# ATTACHMENT 3 - APPENDIX C

C5.31# – ROAD MAINTENANCE REQUIREMENTS. (9/04) Contractor shall maintain roads in accordance with the following Contract Road Maintenance Requirements Summary:

| MANDATORY PRE HAUL | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ROAD | TERMINI | | MILES | ROAD MAINTENACE T-SPECIFICATIONS | | | | | | | | | | |
| | FROM | TO | | T-801 | T-802 | T-803 | T-804 | T-805 | T-806 | T-807 | T-808 | T-809 | T-810 | T-814 |
| 1201 | Oneidas St | 12N17 | 0.9 | | | | | C | | C | C | | | |
| 12N17 | 1201 | 12N08 | 0.5 | | | C | | C | | C | C | | | |
| 12N08 | Temp Rd Unit 13 | 12N17 | 0.3 | | | C | | C | | C | C | C | | C |
| 12N08 | Temp Rd Unit 7 | Columbine Trail Pavement | 1.2 | | | C | | C | | C | C | C | | C |
| 12N20 | Nez Perce Dr | Unit 29 | 1.2 | | | C | | C | | C | C | C | | C |
| All Temp Roads | Beginning | End | .75 | | | C | | C | | C | C | | | |

| MANDATORY DURING HAUL | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ROAD | TERMINI | | MILES | ROAD MAINTENACE T-SPECIFICATIONS | | | | | | | | | | |
| | FROM | TO | | T-801 | T-802 | T-803 | T-804 | T-805 | T-806 | T-807 | T-808 | T-809 | T-810 | T-814 |
| 1201 | Oneidas St | 12N17 | 0.9 | | C | | | C | | | | | | |
| 12N17 | 1201 | 12N08 | 0.5 | | | C | | C | C | C | C | | | |
| 12N08 | Temp Rd Unit 13 | 12N17 | 0.3 | | | C | | C | C | C | C | | | |
| 12N08 | Temp Rd Unit 7 | Columbine Trail Pavement | 1.2 | | | C | | C | C | C | C | | | |
| 12N20 | Nez Perce Dr | Unit 29 | 1.2 | | | C | | C | C | C | C | | | |
| All Temp Roads | Beginning | End | .75 | | | C | | C | C | C | C | | | |

| MANDATORY POST HAUL | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ROAD | TERMINI | | MILES | ROAD MAINTENACE T-SPECIFICATIONS | | | | | | | | | | |
| | FROM | TO | | T-801 | T-802 | T-803 | T-804 | T-805 | T-806 | T-807 | T-808 | T-809 | T-810 | T-814 |
| 1201 | Oneidas St | 12N17 | 0.9 | | C | | C | C | | | C | | | |
| 12N17 | 1201 | 12N08 | 0.5 | | | C | | C | | C | C | | | |
| 12N08 | Temp Rd Unit 13 | 12N17 | 0.3 | | | C | | C | | C | C | C | C | C |
| 12N08 | Temp Rd Unit 7 | Columbine Trail Pavement | 1.2 | | | C | | C | | C | C | C | C | C |
| 12N20 | Nez Perce Dr | Unit 29 | 1.2 | | | C | | C | | C | C | C | | C |
| All Temp Roads | Beginning | End | .75 | | | C | | C | | C | C | C | C | |

| OPTIONAL PRE HAUL | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ROAD | TERMINI | | MILES | ROAD MAINTENACE T-SPECIFICATIONS | | | | | | | | | | |
| | FROM | TO | | T-801 | T-802 | T-803 | T-804 | T-805 | T-806 | T-807 | T-808 | T-809 | T-810 | T-814 |
| All Temp Roads | Beginning | End | 1 | | | C | | C | | C | C | | | |

| OPTIONAL DURING HAUL | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ROAD | TERMINI | | MILES | ROAD MAINTENACE T-SPECIFICATIONS | | | | | | | | | | |
| | FROM | TO | | T-801 | T-802 | T-803 | T-804 | T-805 | T-806 | T-807 | T-808 | T-809 | T-810 | T-814 |
| All Temp Roads | Beginning | End | 1 | | | C | | C | C | C | C | | | |

| OPTIONAL POST HAUL | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ROAD | TERMINI | | MILES | ROAD MAINTENACE T-SPECIFICATIONS | | | | | | | | | | |
| | FROM | TO | | T-801 | T-802 | T-803 | T-804 | T-805 | T-806 | T-807 | T-808 | T-809 | T-810 | T-814 |
| All Temp Roads | Beginning | End | 1 | | | C | | C | | C | C | C | C | |

Notes
C = Contractor Performance Item
The maximum volume of Contractor responsibility for Slide and Slump repair is 20 cubic yards

O = Optional Contract Line Item
NFSR = National Forest Service Road
CR = County Road
JCT = Junction
MP = Milepost
EOR = End of Road

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## ROAD MAINTENANCE T-SPECIFICATIONS FOR STEWARDSHIP CONTRACTS

Contractor shall maintain roads in accordance with the following Contract Road Maintenance Requirements Summary:

| T-SPECIFICATIONS | |
|---|---|
| **T-SPEC NUMBER** | **SPECIFICATION TITLE** |
| T-800 | Definitions |
| T-801 | Slide and Slump Repair |
| T-802 | Ditch Cleaning |
| T-803 | Surfacing Blading |
| T-804 | Surfacing Repair |
| T-805 | Drainage Structures |
| T-806 | Dust Abatement |
| T-807 | Roadway Vegetation |
| T-808 | Miscellaneous Structures |
| T-809 | Waterbars |
| T-810 | Barriers |
| T-814 | Drainage Excavation |

## SPECIFICATION T-800 DEFINITIONS

Wherever the following terms or pronouns are used, 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**—Clearing Limits—The limits of clearing as designated on the ground or on the drawings.

**800-1.7**—Crown, Inslope, and Outslope—The cross slope of the Traveled Way to aid in drainage and traffic maneuverability.

**800-1.8**—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.

**800-1.9**—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.

**800-1.10**—Drainage Structures—Manufactured structures which control the runoff of water from the Roadway including Inslope, overside drains, aprons, flumes, downdrains, downpipes, culverts and the like.

**800-1.11**—Dust Abatement Plan—A table which lists the road, dust palliative, application rates, and estimated number of subsequent applications.

**800-1.12**—Lead-off Ditches—A ditch used to transmit water from a Drainage Structure or Drainage Dip outlet to the natural drainage area.

**800-1.13** —Material—Any substances specified for use in the performance of the work.

**800-1.14**—Prehaul Maintenance—Road maintenance work which must be accomplished to maintain the roads to a satisfactory condition commensurate with the Contractor's use, provided Contractor's operations do not damage improvements in Section H.21 of the contract/solicitation or National Forest resources and hauling can be done safely. This work will be shown in the above Road Maintenance Requirements.

Prehaul Maintenance work the Contractor elects to perform will be in compliance with the Road Maintenance T-Specifications.

**800-1.15**—Right-of-Way—A general term denoting:

(1) The privilege to pass over land in some particular line (including easement, lease, permit, or license to occupy, use, or traverse public or private lands), or

(2) Land, appurtenances thereto, or interest therein, usually in a strip, acquired for public or private passageway.

**800-1.16**—Roadbed—The portion of a road between the intersection of Subgrade and sideslopes, excluding that portion of the ditch below Subgrade.

**800-1.17**—Road Maintenance Requirements—A table which shows applicable road maintenance specifications to be performed by Contractor on specific roads.

**800-1.18**—Roadside—A general term denoting the area adjoining the outer edge of the Roadway.

**800-1.19**—Roadway—The portion of a road within the limits of excavation and embankment.

**800-1.20**—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.

**800-1.21**—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 raveling.

**800-1.22**—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.

**800-1.23**—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.

**800-1.24**—Special Project Specifications—Specifications which detail conditions and requirements peculiar to the individual project.

**800-1.25**—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.

**800-1.26**—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.

**800-1.27**—Surface Treatment Plan—A table which lists the roads and surface treatments to be applied.

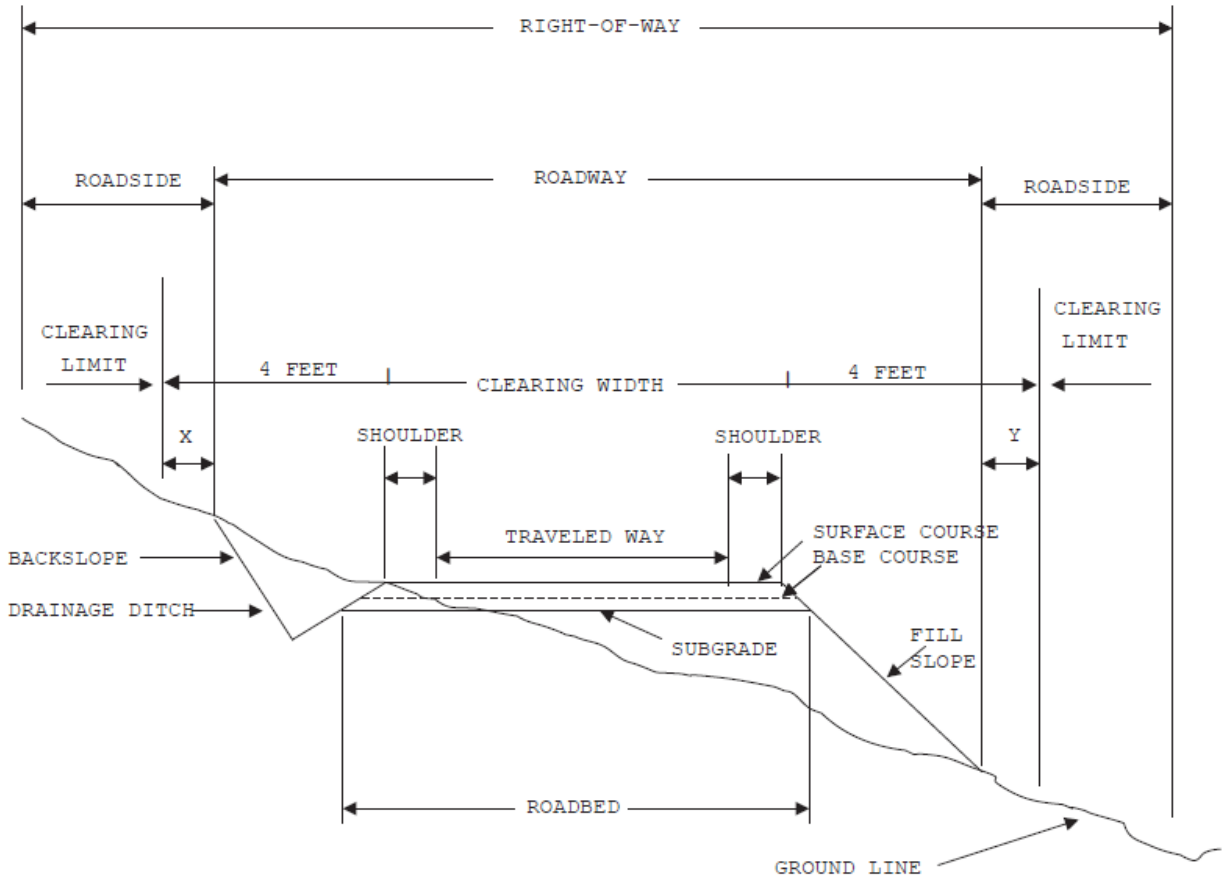
**800-1.28**—Traveled Way—That portion of Roadway, excluding Shoulders, used for the movement of vehicles.

**800-1.29**—Turnouts—That portion of the Traveled Way constructed as additional width on single lane roads to allow for safe passing of vehicles.

**800-1.30**—Water Source—A place designated on the Road Maintenance Map for acquiring water for road maintenance purposes.

**800-1.31**—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.

**ILLUSTRATION OF ROAD STRUCTURE TERMS**



# SPECIFICATION T-801 SLIDE AND SLUMP REPAIR

DESCRIPTION:

**1.1**—Slide removal is the removal from Roadway and disposal of any Material, such as soil, rock, and vegetation that cannot be routinely handled by a motor grader during Ditch Cleaning, T-802, and Surface Blading, T-803 Operations.

Slump repair is the filling of depressions or washouts in Roadway which cannot be routinely filled by a motor grader during Surface Blading, T-803 Operations.

Slide removal and Slump repair includes excavation, loading, hauling, placing, and compacting of waste or replacement Material and the development of disposal or borrow areas.

REQUIREMENTS:

**3.1**—Slide Material, including soil, rock and vegetative matter which encroaches into the Roadway, shall be removed. The slope which generated the Slide Material shall be reshaped during the removal of the Slide Material with the excavation and loading equipment. Slide Material deposited on the fillslope and below the Traveled Way will not be removed unless needed for slope stability or to protect adjacent resources.

Surface and Base Courses shall not be excavated during Slide removal operations.

Slide Material which cannot be used for other beneficial purposes shall be disposed of at sites designated by the Forest Service. Material placed in disposal sites will not require compaction unless shown on the Road Maintenance Requirements. Side casting may be approved by the Forest Service. Side casting into streams, lakes or water courses will not be permitted.

**3.2**—When filling Slumps or washouts, Material shall be moved from agreed locations or borrow sites, placed in layers, and compacted by operating the hauling and spreading equipment uniformly over the full width of each layer.

Existing aggregate surfacing shall be salvaged when practical and re-laid after depressions have been filled.

Damaged aggregate base, aggregate surfacing, and bituminous pavement shall be repaired under Specification T-804 Surfacing Repair.

The repaired areas of the Slump shall conform to the cross-section which existed prior to the Slump and shall blend with the adjacent undisturbed Traveled Way.

**3.3**—The maximum volume of Contractor responsibility for Slide and Slump repair is 10 Cubic yards per 100 foot station. Greater volumes of Slide and Slump repair are Forest Service responsibility.

MEASUREMENT:

**4.1**—Slide removal will be measured by the cubic yard, determined by truck measure, for materials acceptably removed.

Materials used for slump repair will be measured by the cubic yard, determined by truck measure, for materials acceptably placed.

Vehicles shall be loaded to at least their water level capacity.

# SPECIFICATION T-802 DITCH CLEANING

DESCRIPTION:

**1.1**—Ditch cleaning is removing and disposing of all Slough Material and other debris from Roadway ditches, including outlet and lead-off ditches, to provide a free-draining waterway.

REQUIREMENTS:

**3.1**—Ditch cleaning shall be repeated during the year as often as necessary to facilitate proper drainage.

**3.2**—All Slough Material or other debris which might obstruct water flow in the Roadway ditch shall be removed. Material removed from the ditch, if suitable, may be blended into existing native road surface or Shoulder or placed in designated Berms in conjunction with Surface Blading T-803 operations.

Material removed from ditches that is not by Agreement blended into existing roads or placed in Berms shall be loaded and hauled to the disposal site designated by the Forest Service.

**3.3**—Roadway backslope or Berm shall not be undercut.

MEASUREMENT:

**4.1**—Ditch cleaning will be measured to the nearest one-tenth (0.1) mile of cumulative ditch line cleaned on each road.

# 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 Contractor'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 Contract 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. Unless otherwise designated by the Forest Service, the oversized Material shall be disposed of by sidecasting. 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 other accumulated debris, shall be removed from bridge decks and the deck drains opened. This includes existing debris under pre haul maintenance.

MEASUREMENT:

**4.1**—Surface blading will be measured to the nearest one-tenth (0.1) mile as measured by calibrated vehicle odometer along the road centerline.

# SPECIFICATION T-804 SURFACING REPAIR

DESCRIPTION:

**1.1**—Surfacing repair is repairing potholes or small soft areas in the Traveled Way. It includes area preparation and furnishing and placing all necessary Materials, and other work necessary to repair the surface.

MATERIALS:

**2.1**—Material used in the repair of soft areas on aggregate or native surfaced roads may be acquired from approved commercial sources, designated Forest Service Borrow areas, or Borrow sources agreed to. The quality and quantity of the imported Material used in the repair will be limited to that needed to provide a stable Traveled Way for hauling and to minimize damage to the road and adjacent resources. The quantity of imported surface repair Material used in the appraisal estimate will be shown on Road Maintenance Plan. However, the magnitude of the work may vary depending on Contractor's hauling schedule and ground conditions.

**2.2**—Material used in the repair of bituminous pavements may be acquired from local commercial sources. If a mixing table is required, the location shall be approved by the Forest Service. The bituminous mixture to be used by the Contractor shall be approved by the Forest Service. The Contractor's share of the quality of bituminous mixture used in the appraisal estimate will be shown on Road Maintenance Plan. However, Contractor's share of the work may vary depending on Contractor's hauling schedule, ground conditions, other traffic, etc.

REQUIREMENTS:

**3.1**—Work under this specification shall be performed in a timely manner to reduce further deterioration of the Traveled Way.

**3.2**—Soft spots on aggregate or native surfaces shall be repaired by placing the imported Surface Course on top of the soft spot. Layers of imported Material shall be placed until a firm surface is produced.

**3.3**—Bituminous Pavement Repairs—The areas to receive bituminous pavement repairs will be marked on the road surface by the Forest Service just prior to Contractor performing the work.

**3.4**—Potholes (deep patch)—Surface Course and Base Course Materials shall be excavated to a depth necessary to reach firm, suitable Material. The minimum depth of excavation shall be 2 inches and the maximum depth of excavation shall be to the top of the Subgrade.

The edges of the prepared hole shall be extended to form a vertical face in unfractured asphalt surfacing. The prepared hole shall generally be circular or rectangular in shape, dry, and cleaned of all loose Material.

Prepared potholes shall be patched or barricaded immediately.

The faces of the prepared hole shall be tacked with a slow-setting emulsified asphalt.

The bituminous mixture shall be placed in layers not exceeding a compacted depth of 2 inches. Each layer shall be compacted thoroughly with hand or mechanical tampers or rollers. Compaction shall not be done with equipment wheels.

Upon completion, the compacted patch in the pothole shall be flush, with a tolerance or approximately ¼ inch to ½ inch above the level of the adjacent pavement.

**3.5**—Skin Patches—Bituminous mixture shall be distributed uniformly with feathered edges in layers not to exceed 2 inches compacted depth. When multiple layers are ordered, joints shall be offset at least 6 inches between layers.

Each layer shall be compacted by two passes with a 7-10 ton steel roller or comparable vibratory roller.

**3.6**—Asphalt Berm—Damaged segments of Berm shall be removed and the exposed ends beveled at approximately 45 degrees from vertical. The Berm foundation shall be cleaned and patched as necessary. The foundation and joining surfaces shall be coated with a slow-setting emulsified asphalt. Asphalt mix shall be placed and compacted to conform with the shape and alignment of the undamaged segment.

**3.7**—Disposal—All Materials removed from potholes, patches, and Berms shall be disposed of at disposal sites designated by the Forest Service.

MEASUREMENT:

**4.1**—Surface repair for native roads will be measured by the Cubic Yard as determined by the average end area of the segments to be repaired. Surface repair for the aggregate surfaced roads will be determined by truck measure for material acceptably placed. Vehicles shall be loaded to at least their water level capacity.

# SPECIFICATION T-805 DRAINAGE STRUCTURES

DESCRIPTION:

**1.1**—This work consists of maintaining Drainage Structures and related items such as conveyor belt water deflectors, inlet and outlet channels, existing riprap, trash racks, and drop inlets.

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 designated by the Forest Service.

**3.2**—If outlet or inlet riprap was installed by Contractor as a construction item or existed prior to Contractor'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.

MEASUREMENT:

**4.1**—Culvert cleaning measurement will be the number of units of each culvert type. Cleaning of catch basins, outlet ditches, headwalls, riprap, and drop inlets shall be incidental to this item.

Drainage dip clearing measurement will be the number of dips completed and accepted. Lead-off ditch cleaning shall be incidental to this item.

# SPECIFICATION T-806 DUST ABATEMENT

DESCRIPTION:

**1.1**—This work consists 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.

**2.3**—Dust abatement Materials shall meet the requirements of the following subsections of FP-14 Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects.

| | |
|---|---|
| Emulsified Asphalt | 702.03 |
| Blotter Material | 703.13 |
| Magnesium or Calcium Chloride Brine | 725.02 |
| Calcium Chloride Flake | 725.02 |
| Lignin Sulfonate | 725.20 |

**2.4**—Testing of Materials. Certification of magnesium chloride, calcium chloride brine, calcium chloride flake, blotter material and lignin sulfonate will be provided by the manufacturer and approved by the Forest Service.

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 safely, 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.

**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.

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.

## SPECIFICATION T-807 ROADWAY VEGETATION

DESCRIPTION:

**1.1**—This work consists of cutting vegetative matter including brush and trees from within the Roadway limits.

REQUIREMENTS:

**3.1**—Remove all vegetative matter 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**—Remove all vegetative matter from Roadbed and ditch for a minimum Roadbed width of 12 feet and ditch width of 3 feet. Roadbed width includes extra width for curve widening and turnouts. Cut trees and brush parallel to the ground and to a maximum height of 1 inch above the ground. All limbs which extend over the Roadbed or ditch within 14 feet above the road elevation shall be removed. Tree limbs shall be trimmed as near flush with the trunk as practicable or to within 12 inches from the tree.

**3.3**—Remove all vegetative matter from Roadway which interferes with rolling dip or culvert drainage, road maintenance operations such as surface blading and ditch cleaning, and on curves and intersections where sight distance is impeded.

**3.4**—Vegetative matter removed from the Roadway in excess of **1** foot in length or **3** inches in diameter shall be scattered outside the roadway to a depth less than **18** inches above the ground.

**3.5**—Vegetative matter shall not be placed in live streams or drainages.

**3.6**—Vegetative matter removed from the Roadway shall be treated by the specified method.

MEASUREMENT:

**4.1**—Cutting roadside and roadway vegetation will be measured by linear measurement, horizontally along the road centerline as measured to the nearest one-tenth (0.1) mile or to the nearest **100** foot station, by the number of acres and fractions thereof within the designated area regardless of the amount of work required, or as a lump sum for the complete unit of work.

# SPECIFICATION T-808 MISCELLANEOUS STRUCTURES

DESCRIPTION:

**1.1**—Maintenance of miscellaneous structures includes cattleguards, gates, and other similar structures that have been previously installed to insure safe and efficient operation of the road.

MATERIALS:

**2.1**—Any Materials needed in the maintenance of miscellaneous structures shall be similar in type and quality to the Material in the structure being maintained.

REQUIREMENTS:

**3.1**—Cattleguards—Loose rails shall be welded or bolted back in place.

Excess Material carried into the cattleguard shall be removed when drainage is blocked or when it reaches **6** inches from the bottom of the cattleguard frame. Drainage into and from the cattleguard shall be kept open.

**3.2**—Gates shall be kept in good repair and made to swing easily. Hinges or latches shall be repaired if not operating properly.

Brush and debris shall be removed from within the swinging radius.

MEASUREMENT:

**4.1**—Measurement will be the number of units for each item listed in the Annual Road Maintenance Plan completed and accepted.

## SPECIFICATION T-809 WATERBARS

DESCRIPTION:

**1.1**—This work consists of installing or removing Waterbars in the Roadbed.

REQUIREMENTS:

**3.1**—Waterbars shall be installed on roads shown on the Contract Area Map and/or Road Maintenance Plan in accordance with any drawings and at locations shown on the Contract Area Map and/or designated by the table below (if included), or staked on the ground (if applicable).

All Material excavated shall be used in the installation of the Waterbar. Bermed Material shall be compacted by operating heavy equipment over the length and width of the Berm.

**3.2**—Waterbars shall be removed on roads shown on the Contract Area Map and/or Road Maintenance Plan by blading the Berm into the adjacent depression to form a smooth transition along the Traveled Way. The length and width of the fill Material shall be compacted by the equipment performing the work.

**3.3**—Waterbars may be required to be installed between seasons of use and then removed when haul is resumed. Waterbar installation may also be required when use of a road has been completed.

**3.4**—Construct Waterbars by cutting a dip in the road surface and mounding the excavated material along the downgrade edge of the Waterbar. Waterbars shall be cut at a sufficient angle so that they will drain to the outside of the road. They shall cross the entire width of the roadbed and be constructed at the following spacing (see table below) unless otherwise designated by the Forest Service.

| **Percent Grade** | **Maximum Spacing** *(feet)* |
|---|---|
| 2 | 250 |
| 5 | 135 |
| 10 | 80 |
| 15 | 60 |
| 20 | 45 |

# SPECIFICATION T-810 BARRIERS

DESCRIPTION:

**1.1**—This work shall consist of furnishing, installing, or removing barriers. Gates are not included.

MATERIALS:

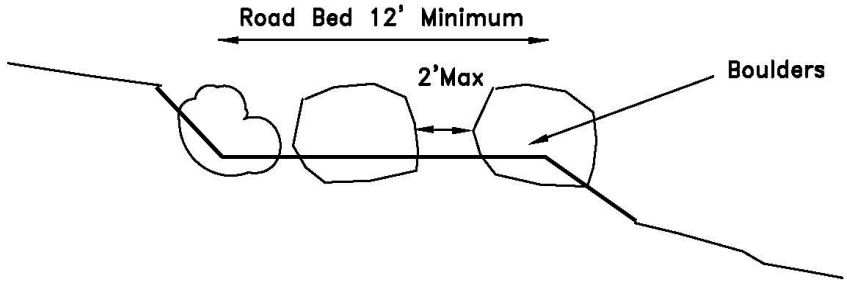
**2.1**—Materials for the barriers shall meet the requirements as shown on the attached drawings.

REQUIREMENTS:

**3.1**—Barriers shall be installed in accordance with the attached drawings.

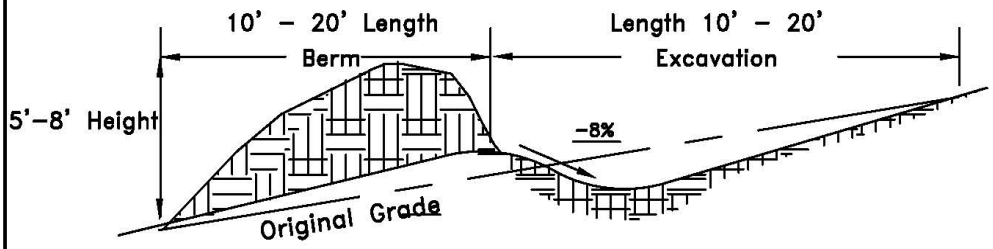
**3.2**—The location of barriers to be removed or installed are shown in the table below. Installation or removal may occur as often as road use is terminated and resumed.

| BARRIER LOCATIONS | | |
|---|---|---|
| **ROAD NUMBER** | **LOCATION** | **BARRIER TYPE** |
| All Temp Roads | All Units | Rock Barrier, Road Closed sign attached |




Rock size shall be a minimum of 3'x3'x2'.
Maximum spacing between rocks is 2'.
Rocks shall be embedded 1/3 of their depth into the roadbed
Place rocks across entire length of the road width to block vehicle access.

## Rock Barrier




Excavation depth 2' – 4'.
Slope excavation area to drain
Construct berm across entire length of road to block vehicle access.

## Earthen Berm

Rock & Earthen Berm Barrier

Attachment to T810-1

T810-1a

# SPECIFICATION T-814 DRAINAGE EXCAVATION

DESCRIPTION:

**1.1**—This work shall consist of excavation and shaping of roadway drainage structures to drain freely including rolling dips, grade dips, roadway ditches, lead-off ditches, and catch basins. Any clearing and grubbing necessary to accomplish the drainage excavation is considered incidental to the pay item.

WORK REQUIREMENTS:

**3.1**—Clearing & Grubbing—All trees, stumps, roots and other protruding vegetative material shall be cleared from drainage. Trees shall be cut into lengths not to exceed **5** feet and all limbs removed. Logs, slash and stumps shall be scattered outside the drainage or as directed by the Forest Service.

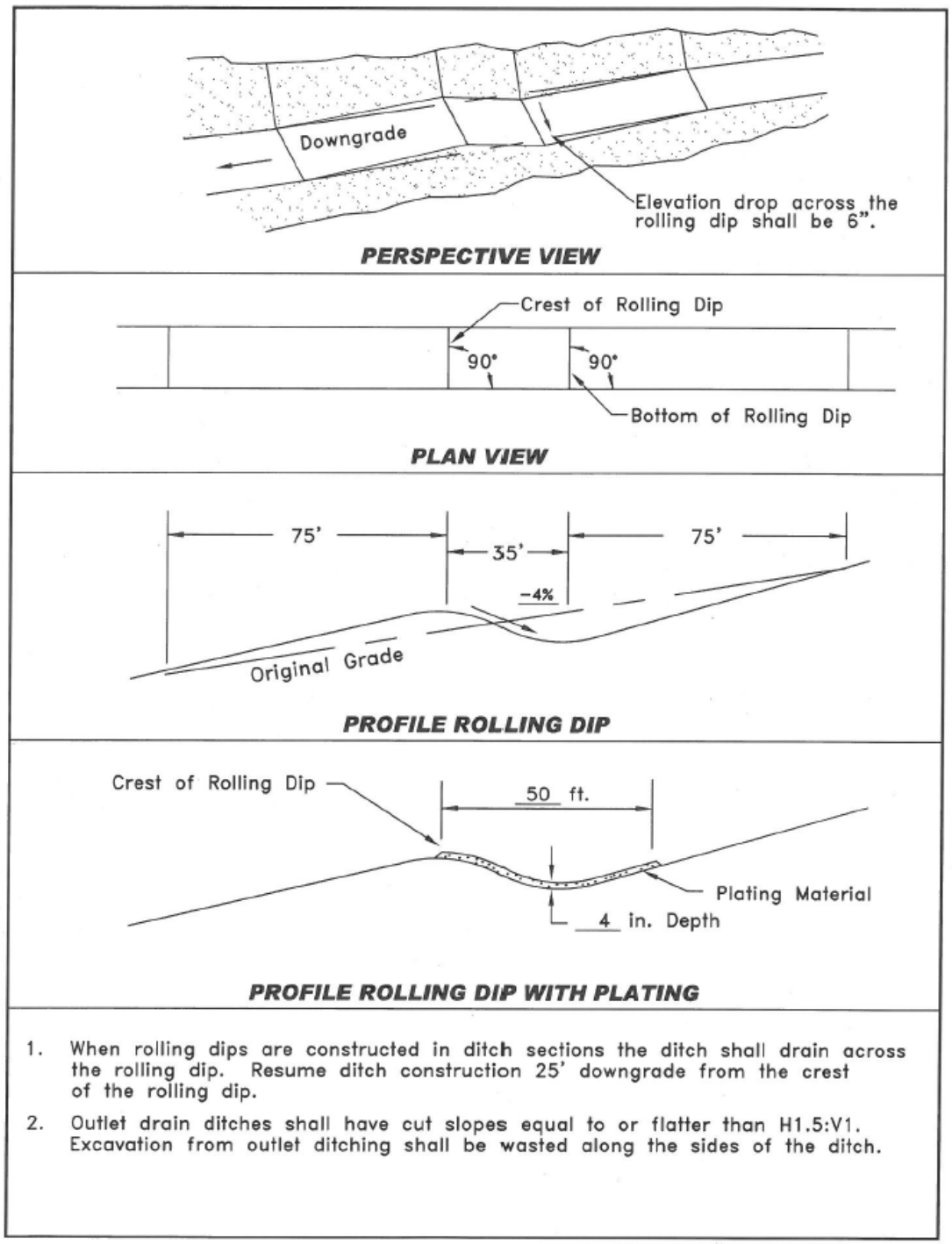
**3.2**—Excavation—Drainage structures shall be excavated and shaped to a depth and width to provide drainage in conformity with the line grades and cross section as shown on drawings at locations designated on the ground. Hand work may be necessary to obtain a smooth surface and uniform cross section. Lead-off ditches shall be provided for a distance necessary to drain unless otherwise approved by the Forest Service. Roadside ditches shall be free draining. Material removed if suitable, shall be blended into the existing native road surface or shoulders. Unsuitable material shall be spread evenly and not heaped against existing vegetation. Large rocks encountered during excavation of drainage structures that interfere with the lines and grades of the structure shall be removed, when practical and placed so that they will not roll or obstruct the use and maintenance of the roadway or moved to locations approved by the Forest Service.

MEASUREMENT:

**4.1**—Drainage dip and catch basin measurement will be the number of each item completed and accepted.

Roadside ditches and lead-off ditches will be measured by linear measurement, horizontally along the centerline of the ditch.

ROLLING DIP:




ROLLING DIP