ROAD MAINTENANCE SPECIFICATIONS

SECTION T-803A - SNOW REMOVAL (04/21/2016)

1. DESCRIPTION OF WORK

This work consists of removing snow from roads to provide safe travel for low and/or high clearance vehicles, to protect adjacent resource values and road investments, and to prevent damage to roads during use by Purchaser.

2. MAINTENANCE REQUIREMENTS

a. The traffic Control Plan is pursuant to B(T) 6.33 Safety and shall be amended as necessary for snow removal operations under b(10) (a) or (b).

b. If Purchaser’s operations require removal of snow, the following requirements shall be met:

(1) Signs required by the amended Sign Plan shall be erected prior to beginning snow removal operations.

(2) Work shall be performed in a manner to preserve and protect roads and appurtenances and to prevent erosion damage to roads, streams, and other Forest values.

(2) Banks shall not be undercut nor shall gravel or other surfacing material be bladed off the road.

(4) Roadbed drainage ditches, drain dips, and culverts shall be functional when needed during operations and upon completion of operations.

(5) Snow removal shall be controlled to identify the usable traveled way having roadbed support. Over-width plowing shall be reshaped as necessary to define the usable width.

(6) Drainage holes shall be constructed at agreed locations in the snow berm or dike during snow removal operations. Drainage holes shall be maintained as necessary for functional drainage.

(7) When shown in C(T)5.12# or the Road Rules document, roads shall be effectively closed to wheeled vehicles at times and in the manner specified.

(8) Upon seasonal completion of Purchaser's Operations, the road shall be effectively blocked by a snow barricade, unless otherwise agreed.

(9) Snow markers shall be placed to identify effective roadbed width, cattleguards and other structures. The roadbed snow markers shall be spaced at a 200 foot (61m) interval, unless agreed otherwise.

SECTION T-803A - SNOW REMOVAL CONTINUED (04/21/2016)

(10) Snow shall be removed for either public access or project use as shown in the Road Listing Schedule to meet the following requirements:

(a) Removal for Public Access (Method JU) - Snow shall be removed from all of the traveled way, including turnouts, for safe and efficient use for both timber transportation and the public. Intruding windfalls, debris, or slough and slide material shall be removed for the full width of the traveled way and be disposed of out of drainages at agreed upon locations.

(b) Removal for Project Use (Method TS) - Snow shall be removed from all of the traveled way, including sufficient turnouts for safe and efficient use for both timber transportation and Forest Service administration. Intruding windfalls, debris or slough and slide material shall be removed for the full width of the traveled way and be disposed of out of drainages at agreed locations.

(11) Upon notice Purchaser shall replace in kind, within 60 days after June 1 of each year, any surfacing material which has been bladed off the road, unless otherwise agreed. Forest Service will notify Purchaser in writing the cubic yard (cubic meter) equivalent of bladed off material.

(12) Under Public Access (Method JU) roads should be plowed when the cumulative depth of snow and/or ice exceeds 4 inches (100mm) above the road surface. Project Use (Method TS) roads should be plowed when the cumulative depth of snow and/or ice exceeds 6 inches (150mm) above the road surface.

(13) Cattleguard object markers that swing, shall be either removed or locked down in a horizontal direction before snow plowing begins and shall be reinstalled or unlocked prior to June 1 of each year.

(14) Purchaser may remove cattleguard wings on (Method TS) roads to prevent damage during snow plowing. If they are removed, the edge of the cattleguard decks shall be identified. Wings shall be re-installed by June 1 of each year.

3. EQUIPMENT

Purchaser may use any type of equipment to remove snow, providing:

a. Type or use of equipment is not restricted in the C(T)5.12# or the Road Rules document.

b. Equipment is of the size and type commonly used to remove snow and will not cause damage to the road.

c. The use of dozers to remove snow requires written approval by the Sale Administrator (SA) or Maintenance Engineer Representative (MER). Dozers shall be equipped with shoes or runners to keep the dozer blade a minimum of 2 inches (50mm) above the road surface, unless agreed otherwise.

4. ICE CONTROL

Ice control may be performed by Purchaser when approved in writing by SA or MER. Such approval will include ice control materials, application rates, and any specific requirements of use.

SECTION T-811A - SURFACE BLADING AND SHAPING (04/21/2016)

1. DESCRIPTION OF WORK

This work consists of prehaul, recurrent, and post hauls surface blading, ditch cleaning/reconditioning and shaping to provide safe travel for low clearance vehicles, to protect adjacent resource values and road investments, and to prevent damage to roads during use by Purchaser.

2. MAINTENANCE REQUIREMENTS

a. Timing

Prehaul surface blading and shaping prior to haul or after a period of inactivity shall be performed unless the road already meets the requirements stated in the description of work and the maintenance level shown in the Road Listing Schedule. During haul and after haul is completed additional surface blading and shaping may be necessary to ensure the road meets these requirements.

b. Blading and Shaping

(1) The traveled way ditches and shoulders, including turnouts, shall be bladed and shaped to produce a surface which is uniform, consistent to grade, and cross-sloped as indicated by the character of the surface to at least 1/2 inch per foot (40mm per meter) of width. Aggregate shall be thoroughly loosened to the depth of potholes or corrugations. Do not scarify deep enough to cause contamination of the surfacing.

(2) When necessary to prevent aggregate segregation and for compaction, water shall be applied in accordance with the Road Maintenance Specification, T-891A Water Supply and Watering, during surface blading operations.

(3) Existing native or aggregate surfaced drainage dips shall be shaped to divert surface runoff to existing outlet

(4) Aggregate surfacing shall be protected and thoroughly mixed during blading and shaping operations.

(5) Roadway back slope shall not be undercut.

(6) Upon completion of surface blading, ditch reconditioning and shaping, no disturbed rock shall protrude more than 2 inches (50mm) above the adjacent surface unless otherwise provided in the contract. Remove and place outside the roadbed material not meeting those dimension so as not to obstruct drainage ways or structures. This material may be scattered off the roadbed if there is free drainage.

SECTION T-811A - SURFACE BLADING AND SHAPING (Continued)

(7) Roadbed width in excess of the specified dimension shall be shaped to provide drainage away from the traveled way.

c. Compaction

Compaction shall commence immediately following blading and shaping operations and shall be performed by one of the following methods included in the Road Listing Schedule.

Compaction Method A: By breaking tracks while operating hauling equipment on the traveled way so the full width is covered a minimum of 2 times.

Compaction Method B: By operating an 8-10 ton (7-9 metric ton) pneumatic, steel or equivalent vibrating roller on the traveled way so the full width is covered a minimum of 2 times.

d. Intersections

(1)At intersections, the roadbeds of side roads, which are not closed or restricted from vehicular use, shall be bladed to assure a smooth transition.

(2)Field evidence of closure or restrictions shall be considered to be signing, cross ditching in the road surface (traveled way), earth berms, or other devices placed to discourage or eliminate use by low clearance vehicles.

e. Cleaning of Structures

Excess materials resulting from blading and shaping operations shall not be allowed to remain on or in structures (i.e. bridges, culverts, cattleguards, or drainage dips).

f. Berms

Existing drainage berms shall be maintained to the condition of adjacent segments. New berms (windrows) shall not be created.

g. Smooth Blading

If agreed to by the Forest Service, in writing, smooth blading may be used as an interim measure to remove loose surfacing materials from the wheel paths and store removed materials in a recoverable windrow until blade processing is feasible.

(1) Watering will not be required for smooth blading. Accomplish smooth blading without distorting the existing cross-slope or crown of the traveled way.

SECTION T-811A - SURFACE BLADING AND SHAPING (Continued)

(2) Loose surfacing materials shall be removed and stored on the high side of the road except in crowned sections where the material may be stored on either side. Stored materials shall be placed to provide not less than 11 feet (3.4m) of smoothed traveled way on one-segments or 20 feet (6m) of smoothed traveled way on two-lane or segments with turnouts.

(3) Cut holes through windrows, which may collect water on the road, for drainage at least every 500 feet (150m). Do not block open intersections with windrows.

(4) Windrows formed by smooth blading shall be removed and the materials incorporated into the traveled way surface by blade processing at the start of seasonal rain or runoff periods.

h. ALL ROADS

Location of weeds infested areas are marked on the ground. Do not operate in the weed infested areas unless ordered to do so by the Contracting Officer.

SECTION T-812A - DUST ABATEMENT (04/21/2016)

1. DESCRIPTION OF WORK

This work consists of prehaul and recurrent abatement of dust, as required by the Road Rules, to provide safe travel for low and/or high clearance vehicles, to protect adjacent resource values and road investments, and to prevent damage to roads during use by Purchaser.

2. MATERIALS

The dust abatement materials shall be as shown in the Road Listing Schedule unless shown as Option (OPT) for Purchaser's election from the following materials.

a. Water (H_20) for dust abatement shall comply with the Road Maintenance Specification T-891A Water Supply and Watering.

b. Lignin Sulfonate (LIG S) shall be the chemical residue produced as a by-product of the acid sulfite pulping process, and supplied as a water solution. The base solution shall be ammonia, calcium, or sodium and shall be water soluble to allow field dilution. Purchaser shall provide certification that:

(1) Solids determination has been made in accordance with the modified Technical Association of the Pulp and Paper Industry Standard T629-M53 or by a specific gravity/percent solid versus temperature graph that correlates with the Standard.

(2) The pH of the delivered material is at 4.5 minimum as determined by AASHTO-T200.

c. Magnesium Chloride (MGCL2) shall be the liquid residue of evaporative mineral recovery processes. Purchaser shall provide certification that:

(1) The chemical analysis meets the following requirements:

Chemical	Percent by Weight of Brine
Magnesium (Mg)	7.0 minimum
Chloride (C12)	20.4 minimum
Sulfate (SO4)	3.5 maximum
Nitrate	5.0 maximum

The pH shall be between 4.5 and 10.0

(2) Solids determination shall be made from suppliers provided graph of specific gravity/percent solids versus temperature.

d. Petroleum derivatives shall be used in accordance with the Road Maintenance Specification, T- 892A Dust Abatement with Bituminous Products.

Changes in dust abatement materials shown in the Road Listing Schedule to meet on the ground conditions, requires Forest Service written approval.

SECTION T-812A - DUST ABATEMENT (Continued)

3. SPECIAL METHODS

Special methods may be used for abating dust in lieu of commercial dust palliatives or water shown in the Road Listing Schedule if approved in writing prior to use by Forest Service. Special methods may include: reducing the number of loads hauled per day; changing the time of day loads are hauled; reduce speed; or other options that will reduce or eliminate the need for dust abatement.

4. EQUIPMENT

a. Equipment used for spreading dust abatement materials shall be designed, equipped, maintained, and operated so that the material is uniformly applied at rate and traveled way width shown in the Road Listing Schedule.

b. Dilution of dust abatement materials shall be accomplished within the application vehicle. The water sources shall be protected from contamination.

5. MAINTENANCE REQUIREMENTS

a. Prior to beginning haul or resuming haul after a period of inactivity and during haul, dust shall be abated by using commercial dust palliatives, water, or special methods to meet the requirements stated in the description of work and Road Listing Schedule. Dust shall be abated at times and conditions specified in the Commercial Road Rules.

b. Application of dust abatement materials or special methods shall control dust to prevent loss of road materials and so vehicles using the road are visible within the stopping sight distance. The average safe user speed for that section of road shall be used to determine the stopping sight distance.

c. Water application shall be varied as needed but shall be low enough to avoid forming rivulets. Frequency of applications shall be sufficient to accomplish the abatement without saturating and softening the traveled way. Compacted or glazed road surface or wheel tracks shall be loosened as needed for water penetration.

d. Commercial dust palliative application shall be varied as needed to accomplish the abatement without causing puddles or runoff and at times agreed by Forest Service. The Road Listing Schedule shows the expected average application rate which may be varied by agreement to meet field conditions. The commercial dust palliative shall not be applied when it is raining or expected to rain, on or across bridges, or in a manner that spatters adjacent trees or other structures. The traveled way surface shall be lightly bladed and rolled with a smooth-wheeled roller immediately before application. The top inch (25mm) of the surface shall be slightly damp.

SECTION T-812A – DUST ABATEMENT (CONTINUED)

(1) Lignin Sulfonate rates of application are **1st 0.35** or **2nd 0.25** gallons per square yard of undiluted product at 50 percent solids or per manufacturer's recommendation as agreed to in writing by the Forest Service.

(2) Magnesium Chloride rates of application shall be per manufacturer's recommendation as agreed to in writing by the Forest Service.

SECTION T-813A - SURFACING (04/21/2016)

1. DESCRIPTION OF WORK

This work consists of preparing the area, hauling, furnishing and placing surface aggregate on roads to provide safe travel for low and/or high clearance vehicles, to protect adjacent resource values and road investments, and to prevent damage to roads during use by Purchaser. Surface aggregate shall be placed as staked on the ground, or designated by Forest Service.

2. MATERIALS

Materials shall conform to meet the gradation and quality requirements contained in Section 703.05 (c) of the "FP-03 Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects", U.S. Customary Units, or FP-03 Metric Version.

3. MAINTENANCE REQUIREMENTS

a. Pit Maintenance: No roads shall be undercut or safety berms removed while working in rock pit/material sources. Slopes shall be left at 1V:1:5H. Rock pit/material source shall be smoothed out and shaped to provide functional drainage, when work is completed.
Only remove rock material from areas marked by the Contracting Officer.

b. When less then 30 cubic yards ($23m^3$) is being placed in any one area, the aggregate shall be shaped to fit the existing road dimensions and compacted by breaking tracks while operating hauling equipment over the full width of the new surface a minimum of two times.

c. When more than 30 cubic yards ($23m^3$) is being placed in any one area, the following is required:

(1) When less than a 3 inch (75mm) depth of surface aggregate is being placed, new surfacing and existing aggregate shall be mixed until a uniform mixture is obtained prior to final shaping and compaction. Work shall comply with the Road Maintenance Specifications T-811A Surface Blading and Shaping and T-891A Water Supply and Watering. When water is necessary for use in blading and shaping or aggregate processing, the water shall be included in the aggregate mixture before compaction.

(2) When more than a 3 inch (75mm) depth of new surface aggregate is placed, the material shall be spread on the prepared area. When more than one layer is required (maximum layer thickness of 4 inches), (100mm) each layer shall be shaped and compacted before the succeeding layer is placed. Upon completion, surfacing shall reasonably conform to the adjacent cross-section and provide smooth transitions in the road profile.

(3) Compaction shall commence immediately following blading and shaping. Compaction shall be performed by one of the following methods included in the Road Listing Schedule.

Compaction Method A - By breaking tracks while operating hauling equipment on the traveled way so the full width is covered a minimum of two times.

SECTION T-813A - SURFACING (04/21/2016)

Compaction Method B – By operating a 8-10 ton (7-9 metric ton) pneumatic, steel, or equivalent vibrating roller on the traveled way so the full width is covered a minimum of two times.

ALL ROADS

Location of weeds infested areas are marked on the ground. Do not operate in the weed infested areas unless ordered to do so by the Contracting Officer.

SECTION T-839A - MAINTENANCE FOR PROJECT USE (04/21/2016)

1. DESCRIPTION OF WORK

This work consists of prehaul, recurrent, and post hauls maintenance activities to provide safe travel for high clearance vehicles, to protect adjacent resource values and road investments, to prevent damage to roads during use, to store roads needed for future management activities, and to decommission roads that will no longer be needed.

2. MAINTENANCE REQUIREMENT

a. **Prehaul Activities.**

Prior to beginning haul or resuming haul after a period of inactivity Purchaser shall:

(1) Improve existing road junctions to provide adequate vehicle access. Remove any traffic barriers (i.e., logs, stumps, rocks, cross ditches, waterbars) as agreed by Forest Service.

(2) Reshape traveled way cross-slope, including turnouts and curve widening, and other areas necessary for safe travel and functional drainage. Aggregate surfacing materials are to be thoroughly loosened to the depth of ruts, potholes, or corrugations prior to blading and shaping.

(3) Remove, re-position, or ramp over slough and slides as directed by CO to provide an adequate width of traffic supporting traveled way. Dispose excess material at designated sites.

(4) Where ramping is designated ramp both ends of slumps on native surfaced roads into undisturbed material to maintain adequate width of safe traffic supporting traveled way. Slumps on aggregate surfaced roads are to be treated as agreed in writing by the Forest Service.

(5) Drainage is to be provided above slumps and all cracks are to be sealed. An adequate width of traffic supporting traveled way around a slump or crack area is to be provided unless there is written agreement to treat the roadway deficiency differently.

(6) All roads shown in C5.31#, Contract Road Maintenance Requirements Summary under (T-839A-17A) shall be brushed and cleared according to the typical drawing attached. Remove encroaching limbs to a height of 14 feet (4m) above the travel way surface. Tree limbs shall be cut to within 4 inches of the trunk. Scatter material not meeting utilization standards outside and below the roadbed on the fill side. Roads that are not shown under T-839A-17A shall remove trees, brush, down logs, rocks and other debris from traveled way and other areas to provide adequate width, sight distance and overhead clearance. Remove encroaching limbs to a height of 14 feet (4m) above the roadway surface. Tree limbs shall be cut to within 4 inches of the trunk. Scatter material not meeting utilization standards outside and below the roadbed on the fill side. Trees and down logs outside the Sale Area that meet utilization standards in A(T)2 shall, when agreed to, be Included Timber subject to requirements of B(T)2.2. No object extending over 4 inches (100mm) above the road surface shall remain within the traveled way width specified in the Road Listing Schedule and usable turnout widths. Center the usable width on the roadbed or position away from the fill slope.

SECTION T-839A - MAINTENANCE FOR PROJECT USE (Continued)

(7) Ditches, catch basins, drain dips, waterbars, and outlet channels shall be cleaned and/or reconditioned by removing rock, soil, wood, and other materials as necessary to provide functional drainage. Back-slopes shall not be undercut. Suitable material may be blended into existing native or grid-rolled aggregate surface and shoulder. Material shall not contaminate crushed aggregate surface and shoulder.

(8) Culverts shall be cleaned and/or reconditioned by removing rock, soil, wood and other material necessary to provide functional drainage. Reconditioning of culvert inlet or outlet shall be by field methods such as jacking out or cutting away damaged metal which obstructs flow. Cut edges shall be treated with a zinc-rich coating. Hydraulic flushing of drainage structures will not be allowed unless approved in writing.

(9) Installing Purchaser-furnished culverts or other agreed temporary drainage structures for shallow stream crossing.

Perform all work within existing roadway when possible. Machines that must access the stream channel should do so at right angles to the channel. Use the same entrance/exit to minimize bank disturbance. When installing temporary culverts, work must be done only during dry conditions.

If the stream channel is not dry, the work period for instream work is July 15th through August 15th, as specified in the Oregon Timing of In-Water work to Protect Fish and Wildlife Resources, June 2008.

(10) Channel Crossings: Before product haul on native surfaced roads, for a distance of the specified feet as shown on the work description, maintain as close to an 8-inch lift as the travelway width allows (minimum 6-inch lift).

(11) All excess material (woody debris, rocks, soil, or other materials) removed during pre-haul activities shall be hauled and placed in areas as staked by the Forest Service and shown on the Sale Area Map with a symbol D.

b. Recurrent Activities.

During haul Purchaser shall:

(1) Remove brush, fallen logs, rocks, and other debris from traveled way and other areas necessary to maintain adequate width, sight distance and overhead clearance.

(2) Remove, re-position, or ramp over slough and slides to maintain adequate width of safe traffic supporting traveled way. Dispose excess material at designated sites.

(3) Ramp both ends of slumps on native surfaced roads into undisturbed material to maintain adequate width of safe traffic supporting traveled way. Slumps on aggregate surfaced roads are to be treated as agreed in writing by Forest Service.

(4) Maintain traveled way cross-slope and other areas necessary for safe travel and functional drainage.

SECTION T-839A - MAINTENANCE FOR PROJECT USE (Continued)

(5) Maintain all drainage structures to provide for functional drainage.

(6) Seasonally at the end of hauling, or prior to entering a period of extended inactivity, maintain traveled way cross-slope for functional drainage, re-install removed cross ditches and waterbars, construct additional cross ditches and waterbars as necessary to offset changes through use and maintenance, and replace or construct traffic barriers at road junctions. All drainage and barrier work shall be completed in accordance with the typical details approved by the Forest Service. The location of new barriers, cross ditches, and waterbars shall be designated on the ground, unless otherwise agreed. Waterbars and cross ditches will be installed with appropriate skew, outlet and spacing.

Purchaser-installed temporary structures shall be removed, unless otherwise agreed and associated commercially-obtained materials shall remain the property of the Purchaser.

(7) All excess material (woody debris, rock, soil, or other materials) removed during recurrent activities shall be hauled and placed in areas as staked by the Forest Service and shown on the Sale Area Map with a symbol D.

c. Post-Haul Activities.

After haul is completed Purchaser shall:

(1) Reshape the traveled way cross-slope of roads that are to left open to provide for functional drainage and safety for planned traffic. Restore or prepare roadways that are to be closed or decommissioned, so they are self-maintaining and are left in a condition to effectively reduce or eliminate erosion during the closure period. Reshape improved road entrances and replace or construct traffic barriers at locations designated by the Forest Service.

(2) Clean all drainage structures (culverts, waterbars, drain dips, ditches, side ditches, etc.) and construct additional cross ditches, waterbars, or side ditches to provide for functional drainage. Drainage structures located in through fills and natural watercourses shall be fully functional without obstructions, including inlet and outlet channel within 20 feet (6m) of the structure. Slides and slough may be left in place provided they do not restrict safe travel, potentially impound water, and/or divert water from stream courses. The location of new cross ditches and waterbars shall be designated on the ground, unless otherwise agreed.

Purchaser-installed temporary structures shall be removed, unless otherwise agreed. After removal, restore the natural gradient of the channel within the crossing site by removing all fill material. Channel gradient should be an average of the upstream and downstream gradients of the channel. The channel bottom should not be left with a convex shape nor any sudden elevation changes, which could initiate head cutting. Placement of available on-site woody material (>12” diameter) and rock to armor disturbed surfaces is advocated for all stream crossings. Associated commercially-obtained materials shall remain the property of the Purchaser. (i.e. culverts)

(3) Furnish and apply seed, fertilizer, mulch, and/or remove and replant

SECTION T-839A - MAINTENANCE FOR PROJECT USE (Continued)

designated trees or other woody plant materials, singularly or in specified combinations to roadway, borrow areas, rock sources, and disposal areas. The work area may be limited to designated portions of the roadway and roadside or include treatment of the entire area bounded by the outer limits of disturbed areas. The designated treatment shall be scheduled to begin upon completion of the other work under this contract and shall be applied only when the ground is suitable for treatment that is scarified and not saturated. Compacted roadbed shall be scarified to a minimum depth of 4 inches (100mm) unless bedrock is encountered at a lesser depth. Application of seed must be seasonal to allow enough moisture from precipitation to germinate seed, as in fall and spring. Application of seed, fertilizer, and mulch shall be terminated during periods when there is too much wind to allow consistent treatment and control. Materials and application rates shall be as follows:

Seed: Grass, forbs, or small shrub seeds shall be packaged separately from fertilizer and contain the designated types of seed for application at the designated rates. When legumes are designated, the seed shall be pre-inoculated prior to application. Furnish seed separately or in mixture in standard containers with (1) seed name; (2) lot number; (3) net weight; (4) percentages of purity and of germination (in cases of legumes, percentage of germination to include hard seed), and (5) percentage of maximum weed seed content clearly marked for each kind of seed; (6) certification that the seed lot meets applicable State and Federal laws with regard to prohibited and restricted noxious weeds clearly marked for each kind of seed. Furnish the Government duplicate signed copies of a certificate signed by a Registered Seed Technologist or Seed Analyst (certified through either the Association of Official Seed Analysts or the Society of Commercial Seed Technologists) certifying that each lot of seed has been tested in accordance with the Association of Official Seed Analysts standards within 12 months prior to the date of application. This certification shall include (1) name and address of laboratory, (2) date of test, (3) lot number for each kind of seed, (4) name of seed, (5) percentage of germination, (6) percentage of purity, (7) percentage of weed content, (8) certification that the seed lot meets applicable State and Federal laws with regard to prohibited and restricted noxious weeds, and (9) in the case of a mixture, the proportions of each kind of seed. Legume seed shall be inoculated with approved cultures in accordance with the instructions of the manufacturer. No seed may be applied without prior written approval.

Seed Type and Lbs/Acre	% of Pure Live Seed
Agency will supply grass seed at 20#/acre	*90*

Fertilizer shall be furnished in sealed containers with the composition, weight, and guaranteed analysis of contents clearly marked. Application shall be at the rate of **250** pounds per acre.

Mulch: All mulch must be certified weed free. Mulch materials and application rate shall be as shown below:

SECTION T-839A - MAINTENANCE FOR PROJECT USE (Continued)

Mulch Type	Application Rate
Straw or Hay	4000 lbs/acre (4480 kg/ha)

Apply fertilizer and seed directly to scarified soil and rake level to cover seed and fertilizer or apply fertilizer and seed directly to smooth soil and cover with 1”- 2” of loose mulch.

Straw mulch shall be from grain crops and grass hay shall be from approved herbaceous mowing. All mulch furnished shall be free of Oregon state designated noxious weeds. Forest Service shall be furnished a copy of a statement from the Purchaser, certifying that each load of mulch has been checked by a state or county recognized individual and contains no Oregon State designated noxious weeds.

Plantings:

Forest Service will identify suitable tree spade plant stock to be removed from areas adjacent to the project upon 10 days notice during the scheduled timing for removal and replanting.

(4) Traffic barriers to be replaced or constructed shall be shown in the Road Listing Schedule, and conform to the attached typical details unless otherwise agreed.

(5) Install barrier upon completion of all contract provisions tributary to the road and agreed to by the SA or MER.

ALL ROADS

Location of weeds infested areas are marked on the ground. Do not operate in the weed infested areas unless ordered to do so by the Contracting Officer.

SPECIAL T-854-A HAZARD TREATMENT AND CLEANUP

854.01
Description

This work consists of treatment and disposal of marked hazards such as danger trees, rocks, and stumps.

854.02
Maintenance Requirements

A. Treatment of trees includes the felling and subsequent handling of danger trees designated by the Government. Designated trees are marked with paint at breast height.

1. Fall dangerous, or unstable live trees, outside the roadway, which are tall enough to reach the roadbed when marked by the Government. Stump heights must not exceed 12 inches (304.8 mm), or 1/3 the stump diameter, whichever is greater, measured on the side adjacent to the highest ground.

2. Limb trees and snags felled away from, and at right angles to, the road center line and resting entirely beyond the roadside limits of 5 feet (1.5 meters) beyond roadway slopes to provide ground contact over two-thirds (2/3) or more of its length. When the ground contact condition cannot be met, additional bucking will be done to achieve the two-thirds (2/3) contact control. Limb and buck trees and snags falling cross slope into manageable lengths, and reorient at right angles to the road centerline.

3. Limb, buck, and deck trees or snags falling into the roadway, and move to sites off the roadbed. Scatter limbs beyond the top of the cut or toe of the fill.

4. All materials remain the property of the Government unless otherwise provided in the contract or agreed to.

5. Woody debris and slash in excess of 12 inches (304.8 mm) in length, or 3 inches (76.2 mm) in diameter, shall not remain in ditches, drainage channels, or on back slopes, traveled way, shoulders, or turnouts. Hand pile or scatter, materials, down slope from the roadbed, avoiding any concentrations or drainages.

B. Remove marked rocks and stumps.

1. Backfill resulting holes outside the roadbed with native materials and mounded to drain after settlement.

2. Haul removed rocks and stumps to the disposal site designated in the contract.

SECTION T-891A - WATER SUPPLY AND WATERING (04/21/2016)

1. DESCRIPTION OF WORK

This work consists of providing facilities to furnish an adequate water supply, hauling, and applying water for surface blading and shaping, dust abatement, and surfacing of roads as necessary to provide safe travel for low and/or high clearance vehicles; to protect adjacent resource values and road investments; and to prevent damage to roads during use by Purchaser.

2. MATERIALS

Suitable and adequate water sources and use restrictions are shown on the Sale Area Map with a W. If the Purchaser elects to provide water from other than the designated source, Purchaser shall be responsible to obtain the right to use the water and pay any royalty involved. Forest Service shall be furnished a copy of any agreement obtained by the Purchaser.

3. EQUIPMENT

a. Mobile watering equipment shall have water tight tanks of known capacity when used for mixing dust abatement materials. The tank capacity shall be measured prior to use.

b. An air gap, or positive anti-siphon device, shall be provided between the water source and the vehicle being loaded if: (1) the vehicle has been used for other than water haul, (2) the source is a domestic potable water supply, (3) or the water is used for tank mixing with any other materials.

c. Designated water sources may require some work prior to their use. Such work may include cleaning ponding areas, installing temporary weirs or sandbags, pipe repair, pump installation or other items appropriate to Purchaser's operation. Flowing streams may be sandbagged on a temporary basis or a weir placed to pond the water. Water draw shall not be more than 1/10 of the stream flow. Pumping shall not result in zero or negligible stream flow below the site. Work within flowing streams require review and approval by a Forest Service Fish or Hydrology Specialist.

d. Foot valves on pumps will be screened with screens that meet National Marine Fishery Services standards. NMFS developed criteria for pump intake screens will be used on all water pump intakes as described in the "Addendum, Juvenile Fish Screen Criteria for Pump Intakes" (NMFS, May 9, 1996).

Intake hose screen mesh openings shall not exceed 3/32 inch (2.38mm) woven wire or perforated plate screens, or 0.0689 inch (1.75mm) for profile wire screens, with a minimum 27% open area. If fry size salmonids are never present at the site, screen size opening shall not exceed ¼ inch (6.35mm) for woven wire, perforated plate screens, or profile wire screens, with a minimum of 40% open area.

Trucks will be maintained to prevent oil leaks. Loading is done in a manner to prevent overflowing and discharge of wash into stream.

Standard operating practice shall be to protect the stream bank, riparian area, and provide maintenance for the access road.

891 - WATER SUPPLY AND WATERING (Continued)

ALL ROADS

Location of weeds infested areas are marked on the ground. Do not operate in the weed infested areas unless ordered to do so by the Contracting Officer.

SECTION T-892A - DUST ABATEMENT WITH BITUMINOUS PRODUCTS (04/21/2016)

1. DESCRIPTION OF WORK

This work consists prehaul and recurrent dust abatement with bituminous products and blotter material to provide safe travel for low and/or high clearance vehicles, to protect adjacent resource values and road investments, and to prevent damage to roads during use by Purchaser.

2. MATERIALS

The bituminous dust abatement material shall be shown in the Road Listing Schedule unless shown as Option (OPT) for Purchaser's election from following materials or materials shown in Road Maintenance Specification T-812A Dust Abatement.

a. Asphalt Cements

Asphalt cement shall meet the requirements of AASHTO M 20 for penetration graded asphalt cement and AASHTO M 226 for viscosity-graded asphalt cement.

b. Liquid Asphalts

Liquid asphalts shall meet the requirements of the following specifications:

Rapid Curing Liquid Asphalts	AASHTO M 81
Medium Curing Liquid Asphalts	AASHTO M 82
Slow Curing Liquid Asphalts	AASHTO M 141

c. Emulsified Asphalts

Emulsified asphalts shall meet the requirements of the following specifications:

Emulsified Asphalt (Anionic)	AASHTO M 140 (ASTM D 977)
Emulsified Asphalt (Cationic)	AASHTO M 208* (ASTM D 2397)

* Delete footnote "d"

d. Bituminous Dust Palliatives

Bituminous dust palliatives shall meet the requirements listed in 3 below.

e. Certificate of Compliance

(1) The following format is established.

Consignee	Designation
Contract Number	Date
Identification (Truck No., Car No., Etc.)	
Type and Grade	With Additive (%, Brand)
Loading Temperature	Net Weight
Net Gallons	

SECTION T-892A - DUST ABATEMENT WITH BITUMINOUS PRODUCTS (Continued)

(2) The shipment of bituminous material identified above and covered by the bill of lading complies with Government Standard Specifications or as modified by the Purchaser to meet field conditions unique to this project.

Producer _____
Signed _____
(Producer's Representative)

f. Blotter material shall consists of sound, durable particles of gravel or crushed stone with a gradation such that all particles will pass a sieve with 3/8" (9.5mm) square opening or as designed by the Forest Service. Furnish material that is free from organic matter and has a liquid limit, established by AASHTO 89, of less than 25.

Blotter material shall meet the gradation and quality requirements shown in the following tables.

Gradation and Quality Requirements

1. Gradation:

Sieve Size	Percent Passing
3/8"	100
No. 8	
No. 30	
No. 200	

2. Quality:

Description	Test Method	Requirement
Percent Wear	T 96	40 max
Durability Index	T 210	35 max
Plasticity Index	T 90	6 max
Sand Equivalent	T 176	25 min

Changes in bituminous dust abatement and/or blotter materials from those shown in the above tables or in the Road Listing Schedule to meet on the ground condition, requires Forest Service written approval.

3. APPLICATION TEMPERATURES

Bituminous materials shall be applied within the temperature ranges indicated below:

SECTION T-892A - DUST ABATEMENT WITH BITUMINOUS PRODUCTS (Continued)

Application Temperature Range (Degrees F) / (Degrees C)

Type & Grade of Material	Spray Min/Max	Mix Min/Max
Liquid Asphalts:		
RT 1-2-3	60-130(16-54)	60-130(16-54)
RT 3-5-6	85-150(29-66)	85-150(29-66)
RT 7-8-9	150-225(66-107)	150-225(66-107)
RT 10-11-12	175-250(79-121)	175-250(79-121)
RTCB 10-11-12	60-120(16-49)	60-120(16-49)
MC 30	70-145(21-63)	60-105(16-40)
RC-MC-SC 70	105-185(40-85)	90-155(32-68)
RC-MC-SC 250	140-225(60-107)	125-200(52-93)
RC-MC-SC 800	175-265(79-129)	160-225(71-107)
RC-MC-SC 3000	215-290(102-143)	200-260(93-127)
Emulsified Asphalts:		
RS-1, SS-1, SS-1H, CRS-1, CSS-1, CSS-1H	75-130(24-54)	70-160(21-71)
RS-2, MS-2, CR-2, CMS-2S, CMS-2	110-160(43-71)	70-160(21-71)
Asphalt Cements:		
All grades	400 max. (204)	250-325(121-163)
(As required to achieve viscosity of 75-150 seconds. Saybolt-Furol or as required to achieve a Kinematics viscosity of 150-300 centistokes.)		
Bituminous Dust Palliatives:		
DO-1-2-3	80-125(27-52)	----
DO-4	80-175(27-80)	----
DO-6-7-8	50-140(10-60)	----

SECTION T-892A - BITUMINOUS PRODUCTS (Continued)

4. EQUIPMENT

Equipment used shall be capable of applying the bituminous and blotter material within the specified temperature range. The bituminous distributor shall be self-powered and mounted on pneumatic tires. It shall be equipped with a pump and a circulating spray bar. The unit shall include a tachometer, pressure gages, accurate volume-measuring devices such as a visual volume dial or gage calibrated to the tank, and a tank thermometer. The blotter spreader shall be self-powered and mounted on pneumatic tires. It shall be equipped with adjustable openings so the required amount of blotter material will be deposited uniformly over the full width of the dust abatement material. All equipment shall be standard, commercial types of proven performance.

5. WEATHER LIMITATIONS

Bituminous dust abatement materials shall be applied only when the surface to be treated contains sufficient moisture to obtain uniform dispersion of the dust palliative when the road surface and atmospheric temperature are 50 degrees F (10 degrees C) or more and rising, or above 60 degrees F (16 degrees C) if falling; and when the weather is not foggy, rainy, or stormy.

6. PREPARATION OF SURFACE

The surface shall be lightly bladed and rolled with a smooth-wheel roller immediately before application of the bituminous dust abatement material. The moisture content of the top 1 inch of the surface to be treated shall be slightly damp.

7. APPLICATION

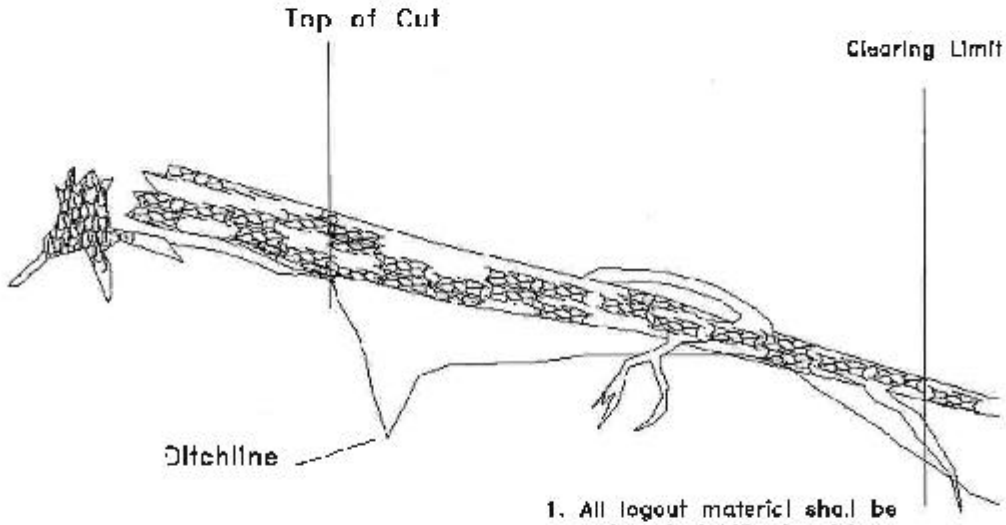
Bituminous dust abatement materials shall be applied at times agreed by Forest Service. The rate of application shall be varied as necessary to abate the dust without vehicle pickup unless blotter is used. A pressure distributor shall be used to obtain a uniform, continuous spread. Overlapping or skipping between spread sections shall be corrected. The surface of adjacent structures and trees shall be protected from spattering or marring. Dust abatement materials shall only be discharged in approved areas.

Blotter material if necessary shall be spread in the quantities needed to prevent vehicle pickup at times agreed by Forest Service. Immediately after the blotter has been spread, any piles, ridges, or uneven distribution shall be removed for user safety.

ALL ROADS

Location of weeds infested areas are marked on the ground. Do not operate in the weed infested areas unless ordered to do so by the Contracting Officer.

839-1



1. All logout material shall be moved and stabilized outside of clearing limits.

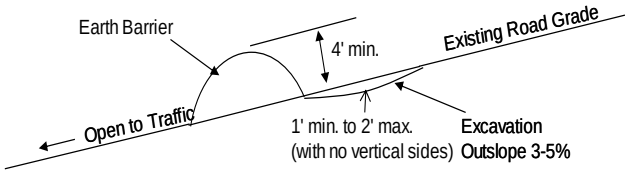
2. Material shall be placed in where it will not create any obstructions.

3. Any tree under 8" dbh that is leaning over the roadbed shall be considered logout material.

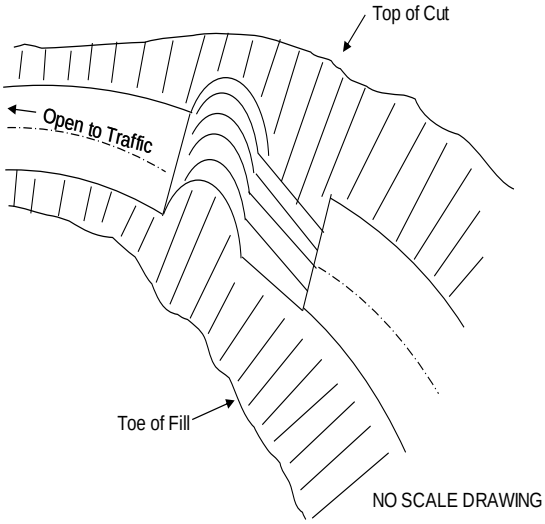
LogOut

Not to Scale

EARTH BARRIER TYPICAL 839-5B



ISOMETRIC VIEW



NO SCALE DRAWING

Note:

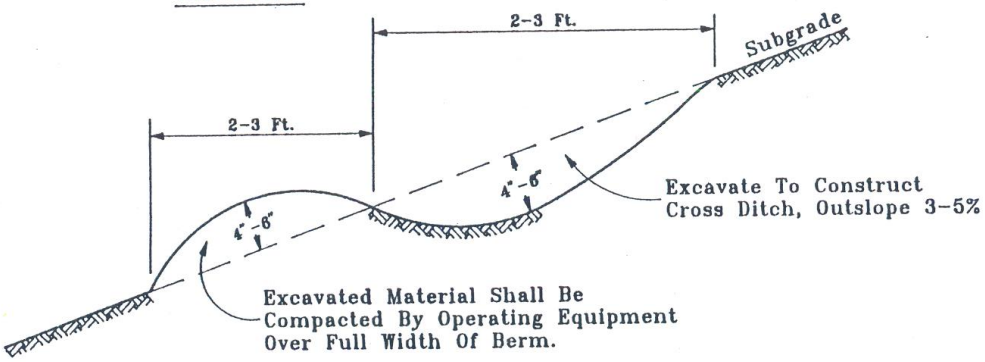
Location of earth barrier shall be staked on the ground by the Forest Service.

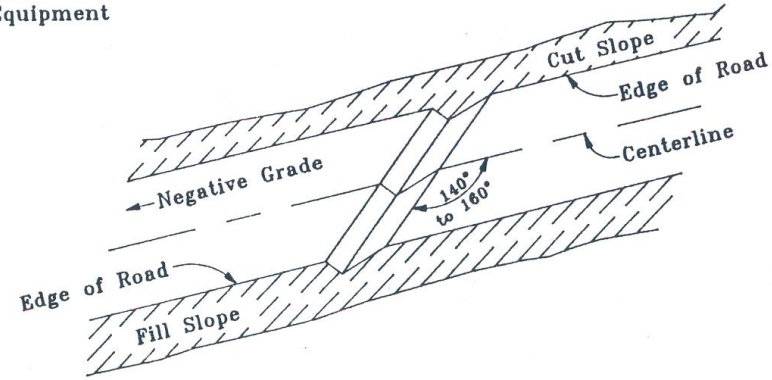
Boulders may be incorporated in the earth barrier. Earth barriers shall be constructed to a minumum height of 4' across roadway. Excavation area from existing roadbed shall be sloped at a minumum of 3 horizontal to 1 vertical.

CROSS DITCH (UTAH DIP) TYPICAL

T-839A-10A

SECTION





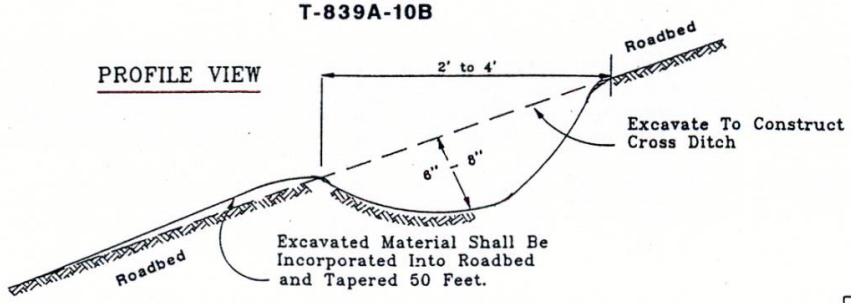
NOT TO SCALE

ISOMETRIC VIEW

W = Waterbar/Cross Ditch Detail

T-839A-10B

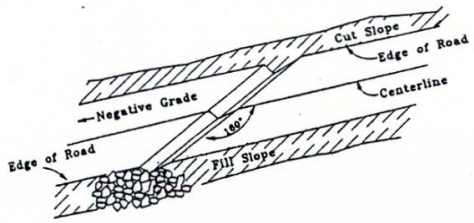
PROFILE VIEW



NOT TO SCALE

Treat Outlet as shown in

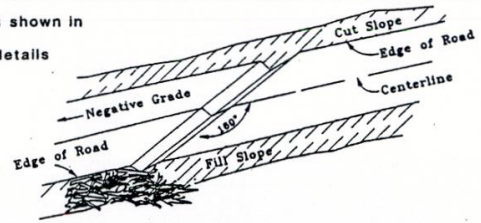
one of these details



#1

Fill slope shall be rocked to a 10' width, 1' depth, centered on the cross ditch outlet.

#2



Slash shall be placed on fill slope from cross ditch to toe of fill, to reduce soil erosion. Slash not over 4" in diameter and not more than 6' in length shall be placed as flat as possible on the fill slope. The width of the slash apron shall not be less than 15', centered on the outlet.

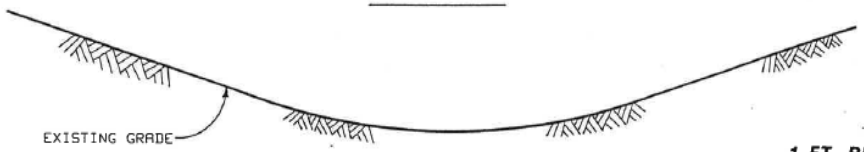
SHEET	TOTAL SHEETS

LOW WATER CROSSING TYPICAL

NO SCALE DRAWING

CONSTRUCTION

PROFILE



CROSS SECTION

1 FT. BELOW NATURAL CHANNEL

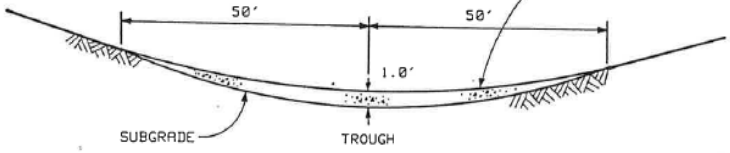
SUBGRADE
OUTSLOPE 3-5% FOR 25'
EACH SIDE OF TROUGH

* - CONSISTS OF NATURAL LOW POINT THAT SHALL BE OUTSLOPED AS SHOWN.

ROCKING

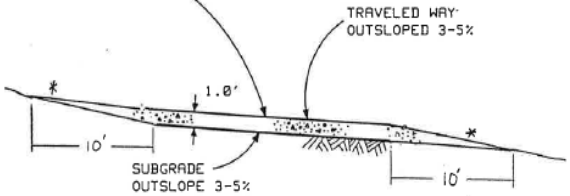
ESTIMATE 32 C.Y. OF ROCK
EACH GRADE SAG WHEN REQUIRED
AS SHOWN ON WORK DETAILS

ITEM 304(04)



TROUGH SHALL BE ALIGNED WITH NATURAL CHANNEL

PROFILE



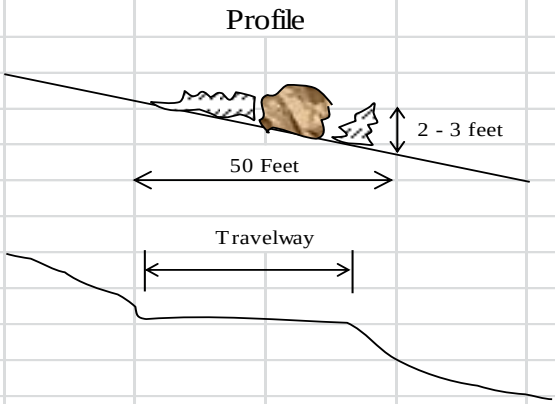
CROSS SECTION

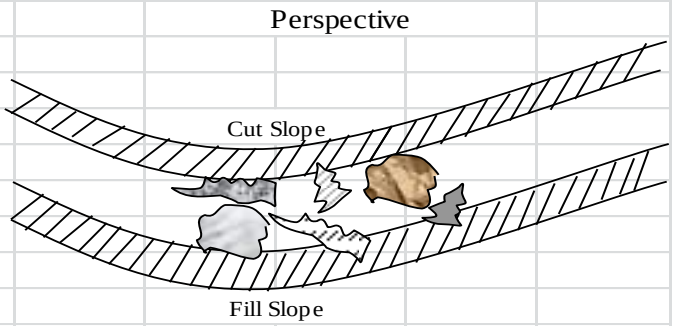
T-839A-10D

***CUTSLOPE AND FILL SLOPE - ROCK NATIVE CHANNEL WIDTH**

BARRIERS 839-16 A and B

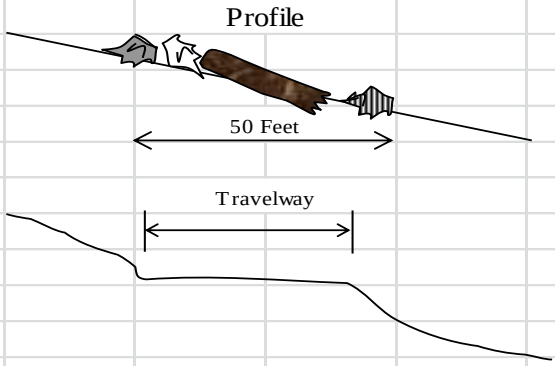
839-16A TOPS AND LIMBS BARRIER

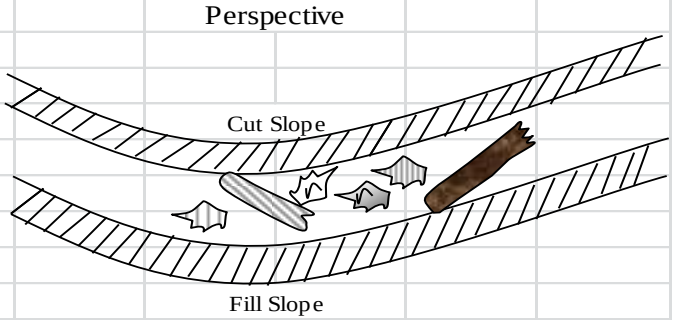




NOTES:
(1) Location of barrier shall be staked on the ground by the Forest Service.
(2) Pile tops and limbs the width of the travelway. The concentration height shall be at least 2 - 3 feet high and 200 feet in length.

839-16B STUMPS AND/OR CULL LOG BARRIER

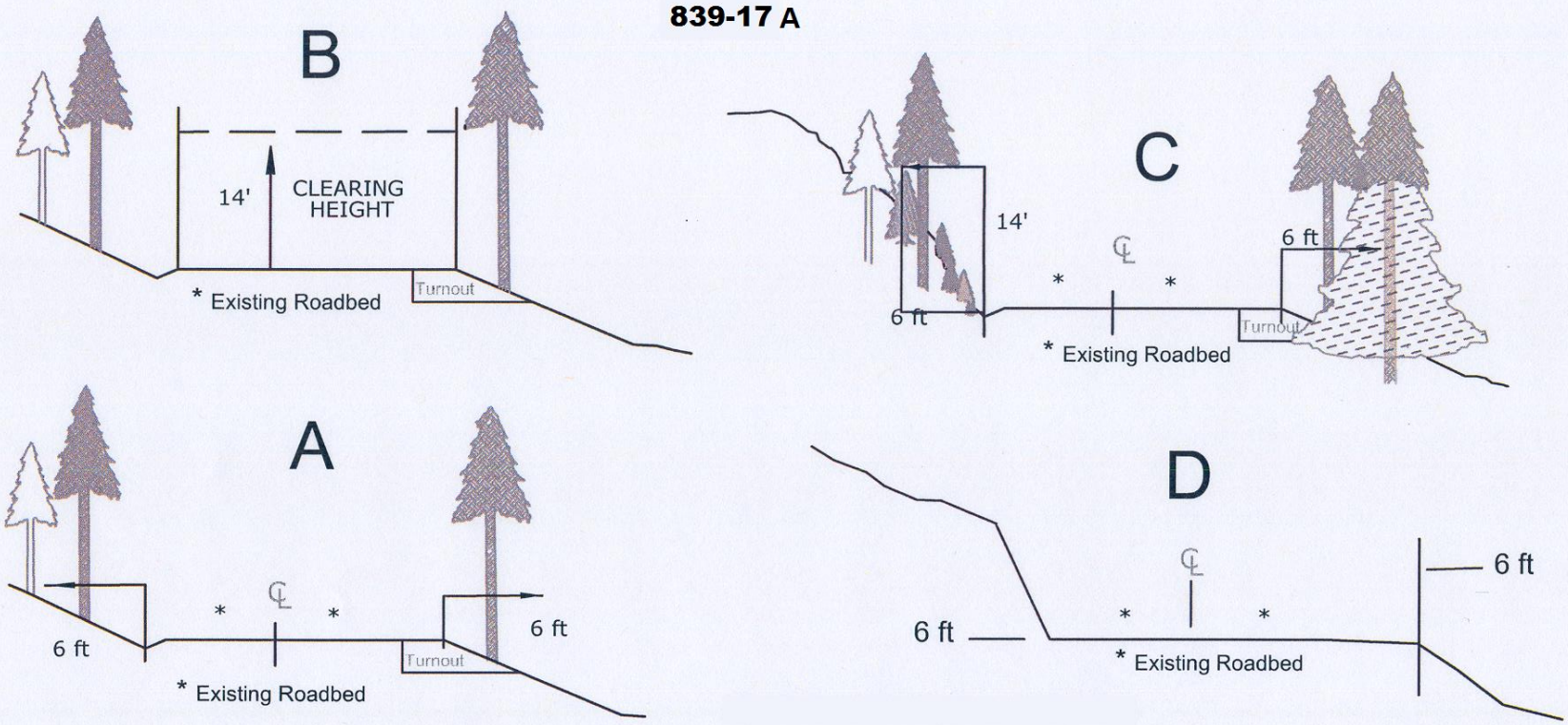




NOTES:
(1) Location of barrier shall be staked on the ground by the Forest Service
(2) Scatter stumps and/or cull logs randomly on travelway for a distance of 200 feet measured along centerline. At least 50% of the area shall be covered.

DRAWINGS NOT TO SCALE

839-17 A



ESTABLISHED CLEARING LIMITS

TYPICAL

NO SCALE

A. ALL VEGETATION within the established clearing limits and 6-feet (horizontally) from the bottom of the ditchline **or hinge point** shall be cut. All woody debris within the clearing limits shall be removed when it interferes with the flow of traffic, obscures signs, impedes flow of water, or diverts water from drainage structures.

B. Branches on remaining conifers shall be trimmed from ground level to a clearing height limit to 14-feet (vertically) above the roadbed.

C. ALL limbs on vegetation within the clearing limits shall be cut to within 4-inches of the trunk.

Trees that have vegetation trimmed for clearing shall be trimmed around the trunk of the tree. The exception is heavy stands where stems are within 2-feet of each other.

All vegetation with a DBH of 8-inches LESS shall be removed to a maximum height of 6-inches above ground surface. Remove the lowest live limb **on all cut** stems.

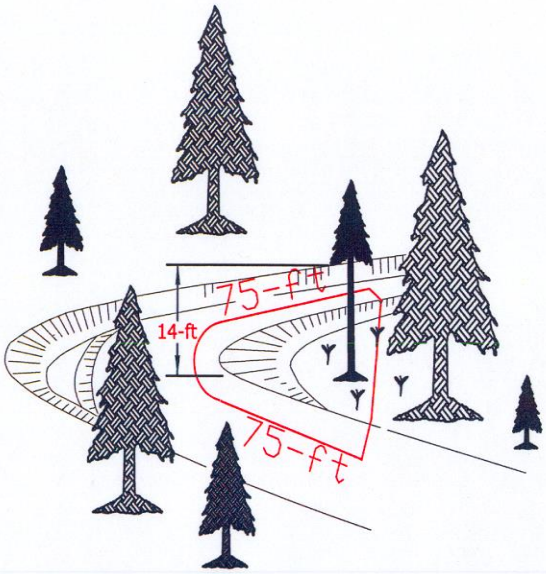
Trees with DBH 8-inches or MORE shall be limbed according to specifications.

D. When the road edge is not defined on roads the treated area for double lane shall be 18' from both sides of centerline; Single lane with turnouts shall be 13' both sides from centerline; turnout area shall be increased by 8'.

MALHEUR NATIONAL FOREST
CLEARING LIMITS TYPICAL
February 2008

839-17 B

SITE DISTANCE / CORNER CLEARING



SIGHT DISTANCE - CORNERS
TYPICAL

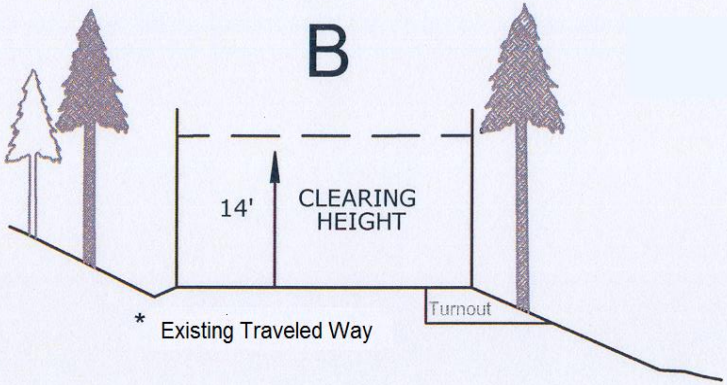
THE AREA OF SIGHT DISTANCE CLEARING SHALL BE 75 FEET FROM THE CENTER OF THE CURVE BOTH DIRECTIONS; TO A LINE OF SIGHT BETWEEN THE BEGINNING AND ENDING STATIONS THE CONTRACTOR MARKS ON THE GROUND.

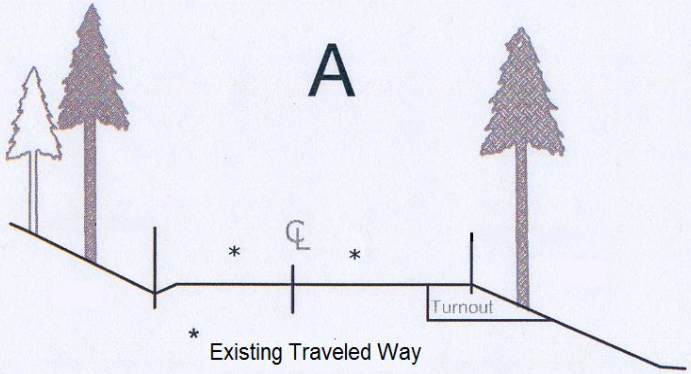
SMALL CONIFERS WITHIN THIS AREA SHALL BE THINNED TO APPROX. A 12 FOOT TRUNK SPACING. TREES WITH 8" DBH SHALL REMAIN, LIMBS & BRUSH WITHIN CLEARING LIMITS SHALL BE REMOVED.

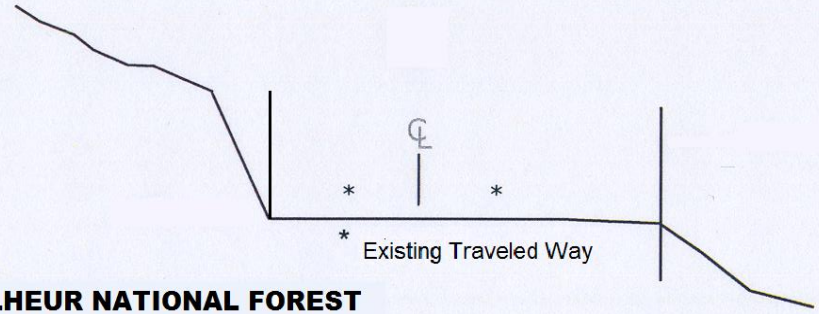
Trees in project area shall be designated for removal.

NO SCALE

MALHEUR NATIONAL FOREST -2008







MALHEUR NATIONAL FOREST

ESTABLISHED CLEARING LIMITS

TYPICAL

NO SCALE

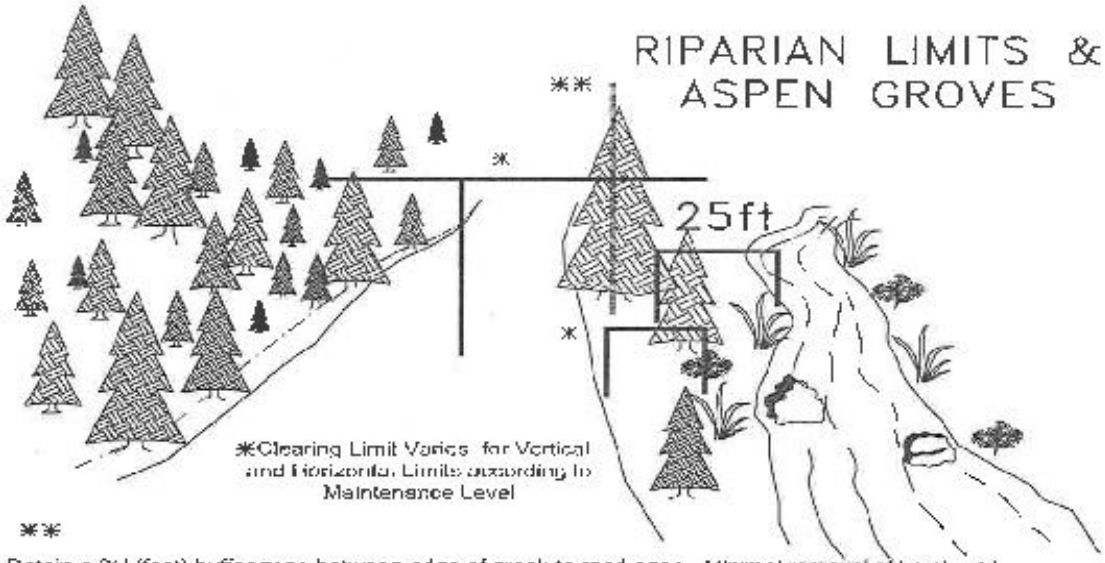
A. ALL VEGETATION within the established clearing limits from the bottom of the ditchline or hinge point shall be cut. All woody debris within the clearing limits shall be removed when it interferes with the flow of traffic, obscures signs, impedes flow of water, or diverts water from drainage structures.

B. Branches on remaining conifers shall be trimmed from ground level to a clearing height limit to 14-feet (vertically) above the roadbed.

ALL limbs on vegetation within the clearing limits shall be cut to within 4-inches of the trunk.

All vegetation with a DBH of 8-inches LESS shall be removed to a maximum height of less than 6-inches above ground surface. Remove the lowest live limb on all cut stems.

839–17D



Retain a 25' (feet) buffer zone between edge of creek to road edge. Minimal removal of brush and limbs to be trimmed. The trees over 8" (inch) DBH shall be limbed on the road side of the tree, the portion facing the creek shall not be limbed. Clearing for sight distance is the only exception.

Brush along the road edge shall be cut in a manner that the remaining stem is less than 6-inch (height).

Aspen groves: Minimal treatment areas. Remove trees overhanging or protruding onto the roadbed to 14'. Clear ditchlines measuring 3' (feet) from bottom of ditch.

HNF/016B