

SPECIFICATIONS PURSUANT TO C2.35# - DESIGNATION OF TIMBER. CUTTING UNIT BOUNDARIES, AND SUBDIVISION/PAYMENT UNIT BOUNDARIES

Timber Designation Table

<u>Cutting Unit/ Subdivision/Area/ Payment Unit</u>	<u>Tree Paint Color</u>	<u>Designation or Specification</u>
N/A		Hazard Tree.
N/A		Individual Tree Mark.
N/A		Leave Tree Mark.
N/A		Wildlife Trees.
N/A		Marked Out Trees.
N/A		Designation by Spacing C2.351#
N/A		Designation by Species and Diameter, C2.352#
N/A		Designation by Damage Class, C2.353#
N/A		Designation by Row Spacing, C2.354#
All Cutting Units		Designation by Prescription, C2.355#

Subdivision/Payment Unit and Cutting Unit Boundary Designation Table

<u>Subdivision/Payment Unit</u>	<u>Boundary Paint Color</u>	<u>Boundary Designation</u>
<u>Cutting Unit</u>	<u>Boundary Paint Color</u>	<u>Boundary Designation</u>
All Cutting Units	Orange	<p>Unit boundary segments from roads are designated with orange painted vertical stripes, yellow unit boundary tags, unit corner tags, and roads as shown on the Sale Area Map.</p> <p>The exterior unit boundaries that are parrallel from roads are not designated with paint, flagging, or tagged. Units will not extend beyond 300 feet uphill and 150 feet downhill.</p> <p>Painted cutting unit boundary trees are designated with three vertical painted stripes and two butt marks. Middle stripe faces into the unit.</p> <p>Equipment Exclusion Zones are flagged in yellow and white striped flagging with "Equipment Exclusion" in black letters, Yellow "Equipment Exclusion Zone" signs.</p>

Table A - Prescriptive Criteria (C2.355#):

Within Subdivision(s) or cutting unit(s) all cutting units, as shown on sale area map, the following criteria shall be used by Purchaser to designate trees for cutting and removal:

(a) All conifers greater than 14-inches diameter at breast height that meet the Hazard Tree Guidelines for Forest Service Facilities and Roads in the Pacific Southwest Region (Angwin et al 2012) as defined below.

1. Hazard Tree Definition:

- i. Hazards include dead (no green needles) or dying trees, dead parts of live trees, or unstable live trees (due to structural defects or other factors) that are within striking distance of [the road].
- ii. All dead trees that meet minimum utilization standards and Distance from Road criteria below are considered hazards to be removed.
- iii. Dying trees are considered hazards to be removed when they have a high failure potential and meet minimum utilization standards as well as Distance from Road criteria below. Guidelines to determine high failure potential are as follows:
 1. Fire injury with deep charring when the relationship between deep char and cambial mortality has been confirmed:
 - a. Deep charring over more than 1/3 of bole circumference in WF
 - b. Deep charring over more than 1/2 of bole circumference in DF, PP, JP, SP, IC
 2. Cracks that go completely through stem or branch, a stem with two cracks, a crack in contact with visible decay indicators or at the base of a leaning tree.
 3. Less than 1/3 of the tree's diameter (or radius) is sound; additional sound wood may be needed if the tree is leaning or if connected to another defect. Indicators include:
 - a. Decay fungus such as:
 - i. Schweinitzii root and butt rot/velvet top/cow pie fungus conks on DF
 - ii. Five or more red ring rot conks on DF, PP, JP, WF
 - iii. One or more quinine conks on DF, PP, JP, SP
 - iv. One or more sulfur fungus ("chicken of the woods") on any conifer
 - b. Cankers with associated fruiting bodies or internal decay; basal cankers in WF that affect more than 1/3 circumference
 4. Recently leaning trees, or trees with evidence of recent root-lifting, soil movement mounding near the base of the tree, or broken/decayed roots; trees with greater than 1/2 of root system undermined by erosion or excavation.

2. Distance from Road (i.e. target potential):
 - i. On uphill side of road, hazard trees designated for removal are within two-tree lengths from road prism, not to exceed 300 feet uphill of road (horizontal distance).
 - ii. On downhill side of road, hazard trees designated for removal are within one-tree length of road prism, not to exceed 150-feet downhill of road (horizontal distance).
3. Included Species: Douglas-fir (DF), ponderosa pine (PP), Jeffery pine (JP), sugar pine (SP), white fir (WF) and incense cedar (IC)

C5.31# Contract Road Maintenance Requirements Summary

Road	Termini		Miles	Applicable Prehaul Road Maintenance Specifications									
	From	To		801	802	803	804	805	806	807	808	809	810
35N05YC	35N05Y	MP 1.60	1.60			P				P			
35N05Y.1	35N77	MP 1.0	1.00										
35N05Y.2	MP 1.0	MP 2.2	1.20										
35N05Y.3	MP 2.2	MP 2.33	0.13										
35N05Y.4	MP 2.33	2.69	0.36										
35N77A	35N77	END RD	0.80										
35N77.1	8G012	MP 3.00	3.00					P					
35N77.2	MP 3.0	MP 4.5	1.50					P					
35N77.3	MP 4.5	MP 5.29	0.79					P					
35N77.4	MP 5.29	MP 7.29	2.0					P					
35N77.5	MP 7.29	MP 8.29	1.0					P					
35N77.6	MP 8.29	MP 13.29	5.0					P					
35N89	35N77	END Unit 32	0.30			P				P			
35N88.1	3N77	MP 0.35	0.35			P				P			
35N88.2	MP 0.35	MP 0.70	0.35			P				P			
35N88A	35N77	END RD	0.36			P				P			

P = Purchaser Performance Item, D = Deposit to Forest Service, D3 = Deposit to Third Party

Road	Termini		Miles	Applicable During Road Maintenance Specifications									
	From	To		801	802	803	804	805	806	807	808	809	810
35N05YC	35N05Y	MP 1.60	1.60			P			P				
35N05Y.1	35N77	MP 1.0	1.00			P			P				
35N05Y.2	MP 1.0	MP 2.2	1.20			P			P				
35N05Y.3	MP 2.2	MP 2.33	0.13			P			P				
35N05Y.4	MP 2.33	2.69	0.36			P			P				
35N77A	35N77	END RD	0.80			P			P				
35N77.1	8G012	MP 3.00	3.00			P			P				
35N77.2	MP 3.0	MP 4.5	1.50			P			P				
35N77.3	MP 4.5	MP 5.29	0.79			P			P				
35N77.4	MP 5.29	MP 7.29	2.0			P			P				
35N77.5	MP 7.29	MP 8.29	1.0			P			P				
35N77.6	MP 8.29	MP 13.29	5.0			P			P				
35N89	35N77	END Unit 32	0.30			P			P				
35N88.1	3N77	MP 0.35	0.35			P			P				
35N88.2	MP 0.35	MP 0.70	0.35			P			P				
35N88A	35N77	END RD	0.36			P			P				

P = Purchaser Performance Item, D = Deposit to Forest Service, D3 = Deposit to Third Party

Road	Termini		Miles	Applicable Post Road Maintenance Specifications									
	From	To		801	802	803	804	805	806	807	808	809	810
35N05YC	35N05Y	MP 1.60	1.60			P							
35N05Y.1	35N77	MP 1.0	1.00			P							
35N05Y.2	MP 1.0	MP 2.2	1.20			P							
35N05Y.3	MP 2.2	MP 2.33	0.13			P							
35N05Y.4	MP 2.33	2.69	0.36			P							
35N77A	35N77	END RD	0.80			P							
35N77.1	8G012	MP 3.00	3.00			P							
35N77.2	MP 3.0	MP 4.5	1.50			P							
35N77.3	MP 4.5	MP 5.29	0.79			P							
35N77.4	MP 5.29	MP 7.29	2.0			P							
35N77.5	MP 7.29	MP 8.29	1.0			P							
35N77.6	MP 8.29	MP 3.29	5.0			P							
35N89	35N77	END Unit 32	0.30			P							
35N88.1	3N77	MP 0.35	0.35			P							
35N88.2	MP 0.35	MP 0.70	0.35			P							
35N88A	35N77	END RD	0.36			P							

P = Purchaser Performance Item, D = Deposit to Forest Service, D3 = Deposit to Third Party

Road Maintenance T-Specifications

for

Timber Sale Contracts

To be used with Timber Sale Contract Form 2400-6/6T, C/CT5.4

Applicable T-Spec.	No.	Specification Title
X	T-800	Definitions
	T-801	Slide and Slump Repair
	T-802	Ditch Cleaning
X	T-803	Surface Blading
	T-804	Surfacing Repair
X	T-805	Drainage Structures
X	T-806	Dust Abatement
X	T-807	Roadway Vegetation
	T-808	Miscellaneous Structures
	T-809	Waterbars
	T-810	Barriers
	T-811	Surface Treatment

SPECIFICATION T-800 DEFINITIONS

Wherever the following terms or pronouns are used in Specifications T-801 through T-811, 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 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, 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 - Prehaul Maintenance. Road maintenance work which the Purchaser determines 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 B6.22 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. Prehaul 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 on the Road Maintenance Map 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 is keeping a native or aggregate Roadbed in a condition to facilitate traffic and provide proper drainage. It includes maintaining the Crown, Inslope or Outslope of the Traveled Way, Turnouts, and Shoulder; repairing Berms; blending approach road intersections; and cleaning bridge decks, Drainage Dips, and Lead-off Ditches.

REQUIREMENTS

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

3.2 The surface blading shall preserve the existing cross-section. Surface irregularities shall be eliminated and the surface left in a free-draining state and to a smoothness needed to facilitate traffic. 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 Water, taken from Water Sources designated on Sale Area Map, shall be applied during blading if sufficient moisture is not present to cut, mix, or compact the surface Material.

3.4 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 otherwise.

3.5 Roadway backslopes or Berms shall not be undercut, nor shall new Berms be established unless agreed otherwise.

Berms shall be repaired by placing Material, as needed to restore the Berm, to reasonably blend with existing line, grade, and cross-section.

3.6 Drainage Dips and Lead-off Ditches shall be cleaned and maintained to reasonably blend with existing line, grade, and cross-section.

3.7 Intersecting roads shall be bladed for a distance of 50 feet to assure proper blending of the two riding surfaces.

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. The oversized Material shall be disposed of by sidecasting, unless shown otherwise on Sale Area Map. Sidecasting into streams, lakes, or water courses will not be permitted.

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

3.10 Material resulting from work under this specification, plus any accumulated debris, shall be removed from bridge decks and the deck drains opened.

SPECIFICATION T-805 DRAINAGE STRUCTURES

DESCRIPTION

1.1 This work consists of maintaining Drainage Structures and related items such as inlet and outlet channels, existing riprap, trash racks, and dropinlets.

MATERIALS

2.1 All Materials used in the maintenance of Drainage Structures shall conform by type and specification to the Material in the structure being maintained.

REQUIREMENTS

3.1 Drainage Structures and related items shall be cleared of all foreign Material which has been deposited above the bottom of the structure and all vegetative growth which interferes with the flow pattern. Material removed that cannot be incorporated into maintenance work shall be hauled to a disposal site shown on Sale Area Map.

3.2 If outlet or inlet riprap was installed by Purchaser as a construction item or existed prior to Purchaser's haul, it shall be maintained in good condition including the replacement of riprap if necessary to previous line, grade, and cross-section.

3.3 Perform maintenance to insure the proper functioning of the head walls, aprons, inlet assemblies, overside drains, riprap, trash racks, and other facilities related to the Drainage Structure.

SPECIFICATION T-806 DUST ABATEMENT

DESCRIPTION

1.1 This work shall consist of preparing Traveled Way and furnishing and applying Materials to abate dust.

MATERIALS

2.1 The roads requiring dust abatement, type of dust abatement Material to be used, the rates of application, and frequency of applications will be shown on Dust Abatement Plan. The Dust Abatement Plan may be changed by written Agreement.

2.2 Water. The locations of Water Sources are shown on Contract Area Map.

Operating Guidelines:

1. Operations are restricted to one hour after sunrise to one hour before sunset.
2. Pumping rate shall not exceed 350 gallons per minute.
3. The pumping rate shall not exceed ten percent of the stream flow.
4. Seek streams and pools where water is deep and flowing, as opposed to streams with low flow and small isolated pools.
5. Pumping shall be terminated when the tank is full. The effect of single pumping operations, or multiple pumping operations at the same location, shall not result in obvious draw-down of either upstream or downstream pools.
6. Each pumping operations shall use a fish screen. The screen face should be oriented parallel to flow for best screening performance. The screen shall be designed and used such that it can be submerged with at least one-screen-geight clearance above and below the screen.
7. Operators shall keep a log on the truck containing the following information:
 - a. Operator's Name
 - b. Date
 - c. Time
 - d. Pump Rate
 - e. Filling Time
 - f. Screen Cleaned (Y or N)
 - g. Screen condition
 - h. Comments
 - i. Copy of completed logs will be mailed to:
Shasta-Trinity National Forest
Attn: Hydrologist
3644 Avtech Parkway
Redding, CA. 96002

Screen Construction Criteria:

1. Surface Area:
 - a. The total (unobstructed) surface area of the screen shall be at least 2.5 square feet, based on the upper limit of pumping of 350 gpm. Larger surface areas are recommended where debris buildup is anticipated, and where stream depth is adequate to keep the screen submerged at approximately middepth.

2. Screen Mesh:

- a. Screen Mesh must be in good repair and present a sealed, positive barrier effectively preventing entry of the "design fish" into the intake. The design fish in this case is an immature (20-30mm) salmon or steelhead fry.
- b. The screen mesh size shall be: round openings - maximum 3/32 inch diameter (.09 inch)
- c. Square openings - maximum 3/32 inch diagonal (.09 inch)
- d. Slotted openings - maximum 1/16 inch width (.07 inch)

3. Screen Design:

- a. Water drafting screens maybe off-the-shelf products, but they are often custom-made devices appropriate to the scale and duration of pumping operation. To keep the screen supported and correctly positioned in the water column, adjustable support legs are advised. Screen geometry can be configured either as rectangular or cylindrical, e.e. as a shallow "box-shape" or tubular.
- b. The intake structure shall be designed to promote uniform velocity distribution at all external mesh surfaces. This can be accomplished with a simple internal baffle devise that distributes the flow evenly across the entire surface of the screen. In order to accomplish this, the designer needs to understand the hydraulic characteristics of these devices. There is a tendency for most of the intake water to enter the screen near the hose end, so a typical internal baffle would consist of a pipe (or manifolded set of pipes) which have variable porosity holes at predetermine spacing. We recommend starting near the hose end with approximately 5 - 10% average open area, and gradually increasing the porosity toward the length of the scen. At a point where screen length exceeds three times the diameter of the suction hose, the baffling effect tends to diminish rapidly. At this point the baffle porosity may approach 100%. A successful baffle system will functionally distribute flow to all areas of the screen. A poorly designed screen may result in high-velocity "hot spots", which could lead to fish impingement on the screen face.
- c. Hydraulic testing of prototype screen designs is recommended where the application is on-going and extensive.

4. Screen Structure:

- a. The screen frame must be strong enough to withstand the hydraulic forces it will experience. However, the structural frames, braces, and other elements that block the flow, change flow direction, or otherwise decrease the screen surface area should be minimized.

5. Screen Cleaning:

- a. The screen shall be cleaned as often as necessary to prevent approach velocity from exceeding 0.33 feet per second. Operators should withdraw the screen and clean it after each use, or as necessary to keep screen face free of debris. Pumping should stop of screen cleaning when approximately fifteen percent or more of the screen area is occluded by debris. A suitable brush shall be on board the truck for this cleaning operation.

- b. If the operator notes (1) impingement of any juvenile fish on the screen face or (2) entrainment of any fish through the screen mesh, he/she should stop operations and notify the Department of Fish & Game and/or NMFS hydraulic engineering staff:

National Marine Fisheries Service
 Engineering Section
 777 Sonoma Avenue, Suite 325
 Santa Rosa, CA 95404
 (707) 575-6050

2.3 Dust abatement Materials shall meet the requirements of the following subsections of Forest Service Specifications for Construction of Roads and Bridges or attached Special Project Specifications.

Emulsified Asphalt	702
Blotter Material	703.12
Magnesium or Calcium Chloride Brine	723.01
Calcium Chloride Flake	723.02
Lignin Sulfonate	723.03

2.4 Testing of Materials. Certification and sampling of bituminous Materials lignin sulfonate, and magnesium chloride shall be in accordance with subsections 105.04 or 723.04 of Forest Service Specifications for Construction of Roads and Bridges.

REQUIREMENTS

3.1 General. Dust abatement Materials shall be applied to the road surface as necessary to control road surface loss, provide for road user safety, and minimize damage to adjacent resources.

3.2 Compaction. When the methods listed below specify compaction, Traveled Way shall be compacted by an 8 to 10 ton pneumatic, steel-wheeled or equivalent vibrating roller making 2 passes over the full Traveled Way and Shoulder width, unless compaction is not required on the Dust Abatement Plan (C/CT5.31).

3.3 Preparation to Dust Abatement Materials Other Than Water. The following applies to all methods of preparation:

Bituminous residue shall be scarified and pulverized to produce loosened Material not exceeding 4 inches in greatest dimension.

Traveled Way shall be bladed in accordance with T-803.

Prior to applying DO-6BA, DO-6PA, or DO-8, the top 2 inches of Traveled Way shall contain not less than 80 percent nor more than 120 percent of optimum moisture as determined by AASHTO T-99, Method C. Prior to applying other bituminous Material, Traveled Way shall have a moisture content between 1 and 3 percent.

If surface dusting prevents the bituminous Material from penetrating, a light application of water shall be applied just prior to applying the bituminous Material.

Lignin Sulfonate and magnesium chloride shall be applied when the top 1 inch of Traveled Way contains not less than 3 percent moisture, nor more than 120 percent of optimum moisture as determined by AASHTO T-99, Method C.

Moisture content will be determined in accordance with AASHTO T-217 OR T-239.

One or more of the following methods shall be used, as specified in the Dust Abatement Plan (CT5.31).

Method 1. Compact Traveled Way and apply the dust abatement Material.

Method 2. Develop a layer of loose Material approximately 1 inch in depth for the full width of Traveled Way. Apply the dust abatement Material to this loose Material and compact after penetration. If traffic makes maintenance of the loose Material difficult, 1 inch of the Material may be bladed into a windrow along the Shoulder. The specified moisture content shall be maintained in the windrow and the top 1 inch of Traveled Way. The windrow shall be bladed to a uniform Material. When the dust abatement Material has penetrated, Traveled Way shall be compacted.

Method 3. Blade 1 inch of Material from Traveled Way into a windrow along the Shoulder. Maintain the specified moisture content in the windrow and the top inch of Traveled Way. Apply half the dust abatement Material. When the dust abatement Material has penetrated, the windrow shall be bladed to a uniform depth across dust abatement Traveled Way, and the remaining dust abatement Material shall be applied. Traveled Way shall be compacted.

Method 4. Develop a layer of loose Material approximately 2 inches in depth for the full width of Traveled Way. Apply half the dust abatement Material to the loose Material. Blade the top 2 inches into a windrow along the Shoulder. Apply the remaining dust abatement Material to Traveled Way and the Berm. Spread the Berm evenly across Traveled Way and compact.

3.4 Preparation for Dust Abatement with Water. Traveled Way shall be prepared in accordance with Specification T-803 Surface Blading when required.

3.5 Application Tolerance. Dust abatement Materials other than water shall be applied within 0.05 gallons per square yard of the rate specified.

3.6 Mixing Requirements. DO-6BA, DO-6PA, and DO-8 shall be thoroughly circulated in the distributor within 1 hour of application.

3.7 Weather Limitations. Dust abatement Materials shall not be applied when it is raining.

Bituminous Material shall be applied when the surface temperature of Traveled Way is 50 degrees Fahrenheit or higher.

Lignin sulfonate and magnesium chloride shall be applied when the atmospheric temperature is 40 degrees Fahrenheit or higher.

3.8 Blotter Material. Blotter Material shall be spread in a sufficient quantity to prevent tire pickup.

Dust Abatement Plan (C5.31#) (T-806) (7/01)

Road Segment	Material		Frequency			Prep. Method	Wt. Vol. Conversion Factor
	Type or Grade	Application Rate Initial	Application Rate Subsequent	of Subsequent Application			
35N05YC	WATER	N/A	N/A	*SEE BELOW	**SEE BELOW		N/A
35N05Y.1	WATER	N/A	N/A	*SEE BELOW	**SEE BELOW		N/A
35N05Y.2	WATER	N/A	N/A	*SEE BELOW	**SEE BELOW		N/A
35N05Y.3	WATER	N/A	N/A	*SEE BELOW	**SEE BELOW		N/A
35N05Y.4	WATER	N/A	N/A	*SEE BELOW	**SEE BELOW		N/A
35N77A	WATER	N/A	N/A	*SEE BELOW	**SEE BELOW		N/A
35N77.1	WATER	N/A	N/A	*SEE BELOW	**SEE BELOW		N/A
35N77.2	WATER	N/A	N/A	*SEE BELOW	**SEE BELOW		N/A
35N77.3	WATER	N/A	N/A	*SEE BELOW	**SEE BELOW		N/A
35N77.4	WATER	N/A	N/A	*SEE BELOW	**SEE BELOW		N/A
35N77.5	WATER	N/A	N/A	*SEE BELOW	**SEE BELOW		N/A
35N77.6	WATER	N/A	N/A	*SEE BELOW	**SEE BELOW		N/A
35N89	WATER	N/A	N/A	*SEE BELOW	**SEE BELOW		N/A
35N88.1	WATER	N/A	N/A	*SEE BELOW	**SEE BELOW		N/A
35N88.2	WATER	N/A	N/A	*SEE BELOW	**SEE BELOW		N/A
35N88A	WATER	N/A	N/A	*SEE BELOW	**SEE BELOW		N/A

* If water is used - Complete abatement once for each hauling day shall satisfy this requirement, except that when production exceeds 10 loads per operating day, water shall be applied to dusting roads through the day while hauling. Regardless of production road surface will be protected and safety standards will be met.

** Preparation method for water - Preparation shall be in accordance with the specification T-806 Dust Abatement.

SPECIFICATION T-807 ROADWAY VEGETATION

DESCRIPTION

1.1 This work includes removal of brush and trees from within the Roadway limits.

REQUIREMENTS

3.1 Vegetative matter within the Roadway which impedes vehicular travel or interferes with road maintenance operations, such as surface blading and ditch and culvert cleaning shall be removed. Downed timber meeting utilization standards shall be cut in appropriate lengths and decked along the Roadside in locations where the Traveled Way or sight distances will not be impaired.

3.2 Vegetative matter removed from the Roadway shall be treated by the specified method shown on Sale Area Map and as required by C/CT6.7.

SPECIFICATIONS PURSUANT TO C5.35# - REQUIREMENTS OF ROAD AND WATER SUPPLY USE

<p>Load Limitations</p>	<p>Purchaser shall notify Forest Service in writing of the planned size and load distribution for equipment which exceeds the State of California Vehicle Code legal size and weight, and the National Forest System roads to be used. Such notice may be part of plan of operation under B6.311. Within 15 days after receipt of the written notice Forest Service shall notify Purchaser in writing of any regulations or restrictions that may be needed to protect National Forest Transportation Facilities.</p> <p>A written permit shall be required for moving any vehicle which is in excess of the established legal size and weight which is not listed in the above plan, except as may be authorized in prior written agreements.</p>
<p>Existing Non-National Forest System Roads</p>	<p>Roads not shown on Sale Area Map may be used as Temporary Roads if there is agreement before use is started.</p>
<p>Snow Removal</p>	<p>If Purchaser removes snow from roads, such work shall be done with Forest Service approval and in a manner that will protect roads and adjacent resources.</p> <p>Snow berms shall be removed or placed to avoid accumulation of melt water on the road and prevent water concentration on erosive slopes or soils.</p> <p>Snow must not be removed to the road surface. A minimum <u>4</u> inch snow depth must be left to protect the roadway. If the road surface is damaged, Purchaser shall replace lost surface material and repair structures damaged in blading operations prior to hauling, unless climatic conditions prevent necessary work from being accomplished or as otherwise agreed in writing.</p> <p>Single lane roads shall be plowed full width including turnouts. In event double lane roads are not plowed to full width, warning signs shall be required and plowing shall be no less than single lane (12 feet) with intervisible turnouts.</p>
<p>Water Supply Deposits</p>	<p>N/A</p>

Surface Replacement Deposits	<p>Purchaser shall make Required Deposits for deferred surface replacement (16 U.S.C. 537) for use of existing surfaced roads. If applicable, such deposits shall be based upon the volume and distance hauled on the roads and at the applicable rates listed in the table below titled Surface Replacement Deposit Schedule. If Purchaser uses surfaced roads under jurisdiction of Forest Service other than those listed, Forest Service may establish applicable rates for such surfaced roads.</p> <p style="text-align: center;">SURFACE REPLACEMENT DEPOSIT SCHEDULE</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Road No.</th> <th style="text-align: left;">From</th> <th style="text-align: left;">To</th> <th style="text-align: left;">Miles</th> <th style="text-align: left;">Rate</th> </tr> </thead> <tbody> <tr><td>35N05YC</td><td>35N05Y</td><td>MP 1.60</td><td>1.60</td><td>\$0.221</td></tr> <tr><td>35N05Y.1</td><td>35N77</td><td>MP 1.0</td><td>1.00</td><td>\$0.307</td></tr> <tr><td>35N05Y.2</td><td>MP 1.0</td><td>MP 2.2</td><td>1.20</td><td>\$0.288</td></tr> <tr><td>35N05Y.3</td><td>MP 2.2</td><td>MP 2.33</td><td>0.13</td><td>\$0.008</td></tr> <tr><td>35N05Y.4</td><td>MP 2.33</td><td>2.69</td><td>0.36</td><td>\$0.015</td></tr> <tr><td>35N77A</td><td>35N77</td><td>END RD</td><td>0.80</td><td>\$0.030</td></tr> <tr><td>35N77.1</td><td>8G012</td><td>MP 3.00</td><td>3.00</td><td>\$2.283</td></tr> <tr><td>35N77.2</td><td>MP 3.0</td><td>MP 4.5</td><td>1.50</td><td>\$0.625</td></tr> <tr><td>35N77.3</td><td>MP 4.5</td><td>MP 5.29</td><td>0.79</td><td>\$0.329</td></tr> <tr><td>35N77.4</td><td>MP 5.29</td><td>MP 7.29</td><td>2.00</td><td>\$0.808</td></tr> <tr><td>35N77.5</td><td>MP 7.29</td><td>MP 8.29</td><td>1.00</td><td>\$0.280</td></tr> <tr><td>35N77.6</td><td>MP 8.29</td><td>MP 13.29</td><td>5.00</td><td>\$0.668</td></tr> <tr><td>35N89</td><td>35N77</td><td>END Unit 32</td><td>0.80</td><td>\$0.000</td></tr> <tr><td>35N88.1</td><td>3N77</td><td>MP 0.35</td><td>0.35</td><td>\$0.000</td></tr> <tr><td>35N88.2</td><td>MP 0.35</td><td>MP 0.70</td><td>0.35</td><td>\$0.000</td></tr> <tr><td>35N88A</td><td>35N77</td><td>END RD</td><td>0.36</td><td>\$0.012</td></tr> </tbody> </table> <p style="text-align: center;">Sale Area Average Rate: \$ <u>5.88</u> MBF</p> <p>FSSR01 = \$0.00</p> <p>863001 = \$5.88</p>	Road No.	From	To	Miles	Rate	35N05YC	35N05Y	MP 1.60	1.60	\$0.221	35N05Y.1	35N77	MP 1.0	1.00	\$0.307	35N05Y.2	MP 1.0	MP 2.2	1.20	\$0.288	35N05Y.3	MP 2.2	MP 2.33	0.13	\$0.008	35N05Y.4	MP 2.33	2.69	0.36	\$0.015	35N77A	35N77	END RD	0.80	\$0.030	35N77.1	8G012	MP 3.00	3.00	\$2.283	35N77.2	MP 3.0	MP 4.5	1.50	\$0.625	35N77.3	MP 4.5	MP 5.29	0.79	\$0.329	35N77.4	MP 5.29	MP 7.29	2.00	\$0.808	35N77.5	MP 7.29	MP 8.29	1.00	\$0.280	35N77.6	MP 8.29	MP 13.29	5.00	\$0.668	35N89	35N77	END Unit 32	0.80	\$0.000	35N88.1	3N77	MP 0.35	0.35	\$0.000	35N88.2	MP 0.35	MP 0.70	0.35	\$0.000	35N88A	35N77	END RD	0.36	\$0.012
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SCHEDULE PURSUANT TO C6.315# - SALE OPERATIONS SCHEDULE (8/2006)

<u>Subdivision/ Area/Unit</u>	<u>Conditions of Operation</u>	<u>Purpose</u>
Sale Area	Purchaser is to complete one subdivision prior to moving into another subdivision, unless otherwise agreed.	Control of operations
Cutting Units: 161, 163, 164	No operations from February 1 st through July 9 th . This restriction may be waived upon current year survey determinations and written Forest Service approval.	Protection of wildlife during nesting/breeding

SPECIFICATIONS AND TREATMENTS PURSUANT TO C6.41# - FELLING, BUCKING AND LIMBING

Treatment Method and Applicable Map Symbol	<u>Felling, Bucking and Limbing Specifications</u>								
Limbing	Outside of construction clearings, Clearcutting Units and regeneration units, unless otherwise provided by B6.414, Purchaser shall, prior to skidding/yarding operations, cut exposed limbs from products which are to be skidded/yarded. Such limbing of stems shall be done to a top diameter of approximately <u>8</u> inches, at which point the top shall be cut from the remainder of the stem.								
No Lop "No Lop"	N/A								
Whole Tree Yarding "Whole"	N/A								
Directional Felling "DF"	Within areas designated DF on Sale Area Map, Included Timber shall be directionally felled away from <u>Private Property, Roads, Site Specific Protection Areas, Streamcourses, improvements, and Survey Monuments</u> with the use of specialized equipment. Such directional felling shall not be required when in the faller's judgment it is unsafe to do so, and shall be left standing.								
Treatment of Stumps "TS"	N/A								
Maximum Log Length	N/A								
Minimum Stump Height	<table border="1"> <thead> <tr> <th data-bbox="548 1419 829 1493">Unit/Subdivision</th> <th data-bbox="837 1419 1109 1493">Minimum Stump Height (inches)</th> <th data-bbox="1117 1419 1388 1493">Purpose or Reason</th> </tr> </thead> <tbody> <tr> <td data-bbox="548 1503 829 1535">All Units</td> <td data-bbox="837 1503 1109 1535">4 inches</td> <td data-bbox="1117 1503 1388 1535">Accountability</td> </tr> </tbody> </table>			Unit/Subdivision	Minimum Stump Height (inches)	Purpose or Reason	All Units	4 inches	Accountability
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Ground-Based Skidding Table - C6.42#

Map Symbol	Requirements
TRAC	<p>Skid road pattern shall be agreed in advance of felling and main skid roads shall be flagged on the ground in advance of felling. Purchaser shall stage-log by felling and skidding Included Timber in two or more separate operations when necessary to prevent undue damage to the resources or residual stand. Needed tractor trails shall be constructed in advance of skidding.</p> <p>Products shall be end-lined as needed to protect resources or residual timber from unnecessary damage. The number of chokers shall be limited as necessary to avoid unnecessary damage to resources or residual timber. By agreement, tractors may be used to separate products to prevent stain.</p>
SUSP	Products shall be skidded with leading end clear of ground.
SPACE	Skid roads will average <u>120</u> feet from center to center, except where converging.
ENDL	Endlining shall not be required for distances in excess of <u>75</u> feet uphill, and <u>100</u> feet downhill.
MAX	N/A
MH	N/A
CTL	N/A
PB	N/A
HCTL	N/A

SPECIFICATIONS PURSUANT TO C6.6# - EROSION PREVENTION AND CONTROL.

Vegetative Soil Stabilization Where soil has been disturbed by Purchaser's Operations and the establishment of vegetation is needed to minimize erosion, Purchaser shall take appropriate measures normally used to establish an adequate cover of grass or other vegetation acceptable to Forest Service or take other agreed stabilization measures. Forest Service shall designate on the ground such disturbed areas annually as logging and Temporary Road construction are completed.

Forest Service upon request shall provide advice as to soil preparation and the application of suitable seed mixtures, mulch and fertilizer and the timing of such work. In no event shall Purchaser be required to treat more acres than that shown in the legend of Sale Area Map.

Purchaser shall use the type of native seed mixtures, mulch, and fertilizer as listed below:

Seed Mix	Pounds/Acre	Type of Mulch	Fertilizer
		Logging Slash or State of California Certified Weed Free Straw	

Special Erosion Prevention Measures N/A

Soil Scarification. N/A

Backblading N/A

Tillage In addition to meeting the requirements of B6.64, unless otherwise agreed in writing, tillage shall be required on the areas listed in the following table.

Tillage shall be accomplished by equipment that will lift and fracture the soil by vertical and lateral shattering, leaving soil loosened through the full width and depth of the compacted layer with the topsoil remaining substantially in place rather than being inverted.

Tillage depth is shown in the following table. Agreement in writing may be made to a lesser depth if rocks or other limiting site conditions are encountered.

Tillage shall be limited to periods when soil dryness will result in crumbled soil, avoiding the formation of large clods. Purchaser and Forest Service shall agree in writing on the timing of completion of such work to coordinate with desirable soil moisture conditions.

Areas to Till	Tillage Depth (Inches)	Maximum Acres to Treat
Landings	18	5
Main Skid Roads and Tractor Roads designated by Forest Service	18	1
Temporary Roads	N/A	

SPECIFICATIONS PURSUANT TO C6.7# - SLASH TREATMENT (8/2006)

Specified slash treatment methods shall be shown on Sale Area Map or listed in the following tables by the following symbols:

Slash Treatment Methods

<u>Symbol</u>	<u>Method</u>	<u>Definition</u>
Buck-L	"Bucking Large Logging Slash"	N/A
Buck-P Bury	"Bucking and Piling" "Burying"	N/A
Chip	"Chipping"	N/A
Deck	"Decking" large material	Logging Slash <u>8</u> inches or larger in large end d.o.b. and <u>10</u> feet or more in length shall be Decked for disposal by Forest Service by piling pieces parallel to each other.
Mach	"Machine Piling"	Concentrations of Logging Slash, excluding scattered individual pieces, shall be Machine Piled by tractor equipped with brush rake for disposal by Forest Service.
Pile	"Piling" small material	N/A
Remove	"Removing"	N/A
Scat 18" Scat 30"	"Scattering"	Logging Slash shall be scattered to reduce slash concentrations with slash being generally left within 18 or 30 inches of the ground as shown on Sale Area Map. Logging Slash shall be scattered into openings away from and without unnecessary damage to residual trees. All scattered logs shall be limbed, placed away from trees and positioned so they will not roll. When Scattering is specified, another method may be used by agreement.
Stack	"Stacking" small material	N/A

View	"Visible Slash Treatment"	N/A
YUMD	"Yarding Unutilized Material-Decking"	N/A
YUME	"Yarding Unutilized Material-Exterior Boundary"	N/A
YUML	"Yarding Unutilized Material-Landing"	N/A
YUMR	"Yarding Unutilized Material-Removal"	N/A
Cover	"Covering Piles"	All piles shall be covered with a durable waterproof covering as approved by Forest Service. The material shall be at least six feet in width. Piles shall not be less than fifty percent covered, with the covering extending not less than half way down all sides. Pieces of burnable material shall be placed on top of the durable waterproof covering to keep the covering from blowing off the pile.
Fell	"Damaged Small Trees"	N/A
Fire-L	"Firelines"	N/A
Fuel-B	"Fuelbreaks"	N/A

PILING SPECIFICATIONS. All piles shall be reasonably compact and free of soil to facilitate burning and shall be constructed of such size and at such distance from trees so that burning shall not result in unnecessary damage to residual timber. Such Logging Slash shall be bucked into lengths not exceeding ten feet prior to piling. Maximum width of tractor, with brush rake attached, shall not exceed N/A inches. Machine Piling is not required on areas where use of tractors would cause undue damage to residual timber or where slopes exceed N/A percent. Piles shall be located a distance of at least twice their height in feet from the outer edge of tree crowns or snags. Piles shall be no less than four feet in height or greater than N/A feet in height. Material extending three feet or more outside the edge of a pile shall be trimmed. An eight foot fuelbreak shall be cleared of all but fine material around each Machine Pile and an 18 inch wide fireline shall be cleared to mineral soil around the outer ring of the fuelbreak. For hand piles, Purchaser shall construct a fireline cleared to mineral soil and at least 3 feet wide around each pile. In areas where there is a potential for burning material to roll, firelines, including those for Machine Piles, shall be trenched on the downhill side of each pile to adequately prevent material from crossing firelines. Trenches shall be constructed by hand unless otherwise agreed.

UNIT AND SUBDIVISION.SLASH TREATMENT SPECIFICATIONS.

SLASH TREATMENT		
Subdivision or Unit No	Specified Method	Prohibited Method
All Cutting Units	SCAT-18	MACH

LANDINGS AND DISPOSAL SITES. Unutilized logs accumulated at landings and disposal sites shall be Decked by Purchaser for disposal by Forest Service. The maximum height of decks is shown in the following table. Other slash accumulated at landings and disposal sites shall be kept separate from unutilized logs and treated by the method shown in the following table.

		SLASH TREATMENT	
	Subdivision or Unit No.	Specified Method	Maximum Height of Decks
<u>Landings</u>	All Units	MACH, COVER, DECK	10
<u>Disposal Sites</u>	N/A		

TREATMENT ALONG PERMANENT ROADS Permanent roads that require roadside slash treatment are listed in the attached table and shown on Sale Area Map. All Logging and Construction Slash within Required Disposal Strips shall be treated by Purchaser. "Required Disposal Strips" are those areas adjacent to permanent roads where slash treatment is required for resource objectives. The width of Required Disposal Strips is shown in the attached table and is measured in slope distance from Roadbed edges of permanent roads. By agreement, in Clearcutting Units and regeneration units slash from Required Disposal Strips may be treated with other Logging Slash. By agreement the location of Required Disposal Strips may be adjusted from side to side without materially changing the total work required.

Slash treatment in Required Disposal Strips shall be accomplished without affecting the proper functioning of channels leading to and from drainage structures.

Logging Slash larger than treatment size requirements of the specified method shall either be Scattered outside Required Disposal Strip, within Required Disposal Strip or Decked at agreed locations as shown in the attached table.

			SLASH TREATMENT	
Road No.	Subdivision and/ or Unit No. or Road Juncitons (From To)	Width of Required Disposal Strip	Specified Method	Slash Larger Than Treatment Size Requirements of Specified Method
Refer to C5.31# Prehaul Maintenance Requirements	T-807 specifications		SCAT 18	

TREATMENT ALONG TEMPORARY ROADS. N/A

ADDITIONAL SLASH TREATMENT REQUIREMENTS. N/A

ASSISTANCE IN SLASH BURNING. N/A

A. Fire Tools and Equipment

Purchaser shall meet applicable parts of Section 4428 of the CPRC.

Unless agreed otherwise, Fire tools kept at each Active Landing shall be sufficient to equip all employees in the felling, yarding, loading, chipping, and material processing operations associated with each landing. Fire equipment shall include two tractor headlights for each tractor dozer used in Purchaser's Operations. Tractor headlights shall be attachable to each tractor and served by an adequate power source. Fire tools shall be kept in a sealed fire tool box adjacent to the Active Landing and readily accessible in event of fire.

Where cable yarding is used, Purchaser shall provide a size 0 or larger shovel with an overall length of not less than 46 inches and a serviceable 5 gallon backpack pump filled with water or a fire extinguisher bearing a label showing at least a 4-A rating must be within 25 feet of each tail and corner block.

Trucks, tractors/skidlers, pickups and other similar mobile equipment shall be equipped with and carry at all times a size 0 or larger shovel with an overall length of not less than 46 inches and a 2-1/2 pound axe or larger with an overall length of not less than 28 inches.

All required fire tools shall be maintained in suitable and serviceable condition for fire fighting purposes.

B. Fire Extinguishers

Purchaser shall equip each internal combustion yarder, fuel truck, and loader with a (4-A:60-B:C) fire extinguisher for oil and grease fires.

Skidders and tractors shall be equipped with a minimum 5-BC fire extinguisher.

Fire extinguishers shall be mounted, readily accessible, properly maintained and fully charged.

Purchaser shall equip all mechanized harvesting machines and log processors with hydraulic systems, powered by an internal combustion engine (e.g. masticator, chipper, feller/buncher, harvester, forwarder, Hot Saw, stroke delimeter, etc), with at least two 4-A:60-B:C fire extinguishers or an acceptable CAFS substitute identified in Section K.

C. Spark Arresters and Mufflers

Except for tractors and other equipment with exhaust-operated turbochargers, Purchaser shall equip each operating tractor and any other internal combustion engine with an approved spark arrester. There shall be no exhaust bypass on any system.

Spark Arresters shall be a model tested and approved under Forest Service Standard 5100-1a as shown in the National Wildfire Coordinating Group Spark Arrester Guide, Volumes 1 and 2, and shall be properly mounted and maintained according to manufacturer's specifications.

Every motor vehicle subject to registration shall at all times be equipped with an adequate exhaust system meeting the requirements of the California Vehicle Code.

D. Power Saws

Each power saw shall be equipped with a spark arrester approved and maintained in effective working order as identified in the Spark Arrester Guide in Section C. above and according to applicable parts of CPRC Section 4442 or 4443. An Underwriters Laboratories (UL) approved fire extinguisher containing a minimum 14 ounces of fire retardant shall be kept with each operating saw.

A size 0 or larger shovel with an overall length of not less than 38 inches shall be kept with each gas can, but not more than 300 feet from each power saw when used off cleared landing areas.

E. Fire Supervisor & Fire Patrolperson

Purchaser shall designate in the fire plan required by B7.1 and furnish on Sale Area during operating hours a fire supervisor, named in writing and authorized to act on behalf of Purchaser in fire prevention and suppression matters.

Unless agreed otherwise, Purchaser shall furnish and designate in writing, a Fire Patrolperson each operating day when Project Activity Level C or higher is in effect. When on duty, the Fire Patrolperson is required to patrol the operation for the prevention and detection of fires, to take suppression action where necessary and to notify Forest Service as required under Sections I. Reporting Fires and L. Communications. This Fire Patrol is required on foot, unless otherwise agreed.

By written agreement, one Fire Patrolperson may provide patrol on this and adjacent projects or sales. No Fire Patrolperson shall be required on Specified Road construction jobs except during clearing operations unless otherwise specified.

F. Seasonal Permits

Purchaser shall obtain written permits from Forest Service before allowing welding, warming fires or burning, subject to C7.22# - Emergency Precautions.

G. Clearing of Fuels

Welding equipment and stationary log loaders, yarders and other equipment listed in California State Law:	10 feet slope radius
Tail or corner haulback blocks:	All running blocks on a cable yarding operation shall be located in the center of an area that is cleared to mineral soil at least 15 feet in diameter.
Lines near, between or above blocks:	Sufficient clearing to prevent line from rubbing on snags, down logs and other dead woody material.

Purchaser shall clear away, and keep clear, fuels and logging debris as follows:

H. Smoking

All smoking shall be confined within a car, truck, crew rig or other enclosed cab after 1:00 PM on Ev days and all hours on E days (C7.22#). At other times, any smoking shall be done while sitting in an area at least 3 feet in diameter, cleared of flammable materials. Burning tobacco and matches shall be extinguished before they are properly disposed.

I. Reporting Fires

As soon as feasible, but no later than **15 minutes** after discovery, Purchaser shall notify Forest Service of any fires on Sale Area or along roads used by Purchaser.

J. Tank Truck

Purchaser shall provide a water tank truck or trailer on or in proximity to Sale Area during Purchaser's Operations hereunder during Fire Precautionary Period unless otherwise agreed.

Tank truck or trailer shall contain at least 300 gallons of water and comply with the following requirements:

(1) Pump, which at sea level, can deliver 23 gallons per minute at 175 pounds per square inch measured at the pump outlet. Pumps shall be tested on Sale Area by Forest Service using a 5/16 inch orifice with a one inch in line test kit and shall meet or exceed the pressure values identified in the following table for nearest temperature and elevation:

T e m p	Sea Level		1000 Feet		2000 Feet		3000 Feet		4000 Feet		5000 Feet		6000 Feet		7000 Feet		8000 Feet		9000 Feet		10000 Feet	
	17	23	17	23	16	23	16	22	16	22	15	22	15	22	15	21	14	21	14	21	13	21
55	17	23	17	23	16	23	16	22	16	22	15	22	15	22	15	21	14	21	14	21	13	21
	9		4		9		5		1		7		3		0		6		2		9	
70	17	23	17	23	16	22	16	22	15	22	15	22	15	21	14	21	14	21	13	21	13	20
	5		1		6		2		8		4		0		7		3		9		6	
85	17	23	16	23	16	22	15	22	15	22	15	21	14	21	14	21	14	21	13	20	13	20
	1		8		3		9		5		1		7		4		0		6		3	
100	16	23	16	23	15	22	15	22	15	22	14	21	14	21	14	21	13	20	13	20	13	20
	8		4		9		5		2		8		4		1		7		3		1	
	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G	P	G
	S	P	S	P	S	P	S	P	S	P	S	P	S	P	S	P	S	P	S	P	S	P
	I	M	I	M	I	M	I	M	I	M	I	M	I	M	I	M	I	M	I	M	I	M

The pump outlet shall be equipped with 1-1/2 inch National Standard Fire Hose thread. A bypass or pressure relief valve shall be provided for other than centrifugal pumps.

(2) 300 feet of 3/4-inch inside diameter rubber-covered high-pressure hose mounted on live reel attached to pump with no segments longer than 50 feet, when measured to the extreme ends of the couplings. Hose shall have reusable compression wedge type 1-inch brass or lightweight couplings (aluminum or plastic).

One end of hose shall be equipped with a coupling female section and the other end with a coupling male section. The hose shall, with the nozzle closed, be capable of withstanding 200 PSI pump pressure without leaking, distortions, slipping of couplings, or other failures.

(3) A shut-off combination nozzle that meets the following minimum performance standards when measured at 100 P.S.I. at the nozzle:

	G.P.M.	Horizontal Range
Straight Stream	10	38 feet
Fog Spray	6 - 20	N/A

(4) Sufficient fuel to run pump at least 2 hours and necessary service accessories to facilitate efficient operation of the pump.

(5) When Purchaser is using Hot Saws or Masticators an additional 250 feet of light weight hose, approved by Forest Service, shall be immediately available for use and be capable of connecting to the 300 feet of hose and appurturances in (2) and (3) above.

(6) This equipment and accessories shall be deliverable to a fire in the area of operations and is subject to the requirements for each specific activity level identified in C7.22#.

K. Compressed Air Foam System (CAFS)

A fire suppression system where compressed air is added to water and a foaming agent. By agreement, Purchaser may substitute a CAFS or functional equivalent in lieu of the tank truck, trailer or fire extinguishers, provided it meets or exceeds the following specifications and requirements:

1. Variable foam expansion ratio - 10:1 to 20:1.
2. Units shall be kept fully charged with air; water and foam concentrate as recommended by the manufacturer and have the appropriate tools to service the system.
3. The unit shall contain enough energy to empty tank and clear hose prior to exhausting propellent.
4. The unit shall be capable of being completely recharged within 10 minutes.
5. When used on cable yarding landings, the unit shall be outfitted for immediate attachment to carriage and transported without damage to the unit.

Fire extinguishers required for Hot Saws, Masticators and similar equipment identified in Section B. above may be substituted with a 3 gallon CAFS.

Tank truck, trailer or equivalent may be substituted with a 30 Gallon CAFS with at least 550 feet of one inch hose and an adjustable nozzle with enough water, air and foam concentrate for at least one recharge.

This equipment and accessories shall also be deliverable to a fire in the area of operations and subject to the requirements for each specific activity level identified in C7.22#.

L. Communications

Purchaser shall furnish a serviceable communications system such as a telephone, radio-telephone, radio system or satellite phone connecting each operating side within the Sale Area with Purchaser's headquarters, and capable of notifying Forest Service within **15 minutes** of discovery of any fires on the Sale Area or along Purchaser's haul route. When such headquarters is at a location which makes communication to it clearly impractical, Forest Service may agree to a reasonable alternative notification method.

A Citizen's Band (CB) radio is not acceptable communications.

M. Cable Yarding Tank Unit

When all or part of Included Timber will be harvested by a long span (over 1,500 feet) cable yarding operation, Purchaser shall provide at each active cable yarding landing a tank truck, trailer or acceptable CAFS substitute which can be lifted and transported by the carriage.

The unit shall meet the same requirements as specified for the tank truck, trailer or approved CAFS substitute.

N. Helicopter Yarding Fire Precautions

Purchaser shall provide and maintain fire equipment as follows:

1. The fire tool box required under this provision shall be equipped for attachment to the helicopter long line so that it may be hauled to needed locations. Such attachment device shall not interfere with access to fire tools. Unless agreed otherwise, the fire tool box shall be located at the Active Landing ready for immediate dispatch.
2. An external helibucket readily attachable to the helicopter, with a capacity of at least 500 gallons, and having a remote control door mechanism adequate for rapid dropping of water. The helibucket shall be located at the helicopter service landing and shall be filled with water ready for immediate dispatch unless otherwise agreed.
3. All aircraft used in conjunction with Purchaser's Operations shall be equipped with an operable radio system capable of meeting Region Five avionics requirements.
4. For protection of fuel servicing operations, fire extinguishers which have the following ratings based on the open hose discharge capacity, i.e., "broken hose," of the aircraft fueling system shall be readily available:
 - a. Where said capacity does not exceed 200 gallons per minute, at least one approved extinguisher having a minimum rating of 20-B;
 - b. Where said capacity is in excess of 200 gallons per minute, but not over 350 gallons per minute, one approved extinguisher having a minimum rating of 80-B;

- c. Where said capacity is in excess of 350 gallons per minute, two approved extinguishers, each having a minimum rating of 80-B.
5. By agreement, a suitable CAFS may also be used in lieu of the above extinguishers.
6. Extinguishers of over 50 pounds gross weight shall be of wheeled type or be mounted on carts to provide mobility and ease of handling.

PROJECT ACTIVITY LEVEL (PAL) - C(T)7.22# - EMERGENCY PRECAUTIONS

PROJECT ACTIVITY LEVEL TABLE

Level	Project Activity Minimum Requirements and Restrictions. Restrictions at each level are cumulative.
A	Minimum required by C(T)7.22#.
B	1. Tank truck, trailer, or approved CAFS substitute shall be on or adjacent to the Active Landing.
C	1. When Hot Saws or Masticators are operating, a tank truck, trailer or approved CAFS substitute shall be within ¼ mile of these operations. Effective communications shall exist between the operator and the Active Landing. 2. Immediately after Mechanical Operations cease, Fire Patrol is required for two hours.
D	1. Immediately after Hot Saw or Masticator operations cease, Fire patrol is required for three hours. 2. No Dead Tree felling after 1:00 PM, except recently dead. 3. No Welding or cutting of metal after 1:00 PM, except by special permit.
Ev	1. The following activities may operate all day: <ul style="list-style-type: none"> a) Loading and hauling logs decked at approved landings. b) Loading and hauling chips stockpiled at approved landings. c) Servicing equipment at approved sites. d) Dust abatement, road maintenance (Chainsaw use prohibited), culvert installation within cleared area, chip sealing, paving, earth moving or rock aggregate stock pile loading and installation (does not include pit or quarry development). e) Chainsaw and log processing operations associated with loading logs or other forest products at approved landings. 2. Hot Saws or Masticators may operate until 1:00 PM; provided that: <ul style="list-style-type: none"> a) A tractor or other equipment with a blade capable of constructing fireline is on or adjacent to the active landing or within ¼ mile of the operating equipment. This piece of equipment shall have effective communication with the Hot Saw or Masticator. b) Any additional restrictions specified by the Forest. 3. All other conventional Mechanical Operations are permitted until 1:00 PM. 4. Some operations may be permitted after 1:00 PM, on a case-by-case basis, under the terms of a PAL Ev Variance Agreement. Activities for which a Variance may be issued are: <ul style="list-style-type: none"> • Rubber Tire Skidding • Chipping on Landings • Helicopter Yarding • Fire Salvage

	<p>When approved by a Line Officer, a Variance Agreement can be implemented when the criteria specified in the agreement are met and mitigation measures are in place. This approval is good for ten (10) days unless cancelled sooner or extended by the Contracting Officer for an additional ten (10) days. Variance approval can be withdrawn at the sole discretion of Forest Service. Variance approval is contingent on the 7-day fire weather forecast, fuel conditions, site characteristics, current fire situation, state of Purchaser's equipment for prevention and suppression readiness, type of operation and social and community considerations etc. (See attached Project Activity Level Variance Agreement).</p>
<p>E</p>	<p>The following activities may operate all day:</p> <ol style="list-style-type: none"> 1. Loading and hauling logs decked at approved landings. 2. Loading and hauling chips stockpiled at approved landings. 3. Servicing Equipment at approved sites. 4. Dust abatement, road maintenance (chainsaw use prohibited) or loading stock piles and rock aggregate installation (does not include pit or quarry development). 5. Chainsaw operation associated with loading at approved landings. <p>All other activities are prohibited.</p>

Region 5 Project Activity Level (PAL) Ev Variance Application/Agreement

Project Name: _____
 Contract Number: _____
 Purchaser/Contractor Name: _____
 Request #__, for period: _____
 Units/Subdivisions Affected: _____

Location of operation:	
Slope	
Aspect	
Elevation	
Fuels on site	
Fuels in surrounding area	
7 Day PAL Outlook	
Short range predictions (Red Flags)	
<i>Fuel Moistures</i>	
Response time of suppression resources	
Potential for ignition	
RAWS location	
Current Fire Situation:	
Draw down information	
National Readiness Level	
Contractual considerations:	
Normal Operating Season	
Frequency of recent contract fires in area	
Type of operation	
Purchaser/Contractors past/current performance & equipment readiness	
Other site specific mitigation or precaution (i.e. Purchaser/Contractors proposals)	
Social & Community Considerations:	
Proximity of high value resources	
Sensitivity of location	
Remarks:	

Ev Proposed Actions

Rubber Tired Skidding

Chipping on Landings

Helicopter Yarding

Fire Salvage

Description of Mitigation Measures

Fire Management Officer Concurrence

Date

Line Officer Approval

Date

I have considered the above request and determined the specified mitigation measures or actions must be implemented to continue operations in Project Activity Level Ev. Unless extended, the approval remains in effect for ten (10) calendar days unless cancelled sooner or extended by the Forest Service for an additional ten (10) days. At the sole discretion of the Forest Service, this variance can be modified and/or cancelled at no cost to the government.

Contracting Officer

Date

Purchaser/Contractor Rep.

Date