portion of Roadway, excluding Shoulders, used for the movement of vehicles.

800-1.27 - Turnouts. That portion of the Traveled Way constructed as additional width on single lane roads to allow for safe passing of vehicles.
800-1.28 - Water Source. A place designated by the Contracting Officer for acquiring water for road maintenance purposes.

800-1.29 - Waterbar. A dip in the Roadbed which intercepts surface runoff and diverts the water off the Roadway. A Waterbar is not designed to be traversable by logging trucks.



SPECIFICATION T-803 SURFACE BLADING

DESCRIPTION

1.1 Surface blading consists of keeping a native or aggregate surface Roadbed in a condition to facilitate traffic and provide proper drainage. It includes maintaining the Crown or Slope of the Traveled Way, Shoulders, Drainage Dips, all drainage ditches, Turnouts, Berms, and approach road intersections; also cleaning bridge decks. It also provides a level of smoothness appropriate for the traffic served.

MATERIALS

2.1 *Water*. **When required**, water shall be applied according to the requirements in Specification T-807 during scarifying and/or blading if sufficient moisture is not present to cut, mix, or compact the surface Material. Water Sources will be shown on the project area map, or designated by the designated Forest Service official. The requirement will be listed in C/CT5.31# or K/KT-F/FT.3.1#, when applicable.

REQUIREMENTS

3.1 Surface blading shall be performed immediately before, during, and after Purchaser's use as often as necessary to facilitate traffic and proper drainage.

3.2 Surface irregularities shall be eliminated by scarification and/or blading, and the surface left in a free- draining state and to a smoothness needed to facilitate traffic. The surface blading shall preserve the existing cross-section. Surface Material which has been displaced to the Shoulders or Turnouts shall be returned to the Traveled Way. The blading operation shall be conducted to prevent the loss of surface Material and to provide for a thorough mixing of the Material being worked.

3.3 When directed by the designated Forest Service official, residual bituminous material from previous surface-stabilization treatments shall be scarified and reduced to produce material not exceeding 3 inches (76.2 mm) in greatest dimension.

3.4 Roadway backslopes or Berms shall not be undercut, nor shall new Berms be established unless agreed to, **in writing**, by the designated Forest Service official.

Berms shall be repaired by placing Material, as needed to restore the Berm, to reasonably blend with existing line, grade, and cross-section. Other berms, which are determined by the designated Forest Service official as unnecessary, shall be removed.

3.5 Intersecting roads shall be bladed for a reasonable distance to assure proper blending of the two riding surfaces.

3.6 Drainage Dips and all Ditches shall be cleaned and maintained to reasonably blend with existing line, grade, and cross-section and to provide positive drainage.

3.7 On native surfaced roads, Material generated from backslope Sloughing, and ditch cleaning may be blended with the surface Material being worked. On aggregate surfaced roads this Material shall not be blended with Surface or Base Course Material unless agreed to, **in writing**, by the designated Forest Service official.

3.8 Rocks or other Material remaining on the Traveled Way after the final pass that are larger than 4 inches in diameter or are larger than the maximum size of imported surfacing shall be removed from the Traveled Way. Unless otherwise designated by the designated Forest Service official, the oversized Material shall be disposed of by sidecasting. Sidecasting into streams, lakes, or water courses shall not be permitted.

3.9 Material and/or debris resulting from work under this specification shall not remain on or in structures, such as Culverts, bridge decks, overside drains, cattleguards, ditches, Drainage Dips, and the like.

3.10 *Compaction.* **When required**, the roadbed shall be compacted according to one of the following compaction methods, as listed in C/CT5.31# or K/KT-F/FT.3.1#:

Compaction Method A - Operate equipment over the full-width until there is no visible evidence of further consolidation.

Compaction Method B - Use compression-type or vibratory rollers. Compact, full width, to at least 95 percent of the maximum density. Determine the in-place density and moisture content according to AASHTO T 310 or other approved test procedures. When required, use AASHTO T 224 to correct coarse particles.

3.11 *Grid Rolling.* **When required**, the roadbed shall be grid rolled as listed in C/CT5.31# or K/KT-F/FT.3.1#. Unless otherwise agreed by the designated Forest Service official, grid-rolling will continue until roadbed imported surfacing-materials are reduced to a size not exceeding 3 inches (76.2 mm) in greatest dimension or two-thirds of the depth of the existing surfacing, whichever is greater.

SPECIFICATION T-804 OPENING AND MAINTAINING ROADS

DESCRIPTION

1.1 Opening and Maintaining Roads consists of opening roads by removing closure devices, cleaning ditches and other drainage devices built into the roadway, removing berms, and blading the traveled-way. This work also consists of maintaining the roadway immediately before, during, and after the Purchaser's use as necessary to facilitate traffic and proper drainage.

REQUIREMENTS

3.1 Closure devices, such as waterbars, depressions, mounds of earth, or downed-trees, shall be removed and disposed of at locations designated by the designated Forest Service official.

3.2 All trees and logs on the roadbed, and trees and brush that overhang the traveled-way and interfere with vehicle travel shall be removed and scattered outside the roadway.

3.3 All drainage features including drainage-dips, ditches, roadway cross-slope, and other drainage devices built into the roadway shall be cleaned and maintained so they are functional.

3.4 Berms shall be removed as directed by the designated Forest Service official, and the traveled-way shall be bladed to produce a smooth rideable surface.

SPECIFICATION T-811 CLOSING ROADS

DESCRIPTION

1.1 Closing roads consists of closing roads by restoring or installing closure-devices and drainage-facilities on roads no longer needed by the Purchaser or when interim closures are required during periods of Purchaser's non-use.

Closure devices and drainage facilities may consist of cross-ditches, waterbars, drainage-dips, barriers or gates and restoring cross-sloped sections.

MAINTENANCE REQUIREMENTS

3.1 During periods of Contractor's/Purchaser's non-use, roads designated for interim closures shall be closed unless otherwise agreed to, **in writing**, by the designated Forest Service official.

The entire roadway shall be bladed and shaped to provide drainage during periods of closure or non-use.

Where possible, and still retaining appropriate surface-drainage characteristics, existing surface-vegetation shall be protected in accordance with the High Blading requirements found in Specification T-805 Opening and Maintaining Roads (High Blading).

3.2 All drainage-dips, out-sloped or in-sloped sections, or other drainage devices built into the roadbed and roadway ditches shall be restored and replaced. Existing culverts shall be maintained to provide unobstructed flow.

Waterbars and other cross-ditches shall be installed at locations designated by the designated Forest Service official.

3.3 All closure-devices and signs shall be constructed, located, installed, and maintained according to the standards contained in the most current version of the MUTCD.

3.4 Where existing surface-vegetation has been destroyed as a result of Purchaser's operation, the entire roadway will be seeded with a seed-mixture approved by the designated Forest Service official.

G.II.27 Temporary Roads to Remain Open. All bridges and culverts shall remain in place and ditches shall not be eliminated on Temporary Roads, shown as "Remained Open on the Map. All drainage structures shall be left in functional condition.

G.II.28 Landings. After landings have served **Contractor**'s purpose, **Contractor** shall ditch and slope them to permit water to drain or spread. Unless agreed to otherwise, cut and fill banks around landings shall be sloped to remove overhangs and otherwise minimize erosion.

G.II.29 Skid Trails and Fire Lines. Contractor shall construct cross ditches and water-spreading ditches on tractor roads and skid trails, where needed to prevent erosion. By agreement, **Contractor** may use other comparable erosion control measures, such as backblading skid trails, in lieu of cross ditching.

G.II.30 Current Operating Areas. Where logging, road construction, or other stewardship project work is in progress but not completed, unless agreed to otherwise, **Contractor** shall, before operations cease annually, remove all temporary log culverts and construct temporary cross drains, drainage ditches, dips, berms, culverts, or other facilities needed to control erosion. Such protection shall be provided, for all disturbed, unprotected ground that is not to be disturbed further prior to end of operations each year, including roads and associated fills, tractor roads, skid trails, and fire lines. When weather permits operations, **Contractor** shall keep such work on any additional

disturbed areas as up to date as practicable.

G.II.31 Erosion Control Structure Maintenance. During the period of this SPA, **Contractor** shall provide maintenance of soil erosion control structures constructed by **Contractor** until they become stabilized or are no longer needed to complete project work items.

G.II.32 Slash Disposal. Contractor's timing of product removal and preparatory work shall not unnecessarily delay slash disposal. Specific slash disposal measures to be employed by **Contractor** are stated in Appendix E.

G.II.33 Scaling. Scaling includes:

a) Various volume determination methods, such as log rule, sampling, measuring, linear measuring, counting, weighing, or another method or combination of methods;
b) Various sites, such as truck Scaling stations, rollways, weighing stations, woods landings, water Scaling stations, or other sites.
c) Various geographic locations.

G.II.34 Scaling Services. Scaling services shall be performed by Forest Service personnel or parties under contract to Forest Service, except that weighing services may be performed by personnel or parties approved by the Forest Service. Scaling shall be provided in accordance with the instructions and specifications in Appendix F. Scalers shall be currently certified to perform accurate Scaling services. The scaling services provided shall be selected exclusively by the Forest Service. Scaling services may be continuous, intermittent, or extended.

a) Continuous scaling services is scaling at one site five (5) 8-hour shifts a week, exclusive of Sundays and Federal holidays.
b) Intermittent scaling services are non-continuous scaling services.
c) Extended scaling services are scaling services exceeding continuous scaling services and may include Sundays and designated Federal holidays.

As mutually agreed to by the parties, the Forest Service may provide other services, such as but not limited to grading, tagging, or marking of Scaled logs.

G.II.35 Scaling Location. The Forest Service shall provide scaling services at the scaling site(s) shown in Appendix F. The Scaling site(s) shown in Appendix F normally will be a non-exclusive site where more than one National Forest may be served. **Contractor** may request, in writing, an alternate scaling site, such as at a private mill yard, private truck ramp, or a privately operated log transfer facility. The Forest Service may approve an alternate scaling site, when the Forest Service determines that scaling conditions at an alternate site are acceptable. Such conditions shall include at a minimum:

a) Scaler safety and comfort,
b) Product accountability and security,
c) Facilities and practices conducive to accurate and independent Scaling, and
d) The ability to provide for remote check Scaling.

Upon approval of an alternate scaling site, the Forest Service and **Contractor** shall enter into a written memorandum of agreement governing Scaling at that alternate location. **Contractor** agree(s) that Forest Service personnel or persons under contract with the Forest Service shall perform scaling services at an alternative scaling site. In no instance shall **Contractor** scaling services.

G.II.36 Scaling Adjustments. The Forest Service shall check the accuracy of the scaling performed on National Forest logs. Scaling will be satisfactory if performed within the accuracy standards in governing instructions identified in Appendix F. In the event the Forest Service check scale(s) shows a variance in net scale in excess of the allowable variance, an adjustment to volume reported scaled may be made by the Forest Service. Such adjustment will be based on the difference between Forest Service check Scale(s) and original Scale for SPA volume Scaled within the adjustment period. The volume to which this difference will be applied will be:

a) One-half of the volume Scaled between the last satisfactory check Scale and the first unsatisfactory check Scale or, if a period of 120 days or more occurs without Scaling National Forest timber for stumpage, the adjustment will be applied to 100 percent of the volume Scaled after this period and
b) 100 percent of the volume Scaled between unsatisfactory check Scales and
c) One-half of the volume Scaled between the last unsatisfactory check Scale and the next satisfactory check

Scale, or if no satisfactory check Scale is completed and a period of 120 days or more occurs without Scaling of National Forest timber for stumpage, the adjustment will be applied to 100 percent of the volume Scaled since the last unsatisfactory check Scale.

Adjustments may increase or decrease the original Scaled volume. Adjustments will be applied to Integrated Resource Account to correct charges for Included Timber, plus deposits, Scaled during the adjustment period.

G.II.37 Weighing Services. Weighing services for stumpage payment purposes may be provided by either public or privately owned and operated weighing facilities. A "Weighing Services Agreement," approved by the Forest Supervisor, must be executed at each weighing facility providing weighing services.

Scales used to weigh National Forest products for payment purposes must be a currently certified scale in accordance with State law and be capable of weighing the entire load of logs in a single operation. The weighing of less than the entire load or weighing two loads at once is prohibited. Unless otherwise agreed, the minimum sized weighing facility shall be a 60-ton capacity scale with a 10 foot by 70 foot platform or larger. The weighmaster must work in a position where it is possible to verify that the truck wheels are on or off the scales.Weighing facilities shall meet the following minimum requirements:

a) Be an electronic design,
b) Use electronic load cells or have a fully enclosed and sealed weigh-beam,
c) Have digital weight meters sealed with a seal approved by the State,
d) Have a zero interlocking device on the printer,
e) Have an automatic zero-setting mechanism,
f) Have an automatic motion-detecting device,
g) Be shielded against radio or electromagnetic interference, and
h) Have a date and time stamp and gross and tare weights that print electronically with each weighing. The Forest Service may waive electronic printing for public or third party weighing facilities. **Contractor** shall bear all charges or fees for weighing services.

G.II.38 Presentation for Scaling. Contractor shall present products so that they may be Scaled in an eco-nomical and safe manner.

G.II.39 Accountability. When Scaling is performed away from Stewardship Project Area, products shall be accounted for in accordance with Forest Service written instructions, as follows:

a) **Contractor** shall plainly mark or otherwise identify products prior to hauling;
b) Forest Service shall issue removal receipts to **Contractor**;
c) **Contractor** shall assign a competent individual at the landing to complete removal receipts and attach them to each load of products removed from Stewardship Project Area;
d) Removal receipts shall be returned to Forest Service at periodic intervals;
e) When products are in transit, the truck driver shall possess or display removal receipt and show it upon request as evidence of authority to move products;
f) The scaler's portion of removal receipt shall be surrendered at point of Scaling, the unloading point, or as requested by Forest Service; and
g) **Contractor** shall notify Forest Service of lost or off-loaded logs and their location within 12 hours of such loss. **Contractor** shall not place products in storage for deferred Scaling until an accountability system has been agreed to in writing for a stated period.

G.II.40 Route of Haul. As part of the annual Operating Schedule, **Contractor** shall furnish a map showing the route of haul over which unscaled products will be transported from the Stewardship Project Area to the approved Scaling location. Such route of haul shall be the shortest, most economical haul route available between the points.

Upon advance written agreement, other routes may be approved. All unscaled products removed from Stewardship Project Area shall be transported over the designated routes of haul. **Contractor** shall notify Forest Service when a load of products, after leaving Stewardship Project Area, will be delayed for more than 12 hours in reaching Scaling location.

Contractor shall require truck drivers to stop, if requested by Forest Service, for the following reasons:

a) For accountability checks when products are in transit from Stewardship Project Area to the designated Scaling location or
b) For a remote check Scale when products are in transit after being truck Scaled at the designated Scaling location.

Contractor, **Contractor** and Forest Service shall agree to locations for accountability checks and remote check Scales in advance of haul. Such locations shall be established only in areas where it is safe to stop trucks. The **Contractor** and Forest Service shall notify **Contractor** of the methods to be used to alert truck drivers of an impending stop.

G.II.41 Product Identification. Before removal from the Stewardship Project Area, unless the Forest Service determines that circumstances warrant a written waiver or adjustment, **Contractor** shall:

a) Hammer brand all products that are eight (8) feet or more in length and one-third (1/3) or more sound, on each end that is seven (7) inches or more in diameter.
b) West of the 100th meridian, paint with a spot of highway-yellow paint all domestic processing products that are eight (8) feet or more in length and one-third (1/3) or more sound, on each end that is seven (7) inches or more in diameter. Each paint spot must be not less than three (3) square inches in size.

The Forest Service shall assign brands and, if the Stewardship Project Area is within a State that maintains a log brand register, brands shall be registered with the State. **Contractor** shall use assigned brand exclusively on logs under this SPA until Forest Service releases brand. **Contractor** will furnish and apply highway-yellow paint of a lasting quality (oil-base or equivalent).
All hammer brands and/or highway-yellow paint must remain on logs until they are domestically processed. **Contractor** shall replace identifying marks if they are lost, removed, or become unreadable. **Contractor** may remanufacture products into different log lengths. Except for logs remanufactured as part of the mill infeed process immediately before processing, remanufactured products must be rebranded with the assigned SPA brand and repainted with highway-yellow paint, unless otherwise agreed to in writing by the Forest Service Representative. For such remanufactured products, Forest Service may approve use of a brand to be used exclusively as a catch brand, in lieu of the assigned SPA brand.

G.II.42 Scaling Lost Products. The volume of lost products shall be determined by the best methods currently available, using data from the records for the period in which the loss occurred or the most applicable period if loss should occur substantially after cutting. In the absence of specific information indicating size or species of lost products, species distribution and volume for entire truckloads shall be assumed to be the same as the average volume Scaled per truck during the report period, and for individual products it shall be assumed that the volume and species were the average volume of the highest priced species Scaled during the report period.

G.II.43 Scaling Lost Sample Loads. If Scaling is being done by sampling loads of logs, **Contractor** shall present such sample loads for Scaling by Forest Service. If loads of logs selected to be sample Scaled are placed in the decks before they are Scaled, they will be considered as lost sample loads. It will be difficult, if not impossible, to determine the volume and species contained in such loads for payment purposes. Therefore, lost sample loads will be deemed to have a Scale volume and species composition equal to that of the highest value load Scaled during the sampling period, as established by Forest Service. If no sample loads were Scaled during the period, the Scale data for the high valued load will be taken from the most current preceding sampling period with Scale. Sample loads lost as a result of Forest Service actions shall be treated as non-Scaled loads.

G.II.44 Scale Reports. The NFF provide **Contractor** a copy of Forest Service scaler's record, if requested in writing.

G.II.45 Fire Precautions and Control

a) **Plans.** Prior to initiating **Contractor**'s operations during Fire Precautionary Period, **Contractor** shall file with Forest Service a Fire Prevention and Control Plan providing for the prevention and control of fires on the Stewardship Project Area and other areas of **Contractor**'s Operations. Such plan shall include a detailed list of personnel and equipment at **Contractor** disposal for implementing the plan. This requirement may be met by preparing a single plan for more than one SPA.

b) **Fire Precautions.** Specific fire precautionary measures listed in this Appendix shall be applicable during **Contractor**'s Operations in "Fire Precautionary Period" described. The dates of Fire Precautionary Period may be changed by agreement, if justified by unusual weather or other conditions. Required tools and equipment shall be kept in serviceable condition and immediately available for fire fighting at all times during **Contractor**'s operations in Fire Precautionary Period.

c) **Substitute Precautions.** The Forest Service may authorize substitute measures or equipment, or waive specific requirements by written notice, if substitute measures or equipment will afford equal protection or some of the required measures and equipment are unnecessary.

d) **Emergency Precautions.** The Forest Service may require the necessary shutting down of equipment on portions of **Contractor**'s Operations, as specified by the emergency fire precautions schedule. Under such conditions, after **Contractor** cease(s) active operations, **Contractor** shall release for hire by Forest Service, if needed, **Contractor**'s shutdown equipment for fire standby on the Stewardship Project Area or other areas of **Contractor**'s Operations and personnel for fire standby or fire patrol, when such personnel and equipment are not needed by **Contractor** for other fire fighting or protection from fire. Equipment shall be paid for at fire fighting equipment rates common in the area or at prior agreed rates and, if **Contractor** request(s), shall be operated only by personnel approved by the **Contractor** Personnel so hired shall be subject to direction and control by Forest Service and shall be paid by Forest Service at fire fighting rates common in the area or at prior agreed rates.

e) **Fire Precautionary Period and Fire Precautions.** Specific fire precautionary measures are set forth below. Upon request of Forest Service, **Contractor** shall permit and provide an individual to assist in periodic testing and inspection of required fire equipment. **Contractor** shall promptly remedy deficiencies found through such inspecting and testing.

1. The following requirements shall apply during the period **March 15 to November 30** and during other such periods as specified by Forest Service.

INDUSTRIAL FIRE PRECAUTION PLAN – DESCRIPTION

EMERGENCY FIRE PRECAUTIONS (03/13)

Purchaser will restrict operations in accordance with the attached Emergency Fire Precaution Schedule. The Contracting Officer shall inform the Purchaser of any changes in the Industrial Fire Precaution Plan. The procedure for the Contracting Officer to notify the Purchaser of a change shall be stated in the Fire Prevention and Control Plan required by HT.1. The Contracting Officer may, after consultation with the Forest Supervisor, adjust the predicted Industrial Fire Precaution Plan for local weather conditions on Sale Area. Changes in the predicted Industrial Fire Precaution Plan shall be agreed to in writing.

EMERGENCY FIRE PRECAUTION SCHEDULE	
FIRE RESTRICTION/CLOSURE "STAGE"	
RESTRICTION LEVELS	**INDUSTRIAL FIRE PRECAUTION PLAN**
NO RESTRICTIONS	**A**
STAGE I	**B**
STAGE II	**C**
PARTIAL/FOREST CLOSURE*	**D**
RED FLAG WARNING (Issued by National Weather Service)	**D**

INDUSTRIAL FIRE PRECAUTION PLAN – DESCRIPTION

Plan	**Item**	**MST (Mtn. Standard Time)**	**MDT (Mtn. Daylight Time)**
A	Normal Fire Precautions (CT 7.2) No fire guard required.		
B	Normal Fire Precautions (KT-HT.2) except designated areas for smoking and warming or cooking fires requires a written permit. Purchaser will provide fire guard (CT7.21).		
C	No smoking, warming or cooking fires are permitted at any time. Purchaser will provide fire guard (CT7.21).		
	All power saws except for chainsaws used for limbing on landings cleared to mineral soil will shut down:	12:00 am to 8:00 pm	1:00 pm to 9:00 pm

	Mechanical fellers except for mechanical fellers equipped with hydraulic shears will shut down:		
	Shutdown all machine treatment of slash; mechanical equipment used for shearing, bunching or delimbing; skidding; cable yarding; blasting and clearing:	12:00 noon to 8:00 pm	1:00 pm to 9:00 pm
	Welding, metal cutting on cleared mineral soil will shut down:	12:00 noon to 8:00 pm	1:00 pm to 9:00 pm
	All chainsaws used for limbing on landings cleared to mineral soil will shut down:	2:00 pm to 8:00 pm	3:00 pm to 9:00 pm
	Loading on landings cleared to mineral soil will shut down:	2:00 pm to 8:00 pm	3:00 pm to 9:00 pm
	Log hauling trucks must be to a surfaced road by:	2:00 pm	3:00 pm
	Logging operation may continue after:	8:00 pm	9:00 pm
	Operations on mineral soil involving road excavation, watering, grading, surfacing, rock crushing, and/or other equipment maintenance may continue.		
D	Shutdown all operations; except operations on mineral soil involving road excavation, watering, grading, gravel surfacing, and rock crushing may continue with special Forest Service permit. Purchaser will provide fire guard (CT7.21).		

***Partial/Forest Closure:**
Timber sale areas which are outside the boundaries of the partial forest closure may continue to operate under Industrial Fire Precaution Plan "C" operating criteria as agreed upon between the CO and Purchaser in writing.

Timber sale areas within the boundaries of the proclaimed partial forest closure area are to operate under Industrial Fire Precaution Plan "D".

G.II.46 Fire Control. **Contractor** shall, both independently and in cooperation with Forest Service, take all reasonable and practicable action to prevent and suppress fires resulting from **Contractor's** Operations and to suppress any forest fire on Stewardship Project Area. **Contractor**'s independent initial fire suppression action on such fires shall be immediate and shall include the use of all necessary personnel and equipment at **Contractor**'s disposal on Stewardship Project Area or within the distance of Stewardship Project Area: ***.25 miles.***

a) **The Partner's Reinforcement Obligations.** Whenever an Operations Fire or Negligent Fire, whether on or off Stewardship Project Area or any other forest fire on Stewardship Project Area, has not been suppressed by initial action and appreciable reinforcement strength is required, Forest Service may require further actions by **Contractor** until such fire is controlled and mopped up to a point of safety. Such actions may include any or all of the following as necessary to fight such fire:

b) **Suspend Operations.** To suspend any or all of **Contractor**'s Operations.

c) **Personnel.** To release for employment by Forest Service any or all of **Contractor** personnel engaged in **Contractor**'s Operations or timber processing within the distance of Stewardship Project Area: ***50 road miles.*** Any organized crew so hired shall include **Contractor**'s supervisor, if any. Personnel so employed shall be paid at Forest Service standard emergency fire fighting rates.

d) **Equipment.** To make available for Forest Service rental at fire fighting equipment rates common in the area or at prior agreed rates any or all of **Contractor**'s equipment suitable for fire fighting and currently engaged in **Contractor**'s Operations within the distance of Stewardship Project Area: ***(50 road miles)***. Equipment shall be operated only by personnel approved by **Contractor**, if so requested by **Contractor**.

G.II.47 Temporary Roads and Skid Trails. **Contractor** shall locate Temporary Roads and Skid Trails on locations approved by the Forest Service. Such location shall include the marking of road centerline or grade-line and the setting of such construction stakes as are necessary to provide a suitable basis for economical construction and the protection of National Forest lands.

Temporary road surface width shall be limited to truck bunk width plus four (4) feet, except for needed turnouts which shall not exceed two (2) times the bunk width plus four (4) feet. If shovels or cranes with revolving carriage are used to skid or load, temporary road surface width equal to track width plus tail swing shall be permitted.

As necessary to attain stabilization of roadbed and fill slopes of Temporary Roads, **Contractor** shall employ such measures as outsloping, drainage dips, and water-spreading ditches.

Appendix H.II: Silvicultural Prescriptions

Pine Canyon Restoration Project Phase 2

A) CU-8

Treatment Plan

Silvicultural Treatment: Uneven-aged Management – Group Selection

Prescribed by: Patty Ringle **Date:** 2/24/2022

Certified by: Patty Ringle **Date:** 2/24/2022

Treatment Method: Mechanical and/or Helicopter as Appropriate

Slash Treatment: Removal and chipping of all biomass

Skid Trails: Utilize interspaces

Constraints and Other Considerations:

Leave trees within archaeological sites will be marked. Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands. Historic telephone trees are considered archaeological sites. These trees are marked with double white bands.

Use a directional mark within 1 chain of private property.

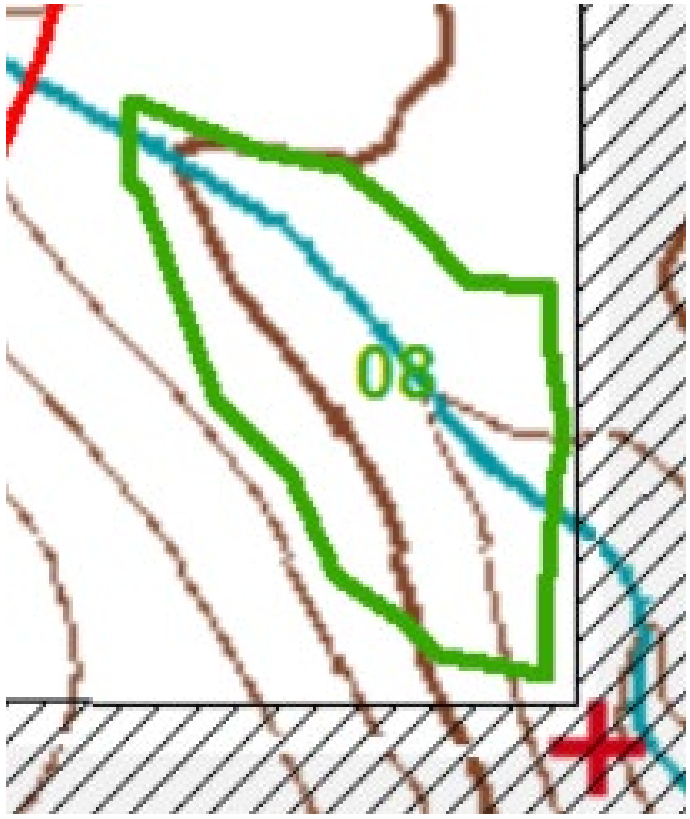
This cut unit is located within 1/4 mile of a MSO PAC. There will be a timing restriction within the MSO PAC and 1/4 mile beyond the PAC boundary. No thinning or burning operations may occur from March 1 – August 31. This timing restriction may be modified or eliminated by the district wildlife biologist if a nest is located or if non-nesting is confirmed.

Aquatic management zones (AMZ) will be designated along Pine Creek, Parsnip Spring, and other intermittent and ephemeral streams. Temp roads and landings are prohibited within AMZs. All stream crossings will be designated by the sale administrator. See design features for AMZ widths and further mitigation measures.

Notes for Layout:

Identity

Project Name	**Cut Unit**	**Acres**
Pine Canyon/ Poco Pino Project	8	5
Forest / District	**NEPA**	**Location(s) / Site(s)**
Tonto NF / Payson RD	Rim Country EIS	000094 / 0011



Follow-up Treatment (next 5 years):

Contract/agreement to be awarded in FY23

Broadcast and reentry burning to follow, dependent upon natural ignition and resources available for managed fire

Layout/Marking

Boundary Designation: Double orange bands

Tree Designation: All conifer leave trees 1-26 inches DBH will be marked with an orange leave tree mark

Layout completed by: DJ Morales, Bret Elgersma **Date:** February 2022

Marking verified by: Woerheide, Nicholls **Date:** June 2022

Notes

Rim Country Treatment:

Analyzed – Uneven-aged - High Site

Prescribed – WUI (Uneven-aged Management – Group Selection with residual target BA of 50 ft^2/ac)

Section II – Existing Conditions

Location/Site 000094/0011: This unit consists of an even-aged stand of ponderosa pine dominated by mid-aged trees. The stand is currently overstocked with ponderosa pine < 18 inches DBH. A portion of the unit was recently hand-thinned for a fuelbreak treatment. Trees < 9 inches DBH were cut, piled, and burned. Species present in the understory include Emory oak, Arizona white oak, and alligator juniper. Arizona sycamore and boxelder near the stream. Basal areas (BA) range from approximately 100 - 320 ft² per acre. Ponderosa pine regeneration is limited due to high stand densities. Regeneration consists of Arizona white oak, Emory oak, alligator juniper, and New Mexican locust. Pockets of dwarf mistletoe infection up to ¼ acre in size noted. Ground cover consists of deer brush, ferns, manzanita, and abundant grass species in portions of the unit. Not identified as MSO habitat. This unit is directly adjacent to private property and is considered WUI. Slopes are generally < 30%, however, small portions of 40-55%+ are located along the stream.

Table 1: Site/Stand Overview 000094/0011

Slope	**Aspect**	**Elevation**	**Habitat Type (s)**	**Hydrology**
5-55+%	NE	5800	PIPO/QUAR	Intermittent Creek

BA QUGA	**Percent of max SDI**	**Site Index**
< 5	60	90

% TPA Infected	**DM Severity (DMR)**	**Dominant Diameter Class**	**BA PIPO > 16 inches DBH**
<5	0.1	12-18	20

Section III – Long-Term Desired Conditions and Prescribed Treatment Objectives

Desired Condition (spatial patterns, species composition, stand structure)

The desired future condition is a healthy, vigorous ponderosa pine forest that is sustainable, uneven-aged, and poses a low fire hazard to the adjacent private property. The unit will exhibit a mosaic pattern of tree groups separated by interspaces. Small openings will be created for pine regeneration. Conditions will be conducive to lower fire severity. Stocking guidelines will be designed to maintain large diameter trees, tree species diversity, and age class diversity, while also reducing fire severity. Trees will be left in groups of varying size and density. Group size will range from 5 – 20 trees. Basal areas within groups will average from 40 - 120 ft², depending on tree age/size. Density of evergreen oak and juniper will be decreased to < 10 trees per acre.

Short-Term Objectives (expected post-treatment outcome)

1. Reduce the risk of catastrophic, stand-replacing wildfire by decreasing overall stand densities, ladder fuels, and crown fuel continuity. Create conditions that facilitate lower fire severity.
2. Create a forest structure that more closely resembles the structure that existed prior to interruption of the historic fire regime (sustainable, uneven-aged, “groupy” leave tree arrangement).
3. Maintain tree species diversity by thinning conifers < 18 inches DBH around riparian tree species and Gambel oak and by retaining larger diameter evergreen oaks and juniper.

Table 3: Current/Desired Conditions for Forest Structure by TPA

TPA (conifers)	**Estimated Current %**	**Expected Post Treatment %**	**Desired Future %**
Seedling/sapling (<5”)	0	10	20
Young trees (5-12”)	20	10	20
Mid-aged trees (12-18”)	70	60	30
Mature/old trees (18+”)	10	20	30

Section IV – Implementation Guide

Cut Unit: 8 Location(s) / Site(s): 000094 / 0011 Acres: 5

Silvicultural Treatment: Uneven-aged Management - Group Selection (WUI)

Implementation Instructions (in order of priority)

Old and Larger Diameter Trees:

1. Leave all ponderosa pine and Douglas-fir > 24 inches DBH, regardless of tree form, health, or vigor.

2. Leave all old ponderosa pine and Douglas-fir, regardless of tree form, health, or vigor. Old trees are greater than 150 years old and display old tree characteristics outlined in the Rim Country Old Tree Implementation Plan.

Other Tree Species:

3. Leave all trees that are stabilizing the banks of ephemeral, intermittent, or perennial streams. These trees are located on the slopes or edge of the stream banks.

4. Leave all Gambel oak, regardless of tree form, health, or vigor. Free up around 1-2 sides of Gambel oak > 10 inches DRC by thinning conifers < 18 inches DBH located within 10-20 ft of the dripline, unless removal of the conifer would damage the oak.

5. Leave all riparian tree species (maple, walnut, Arizona sycamore, boxelder, etc.), regardless of tree form, health, or vigor. Free up around 1 – 2 sides of riparian tree species > 10 inches DRC by thinning conifers < 18 inches DBH located within 10-20 ft of the dripline, unless removal of the conifer would damage the tree.

6. Leave all Arizona white oak and Emory oak > 10 inches DRC. All evergreen oaks ≤ 10 inches DRC will be cut.

7. Leave all juniper > 14 inches DRC. All juniper ≤ 14 inches DRC will be cut.

Regeneration Openings

8. Create openings for regeneration on approximately 10% of the unit area (0.5 acres). Openings will be approximately ¼ acre in size. When creating openings for regeneration, target the following areas:
   - Areas with trees of poor form, health, and vigor
   - Areas with trees in the most prevalent age/size class (young trees 5 - 16 inches DBH)

Individual Leave Trees:

9. Focus tree retention on leaving the "best available" ponderosa pine. The best available trees are in dominant and codominant canopy positions and exhibit the most desirable tree retention standards, relative to other adjacent trees (See the "Tree Quality Standards"). Leave trees with the lowest dwarf mistletoe rating, relative to adjacent trees. Also see Large Tree Implementation Plan.

Leave Tree Groups:

10. Leave trees will be arranged primarily in an irregular/groupy arrangement. Tree groups will vary in shape, size, density, and number of trees. Tree groups will generally range in size from 5 – 20 trees. Leave approximately 1/4 of tree groups in each of the following size ranges:
    - 1/3 of groups – 5-10 trees per group
    - 1/3 of groups – 10-15 trees per group
    - 1/3 of groups – 15-20 trees per group

    Emphasis will be placed on leaving ponderosa pine that are ***NOT*** in the most prevalent size class (> 24 inches DBH and < 5 inches DBH). The following age/size classes will be the highest priority for leave tree groups:
    - Old conifers and conifers > 24 inches DBH

- Ponderosa pine seedlings/saplings (< 5 inches DBH) with good tree form, health, and vigor that are unsuppressed and free to grow
- Mature conifers 16-24 inches DBH
- Ponderosa pine 5-16 inches DBH with good tree form, health, and vigor

11. Within groups, spacing of leave trees will be variable and will range from 5 to 25 feet to mimic natural, historic tree arrangements. As a result, tree densities within groups will vary from one group to the next and will average from 40 - 120 ft^2/acre, based upon tree age and/or size. Leave the following BA distribution:

    Table 4. Desired basal area distribution by age class (DBH is a general guide).

Age Class and Characteristics*	DBH (inches)	Desired Basal Area (ft^2) Range
Seedlings and Saplings	< 5	N/A - Use variable spacing of 5-20 ft
Young trees (black, furrowed bark)	5-12	40-60
Mid-aged trees (black, furrowed bark)	12-18	60-80
Mature trees (black furrowed bark beginning to "yellow" and flatten)	18-24	80-120
Old trees (flat, platey, "yellow" bark)	18+	80-120

    *Bark characteristics are specific to ponderosa pine

Interspaces between Groups:

12. Spacing between groups of leave trees will be variable in size and will generally range from 50-70 feet (measured bole to bole). In general, leave larger interspaces between larger sized groups and in areas with large pockets of dwarf mistletoe infection.

    When creating interspaces, target the following areas:
    - Areas with lower tree densities that provide natural breaks in the tree canopy
    - Areas with trees of poor form, health, and vigor
    - Areas with trees in the most prevalent age/size class (young to mid-aged trees 5 - 18 inches DBH)

Other considerations:

13. Use a directional mark within 1 chain of private property. A directional mark consists of 2 butt marks, with one butt mark facing the private property, and a slash at breast height opposite of the private property around half of the tree bole.

14. All conifer leave trees 2 - 26 inches DBH will be marked with an orange leave tree mark. Conifers > 26 inches DBH will not be marked. However, this unit has an 24-inch diameter cap. Therefore, contract specifications will ensure that conifers greater than 24 inches DBH will not be cut.

15. Leave trees within archaeological sites ***WILL*** be leave tree marked. Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands.

Section V – Site Specific Mitigation Measures / Design Features

(also see full set of mitigation measures from Rim Country EIS)

Archaeology

Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands. Historic telephone trees are considered archaeological sites. These trees are marked with double white bands. Leave trees within archaeological sites ***WILL*** be marked. Vehicles and mechanized equipment are not permitted within archaeological sites. Prior to implementation of proposed treatments, written approval of the forest archaeologist and forest supervisor will be completed (IS&A).

Hydrology

Follow BMPs to prevent soil compaction and displacement (FSH 2509.24.13). Limit driving and harvesting operations to periods of dry soil conditions.

Aquatic management zones (AMZ) are designated along all perennial, intermittent, and ephemeral streams, including Pine Creek and other unnamed creeks. AMZs were developed in collaboration with the forest hydrologist on field trips conducted on July 20, 2021, January 12, 2022, and through further analysis by the forest hydrologist. AMZs designated along streams will range from 50 – 150 feet, measured from each side of the stream.

- ✓ Ephemeral streams: AMZ will extend 50 feet from both banks of the stream.
- ✓ Intermittent streams: AMZ will extend 75 feet from both banks of the stream.
- ✓ Perennial streams: AMZ will extend 150 feet from both banks of the stream.

Vehicular operations including skidding should not occur longitudinally through AMZs. Turning machines and skidding within an AMZ should be minimized to the greatest extent possible. Landings, decking areas, machine or hand piles will occur outside of AMZs unless otherwise specified. Minimize disturbance and removal of riparian vegetation within AMZ's. Stream crossings will be designated by the sale administrator. Highlight protected streams on the CAM.

Within the AMZ around Parsnip Spring and along the spring discharge, ground-based operations are prohibited. Utilize helicopter logging methods. Work in coordination with the forest hydrologist to identify the extent of this area.

Greater than ½ mile from private property, do not construct landings or temp roads within AMZs.

Rim Country design feature SW010 states:

> "Apply the following direction if AMZ is within ½ mile of private land boundary or designated WUI: Treatment measures necessary to reduce the risk of wildfire encroachment on adjacent private lands may take priority over other considerations in these AMZs. Entry and treatments in these reaches will be considered on a case-by-case basis by IDTs."

Tonto NF leadership is interpreting this design feature to allow the building of temp roads within AMZs located within ½ mile of the land boundary with Camp Lo Mia. Entry and treatments within Pine Canyon are considered necessary by the IDT to protect private property in Pine, AZ from the risk of wildfire. Due to the size and volume of trees and biomass to be removed, ground-based logging is necessary to access Pine Canyon in an economical manner. The construction of temp roads in AMZs within ½ mile of private property is necessary to accomplish the mechanized ground-based logging and biomass removal. Affected AMZs include Pine Creek and 3 unnamed intermittent streams.

Landings and temp road construction will be minimized to the greatest extent possible and coordinated with the forest hydrologist. Mitigation measures will be used to prevent sediment deposit into streams. All landings and temp roads will be decommissioned in coordination with the forest hydrologist.

Non-Native and Invasive Weeds

Use Best Management Practices to prevent the spread of noxious or invasive weeds. Contractors will clean their equipment of all mud and plant debris prior to entering National Forest System Lands. Provide training to Forest Service and contract personnel on identification of weeds and procedures for using equipment in infested areas (e.g. wash

equipment thoroughly before moving from one area to another). Consider sowing native grass or forb seed in highly disturbed areas.

Prescribed Burning
Minimize residual tree scorch through fire prescriptions.

Coordinate with district range personnel when planning and conducting thinning and prescribed burning so that range improvements can be identified. The range permittee will be contacted prior to any prescribed burning activity to prevent harm to livestock. When possible, coordinate prescribed burning with pasture rotation schedules.

During prescribed burning, no direct ignition will occur within AMZs.

Recreation
For public safety, camping will be prohibited within active harvesting areas. Harvesting operations should be avoided on the following holiday weekends: Memorial Day, Fourth of July, and Labor Day.

Wildlife
This cut unit is located within 1/4 mile of several MSO PACs. There will be a timing restriction within the MSO PACs and 1/4 mile beyond the PAC boundary. No thinning or burning operations may occur from March 1 – August 31. This timing restriction may be modified or eliminated by the district wildlife biologist if a nest is located or if non-nesting is confirmed.

A field trip to Pine Canyon was conducted with the district wildlife biologist and USFWS on 1/19/22. Draft prescriptions were sent to USFWS on 2/8/22 for feedback. Feedback was received on 2/18/22 and incorporated into silvicultural prescriptions.

All units within Pine Canyon are located within ¼ mile of a northern goshawk post-fledging family area. There will be a timing restriction within the PFA and 1/4 mile beyond the PFA boundary. No thinning or burning operations may occur from March 1 – September 30. This timing restriction may be modified to follow guidance in the final Tonto Revised Land Management Plan or by the district wildlife biologist if a nest is located or if non-nesting is confirmed.

Section VI – Documentation
(FACTS, KV, FSVeg Spatial, planned future treatments (5+ years), monitoring)

Table 5: Documentation

FACTS	4152 – group selection – 0.5 ac 4220 – KP 6 commercial thin – 4.5 ac 4382 – certification of natural regeneration without site prep – 0.5 ac 4511 – tree release and weed – 4.5 ac 2360 - Range control veg –5 ac 7100 - Pollinator habitat improved – 5 ac
FACTS polygon (ID and subunit)	031204 PineCanynCU08
Land Suitability Code (TIM classification)	500
FSVeg Spatial	Redelineate stand
Planned Future Treatments	Broadcast burning in 2026-2028 Re-entry broadcast burning every 3-10 years Uneven-aged Management – Group Selection with 10% openings and precommercial thinning

	in 20 years
Planned funding code (service work)	CFTM, HFDS
KV	None
Monitoring	As required under Rim Country EIS

B) CU 9a/9b

Treatment Plan

Silvicultural Treatment: Uneven-aged Management – Group Selection

Prescribed by: Patty Ringle	**Date:** 2/20/2022
Certified by: Patty Ringle	**Date:** 2/20/2022

Treatment Method: Mechanical and/or Helicopter as Appropriate

Slash Treatment: Removal and chipping of all biomass

Skid Trails: Utilize interspaces

Constraints and Other Considerations:

Leave trees within archaeological sites will be leave tree marked. Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands. Historic telephone trees are considered archaeological sites. These trees are marked with double white bands.

These cut units are located within a MSO PAC. There will be a timing restriction within the MSO PAC and ¼ mile beyond the PAC boundary. No thinning or burning operations may occur from March 1 – August 31. This timing restriction may be modified or eliminated by the district wildlife biologist if a nest is located or if non-nesting is confirmed. Landing and temp road construction is not allowed in MSO PACs.

Use a directional mark within 1 chain of the Bearfoot Trail (see map).

Aquatic management zones (AMZ) will be designated along Pine Creek, Parsnip Spring, and other intermittent and ephemeral streams. Temp roads and landings are prohibited within AMZs. All stream crossings will be designated by the sale administrator. See design features for AMZ widths and further mitigation measures.

Notes for Layout:

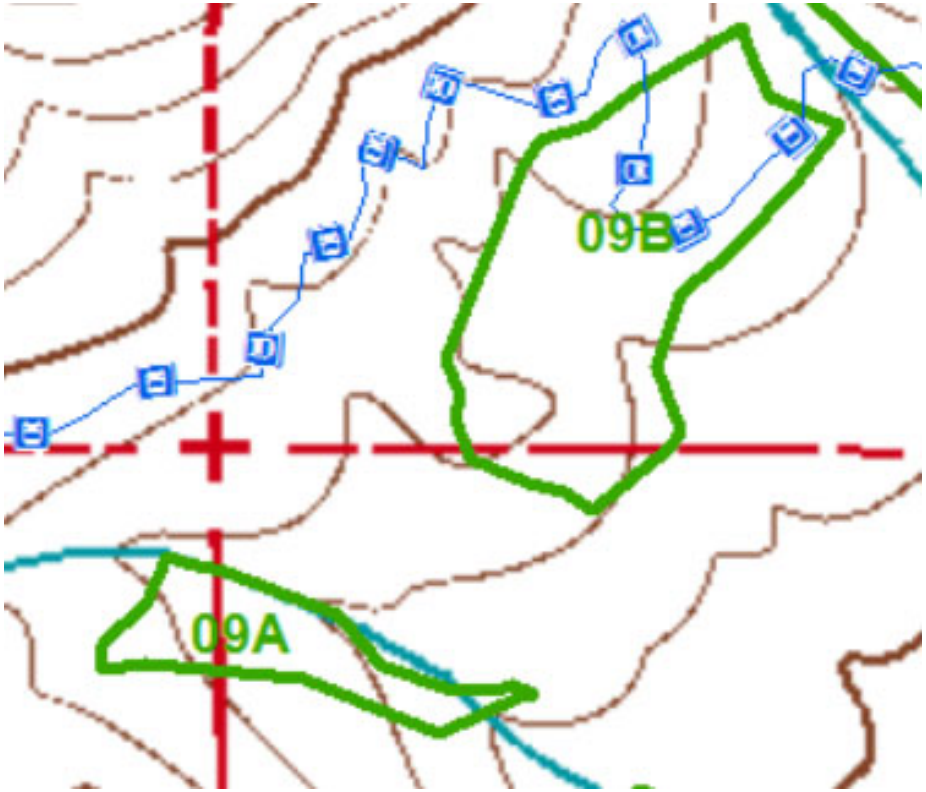
Follow-up Treatment (next 5 years):

Contract/agreement to be awarded in FY23

Broadcast and reentry burning to follow, dependent upon natural ignition and resources available for managed fire

Identity

Project Name	**Cut Unit**	**Acres**
Pine Canyon/ Poco Pino Project	9a and 9b	8
Forest / District	**NEPA**	**Location(s) / Site(s)**
Tonto NF / Payson RD	Rim Country EIS	000094 / 0012



Layout/Marking

Boundary Designation: Double orange bands

Tree Designation: All conifer leave trees 1-26 inches DBH will be marked with an orange leave tree mark

Layout completed by: DJ Morales, Bret Elgersma	**Date:** January 2022
Marking verified by: Woerheide, Nicholls	**Date:** June 2022

Notes

Rim Country Treatment:

Analyzed – MSO PAC – Mechanical

Prescribed - MSO PAC – Mechanical

Section II – Existing Conditions

Location/Site 000094/0012: This stand consists of juniper woodland with inclusions of ponderosa pine, which make up the cutting units. Within the units, the overstory is uneven-aged, with young, mid-aged, and mature/old ponderosa pine represented. The understory is dominated by alligator juniper, Arizona white oak, ponderosa pine, white fir, and Emory oak. Large diameter, old ponderosa pine are present and occur as isolated individuals or in small groups of 3-14 trees. Other species of old trees present include alligator juniper. Regeneration consists of Arizona white oak, Emory oak, New Mexican locust, Douglas-fir, ponderosa pine, and alligator juniper. The stand is currently overstocked with alligator juniper, Arizona white oak, Emory oak, and ponderosa pine < 18 inches DBH. Basal areas (BA) range from approximately 80-340 ft² per acre, with an average of 250 ft² per acre. Pockets of dwarf mistletoe infection up to 2 acres in size noted. Dominant ground cover consists of ferns, manzanita, agave, and various grass species. These units are located within a MSO PAC.

Table 1: Site/Stand Overview 000094/0012

Slope	Aspect	Elevation	Habitat Type (s)	Hydrology
5-40%	SE	6000	PIPO/QUAR	Pine Creek

BA QUGA	Percent of max SDI	Site Index
0	99	85

% TPA Infected	DM Severity (DMR)	Dominant Diameter Class	BA PIPO > 16 inches DBH
10		Uneven-aged	20

Table 2: Current stand structure/species composition 000094/0012

		Seedlings/Saplings	Young	Mid-aged	Mature/Old	
Species	**Measure**	**<5”**	**5-12”**	**12-18”**	**18+”**	**Total**
PIPO	TPA	100	110	20		230
	BA		38	20		65
JUDE	TPA	160	30		30	220
	BA		9		164	177
RONE	TPA	60				60
	BA					
QUAR	TPA	460	110			570
	BA		42			44
QUEM	TPA	240	30	20		290
	BA		10	21		31
Total	TPA	1020	280	40	30	1370
	BA		99	41	164	317

Section III – Long-Term Desired Conditions and Prescribed Treatment Objectives

Desired Condition (spatial patterns, species composition, stand structure)

The desired future condition is an uneven-aged ponderosa pine forest, with inclusions of Douglas-fir, that exhibit lower fire hazard while also retaining key habitat components for the Mexican spotted owl (large trees, canopy cover, snags, logs, species diversity). The unit will retain groups of large diameter trees with closed canopy and vertical structure. Leave tree arrangement will be irregular, variable with small openings for horizontal heterogeneity, understory diversity, and pine regeneration. At the stand level, forest structure will be uneven-aged. Conditions will be conducive to lower fire severity. Stocking guidelines will be designed to maintain large diameter trees, canopy cover within groups of larger diameter trees, and tree species diversity, while also reducing fire severity. Trees will be left in groups of varying size and density. Group size will range from 5-25 trees. Basal areas within groups will average from 60 - 160 ft², depending on tree age/size. Density of evergreen oak and juniper will be decreased to < 15 trees per acre.

Short-Term Objectives (expected post-treatment outcome)

1. Reduce the risk of catastrophic, stand-replacing wildfire by decreasing overall stand densities, ladder fuels, and crown fuel continuity. Create conditions that facilitate lower fire severity.
2. Maintain patches of nest/roost habitat for the Mexican spotted owl by maintaining canopy cover within groups of large diameter trees.
3. Retain key habitat components for the Mexican spotted owl (large trees, canopy cover, snags, logs, perch trees in the understory).
4. Increase vertical and horizontal heterogeneity by maintaining/increasing age class diversity, creating a patchy leave tree arrangement, and by providing openings for understory species and pine regeneration.

Table 3: Current/Desired Conditions for Forest Structure by TPA

TPA (conifers)	Estimated Current %	Expected Post Treatment %	Desired Future %
Seedling/sapling (<5”)	10	10	10
Young trees (5-12”)	40	20	20
Mid-aged trees (12-18”)	40	50	30
Mature/old trees (18+”)	10	20	40

Section IV – Implementation Guide

Cut Units: 9a and 9b Location(s) / Site(s): 000094 / 0012 Acres: 8

Silvicultural Treatment: Uneven-aged Management – Group Selection (MSO PAC)

Implementation Instructions (in order of priority)

Old and Larger Diameter Trees:

1. Leave all ponderosa pine and Douglas-fir > 18 inches DBH, regardless of tree form, health, or vigor.

2. Leave all old ponderosa pine and Douglas-fir, regardless of tree form, health, or vigor. Old trees are greater than 150 years old and display old tree characteristics outlined in the Rim Country Old Tree Implementation Plan.

Other Tree Species:

3. Leave all trees that are stabilizing the banks of ephemeral, intermittent, or perennial streams. These trees are located on the slopes or edge of the stream banks.

4. Leave all Gambel oak, regardless of tree form, health, or vigor. Free up around 1-2 sides of Gambel oak > 10 inches DRC by thinning conifers < 18 inches DBH located within 10-20 ft of the dripline, unless removal of the conifer would damage the oak.

5. Leave all riparian tree species (maple, walnut, Arizona sycamore, boxelder, etc.), regardless of tree form, health, or vigor. Free up around 1 – 2 sides of riparian tree species > 10 inches DRC by thinning conifers < 18 inches DBH located within 10-20 ft of the dripline, unless removal of the conifer would damage the tree.

6. Leave all Arizona white oak and Emory oak > 10 inches DRC. All evergreen oaks ≤ 10 inches DRC will be cut.

7. Leave all juniper > 14 inches DRC. All juniper ≤ 14 inches DRC will be cut.

Regeneration Openings

8. Create openings for regeneration on approximately 10% of the unit area (0.75 acres). Openings will vary in shape. Openings will be approximately 0.25 acre in size. When creating openings for regeneration, target areas with trees 5 - 16 inches DBH and/or trees with undesirable tree form, health, and vigor.

Leave Tree Groups:

9. Leave trees will be arranged in an irregular, "groupy" leave tree arrangement. Tree groups will vary in shape, size, density, and number of trees. Leave tree groups may be even-aged or uneven-aged. Tree groups will generally range in size from 5-25 trees. Leave approximately 1/4 of tree groups in each of the following size ranges:

    - 1/4 of groups – 5-10 trees per group (will generally be left on south-facing aspects and drier sites, such as ridges)
    - 1/4 of groups - 10-15 trees per group
    - 1/4 of groups – 15-20 trees per group
    - 1/4 of groups – 20-25 trees per group (will generally be left on north-facing aspects and moister sites such as drainage bottoms)

    Emphasis will be placed on leaving ponderosa pine that are ***NOT*** in the most prevalent size class (>16 inches DBH). The following age/size classes will be the highest priority for leave tree groups:
    - Mature and old conifers > 16 inches DBH, regardless of tree form, health, or vigor
    - Ponderosa pine seedlings/saplings (< 5 inches DBH) with good tree form, health, and vigor that are unsuppressed and free to grow

10. To provide vertical structure for perching owls, leave 5-10 trees within 5-20 feet of the dripline of 1 old ponderosa pine tree (> 24 inches DBH) per acre.

11. Within remaining leave tree groups, spacing of leave trees will be variable and will range from 5 to 20 feet to mimic natural, historic tree arrangements. As a result, tree densities will be variable, based upon tree age and/or size. Leave the following BA distribution:

Table 4. Desired basal area distribution by age class (DBH is a general guide).

Age Class and Characteristics*	DBH (inches)	Desired Basal Area (ft^2) Range
Seedlings and Saplings	< 5	N/A Use variable spacing of 10 - 20 ft
Young trees (black, furrowed bark)	5-12	60-80
Mid-aged trees (black, furrowed bark)	12-18	80-100
Mature trees (black furrowed bark beginning to "yellow" and flatten)	18-24	100-140
Old trees (flat, platey, "yellow" bark)	18+	100-160

*Bark characteristics are specific to ponderosa pine

Interspaces between Groups:

12. Spacing between groups of leave trees (interspaces) will be variable in size and will generally range from 40-60 feet (measured bole to bole). When creating interspaces, target the following areas:
    - Areas with lower tree densities that provide natural breaks in the tree canopy
    - Areas with trees of poor form, health, and vigor
    - Areas with trees in the most prevalent size class (5 - 18 inches DBH)

Individual Leave Trees:

13. Focus tree retention on leaving the "best available" trees. The best available trees are in dominant and codominant canopy positions and exhibit the most desirable tree retention standards, relative to other adjacent trees (See the "Tree Quality Standards"). Leave trees with the lowest dwarf mistletoe rating, relative to adjacent trees. Also see Large Tree Implementation Plan.

Other considerations:

14. Use a directional mark within 1 chain of the Bearfoot trail. A directional mark consists of 2 butt marks, with one butt mark facing the trail, and a slash at breast height opposite of the trail around half of the tree bole.

15. All conifer leave trees 2 - 26 inches DBH will be marked with an orange leave tree mark. Conifers > 26 inches DBH will not be marked. However, this unit has an 18-inch diameter cap. Therefore, contract specifications will ensure that conifers greater than 18 inches DBH will not be cut.

16. Leave trees within archaeological sites ***WILL*** be leave tree marked. Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands.

Section V – Site Specific Mitigation Measures / Design Features

(also see full set of mitigation measures from Rim Country EIS)

Archaeology

Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands. Historic telephone trees are considered archaeological sites. These trees are marked with double white bands. Leave trees within archaeological sites ***WILL*** be marked. Vehicles and mechanized equipment are not permitted within archaeological sites. Prior to implementation of proposed treatments, written approval of the forest archaeologist and forest supervisor will be completed (IS&A).

Hydrology

Follow BMPs to prevent soil compaction and displacement (FSH 2509.24.13). Limit driving and harvesting operations to periods of dry soil conditions.

Aquatic management zones (AMZ) are designated along all perennial, intermittent, and ephemeral streams, including Pine Creek and other unnamed creeks. AMZs were developed in collaboration with the forest hydrologist on field trips conducted on July 20, 2021, January 12, 2022, and through further analysis by the forest hydrologist. AMZs designated along streams will range from 50 – 150 feet, measured from each side of the stream.

- ✓ Ephemeral streams: AMZ will extend 50 feet from both banks of the stream.
- ✓ Intermittent streams: AMZ will extend 75 feet from both banks of the stream.
- ✓ Perennial streams: AMZ will extend 150 feet from both banks of the stream.

Vehicular operations including skidding should not occur longitudinally through AMZs. Turning machines and skidding within an AMZ should be minimized to the greatest extent possible. Landings, decking areas, machine or hand piles will occur outside of AMZs unless otherwise specified. Minimize disturbance and removal of riparian vegetation within AMZ's. Stream crossings will be designated by the sale administrator. Highlight protected streams on the CAM.

Within the AMZ around Parsnip Spring and along the spring discharge, ground-based operations are prohibited. Utilize helicopter logging methods. Work in coordination with the forest hydrologist to identify the extent of this area.

Greater than ½ mile from private property, do not construct landings or temp roads within AMZs.

Rim Country design feature SW010 states:

> "Apply the following direction if AMZ is within ½ mile of private land boundary or designated WUI: Treatment measures necessary to reduce the risk of wildfire encroachment on adjacent private lands may take priority over other considerations in these AMZs. Entry and treatments in these reaches will be considered on a case-by-case basis by IDTs."

Tonto NF leadership is interpreting this design feature to allow the building of temp roads within AMZs located within ½ mile of the land boundary with Camp Lo Mia. Entry and treatments within Pine Canyon are considered necessary by the IDT to protect private property in Pine, AZ from the risk of wildfire. Due to the size and volume of trees and biomass to be removed, ground-based logging is necessary to access Pine Canyon in an economical manner. The construction of temp roads in AMZs within ½ mile of private property is necessary to accomplish the mechanized ground-based logging and biomass removal. Affected AMZs include Pine Creek and 3 unnamed intermittent streams.

Landings and temp road construction will be minimized to the greatest extent possible and coordinated with the forest hydrologist. Mitigation measures will be used to prevent sediment deposit into streams. All landings and temp roads will be decommissioned in coordination with the forest hydrologist.

Non-Native and Invasive Weeds

Use Best Management Practices to prevent the spread of noxious or invasive weeds. Contractors will clean their equipment of all mud and plant debris prior to entering National Forest System Lands. Provide training to Forest Service and contract personnel on identification of weeds and procedures for using equipment in infested areas (e.g. wash

equipment thoroughly before moving from one area to another). Consider sowing native grass or forb seed in highly disturbed areas.

Prescribed Burning
Minimize residual tree scorch through fire prescriptions.

Coordinate with district range personnel when planning and conducting thinning and prescribed burning so that range improvements can be identified. The range permittee will be contacted prior to any prescribed burning activity to prevent harm to livestock. When possible, coordinate prescribed burning with pasture rotation schedules.

During prescribed burning, no direct ignition will occur within AMZs.

Recreation
For public safety, camping will be prohibited within active harvesting areas. Harvesting operations should be avoided on the following holiday weekends: Memorial Day, Fourth of July, and Labor Day.

Wildlife
This cut unit is located within the Lo Mia MSO PAC. There will be a timing restriction within the MSO PAC and 1/4 mile beyond the PAC boundary. No thinning or burning operations may occur from March 1 – August 31. This timing restriction may be modified or eliminated by the district wildlife biologist if a nest is located or if non-nesting is confirmed. Landing and temp road construction is not allowed in MSO PACs.

A field trip to Pine Canyon was conducted with the district wildlife biologist and USFWS on 1/19/22. Draft prescriptions were sent to USFWS on 2/8/22 for feedback. Feedback was received on 2/18/22 and incorporated into silvicultural prescriptions.

All units within Pine Canyon are located within ¼ mile of a northern goshawk post-fledging family area. There will be a timing restriction within the PFA and 1/4 mile beyond the PFA boundary. No thinning or burning operations may occur from March 1 – September 30. This timing restriction may be modified to follow guidance in the final Tonto Revised Land Management Plan or by the district wildlife biologist if a nest is located or if non-nesting is confirmed.

Section VI – Documentation
(FACTS, KV, FSVeg Spatial, planned future treatments (5+ years), monitoring)

Table 5: Documentation

FACTS	Unit 9a: 4152 – group selection – 0.25 ac 4220 – KP 6 commercial thin – 1.5 ac 4382 – certification of natural regeneration without site prep – 0.25 ac 4511 – tree release and weed – 1.5 ac 2360 - Range control veg – 2 ac 7100 - Pollinator habitat improved – 2 ac Unit 9b: 4152 – group selection – 0.5 ac 4220 – KP 6 commercial thin – 5.5 ac 4382 – certification of natural regeneration without site prep – 0.5 ac 4511 – tree release and weed – 5.5 ac 2360 - Range control veg – 6 ac 7100 - Pollinator habitat improved – 6 ac
FACTS polygon (ID and subunit)	031204 PineCanynCU9a

	031204 PineCanynCU9b
Land Suitability Code (TIM classification)	500
FSVeg Spatial	
Planned Future Treatments	Broadcast burning in 2026-2028 Re-entry broadcast burning every 3-10 years Uneven-aged Management – Group Selection with 10% openings and precommercial thinning in 20 years
Planned funding code (service work)	CFTM, HFDS
KV	None
Monitoring	As required under Rim Country EIS

C) CU 10/14

Treatment Plan

Silvicultural Treatment: Uneven-aged Management – Group Selection

Prescribed by: Jerry Nicholls and Patty Ringle **Date:** 2/20/2022

Certified by: Patty Ringle **Date:** 2/20/2022

Treatment Method: Mechanical and/or Helicopter as Appropriate

Slash Treatment: Removal and chipping of all biomass

Skid Trails: Utilize interspaces

Constraints and Other Considerations:

Leave trees within archaeological sites will be leave tree marked. Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands. Historic telephone trees are considered archaeological sites. These trees are marked with double white bands.

This cut unit is located within a MSO PAC. There will be a timing restriction within the MSO PAC and ¼ mile beyond the PAC boundary. No thinning or burning operations may occur from March 1 – August 31. This timing restriction may be modified or eliminated by the district wildlife biologist if a nest is located or if non-nesting is confirmed. Landing and temp road construction is not allowed in MSO PACs.

Use a directional mark within 1 chain of the Bearfoot trail (see map).

Aquatic management zones (AMZ) will be designated along Pine Creek, Parsnip Spring, and other intermittent and ephemeral streams. Temp roads and landings are prohibited within AMZs. All stream crossings will be designated by the sale administrator. See design features for AMZ widths and further mitigation measures.

Notes for Layout:

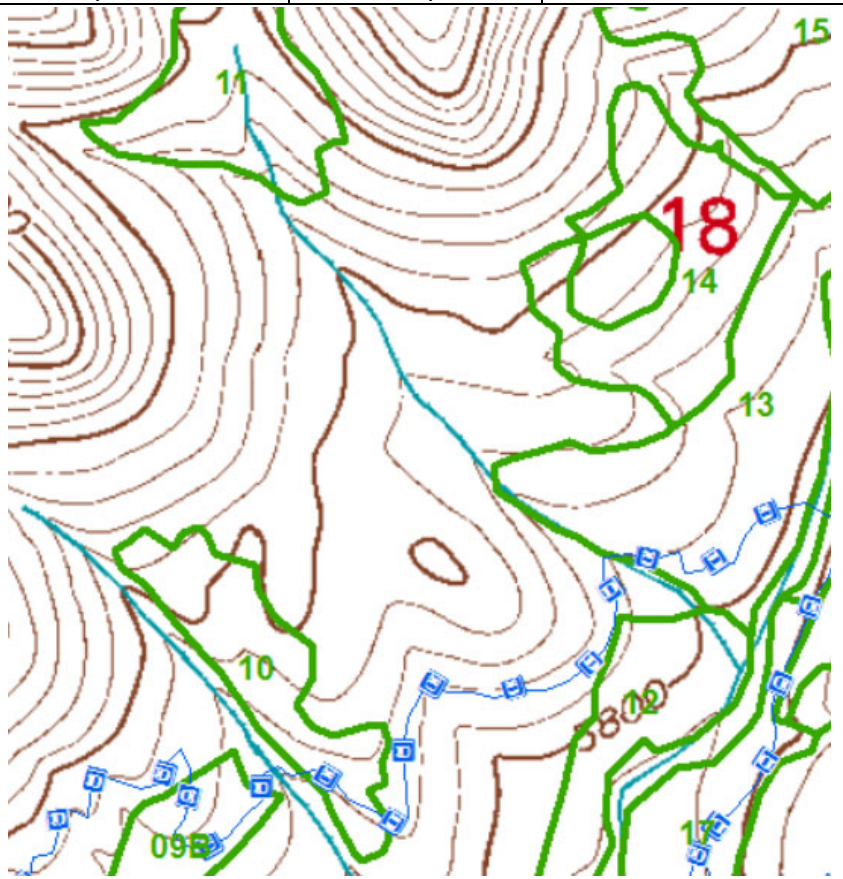
Follow-up Treatment (next 5 years):

Contract/agreement to be awarded in FY23

Broadcast and reentry burning to follow, dependent upon natural ignition and resources available for managed fire

Identity

Project Name	**Cut Unit**	**Acres**
Pine Canyon/ Poco Pino Project	10 and 14	20
Forest / District	**NEPA**	**Location(s) / Site(s)**
Tonto NF / Payson RD	Rim Country EIS	000096 / 0006, 0028



Layout/Marking

Boundary Designation: Double orange bands

Tree Designation: All conifer leave trees 1-26 inches DBH will be marked with an orange leave tree mark

Layout completed by: DJ Morales, Bret Elgersma **Date:** January 2022

Marking verified by: Woerheide, Nicholls **Date:** June 2022

Notes

Rim Country Treatment:

Analyzed – MSO PAC - Mechanical

Prescribed - MSO PAC - Mechanical

Section II – Existing Conditions

Location/Site 000096/0006, 0028: This unit consists of an overstory of ponderosa pine, with an understory of oak mixed with alligator juniper, with small inclusions of Douglas-fir. Young, mid-aged, and mature/old trees are represented but many of the younger age classes are suppressed and overtopped. Mid-aged trees are also present. Very few old trees present (PIPO and JUDE). The stand overstocked with ponderosa pine, alligator juniper, Arizona white oak, and Emory oak < 12 inches DBH. The understory is dominated by Douglas-fir, alligator juniper, Arizona white oak, and Emory oak. Large diameter, old ponderosa pine and Douglas-fir occurs as individuals and in small groups of 2-3 trees. Basal areas (BA) range from 80-380 ft² per acre, with an average of approximately 200 ft² per acre. Ponderosa pine regeneration that is unsuppressed and free to grow is limited due to high stand densities, but small amounts can be found in openings. Most regeneration consists of Arizona white oak, Emory oak, and alligator juniper. Douglas-fir regeneration is present but overtopped and suppressed. Ground cover consists of manzanita, yucca, deer brush, coffee berry, and various grass species. These units are located within an MSO PAC.

Table 1a: Site/Stand Overview 000096/0006

Slope	Aspect	Elevation	Habitat Type (s)	Hydrology
10-20%	SE	5800	PIPO/QUAR; PIPO/ARPU	Pine Creek
BA QUGA		**Percent of max SDI**		**Site Index**
< 5		84		90
% TPA Infected	**DM Severity (DMR)**	**Dominant Diameter Class**		**BA PIPO > 16 inches DBH**
<5	0	Uneven-aged		60

Table 1b: Site/Stand Overview 000096/0028

Slope	Aspect	Elevation	Habitat Type (s)	Hydrology
10-55%	SE	6000	PIPO/QUAR	Pine Creek
BA QUGA		**Percent of max SDI**		**Site Index**
0		66		58
% TPA Infected	**DM Severity (DMR)**	**Dominant Diameter Class**		**BA PIPO > 16 inches DBH**
0	0	Uneven-aged		16

Table 2a: Current stand structure/species composition 000096/0006

		Seedlings/Saplings	Young	Mid-aged	Mature/Old	
Species	**Measure**	**<5”**	**5-12”**	**12-18”**	**18+”**	**Total**
PIPO	TPA	50	70	42	16	178
	BA		28	52	39	122
PSME	TPA	200	16	6	4	226
	BA		8	7	11	26
JUDE	TPA	180	16	2	4	202
	BA		4	3	15	25
JUSC	TPA	10				10
	BA					
QUAR	TPA	190	66	8	4	268
	BA		29	7	8	45
QUEM	TPA	120	22	2		144
	BA		7	3		9
Total	TPA	760	192	60	28	1040
	BA		75	72	74	228

Table 2b: Current stand structure/species composition 000096/0028

		Seedlings/Saplings	Young	Mid-aged	Mature/Old	
Species	Measure	<5”	5-12”	12-18”	18+”	Total
PIPO	TPA	57	43	9	3	111
	BA		15	12	8	37
PSME	TPA	14	9	9		31
	BA		4	11		16
JUDE	TPA	71	20	11	3	106
	BA		6	15	11	32
QUAR	TPA	186	91	26		303
	BA		33	34		74
QUEM	TPA	229	29	3		260
	BA		8	4		13
Total	TPA	557	191	57	6	811
	BA		66	76	19	172

Section III – Long-Term Desired Conditions and Prescribed Treatment Objectives

Desired Condition (spatial patterns, species composition, stand structure)

The desired future condition is an uneven-aged ponderosa pine forest, with inclusions of Dougla-fir, that exhibit lower fire hazard while also retaining key habitat components for the Mexican spotted owl (large trees, canopy cover, snags, logs, species diversity). The unit will retain groups of large diameter trees with closed canopy and vertical structure. Leave tree arrangement will be irregular, variable with small openings for horizontal heterogeneity, understory diversity, and pine regeneration. At the stand level, forest structure will be uneven-aged. Conditions will be conducive to lower fire severity. Stocking guidelines will be designed to maintain large diameter trees, canopy cover within groups of larger diameter trees, and tree species diversity, while also reducing fire severity. Trees will be left in groups of varying size and density. Group size will range from 5-25 trees. Basal areas within groups will average from 60 - 160 ft^2, depending on tree age/size. Density of evergreen oak and juniper will be decreased to < 15 trees per acre.

Short-Term Objectives (expected post-treatment outcome)

1. Reduce the risk of catastrophic, stand-replacing wildfire by decreasing overall stand densities, ladder fuels, and crown fuel continuity. Create conditions that facilitate lower fire severity.
2. Maintain patches of nest/roost habitat for the Mexican spotted owl by maintaining canopy cover within groups of large diameter trees.
3. Retain key habitat components for the Mexican spotted owl (large trees, canopy cover, snags, logs, perch trees in the understory).
4. Increase vertical and horizontal heterogeneity by maintaining/increasing age class diversity, creating a patchy leave tree arrangement, and by providing openings for understory species and pine regeneration.

Table 3a: Current/Desired Conditions for Forest Structure by TPA 000096/0006

TPA (conifers)	Estimated Current %	Expected Post Treatment %	Desired Future %
Seedling/sapling (<5”)	62	15	10
Young trees (5-12”)	21	15	20
Mid-aged trees (12-18”)	12	40	20
Mature/old trees (18+”)	5	30	50

Table 3b: Current/Desired Conditions for Forest Structure by TPA 000096/0028

TPA (conifers)	Estimated Current %	Expected Post Treatment %	Desired Future %
Seedling/sapling (<5”)	50	33	10
Young trees (5-12”)	37	33	20
Mid-aged trees (12-18”)	13	30	20
Mature/old trees (18+”)	2	5	50

Section IV – Implementation Guide

Cut Units: 10 and 14 Location(s) / Site(s): 000096 / 0006, 0028 Acres: 20

Silvicultural Treatment: Uneven-aged Management – Group Selection (MSO PAC)

Implementation Instructions (in order of priority)

Old and Larger Diameter Trees:

1. Leave all ponderosa pine and Douglas-fir > 18 inches DBH, regardless of tree form, health, or vigor.

2. Leave all old ponderosa pine and Douglas-fir, regardless of tree form, health, or vigor. Old trees are greater than 150 years old and display old tree characteristics outlined in the Rim Country Old Tree Implementation Plan.

Other Tree Species:

3. Leave all trees that are stabilizing the banks of ephemeral, intermittent, or perennial streams. These trees are located on the slopes or edge of the stream banks.

4. Leave all Gambel oak, regardless of tree form, health, or vigor. Free up around 1-2 sides of Gambel oak > 10 inches DRC by thinning conifers < 18 inches DBH located within 10-20 ft of the dripline, unless removal of the conifer would damage the oak.

5. Leave all riparian tree species (maple, walnut, Arizona sycamore, boxelder, etc.), regardless of tree form, health, or vigor. Free up around 1 – 2 sides of riparian tree species > 10 inches DRC by thinning conifers < 18 inches DBH located within 10-20 ft of the dripline, unless removal of the conifer would damage the tree.

6. Leave all Arizona white oak and Emory oak > 10 inches DRC. All evergreen oaks ≤ 10 inches DRC will be cut.

7. Leave all juniper > 14 inches DRC. All juniper ≤ 14 inches DRC will be cut.

Regeneration Openings

8. Create openings for regeneration on approximately 10% of the unit area (2 acres). Openings will vary in shape. Openings will be approximately 0.25 acre in size. When creating openings for regeneration, target areas with trees 5 - 16 inches DBH and/or trees with undesirable tree form, health, and vigor.

Leave Tree Groups:

9. Leave trees will be arranged in an irregular, "groupy" leave tree arrangement. Tree groups will vary in shape, size, density, and number of trees. Leave tree groups may be even-aged or uneven-aged. Tree groups will generally range in size from 5-25 trees. Leave approximately 1/4 of tree groups in each of the following size ranges:

    - 1/4 of groups – 5-10 trees per group (will generally be left on south-facing aspects and drier sites, such as ridges)
    - 1/4 of groups - 10-15 trees per group
    - 1/4 of groups – 15-20 trees per group
    - 1/4 of groups – 20-25 trees per group (will generally be left on north-facing aspects and moister sites such as drainage bottoms)

    Emphasis will be placed on leaving ponderosa pine that are ***NOT*** in the most prevalent size class (>16 inches DBH). The following age/size classes will be the highest priority for leave tree groups:
    - Mature and old conifers > 16 inches DBH, regardless of tree form, health, or vigor
    - Ponderosa pine seedlings/saplings (< 5 inches DBH) with good tree form, health, and vigor that are unsuppressed and free to grow

10. To provide vertical structure for perching owls, leave 5-10 trees within 5-20 feet of the dripline of 1 old ponderosa pine tree (> 24 inches DBH) per acre.

11. Within remaining leave tree groups, spacing of leave trees will be variable and will range from 5 to 20 feet to mimic natural, historic tree arrangements. As a result, tree densities will be variable, based upon tree age and/or size. Leave the following BA distribution:

Table 4. Desired basal area distribution by age class (DBH is a general guide).

Age Class and Characteristics*	DBH (inches)	Desired Basal Area (ft^2) Range
Seedlings and Saplings	< 5	N/A Use variable spacing of 10 - 20 ft
Young trees (black, furrowed bark)	5-12	60-80
Mid-aged trees (black, furrowed bark)	12-18	80-100
Mature trees (black furrowed bark beginning to "yellow" and flatten)	18-24	100-140
Old trees (flat, platey, "yellow" bark)	18+	100-160

*Bark characteristics are specific to ponderosa pine

Interspaces between Groups:

12. Spacing between groups of leave trees (interspaces) will be variable in size and will generally range from 40-60 feet (measured bole to bole). When creating interspaces, target the following areas:
    - Areas with lower tree densities that provide natural breaks in the tree canopy
    - Areas with trees of poor form, health, and vigor
    - Areas with trees in the most prevalent size class (5 - 18 inches DBH)

Individual Leave Trees:

13. Focus tree retention on leaving the "best available" trees. The best available trees are in dominant and codominant canopy positions and exhibit the most desirable tree retention standards, relative to other adjacent trees (See the "Tree Quality Standards"). Leave trees with the lowest dwarf mistletoe rating, relative to adjacent trees. Also see Large Tree Implementation Plan.

Other considerations:

14. Use a directional mark within 1 chain of the Bearfoot trail. A directional mark consists of 2 butt marks, with one butt mark facing the trail, and a slash at breast height opposite of the trail around half of the tree bole.

15. All conifer leave trees 2 - 26 inches DBH will be marked with an orange leave tree mark. Conifers > 26 inches DBH will not be marked. However, this unit has an 18-inch diameter cap. Therefore, contract specifications will ensure that conifers greater than 18 inches DBH will not be cut.

16. Leave trees within archaeological sites ***WILL*** be leave tree marked. Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands.

Section V – Site Specific Mitigation Measures / Design Features

(also see full set of mitigation measures from Rim Country EIS)

Archaeology

Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands. Historic telephone trees are considered archaeological sites. These trees are marked with double white bands. Leave trees within archaeological sites ***WILL*** be marked. Vehicles and mechanized equipment are not permitted within archaeological sites. Prior to implementation of proposed treatments, written approval of the forest archaeologist and forest supervisor will be completed (IS&A).

Hydrology

Follow BMPs to prevent soil compaction and displacement (FSH 2509.24.13). Limit driving and harvesting operations to periods of dry soil conditions.

Aquatic management zones (AMZ) are designated along all perennial, intermittent, and ephemeral streams, including Pine Creek and other unnamed creeks. AMZs were developed in collaboration with the forest hydrologist on field trips conducted on July 20, 2021, January 12, 2022, and through further analysis by the forest hydrologist. AMZs designated along streams will range from 50 – 150 feet, measured from each side of the stream.

- ✓ Ephemeral streams: AMZ will extend 50 feet from both banks of the stream.
- ✓ Intermittent streams: AMZ will extend 75 feet from both banks of the stream.
- ✓ Perennial streams: AMZ will extend 150 feet from both banks of the stream.

Vehicular operations including skidding should not occur longitudinally through AMZs. Turning machines and skidding within an AMZ should be minimized to the greatest extent possible. Landings, decking areas, machine or hand piles will occur outside of AMZs unless otherwise specified. Minimize disturbance and removal of riparian vegetation within AMZ's. Stream crossings will be designated by the sale administrator. Highlight protected streams on the CAM.

Within the AMZ around Parsnip Spring and along the spring discharge, ground-based operations are prohibited. Utilize helicopter logging methods. Work in coordination with the forest hydrologist to identify the extent of this area.

Greater than ½ mile from private property, do not construct landings or temp roads within AMZs.

Rim Country design feature SW010 states:

> "Apply the following direction if AMZ is within ½ mile of private land boundary or designated WUI: Treatment measures necessary to reduce the risk of wildfire encroachment on adjacent private lands may take priority over other considerations in these AMZs. Entry and treatments in these reaches will be considered on a case-by-case basis by IDTs."

Tonto NF leadership is interpreting this design feature to allow the building of temp roads within AMZs located within ½ mile of the land boundary with Camp Lo Mia. Entry and treatments within Pine Canyon are considered necessary by the IDT to protect private property in Pine, AZ from the risk of wildfire. Due to the size and volume of trees and biomass to be removed, ground-based logging is necessary to access Pine Canyon in an economical manner. The construction of temp roads in AMZs within ½ mile of private property is necessary to accomplish the mechanized ground-based logging and biomass removal. Affected AMZs include Pine Creek and 3 unnamed intermittent streams.

Landings and temp road construction will be minimized to the greatest extent possible and coordinated with the forest hydrologist. Mitigation measures will be used to prevent sediment deposit into streams. All landings and temp roads will be decommissioned in coordination with the forest hydrologist.

Non-Native and Invasive Weeds

Use Best Management Practices to prevent the spread of noxious or invasive weeds. Contractors will clean their equipment of all mud and plant debris prior to entering National Forest System Lands. Provide training to Forest Service and contract personnel on identification of weeds and procedures for using equipment in infested areas (e.g. wash

equipment thoroughly before moving from one area to another). Consider sowing native grass or forb seed in highly disturbed areas.

Prescribed Burning
Minimize residual tree scorch through fire prescriptions.

Coordinate with district range personnel when planning and conducting thinning and prescribed burning so that range improvements can be identified. The range permittee will be contacted prior to any prescribed burning activity to prevent harm to livestock. When possible, coordinate prescribed burning with pasture rotation schedules.

During prescribed burning, no direct ignition will occur within AMZs.

Recreation
For public safety, camping will be prohibited within active harvesting areas. Harvesting operations should be avoided on the following holiday weekends: Memorial Day, Fourth of July, and Labor Day.

Use a directional mark within 1 chain of the Bearfoot trail. A directional mark consists of 2 butt marks, with one butt mark facing the trail, and a slash at breast height opposite of the trail around half of the tree bole.

Wildlife
This cut unit is located within the LoMia MSO PAC. There will be a timing restriction within the MSO PAC and 1/4 mile beyond the PAC boundary. No thinning or burning operations may occur from March 1 – August 31. This timing restriction may be modified or eliminated by the district wildlife biologist if a nest is located or if non-nesting is confirmed. Landing and temp road construction is not allowed in MSO PACs.

A field trip to Pine Canyon was conducted with the district wildlife biologist and USFWS on 1/19/22. Draft prescriptions were sent to USFWS on 2/8/22 for feedback. Feedback was received on 2/18/22 and incorporated into silvicultural prescriptions.

All units within Pine Canyon are located within ¼ mile of a northern goshawk post-fledging family area. There will be a timing restriction within the PFA and 1/4 mile beyond the PFA boundary. No thinning or burning operations may occur from March 1 – September 30. This timing restriction may be modified to follow guidance in the final Tonto Revised Land Management Plan or by the district wildlife biologist if a nest is located or if non-nesting is confirmed.

Section VI – Documentation
(FACTS, KV, FSVeg Spatial, planned future treatments (5+ years), monitoring)

Table 5: Documentation

FACTS	Unit 10: 4152 – group selection – 0.75 ac 4220 – KP 6 commercial thin – 7.25 ac 4382 – certification of natural regeneration without site prep – 0.75 ac 4511 – tree release and weed – 7.25 ac 2360 - Range control veg – 8 ac 7100 - Pollinator habitat improved – 8 ac Unit 14: 4152 – group selection – 1 ac 4220 – KP 6 commercial thin – 11 ac 4382 – certification of natural regeneration without site prep – 1 ac 4511 – tree release and weed – 11 ac

	2360 - Range control veg – 12 ac 7100 - Pollinator habitat improved – 12 ac
FACTS polygon (ID and subunit)	031204 PineCanynCU1 0 031204 PineCanynCU14
Land Suitability Code (TIM classification)	500
FSVeg Spatial	Redelineate stand at MSO PAC boundary
Planned Future Treatments	Broadcast burning in 2026-2028 Re-entry broadcast burning every 3-10 years Uneven-aged Management – Group Selection with 10% openings and precommercial thinning in 20 years
Planned funding code (service work)	CFTM, HFDS
KV	None
Monitoring	As required under Rim Country EIS

D) CU 12

Identity

Project Name	Cut Unit	Acres
Pine Canyon/ Poco Pino Project	12	9
Forest / District	**NEPA**	**Location(s) / Site(s)**
Tonto		

Treatment Plan

Silvicultural Treatment: Uneven-aged Management – Group Selection

Prescribed by: Patty Ringle **Date:** 2/24/2022

Certified by: Patty Ringle **Date:** 2/24/2022

Treatment Method: Mechanical and/or Helicopter as Appropriate

Slash Treatment: Removal and chipping of all biomass

Skid Trails: Utilize interspaces

Constraints and Other Considerations:

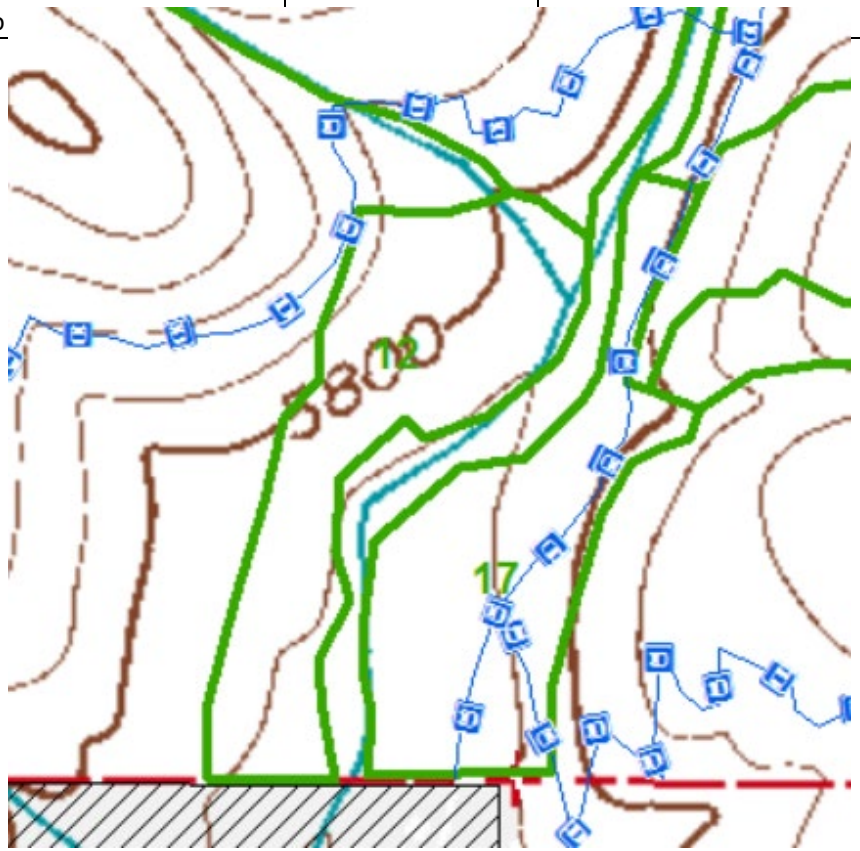
Leave trees within archaeological sites will be marked. Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands. Historic telephone trees are considered archaeological sites. These trees are marked with double white bands.

Use a directional mark within 1 chain of private property.

This cut unit is located within 1/4 mile of several MSO PACs. There will be a timing restriction within the MSO PACs and 1/4 mile beyond the PAC boundaries. No thinning or burning operations may occur from March 1 – August 31. This timing restriction may be modified or eliminated by the district wildlife biologist if a nest is located or if non-nesting is confirmed.

Aquatic management zones (AMZ) will be designated along Pine Creek, Parsnip Spring, and other intermittent and ephemeral streams. Temp roads and landings are prohibited within AMZs. All stream crossings will be designated by the sale administrator. See design features for AMZ widths and further mitigation measures.

Notes for Layout:



Follow-up Treatment (next 5 years):

Contract/agreement to be awarded in FY23

Broadcast and reentry burning to follow, dependent upon natural ignition and resources available for managed fire

Layout/Marking

Boundary Designation: Double orange bands

Tree Designation: All conifer leave trees 1-26 inches DBH will be marked with an orange leave tree mark

Layout completed by: DJ Morales, Bret Elgersma **Date:** January 2022

Marking verified by: Woerheide, Nicholls **Date:** June 2022

Notes

Rim Country Treatment:

Analyzed – MSO Recovery – Replacement Nest/Roost

Prescribed – WUI (Uneven-aged Management – Group Selection with residual target BA of 50 ft^2/ac)

Section II – Existing Conditions

Location/Site 000096/0006: This unit consists of a fairly even-aged stand of ponderosa pine. Mid-aged and mature trees are represented. The stand is currently overstocked with ponderosa pine 12-24 inches DBH. Stand data in Table 2 was collected throughout this large stand. Ponderosa pine < 12 inches DBH and Douglas-fir in this portion of the stand are much less abundant than in the northern part of the stand, which is in an adjacent cutting unit. The understory has been treated due to the creation of a fuelbreak. Gambel oak, Arizona walnut, bigtooth maple, boxelder, and Arizona sycamore noted near Pine Creek. Average basal areas (BA) is 200 ft² per acre. Ponderosa pine regeneration is present in openings. Ground cover consists of deer brush, coffee berry, blackberry, and various grass species. This stand is MSO foraging/non-breeding habitat. This unit is considered WUI due to location within ¼ mile of Camp LoMia.

Table 1: Site/Stand Overview 000096/0006

Slope	**Aspect**	**Elevation**	**Habitat Type (s)**	**Hydrology**
<20%	SE	5800	PIPO/QUAR	Pine Creek

BA QUGA	**Percent of max SDI**	**Site Index**
< 5	84	90

% TPA Infected	**DM Severity (DMR)**	**Dominant Diameter Class**	**BA PIPO > 16 inches DBH**
<5	0.1	Uneven-aged	60

Table 2: Current stand structure/species composition 000096/0006

		Seedlings/Saplings	Young	Mid-aged	Mature/Old	
Species	**Measure**	**<5"**	**5-12"**	**12-18"**	**18+"**	**Total**
PIPO	TPA	50	70	42	16	178
	BA		28	52	39	122
PSME	TPA	200	16	6	4	226
	BA		8	7	11	26
JUDE	TPA	180	16	2	4	202
	BA		4	3	15	25
JUSC	TPA	10				10
	BA					
QUAR	TPA	190	66	8	4	268
	BA		29	7	8	45
QUEM	TPA	120	22	2		144
	BA		7	3		9
Total	TPA	760	192	60	28	1040
	BA		75	72	74	228

Section III – Long-Term Desired Conditions and Prescribed Treatment Objectives

Desired Condition (spatial patterns, species composition, stand structure)

The desired future condition is a healthy, vigorous ponderosa pine forest that is sustainable, uneven-aged, and poses a low fire hazard to the adjacent private property. The unit will exhibit a mosaic pattern of tree groups separated by interspaces. Small openings will be created for pine regeneration. Conditions will be conducive to lower fire severity. Stocking guidelines will be designed to maintain large diameter trees, tree species diversity, and age class diversity, while also reducing fire severity. Trees will be left in groups of varying size and density. Group size will range from 5 – 20 trees. Basal areas within groups will average from 40 - 120 ft², depending on tree age/size. Density of evergreen oak and juniper will be decreased to < 10 trees per acre.

Short-Term Objectives (expected post-treatment outcome)

1. Reduce the risk of catastrophic, stand-replacing wildfire by decreasing overall stand densities, ladder fuels, and crown fuel continuity. Create conditions that facilitate lower fire severity.
2. Create a forest structure that more closely resembles the structure that existed prior to interruption of the historic fire regime (sustainable, uneven-aged, "groupy" leave tree arrangement).

3. Maintain tree species diversity by thinning conifers < 18 inches DBH around riparian tree species and Gambel oak and by retaining larger diameter evergreen oaks and juniper.

Table 3: Current/Desired Conditions for Forest Structure by TPA

TPA (conifers)	Estimated Current %	Expected Post Treatment %	Desired Future %
Seedling/sapling (<5”)	62	10	20
Young trees (5-12”)	21	10	20
Mid-aged trees (12-18”)	12	30	30
Mature/old trees (18+”)	5	30	30

Section IV – Implementation Guide

Cut Unit: 12 Location(s) / Site(s): 000096 / 0006 Acres: 9

Silvicultural Treatment: Uneven-aged Management - Group Selection (WUI)

Implementation Instructions (in order of priority)

Old and Larger Diameter Trees:

1. Leave all ponderosa pine and Douglas-fir > 24 inches DBH, regardless of tree form, health, or vigor.

2. Leave all old ponderosa pine and Douglas-fir, regardless of tree form, health, or vigor. Old trees are greater than 150 years old and display old tree characteristics outlined in the Rim Country Old Tree Implementation Plan.

Other Tree Species:

3. Leave all trees that are stabilizing the banks of ephemeral, intermittent, or perennial streams. These trees are located on the slopes or edge of the stream banks.

4. Leave all Gambel oak, regardless of tree form, health, or vigor. Free up around 1-2 sides of Gambel oak > 10 inches DRC by thinning conifers < 18 inches DBH located within 10-20 ft of the dripline, unless removal of the conifer would damage the oak.

5. Leave all riparian tree species (maple, walnut, Arizona sycamore, boxelder, etc.), regardless of tree form, health, or vigor. Free up around 1 – 2 sides of riparian tree species > 10 inches DRC by thinning conifers < 18 inches DBH located within 10-20 ft of the dripline, unless removal of the conifer would damage the tree.

6. Leave all Arizona white oak and Emory oak > 10 inches DRC. All evergreen oaks ≤ 10 inches DRC will be cut.

7. Leave all juniper > 14 inches DRC. All juniper ≤ 14 inches DRC will be cut.

Regeneration Openings

8. Create openings for regeneration on approximately 10% of the unit area (1 acre). Openings will be approximately ¼ acre in size. When creating openings for regeneration, target the following areas:
   - Areas with trees of poor form, health, and vigor
   - Areas with trees in the most prevalent age/size class (young trees 5 - 16 inches DBH)

Individual Leave Trees:

9. Focus tree retention on leaving the "best available" ponderosa pine. The best available trees are in dominant and codominant canopy positions and exhibit the most desirable tree retention standards, relative to other adjacent trees (See the "Tree Quality Standards"). Leave trees with the lowest dwarf mistletoe rating, relative to adjacent trees. Also see Large Tree Implementation Plan.

Leave Tree Groups:

10. Leave trees will be arranged primarily in an irregular/groupy arrangement. Tree groups will vary in shape, size, density, and number of trees. Tree groups will generally range in size from 5 – 20 trees. Leave approximately 1/4 of tree groups in each of the following size ranges:
    - 1/3 of groups – 5-10 trees per group
    - 1/3 of groups – 10-15 trees per group
    - 1/3 of groups – 15-20 trees per group

    Emphasis will be placed on leaving ponderosa pine that are ***NOT*** in the most prevalent size class (> 24 inches DBH and < 5 inches DBH). The following age/size classes will be the highest priority for leave tree groups:
    - Old conifers and conifers > 24 inches DBH

- Ponderosa pine seedlings/saplings (< 5 inches DBH) with good tree form, health, and vigor that are unsuppressed and free to grow
- Mature conifers 16-24 inches DBH
- Ponderosa pine 5-16 inches DBH with good tree form, health, and vigor

11. Within groups, spacing of leave trees will be variable and will range from 5 to 25 feet to mimic natural, historic tree arrangements. As a result, tree densities within groups will vary from one group to the next and will average from 40 - 120 ft^2/ac, based upon tree age and/or size. Leave the following BA distribution:

    Table 4. Desired basal area distribution by age class (DBH is a general guide).

Age Class and Characteristics*	DBH (inches)	Desired Basal Area (ft^2) Range
Seedlings and Saplings	< 5	N/A - Use variable spacing of 5-20 ft
Young trees (black, furrowed bark)	5-12	40-60
Mid-aged trees (black, furrowed bark)	12-18	60-80
Mature trees (black furrowed bark beginning to "yellow" and flatten)	18-24	80-120
Old trees (flat, platey, "yellow" bark)	18+	80-120

    *Bark characteristics are specific to ponderosa pine

Interspaces between Groups:

12. Spacing between groups of leave trees will be variable in size and will generally range from 50-70 feet (measured bole to bole). In general, leave larger interspaces between larger sized groups and in areas with large pockets of dwarf mistletoe infection.

    When creating interspaces, target the following areas:
    - Areas with lower tree densities that provide natural breaks in the tree canopy
    - Areas with trees of poor form, health, and vigor
    - Areas with trees in the most prevalent age/size class (young to mid-aged trees 5 - 18 inches DBH)

Individual Leave Trees:

13. Focus tree retention on leaving the "best available" trees. The best available trees are in dominant and codominant canopy positions and exhibit the most desirable tree retention standards, relative to other adjacent trees (See the "Tree Quality Standards"). Leave trees with the lowest dwarf mistletoe rating, relative to adjacent trees.

Other considerations:

14. Use a directional mark within 1 chain of private property. A directional mark consists of 2 butt marks, with one butt mark facing the private property, and a slash at breast height opposite of the private property around half of the tree bole.

15. All conifer leave trees 2 - 26 inches DBH will be marked with an orange leave tree mark. Conifers > 26 inches DBH will not be marked. However this unit has an 24-inch diameter cap. Therefore, contract specifications will ensure that conifers greater than 24 inches DBH will not be cut.

16. Leave trees within archaeological sites ***WILL*** be leave tree marked. Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands.

Section V – Site Specific Mitigation Measures / Design Features

(also see full set of mitigation measures from Rim Country EIS)

Archaeology

Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands. Historic telephone trees are considered archaeological sites. These trees are marked with double white bands. Leave trees within archaeological sites ***WILL*** be marked. Vehicles and mechanized equipment are not permitted within archaeological sites. Prior to implementation of proposed treatments, written approval of the forest archaeologist and forest supervisor will be completed (IS&A).

Botany

2 populations of Senator Mine Alumroot are located in the northern portion of units 23A and 108. This is a rare plant species that requires protection during logging operations. Skid trails and landings should avoid known populations of TESP species. Coordinate with the Forest Botanist in the location of skid trails and landings in this unit.

Hydrology

Follow BMPs to prevent soil compaction and displacement (FSH 2509.24.13). Limit driving and harvesting operations to periods of dry soil conditions.

Aquatic management zones (AMZ) are designated along all perennial, intermittent, and ephemeral streams, including Pine Creek and other unnamed creeks. AMZs were developed in collaboration with the forest hydrologist on field trips conducted on July 20, 2021, January 12, 2022, and through further analysis by the forest hydrologist. AMZs designated along streams will range from 50 – 150 feet, measured from each side of the stream.

- ✓ Ephemeral streams: AMZ will extend 50 feet from both banks of the stream.
- ✓ Intermittent streams: AMZ will extend 75 feet from both banks of the stream.
- ✓ Perennial streams: AMZ will extend 150 feet from both banks of the stream.

Vehicular operations including skidding should not occur longitudinally through AMZs. Turning machines and skidding within an AMZ should be minimized to the greatest extent possible. Landings, decking areas, machine or hand piles will occur outside of AMZs unless otherwise specified. Minimize disturbance and removal of riparian vegetation within AMZ's. Stream crossings will be designated by the sale administrator. Highlight protected streams on the CAM.

Within the AMZ around Parsnip Spring and along the spring discharge, ground-based operations are prohibited. Utilize helicopter logging methods. Work in coordination with the forest hydrologist to identify the extent of this area.

Greater than ½ mile from private property, do not construct landings or temp roads within AMZs.

Rim Country design feature SW010 states:

> "Apply the following direction if AMZ is within ½ mile of private land boundary or designated WUI: Treatment measures necessary to reduce the risk of wildfire encroachment on adjacent private lands may take priority over other considerations in these AMZs. Entry and treatments in these reaches will be considered on a case-by-case basis by IDTs."

Tonto NF leadership is interpreting this design feature to allow the building of temp roads within AMZs located within ½ mile of the land boundary with Camp Lo Mia. Entry and treatments within Pine Canyon are considered necessary by the IDT to protect private property in Pine, AZ from the risk of wildfire. Due to the size and volume of trees and biomass to be removed, ground-based logging is necessary to access Pine Canyon in an economical manner. The construction of temp roads in AMZs within ½ mile of private property is necessary to accomplish the mechanized ground-based logging and biomass removal. Affected AMZs include Pine Creek and 3 unnamed intermittent streams.

Landings and temp road construction will be minimized to the greatest extent possible and coordinated with the forest hydrologist. Mitigation measures will be used to prevent sediment deposit into streams. All landings and temp roads will be decommissioned in coordination with the forest hydrologist.

Non-Native and Invasive Weeds

Use Best Management Practices to prevent the spread of noxious or invasive weeds. Contractors will clean their equipment of all mud and plant debris prior to entering National Forest System Lands. Provide training to Forest Service and contract personnel on identification of weeds and procedures for using equipment in infested areas (e.g. wash equipment thoroughly before moving from one area to another). Consider sowing native grass or forb seed in highly disturbed areas.

Prescribed Burning

Minimize residual tree scorch through fire prescriptions.

Coordinate with district range personnel when planning and conducting thinning and prescribed burning so that range improvements can be identified. The range permittee will be contacted prior to any prescribed burning activity to prevent harm to livestock. When possible, coordinate prescribed burning with pasture rotation schedules.

During prescribed burning, no direct ignition will occur within AMZs.

Recreation

For public safety, camping will be prohibited within active harvesting areas. Harvesting operations should be avoided on the following holiday weekends: Memorial Day, Fourth of July, and Labor Day.

Use a directional mark within 1 chain of the Pine Canyon Trail (see map).

Wildlife

This cut unit is located within 1/4 mile of several MSO PACs. There will be a timing restriction within the MSO PACs and 1/4 mile beyond the PAC boundary. No thinning or burning operations may occur from March 1 – August 31. This timing restriction may be modified or eliminated by the district wildlife biologist if a nest is located or if non-nesting is confirmed.

A field trip to Pine Canyon was conducted with the district wildlife biologist and USFWS on 1/19/22. Draft prescriptions were sent to USFWS on 2/8/22 for feedback. Feedback was received on 2/18/22 and incorporated into silvicultural prescriptions.

All units within Pine Canyon are located within ¼ mile of a northern goshawk post-fledging family area. There will be a timing restriction within the PFA and 1/4 mile beyond the PFA boundary. No thinning or burning operations may occur from March 1 – September 30. This timing restriction may be modified to follow guidance in the final Tonto Revised Land Management Plan or by the district wildlife biologist if a nest is located or if non-nesting is confirmed.

Section VI – Documentation
(FACTS, KV, FSVeg Spatial, planned future treatments (5+ years), monitoring)

Table 5: Documentation

FACTS	4152 – group selection – 1 ac 4220 – KP 6 commercial thin – 8 ac 4382 – certification of natural regeneration without site prep – 1 ac 4511 – tree release and weed – 8 ac 2360 - Range control veg – 9 ac 7100 - Pollinator habitat improved – 9 ac

FACTS polygon (ID and subunit)	031204 PineCanynCU12
Land Suitability Code (TIM classification)	500
FSVeg Spatial	Redelineate stand at cut unit boundary
Planned Future Treatments	Broadcast burning in 2026-2028 Re-entry broadcast burning every 3-10 years Uneven-aged Management – Group Selection with 10% openings and precommercial thinning in 20 years
Planned funding code (service work)	CFTM, HFDS
KV	None
Monitoring	As required under Rim Country EIS

E) CU 13

Treatment Plan

Silvicultural Treatment: Uneven-aged Management – Group Selection

Prescribed by: Patty Ringle		**Date:**	2/20/2022
Certified by: Patty Ringle		**Date:**	2/20/2022

Treatment Method: Mechanical and/or Helicopter as Appropriate

Slash Treatment: Removal and chipping of all biomass

Skid Trails: Utilize interspaces

Constraints and Other Considerations:

Leave trees within archaeological sites will be leave tree marked. Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands. Historic telephone trees are considered archaeological sites. These trees are marked with double white bands.

This cut unit is located within 1/4 mile of several MSO PACs. There will be a timing restriction within the MSO PACs and 1/4 mile beyond the PAC boundaries. No thinning or burning operations may occur from March 1 – August 31. This timing restriction may be modified or eliminated by the district wildlife biologist if a nest is located or if non-nesting is confirmed.

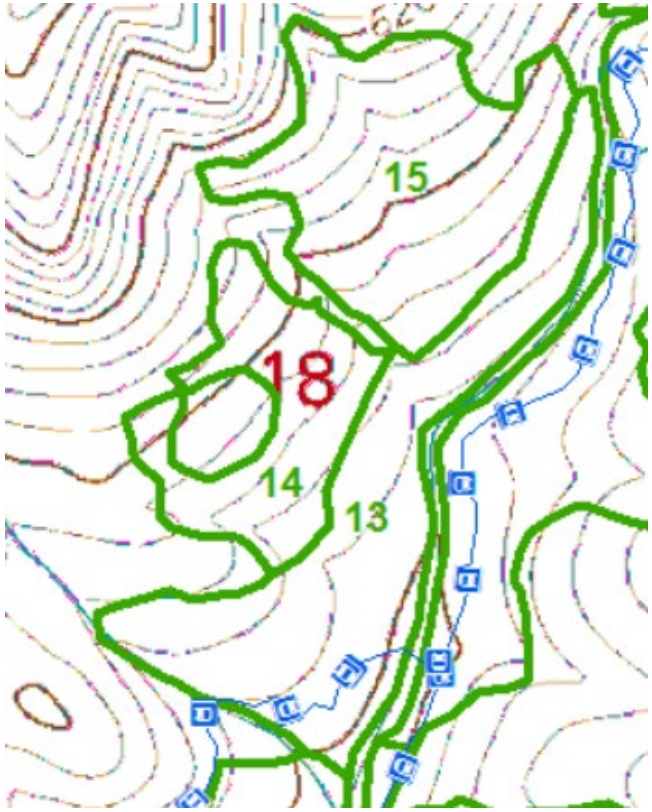
Use a directional mark within 1 chain of the Bearfoot Trail.

Aquatic management zones (AMZ) will be designated along Pine Creek, Parsnip Spring, and other intermittent and ephemeral streams. Temp roads and landings are prohibited within AMZs. All stream crossings will be designated by the sale administrator. See design features for AMZ widths and further mitigation measures.

Notes for Layout:

Identity

Project Name	**Cut Unit**	**Acres**
Pine Canyon/ Poco Pino Project	13	24
Forest / District	**NEPA**	**Location(s) / Site(s)**
Tonto NF / Payson RD	Rim Country EIS	000096 / 0006



Follow-up Treatment (next 5 years):

Contract/agreement to be awarded in FY23

Broadcast and reentry burning to follow, dependent upon natural ignition and resources available for managed fire

Layout/Marking

Boundary Designation: Double orange bands

Tree Designation: All conifer leave trees 1-26 inches DBH will be marked with an orange leave tree mark

Layout completed by:	DJ Morales, Bret Elgersma	**Date:**	January 2022
Marking verified by:	Woerheide, Nicholls	**Date:**	June 2022

Notes

Rim Country Treatment:
Analyzed – MSO Recovery – Replacement Nest/Roost
Prescribed – MSO Recovery – Replacement Nest/Roost

Section II – Existing Conditions

Location/Site 000096/0006: This unit consists of an uneven-aged stand of ponderosa pine with inclusion of Douglas-fir. Young, mid-aged, and old trees are represented. However, most young trees < 12 inches DBH are suppressed and overtopped. The stand is currently overstocked with alligator juniper, Arizona white oak, Emory oak, and ponderosa pine < 18 inches DBH. The understory is dominated by Douglas-fir, alligator juniper, Arizona white oak, and Emory oak. Large diameter, old ponderosa pine and Douglas-fir occur as individuals and in small groups. Gambel oak, Rocky Mountain juniper, boxelder, and Arizona sycamore noted near Pine Creek. Basal areas (BA) range from approximately 80-260 ft² per acre, with an average of approximately 200 ft² per acre. Regeneration consists of Douglas-fir, Arizona white oak, Emory oak, rocky mountain juniper, and alligator juniper. Ponderosa pine regeneration that is unsuppressed and free to grow is limited due to high stand densities but small amounts can be found in openings. Ground cover consists of yucca, deer brush, coffee berry, and various grass species. This unit is MSO Recovery Replacement Nest/Roost Habitat.

Table 1: Site/Stand Overview 000096/0006

Slope	Aspect	Elevation	Habitat Type (s)	Hydrology
<20%	SE	5800	PIPO/QUAR; PSME/QUAR	Pine Creek

BA QUGA	Percent of max SDI	Site Index
< 5	84	90

% TPA Infected	DM Severity (DMR)	Dominant Diameter Class	BA PIPO > 16 inches DBH
<5	0	Uneven-aged	60

Table 2: Current stand structure/species composition 000096/0006

		Seedlings/Saplings	Young	Mid-aged	Mature/Old	
Species	**Measure**	**<5”**	**5-12”**	**12-18”**	**18+”**	**Total**
PIPO	TPA	50	70	42	16	178
	BA		28	52	39	122
PSME	TPA	200	16	6	4	226
	BA		8	7	11	26
JUDE	TPA	180	16	2	4	202
	BA		4	3	15	25
JUSC	TPA	10				10
	BA					
QUAR	TPA	190	66	8	4	268
	BA		29	7	8	45
QUEM	TPA	120	22	2		144
	BA		7	3		9
Total	TPA	760	192	60	28	1040
	BA		75	72	74	228

Section III – Long-Term Desired Conditions and Prescribed Treatment Objectives

Desired Condition (spatial patterns, species composition, stand structure)

The desired future condition is a healthy ponderosa pine stand with inclusions of Douglas-fir that provides quality nest/roost habitat for the Mexican spotted owl. The unit will retain groups of large diameter trees with closed canopy and vertical structure. Leave tree arrangement will be irregular, variable with small openings for pine regeneration. At the stand level, forest structure will be uneven-aged. Conditions will be conducive to lower fire severity. Stocking guidelines will be designed to maintain large diameter trees, canopy cover within groups of larger diameter trees, tree species diversity, and vertical structure near old conifers, while also reducing fire severity. Trees will be left in groups of varying size and density. Group size will range from 10 – 50 trees. Basal areas within groups will average from 40 - 160 ft², depending on tree age/size. Density of evergreen oak and juniper will be decreased to < 15 trees per acre.

Short-Term Objectives (expected post-treatment outcome)

1. Maintain nest/roost habitat for the Mexican spotted owl by maintaining large diameter conifers, canopy cover, vertical structure, large diameter snags and logs, and perch trees in the understory.
2. Reduce the risk of catastrophic, stand-replacing wildfire by decreasing overall stand densities, ladder fuels, and crown fuel continuity. Create conditions that facilitate lower fire severity.
3. Create a forest structure that more closely resembles the structure that existed prior to interruption of the historic fire regime (sustainable, uneven-aged, irregular/variable leave tree arrangement).
4. Maintain tree species diversity by thinning conifers < 18 inches DBH around riparian tree species and Gambel oak and by retaining larger diameter evergreen oaks and juniper.

Table 3: Current/Desired Conditions for Forest Structure by TPA

TPA (conifers)	Estimated Current %	Expected Post Treatment %	Desired Future %
Seedling/sapling (<5”)	62	23	10
Young trees (5-12”)	21	24	20
Mid-aged trees (12-18”)	12	19	20
Mature/old trees (18+”)	5	23	50

Section IV – Implementation Guide

Cut Unit: 13 Location(s) / Site(s): 000096 / 0006 Acres: 24

Silvicultural Treatment: Uneven-aged Management – Group Selection (MSO Nest/Roost Recovery)

Implementation Instructions (in order of priority)

Old and Larger Diameter Trees:

1. Leave all ponderosa pine and Douglas-fir > 18 inches DBH, regardless of tree form, health, or vigor.

2. Leave all old ponderosa pine and Douglas-fir, regardless of tree form, health, or vigor. Old trees are greater than 150 years old and display old tree characteristics outlined in the Rim Country Old Tree Implementation Plan.

Other Tree Species:

3. Leave all trees that are stabilizing the banks of ephemeral, intermittent, or perennial streams. These trees are located on the slopes or edge of the stream banks.

4. Leave all Gambel oak, regardless of tree form, health, or vigor. Free up around 1-2 sides of Gambel oak > 10 inches DRC by thinning conifers < 18 inches DBH located within 10-20 ft of the dripline, unless removal of the conifer would damage the oak.

5. Leave all riparian tree species (maple, walnut, Arizona sycamore, boxelder, etc.), regardless of tree form, health, or vigor. Free up around 1 – 2 sides of riparian tree species > 10 inches DRC by thinning conifers < 18 inches DBH located within 10-20 ft of the dripline, unless removal of the conifer would damage the tree.

6. Leave all Arizona white oak and Emory oak > 10 inches DRC. All evergreen oaks ≤ 10 inches DRC will be cut.

7. Leave all juniper > 14 inches DRC. All juniper ≤ 14 inches DRC will be cut.

Regeneration Openings

8. Create openings for regeneration on approximately 10% of the unit area (2 acres). Openings will vary in shape and size. Openings will range in size from 0.1 – 0.25 acre. When creating openings for regeneration, target areas with trees 5 - 16 inches DBH and/or trees with undesirable tree form, health, and vigor.

Leave Tree Groups:

9. Leave trees will be arranged primarily in an irregular, somewhat "groupy" leave tree arrangement. Tree groups will vary in shape, size, density, and number of trees. Leave tree groups may be even-aged or uneven-aged. Tree groups will generally range in size from 10-50 trees. Leave approximately 1/4 of tree groups in each of the following size ranges:
   - 1/4 of groups – 10-20 trees per group
   - 1/4 of groups – 20-30 trees per group
   - 1/4 of groups – 30-40 trees per group
   - 1/4 of groups – 40-50 trees per group

   Emphasis will be placed on leaving conifers that are ***NOT*** in the most prevalent size class (>16 inches DBH). The following age/size classes will be the highest priority for leave tree groups:
   - Mature and old conifers > 16 inches DBH, regardless of tree form, health, or vigor
   - Ponderosa pine seedlings/saplings (< 5 inches DBH) with good tree form, health, and vigor that are unsuppressed and free to grow.

10. To provide vertical structure for perching owls, leave 5-10 trees within 5-20 feet of the dripline of 1 old ponderosa pine tree (> 24 inches DBH) per acre.

11. Within tree groups, spacing of leave trees will be variable and will range from 5 to 20 feet to mimic natural, historic tree arrangements. As a result, tree densities will be variable and will range from 40-160 ft² per acre, based upon tree age and/or size. Leave the following BA distribution:

Table 3. Desired basal area distribution by age class (DBH is a general guide).

Age Class and Characteristics*	DBH (inches)	Desired Basal Area (ft²) Range
Seedlings and Saplings	< 5	N/A Use variable spacing of 10 - 20 ft
Young trees (black, furrowed bark)	5-12	40-60
Mid-aged trees (black, furrowed bark)	12-18	60-100
Mature trees (black furrowed bark beginning to "yellow" and flatten)	18-24	100-140
Old trees (flat, platey, "yellow" bark)	18+	100-160

*Bark characteristics are specific to ponderosa pine

Interspaces between Groups:

12. Spacing between groups of leave trees (interspaces) will be variable in size and will generally range from 25-40 feet (measured bole to bole). When creating interspaces, target the following areas:
    - Areas with lower tree densities that provide natural breaks in the tree canopy
    - Areas with trees of poor form, health, and vigor
    - Areas with trees in the most prevalent size class (5 - 18 inches DBH)

Individual Leave Trees:

13. Focus tree retention on leaving the "best available" trees. The best available trees are in dominant and codominant canopy positions and exhibit the most desirable tree retention standards, relative to other adjacent trees (See the "Tree Quality Standards"). Leave trees with the lowest dwarf mistletoe rating, relative to adjacent trees. Also see Large Tree Implementation Plan.

Other considerations:

14. Use a directional mark within 1 chain of the Bearfoot Trail. A directional mark consists of 2 butt marks, with one butt mark facing the trail, and a slash at breast height opposite of the trail around half of the tree bole.

15. All conifer leave trees 2 - 26 inches DBH will be marked with an orange leave tree mark. Conifers > 26 inches DBH will not be marked. However, this unit has an 18-inch diameter cap. Therefore, contract specifications will ensure that conifers greater than 18 inches DBH will not be cut.

16. Leave trees within archaeological sites ***WILL*** be leave tree marked. Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands.

Section V – Site Specific Mitigation Measures / Design Features

(also see full set of mitigation measures from Rim Country EIS)

Archaeology

Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands. Historic telephone trees are considered archaeological sites. These trees are marked with double white bands. Leave trees within archaeological sites ***WILL*** be marked. Vehicles and mechanized equipment are not permitted within archaeological sites. Prior to implementation of proposed treatments, written approval of the forest archaeologist and forest supervisor will be completed (IS&A).

Hydrology

Follow BMPs to prevent soil compaction and displacement (FSH 2509.24.13). Limit driving and harvesting operations to periods of dry soil conditions.

Aquatic management zones (AMZ) are designated along all perennial, intermittent, and ephemeral streams, including Pine Creek and other unnamed creeks. AMZs were developed in collaboration with the forest hydrologist on field trips conducted on July 20, 2021, January 12, 2022, and through further analysis by the forest hydrologist. AMZs designated along streams will range from 50 – 150 feet, measured from each side of the stream.

- ✓ Ephemeral streams: AMZ will extend 50 feet from both banks of the stream.
- ✓ Intermittent streams: AMZ will extend 75 feet from both banks of the stream.
- ✓ Perennial streams: AMZ will extend 150 feet from both banks of the stream.

Vehicular operations including skidding should not occur longitudinally through AMZs. Turning machines and skidding within an AMZ should be minimized to the greatest extent possible. Landings, decking areas, machine or hand piles will occur outside of AMZs unless otherwise specified. Minimize disturbance and removal of riparian vegetation within AMZ's. Stream crossings will be designated by the sale administrator. Highlight protected streams on the CAM.

Within the AMZ around Parsnip Spring and along the spring discharge, ground-based operations are prohibited. Utilize helicopter logging methods. Work in coordination with the forest hydrologist to identify the extent of this area.

Greater than ½ mile from private property, do not construct landings or temp roads within AMZs.

Rim Country design feature SW010 states:

> "Apply the following direction if AMZ is within ½ mile of private land boundary or designated WUI: Treatment measures necessary to reduce the risk of wildfire encroachment on adjacent private lands may take priority over other considerations in these AMZs. Entry and treatments in these reaches will be considered on a case-by-case basis by IDTs."

Tonto NF leadership is interpreting this design feature to allow the building of temp roads within AMZs located within ½ mile of the land boundary with Camp Lo Mia. Entry and treatments within Pine Canyon are considered necessary by the IDT to protect private property in Pine, AZ from the risk of wildfire. Due to the size and volume of trees and biomass to be removed, ground-based logging is necessary to access Pine Canyon in an economical manner. The construction of temp roads in AMZs within ½ mile of private property is necessary to accomplish the mechanized ground-based logging and biomass removal. Affected AMZs include Pine Creek and 3 unnamed intermittent streams.

Landings and temp road construction will be minimized to the greatest extent possible and coordinated with the forest hydrologist. Mitigation measures will be used to prevent sediment deposit into streams. All landings and temp roads will be decommissioned in coordination with the forest hydrologist.

Non-Native and Invasive Weeds

Use Best Management Practices to prevent the spread of noxious or invasive weeds. Contractors will clean their equipment of all mud and plant debris prior to entering National Forest System Lands. Provide training to Forest Service and contract personnel on identification of weeds and procedures for using equipment in infested areas (e.g. wash

equipment thoroughly before moving from one area to another). Consider sowing native grass or forb seed in highly disturbed areas.

Prescribed Burning
Minimize residual tree scorch through fire prescriptions.

Coordinate with district range personnel when planning and conducting thinning and prescribed burning so that range improvements can be identified. The range permittee will be contacted prior to any prescribed burning activity to prevent harm to livestock. When possible, coordinate prescribed burning with pasture rotation schedules.

During prescribed burning, no direct ignition will occur within AMZs.

Recreation
For public safety, camping will be prohibited within active harvesting areas. Harvesting operations should be avoided on the following holiday weekends: Memorial Day, Fourth of July, and Labor Day.

Use a directional mark within 1 chain of the Bearfoot trail. A directional mark consists of 2 butt marks, with one butt mark facing the trail, and a slash at breast height opposite of the trail around half of the tree bole.

Wildlife
This cut unit is located within 1/4 mile of several MSO PAC. There will be a timing restriction within the MSO PACs and 1/4 mile beyond the PAC boundary. No thinning or burning operations may occur from March 1 – August 31. This timing restriction may be modified or eliminated by the district wildlife biologist if a nest is located or if non-nesting is confirmed.

A field trip to Pine Canyon was conducted with the district wildlife biologist and USFWS on 1/19/22. Draft prescriptions were sent to USFWS on 2/8/22 for feedback. Feedback was received on 2/18/22 and incorporated into silvicultural prescriptions.

All units within Pine Canyon are located within ¼ mile of a northern goshawk post-fledging family area. There will be a timing restriction within the PFA and 1/4 mile beyond the PFA boundary. No thinning or burning operations may occur from March 1 – September 30. This timing restriction may be modified to follow guidance in the final Tonto Revised Land Management Plan or by the district wildlife biologist if a nest is located or if non-nesting is confirmed.

Section VI – Documentation
(FACTS, KV, FSVeg Spatial, planned future treatments (5+ years), monitoring)

Table 4: Documentation

FACTS	4152 – group selection –2 ac 4220 – KP 6 commercial thin – 20 ac 4382 – certification of natural regeneration without site prep – 2 ac 4511 – tree release and weed – 20 ac 2360 - Range control veg – 24 ac 7100 - Pollinator habitat improved – 24 ac
FACTS polygon (ID and subunit)	031204 PineCanynCU13
Land Suitability Code (TIM classification)	500
FSVeg Spatial	Redelineate stand at MSO PAC boundary

Planned Future Treatments	Broadcast burning in 2026-2028 Re-entry broadcast burning every 3-10 years Uneven-aged Management – Group Selection with 10% openings and precommercial thinning in 20 years
Planned funding code (service work)	CFTM, HFDS
KV	None
Monitoring	As required under Rim Country EIS

F) CU 15

Treatment Plan

Silvicultural Treatment: Uneven-aged Management – Group Selection

Prescribed by: Patty Ringle	**Date:** 2/20/2022		
Certified by: Patty Ringle	**Date:** 2/20/2022		

Treatment Method: Mechanical and/or Helicopter as Appropriate

Slash Treatment: Removal and chipping of all biomass

Skid Trails: Utilize interspaces

Constraints and Other Considerations:

Leave trees within archaeological sites will be leave tree marked. Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands. Historic telephone trees are considered archaeological sites. These trees are marked with double white bands.

These cut units are located within a MSO PAC. There will be a timing restriction within the MSO PAC and ¼ mile beyond the PAC boundary. No thinning or burning operations may occur from March 1 – August 31. This timing restriction may be modified or eliminated by the district wildlife biologist if a nest is located or if non-nesting is confirmed. Landing and temp road construction is not allowed in MSO PACs.

Aquatic management zones (AMZ) will be designated along Pine Creek, Parsnip Spring, and other intermittent and ephemeral streams. Temp roads and landings are prohibited within AMZs. All stream crossings will be designated by the sale administrator. See design features for AMZ widths and further mitigation measures.

Notes for Layout:

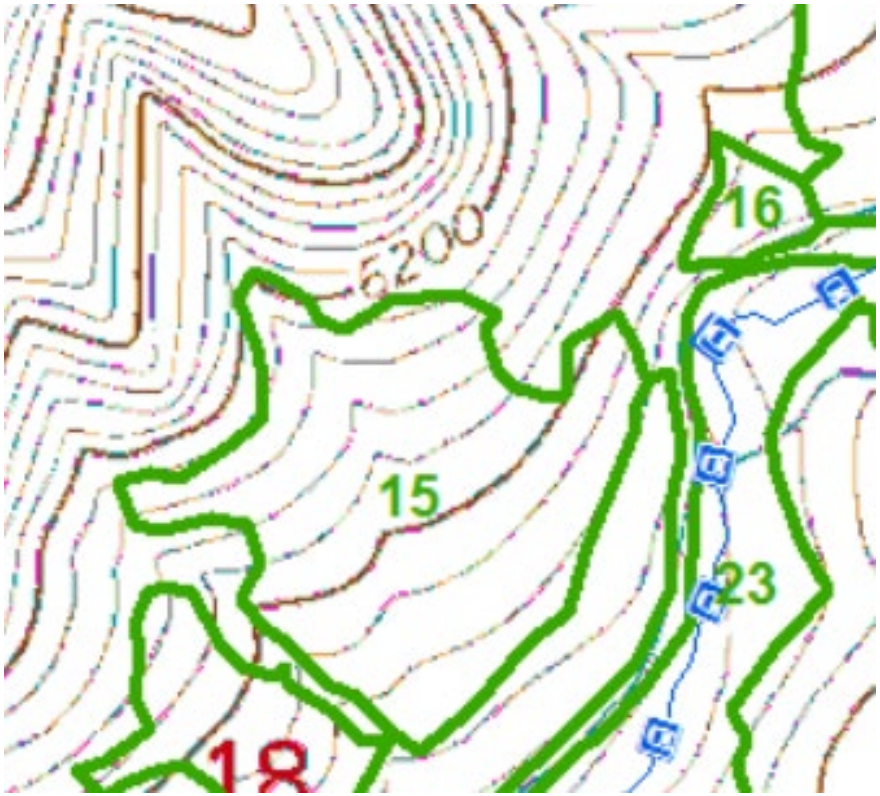
Follow-up Treatment (next 5 years):

Contract/agreement to be awarded in FY23

Broadcast and reentry burning to follow, dependent upon natural ignition and resources available for managed fire

Identity

Project Name	**Cut Unit**	**Acres**
Pine Canyon/ Poco Pino Project	15 (Same Prescription as CU 16)	12
Forest / District	**NEPA**	**Location(s) / Site(s)**
Tonto NF / Payson RD	Rim Country EIS	000096 / 0006



Layout/Marking

Boundary Designation: Double orange bands

Tree Designation: All conifer leave trees 1-26 inches DBH will be marked with an orange leave tree mark

Layout completed by:	DJ Morales, Bret Elgersma	**Date:**	January 2022
Marking verified by:	Woerheide, Nicholls	**Date:**	June 2022

Notes

Rim Country Treatment:

Analyzed – MSO PAC - Mechanical

Prescribed – MSO PAC – Mechanical

Section II – Existing Conditions

Location/Site 000096/0006: This unit consists of an uneven-aged stand of ponderosa pine with inclusions of Douglas-fir. Young, mid-aged, and old trees are represented. However, most young trees < 12 inches DBH are suppressed and overtopped. The stand is currently overstocked with alligator juniper, Arizona white oak, Emory oak, and ponderosa pine < 18 inches DBH. The understory is dominated by Douglas-fir, alligator juniper, Arizona white oak, and Emory oak. Large diameter, old ponderosa pine and Douglas-fir occur as individuals and in small groups. Gambel oak, Rocky Mountain juniper, boxelder, and Arizona sycamore noted near Pine Creek. Basal areas (BA) range from approximately 80-260 ft² per acre, with an average of approximately 200 ft² per acre. Regeneration consists of Douglas-fir, Arizona white oak, Emory oak, rocky mountain juniper, and alligator juniper. Ponderosa pine regeneration that is unsuppressed and free to grow is limited due to high stand densities but small amounts can be found in openings. Ground cover consists of yucca, deer brush, coffee berry, and various grass species. These units are located within a MSO PAC.

Table 1: Site/Stand Overview 000096/0006

Slope	Aspect	Elevation	Habitat Type (s)	Hydrology
<20%	SE	5800	PIPO/QUAR; PSME/QUAR	Pine Creek

BA QUGA	Percent of max SDI	Site Index
< 5	84	90

% TPA Infected	DM Severity (DMR)	Dominant Diameter Class	BA PIPO > 16 inches DBH
<5	0	Uneven-aged	60

Table 2: Current stand structure/species composition 000096/0006

		Seedlings/Saplings	Young	Mid-aged	Mature/Old	
Species	**Measure**	**<5”**	**5-12”**	**12-18”**	**18+”**	**Total**
PIPO	TPA	50	70	42	16	178
	BA		28	52	39	122
PSME	TPA	200	16	6	4	226
	BA		8	7	11	26
JUDE	TPA	180	16	2	4	202
	BA		4	3	15	25
JUSC	TPA	10				10
	BA					
QUAR	TPA	190	66	8	4	268
	BA		29	7	8	45
QUEM	TPA	120	22	2		144
	BA		7	3		9
Total	TPA	760	192	60	28	1040
	BA		75	72	74	228

Section III – Long-Term Desired Conditions and Prescribed Treatment Objectives

Desired Condition (spatial patterns, species composition, stand structure)

The desired future condition is an uneven-aged ponderosa pine forest, with inclusions of Douglas-fir, that exhibit lower fire hazard while also retaining key habitat components for the Mexican spotted owl (large trees, canopy cover, snags, logs, species diversity). The unit will retain groups of large diameter trees with closed canopy and vertical structure. Leave tree arrangement will be irregular, variable with small openings for horizontal heterogeneity, understory diversity, and pine regeneration. At the stand level, forest structure will be uneven-aged. Conditions will be conducive to lower fire severity. Stocking guidelines will be designed to maintain large diameter trees, canopy cover within groups of larger diameter trees, and tree species diversity, while also reducing fire severity. Trees will be left in groups of varying size and density. Group size will range from 5-25 trees. Basal areas within groups will average from 60 - 160 ft², depending on tree age/size. Density of evergreen oak and juniper will be decreased to < 15 trees per acre.

Short-Term Objectives (expected post-treatment outcome)

1. Reduce the risk of catastrophic, stand-replacing wildfire by decreasing overall stand densities, ladder fuels, and crown fuel continuity. Create conditions that facilitate lower fire severity.
2. Maintain patches of nest/roost habitat for the Mexican spotted owl by maintaining canopy cover within groups of large diameter trees.
3. Retain key habitat components for the Mexican spotted owl (large trees, canopy cover, snags, logs, perch trees in the understory).
4. Increase vertical and horizontal heterogeneity by maintaining/increasing age class diversity, creating a patchy leave tree arrangement, and by providing openings for understory species and pine regeneration.

Table 3: Current/Desired Conditions for Forest Structure by TPA

TPA (conifers)	Estimated Current %	Expected Post Treatment %	Desired Future %
Seedling/sapling (<5”)	62	15	10
Young trees (5-12”)	21	15	20
Mid-aged trees (12-18”)	12	40	30
Mature/old trees (18+”)	5	30	40

Section IV – Implementation Guide

Cut Units: 15 and 16 Location(s) / Site(s): 000096 / 0006 Acres: 24

Silvicultural Treatment: Uneven-aged Management – Group Selection (MSO PAC)

Implementation Instructions (in order of priority)

Old and Larger Diameter Trees:

1. Leave all ponderosa pine and Douglas-fir > 18 inches DBH, regardless of tree form, health, or vigor.

2. Leave all old ponderosa pine and Douglas-fir, regardless of tree form, health, or vigor. Old trees are greater than 150 years old and display old tree characteristics outlined in the Rim Country Old Tree Implementation Plan.

Other Tree Species:

3. Leave all trees that are stabilizing the banks of ephemeral, intermittent, or perennial streams. These trees are located on the slopes or edge of the stream banks.

4. Leave all Gambel oak, regardless of tree form, health, or vigor. Free up around 1-2 sides of Gambel oak > 10 inches DRC by thinning conifers < 18 inches DBH located within 10-20 ft of the dripline, unless removal of the conifer would damage the oak.

5. Leave all riparian tree species (maple, walnut, Arizona sycamore, boxelder, etc.), regardless of tree form, health, or vigor. Free up around 1 – 2 sides of riparian tree species > 10 inches DRC by thinning conifers < 18 inches DBH located within 10-20 ft of the dripline, unless removal of the conifer would damage the tree.

6. Leave all Arizona white oak and Emory oak > 10 inches DRC. All evergreen oaks ≤ 10 inches DRC will be cut.

7. Leave all juniper > 14 inches DRC. All juniper ≤ 14 inches DRC will be cut.

Regeneration Openings

8. Create openings for regeneration on approximately 10% of the unit area (2 acres). Openings will vary in shape. Openings will be approximately 0.25 acre in size. When creating openings for regeneration, target areas with trees 5 - 16 inches DBH and/or trees with undesirable tree form, health, and vigor.

Leave Tree Groups:

9. Leave trees will be arranged in an irregular, "groupy" leave tree arrangement. Tree groups will vary in shape, size, density, and number of trees. Leave tree groups may be even-aged or uneven-aged. Tree groups will generally range in size from 5-25 trees. Leave approximately 1/4 of tree groups in each of the following size ranges:

    - 1/4 of groups – 5-10 trees per group (will generally be left on south-facing aspects and drier sites, such as ridges)
    - 1/4 of groups - 10-15 trees per group
    - 1/4 of groups – 15-20 trees per group
    - 1/4 of groups – 20-25 trees per group (will generally be left on north-facing aspects and moister sites such as drainage bottoms)

    Emphasis will be placed on leaving ponderosa pine that are ***NOT*** in the most prevalent size class (>16 inches DBH). The following age/size classes will be the highest priority for leave tree groups:
    - Mature and old conifers > 16 inches DBH, regardless of tree form, health, or vigor
    - Ponderosa pine seedlings/saplings (< 5 inches DBH) with good tree form, health, and vigor that are unsuppressed and free to grow

10. To provide vertical structure for perching owls, leave 5-10 trees within 5-20 feet of the dripline of 1 old ponderosa pine tree (> 24 inches DBH) per acre.

11. Within remaining leave tree groups, spacing of leave trees will be variable and will range from 5 to 20 feet to mimic natural, historic tree arrangements. As a result, tree densities will be variable, based upon tree age and/or size. Leave the following BA distribution:

Table 4. Desired basal area distribution by age class (DBH is a general guide).

Age Class and Characteristics*	DBH (inches)	Desired Basal Area (ft^2) Range
Seedlings and Saplings	< 5	N/A Use variable spacing of 10 - 20 ft
Young trees (black, furrowed bark)	5-12	60-80
Mid-aged trees (black, furrowed bark)	12-18	80-100
Mature trees (black furrowed bark beginning to "yellow" and flatten)	18-24	100-140
Old trees (flat, platey, "yellow" bark)	18+	100-160

*Bark characteristics are specific to ponderosa pine

Interspaces between Groups:

12. Spacing between groups of leave trees (interspaces) will be variable in size and will generally range from 40-60 feet (measured bole to bole). When creating interspaces, target the following areas:
    - Areas with lower tree densities that provide natural breaks in the tree canopy
    - Areas with trees of poor form, health, and vigor
    - Areas with trees in the most prevalent size class (5 - 18 inches DBH)

Individual Leave Trees:

13. Focus tree retention on leaving the "best available" trees. The best available trees are in dominant and codominant canopy positions and exhibit the most desirable tree retention standards, relative to other adjacent trees (See the "Tree Quality Standards"). Leave trees with the lowest dwarf mistletoe rating, relative to adjacent trees. Also see Large Tree Implementation Plan.

Other considerations:

14. All conifer leave trees 2- 26 inches DBH will be marked with an orange leave tree mark. Conifers > 26 inches DBH will not be marked. However, this unit has an 18-inch diameter cap. Therefore, contract specifications will ensure that conifers greater than 18 inches DBH will not be cut.

15. Leave trees within archaeological sites ***WILL*** be leave tree marked. Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands.

Section V – Site Specific Mitigation Measures / Design Features

(also see full set of mitigation measures from Rim Country EIS)

Archaeology

Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands. Historic telephone trees are considered archaeological sites. These trees are marked with double white bands. Leave trees within archaeological sites ***WILL*** be marked. Vehicles and mechanized equipment are not permitted within archaeological sites. Prior to implementation of proposed treatments, written approval of the forest archaeologist and forest supervisor will be completed (IS&A).

Hydrology

Follow BMPs to prevent soil compaction and displacement (FSH 2509.24.13). Limit driving and harvesting operations to periods of dry soil conditions.

Aquatic management zones (AMZ) are designated along all perennial, intermittent, and ephemeral streams, including Pine Creek and other unnamed creeks. AMZs were developed in collaboration with the forest hydrologist on field trips conducted on July 20, 2021, January 12, 2022, and through further analysis by the forest hydrologist. AMZs designated along streams will range from 50 – 150 feet, measured from each side of the stream.

- ✓ Ephemeral streams: AMZ will extend 50 feet from both banks of the stream.
- ✓ Intermittent streams: AMZ will extend 75 feet from both banks of the stream.
- ✓ Perennial streams: AMZ will extend 150 feet from both banks of the stream.

Vehicular operations including skidding should not occur longitudinally through AMZs. Turning machines and skidding within an AMZ should be minimized to the greatest extent possible. Landings, decking areas, machine or hand piles will occur outside of AMZs unless otherwise specified. Minimize disturbance and removal of riparian vegetation within AMZ's. Stream crossings will be designated by the sale administrator. Highlight protected streams on the CAM.

Within the AMZ around Parsnip Spring and along the spring discharge, ground-based operations are prohibited. Utilize helicopter logging methods. Work in coordination with the forest hydrologist to identify the extent of this area.

Greater than ½ mile from private property, do not construct landings or temp roads within AMZs.

Rim Country design feature SW010 states:

> "Apply the following direction if AMZ is within ½ mile of private land boundary or designated WUI: Treatment measures necessary to reduce the risk of wildfire encroachment on adjacent private lands may take priority over other considerations in these AMZs. Entry and treatments in these reaches will be considered on a case-by-case basis by IDTs."

Tonto NF leadership is interpreting this design feature to allow the building of temp roads within AMZs located within ½ mile of the land boundary with Camp Lo Mia. Entry and treatments within Pine Canyon are considered necessary by the IDT to protect private property in Pine, AZ from the risk of wildfire. Due to the size and volume of trees and biomass to be removed, ground-based logging is necessary to access Pine Canyon in an economical manner. The construction of temp roads in AMZs within ½ mile of private property is necessary to accomplish the mechanized ground-based logging and biomass removal. Affected AMZs include Pine Creek and 3 unnamed intermittent streams.

Landings and temp road construction will be minimized to the greatest extent possible and coordinated with the forest hydrologist. Mitigation measures will be used to prevent sediment deposit into streams. All landings and temp roads will be decommissioned in coordination with the forest hydrologist.

Non-Native and Invasive Weeds

Use Best Management Practices to prevent the spread of noxious or invasive weeds. Contractors will clean their equipment of all mud and plant debris prior to entering National Forest System Lands. Provide training to Forest Service and contract personnel on identification of weeds and procedures for using equipment in infested areas (e.g. wash

equipment thoroughly before moving from one area to another). Consider sowing native grass or forb seed in highly disturbed areas.

Prescribed Burning
Minimize residual tree scorch through fire prescriptions.

Coordinate with district range personnel when planning and conducting thinning and prescribed burning so that range improvements can be identified. The range permittee will be contacted prior to any prescribed burning activity to prevent harm to livestock. When possible, coordinate prescribed burning with pasture rotation schedules.

During prescribed burning, no direct ignition will occur within AMZs.

Recreation
For public safety, camping will be prohibited within active harvesting areas. Harvesting operations should be avoided on the following holiday weekends: Memorial Day, Fourth of July, and Labor Day.

Wildlife
This cut unit is located within the LoMia MSO PAC. There will be a timing restriction within the MSO PAC and 1/4 mile beyond the PAC boundary. No thinning or burning operations may occur from March 1 – August 31. This timing restriction may be modified or eliminated by the district wildlife biologist if a nest is located or if non-nesting is confirmed. Landing and temp road construction is not allowed in MSO PACs.

A field trip to Pine Canyon was conducted with the district wildlife biologist and USFWS on 1/19/22. Draft prescriptions were sent to USFWS on 2/8/22 for feedback. Feedback was received on 2/18/22 and incorporated into silvicultural prescriptions.

All units within Pine Canyon are located within ¼ mile of a northern goshawk post-fledging family area. There will be a timing restriction within the PFA and 1/4 mile beyond the PFA boundary. No thinning or burning operations may occur from March 1 – September 30. This timing restriction may be modified to follow guidance in the final Tonto Revised Land Management Plan or by the district wildlife biologist if a nest is located or if non-nesting is confirmed.

Section VI – Documentation
(FACTS, KV, FSVeg Spatial, planned future treatments (5+ years), monitoring)

Table 5: Documentation

FACTS	Unit 15: 4152 – group selection – 2 ac 4220 – KP 6 commercial thin – 20 ac 4382 – certification of natural regeneration without site prep – 2 ac 4511 – tree release and weed – 20 ac 2360 - Range control veg – 22 ac 7100 - Pollinator habitat improved – 22 ac Unit 16: 4220 – KP 6 commercial thin – 2 ac 4511 – tree release and weed – 2 ac 2360 - Range control veg – 2 ac 7100 - Pollinator habitat improved – 2 ac

FACTS polygon (ID and subunit)	031204 PineCanynCU1 5 031204 PineCanynCU16
Land Suitability Code (TIM classification)	500
FSVeg Spatial	Redelineate stand at MSO PAC boundary
Planned Future Treatments	Broadcast burning in 2026-2028 Re-entry broadcast burning every 3-10 years Uneven-aged Management – Group Selection with 10% openings and precommercial thinning in 20 years
Planned funding code (service work)	CFTM, HFDS
KV	None
Monitoring	As required under Rim Country EIS

G) CU 17

Treatment Plan

Silvicultural Treatment: Uneven-aged Management – Group Selection

Prescribed by: Patty Ringle	**Date:** 2/24/2022		
Certified by: Patty Ringle	**Date:** 2/24/2022		

Treatment Method: Mechanical and/or Helicopter as Appropriate

Slash Treatment: Removal and chipping of all biomass

Skid Trails: Utilize interspaces

Constraints and Other Considerations:

Leave trees within archaeological sites will be marked. Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands. Historic telephone trees are considered archaeological sites. These trees are marked with double white bands.

Use a directional mark within 1 chain of private property and the Pine Canyon Trail.

This cut unit is located within 1/4 mile of several MSO PACs. There will be a timing restriction within the MSO PACs and 1/4 mile beyond the PAC boundaries. No thinning or burning operations may occur from March 1 – August 31. This timing restriction may be modified or eliminated by the district wildlife biologist if a nest is located or if non-nesting is confirmed.

Aquatic management zones (AMZ) will be designated along Pine Creek, Parsnip Spring, and other intermittent and ephemeral streams. Temp roads and landings are prohibited within AMZs. All stream crossings will be designated by the sale administrator. See design features for AMZ widths and further mitigation measures.

Notes for Layout:

Follow-up Treatment (next 5 years):

Contract/agreement to be awarded in FY23

Broadcast and reentry burning to follow, dependent upon natural ignition and resources available for managed fire

Identity

Project Name	**Cut Unit**	**Acres**
Pine Canyon/ Poco Pino Project	17	8
Forest / District	**NEPA**	**Location(s) / Site(s)**
Tonto NF / Payson RD	Rim Country EIS	000096 / 0007

Layout/Marking

Boundary Designation: Double orange bands

Tree Designation: All conifer leave trees 1-26 inches DBH will be marked with an orange leave tree mark

Layout completed by: DJ Morales, Bret Elgersma	**Date:** January 2022
Marking verified by: Woerheide, Nicholls	**Date:** June 2022

Notes

Rim Country Treatment:
Analyzed – MSO Recovery – Replacement Nest/Roost
Prescribed – WUI (Uneven-aged Management – Group Selection with residual target BA of 50 ft^2/ac)

Section II – Existing Conditions

Location/Site 000096/0007: This unit consists of a fairly even-aged stand of ponderosa pine. Mid-aged and old trees are represented. The stand is currently overstocked with ponderosa pine 12-24 inches DBH. Stand data in Table 2 was collected throughout this large stand. Ponderosa pine < 12 inches DBH, Gambel oak, and Douglas-fir in this portion of the stand are much less abundant than in the northern part of the stand, which is in an adjacent cutting unit. The understory is dominated by alligator juniper, Arizona white oak, Emory oak, and New Mexican locust. Gambel oak, Arizona walnut, bigtooth maple, boxelder, and Arizona sycamore noted near Pine Creek. Average basal areas (BA) is 280 ft² per acre. Regeneration consists of Arizona white oak, Emory oak, and alligator juniper. Ponderosa pine regeneration that is unsuppressed and free to grow is limited due to high stand densities. Ground cover consists of deer brush, coffee berry, blackberry, and various grass species. This stand is MSO foraging/non-breeding habitat. This unit is considered WUI due to location within ¼ mile of Camp LoMia.

Table 1: Site/Stand Overview 000096/0007

Slope	Aspect	Elevation	Habitat Type (s)	Hydrology
<20%	W	5800	PIPO/QUAR	Pine Creek

BA QUGA	Percent of max SDI	Site Index
5	99	99

% TPA Infected	DM Severity (DMR)	Dominant Diameter Class	BA PIPO > 16 inches DBH
<1	0	12-24	94

Table 2: Current stand structure/species composition 000096/0007

		Seedlings/Saplings	Young	Mid-aged	Mature/Old	
Species	Measure	<5”	5-12”	12-18”	18+”	Total
PIPO	TPA	94	41	38	28	200
	BA		18	44	78	143
PSME	TPA	62	16	9	6	94
	BA		7	12	15	34
JUDE	TPA	206	19	6	3	234
	BA		5	6	11	24
ABCO	TPA	31	12			44
	BA		7			7
QUAR	TPA	400	53	6	6	466
	BA		16	9	13	41
QUEM	TPA	144	6	3		153
	BA		2	3		6
QUGA	TPA	50		9	3	62
	BA			12	7	20
Total	TPA	1725	147	72	47	1991
	BA		55	86	124	280

Section III – Long-Term Desired Conditions and Prescribed Treatment Objectives

Desired Condition (spatial patterns, species composition, stand structure)

The desired future condition is a healthy, vigorous ponderosa pine forest, with inclusions of Douglas-fir, that is sustainable, uneven-aged, and poses a low fire hazard to the adjacent private property. The unit will exhibit a mosaic pattern of tree groups separated by interspaces. Small openings will be created for pine regeneration. Conditions will be conducive to lower fire severity. Stocking guidelines will be designed to maintain large diameter trees, tree species diversity, and age class diversity, while also reducing fire severity. Trees will be left in groups of varying size and density. Group size will range from 5 – 20 trees. Basal areas within groups will average from 40 - 120 ft², depending on tree age/size. Density of evergreen oak and juniper will be decreased to < 10 trees per acre.

Short-Term Objectives (expected post-treatment outcome)

1. Reduce the risk of catastrophic, stand-replacing wildfire by decreasing overall stand densities, ladder fuels, and crown fuel continuity. Create conditions that facilitate lower fire severity.

2. Create a forest structure that more closely resembles the structure that existed prior to interruption of the historic fire regime (sustainable, uneven-aged, “groupy” leave tree arrangement).
3. Maintain tree species diversity by thinning conifers < 18 inches DBH around riparian tree species and Gambel oak and by retaining larger diameter evergreen oaks and juniper.

Table 3: Current/Desired Conditions for Forest Structure by TPA

TPA (conifers)	Estimated Current %	Expected Post Treatment %	Desired Future %
Seedling/sapling (<5”)	47	10	20
Young trees (5-12”)	21	30	20
Mid-aged trees (12-18”)	19	30	30
Mature/old trees (18+”)	14	30	30

Section IV – Implementation Guide

Cut Unit: 17 Location(s) / Site(s): 000096 / 0007 Acres: 8

Silvicultural Treatment: Uneven-aged Management - Group Selection (WUI)

Implementation Instructions (in order of priority)

Old and Larger Diameter Trees:

1. Leave all ponderosa pine and Douglas-fir > 24 inches DBH, regardless of tree form, health, or vigor.

2. Leave all old ponderosa pine and Douglas-fir, regardless of tree form, health, or vigor. Old trees are greater than 150 years old and display old tree characteristics outlined in the Rim Country Old Tree Implementation Plan.

Other Tree Species:

3. Leave all trees that are stabilizing the banks of ephemeral, intermittent, or perennial streams. These trees are located on the slopes or edge of the stream banks.

4. Leave all Gambel oak, regardless of tree form, health, or vigor. Free up around 1-2 sides of Gambel oak > 10 inches DRC by thinning conifers < 18 inches DBH located within 10-20 ft of the dripline, unless removal of the conifer would damage the oak.

5. Leave all riparian tree species (maple, walnut, Arizona sycamore, boxelder, etc.), regardless of tree form, health, or vigor. Free up around 1 – 2 sides of riparian tree species > 10 inches DRC by thinning conifers < 18 inches DBH located within 10-20 ft of the dripline, unless removal of the conifer would damage the tree.

6. Leave all Arizona white oak and Emory oak > 10 inches DRC. All evergreen oaks ≤ 10 inches DRC will be cut.

7. Leave all juniper > 14 inches DRC. All juniper ≤ 14 inches DRC will be cut.

Regeneration Openings

8. Create openings for regeneration on approximately 10% of the unit area (1 acre). Openings will be approximately ¼ acre in size. When creating openings for regeneration, target the following areas:
   - Areas with trees of poor form, health, and vigor
   - Areas with trees in the most prevalent age/size class (young trees 5 - 16 inches DBH)

Individual Leave Trees:

9. Focus tree retention on leaving the "best available" ponderosa pine. The best available trees are in dominant and codominant canopy positions and exhibit the most desirable tree retention standards, relative to other adjacent trees (See the "Tree Quality Standards"). Leave trees with the lowest dwarf mistletoe rating, relative to adjacent trees. Also see Large Tree Implementation Plan.

Leave Tree Groups:

10. Leave trees will be arranged primarily in an irregular/groupy arrangement. Tree groups will vary in shape, size, density, and number of trees. Tree groups will generally range in size from 5 – 20 trees. Leave approximately 1/4 of tree groups in each of the following size ranges:
    - 1/3 of groups – 5-10 trees per group
    - 1/3 of groups – 10-15 trees per group
    - 1/3 of groups – 15-20 trees per group

    Emphasis will be placed on leaving ponderosa pine that are ***NOT*** in the most prevalent size class (> 24 inches DBH and < 5 inches DBH). The following age/size classes will be the highest priority for leave tree groups:
    - Old conifers and conifers > 24 inches DBH

- Ponderosa pine seedlings/saplings (< 5 inches DBH) with good tree form, health, and vigor that are unsuppressed and free to grow
- Mature conifers 16-24 inches DBH

11. Within groups, spacing of leave trees will be variable and will range from 5 to 25 feet to mimic natural, historic tree arrangements. As a result, tree densities within groups will vary from one group to the next and will average from 40 - 120 ft^2, based upon tree age and/or size. Leave the following BA distribution:

    Table 4. Desired basal area distribution by age class (DBH is a general guide).

Age Class and Characteristics*	DBH (inches)	Desired Basal Area (ft^2) Range
Seedlings and Saplings	< 5	N/A - Use variable spacing of 5-20 ft
Young trees (black, furrowed bark)	5-12	40-60
Mid-aged trees (black, furrowed bark)	12-18	60-80
Mature trees (black furrowed bark beginning to "yellow" and flatten)	18-24	80-120
Old trees (flat, platey, "yellow" bark)	18+	80-120

    *Bark characteristics are specific to ponderosa pine

Interspaces between Groups:

12. Spacing between groups of leave trees will be variable in size and will generally range from 50-70 feet (measured bole to bole). In general, leave larger interspaces between larger sized groups and in areas with large pockets of dwarf mistletoe infection.

    When creating interspaces, target the following areas:
    - Areas with lower tree densities that provide natural breaks in the tree canopy
    - Areas with trees of poor form, health, and vigor
    - Areas with trees in the most prevalent age/size class (young to mid-aged trees 5 - 18 inches DBH)

Individual Leave Trees:

13. Focus tree retention on leaving the "best available" trees. The best available trees are in dominant and codominant canopy positions and exhibit the most desirable tree retention standards, relative to other adjacent trees (See the "Tree Quality Standards"). Leave trees with the lowest dwarf mistletoe rating, relative to adjacent trees.

Other considerations:

14. Use a directional mark within 1 chain of private property and the Pine Canyon Trail. A directional mark consists of 2 butt marks, with one butt mark facing the trail and private property, and a slash at breast height opposite of the trail and private property around half of the tree bole.

15. All conifer leave trees 2 - 26 inches DBH will be marked with an orange leave tree mark. Conifers > 26 inches DBH will not be marked. However this unit has an 24-inch diameter cap. Therefore, contract specifications will ensure that conifers greater than 24 inches DBH will not be cut.

16. Leave trees within archaeological sites ***WILL*** be leave tree marked. Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands.

Section V – Site Specific Mitigation Measures / Design Features

(also see full set of mitigation measures from Rim Country EIS)

Archaeology

Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands. Historic telephone trees are considered archaeological sites. These trees are marked with double white bands. Leave trees within archaeological sites ***WILL*** be marked. Vehicles and mechanized equipment are not permitted within archaeological sites. Prior to implementation of proposed treatments, written approval of the forest archaeologist and forest supervisor will be completed (IS&A).

Hydrology

Follow BMPs to prevent soil compaction and displacement (FSH 2509.24.13). Limit driving and harvesting operations to periods of dry soil conditions.

Aquatic management zones (AMZ) are designated along all perennial, intermittent, and ephemeral streams, including Pine Creek and other unnamed creeks. AMZs were developed in collaboration with the forest hydrologist on field trips conducted on July 20, 2021, January 12, 2022, and through further analysis by the forest hydrologist. AMZs designated along streams will range from 50 – 150 feet, measured from each side of the stream.

- ✓ Ephemeral streams: AMZ will extend 50 feet from both banks of the stream.
- ✓ Intermittent streams: AMZ will extend 75 feet from both banks of the stream.
- ✓ Perennial streams: AMZ will extend 150 feet from both banks of the stream.

Vehicular operations including skidding should not occur longitudinally through AMZs. Turning machines and skidding within an AMZ should be minimized to the greatest extent possible. Landings, decking areas, machine or hand piles will occur outside of AMZs unless otherwise specified. Minimize disturbance and removal of riparian vegetation within AMZ's. Stream crossings will be designated by the sale administrator. Highlight protected streams on the CAM.

Within the AMZ around Parsnip Spring and along the spring discharge, ground-based operations are prohibited. Utilize helicopter logging methods. Work in coordination with the forest hydrologist to identify the extent of this area.

Greater than ½ mile from private property, do not construct landings or temp roads within AMZs.

Rim Country design feature SW010 states:

> "Apply the following direction if AMZ is within ½ mile of private land boundary or designated WUI: Treatment measures necessary to reduce the risk of wildfire encroachment on adjacent private lands may take priority over other considerations in these AMZs. Entry and treatments in these reaches will be considered on a case-by-case basis by IDTs."

Tonto NF leadership is interpreting this design feature to allow the building of temp roads within AMZs located within ½ mile of the land boundary with Camp Lo Mia. Entry and treatments within Pine Canyon are considered necessary by the IDT to protect private property in Pine, AZ from the risk of wildfire. Due to the size and volume of trees and biomass to be removed, ground-based logging is necessary to access Pine Canyon in an economical manner. The construction of temp roads in AMZs within ½ mile of private property is necessary to accomplish the mechanized ground-based logging and biomass removal. Affected AMZs include Pine Creek and 3 unnamed intermittent streams.

Landings and temp road construction will be minimized to the greatest extent possible and coordinated with the forest hydrologist. Mitigation measures will be used to prevent sediment deposit into streams. All landings and temp roads will be decommissioned in coordination with the forest hydrologist.

Non-Native and Invasive Weeds

Use Best Management Practices to prevent the spread of noxious or invasive weeds. Contractors will clean their equipment of all mud and plant debris prior to entering National Forest System Lands. Provide training to Forest Service and contract personnel on identification of weeds and procedures for using equipment in infested areas (e.g. wash

equipment thoroughly before moving from one area to another). Consider sowing native grass or forb seed in highly disturbed areas.

Prescribed Burning
Minimize residual tree scorch through fire prescriptions.

Coordinate with district range personnel when planning and conducting thinning and prescribed burning so that range improvements can be identified. The range permittee will be contacted prior to any prescribed burning activity to prevent harm to livestock. When possible, coordinate prescribed burning with pasture rotation schedules.

During prescribed burning, no direct ignition will occur within AMZs.

Recreation
For public safety, camping will be prohibited within active harvesting areas. Harvesting operations should be avoided on the following holiday weekends: Memorial Day, Fourth of July, and Labor Day.

Use a directional mark within 1 chain of private property and the Pine Canyon Trail. A directional mark consists of 2 butt marks, with one butt mark facing the trail and private property, and a slash at breast height opposite of the trail and private property around half of the tree bole.

Wildlife
This cut unit is located within 1/4 mile of several MSO PACs. There will be a timing restriction within the MSO PACs and 1/4 mile beyond the PAC boundary. No thinning or burning operations may occur from March 1 – August 31. This timing restriction may be modified or eliminated by the district wildlife biologist if a nest is located or if non-nesting is confirmed.

A field trip to Pine Canyon was conducted with the district wildlife biologist and USFWS on 1/19/22. Draft prescriptions were sent to USFWS on 2/8/22 for feedback. Feedback was received on 2/18/22 and incorporated into silvicultural prescriptions.

All units within Pine Canyon are located within ¼ mile of a northern goshawk post-fledging family area. There will be a timing restriction within the PFA and 1/4 mile beyond the PFA boundary. No thinning or burning operations may occur from March 1 – September 30. This timing restriction may be modified to follow guidance in the final Tonto Revised Land Management Plan or by the district wildlife biologist if a nest is located or if non-nesting is confirmed.

Section VI – Documentation
(FACTS, KV, FSVeg Spatial, planned future treatments (5+ years), monitoring)

Table 5: Documentation

FACTS	4152 – group selection – 1 ac 4220 – KP 6 commercial thin – 7 ac 4382 – certification of natural regeneration without site prep – 1 ac 4511 – tree release and weed – 7 ac 2360 - Range control veg – 8 ac 7100 - Pollinator habitat improved – 8 ac
FACTS polygon (ID and subunit)	031204 PineCanynCU17
Land Suitability Code (TIM classification)	500

FSVeg Spatial	Redelineate stand at MSO PAC boundary
Planned Future Treatments	Broadcast burning in 2026-2028 Re-entry broadcast burning every 3-10 years Uneven-aged Management – Group Selection with 10% openings and precommercial thinning in 20 years
Planned funding code (service work)	CFTM, HFDS
KV	None
Monitoring	As required under Rim Country EIS

H) CU 18/23

Identity

Project Name	Cut Unit	Acres
Pine Canyon Project	18, 23 (Same as CU30)	43
Forest / District	**NEPA**	**Location(s) / Site(s)**
Tonto NF / Payson RD	Rim Country EIS	000096 / 0007, 0025

Treatment Plan

Silvicultural Treatment: Uneven-aged Management – Group Selection

Prescribed by: Patty Ringle, Jon Woerheide **Date:** 2/242022

Certified by: Patty Ringle **Date:** 2/24/2022

Treatment Method: Mechanical and/or Helicopter as Appropriate

Slash Treatment: Removal and chipping of all biomass

Skid Trails: Utilize interspaces

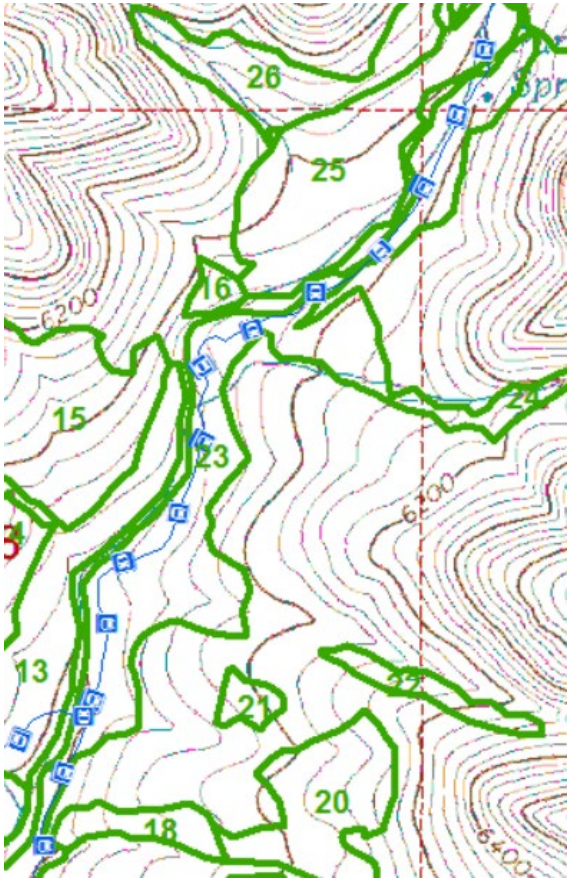
Constraints and Other Considerations:

Leave trees within archaeological sites will be marked. Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands. Historic telephone trees are considered archaeological sites. These trees are marked with double white bands.

This cut unit is located within 1/4 mile of several MSO PACs, and unit 30 is located within the Dripping Springs PAC. There will be a timing restriction within the MSO PACs and 1/4 mile beyond the PAC boundaries. No thinning or burning operations may occur from March 1 – August 31. This timing restriction may be modified or eliminated by the district wildlife biologist if a nest is located or if non-nesting is confirmed.

Use a directional mark within 1 chain of the Pine Canyon Trail.

Aquatic management zones (AMZ) will be designated along Pine Creek, Parsnip Spring, and other intermittent and ephemeral streams. Temp roads and landings are prohibited within AMZs. All stream crossings will be designated by the sale administrator. See design features for AMZ widths and further mitigation measures.
2 populations of TESP species are located in the northern portion of the unit. Coordinate with the Forest Botanist in the location of skid trails and landings in this unit.



Follow-up Treatment (next 5 years):

Contract/agreement to be awarded in FY23
Broadcast and reentry burning to follow, dependent upon natural ignition and resources available for managed fire

Layout/Marking

Boundary Designation: Double orange bands

Tree Designation: All conifer leave trees 1-26 inches DBH will be marked with an orange leave tree mark

Layout completed by: DJ Morales, Bret Elgersma **Date:** January 2022

Marking verified by: Woerheide, Nicholls **Date:** June 2022

Rim Country Treatment:
Analyzed – MSO Recovery – replacement nest/roost
Prescribed – MSO Recovery – foraging non-breeding – Unit 30 MSO PAC (Foraging Non Breeding with an 18 inch cap)

Section II – Existing Conditions

Location/Site 000096/0007, 0025: This unit is a narrow strip which runs along the east bank of Pine Creek, from the stream bank to where the slope exceeds 55%. This unit consists of a mixed conifer understory and an uneven-aged ponderosa pine overstory, with inclusions of Douglas-fir combined with large Gambel oak, Arizona alder, and Arizona sycamore near the stream. Young, mid-aged, and old trees are evenly represented. The stand is currently overstocked with Douglas-fir, white fir, alligator juniper, Arizona white oak, Emory oak, and ponderosa pine. The understory is dominated by Douglas-fir, alligator juniper, and ponderosa pine. Arizona Alder, boxelder and Gambel oak are significantly present in lowland areas while Arizona white oak and Emory oak are prevalent in upland areas. Large diameter, old ponderosa pine and Douglas-fir are present as individuals and generally evenly spaced throughout the unit. Basal areas (BA) range from approximately 140-320 ft² per acre, with an average of approximately 220 ft² per acre. Regeneration consists of Douglas-fir, white fir, Arizona white oak, Emory oak, alligator juniper, and ponderosa pine in openings. Ponderosa pine regeneration that is unsuppressed and free to grow is sporadic due to high stand densities and few openings. Ground cover is varied and consists of horse tails, ferns, yucca, deer brush, and various grass species. Units 18 and 23 unit are located in MSO foraging/non-breeding habitat, and Unit 30 is in Dripping Spring MSO Pack.

Table 1: Site/Stand Overview 000096/0007, 0025

Slope	Aspect	Elevation	Habitat Type (s)	Hydrology
0-60%	E-SE	5900	PIPO/QUAR	Pine Creek

BA QUGA	Percent of max SDI	Site Index
20	99	100

% TPA Infected	DM Severity (DMR)	Dominant Diameter Class	BA PIPO > 16 inches DBH
		Uneven-aged	94

Table 2: Current stand structure/species composition 000096 / 0007

		Seedlings/Saplings	Young	Mid-aged	Mature/Old	
Species	Measure	<5”	5-12”	12-18”	18+”	Total
PIPO	TPA	94	41	38	28	201
	BA	23	18	44	78	143
PSME	TPA	62	16	9	6	93
	BA	1	7	12	15	34
JUDE	TPA	206	19	6	3	234
	BA	1	5	6	11	24
QUGA	TPA	50	0	9	3	62
	BA	1	0	12	7	20
QUAR	TPA	400	53	6	6	465
	BA	3	16	9	13	41
QUEM	TPA	144	6	3	0	153
	BA	1	2	3	0	6
Total	TPA	956	135	71	46	1208
	BA	9	48	85	124	266

Section III – Long-Term Desired Conditions and Prescribed Treatment Objectives

Desired Condition (spatial patterns, species composition, stand structure)

The desired future condition is a healthy, vigorous ponderosa pine forest that is sustainable and uneven-aged. The unit will exhibit a mosaic pattern of tree groups separated by interspaces. Small openings will be created for pine regeneration. Conditions will be conducive to lower fire severity. Stocking guidelines will be designed to maintain large diameter trees, canopy cover within groups of larger diameter trees, tree species diversity, and age class diversity, while also reducing fire severity. Trees will be left in groups of varying size and density. Group size will range from 5 – 30 trees. Basal areas within groups will average from 40 - 140 ft², depending on tree age/size. Density of evergreen oak and juniper will be decreased to < 10 trees per acre.

Short-Term Objectives (expected post-treatment outcome)

1. Maintain foraging/non-breeding habitat for the Mexican spotted owl by maintaining large diameter conifers > 24 inches DBH, canopy cover within larger diameter groups, species diversity, and large diameter snags and logs.
2. Reduce the risk of catastrophic, stand-replacing wildfire by decreasing overall stand densities, ladder fuels, and crown fuel continuity. Create conditions that facilitate lower fire severity.
3. Create a forest structure that more closely resembles the structure that existed prior to interruption of the historic fire regime (sustainable, uneven-aged, "groupy" leave tree arrangement).
4. Maintain tree species diversity by thinning conifers < 18 inches DBH around riparian tree species and Gambel oak and by retaining larger diameter evergreen oaks and juniper.

Table 3: Current/Desired Conditions for Forest Structure by TPA 000096 / 0007

TPA (conifers)	Estimated Current %	Expected Post Treatment %	Desired Future %
Seedling/sapling (<5")	53	20	20
Young trees (5-12")	19	20	20
Mid-Aged trees (12-18")	16	30	30
Mature/old trees (18+")	12	30	30

Section IV – Implementation Guide

Cut Unit: 18 and 23 Location(s) / Site(s): 000096 / 0007, 0025 Acres: 47

Silvicultural Treatment: Uneven-aged Management Group Selection (MSO Foraging/Non-breeding)

Implementation Instructions (in order of priority)

Old and Larger Diameter Trees:

1. Leave all ponderosa pine and Douglas-fir > 24 inches DBH **(>18 inches in Unit 30),** regardless of tree form, health, or vigor.

2. Leave all old ponderosa pine and Douglas-fir, regardless of tree form, health, or vigor. Old trees are greater than 150 years old and display old tree characteristics outlined in the Rim Country Old Tree Implementation Plan.

Other Tree Species:

3. Leave all trees that are stabilizing the banks of ephemeral, intermittent, or perennial streams. These trees are located on the slopes or edge of the stream banks.

4. Leave all Gambel oak, regardless of tree form, health, or vigor. Free up around 1-2 sides of Gambel oak > 10 inches DRC by thinning conifers < 18 inches DBH located within 10-20 ft of the dripline, unless removal of the conifer would damage the oak.

5. Leave all riparian tree species (maple, walnut, Arizona sycamore, boxelder, etc.), regardless of tree form, health, or vigor. Free up around 1 – 2 sides of riparian tree species > 10 inches DRC by thinning conifers < 18 inches DBH located within 10-20 ft of the dripline, unless removal of the conifer would damage the tree.

6. Leave all Arizona white oak and Emory oak > 10 inches DRC. All evergreen oaks ≤ 10 inches DRC will be cut.

7. Leave all juniper > 14 inches DRC. All juniper ≤ 14 inches DRC will be cut.

Regeneration Openings

8. Create openings for regeneration on approximately 10% of the unit area (5 acres). Openings will be approximately ¼ acre in size. When creating openings for regeneration, target the following areas:
   - Areas with trees of poor form, health, and vigor
   - Areas with trees in the most prevalent age/size class (trees <16 inches DBH)

Individual Leave Trees:

9. Focus tree retention on leaving the "best available" ponderosa pine. The best available trees are in dominant and codominant canopy positions and exhibit the most desirable tree retention standards, relative to other adjacent trees (See the "Tree Quality Standards"). Leave trees with the lowest dwarf mistletoe rating, relative to adjacent trees.

Leave Tree Groups:

10. Leave trees will be arranged primarily in an irregular/groupy arrangement. Tree groups will vary in shape, size, density, and number of trees. Leave tree groups may be even-aged or uneven-aged. Tree groups will generally range in size from 5 – 30 trees. Leave approximately 1/4 of tree groups in each of the following size ranges:

    - 1/4 of groups – 5-10 trees per group (will generally be left on south-facing aspects and drier sites, such as ridges)
    - 1/4 of groups – 10-15 trees per group
    - 1/4 of groups – 15-20 trees per group
    - 1/4 of groups – 20-30 trees per group (will generally be left on north-facing aspects and moister sites such as drainage bottoms)

Emphasis will be placed on leaving ponderosa pine that are ***NOT*** in the most prevalent size class (>18 inches DBH and < 5 inches DBH). The following age/size classes will be the highest priority for leave tree groups:

- Old conifers and conifers > 24 inches DBH
- Mature conifers 16-24 inches DBH
- Ponderosa pine seedlings/saplings (< 5 inches DBH) with good tree form, health, and vigor that are unsuppressed and free to grow

11. To provide vertical structure for perching owls, leave 5-10 trees within 5-20 feet of the dripline of 1 old ponderosa pine tree (> 24 inches DBH) per acre.

12. Within remaining leave tree groups, spacing of leave trees will be variable and will range from 5 to 25 feet to mimic natural, historic tree arrangements. As a result, tree densities within groups will vary from one group to the next and will average from 40 - 140 ft^2/ac, based upon tree age and/or size. Leave the following BA distribution:

Table 4. Desired basal area distribution by age class (DBH is a general guide).

Age Class and Characteristics*	DBH (inches)	Desired Basal Area (ft^2) Range
Seedlings and Saplings	< 5	N/A - Use variable spacing of 5-20 ft
Young trees (black, furrowed bark)	5-12	40-60
Mid-aged trees (black, furrowed bark)	12-18	60-80
Mature trees (black furrowed bark beginning to "yellow" and flatten)	18-24	80-120
Old trees (flat, platey, "yellow" bark)	18+	100-140

*Bark characteristics are specific to ponderosa pine

Interspaces between Groups:

13. Spacing between groups of leave trees will be variable in size and will generally range from 40-60 feet (measured bole to bole). In general, leave larger interspaces between larger sized groups and in areas with large pockets of dwarf mistletoe infection. When creating interspaces, target the following areas:
    - Areas with lower tree densities that provide natural breaks in the tree canopy
    - Areas with trees of poor form, health, and vigor
    - Areas with trees in the most prevalent age/size class (young to mid-aged trees 5 - 18 inches DBH)

Individual Leave Trees:

14. Focus tree retention on leaving the "best available" trees. The best available trees are in dominant and codominant canopy positions and exhibit the most desirable tree retention standards, relative to other adjacent trees (See the "Tree Quality Standards"). Leave trees with the lowest dwarf mistletoe rating, relative to adjacent trees. Also see Large Tree Implementation Plan.

Other considerations:

15. Use a directional mark within 1 chain of the Pine Canyon trail. A directional mark consists of 2 butt marks, with one butt mark facing the trail, and a slash at breast height opposite of the trail around half of the tree bole.

16. All conifer leave trees 2 - 26 inches DBH will be marked with an orange leave tree mark. Conifers > 26 inches DBH will not be marked. However these units have both 24-inch and 18 inch diameter caps. Therefore, contract specifications will ensure that conifers greater than 24 / 18 inches DBH will not be cut.

17. Leave trees within archaeological sites ***WILL*** be leave tree marked. Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands.

Section V – Site Specific Mitigation Measures / Design Features

(also see full set of mitigation measures from Rim Country EIS)

Archaeology

Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands. Historic telephone trees are considered archaeological sites. These trees are marked with double white bands. Leave trees within archaeological sites ***WILL*** be marked. Vehicles and mechanized equipment are not permitted within archaeological sites. Prior to implementation of proposed treatments, written approval of the forest archaeologist and forest supervisor will be completed (IS&A).

Botany

2 populations of Senator Mine Alumroot are located in the northern portion of units 23A and 108. This is a rare plant species that requires protection during logging operations. Skid trails and landings should avoid known populations of TESP species. Coordinate with the Forest Botanist in the location of skid trails and landings in this unit.

Hydrology

Follow BMPs to prevent soil compaction and displacement (FSH 2509.24.13). Limit driving and harvesting operations to periods of dry soil conditions.

Aquatic management zones (AMZ) are designated along all perennial, intermittent, and ephemeral streams, including Pine Creek and other unnamed creeks. AMZs were developed in collaboration with the forest hydrologist on field trips conducted on July 20, 2021, January 12, 2022, and through further analysis by the forest hydrologist. AMZs designated along streams will range from 50 – 150 feet, measured from each side of the stream.

- ✓ Ephemeral streams: AMZ will extend 50 feet from both banks of the stream.
- ✓ Intermittent streams: AMZ will extend 75 feet from both banks of the stream.
- ✓ Perennial streams: AMZ will extend 150 feet from both banks of the stream.

Vehicular operations including skidding should not occur longitudinally through AMZs. Turning machines and skidding within an AMZ should be minimized to the greatest extent possible. Landings, decking areas, machine or hand piles will occur outside of AMZs unless otherwise specified. Minimize disturbance and removal of riparian vegetation within AMZ's. Stream crossings will be designated by the sale administrator. Highlight protected streams on the CAM.

Within the AMZ around Parsnip Spring and along the spring discharge, ground-based operations are prohibited. Utilize helicopter logging methods. Work in coordination with the forest hydrologist to identify the extent of this area.

Greater than ½ mile from private property, do not construct landings or temp roads within AMZs.

Rim Country design feature SW010 states:

> "Apply the following direction if AMZ is within ½ mile of private land boundary or designated WUI: Treatment measures necessary to reduce the risk of wildfire encroachment on adjacent private lands may take priority over other considerations in these AMZs. Entry and treatments in these reaches will be considered on a case-by-case basis by IDTs."

Tonto NF leadership is interpreting this design feature to allow the building of temp roads within AMZs located within ½ mile of the land boundary with Camp Lo Mia. Entry and treatments within Pine Canyon are considered necessary by the IDT to protect private property in Pine, AZ from the risk of wildfire. Due to the size and volume of trees and biomass to be removed, ground-based logging is necessary to access Pine Canyon in an economical manner. The construction of temp roads in AMZs within ½ mile of private property is necessary to accomplish the mechanized ground-based logging and biomass removal. Affected AMZs include Pine Creek and 3 unnamed intermittent streams.

Landings and temp road construction will be minimized to the greatest extent possible and coordinated with the forest hydrologist. Mitigation measures will be used to prevent sediment deposit into streams. All landings and temp roads will be decommissioned in coordination with the forest hydrologist.

Non-Native and Invasive Weeds

Use Best Management Practices to prevent the spread of noxious or invasive weeds. Contractors will clean their equipment of all mud and plant debris prior to entering National Forest System Lands. Provide training to Forest Service and contract personnel on identification of weeds and procedures for using equipment in infested areas (e.g. wash equipment thoroughly before moving from one area to another). Consider sowing native grass or forb seed in highly disturbed areas.

Prescribed Burning

Minimize residual tree scorch through fire prescriptions.

Coordinate with district range personnel when planning and conducting thinning and prescribed burning so that range improvements can be identified. The range permittee will be contacted prior to any prescribed burning activity to prevent harm to livestock. When possible, coordinate prescribed burning with pasture rotation schedules.

During prescribed burning, no direct ignition will occur within AMZs.

Recreation

For public safety, camping will be prohibited within active harvesting areas. Harvesting operations should be avoided on the following holiday weekends: Memorial Day, Fourth of July, and Labor Day.

Use a directional mark within 1 chain of the Pine Canyon Trail (see map).

Wildlife

This cut unit is located within 1/4 mile of several MSO PACs. There will be a timing restriction within the MSO PACs and 1/4 mile beyond the PAC boundary. No thinning or burning operations may occur from March 1 – August 31. This timing restriction may be modified or eliminated by the district wildlife biologist if a nest is located or if non-nesting is confirmed.

These units are located within MSO Recovery Foraging/Non-breeding Habitat and was field verified with the district wildlife biologist and USFWS on 1/19/22. Draft prescriptions were sent to USFWS on 1/27/22 for feedback.

All units within Pine Canyon are located within ¼ mile of a northern goshawk post-fledging family area. There will be a timing restriction within the PFA and 1/4 mile beyond the PFA boundary. No thinning or burning operations may occur from March 1 – September 30. This timing restriction may be modified or eliminated once the Tonto Revised Land Management Plan is signed or by the district wildlife biologist if a nest is located or if non-nesting is confirmed.

Section VI – Documentation
(FACTS, KV, FSVeg Spatial, planned future treatments (5+ years), monitoring)

Table 5: Documentation

FACTS	Unit 18: 4152 – group selection – 0.5 ac 4220 – KP 6 commercial thin – 4.5ac 4382 – certification of natural regeneration without site prep – 0.5 ac 4511 – tree release and weed – 4.5 ac 2360 - Range control veg – 5 ac 7100 - Pollinator habitat improved – 5 ac Unit 23:

	4152 – group selection – 3 ac 4220 – KP 6 commercial thin – 23 ac 4382 – certification of natural regeneration without site prep – 3 ac 4511 – tree release and weed – 23 ac 2360 - Range control veg – 26 ac 7100 - Pollinator habitat improved – 26 ac
FACTS polygon (ID and subunit)	031204 PineCanynCU1 8 031204 PineCanynCU23
Land Suitability Code (TIM classification)	500
FSVeg Spatial	Redelineate stand at MSO PAC boundary
Planned Future Treatments	Broadcast burning in 2026-2028 Re-entry broadcast burning every 3-10 years Uneven-aged Management – Group Selection with 10% openings and precommercial thinning in 20 years
Planned funding code (service work)	CFTM, HFDS
KV	None
Monitoring	As required under Rim Country EIS

I) CU 19/20/21/22/24

Treatment Plan

Silvicultural Treatment: Uneven-aged Management – Group Selection

Prescribed by: Patty Ringle		**Date:**	2/20/2022
Certified by: Patty Ringle		**Date:**	2/20/2022

Treatment Method: Mechanical and/or Helicopter as Appropriate

Slash Treatment: Removal and chipping of all biomass

Skid Trails: Utilize interspaces

Constraints and Other Considerations:

Leave trees within archaeological sites will be leave tree marked. Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands. Historic telephone trees are considered archaeological sites. These trees are marked with double white bands.

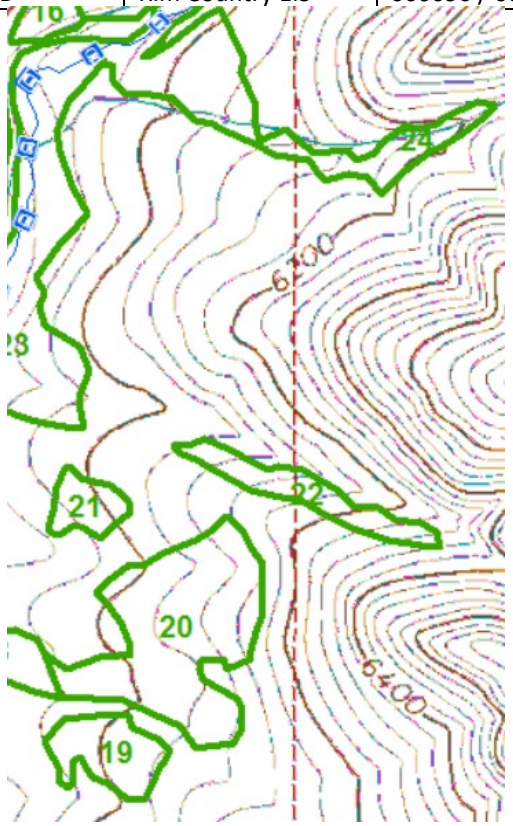
These cut units are located within a MSO PAC. There will be a timing restriction within the MSO PAC and ¼ mile beyond the PAC boundary. No thinning or burning operations may occur from March 1 – August 31. This timing restriction may be modified or eliminated by the district wildlife biologist if a nest is located or if non-nesting is confirmed. Landing and temp road construction is not allowed in MSO PACs.

Aquatic management zones (AMZ) will be designated along Pine Creek, Parsnip Spring, and other intermittent and ephemeral streams. Temp roads and landings are prohibited within AMZs. All stream crossings will be designated by the sale administrator. See design features for AMZ widths and further mitigation measures.

Notes for Layout:

Identity

Project Name	**Cut Unit**	**Acres**
Pine Canyon/ Poco Pino Project	19, 20 21, 22, 24	29
Forest / District	**NEPA**	**Location(s) / Site(s)**
Tonto NF / Payson RD	Rim Country EIS	000096 / 0007, 0032



Follow-up Treatment (next 5 years):

Contract/agreement to be awarded in FY23

Broadcast and reentry burning to follow, dependent upon natural ignition and resources available for managed fire

Layout/Marking

Boundary Designation: Double orange bands

Tree Designation: All conifer leave trees 1-26 inches DBH will be marked with an orange leave tree mark

Layout completed by:	DJ Morales, Bret Elgersma	**Date:**	January 2022
Marking verified by:	Woerheide, Nicholls	**Date:**	June 2022

Notes

Rim Country Treatment:

Analyzed –MSO PAC - Mechanical

Prescribed – MSO PAC - Mechanical

Section II – Existing Conditions

Location/Site 000096/0007, 0032: These units consist of a fairly uneven-aged ponderosa pine stand, with young, mid-aged, and mature/old trees represented. The understory is dominated by Arizona white oak, Emory oak, and alligator juniper. Large diameter, old ponderosa pine are present as individuals and groups of up to 20 trees. Basal areas (BA) range from approximately 120-360 ft² per acre, with an average of approximately 220 ft² per acre. Regeneration consists of Douglas-fir, white fir, Arizona white oak, Emory oak, alligator juniper, New Mexican locust. Ponderosa pine regeneration occurs in openings ¼ acre in size. The stand is currently overstocked with alligator juniper, Arizona white oak, Emory oak, and ponderosa pine < 18 inches DBH. Ground cover consists of beargrass, deer brush, manzanita, and agave. These units are located within a MSO PAC. Slopes are generally < 30%, however unit 20 contains areas with slopes of 55+%.

Table 1a: Site/Stand Overview 000096/0007

Slope	**Aspect**	**Elevation**	**Habitat Type (s)**	**Hydrology**
5-30%	W	6000	PIPO/QUAR	Pine Creek
BA QUGA		**Percent of max SDI**		**Site Index**
20		99		99
% TPA Infected	**DM Severity (DMR)**	**Dominant Diameter Class**		**BA PIPO > 16 inches DBH**
10		Uneven-aged		74
				BA PSME > 16 inches DBH
				11

Table 1b: Site/Stand Overview 000096/0032

Slope	**Aspect**	**Elevation**	**Habitat Type (s)**	**Hydrology**
5-55+%	W	6000	PIPO/QUAR	Pine Creek
BA QUGA		**Percent of max SDI**		**Site Index**
3		63		65
% TPA Infected	**DM Severity (DMR)**	**Dominant Diameter Class**		**BA PIPO > 16 inches DBH**
10		Uneven-aged		38

Table 2a: Current stand structure/species composition 000096 / 0007

		Seedlings/Saplings	**Young**	**Mid-aged**	**Mature/Old**	
Species	**Measure**	**<5”**	**5-12”**	**12-18”**	**18+”**	**Total**
PIPO	**TPA**	**94**	**41**	**38**	**28**	**200**
	BA	**3**	**18**	**44**	**78**	**143**
PSME	**TPA**	**62**	**16**	**9**	**6**	**94**
	BA	**1**	**7**	**12**	**15**	**34**
ABCO	**TPA**	**31**	**12**			**44**
	BA		**7**			**7**
JUDE	**TPA**	**206**	**19**	**6**	**3**	**234**
	BA	**1**	**5**	**6**	**11**	**24**
QUGA	**TPA**	**50**		**9**	**3**	**62**
	BA	**1**		**12**	**7**	**20**
QUAR	**TPA**	**400**	**53**	**6**	**6**	**466**
	BA	**3**	**16**	**9**	**13**	**41**
QUEM	**TPA**	**144**	**6**	**3**		**153**
	BA	**1**	**2**	**3**		**6**
Total	**TPA**	**1725**	**147**	**72**	**47**	**1991**
	BA	**15**	**55**	**86**	**124**	**280**

Table 2b: Current stand structure/species composition 000096 / 0032

		Seedlings/Saplings	Young	Mid-aged	Mature/Old	
Species	Measure	<5"	5-12"	12-18"	18+"	Total
PIPO	TPA	120	24	64		208
	BA	2	11	86		98
PSME	TPA	20	24			44
	BA	1	10			12
JUDE	TPA	240	80		8	256
	BA	1	2		23	26
QUGA	TPA	20	8			28
	BA		3			3
QUAR	TPA	520	64	8		592
	BA		15	9		24
QUEM	TPA	100	16			116
	BA	2	3			5
Total	TPA	1020	144	72	8	1244
	BA	6	43	94	23	167

Section III – Long-Term Desired Conditions and Prescribed Treatment Objectives

Desired Condition (spatial patterns, species composition, stand structure)

The desired future condition is an uneven-aged ponderosa pine forest, with inclusions of Dougla-fir, that exhibit lower fire hazard while also retaining key habitat components for the Mexican spotted owl (large trees, canopy cover, snags, logs, species diversity). The unit will retain groups of large diameter trees with closed canopy and vertical structure. Leave tree arrangement will be irregular, variable with small openings for horizontal heterogeneity, understory diversity, and pine regeneration. At the stand level, forest structure will be uneven-aged. Conditions will be conducive to lower fire severity. Stocking guidelines will be designed to maintain large diameter trees, canopy cover within groups of larger diameter trees, and tree species diversity, while also reducing fire severity. Trees will be left in groups of varying size and density. Group size will range from 5-25 trees. Basal areas within groups will average from 60 - 160 ft^2, depending on tree age/size. Density of evergreen oak and juniper will be decreased to < 15 trees per acre.

Short-Term Objectives (expected post-treatment outcome)

1. Reduce the risk of catastrophic, stand-replacing wildfire by decreasing overall stand densities, ladder fuels, and crown fuel continuity. Create conditions that facilitate lower fire severity.
2. Maintain patches of nest/roost habitat for the Mexican spotted owl by maintaining canopy cover within groups of large diameter trees.
3. Retain key habitat components for the Mexican spotted owl (large trees, canopy cover, snags, logs, perch trees in the understory).
4. Increase vertical and horizontal heterogeneity by maintaining/increasing age class diversity, creating a patchy leave tree arrangement, and by providing openings for understory species and pine regeneration.

Table 3a: Current/Desired Conditions for Forest Structure by TPA - 000096 / 0007

TPA (conifers)	Estimated Current %	Expected Post Treatment %	Desired Future %
Seedling/sapling (<5”)	53	10	10
Young trees (5-12”)	19	20	20
Mid-aged trees (12-18”)	16	30	30
Mature/old trees (18+”)	12	40	40

Table 3b: Current/Desired Conditions for Forest Structure by TPA - 000096 / 0032

TPA (conifers)	Estimated Current %	Expected Post Treatment %	Desired Future %
Seedling/sapling (<5”)	55	20	10
Young trees (5-12”)	20	35	20
Mid-aged trees (12-18”)	25	45	30
Mature/old trees (18+”)	0	0	40

Section IV – Implementation Guide

Cut Units: 19, 20, 21, 22, 24 Location(s) / Site(s): 000096 / 0007, 0032 Acres: 29

Silvicultural Treatment: Uneven-aged Management – Group Selection (MSO PAC)

Implementation Instructions (in order of priority)

Old and Larger Diameter Trees:

1. Leave all ponderosa pine and Douglas-fir > 18 inches DBH, regardless of tree form, health, or vigor.

2. Leave all old ponderosa pine and Douglas-fir, regardless of tree form, health, or vigor. Old trees are greater than 150 years old and display old tree characteristics outlined in the Rim Country Old Tree Implementation Plan.

Other Tree Species:

3. Leave all trees that are stabilizing the banks of ephemeral, intermittent, or perennial streams. These trees are located on the slopes or edge of the stream banks.

4. Leave all Gambel oak, regardless of tree form, health, or vigor. Free up around 1-2 sides of Gambel oak > 10 inches DRC by thinning conifers < 18 inches DBH located within 10-20 ft of the dripline, unless removal of the conifer would damage the oak.

5. Leave all riparian tree species (maple, walnut, Arizona sycamore, boxelder, etc.), regardless of tree form, health, or vigor. Free up around 1 – 2 sides of riparian tree species > 10 inches DRC by thinning conifers < 18 inches DBH located within 10-20 ft of the dripline, unless removal of the conifer would damage the tree.

6. Leave all Arizona white oak and Emory oak > 10 inches DRC. All evergreen oaks ≤ 10 inches DRC will be cut.

7. Leave all juniper > 14 inches DRC. All juniper ≤ 14 inches DRC will be cut.

Regeneration Openings

8. Create openings for regeneration on approximately 10% of the unit area (3 acres). Openings will vary in shape. Openings will be approximately 0.25 acre in size. When creating openings for regeneration, target areas with trees 5 - 18 inches DBH and/or trees with undesirable tree form, health, and vigor.

Leave Tree Groups:

9. Leave trees will be arranged in an irregular, "groupy" leave tree arrangement. Tree groups will vary in shape, size, density, and number of trees. Leave tree groups may be even-aged or uneven-aged. Tree groups will generally range in size from 5-25 trees. Leave approximately 1/4 of tree groups in each of the following size ranges:

    - 1/4 of groups – 5-10 trees per group (will generally be left on south-facing aspects and drier sites, such as ridges)
    - 1/4 of groups - 10-15 trees per group
    - 1/4 of groups – 15-20 trees per group
    - 1/4 of groups – 20-25 trees per group (will generally be left on north-facing aspects and moister sites such as drainage bottoms)

    Emphasis will be placed on leaving ponderosa pine that are ***NOT*** in the most prevalent size class (>18 inches DBH). The following age/size classes will be the highest priority for leave tree groups:
    - Mature and old conifers > 16 inches DBH, regardless of tree form, health, or vigor
    - Ponderosa pine seedlings/saplings (< 5 inches DBH) with good tree form, health, and vigor that are unsuppressed and free to grow

10. To provide vertical structure for perching owls, leave 5-10 trees within 5-20 feet of the dripline of 1 old ponderosa pine tree (> 24 inches DBH) per acre.

11. Within remaining leave tree groups, spacing of leave trees will be variable and will range from 5 to 20 feet to mimic natural, historic tree arrangements. As a result, tree densities will be variable, based upon tree age and/or size. Leave the following BA distribution:

Table 4. Desired basal area distribution by age class (DBH is a general guide).

Age Class and Characteristics*	DBH (inches)	Desired Basal Area (ft^2) Range
Seedlings and Saplings	< 5	N/A Use variable spacing of 10 - 20 ft
Young trees (black, furrowed bark)	5-12	60-80
Mid-aged trees (black, furrowed bark)	12-18	80-100
Mature trees (black furrowed bark beginning to "yellow" and flatten)	18-24	100-140
Old trees (flat, platey, "yellow" bark)	18+	100-160

*Bark characteristics are specific to ponderosa pine

Interspaces between Groups:

12. Spacing between groups of leave trees (interspaces) will be variable in size and will generally range from 40-60 feet (measured bole to bole). When creating interspaces, target the following areas:
    - Areas with lower tree densities that provide natural breaks in the tree canopy
    - Areas with trees of poor form, health, and vigor
    - Areas with trees in the most prevalent size class (5 - 18 inches DBH)

Individual Leave Trees:

13. Focus tree retention on leaving the "best available" trees. The best available trees are in dominant and codominant canopy positions and exhibit the most desirable tree retention standards, relative to other adjacent trees (See the "Tree Quality Standards"). Leave trees with the lowest dwarf mistletoe rating, relative to adjacent trees. Also see Large Tree Implementation Plan.

Other considerations:

14. All conifer leave trees 2 - 26 inches DBH will be marked with an orange leave tree mark. Conifers > 26 inches DBH will not be marked. However, this unit has an 18-inch diameter cap. Therefore, contract specifications will ensure that conifers greater than 18 inches DBH will not be cut.

15. Leave trees within archaeological sites ***WILL*** be leave tree marked. Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands.

Section V – Site Specific Mitigation Measures / Design Features

(also see full set of mitigation measures from Rim Country EIS)

Archaeology

Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands. Historic telephone trees are considered archaeological sites. These trees are marked with double white bands. Leave trees within archaeological sites ***WILL*** be marked. Vehicles and mechanized equipment are not permitted within archaeological sites. Prior to implementation of proposed treatments, written approval of the forest archaeologist and forest supervisor will be completed (IS&A).

Hydrology

Follow BMPs to prevent soil compaction and displacement (FSH 2509.24.13). Limit driving and harvesting operations to periods of dry soil conditions.

Aquatic management zones (AMZ) are designated along all perennial, intermittent, and ephemeral streams, including Pine Creek and other unnamed creeks. AMZs were developed in collaboration with the forest hydrologist on field trips conducted on July 20, 2021, January 12, 2022, and through further analysis by the forest hydrologist. AMZs designated along streams will range from 50 – 150 feet, measured from each side of the stream.

- ✓ Ephemeral streams: AMZ will extend 50 feet from both banks of the stream.
- ✓ Intermittent streams: AMZ will extend 75 feet from both banks of the stream.
- ✓ Perennial streams: AMZ will extend 150 feet from both banks of the stream.

Vehicular operations including skidding should not occur longitudinally through AMZs. Turning machines and skidding within an AMZ should be minimized to the greatest extent possible. Landings, decking areas, machine or hand piles will occur outside of AMZs unless otherwise specified. Minimize disturbance and removal of riparian vegetation within AMZ's. Stream crossings will be designated by the sale administrator. Highlight protected streams on the CAM.

Within the AMZ around Parsnip Spring and along the spring discharge, ground-based operations are prohibited. Utilize helicopter logging methods. Work in coordination with the forest hydrologist to identify the extent of this area.

Greater than ½ mile from private property, do not construct landings or temp roads within AMZs.

Rim Country design feature SW010 states:

> "Apply the following direction if AMZ is within ½ mile of private land boundary or designated WUI: Treatment measures necessary to reduce the risk of wildfire encroachment on adjacent private lands may take priority over other considerations in these AMZs. Entry and treatments in these reaches will be considered on a case-by-case basis by IDTs."

Tonto NF leadership is interpreting this design feature to allow the building of temp roads within AMZs located within ½ mile of the land boundary with Camp Lo Mia. Entry and treatments within Pine Canyon are considered necessary by the IDT to protect private property in Pine, AZ from the risk of wildfire. Due to the size and volume of trees and biomass to be removed, ground-based logging is necessary to access Pine Canyon in an economical manner. The construction of temp roads in AMZs within ½ mile of private property is necessary to accomplish the mechanized ground-based logging and biomass removal. Affected AMZs include Pine Creek and 3 unnamed intermittent streams.

Landings and temp road construction will be minimized to the greatest extent possible and coordinated with the forest hydrologist. Mitigation measures will be used to prevent sediment deposit into streams. All landings and temp roads will be decommissioned in coordination with the forest hydrologist.

Non-Native and Invasive Weeds

Use Best Management Practices to prevent the spread of noxious or invasive weeds. Contractors will clean their equipment of all mud and plant debris prior to entering National Forest System Lands. Provide training to Forest Service and contract personnel on identification of weeds and procedures for using equipment in infested areas (e.g. wash

equipment thoroughly before moving from one area to another). Consider sowing native grass or forb seed in highly disturbed areas.

Prescribed Burning

Minimize residual tree scorch through fire prescriptions.

Coordinate with district range personnel when planning and conducting thinning and prescribed burning so that range improvements can be identified. The range permittee will be contacted prior to any prescribed burning activity to prevent harm to livestock. When possible, coordinate prescribed burning with pasture rotation schedules.

During prescribed burning, no direct ignition will occur within AMZs.

Recreation

For public safety, camping will be prohibited within active harvesting areas. Harvesting operations should be avoided on the following holiday weekends: Memorial Day, Fourth of July, and Labor Day.

Wildlife

This cut unit is located within the LoMia MSO PAC. There will be a timing restriction within the MSO PAC and 1/4 mile beyond the PAC boundary. No thinning or burning operations may occur from March 1 – August 31. This timing restriction may be modified or eliminated by the district wildlife biologist if a nest is located or if non-nesting is confirmed. Landing and temp road construction is not allowed in MSO PACs.

A field trip to Pine Canyon was conducted with the district wildlife biologist and USFWS on 1/19/22. Draft prescriptions were sent to USFWS on 2/8/22 for feedback. Feedback was received on 2/18/22 and incorporated into silvicultural prescriptions.

All units within Pine Canyon are located within ¼ mile of a northern goshawk post-fledging family area. There will be a timing restriction within the PFA and 1/4 mile beyond the PFA boundary. No thinning or burning operations may occur from March 1 – September 30. This timing restriction may be modified or eliminated once the Tonto Revised Land Management Plan is signed or by the district wildlife biologist if a nest is located or if non-nesting is confirmed.

Section VI – Documentation
(FACTS, KV, FSVeg Spatial, planned future treatments (5+ years), monitoring)

Table 5: Documentation

FACTS	Unit 19: 4152 – group selection – 0.5 ac 4220 – KP 6 commercial thin – 3.5 ac 4382 – certification of natural regeneration without site prep – 0.5 ac 4511 – tree release and weed – 3.5 ac 2360 - Range control veg – 4 ac 7100 - Pollinator habitat improved – 4 ac Unit 20: 4152 – group selection –1.5 ac 4220 – KP 6 commercial thin – 13.5 ac 4382 – certification of natural regeneration without site prep – 1.5 ac 4511 – tree release and weed – 13.5 ac 2360 - Range control veg – 15 ac 7100 - Pollinator habitat improved – 15 ac Unit 21: 4220 – KP 6 commercial thin – 2 ac 4511 – tree release and weed – 2 ac 2360 - Range control veg – 2 ac 7100 - Pollinator habitat improved – 2 ac Unit 22: 4152 – group selection – 0.5 ac 4220 – KP 6 commercial thin – 3.5 ac 4382 – certification of natural regeneration without site prep – 0.5 ac 4511 – tree release and weed 3.5 ac 2360 - Range control veg – 4 ac 7100 - Pollinator habitat improved – 4 ac Unit 24: 4152 – group selection – 0.5 ac 4220 – KP 6 commercial thin – 3.5 ac 4382 – certification of natural regeneration without site prep – 0.5 ac 4511 – tree release and weed 3.5 ac 2360 - Range control veg – 4 ac 7100 - Pollinator habitat improved – 4 ac

FACTS polygon (ID and subunit)	031204 PineCanynCU1 9 031204 PineCanynCU2 0 031204 PineCanynCU2 1 031204 PineCanynCU2 2 031204 PineCanynCU24
Land Suitability Code (TIM classification)	500
FSVeg Spatial	Redelineate stand at MSO PAC boundary
Planned Future Treatments	Broadcast burning in 2026-2028 Re-entry broadcast burning every 3-10 years Uneven-aged Management – Group Selection with 10% openings and precommercial thinning in 20 years
Planned funding code (service work)	CFTM, HFDS
KV	None
Monitoring	As required under Rim Country EIS

J) 101 through 105

Treatment Plan

Silvicultural Treatment: Thin from Below with weed and release

Prescribed by: Jon Woerheide **Date:** 04/22/24

Certified by: Patty Ringle **Date:** 03/22/23

Treatment Method: Mechanical - Full Removal

Slash Treatment: Full removal

Skid Trails: As needed by Sale Administration

Constraints and Other Considerations:

No known archaeological sites are within the project area. Any found will be protected per Archeologist consultation.

The units are within the LoMia Preliminary MSO PAC and have a timing restriction from March 1 – Aug 31. This timing restriction may be modified by the district wildlife biologist. The units are also located within the Pine Canyon goshawk PFA. Pending revised Tonto Forest Plan, a PFA timing restriction will be in effect between March 1 and September 30.

Aquatic management zones (AMZ) are designated along Pine Creek, Parsnip Spring, and other intermittent and ephemeral streams. There are ephemeral AMZs within units 101, and 103 and adjacent to 102. Temp roads and landings are prohibited within AMZs located further than ½ mile from private property. All stream crossings will be designated by the sale admin. See design features for AMZ widths and further mitigation.

Soil has high erosion potential due to high clay content and steep terrain. Mechanical operations should only be conducted when conditions are dry.

Notes for Layout:

Mark boundaries adjacent to timber units and along PAC boundary line. Other boundaries can be virtual / GEOfence. Slopes > 50% are excluded as much as possible using LIDAR slope data.

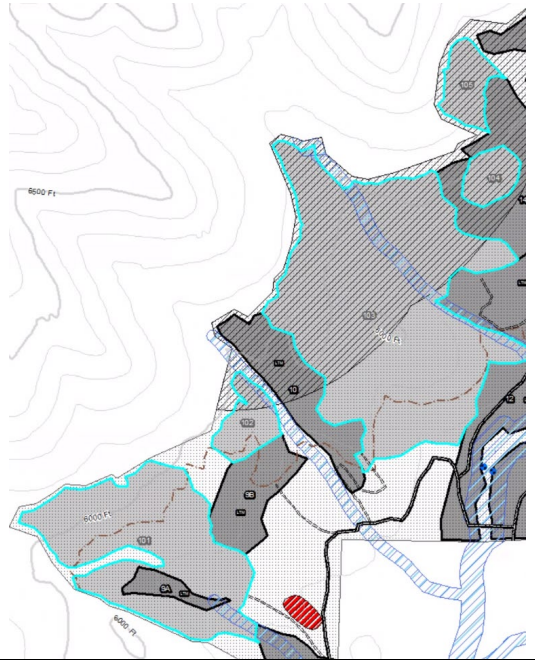
Follow-up Treatment (next 5 years):

Pending Funds and access, full removal of all material and designated trees <9 inches and 90% of brush species >1ft. tall is needed.

Broadcast and reentry burning to follow, dependent upon natural ignition and resources available for managed fire. Alternate – hand maintenance lop/scatter or mastication of sprouting species

Identity

Project Name	**Cut Units**	**Acres**
Pine Canyon – Biomass (West – PAC)	101-105	61
Forest / District	**NEPA**	**Location(s) / Site(s)**
Tonto NF / Payson RD	Rim Country EIS	000096 / Portions of 0006, 0012, and 0022



Layout/Marking

Boundary Designation:	Double Orange Band on units with common boundaries to timber units and on boundaries the delineate MSO PACs. GEO-FENCE used on other, non-critical, boundaries		
Tree Designation:	By diameter with residual spacing and species preference. **Remove all designated tree/brush species >1 ft. tall.**		
Layout completed by:	PRD Field Crew	**Date:**	March 2022
Marking verified by:	Woerheide	**Date:**	10/2022

Notes:

Rim Country Analyzed: MSO PAC Mechanical Prescribed: MSO PAC Mechanical – Low Pine Site

Section II – Existing Conditions

Table 1: Site/Stand Overview					
Slope	**Aspect**	**Elevation**	**Habitat Type (s)**	**Site Index**	**Percent of max SDI**
10-40%	E	6000-6400	PIPO/ARPU5	No Data (Low)	No Field Data
DMR			**Dominate DBH Class**	**BA PIPO >16 DBH**	
% Infected: <5%	**Stand DMR Rating:** <1		<12 " DBH/DRC	<10 BA	
BA QUAGA		**Hydrology**	**TEU/State**		
<5		Pine Creek	5251 / PIPO - QUERC - Dry: Fire Excluded Edaphic State		

Location/Site 000096 / portions of 0006, 0012, and 0022. The unit boundaries end when the slope of the canyon to the west becomes too steep to operate. Slopes vary between 10% and 40% with the majority being greater than 20%. There is very little evidence of past management or wildfire. Aspect is easterly and elevation is 6000 - 6400 ft. The units are a predominately PIPO ARPU5 habitat type with areas of high QUAR densities near drainages and ARPU5 thickets in openings. PIPO density is varied between 160BA and 20BA with higher densities generally within 1-2 chains of adjacent stands of ponderosa pine, and an overall density of 70 BA (Figure 1). Areas of low density appear to be the result of poor soil conditions rather than disturbance or drought. The understory is predominately QUAR/QUEM and JUDE2 with a minority of PIPO and ARPU5. Regeneration species loosely mirror understory. Ground cover is sporadic and consists of patches of abundant manzanita with minor amounts of various grasses, cacti, and brushy shrubs. ARPU5 and QUAR dominate natural openings. Very little Southwestern Dwarf Mistletoe infection observed within the units.. The units are expected to be located within the proposed LoMia MSO PAC, there are some large and old PIPO and JUDE2 on the sites and they will be retained to provide habitat features for MSO.

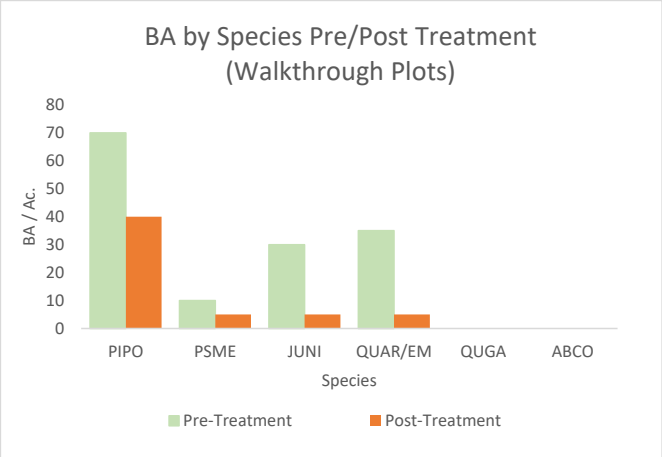


Figure 1 Pre and Post Treatment BA from walkthrough data estimate of trees to be removed. Pre-treatment QMD estimated to be 7.5 inches DBH. Post treatment expected to be 11 inches DBH.

Section III – Long-Term Desired Conditions and Prescribed Treatment Objectives

Desired Condition (spatial patterns, species composition, stand structure)

The desired future condition is a series of ponderosa pine stands which are crown-fire-resistant due to reduced canopy density and reduced ladder fuels. These stands should have a reduced JUDE/QUERC/chaparral component which should also reduce the likelihood of stand-replacing fires carrying throughout the MSO PAC. The characteristic PIPO/ARPU5 habitat type is quite open, and disturbance is expected to favor ARPU5 and QUAR response. Initial treatment will result in a sporadic PIPO canopy densities ranging from a small portion being closed canopy and most of the stands having <40% canopy cover. Draws and some terraces will be dominated by widely spaced QUAR. Several natural openings within the stands will be left with small pockets of ARPU5 and chaparral species. The legacy trees in the stands are the less than 1 TPA of large diameter JUDE2 is present on the site which will remain in the canopy after treatment. Releasing the residual trees to improve growth response and reducing the woodland and brush understory height and density will lead to a more 2-aged stand that will be resistant to high intensity crown fire due to removal of ladder fuels, lower fuel loadings and more growing space available. Vigorous QUAR and ARPU5 regeneration following treatment is expected in the stands, and follow-on hand-thinning treatments will be needed to maintain fire-resistance of the stand and allow for PIPO regeneration.

Short-Term Objectives (expected post-treatment outcome)

Short-Term Objectives (expected post-treatment outcome)

1. Reduce the risk of catastrophic, stand-replacing wildfire by decreasing tree densities, ladder fuels, and crown fuel continuity. Create conditions conducive to the reintroduction of low severity fire.
2. Retain whatever large conifers present on-site to maintain key habitat components of the PACs for the Mexican spotted owl.
3. Provide growing space for conifer regeneration.
4. Improve the health, growth, and vigor of ponderosa pine.
5. Decrease the density of woodland and shrub species.

Table 2: Current/Desired Conditions for Forest Structure by BA and TPA/Stems per acre

Vegetation	Estimated Current TPA | *BA*		Expected Post Treatment TPA | *BA*		Desired Future TPA | *BA*	
Chaparral Brush Species. (manzanita, catclaw, and shrub live oak)	400	***N/A***	10	***N/A***	<10	***N/A***
Woodland Species (Oak and Juniper)	250	***65***	30	***10***	10	***20***
Gambel Oak (All sizes)	<10	***<10***	<10	***<10***	<10	***<10***
Smaller (<18") Ponderosa Pine, Douglas-fir	200	***75***	60	***40***	100	***50***
Large size/mature-older age trees (18+")	<10	***5***	<10	***5***	5	***10***
Total (Excluding Brush Chaparral species)	850	***145***	110	***55***	125	***80***

S.5ection IV – Implementation Guide

Units: 101-105 Location / Site(s): 000096 / Portions 0006, 0012, and 0022 Acres: 61

Silvicultural Treatment: Thin From Below with Weed and Release

Implementation Instructions / Stocking Guidelines (in order of priority)

Mandatory Leave Trees

1. Leave all trees ≥ 9" DBH/DRC
2. Leave all riparian tree and shrub species (walnut, cottonwood, sycamore, chokecherry, willow, etc.).
3. Leave all Gambel oak and pinyon pine.

Guidelines for Remaining Leave Trees (distances are measured bole to bole)

4. Space remaining leave trees from the mandatory leave trees and from each other. Leave trees will be left at a variable spacing of approximately **20 feet ± 5 feet** (15-25 ft.)*. Species preference will focus on retention of healthy ponderosa pine and Douglas-fir over woodland species, unhealthy ponderosa pine and white fir (Table 3).

   Utilize the entire spacing range of 15-25 feet. DO NOT LEAVE TREES EVENLY SPACED.

Table 3: Leave Tree Species and Size Preference

Size Preference	Leave Tree Species Preference	**Tree Species**	Tree Spacing (bole to bole)
Leave the best available trees (tallest trees with the best tree form and highest crown ratio)	1	Ponderosa pine - **without visible mistletoe infection**	**15 – 25 ft**.
	2	Douglas-Fir	
	3	Evergreen Oak (White & Emory)	
	4	Juniper species	
	5	Ponderosa Pine **with mistletoe infection***	
	6	White fir	
* Infection limited to lower 1/3 of crown is considered acceptable			

5. If an area > ½ acre in size (166 ft. diameter) or larger, lacks trees of any species, then leave 2 small patches 10 or fewer manzanita and/or shrub live oak per acre. All other brush species associated with the chapparal vegetation type will be removed, including but not limited to, manzanita, catclaw, and shrub live oak.

Section V – Site Specific Mitigation Measures / Design Features

(also see full set of mitigation measures from Rim Country EIS)

Archaeology

Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands. Vehicles and mechanized equipment are not permitted within archaeological sites. No ground disturbing activities will occur within archaeological sites. Prior to implementation of proposed treatments, written approval of the forest archaeologist and forest supervisor will be completed (IS&A).

Hydrology

Follow BMPs to prevent soil compaction and displacement (FSH 2509.24.13). Limit driving and mastication operations to periods of dry soil conditions.

There are aquatic management zones (AMZ) designated along all perennial, intermittent, and ephemeral streams, including Pine Creek and other unnamed creeks. AMZs were developed in collaboration with the forest hydrologist.

Greater than ½ mile from private property, AMZs designated along streams will range from 50 – 150 feet, measured from each side of the stream. Mastication operations are prohibited within AMZs. Highlight protected streams on the CAM.

- ✓ Ephemeral streams: AMZ will extend 50 feet from both banks of the stream.
- ✓ Intermittent streams: AMZ will extend 75 feet from both banks of the stream.
- ✓ Perennial streams: AMZ will extend 150 feet from both banks of the stream.

Within ½ mile of private property, Rim Country design feature SW010 allows treatment measures necessary to reduce the risk of wildfire encroachment on adjacent private lands to take priority over other considerations in AMZs. Entry and treatments in these reaches were considered for each unit and AMZ by the IDT. AMZ widths were reduced to the following to reduce fire hazard to private property.

- ✓ Ephemeral streams: AMZ will extend 35 feet from both banks of the stream.
- ✓ Intermittent and perennial streams: AMZ will extend 50 feet from both banks of the stream.

Non-Native and Invasive Weeds

Use Best Management Practices to prevent the spread of noxious or invasive weeds. Contractors will clean their equipment of all mud and plant debris prior to entering National Forest System Lands. Provide training to Forest Service and contract personnel on identification of weeds and procedures for using equipment in infested areas (e.g. wash equipment thoroughly before moving from one area to another). Consider sowing native grass or forb seed in highly disturbed areas.

Prescribed Burning

Remain within all Rim Country prescribed fire design features.

Range

The units are within a Grazing Allotment. Coordinate with district range personnel when planning and conducting treatment and prescribed burning to deconflict with pasture rotations if possible. The range permittee will be contacted prior to any prescribed burning activity to prevent harm to livestock.

Recreation
The Bearfoot trail runs through units 101, 102, and 103. Avoid damage to trail surface, make prompt repairs to trail and surrounding infrastructure, and take appropriate steps necessary to protect public when operating in vicinity of the trail. less area is closed to recreation activities, no operations in 101, 102, and 103 on weekends, holidays or during special events such as trail races.

Wildlife
There will be a timing restriction on all mechanized operations and prescribed burning activities due proximity of MSO PACs. No mechanical operations or burning will occur beginning March 01 until August 31 for MSO, March 01 to September 30 for PFA.

Section VI – Documentation
(FACTS, KV, FSVeg Spatial, planned future treatments (5+ years), monitoring)

Table 1: Documentation

FACTS	4511: TREE RELEASE AND WEED 2360 RANGE CONTROL VEGETATION 7100 POLLINATOR HABITAT IMPROVED, RESTORED OR MAINTAINED
FACTS polygon (ID and subunit)	101: 031204PINECANYON024 102: 031204PINECANYON025 103: 031204PINECANYON026 104: 031204PINECANYON027 105: 031204PINECANYON028
Land Suitability Code (TIM classification)	953
FSVeg Spatial	Update stand boundaries and archive stand data once implemented
Planned Future Treatments	Maintenance Mastication and/or lop/scatter of regen and brush species every 5-10 years as determine by Fuels. RX Fire unlikely due to location and WUI.
Planned funding code (service work)	Pine Canyon Restoration SPA
KV	None
Monitoring	None

K) 108/109/111/112

Identity

Project Name	Cut Units	Acres
Pine Canyon – Biomass (East – NoPAC)	108, 109, 111, 112	57
Forest / District	**NEPA**	**Location(s) / Site(s)**
Tonto NF / Payson RD	Rim Country EIS	0096 / portions of 07, 12, 14, and 33

Treatment Plan

Silvicultural Treatment: Thin from below with weed and release

Prescribed by: Jon Woerheide **Date:** 03/21/23

Certified by: Patty Ringle **Date:**

Treatment Method: Mechanical - Full Removal

Slash Treatment: Full removal

Skid Trails: As needed by Sale Administration

Constraints and Other Considerations:

No known archaeological sites are within the project area. Any found will be protected per Archeologist consultation.

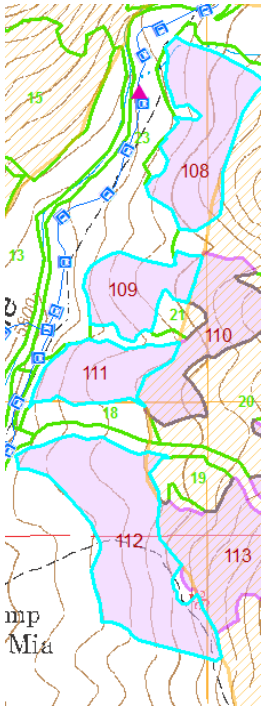
All units are adjacent to the Dripping Springs MSO PAC and have a timing restriction. There will be no prescribed fire or mechanized activities from 3/1 – 8/31. This timing restriction may be modified or eliminated by the district wildlife biologist if a nest is located or if non-nesting is confirmed. All but portions of Unit 112 are also located within the Pine Canyon goshawk PFA. Pending the outcome of the revised Tonto Forest Plan, a PFA timing restriction will be in effect between 3/1 and 9/30.

Aquatic management zones (AMZ) are designated along Pine Creek, Parsnip Spring, and other intermittent and ephemeral streams. Temp roads and landings are prohibited within AMZs located further than ½ mile from private property. All stream crossings will be designated by the sale administrator. See design features for AMZ widths and further mitigation.

Rare Plants identified in Northern area of Unit 108, coordinate with botanist for placement of skid trails and landings.

Notes for Layout:

Mark boundaries adjacent to timber units and along PAC boundary line. Other boundaries can be virtual / GEOfence. Slopes > 50% are excluded as much as possible using LIDAR slope data.



Follow-up Treatment (next 5 years):

Pending Funds and access, full removal of all material and trees <9 inches and 90% of brush species >1ft. tall is needed.

Broadcast and reentry burning to follow, dependent upon natural ignition and resources available for managed fire. Alternate – hand maintenance lop/scatter or mastication of sprouting species

Layout/Marking

Boundary Designation:	Double Orange Band on units with common boundaries to timber units and on boundaries the delineate MSO PACs. GEO-FENCE used on other, non-critical, boundaries		
Tree Designation:	By diameter with residual spacing and species preference. **Remove all designated tree/brush species >1 ft. tall.**		
Layout completed by:	PRD Field Crew	**Date:**	March 2022
Marking verified by:	DxD	**Date:**	N/A

Notes:
Rim Country Analyzed: MSO Recovery: Replacement Nest/Roost
Prescribed: 4FRI - Facilitative Operations – Pine-Oak Woodland

Section II – Existing Conditions

Table 1: Site/Stand Overview					
Slope	**Aspect**	**Elevation**	**Habitat Type (s)**	**Site Index**	**% Max SDI**
10-40%	W	6100	QUAR/RHTR	No Data (Low)	No Field Data
DMR			**Dominate DBH Class**	**BA PIPO >16 DBH**	
% Infected: 95%	**Stand DMR Rating:** 3+		<12 " DBH/DRC	<10 BA	
BA QUAGA		**Hydrology**	**TEU/State**		
10 BA		Pine Creek	5251 / PIPO - QUERC - DRY: Zootic State		

Location/Site 000096 / portions of 07, 12, 14, and 33 . The unit boundaries end at the boundary of the Dripping Springs MSO PAC and the adjacent timber and fuel-beak units to the west. Slopes vary between 10% and 40%. There is very little evidence of past management or wildfire. Aspect is westerly and elevation is 6100 ft. The units are a Pine-Oak woodlands as described in the QUAR/RHTR habitat type. The overstory is patchy and varies between open and closed conditions. The 125 BA of overstory tree species are QUAR/QUEM with emergent conifers: PIPO and PSME above the oaks. Additionally, there are a few (<1 TPA) large JUDE2 individuals in and around the units. The understory consists of approx. 1000 TPA, QUAR/QUEM, and JUDE with some PSME, and PIPO (most with heavy mistletoe infection). Regeneration species loosely mirror understory but is biased towards woodland species. Ground cover is sporadic and consists of patches of abundant manzanita with minor amounts of various grasses, cacti, and brushy shrubs. New Mexico locust <5" DRC observed along west end of some stands. Nearly all ponderosa pine larger than a sapling exhibit Southwestern Dwarf Mistletoe infection with a Hawksworth rating of between 3 and 6. The units do not meet criteria for MSO nest-roost habitat but are located within the adjacent to the Dripping Springs MSO PAC. The units don't meet requirements for Goshawk habitat but are located within the Pine Canyon PFA. NEPA covered under Rim Country EIS.

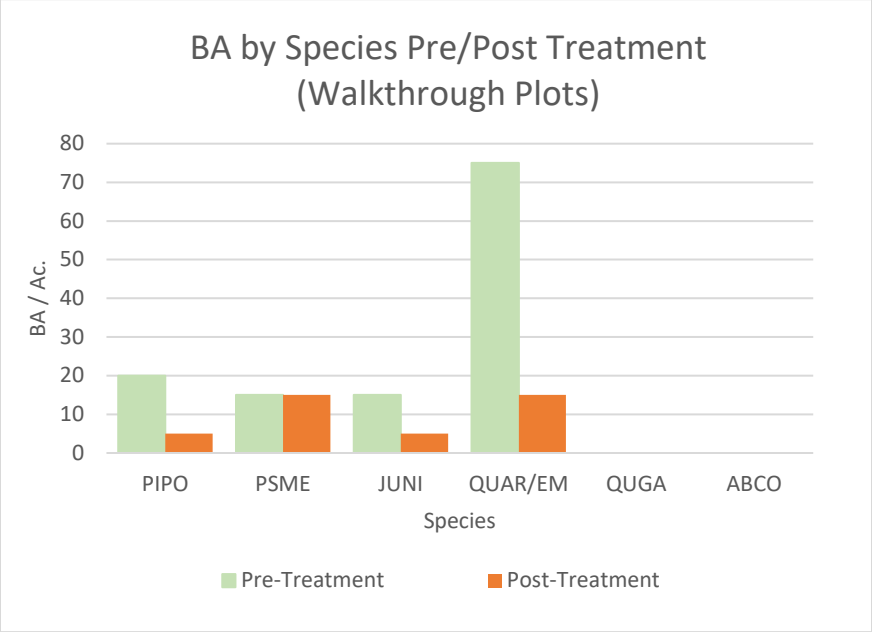


Figure 1 Pre and Post Treatment BA from walkthrough data estimate of trees to be removed. Pre-treatment QMD estimated to be 5.5 inches DBH/DRV. Post treatment expected to be 9.5 inches DBH.

Section III – Long-Term Desired Conditions and Prescribed Treatment Objectives

Desired Condition (spatial patterns, species composition, stand structure)

The desired future condition is crown-fire-resistant pine-oak woodland. The desired stand structure and composition will reduce the likelihood of stand-replacing fires carrying into the adjacent MSO PAC. Post Treatment canopy cover is expected to be less than 30% (Consistent with Tonto Forest Plan) with mature tree species remaining on-site. Despite Douglas-fir presence on the site tending to be the result of fire exclusion, most of the Douglass-fir present will likely be retained over ponderosa heavily infected with mistletoe, resulting in a healthier stand. Reducing stand density will release residual trees to improve growth response. Also, reducing the smaller-diameter woodland spp. to conifer spp. relative density will lead to a more open structure and increase canopy heights that will directly reduce fire severity and rates of spread. Due to sprouting nature of the QUAR/QUEM, JUDE, and Manzanita, follow-on treatments will be required to reduce dominance of sprouting species.

Short-Term Objectives (expected post-treatment outcome)

Short-Term Objectives (expected post-treatment outcome)

1. Reduce the risk of catastrophic, stand-replacing wildfire by decreasing tree densities, ladder fuels, and crown fuel continuity. Create conditions conducive to the reintroduction of low severity fire.
2. Retain healthy conifers and oak, and increase interspaces between trees to preserve foraging habitat components for the Mexican spotted owl.
3. Provide growing space for regeneration.
4. Decrease the overall density of woodland and shrub species.

Table 2: Current/Desired Conditions for Forest Structure by TPA/Stems per acre

Vegetation	Estimated Current TPA | *BA*		Expected Post Treatment TPA | *BA*		Desired Future TPA | *BA*	
Chaparral Brush Species. (manzanita, catclaw, and shrub live oak)	500	***N/A***	<10	***N/A***	<10	***N/A***
Woodland Species (Oak and Juniper)	600	***90***	40	***25***	65	***25***
Gambel Oak (All sizes)	<10	***<10***	<10	***<10***	<10	***<10***
Smaller (<18") Ponderosa Pine, Douglas-fir, and white fir	100	***35***	30	***15***	65	***20***
Large size/mature-older age trees (18+")	<10	***<10***	<10	***<10***	10	***5***
Total (Excluding Brush Chaparral species)	700	***125***	70	***40***	80	***50***

Section IV – Implementation Guide

Units: 108, 109, 111, 112 - Location / Site(s): 096 / portions of 07, 12, 14, and 33 - Acres: 57

Silvicultural Treatment: Thin from Below with Weed and Release

Implementation Instructions / Stocking Guidelines (in order of priority)

Mandatory Leave-Trees

1. Leave all trees ≥ 9" DBH/DRC
2. Leave all riparian tree and shrub species (walnut, cottonwood, sycamore, chokecherry, willow, etc.).
3. Leave all Gambel oak and pinyon pine.

Guidelines for other Leave-Trees (distances are measured bole to bole)

4. Space remaining leave trees from the mandatory leave trees and from each other. Leave trees will be left at a variable spacing of approximately **25 feet ± 5 feet** (20-30 ft.)*. Species preference will focus on retention of healthy ponderosa pine and Douglas-fir over woodland species, unhealthy ponderosa pine and white fir (Table 3).

   Utilize the entire spacing range of 20-30 feet. DO NOT LEAVE TREES EVENLY SPACED.

Table 3: Leave Tree Species and Size Preference

Size Preference	Leave Tree Species Preference	Tree Species	Tree Spacing (bole to bole)
Leave the best available trees (tallest trees with the best tree form and highest crown ratio)	1	Ponderosa pine - **without visible mistletoe infection**	**20-30 ft**.
	2	Douglas-Fir	
	3	Evergreen Oak (White & Emory)	
	4	Juniper species	
	5	Ponderosa Pine **with mistletoe infection**	
	6	White fir	

5. If an area > ½ acre in size (166 ft. diameter) or larger, lacks trees of any species, then leave 2 small patches 10 or fewer manzanita and/or shrub live oak per acre. All other brush species associated with the chapparal vegetation type will be removed, including but not limited to, manzanita, catclaw, and shrub live oak.

Section V – Site Specific Mitigation Measures / Design Features
(also see full set of mitigation measures from Rim Country EIS)

Archaeology
Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands. Vehicles and mechanized equipment are not permitted within archaeological sites. No ground disturbing activities will occur within archaeological sites. Prior to implementation of proposed treatments, written approval of the forest archaeologist and forest supervisor will be completed (IS&A).

Hydrology
Follow BMPs to prevent soil compaction and displacement (FSH 2509.24.13). Limit driving and mastication operations to periods of dry soil conditions.

There are aquatic management zones (AMZ) designated along all perennial, intermittent, and ephemeral streams, including Pine Creek and other unnamed creeks. AMZs were developed in collaboration with the forest hydrologist.

Greater than ½ mile from private property, AMZs designated along streams will range from 50 – 150 feet, measured from each side of the stream. Mastication operations are prohibited within AMZs. Highlight protected streams on the CAM.

- ✓ Ephemeral streams: AMZ will extend 50 feet from both banks of the stream.
- ✓ Intermittent streams: AMZ will extend 75 feet from both banks of the stream.
- ✓ Perennial streams: AMZ will extend 150 feet from both banks of the stream.

Within ½ mile of private property, Rim Country design feature SW010 allows treatment measures necessary to reduce the risk of wildfire encroachment on adjacent private lands to take priority over other considerations in AMZs. Entry and treatments in these reaches were considered for each unit and AMZ by the IDT. AMZ widths were reduced to the following to reduce fire hazard to private property.

- ✓ Ephemeral streams: AMZ will extend 35 feet from both banks of the stream.
- ✓ Intermittent and perennial streams: AMZ will extend 50 feet from both banks of the stream.

Non-Native and Invasive Weeds
Use Best Management Practices to prevent the spread of noxious or invasive weeds. Contractors will clean their equipment of all mud and plant debris prior to entering National Forest System Lands. Provide training to Forest Service and contract personnel on identification of weeds and procedures for using equipment in infested areas (e.g. wash equipment thoroughly before moving from one area to another). Consider sowing native grass or forb seed in highly disturbed areas.

Prescribed Burning
Remain within all Rim Country prescribed fire design features.

Range
The units are within a Grazing Allotment. Coordinate with district range personnel when planning and conducting treatment and prescribed burning to deconflict with pasture rotations if possible. The range permittee will be contacted prior to any prescribed burning activity to prevent harm to livestock.

Recreation
There is a system trail in unit 112. Minimize disturbance in vicinity of trail and restore trail to function as soon as possible. Signage should be posted along the trail to warn hikers.

Wildlife
There will be a timing restriction on all mechanized operations and prescribed burning activities due proximity of MSO PACs. No mechanical operations or burning will occur beginning March 01 until August 31 for MSO, March 01 to September 30 for PFA.

Botany
Rara Plant, Senator mine alumroot (Heuchera eastwoodiae), found in North Area of Unit 108. Mitigation - work with forest botanist in the placement of skid trails and landings in this area

Section VI – Documentation
(FACTS, KV, FSVeg Spatial, planned future treatments (5+ years), monitoring)

Table 1: Documentation

FACTS	4511: TREE RELEASE AND WEED 2360 RANGE CONTROL VEGETATION 7100 POLLINATOR HABITAT IMPROVED, RESTORED OR MAINTAINED
FACTS polygon (ID and subunit)	108: 031204PINECANYON031 109: 031204PINECANYON032 111: 031204PINECANYON034 112: 031204PINECANYON035
Land Suitability Code (TIM classification)	953
FSVeg Spatial	Update stand boundaries and archive stand data once implemented
Planned Future Treatments	Maintenance Mastication and/or lop/scatter of regen and brush spices every 5-10 years as determine by Fuels. RX Fire unlikely due to location and WUI.
Planned funding code (service work)	Pine Canyon Restoration SPA
KV	None
Monitoring	None

Certification	
Prescribed By: Jon Woerheide	Certified By: Patricia Ringle
Silviculture Forester	Certified Silviculturist

L) 110

Identity

Project Name	Cut Units	Acres
Pine Canyon – Biomass (East – PAC)	110	14
Forest / District	**NEPA**	**Location(s) / Site(s)**
Tonto NF / Payson RD	Rim Country EIS	000096 / portions of 0007 and 0032

Treatment Plan

Silvicultural Treatment: Weed and release

Prescribed by: Jon Woerheide **Date:** 12/09/22

Certified by: Patty Ringle **Date:**

Treatment Method: Mechanical Full Removal

Slash Treatment: Full removal

Skid Trails: As needed by Sale Administration

Constraints and Other Considerations:

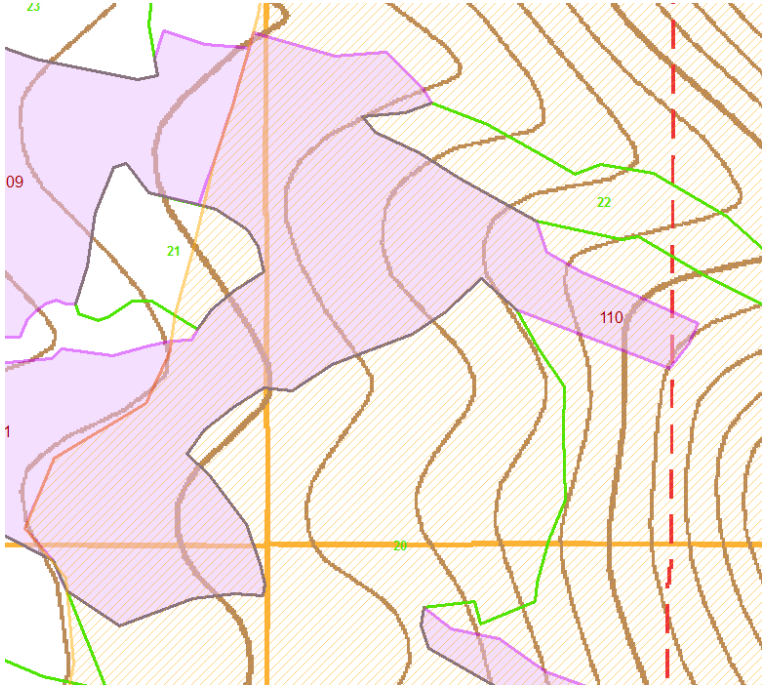
No known archaeological sites are within the project area. Any found will be protected per Archeologist consultation.

The unit is within Dripping Springs MSO PAC and has a timing restriction. There will be no prescribed fire or mechanized activities from March 1 – Aug 31. This timing restriction may be modified or eliminated by the district wildlife biologist if a nest is located or if non-nesting is confirmed. The Unit is also located within the Pine Canyon goshawk PFA. Pending the outcome of the revised Tonto Forest Plan, a PFA timing restriction will be in effect between March 1 and September 30.

Aquatic management zones (AMZ) are designated along Pine Creek, Parsnip Spring, and other intermittent and ephemeral streams. Temp roads and landings are prohibited within AMZs located further than ½ mile from private property. All stream crossings will be designated by the sale administrator. See design features for AMZ widths and further mitigation.

Notes for Layout:

Mark boundaries adjacent to timber units and along PAC boundary line. Other boundaries can be virtual / GEOfence. Slopes > 50% are excluded as much as possible using LIDAR slope data.



Follow-up Treatment (next 5 years):

Pending Funds and access, full removal of all material, brush species, and trees <9 inches and is needed.

Broadcast and reentry burning to follow, dependent upon natural ignition and resources available for managed fire. Alternate – hand maintenance lop/scatter

Layout/Marking

Boundary Designation:	Double Orange Band on units with common boundaries to timber units and on boundaries the delineate MSO PACs. GEO-FENCE used on other, non-critical, boundaries		
Tree Designation:	By diameter with residual spacing and species preference. **Remove all designated tree/brush species >1 ft. tall.**		
Layout completed by:	PRD Field Crew	**Date:**	March 2022
Marking verified by:	DXD	**Date:**	10/2022

Notes:
Rim Country Analyzed: PAC - Mechanical
Prescribed: MSO PAC Machinal – Woodland

Section II – Existing Conditions

Table 1: Site/Stand Overview					
Slope	**Aspect**	**Elevation**	**Habitat Type (s)**	**Site Index**	**% Max SDI**
10-40%	W	6200	QUAR/RHTR	No Data (Low)	No Field Data
DMR			**Dominate DBH Class**	**BA PIPO >16 DBH**	
% Infected: 95%	**Stand DMR Rating:** 3+		<12 " DBH/DRC	<10 BA	
BA QUAGA		**Hydrology**	**TEU/State**		
<5		Pine Creek	6405 / Dry Mixed Con: Shrubland State		

Location/Site 000096 / portions of 0007 and 0032. The unit boundaries end when the slope of the canyon to the east becomes too steep to operate, and the MSO PAC boundary to the east. Slopes vary between 10% and 40%. Aspect is west and elevation is 6200 ft. The unit is a degraded conifer stand whose current state is represented as an oak/juniper woodland, with very little evidence of past management or wildfire. The overstory is sporadic and contains a variety of sizes QUAR, PSME, JUDE2, and some PIPO. PSMSE and PIPO account for < 40 BA of the 130 BA present on-site. The understory consists of approx. 1000 TPA, QUAR/QUEM, JUDE2, PSME, and some PIPO (most with heavy mistletoe infection). Regeneration species loosely mirror understory but is biased towards woodland species. Ground cover is sporadic and consists of patches of abundant manzanita with various grasses and cactus and brushy shrubs. Nearly all ponderosa pine larger than a sapling exhibit Southwestern Dwarf Mistletoe infection with a Hawksworth rating of between 3 and 6. The units do not meet criteria for MSO nest-roost habitat but are located within the Dripping Springs MSO PAC. The units don't meet requirements for Goshawk habitat but are located within the Pine Canyon PFA. NEPA covered under Rim Country EIS.

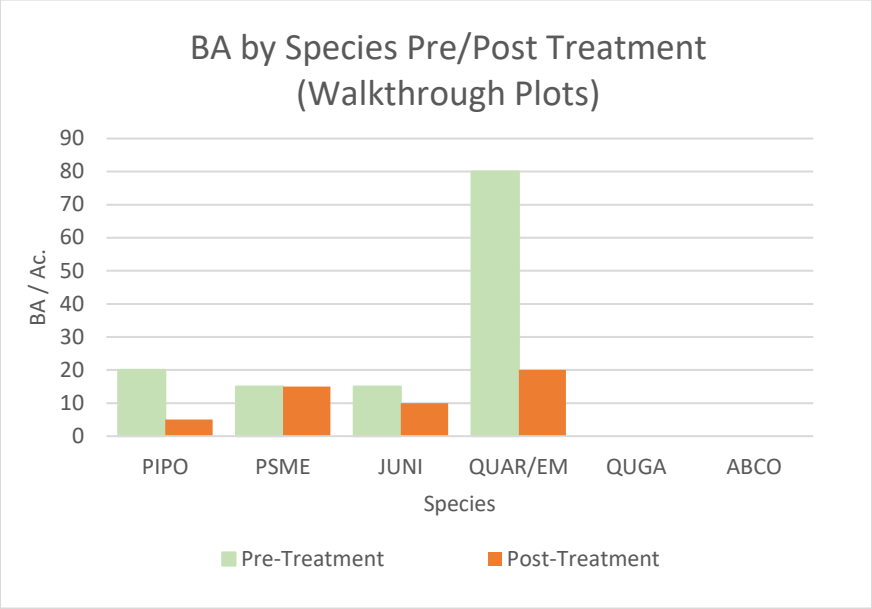


Figure 1 Pre and Post Treatment BA from walkthrough data estimate of trees to be removed. Pre-treatment QMD estimated to be 4 inches DBH. Post treatment expected to be 8 inches DBH.

Section III – Long-Term Desired Conditions and Prescribed Treatment Objectives

Desired Condition (spatial patterns, species composition, stand structure)

The desired future condition is crown-fire-resistant oak-juniper woodland which should reduce the likelihood of stand-replacing fires carrying throughout the MSO PAC. Overall, canopy cover is expected to be less than 25% with mature trees usually being oak or juniper with, with occasional Douglas-fir and ponderosa pine individuals reaching maturity. Douglas-fir presence on the site is believed to be the result of fire exclusion, but those present will be retained for MSO use. Releasing the residual trees to improve growth response and reducing the woodland and brush understory height and density will lead to a more open woodland stand that will require follow-on treatments to reduce dominance of smaller oak and chaparral species.

Short-Term Objectives (expected post-treatment outcome)

Short-Term Objectives (expected post-treatment outcome)

1. Reduce the risk of catastrophic, stand-replacing wildfire by decreasing tree densities, ladder fuels, and crown fuel continuity. Create conditions conducive to the reintroduction of low severity fire.
2. Retain large healthy conifers and oak to maintain key habitat components of the PACs for the Mexican spotted owl.
3. Provide growing space for regeneration.
4. Decrease the density of woodland and shrub species.

Table 2: Current/Desired Conditions for Forest Structure by TPA / BA

Vegetation	Estimated Current TPA | *BA*		Expected Post Treatment TPA | *BA*		Desired Future TPA | *BA*	
Chaparral Brush Species. (manzanita, catclaw, and shrub live oak)	500	*N/A*	10	*N/A*	0	*N/A*
Woodland Species (Oak and Juniper)	600	*95*	50	*30*	70	*20*
Smaller (<18") Ponderosa Pine, Douglas-fir, and white fir	100	*35*	60	*20*	100	*30*
Large size/mature-older age trees (18+")	<10	*<5*	<10	*<5*	20	*20*
Total (Excluding Brush Chaparral species)	700	*130*	110	*50*	200	*70*

Section IV – Implementation Guide

Units: 110 Location / Site(s): 000096 / Portions of 0007, and 0032 Acres: 14

Silvicultural Treatment: Weed and Release

Implementation Instructions / Stocking Guidelines (in order of priority)

Mandatory Leave Trees

1. Leave all trees ≥ 9" DBH/DRC
2. Leave all riparian tree and shrub species (walnut, cottonwood, sycamore, chokecherry, willow, etc.).
3. Leave all Gambel oak and pinyon pine.

Guidelines for Remaining Leave Trees (distances are measured bole to bole)

4. Space remaining leave trees from the mandatory leave trees and from each other. Leave trees will be left at a variable spacing of approximately **20 feet ± 5 feet** (15-25 ft.)*. Species preference will focus on retention of healthy ponderosa pine and Douglas-fir over woodland species, unhealthy ponderosa pine and white fir (Table 3).

   ******Utilize the entire spacing range of 10-20 feet. DO NOT LEAVE TREES EVENLY SPACED.******

Table 3: Leave Tree Species and Size Preference

Size Preference	Leave Tree Species Preference	Tree Species	Tree Spacing (bole to bole)
Leave the best available trees (tallest trees with the best tree form and highest crown ratio)	1	Ponderosa pine - **without visible mistletoe infection**	15-25 ft.
	2	Douglas-Fir	
	3	Evergreen Oak (White & Emory)	
	4	Juniper species	
	5	Ponderosa Pine **with mistletoe infection**	
	6	White fir	

5. If an area > ½ acre in size (166 ft. diameter) or larger, lacks trees of any species, then leave 2 small patches 10 or fewer manzanita and/or shrub live oak per acre. All other brush species associated with the chapparal vegetation type will be removed, including but not limited to, manzanita, catclaw, and shrub live oak.

Section V – Site Specific Mitigation Measures / Design Features
(also see full set of mitigation measures from Rim Country EIS)

Archaeology
Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands. Vehicles and mechanized equipment are not permitted within archaeological sites. No ground disturbing activities will occur within archaeological sites. Prior to implementation of proposed treatments, written approval of the forest archaeologist and forest supervisor will be completed (IS&A).

Hydrology
Follow BMPs to prevent soil compaction and displacement (FSH 2509.24.13). Limit driving and mastication operations to periods of dry soil conditions.

There are aquatic management zones (AMZ) designated along all perennial, intermittent, and ephemeral streams, including Pine Creek and other unnamed creeks. AMZs were developed in collaboration with the forest hydrologist.

Greater than ½ mile from private property, AMZs designated along streams will range from 50 – 150 feet, measured from each side of the stream. Mastication operations are prohibited within AMZs. Highlight protected streams on the CAM.

- ✓ Ephemeral streams: AMZ will extend 50 feet from both banks of the stream.
- ✓ Intermittent streams: AMZ will extend 75 feet from both banks of the stream.
- ✓ Perennial streams: AMZ will extend 150 feet from both banks of the stream.

Within ½ mile of private property, Rim Country design feature SW010 allows treatment measures necessary to reduce the risk of wildfire encroachment on adjacent private lands to take priority over other considerations in AMZs. Entry and treatments in these reaches were considered for each unit and AMZ by the IDT. AMZ widths were reduced to the following to reduce fire hazard to private property.

- ✓ Ephemeral streams: AMZ will extend 35 feet from both banks of the stream.
- ✓ Intermittent and perennial streams: AMZ will extend 50 feet from both banks of the stream.

Non-Native and Invasive Weeds
Use Best Management Practices to prevent the spread of noxious or invasive weeds. Contractors will clean their equipment of all mud and plant debris prior to entering National Forest System Lands. Provide training to Forest Service and contract personnel on identification of weeds and procedures for using equipment in infested areas (e.g. wash equipment thoroughly before moving from one area to another). Consider sowing native grass or forb seed in highly disturbed areas.

Prescribed Burning
Remain within all Rim Country prescribed fire design features.

Range
The units are within a Grazing Allotment. Coordinate with district range personnel when planning and conducting treatment and prescribed burning to deconflict with pasture rotations if possible. The range permittee will be contacted prior to any prescribed burning activity to prevent harm to livestock.

Recreation
There are no system trails in the unit. However, there is significant recreation in the vicinity.

Wildlife
There will be a timing restriction on all mechanized operations and prescribed burning activities due proximity of MSO PACs. No mechanical operations or burning will occur beginning March 01 until August 31 for MSO, March 01 to September 30 for PFA.

Section VI – Documentation
(FACTS, KV, FSVeg Spatial, planned future treatments (5+ years), monitoring)

Table 1: Documentation

FACTS	4511: TREE RELEASE AND WEED 2360 RANGE CONTROL VEGETATION 7100 POLLINATOR HABITAT IMPROVED, RESTORED OR MAINTAINED
FACTS polygon (ID and subunit)	031204PINECANYON031
Land Suitability Code (TIM classification)	953
FSVeg Spatial	Update stand boundaries and archive stand data once implemented
Planned Future Treatments	Maintenance Mastication and/or lop/scatter of regen and brush spices every 5-10 years as determine by Fuels. RX Fire unlikely due to location and WUI.
Planned funding code (service work)	Pine Canyon Restoration SPA
KV	None
Monitoring	None

Certification	
Prescribed By: Jon Woerheide	Certified By: Patricia Ringle
Silviculture Forester	Certified Silviculturist

M) 113/114

Treatment Plan

Silvicultural Treatment: Thin from Below with weed and release

Prescribed by: Jon Woerheide **Date:** 03/21/23

Certified by: Patty Ringle **Date:**

Treatment: Mechanical - Full Removal

Slash Treatment: Full removal

Skid Trails: As needed by Sale Administration

Constraints and Other Considerations:

No known archaeological sites are within the project area. Any found will be protected per Archeologist consultation.

All units are within Dripping Springs MSO PAC and have a timing restriction. There will be no prescribed fire or mechanized activities from 3/1 to 8/31. This timing restriction may be modified by the district wildlife biologist if a nest is located or if non-nesting is confirmed. The NE side of Unit 113 and most of unit 114 are also located within the Pine Canyon goshawk PFA. Pending the outcome of the revised Tonto Forest Plan, a PFA timing restriction will be in effect between 3/01 and 9/30.

Aquatic management zones (AMZ) are designated along Pine Creek, Parsnip Spring, and other intermittent and ephemeral streams. Temp roads and landings are prohibited within AMZs located further than ½ mile from private property. All stream crossings will be designated by the sale administrator. See design features for AMZ widths and further mitigation

Notes for Layout:

Mark boundaries adjacent to timber units and along PAC boundary line. Other boundaries can be virtual / GEOfence. Slopes > 50% are excluded as much as possible using LIDAR slope data.

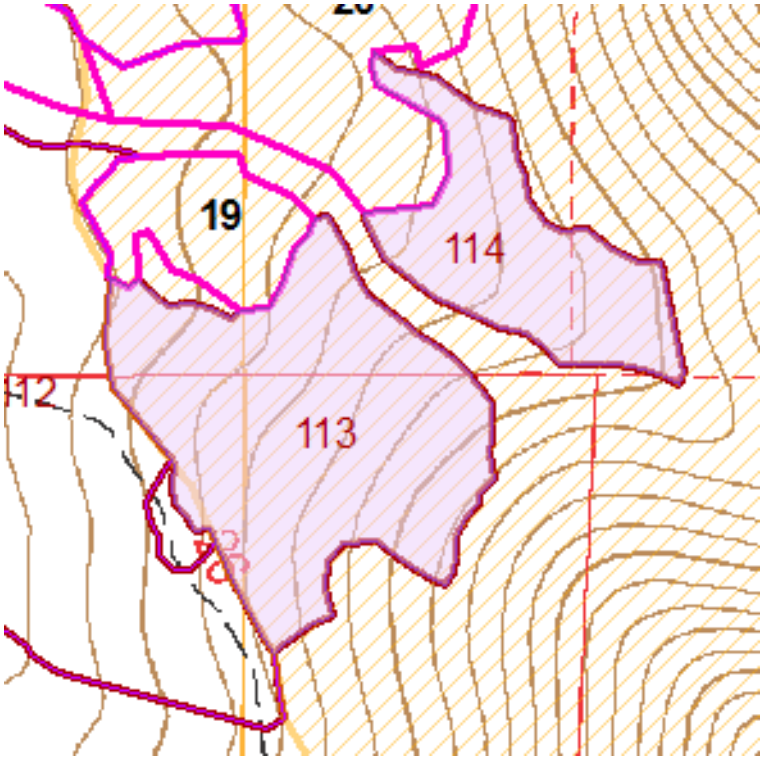
Follow-up Treatment (next 5 years):

Pending Funds and access, full removal of all material and trees <9 inches and 90% of brush species >1ft. tall is needed.

Broadcast and reentry burning to follow, dependent upon natural ignition and resources available for managed fire. Alternate – hand maintenance lop/scatter or mastication of sprouting species

Identity

Project Name	Cut Units	Acres
Pine Canyon – Biomass (East – PAC)	113, 114	23
Forest / District	**NEPA**	**Location(s) / Site(s)**
Tonto NF / Payson RD	Rim Country EIS	000096 / Portions of 0012, 0015, and 0038



Layout/Marking

Boundary Designation:	Double Orange Band on units with common boundaries to timber units and on boundaries the delineate MSO PACs. GEO-FENCE used on other, non-critical, boundaries		
Tree Designation:	By diameter with residual spacing and species preference. **Remove all designated tree/brush species >1 ft. tall.**		
Layout completed by:	PRD Field Crew	**Date:**	March 2022
Marking verified by:	DxD	**Date:**	N/A

Notes:
Rim Country Analyzed: MSO Recovery: Replacement Nest/Roost
Prescribed: MSO PAC Machinal – Woodland

Section II – Existing Conditions

Table 1: Site/Stand Overview					
Slope	**Aspect**	**Elevation**	**Habitat Type (s)**	**Site Index**	**% Max SDI**
10-40%	W	6100	PSME/QUAR to QUAR/RHTR	No Data (Low)	No Field Data
DMR			**Dominate DBH Class**	**BA PIPO >16 DBH**	
% Infected: 95%	**Stand DMR Rating:** 3+		<12 " DBH/DRC	<10 BA	
BA QUAGA		**Hydrology**	**TEU/State**		
<5		Pine Creek	6405 / Dry Mixed Con: Zootic State		

Location/Site 000096 / portions of 0012, 0015, and 0038. The 2 units are separated by a steep drainage populated with old pine. The stand boundaries end when the slope of the canyon to the east becomes too steep to operate. Slopes vary between 10% and 40%. Aspect is west and elevation is 6100 ft. Habitat type is varied between PSME/QUAR and QUAR/RHTR. The units are a mix of uneven-aged, dry mixed conifer stands and an oak/juniper woodland, with very little evidence of past management or wildfire. The 110 BA of overstory is sporadic and contains a variety of sizes of Douglas-fir and white fir with ponderosa pine heavily infected with southwestern dwarf mistletoe. Other species present include alligator juniper, evergreen oak (Emory and white), and Gamble oak (in draws). The understory consists of approx. 1000 TPA and 60-120 BA of Douglas-fir, oak (Emory and Arizona white) , juniper, white fir, and ponderosa pine (most with heavy mistletoe infection). Regeneration species loosely mirror understory but is biased towards woodland species. Ground cover is sporadic and consists of patches of abundant manzanita with various grasses and cactus and brushy shrubs. Nearly all ponderosa pine larger than a sapling exhibit Southwestern Dwarf Mistletoe infection with a Hawksworth rating of between 1 and 6. The units do not meet criteria for MSO nest-roost habitat but are located within the Dripping Springs MSO PAC. The units don't meet requirements for Goshawk habitat but are located within the Pine Canyon PFA. NEPA covered under Rim Country EIS.

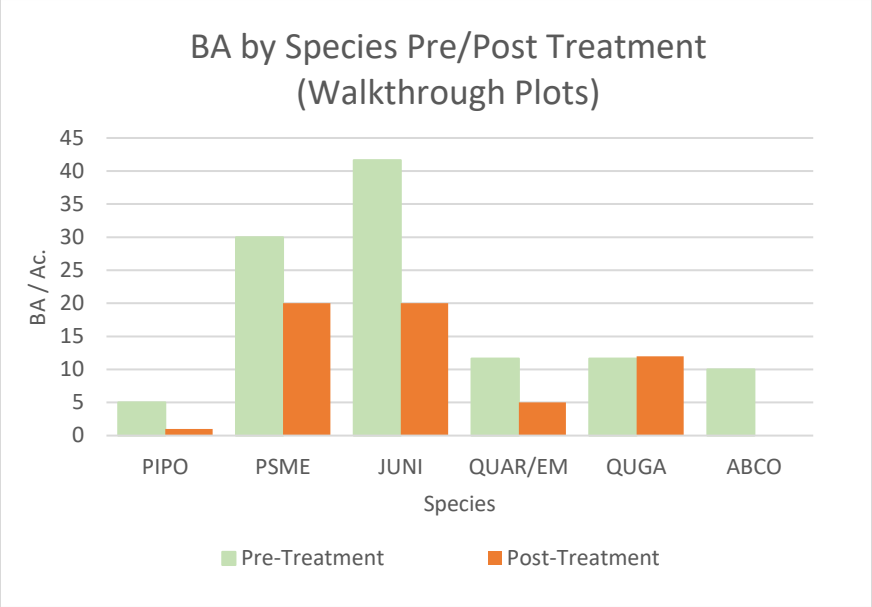


Figure 1 Pre and Post Treatment BA from walkthrough data estimate of trees to be removed. Pre-treatment QMD estimated to be 4.5 inches DBH. Post treatment expected to be 9 inches DBH.

Section III – Long-Term Desired Conditions and Prescribed Treatment Objectives

Desired Condition (spatial patterns, species composition, stand structure)

The desired future condition is crown-fire-resistant ecotone between a dry mixed conifer forest and an oak-juniper woodland which should reduce the likelihood of stand-replacing fires carrying throughout the MSO PAC. The PSME/QUAR habitat type is at the warm limit of the ecological range of Douglas-fir and ponderosa pine productivity is also moderate to poor. The areas of QUAR/RHTR have differ from the PSME/QUAR type by being predominantly JUNI and QUERC with little PIPO or PSME. Overall, canopy Cover is expected to be dominated by ponderosa pine, Douglas-fir, and occasional mature oak and juniper, but will generally remain below 25% crown closure due to the stands being on the xeric end of the habitat types. Areas of the units lacking canopy trees are expected to remain dominated by woodland species with low conifer regeneration resulting from competition from vigorous oak and juniper regeneration following disturbance. Releasing the residual trees to improve growth response and reducing the woodland and brush understory height and density will lead to a more 2-aged stand that will be resistant to high intensity crown fire due to removal of ladder fuels, lower fuel loadings and more growing space available.

Short-Term Objectives (expected post-treatment outcome)

Short-Term Objectives (expected post-treatment outcome)

1. Reduce the risk of catastrophic, stand-replacing wildfire by decreasing tree densities, ladder fuels, and crown fuel continuity. Create conditions conducive to the reintroduction of low severity fire.
2. Retain large healthy conifers to maintain key habitat components of the PACs for the Mexican spotted owl.
3. Provide growing space for conifer regeneration.
4. Improve the health, growth, and vigor of ponderosa pine and Douglas-fir.
5. Decrease the density of woodland and shrub species.

Table 2: Current/Desired Conditions for Forest Structure by TPA/Stems per acre

Vegetation	Estimated Current TPA | *BA*		Expected Post Treatment TPA | *BA*		Desired Future TPA | *BA*	
Chaparral Brush Species. (manzanita, catclaw, and shrub live oak)	500	***N/A***	<10	***N/A***	<10	***N/A***
Woodland Species (Oak and Juniper)	500	***55***	30	***10***	40	***20***
Gambel Oak (All sizes)	70	***10***	70	***10***	80	***15***
Smaller (<18") Ponderosa Pine, Douglas-fir, and white fir	50	***45***	40	***25***	60	***20***
Large size/mature-older age trees (18+")	<10	***<10***	<10	***<10***	<10	***5***
Total (Excluding Brush Chaparral species)	600	***110***	110	***45***	180	***60***

S.5ection IV – Implementation Guide

Units: 113, 114 Location / Site(s): 000096 / Portions of 0012, 0015, and 0038 Acres: 23

Silvicultural Treatment: Thin From Below with Weed and Release

Implementation Instructions / Stocking Guidelines (in order of priority)

Mandatory Leave Trees

1. Leave all trees ≥ 9" DBH/DRC
2. Leave all riparian tree and shrub species (walnut, cottonwood, sycamore, chokecherry, willow, etc.).
3. Leave all Gambel oak and pinyon pine.

Guidelines for Remaining Leave Trees (distances are measured bole to bole)

4. Space remaining leave trees from the mandatory leave trees and from each other. Leave trees will be left at a variable spacing of approximately **20 feet ± 5 feet** (15-25 ft.)*. Species preference will focus on retention of healthy ponderosa pine and Douglas-fir over woodland species, unhealthy ponderosa pine and white fir (Table 3).

Utilize the entire spacing range of 15-25 feet. DO NOT LEAVE TREES EVENLY SPACED.

Table 3: Leave Tree Species and Size Preference

Size Preference	Leave Tree Species Preference	**Tree Species**	Tree Spacing (bole to bole)
Leave the best available trees (tallest trees with the best tree form and highest crown ratio)	1	Ponderosa pine - **without visible mistletoe infection***	**15 – 25 ft**.
	2	Douglas-Fir	
	3	Evergreen Oak (White & Emory)	
	4	Juniper species	
	5	Ponderosa Pine **with mistletoe infection**	
	6	White fir	
* Infection limited to lower 1/3 of crown is considered acceptable			

Section V – Site Specific Mitigation Measures / Design Features
(also see full set of mitigation measures from Rim Country EIS)

Archaeology
Archaeological sites are flagged with pink and white flagging and painted with white horizontal bands. Vehicles and mechanized equipment are not permitted within archaeological sites. No ground disturbing activities will occur within archaeological sites. Prior to implementation of proposed treatments, written approval of the forest archaeologist and forest supervisor will be completed (IS&A).

Hydrology
Follow BMPs to prevent soil compaction and displacement (FSH 2509.24.13). Limit driving and mastication operations to periods of dry soil conditions.

There are aquatic management zones (AMZ) designated along all perennial, intermittent, and ephemeral streams, including Pine Creek and other unnamed creeks. AMZs were developed in collaboration with the forest hydrologist.

Greater than ½ mile from private property, AMZs designated along streams will range from 50 – 150 feet, measured from each side of the stream. Mastication operations are prohibited within AMZs. Highlight protected streams on the CAM.

- ✓ Ephemeral streams: AMZ will extend 50 feet from both banks of the stream.
- ✓ Intermittent streams: AMZ will extend 75 feet from both banks of the stream.
- ✓ Perennial streams: AMZ will extend 150 feet from both banks of the stream.

Within ½ mile of private property, Rim Country design feature SW010 allows treatment measures necessary to reduce the risk of wildfire encroachment on adjacent private lands to take priority over other considerations in AMZs. Entry and treatments in these reaches were considered for each unit and AMZ by the IDT. AMZ widths were reduced to the following to reduce fire hazard to private property.

- ✓ Ephemeral streams: AMZ will extend 35 feet from both banks of the stream.
- ✓ Intermittent and perennial streams: AMZ will extend 50 feet from both banks of the stream.

Non-Native and Invasive Weeds
Use Best Management Practices to prevent the spread of noxious or invasive weeds. Contractors will clean their equipment of all mud and plant debris prior to entering National Forest System Lands. Provide training to Forest Service and contract personnel on identification of weeds and procedures for using equipment in infested areas (e.g. wash equipment thoroughly before moving from one area to another). Consider sowing native grass or forb seed in highly disturbed areas.

Prescribed Burning
Remain within all Rim Country prescribed fire design features.

Range
The units are within a Grazing Allotment. Coordinate with district range personnel when planning and conducting treatment and prescribed burning to deconflict with pasture rotations if possible. The range permittee will be contacted prior to any prescribed burning activity to prevent harm to livestock.

Recreation
The Pine Canyon Trail runs along the east boundary of unit 113. Avoid damage to trail surface, make prompt repairs to trail and surrounding infrastructure, and take appropriate steps necessary to protect public when operating in vicinity of the trail. less area is closed to recreation activities, no operations in 113 on weekends, holidays or during special events such as trail races.

Wildlife
There will be a timing restriction on all mechanized operations and prescribed burning activities due proximity of MSO PACs. No mechanical operations or burning will occur beginning March 01 until August 31 for MSO, March 01 to September 30 for PFA.

Section VI – Documentation
(FACTS, KV, FSVeg Spatial, planned future treatments (5+ years), monitoring)

Table 1: Documentation

FACTS	4511: TREE RELEASE AND WEED 2360 RANGE CONTROL VEGETATION 7100 POLLINATOR HABITAT IMPROVED, RESTORED OR MAINTAINED
FACTS polygon (ID and subunit)	113: 031204PINECANYON036 114: 031204PINECANYON037
Land Suitability Code (TIM classification)	953
FSVeg Spatial	Update stand boundaries and archive stand data once implemented
Planned Future Treatments	Maintenance Mastication and/or lop/scatter of regen and brush spices every 5-10 years as determine by Fuels. RX Fire unlikely due to location and WUI.
Planned funding code (service work)	Pine Canyon Restoration SPA
KV	None
Monitoring	None

Certification	
Prescribed By: Jon Woerheide	Certified By: Patricia Ringle
Silviculture Forester	Certified Silviculturist