

## **Seral Phase 2 Forestry Project Statement of Work & Specifications**

**Availability:** Ability to complete the project in **180** calendar days after Notice to proceed is signed. If the completion time frame is not within your capabilities, please provide the time frame you would propose to complete this task.

**Background:** The purpose of this task order is to secure services for unit layout, unit boundary designation, area determination, opening center tree designation, cruise design and plan, and timber cruising on the Stanislaus National Forest. The Contractor shall furnish all labor, equipment, supervision, transportation, supplies, materials, services, and any incidentals necessary to perform the work in accordance with the attached specifications.

The Contractor must be a Registered Professional Forester (RPF) by the State of California or shall employ the services of a State of California Registered Professional Forester to supervise this task. The RPF shall certify that all completed fieldwork and documentation meets contract specifications.

### **Estimated Start Date & Contract Time**

**Start:** May 1, 2023

**Time:** 180 calendar days (with a 4 person crew)

**Location Description:** Mi-Wok Ranger District, and occurs in portions of various sections in: T2N R16E, T3N R16E, T3N R17E, & T4N R17E; MDBM.

**Accessibility:** The SERAL Phase 2 project area is located just northeast of the city of Twain Harte between the South Fork Stanislaus River and Highway 108. To access the project area from Sonora, take State Route 108 East. You'll enter the project area on the left side of the highway in about 15 miles. High clearance vehicles with 4-wheel drive, and quads, are highly recommended. Prospective contractors are strongly encouraged to view the project area prior to bidding. Map showing the general vicinity and specific work areas are included in Attachment 1. Maps are general in nature and are not to be considered as definitively identifying locations. Locations on the ground override any map inaccuracies.

**Camping and Housing:** Camping is not permitted in US Forest Service (FS) campgrounds. Contractor will be permitted to camp elsewhere on US Forest Service lands. Camping on Forest Service land is not a right. Permission could be granted, but the US Forest Service reserves the right to revoke for failure to comply with the terms of the permit.

**Description of Work:** The purpose of this task order is to secure services for unit layout, unit boundary designation, area determination, opening center tree designation, cruise design and plan, and timber cruising on the Mi-Wok district of the Stanislaus National Forest. The Contractor shall furnish all labor, equipment, supervision, transportation, supplies, materials, services, flagging, and any incidentals necessary to perform the work in accordance with the attached specifications. The project includes layout of 56 units. It is estimated that after layout is complete quantities of boundary designation, area determination, hazard tree marking, and timber cruising could change by up to 10%. The project will be a scaled sale utilizing designation by prescription (D x P) with some virtual boundaries. Virtual boundaries need no paint nor GPSing. All work must be in accordance with the Stanislaus National Forest Timber Theft Prevention Plan (STTPP), the R5\_Cruiser Reference Guide, the Forest Service Handbook (FSH) 2409.12, chapters. 10, 20, 30, 40, 50, 60 and 70 (Attachment 2) and the SERAL Phase 2 Treatment Prescriptions (Attachment 4). The intent of the cruising is to provide the Forest Service with cruise data to facilitate the timber appraisal value.

Any prospective contractor desiring an explanation or interpretation of the solicitation, drawings, specifications, etc., must request it in writing from the Contracting Officer soon enough to allow a reply to reach all prospective contractors before the solicitation closing date. Oral explanations or instructions given before the award of a contract will not be binding.

## **Technical Requirements**

Contractor shall:

1. Prior to starting work, ensure the complete understanding set forth in the STTPP, R5\_Cruiser Reference Guide, FSH 2409.12, chapters 10, 20, 30, 40, 50, 60 and 70 (Attachment 2), the Social and Ecological Resilience Across the Landscape Final Environmental Impact Statement (Attachment 3) and the SERAL Treatment Prescriptions (Attachment 4).
2. Furnish all labor, personnel, supervision, equipment, materials, flagging, supplies, transportation, travel, and incidentals, except those designated as Government furnished property, to perform all work necessary for completion of the specifications contained herein. Backpack paint sprayers prohibited. A California Registered Professional Forester (RPF) will be required to oversee all aspects of the contract work.
3. Locate and flag in white cutting units as identified on timber sale area planning maps using aerial photos, topographical maps, and GPS. LiDAR hillshade and canopy heights can be provided upon request. All changes to the unit boundary must be GPSed (recreational grade OK) and shapefile provided to the FS on a weekly basis prior to painting of the boundary.
4. Sketch a map of each unit and include planned landings, temp roads, and critical skid trails to use. Landing locations should be planned to allow for a ¼ mile skid distance unless physical barriers exist such as streams, steep slopes, rocks, lava cap, etc. Include access to units via existing roads, reconstructed roads, or new road construction and/or reopening an old temp road, using an old skid trail as a temp road, or a totally new temp road. Show locations of streams, stream crossings, survey monuments, areas that can't be logged, and sensitive areas such as landslides or other areas of resource concerns such as Special Aquatic Features i.e., seeps, bogs, springs and fens. Layout cards must be submitted to FS prior to acceptance of layout.

5. Evaluate volume per acre of each thinning unit. Minimum harvestable basal area (BA) to be included per acre for ground-based logging is 50 ft<sup>2</sup> per acre for all products combined. Acres not meeting these requirements should not be included within the unit boundary unless located within the interior of the unit or next to a boundary road. If total sale BA for all products combined is less than 50 ft<sup>2</sup> per acre after cruising the unit boundaries must be reworked and truncated until it does.
6. Evaluate operability of each cutting unit. Maximum slope to be included for ground-based skidding 35%, with 100-foot pitches up to 45%. Acres not meeting these requirements should not be included within the unit boundary unless located within the interior of the unit or next to a boundary road.
7. Do a preliminary survey of each unit prior to installing boundaries and notify the Contracting Officer Representative (COR) if notable differences exist in logical unit placement when compared to mapped locations on timber sale area planning map. Changes in boundary locations shall be made if necessary, for logistics, feasibility of logging system, or resource protection. Sensitive resource exclusion areas greater than 2 acres in size should not be included regardless of their location in the unit. Significant changes outside the boundaries shown on the contract map must be approved by the COR.
8. Designate boundaries of all cutting units with white flagging at inter-visible distance not to exceed 50 feet. Designate corners with double flags and shared corners with triple flags. Virtual boundaries do not need to be flagged except for corners on system roads. Hang flags within 10 feet of the road at the most advantageous location to be seen while driving the road.
9. With the exception of corners, do not flag along mapped system roads. Jeep roads and OHV trails still need to be flagged. GPS and flag in yellow any proposed stream crossings, temp roads, and landings. GPS all survey monuments and flag in pink and orange together. Submit shapefile of these GPS locations weekly to the FS.
10. Identify cutting unit corners and boundary intersections with roads as follows: Write sale name, unit number, and location of corner (for example Smoky TS, Unit#100, SW Corner) with permanent marker on flagging and plastic signs provided by the government. Plastic signs should be placed facing down the road as to be seen as someone is leaving the unit.
11. To assure acceptance, layout must be completely done (including flagging, a recreational grade GPS shapefile, and layout cards submitted) before any boundaries are painted.
12. GPS and paint unit boundaries and monument unit corners in accordance with the guidelines set forth in STTPP, FSH 2409.12 chapter 50, and FSH 2409.12 chapter 70 (Attachment 2).
13. Paint boundary trees intervisible not to exceed 100 feet and no closer than 20 feet. Boundary designation will consist of two vertical dots facing into the unit that are 4-6 inches in diameter; and a 1-3 foot long, 1-3 inch wide vertical painted line facing the previous and next boundary trees. Shared boundaries will have the two dots painted on two sides of the trees.
14. Corner trees next to roads must be within 15 feet of the road. Hack off branches of corner trees before painting and include unit # painted on corner trees adjacent to a road, facing the road. Also paint unit number on boundary trees that cross system roads. Trees with wet bark may not be painted until they are dry. Monument unit corners in accordance with the guidelines set forth in STTPP, FSH 2409.12 chapter 50, and FSH 2409.12 chapter 70

(Attachment 2). With the exception of corners, boundaries along mapped roads, jeep trails, or rivers do not need to be painted. Do not paint corners of virtual boundaries.

15. Final GPS boundary file will be free of any slivers and/or overlaps along shared unit boundaries and must not have more than 150 feet between vertices, In accordance with FSH 2409.12 Ch. 50, “position fixes should line in order, one after another, in a sequential pattern with only slight irregularities (such as jumping from side to side). Irregularities that are obvious outliers should be deleted.”
16. Locate .25 acre opening center trees throughout units. Center trees must be live conifers greater than 10 inches DBH. Center tree must be less than 30 inches DBH in general forest units and 24 inches DBH in territory units (see Attachment 1).
17. Openings may accentuate pre-existing openings, or be located in areas with diseased trees (i.e. root rot, heavy mistletoe), adjacent to clumps of large pines, or in areas where pine is lacking (i.e. thick patches of cedar).
18. To accommodate the different opening sizes per unit (See attachment 4 on opening sizes per unit) find areas where openings can be put in adjacent to each other. Utilize amoeba shaped polygons when possible.
19. Designated center tree with tracer paint of the cut tree color. Paint 2-inch-thick, double bands, around eye height. Also paint buttmarks on the on the uphill and downhill sides of the stump below 12 inches (measured on the uphill side). See Attachment 4 for number of openings by size per unit.
20. Flag opening center tree heavily with purple and orange flagging, write “Opening” on one of the flags. Take a GPS point to document the location. (recreational grade GPS OK). This activity can be done during unit layout.
21. Prepare and submit for approval by a Forest Service check cruiser cruise designs prior to timber cruising harvest units. The cruise will be designed to achieve a maximum sampling error of 20 percent (FSH 2409.12, chapter 40) for scaled sales. All data collected shall meet the accuracy requirements in FSH 2409.12, chapter 60 (Attachment 2).
22. Choose the appropriate cruise system(s), which are described in FSH 2409.12, chapter 30. Stratify and cruise timber, dead hazard trees, snags, and green biomass. Dead hazard trees, snags, and green biomass do not need defect deductions unless there is wood missing (ie: broken top).
23. Ensure each cruiser has written cruise instructions on how plots or measure trees will be identified on the ground, how measure trees will be selected, measurements to be recorded, plot locations, boundary plot directions, and any other information necessary to conduct a proper cruise.
24. Ensure that all measurements and defect determinations will be done in accordance with R5\_Cruiser Reference Guide and FSH 2409.12, chapters 10 and 20. Document reasons for defect deductions on measure trees. Record all unusual features at plot locations which may influence cruise procedures, hence accuracy (excessive slope, blowdown patch, hazardous conditions, etc.).
25. Provide the names of cruisers for each plot cruised. Unless otherwise agreed, cruisers shall manually record cruise tree information and notes on a Timber Cruise Data Sheet. It is recommended that Contractor periodically record tallies and applicable data to ensure timber cruise data can be re-entered into a field data recorder if the file becomes damaged.
26. When using area-based cruise method provide a pre-determined plot grid with coordinates that can be navigated to with a GPS. The coordinates will be provided to the Forest Service

upon request so the Forest Service can navigate to and inspect these plots. Plot numbers on the ground must match plot numbers in cruise and coordinate data.

27. Supply cruise maps for each unit with the actual location of plot centers, cruise trees, and insurance trees. If cruise trees and/or plots were located with GPS, provide the shapefiles to the COR or designee. Contractor shall hang blue flagging at plot center at/or above eye level, or as near as possible and is encouraged to use unique plot and tree numbers for all samples. Plot center shall also be marked with an orange pin flag secured into the ground at the exact center of the plot and the ground sprayed with paint. Unit number, plot number, date, and cruiser's initials will be written on the pin flag. Starting at true north and proceeding clockwise, cruise trees shall be numbered with non-tracer paint consecutively beginning with number 1 and shall correspond with the tree numbers recorded in the Timber Cruise book or Field Data Recorder.
28. When using a tree based cruise Contractor shall hang blue flagging on or near every cruise tree at/or above eye level. Unit number, tree number, date, and cruiser's initials will be written on the flag. Cruise trees shall also be painted with a double band with the tree number painted on two sides of the tree. All cruise trees shall be GPSed with the tree number. All hazard trees must be painted with a dot facing the nearest road.
29. Field data recorders with the applicable Forest Service cruising software must be used during data collection for tree-based cruise methods. The Contractor shall provide and process cruise data using the most current versions of Forest Service cruising software. The applicable electronic cruise files (.cruise and .out files) will be provided to the Forest Service on a weekly or otherwise agreed to basis throughout the cruise implementation.
30. Ensure that each cruiser has the written prescription on how to select cut/leave trees. If using an area-based cruise, cruisers will also need to look at trees outside the plot when determining cut trees inside the plot. Ensure all cut trees and leave trees are selected in accordance with the prescription, including but not limited to basal area target, cutting distances/spacing, and diameter limits.

## **Specific Inspection Procedures**

- A. Inspection Procedures for Unit Layout:** All unit boundaries will be reviewed in the office and at least 10% of the boundaries will be checked in the field. GPSed boundaries may be smaller than the NEPA boundaries in areas of limited operability or where total volume less than 7 ccf/acre.

### **Criteria:**

- a. GIS data shall be provided to the COR before the Forest Service begins inspections.
- b. All flagging shall be properly monumented with proper information written.
- c. Contractor's layout map of unit boundaries will be compared to the planning map provided by the Forest Service. Any layout unit that deviates more than 10% in area from the planning unit must have a valid reason for any differences documented (i.e. logging system incompatibility, resource protection, feasibility economics, significant vegetation type changes, previously unknown mortality, low volume, etc.).

- d. Layout maps and data shall be provided to the COR before the Forest Service begins inspections.
- e. All units are subject to inspection for determining satisfactory performance.
- f. At least two boundary flags must be reasonably visible in either direction from any point on the line.

**Evaluation:**

- a. Variations of greater than 10% of the planned unit acreage must have a valid reason and documentation for the change. If rationale is not acceptable unit must be re-worked.
- b. Contractor must have correct layout and associated designation (if applicable) on each unit.
- c. Unit boundaries outside of NEPA coverage will need to be re-worked unless location was pre-approved by COR.
- d. Unit layout must be compatible with the logging system chosen. If units cannot be harvested with the designated system, the unit must be modified to meet the requirements for the system.
- e. Flagging must be visible from one flag to the next, if flags are not visible from one to the other for more than 10% of the unit boundary the unit must be reflagged.
- f. Proper unit and corner identification must be on flagging and signs.

**B. Inspection Procedures for Boundary Designation:** At least 20% of the total linear boundary distance per contract item will be inspected. Inspector will document the sections and distances reviewed on the ground along with the applicable possible number of correct answers for each of the criteria below and the number of acceptable designations to determine acceptability. Any element that does not meet the evaluation measures below must be re-worked.

**Criteria:**

- a. Boundary trees will not be designated for harvest, and be of a size that will remain standing after logging.
- b. Painted trees will have two stump marks applied as specified in Section I.2.
- c. Painted trees will have the proper attention marks as specified in Section I.2.
- d. Painted trees will be of sufficient size or soundness to provide a reliable boundary that can't easily be disturbed.
- e. Painted boundary trees cannot also be marked or otherwise designated for cutting.
- f. Corner posting shall meet direction specified in Section I.2.
- g. All unit boundaries, except along mapped roads and jeep trails, will be clearly located on the ground with tracer paint.
- h. Boundary trees will be marked at inter-visible distances not to exceed 100 feet, with

two butt-marks.

- i. Corner trees should be at least 12" DBH, flagged, and have the unit number painted with tracer paint. Unit number shall face the road or if corner is not along the road then unit number shall face into the unit. Corner trees near roads must be within 15 feet of the road. **(STTPP, FSH 2409.12 chapter 50, and FSH 2409.12 chapter 70 (Attachment 2))**

**Evaluation:**

- a. All tracer paint tests must show a positive reaction for tracer element.
- b. All boundaries must be clearly located on the ground with at least 2 painted trees visible along the boundary line from either direction at 90% of the locations checked. This will be checked in 100' intervals along inspected route and exceptions will be made for portions of line containing vegetation so dense that makes this measure unreasonable.
- c. At least 90% of the painted boundary trees must have properly applied stump marks.
- d. At least 90% of the painted boundary trees must have proper attention marks.
- e. 90% of the marked trees shall be of sufficient size or soundness to provide a reliable boundary.
- f. No painted boundary trees shall be otherwise designated as cut trees.
- g. At least 90% of the corners checked must be appropriately identified.
- h. Unit numbers shall be painted along boundary roads corner trees at 90% of the time.

**C. Inspection Procedures for Area Determination:** Final GPS boundary file will be free of any slivers and/or overlaps along shared unit boundaries and must not have more than 150 feet between vertices. Irregularities that are obvious outliers will be deleted.

**Criteria:**

- a. Contractor shall provide the COR or inspector the following documentation: survey method and equipment used to traverse units, canopy coverage by unit, accuracy used from the MTDC matrix projection, coordinate system, and datum. Include the names of who collected the data, list the programs used to process the data and note any changes or corrections. If a verification traverse was done include both original and verification traverses.
- b. Acreage estimated using GPS shall have an area error of less than less than 10%.
- c. For traditional traverses, the error of closure ratio may not exceed a minimum of 1:50 for areas of 20 acres or less, or 1:100 for areas of 20 acres or more.
- d. The unit polygons produced through traversing must represent the unit boundaries on the ground. There should be no obvious or significant differences in unit shape.

**Evaluation:**

- a. All unit traverses shall be office reviewed for:
  - 1. Proper documentation.
  - 2. Projection, coordinate system and datum appropriate for the area.
  - 3. Proper use of verification traverses
  - 4. GPS polygons must match the layout map.
- b. A minimum of 10% of the unit perimeters shall be field reviewed by Forest Service personnel for the following:
  - 1. Each traverse shall match the corresponding painted unit boundary. Mapped boundaries must match flag line if boundaries are not yet painted.
  - 2. All boundaries checked/remapped in the field by the FS must match the Contractor's traverse or polygon.

**D. Inspection Procedures for Opening Center Tree Designation:** at least 10% of the center trees will be inspected.

**Criteria:**

- a. All center trees will be clearly located on the ground with tracer paint.
- b. Center trees are distributed evenly across the unit.
- c. Center tree is in a pre-existing opening, or be located in areas with diseased trees (i.e. root rot, heavy mistletoe), adjacent to clumps of large pines, or in areas where pine is lacking (i.e. thick patches of cedar).
- d. Center trees will be live conifers larger than 10 inches DBH.
- e. Center trees will be no larger than 30 inches DBH in general forest units, and no larger than 24 inches DBH in territory units.
- f. Center trees will have 2 painted bands around eye level at least 2 inches wide.
- g. Center tree will have purple flagging hanging from it in numerous locations with proper information written.

**Evaluation:**

- a. All tracer paint tests must show a positive reaction for tracer element.
- b. All center trees must be live conifers greater than 10 inches DBH at 90% of the locations checked.
- c. 95% of the marked trees shall be below the size threshold.
- d. At least 90% of the painted center trees must have proper banding and stump marks.
- e. No painted center trees shall be otherwise designated as leave trees.



**E. Inspection Procedures for Cruise Design and Plan: Refer to FSH 2409.12, chapters 30, 40, 50 and 60 (Attachment 2)**

Cruise Design and Plan must be reviewed and approved by a certified FS check cruiser, with final approval given by the Contracting Officer or designated representative prior to implementation.

To meet final approval the Cruise Design and Plan must contain **but not be limited to** the following elements:

- a. Method of sale (tree measurement or scaled) and target sampling errors per product.
- b. Brief description of management objective and the legal description of the project area.
- c. Estimated sale and strata volume, coefficients of variation and methods used to determine these values.
- d. Correct stratification made for each product, logging system and designation method.
- e. Choice of the appropriate cruising method.
- f. Calculations made to allocate sampling errors and numbers of samples needed per sample group and strata. Plot sizes or BAF if applicable, and selection frequencies by sample group.
- g. Minimum merchantability specifications.
- h. Written cruising instructions.

**F. Inspection Procedures of Timber Cruising: Selection of cut trees and leave trees must be within the specified tolerance of the prescription.**

The final cruise inspection must be completed by a certified Forest Service check cruiser. The check cruiser shall follow all guidelines and standards set forth in FSH 2409.12, Chapter 60. Both field measurements and data files will be evaluated during the final inspection.

The Contractor may request that the Government perform an initial field check or inspection of one or more units to ensure that cruise specifications and procedures are being followed.

Depending on the duration of the cruise, the Government will perform periodic field checks or partial inspections when the cruise is near 25% and 50% complete. Such checks will be done as a courtesy to the contractor to identify potential issues and are not necessarily an indication of overall quality. Partial payment cannot be based on these inspections because cruise results are based on the final product as-a-whole. To complete these reviews, the Contractor must supply the inspector with crew field notes and maps with cruise tree locations.

Unless otherwise agreed, Contractor must provide electronic cruise files (cruise and output) on a weekly basis for the duration of the cruise. Acceptance of the final timber cruise shall be based on all the following criteria and procedures in FSH 2409.12, chapter 60.

**Criteria:**

- a. Cruise measurements must be within a specified tolerance (see Evaluation Measures below).
- b. All measurements and defect determinations will be done in accordance with FSH 2409.12, chapters 10 and 20
- c. Cruise must be carried out as stated in cruise plan and associated approved cruiser instructions.
- d. Changes to cruise frequencies and/or other set-up parameters must be approved and documented.
- e. Unless otherwise agreed, Contractor will provide and process cruise data using the most current version of the Forest Service cruising software.
- f. If electronic files are created post-cruise and/or portions updated at a later date, they must be free of transfer/recording errors.
- g. Measure trees and plots must be properly numbered, identified on the ground, and mapped so they can be relocated in a timely manner. If check cruiser finds this deficient more than 15% of the time, based on trees and plots selected for checking, contractor must relocate all sample points and measure trees and correct the deficiencies.
- h. Documentation must be provided including cruise tree notes, defect deduction rationale, cruisers responsible for measurements, limiting distance calculations for borderline trees, GPS coordinates and/or hardcopy plot or measure tree location maps.
- i. If Contractor is responsible for cruise design and plan, the cruise strata and combined sampling errors (E %) by product must be equal to or lower than specified in the cruise plan and the cruise must meet the standards in FSH 2409.12, chapter 40.

**Evaluation:**

- a. (Criteria a. and b.) Measurements will be checked in the field. The total number of plot and tree measurements compared depends on the cruise method(s) but a minimum of 35 trees will be checked throughout the sale area, or ten plots. If the initial check does not meet minimum standards, up to ten additional trees for each major species, or ten alternate plots, will be checked. If the results are still unsatisfactory, the cruise must be reworked.

The quality of the field measurements is determined by comparing the Contractor's data with the Government's data. The compared values must be within the specified tolerances to be correct. The following elements, tolerances and error weights are used to determine the percent correct for sawtimber products:

- 1. In/Out trees correctly identified in each plot checked - Zero tolerance and a five point error weight per incorrect answer.
- 2. Species identification - Zero tolerance and a five point error weight per incorrect answer.
- 3. Measurement of tree diameter at breast height (DBH) – Tolerance = +/- 3% with a one point error if outside of the tolerance limit.

4. Measurement of total tree height - Tolerance = +/- 7.0% with a one point error weight it outside the limit.
5. Estimation of Defect. Tolerance = +/- 10.0% of the total tree defect with a one point error weight if outside the limit.

To determine the percentage correct per element, the total error (error weight multiplied by the number of incorrect answers) is divided by the number of trees checked for that element. Each inspection element must be at least 80.0% correct with an overall average of 85.0% or greater. Elements not obtaining 80% accuracy must be re-cruised. Cruises not meeting the 85% overall accuracy limit must be brought up to that level to be acceptable. Unless otherwise agreed, re-cruising of deficient portions must be done within 10 calendar days following a notification of unacceptable work.

- b. Measure tree and/or plot locations must be installed at the frequency or locations specified in the cruise plan. Products must be recorded with the specifications listed in the cruiser directions. Unique instructions such as how to record boundary plot measurements must be consistently applied.
- c. Changes to cruise frequencies and/or other set-up parameters must be approved by Contracting Officer and documented by Contractor with updated instructions distributed to field crew before implementation.
- d. Unless otherwise agreed, Contractor will provide and process cruise data using the most current version of the Forest Service cruising software and supply functional draft files on a weekly or otherwise agreed to basis.
- e. At least 10% of the data on electronic files will be compared to hand notes. If there are recording errors found, Contractor must audit entire file and provide updates.
- f. Measure trees and plots must be properly numbered, identified on the ground, and mapped so they can be relocated in a timely manner. If check cruiser finds this deficient more than 15% of the time, based on trees and plots selected for checking, contractor must relocate all sample points and correct.
- g. Documentation must be provided including cruise tree notes, defect deduction rationale, cruisers responsible for measurements, limiting distance calculations for borderline trees, GPS coordinates and/or hardcopy plot or measure tree location maps. If notes and/or tree locations are not provided to check cruiser, any differences found will be penalized.
- h. If Contractor is responsible for cruise design and plan, the Cruise strata and combined sampling errors by product (E %) must be equal to or lower than specified in the cruise plan and meet the standards in FSH 2409.12, chapter 40. If the cruise does not meet the stated statistical standards, a re-cruise of the deficient portions, at no expense to the government, must occur to bring the cruise up to standards.

#### **G. Inspection Procedures for Designation (Marking) of Cut or Leave Trees:**

The Forest Service shall inspect timber marking/designation in units the Contractor is actively working in or has just completed for compliance with contract specifications. At a minimum 10% of all marking will be checked for compliance of the following elements.

**Criteria:**

- a. Trees shall be checked for adherence to silvicultural prescription specifications.
- b. Trees shall be checked for adherence of designation above and below stump level specifications.
- c. Cruise and insurance trees marked, flagged and labeled correctly.
- d. Tracer paint checks will be done on random trees throughout the project area and must have a positive test result for the tracer element.

**Evaluation:**

Two methods may be used to evaluate marking.

**A. Walk-through method:** Shall be done throughout the performance of the contract.

Inspector will note where the inspection took place unit number, location within unit, Initials of inspector and date of inspection. At a minimum 10% of each unit will be walked through and evaluated.

1. Trees looked at will be tallied.
2. Number of trees marked meeting silvicultural prescription must be 90% or greater.
3. Number of trees missed that should have been marked with the prescription must be 10% or less.
4. Adherence to the designation; correct paint color, attention band visible on all sides, two personalized stump marks.
5. Cruise and insurance trees numbered correctly, flagged for visibility, GPS location taken accurately and labeled with correct information; tree and unit number, and cruiser's initials.

**B. Plot method:** Inspection plots will be located throughout the units to obtain at least 1 inspection plot per 10 acres of marking (i.e., 1000 acres of marking = 100 inspection plots; with a minimum of 2 plots per unit. Government inspection will follow the plot procedures as described below. *(Select a plot size that will yield an average of 4-8 cut trees per plot. Use the same plot size for all plots in a given payment unit).*

1. Plots will be placed systematically or randomly within a unit. Inspection plot center will be marked with a flag and labeled with a consecutive number starting with number 1, unit number and inspectors initials. All **IN** trees that are marked will either be dotted with paint or flagged.
2. The following factors will be considered in determining whether or not a stand has been marked to specifications. Calculation to ascertain a percentage of compliance follows:

A = Total number of trees counted within the plot (if a total tree count is desired but not necessary to insure compliance).

B = Total number of trees designated as cut trees within the plot.

C = Trees designated for cutting that should have been left based on the marking guidelines.

D = Trees designated as leave that should be cut based on the marking guidelines.

E = Cut trees not meeting marking specifications i.e. attention and stump paint application or minimum product merchantability specifications.

Calculation of Compliance Formula:

$$((B-C+D) - (C+D+E)) / (B-C+D) = \% \text{ COMPLIANCE}$$

**Example:**

**Inspected By: BAF:**

**Date:**

Plot #	A	B	C	D	E
1	15	4	0	0	0
2	19	5	0	0	1
3	24	9	1	0	0
Total	58	18	1	0	1

**Calculation of Compliance Formula:  $((18-1+0)-(1+0+1)) / (18-1+0) = 88\% \text{ Compliance}$**

3. For all units, determination of acceptability of work performed will be based on the Government inspections and shall be considered conclusive except as otherwise provided in the Contract. The inspection results of each unit will not be averaged with the results of any other units. The Contractor or a designated representative is encouraged to observe inspections while they are underway.

### **Unacceptable Marking**

- a. For all units, the Government will inform the contractor or his/her designated representative of marking inspection results within 5 working days of completion. Unacceptable work will not be accepted and shall be corrected by the Contractor at no additional cost to the Government. The Contractor shall complete all corrections for unacceptable work within 5 working days following notification of unacceptable work. Each unit shall be at a satisfactory level of acceptance before the contractor can start marking another unit.
- b. Marking quality below 80% on any unit is unacceptable and shall be re-worked prior to starting a new unit.

### **Government-Furnished Property**

The Government will provide the following item(s) of Government property to the Contractor for use in the performance of this contract. This property shall be used and maintained by the Contractor in

accordance with the provisions of the "Government Property" FAR clause contained elsewhere in the contract.

1. Tree Marking Paint with registered tracer and material safety data sheet (refer to accountability standards listed below).
2. PDF map of the project area.
3. GIS data (i.e. shapefiles).
4. Sale Area Boundary Tags
5. Forest Service Handbook 2409.12, Chapters 10, 20, 30, 40, 50, 60 and 70
6. Layout Cards
7. Stanislaus Timber Theft Prevention Plan
8. R5\_Cruisers Reference Guide
9. Final Environmental Impact Statement
10. Treatment Prescriptions

**Tree Marking Paint – Accountability and Handling  
(STTPP and FSH 2409.12, chapter 70 (Attachment 2)).**

- A. Disposal of Tracer Paint Containers –Empty tracer paint containers shall be returned to the Forest Service for disposal. Paint cans shall be returned to their proper box, upside down, and have the lids left off to dry out before returning to the Forest Service. Lids will be disposed of separately in the conventional fashion.

**List of Documents, Exhibits, and Other Attachments**

Attachment #	Description	# of Pages
1	Project Area Map	1
2	STF Timber Theft Prevention Plan (STTPP)	9
	R5_Cruisers Reference Guide	46
	FSH_2409.12_chapter 10	28
	FSH_2409.12_chapter 20	10
	FSH_2409.12_chapter 30_1	27
	FSH_2409.12_chapter 30_2	27
	FSH_2409.12_chapter 30_3	70
	FSH_2409.12_chapter 40	16
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	FSH_2409.12_chapter 60	14
	FSH_2409.12_chapter 70	12
3	Final Environmental Impact Statement	172
4	Treatment Prescriptions	3
5	Blank Layout Card	2