APPENDIX A

TECHNICAL SPECIFICATIONS FOR SERVICE WORK ITEMS

SECTION I – DESCRIPTION OF WORK:

The objective of this project is to help protect critical Department of Defense (DOD) infrastructure and assets by creating resilient forested landscapes by thinning unhealthy forests, thus reducing hazardous fuels in areas neighboring these installations. By creating a mosaic of forest conditions adjacent to the installations, this project creates a resilient forested landscape by completing fuel treatments that reduce the amount of standing biomass within forest vegetation types. Such projects will establish strategic fuel breaks and fire potential control lines near these military installations.

SECTION II – WORK ITEMS

Mandatory Item 1: Masticate/Chip Material (MixedCon):

Units 1, 7, 9, 11, 12, 14, 16, 18, 19, 21, 23, 26, 27 (130 Acres)

Retain:
- All conifer species at or above 9” diameter at breast height
- All Gambel oak at or above 4” diameter at breast height
- 5 to 10 conifers per acre below 5” DBH with good form and vigor (free of insect and disease damage)
    - Retained conifers should be outside of overstory tree driplines
    - Prefer ponderosa pine over all other conifers
- Retained conifers over 10 ft tall should be pruned to a height of 5 ft.
    - Pruned material shall be masticated/chipped.
- Masticated/chipped material must be distributed evenly within the treatment unit to a depth not to exceed **4** inches and individual piece length not to exceed **12** inches.

Remove (Masticate):
- All conifer species below 9” diameter at breast height
- All Gambel oak below 4” diameter at breast height
- Standing dead trees of all species from 0 – 9” DBH.

Mandatory Item 2: Masticate/Chip Material (Oak):

Units 2, 3, 4, 5, 6, 8, 10, 13, 15, 17, 20, 22, 24, 25, 28 (131 Acres)

Retain:
- All conifer species
- All Gambel oak at or above 4” diameter at breast height
- 20% of Gambel oak 1 foot in height to 4” DBH in the following size and locations:
    - Clumps will vary in size and shape from 25 to 50 feet in diameter
    - Clumps will be located no less than 100 feet from each other
    - Clumps will be located no less than 10 feet from conifer driplines
    - Natural clumps will be preferred for retention
- Retained conifers over 10 ft tall should be pruned to a height of 5 ft.
    - Pruned material shall be masticated/chipped.
- Masticated/chipped material must be distributed evenly within the treatment unit to a depth not to exceed **4** inches and individual piece length not to exceed **12** inches.

Remove (Masticate):
- 80% of Gambel oak below 4” diameter at breast height
- standing dead trees of all species from 0 – 9” DBH.

SECTION III – CONTROL OF WORK

The Contractor agrees to conduct its operations under this contract and other related business activities in compliance with Federal, State, and local statutes, standards, orders, permits and other regulations.

The Contractor shall meet all State and local environmental quality laws applicable to National Forest system lands.

Work may be done any time during the term of the contract, except under the following conditions:

(1) When conditions are such that operations shall be restricted or ceased due to increased fire risk.

(2) When soil moisture conditions create excessive risk of damage to the soil,

(3) When snow depth creates a situation where requirements cannot be met and/or work cannot be inspected, as determined by the COR.

(4) The government reserves the right to prioritize the order in which Units are treated.

(5) If any cultural or archeological sites are discovered during operations of this contract, work will be suspended in the immediate vicinity of the site until a reconnaissance survey is completed by the Forest Archeologist. Areas excluded from treatment shall be deleted from the contract.

SECTION IV – INSPECTION AND ACCEPTANCE

For All Work Items:
At any point during the project, the Contractor and/or Project Manager may request (documented through email, text, or hand-written request) an in the field consultation with the Forest Service to inspect work progress, review contract specifications, or clarify issues. The Forest Service shall respond to Contractor's request within 5 working days, excluding weekends and federal holidays.

GOVERNMENT QUALITY ASSURANCE SURVEILLANCE PLAN

Government Inspection Procedures - The COR, or a designated inspector (GTM), will make periodic inspections while work is in progress, usually daily at first, as needed to assure work is proceeding satisfactorily. The Contractor shall notify the COR when units are started, when problems are encountered and when contract work needs government oversight.

1. Each unit will be inspected as a separate unit. Unit will not be averaged with other units for acceptance or payment.

2. When units are completed and ready for government inspection, Contractor's designated Project manager shall request unit inspection in writing, prior to moving out of the general area.

3. The COR, or designated inspector, will determine compliance with contract specifications through informal visual inspections. In the event visual inspection indicates work to be in non-compliance with specifications, prompt corrective action and/or rework shall be required.

Government Inspection Procedures – Formal (Plots)

1. In the event visual inspection indicates work and / or rework to be in non-compliance with contract specifications, a series of verification plots shall be installed by the Government to determine

compliance with specifications and percent of satisfactory work for treatment of each unit not meeting specification as observed with visual inspection.

2. Government verification plots will consist of a series of 1/20th acre (26.3 foot radius) fixed area plots along transects to record whether density, basal area, best tree selection, and other requirements are being met and to what extent.

3. Plots and grid will be distributed so that a representative sample is obtained.

4. The COR or designated inspector will mark the center of each plot on the ground using flagging, stakes, or pin flags. Additional flagging will be hung near the plot center so that it may be seen from a distance. The inspector will include the plot number, their initials and date on the flagging.

5. Plots will be numbered to correlate with the inspection form and transects on a unit map.

6. The minimum number of verification plots, per treatment unit, shall be as follows:

Unit Acreage	Minimum No. of Plots
1 – 9	1 plot per 2 acres
10 – 29	10 plots
30 – 59	1 plot per 4 acres
60 – 99	20 plots
100	1 plot per 5 acres

7. Determination of acceptability of the work performed will be based on Government verification inspections and will be considered conclusive.

8. At each plot, the Government will examine the plot area and record findings on the items listed below:

   a. Plot number
   b. Number of trees to be left on plot.
   c. Number of trees left on plot.
   d. Number of satisfactory trees.
   e. Number of deficient trees.
   f. Number of excess trees.

   - Stumps containing live limbs which are not in accordance with specifications herein will be counted as excess trees.
   - Cut trees which are still attached at the stump will be counted as excess trees
   - Trees meeting cut specifications will be counted as excess trees
   - Trees in excess of trees to be left will be counted as excess

9. <u>Work quality</u> will be calculated on the form as follows:

$$\frac{\text{No. Trees Deficient} + \text{No. Excess Trees}}{\text{No. Trees to be left}} = \%\ \text{Unsatisfactory work}$$

100% – % Unsatisfactory work = % <u>Work Quality</u>

Unsatisfactory Cutting

1. If the work quality falls below 85 percent, the COR will immediately notify the Contractor, in writing, and order him to improve the quality of subsequent tree cutting. If the quality of subsequent tree cutting is not raised above the 85 percent minimum acceptable standard within 24 business hours after receipt of such written notice, the Contractor's right to proceed may be terminated and the contract considered in default.

2. When the work quality falls below 90 percent as a result of excess trees, the Government may elect to do one of the following:

   (a) Order rework to be performed and withhold payment until excess trees are cut and the results of a post-rework Government inspection show work quality to be at least 85 percent or more. No rework shall be performed unless ordered or authorized by the COR.

   (b) Order that no rework be performed and payment will either be made at a reduced rate, or not at all, as determined from the Thinning Inspection Report.

3. Repeated failure to produce work quality at or above the 85 percent minimum acceptable standard will be considered reason for contract termination and default action.

Reinspection Upon Contractor Request

1. If Government inspection results are unacceptable to the Contractor, a reinspection may be requested, in writing, within 5 business days after receipt of notice of said inspection results. The same inspection procedure will be used; however, the inspection pattern will be shifted so that new inspection plots will not overlap previously inspected plots.

2. If reinspection results – rounded up to the nearest whole percent – indicate a variance of more than 5 percent from the first inspection, the results of the second inspection will be used to calculate work quality and payment, and the Government will bear the cost of reinspection.

3. If reinspection results – rounded up to the nearest whole percent – are within 5 percent of the first inspection, plots from the initial inspection and the reinspection will be combined and used to calculate work quality and payment, and the Contractor shall bear the cost of reinspection.

Government Inspection Procedures – Items XX

Table 1 – Minimum Acceptable Quality Levels (AQL) of Work

ITEM	DESCRIPTION	SCHEDULE	UNIT	Min AQL
1	Masticate/Chip Material	MANDATORY	ACRE	90%
2	Masticate/Chip Material	MANDATORY	ACRE	90%

SECTION V – PAYMENT METHODS

Method of Measurement for Acreages

Acreages were determined by using Global Positioning Systems (GPS) or digitized using GIS mapping. Some unit boundaries are flagged, the majority of boundaries are virtual.

Discernable Boundaries are boundary locations that are readily identifiable features on the ground in locations shown on the Contract Area Map. A Geo-Fence is a location on the ground corresponding to the boundary location shown on a mobile mapping device using a Global Positioning System (GPS) Receiver using a digital vector

file/shapefile. The digital vector file/shapefile will be provided as an attachment to the Contractor by the Forest Service at award. A digital list of the coordinates can be provided upon request.

Contractor is responsible for obtaining a GPS receiver(s) that is capable of determining the location of the geo-fence boundary within the contract tolerance. Allowable contract tolerance is 15 feet.

Forest Service inspection of treatment boundaries shall be conducted to determine treatments are within the allowable contract tolerance using the digital vector file/shapefile referenced above using a GPS Receiver with a minimum, tested accuracy in a Light- Medium canopy of 20 feet.

National Technology Development Program GPS Receiver accuracy reports by GPS manufacturer and model are available at: https://www.fs.usda.gov/database/gps/mtdcrept/accuracy/index.htm. Forest Service determination of boundary location will be final.

In case of a major disruption in GPS service, or lack of GPS coverage on the Contract Area beyond the control of the Contractor, as determined by the Contracting Officer, extension of time may be granted by Contracting Officer when requested in writing by Contractor in accordance with 52.212-4 (f) Excusable Delays. To resolve major disruption of GPS service, or lack of GPS coverage on the Contract Area, the Forest Service may elect to Mark Geo-Fence boundaries on the ground, in which case the Forest Service's determination of boundary location will be final.

The acreage for each work item will be rounded to the nearest acre and is final unless:

a. The contract is modified or,
b. The Government makes a determination to remeasure or,
c. The Contractor exercises his/her option under the following Remeasurement provisions:

Remeasurement

1. The Contractor may request, in writing, remeasurement of any units under this contract if he/she feels that acreage stated on the project maps is incorrect. The remeasurement must be within the existing perimeter of the respective unit. No variance of the unit perimeters as laid out on the ground for this contract will be allowed. All requests for remeasurement must be made prior to payment for each completed unit. Remeasurement will be performed by the Government.
2. If remeasurement indicates that a variance of ten percent or less exists on units of 1 to 5 acres, five percent or less exists on units of more than five but less than 20 acres, or if three percent or less exists on units of 20 acres or larger, the Contractor shall pay for the actual costs of the remeasurement. Under this condition, payment will be made on the acreage stated on the project maps. If the remeasurement indicates the actual acreage varies by more than the above factors from that stated on the project maps, the payment will be made on the remeasured acreage and the Forest Service will pay for the cost of the remeasurement.

Acceptance and Payment

1. Percentages as calculated herein shall be rounded to the nearest whole percent.
2. No allowance for variation or portion of a variation will be added which will create a percentage greater than 100 percent.
3. Payment rate for work quality at or above 85% will be calculated as follows:

% Work Quality + 5 % Statistical Variation (SV) = % Payment rate

4. **Examples:**

(a) 2 Trees Deficient + 4 Trees Excess 6

---------- = --------- = 5.22% = 5% Unsatisfactory work
115 Trees to be left 115

100% – 5% = 95% Work Quality
95% + 5% (SV) = 100% Payment rate

(b) 2 Trees Deficient + 9 Trees Excess 11
---------- = --------- = 11.96% = 12% Unsatisfactory work
92 Trees to be left 92

100% – 12% = 88% Work Quality
88% + 5% (SV) = 93% Payment rate

2 Trees Deficient + 14 Trees Excess 16
---------- = --------- = 16.84% = 17% Unsatisfactory work
95 Trees to be left 95

100% – 17% = 83% Work Quality - - No payment made

SECTION VI – DEFINITIONS

ACCEPTABLE QUALITY LEVEL (AQL): Acceptance of work will be based on compliance with all specifications corresponding to the appropriate task(s). A minimum AQL is required for all service work – hand or mechanical. The minimum AQL will receive a satisfactory performance rating.

BIOMASS TREES: Any conifer material 2 feet in height to 4.9 inches DBH.

BOLE SPACING: The horizontal distance in feet from the edge of one leave tree bole to another leave tree bole, measured from the outside bark of each tree.

BROWNS TRANSECT: A line intercept method for measuring the amount of fuel on the ground.

BRUSH: Vegetation consisting of shrub species with single or multi-stems originating at or near ground level not normally reaching more than 15 feet in height.

CIRCULAR PLOT: A sample plot within a thinning unit that is used to determine the number of desirable trees and other contract specifications.

COARSE WOODY DEBRIS: Woody material left on the ground to meet wildlife habitat requirements.

CROWN RATIO: The ratio of live crown length (tip of leader to base of the crown) to total tree length/height.

CROWN SPACING: The horizontal distance in feet between the dripline of a live crown to another live crown.

CLEARCUT: A cutting prescription in which all trees within a boundary are designated to be cut.

CROWN RATIO: The ratio of live crown length (tip of leader to base of the crown) to total tree length/height.

CROWN SPACING: The horizontal distance in feet between the dripline of a live crown to another live crown.

CUT TREES: Trees that do not possess the characteristics of desirable leave trees and are required to be cut. As described by the contract or otherwise marked to be cut.

CUTTING UNIT: See Treatment Unit definition

DAMAGED TREES: Trees damaged beyond recovery. A tree that is larger than 2 feet in height, and has the top knocked out, is leaning more than 10 degrees, has less than one half of its original limbs, or has approximately 50% of bark removed from the circumference of the bole.

DBH: Diameter at breast height, measured at a point of 4.5 feet above the ground level on the uphill side of the tree.

DECKING: Stockpiling of trees in a designated area.

DEAD/DYING TREES: Trees with the crown foliage changing from green to red, yellow, or needleless. Any tree that has pitch tubes indicating Mountain Pine Beetle infestation.

DESIGNATION BY SPECIES AND DIAMETER (DXSD): A cutting prescription in which species and diameter are used to determine which trees will be left and which will be cut.

DIB: Diameter inside bark.

HANG-UP TREE: Any cut tree suspended above ground level.

HEALTHY REGENERATION: Young, healthy, dwarf mistletoe free conifers, less than 4.9 inches in diameter, free of defect or characteristics.

LEAVE TREE: Trees that possess desirable characteristics and that serve to create the basis for designated spacing requirements or are otherwise designated to be left.

LOPPING AND/OR SCATTERING: Cutting limbs from trunks of cut trees, bucking, and moving and rearranging of slash concentrations to reduce the fuel bed height as specified.

NON-SAWTIMBER TREE: For all conifer species, minimum diameter of 5 inches DBH to minimum diameter by species identified in Appendix B, Division A.

OVERSTORY REMOVAL: A cutting prescription where all trees greater than a specified size are cut. Trees less than the specified size are protected.

PAYMENT UNIT: See Treatment Unit.

PILING: Gathering and stacking of downed wood and activity slash by hand or mechanical methods into piles constructed and located as indicated by technical specification and project maps.

PROGRESSION OF WORK: Work conducted in a progressive, workmanlike and orderly manner by the Contractor.

PRUNE: Flush cut all branches from tree bole.

RESERVE CLUMPS: Groups of trees within a treatment area that are protected from cutting, may also include Individual Reserve trees.

SAWTIMBER TREE: Included timber meeting sawlog size specifications as defined in Appendix B, Division A.2.

SLASH: Woody material existing or created that has accumulated on the forest floor. Woody material includes logs, pieces of logs, tops, and branches.

UNIT: See Treatment Unit.

TEMPORARY ROADS: Non-permanent roads that are constructed by Contractor for the purpose of treatment unit access.

TREATMENT UNIT: An individual area on the ground in which activities will be performed and which may appear as a separate pay item in the Schedule of Items.

UNSATISFACTORY WORK: If work quality falls below the AQL, the COR will issue a work order or notice of noncompliance to the Contractor in writing. Untreated or unsatisfactory treated areas shall be reworked to obtain satisfactory work quality.

VIRTUAL BOUNDARY: A unit boundary that is shown on the map but is not demarcated on the ground. The contractor must use mapping applications in order to locate these boundaries in the unit.

WHOLE TREE YARDING: Whole tree logging includes cutting tree and removing the entire tree, including tops and branches, to the landing.

WILDLIFE TREE: Standing tree marked to be reserved as a wildlife tree. Used by birds and small mammals for shelter, nesting, perching, etc.