

## **Swan Flat Stewardship Contract - Attachment 2**

### **System Road Decommissioning**

(K-G.9# - Stewardship Projects; Project 003)

#### **Includes:**

Road Plans (12 Pages)

Contract Specifications (53 Pages)



U.S. DEPARTMENT OF AGRICULTURE  
 FOREST SERVICE  
 REGION ONE  
**ROAD PLANS**  
 FOR  
**SWAN FLATS ROAD**  
**DECOMMISSIONING**



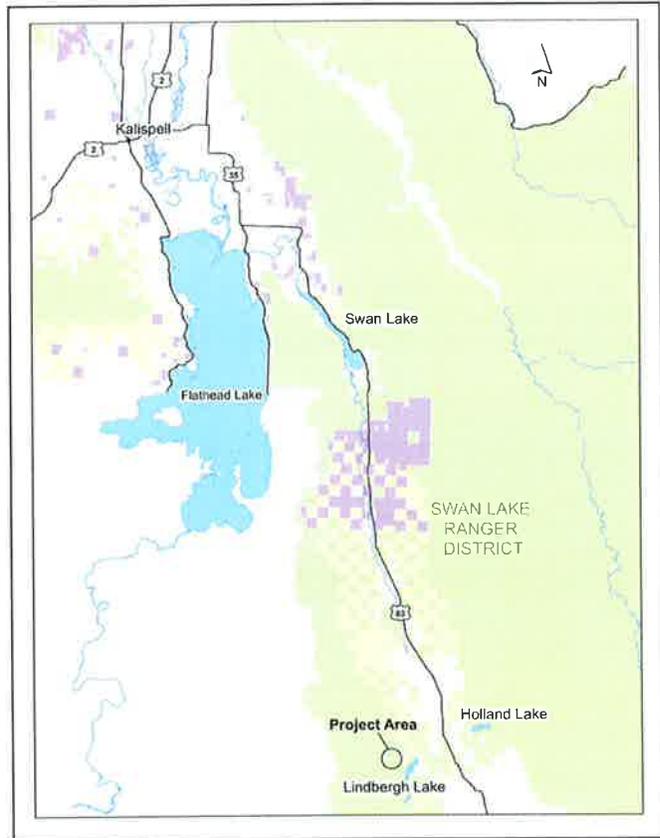
SWAN LAKE RANGER DISTRICT  
 FLATHEAD NATIONAL FOREST

**INDEX TO SHEETS**

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9	ROAD NO. 79Y
10-11	ROAD NO. 9573
12	ROAD NO. 10730

**SUMMARY OF ESTIMATED QUANTITIES**

ROAD NO.		MEASUREMENT		79B	79Y	9573	10730	TOTAL MI
ROAD LENGTH				0.20	0.75	0.42	0.45	1.82
ITEM NO.	ITEM DESCRIPTION	METHOD	UNIT					PROJECT TOTALS
15101	MOBILIZATION	LSQ	LS	-	-	-	-	1
20401	EARTH BERM	AQ	EA	-	2	1	1	4
20402	WATERBAR	AQ	EA	-	-	4	2	6
21104	STREAM RESTORATION	AQ	EA	-	-	2	-	2
30308	SCARIFY	CQ	MI	-	0.10	-	-	0.10
62201	EXCAVATOR	AQ	HR	1	-	-	-	1
62502	SEED & MULCH, DRY METHOD	AQ	LS	-	-	-	-	1



SUBMITTED:

*Hendra Suwandi*  
 PROJECT ENGINEER  
 FLATHEAD NATIONAL FOREST

DATE: 5/8/2013

RECOMMENDED:

*[Signature]*  
 FOREST ENGINEER  
 FLATHEAD NATIONAL FOREST

DATE: 5/22/13

REVIEWED:

*[Signature]*  
 DISTRICT RANGER  
 SWAN LAKE DISTRICT RANGER

DATE: 6/6/13

APPROVED:

*[Signature]*  
 FOREST SUPERVISOR  
 FLATHEAD NATIONAL FOREST

DATE: 6/6/13

U.S. DEPARTMENT OF AGRICULTURE  
 FOREST SERVICE



**R-1**  
 NORTHERN REGION

Scale:  Location  
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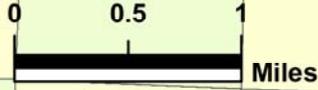
FLATHEAD NATIONAL FOREST  
 SWAN FLATS DECOMMISSIONING

COVER SHEET

AS SHOWN

1 of 12

# SWAN FLATS DECOMMISSIONING



Approx 75 miles to Kalispell, MT



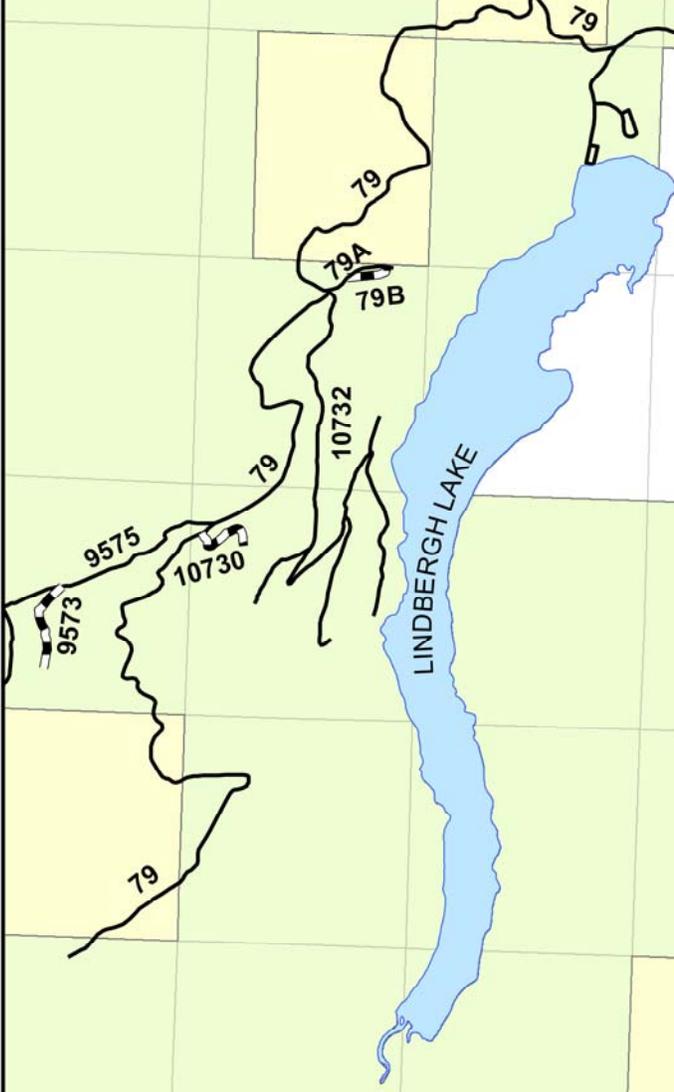
SWAN HWY

Lindbergh Lake Rd

79Y

Approx 25 miles to Seeley Lake, MT

T19N  
R17W



## Legend

- Access Roads
- Decommission Roads

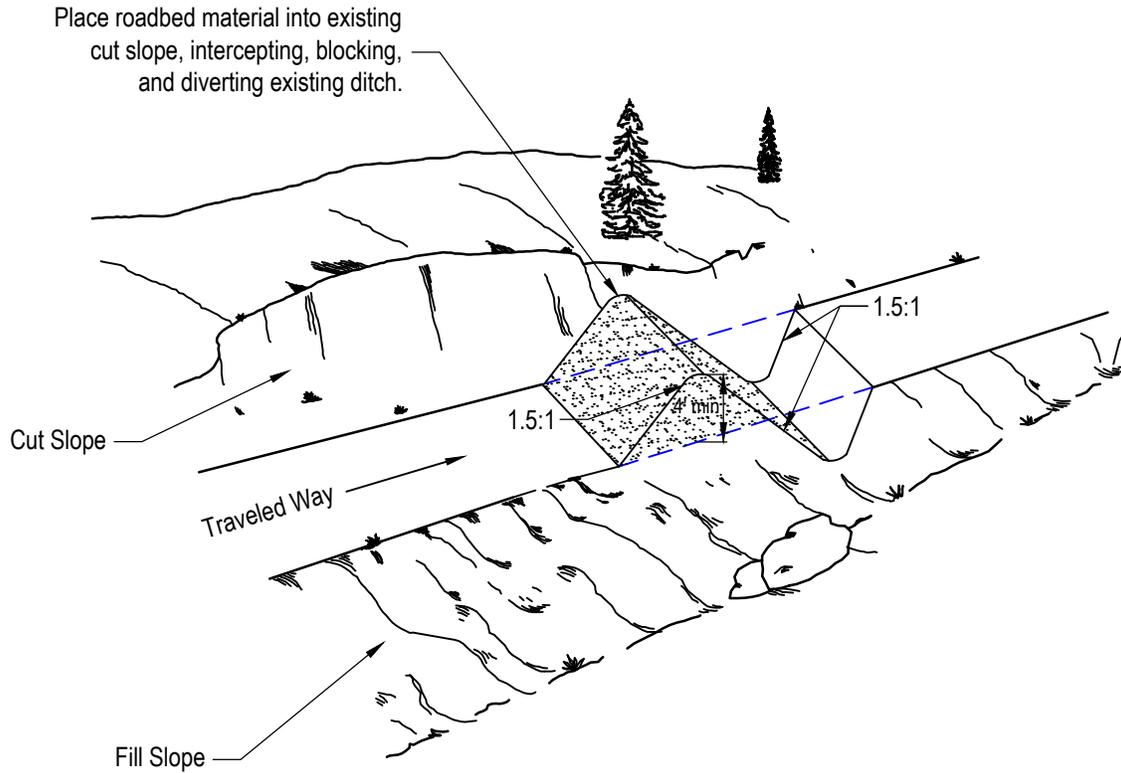
# General Notes

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1. Removal of Culverts: All materials designated for removal become the property of the contractor and are to be disposed of by removing off of Forest Service Lands in accordance with all local, state and federal requirements. Culvert Removal will be paid for under Pay Item 21104
2. Item 21104. All stream restoration sites include straw wattles, erosion control blankets, riprap placement, conserving and placing slash, slope excavation, road spreading material, culvert removal, and culvert disposal. No separate payment will be made for these requirements..
3. Straw wattles (minimum 8" diameter) shall be placed parallel and 3-5 feet from the toe of the excavation in each stream channel, the entire length of the disturbed area shown on the Culvert Removal Typical. Product shall be secured in accordance with Manufacturer's recommendations.
4. Streams with surface flow shall require a temporary bypass or water shall be pumped around the site. Dewatering is intended to allow stream channel restoration site work. All in-stream work shall be completed in an expeditious manner according to the 124 permit to reduce sediment deposited into the stream.
5. Placement of excavated material from the pipe pulls shall begin at a minimum setback of 20 feet from the top edge of the excavation. This excavated material shall be road spread to a depth of 2 feet with a maximum slope of 4:1 and maintained back from the road shoulder a minimum distance of 3 feet on the road template. Do not side cast material over the fill slopes. Ditch may be filled but waterbars must still function as drainage.
6. Suitable rock from the excavation of each stream restoration shall be conserved and placed as riprap in the stream channels and along the toe of the excavation. Conservation of riprap at each stream restoration site is considered incidental to Pay Item 21104.
7. Item 30308. Scarify the entire driving surface to a minimum depth of 1'. Scarifying consists of de-compacting the road surface.
8. Work is required behind a Forest Service gate to access the project site. The Forest Service gate is located on FS Road 9575. The gate shall be kept closed and locked at all times except when moving equipment, materials, or personal.
9. Work to access the project site may include but is not limited to brushing, berm removal, road repair, slump excavating, and blow down removal. Payment for work to access roads is considered incidental to other pay items in the Schedule of Items.
10. Item 62502. Seed and Mulch all disturbed areas utilizing the appropriate materials and rates specified in Section 625.

# Earth Berm Installation

Not to Scale



## Notes:

1. Do not deposit any excavated material onto existing fill slopes.
2. Seed and mulch all disturbed areas utilizing the appropriate materials and rates specified in Section 625.
3. Detail specifications and specific locations may be changed to fit local conditions as mutually agreed.



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Design            K. Levanen  
Checked            P. Siers  
Reviewed            P. Siers

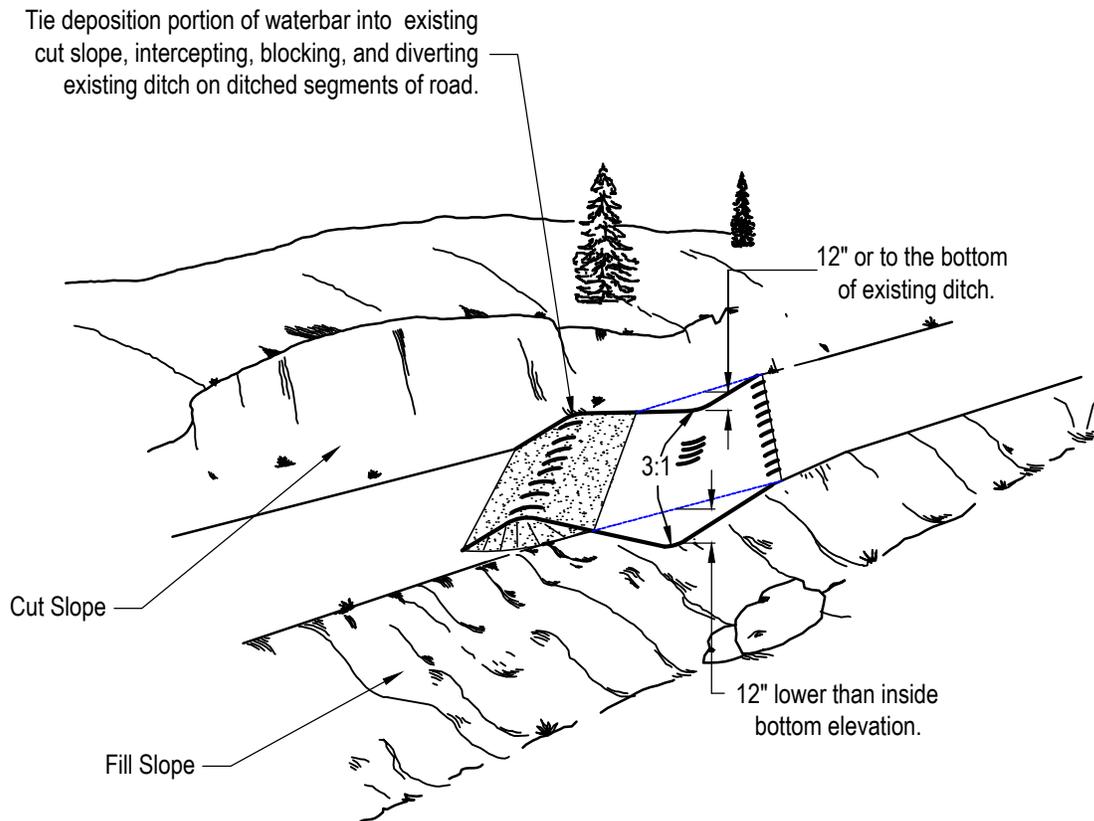
Forest  
FLATHEAD NATIONAL FOREST  
Project Name  
SWAN FLATS DECOMMISSIONING

Sheet Title  
EARTH BERM  
Scale  
AS SHOWN

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# Waterbar Installation

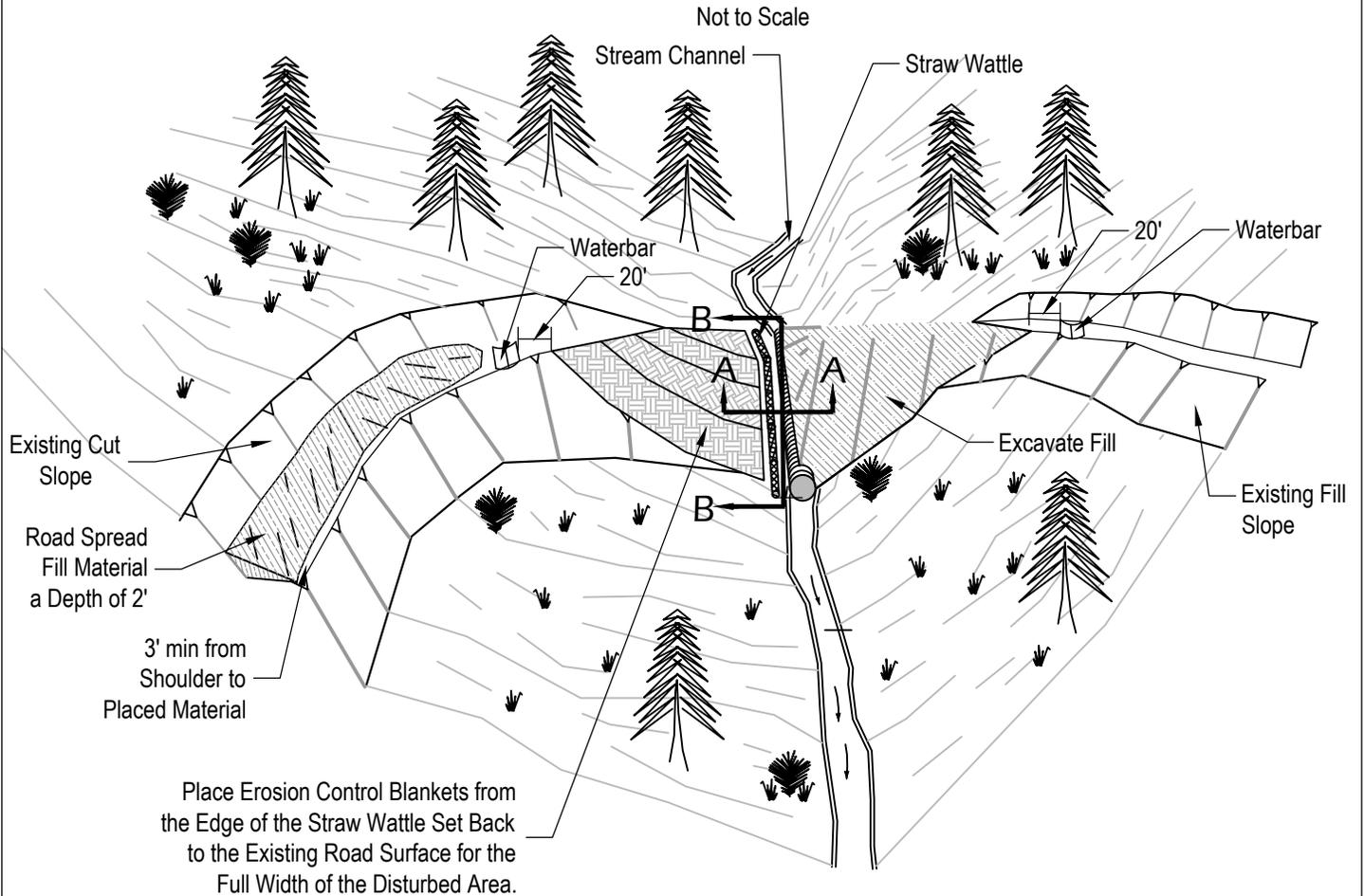
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## Notes:

1. Do not deposit any excavated material onto existing fill slopes.
2. When built on ditched segments of road, construct waterbars to tie into the existing cut slope and to intercept, block, and drain across the road.
3. Seed and mulch all disturbed areas utilizing the appropriate materials and rates specified in Section 625.
4. When built on grades skew waterbars to facilitate drainage.
5. Grade changes over the length of the waterbar shall be smooth with no abrupt or sharp angle breaks.

# Stream Channel Restoration (cont. next pg.)

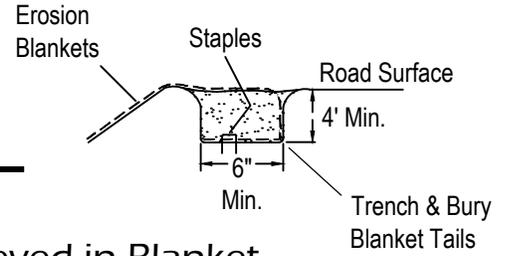


## Notes:

1. Place excavated material on either side of the pipe as shown above unless noted otherwise in the road log. Shape excavated material to blend into the existing cut slope and to avoid holding or trapping water. Block existing ditches and spread the excavated material to a depth of 2 feet on the road template so that it acts as a waterbar and diverts any future surface water and ditch flow across the road into a vegetative filter zone and not directly into the stream. Do not deposit any excavated material on the existing fill slopes or in the existing channel. Conserve rocks from the excavation and place along the toe of the slopes adjacent to the restored stream channel as shown on the Typical Cross Section Drawing. Place rock on the erosion blanket as much as possible, beginning at the outlet end. Woody debris may be placed on excavated slopes not to exceed 50% of ground cover.
2. If the invert of the existing culvert outlet is above the existing streambed (ie. shotgunned outlet), remove material below the existing CMP to create a straight-line gradient between the invert of the inlet and the streambed at the outlet.
3. Waddles and straw mats must be placed along streambed on all excavated slopes. Certified weed free straw shall be applied in accordance with Section 625.
4. Keep piled fill material at a maximum slope of 4:1 and a minimum of three feet from road shoulder to accommodate foot traffic and horses.
5. Removal of Culvert: Culvert must be removed from project.

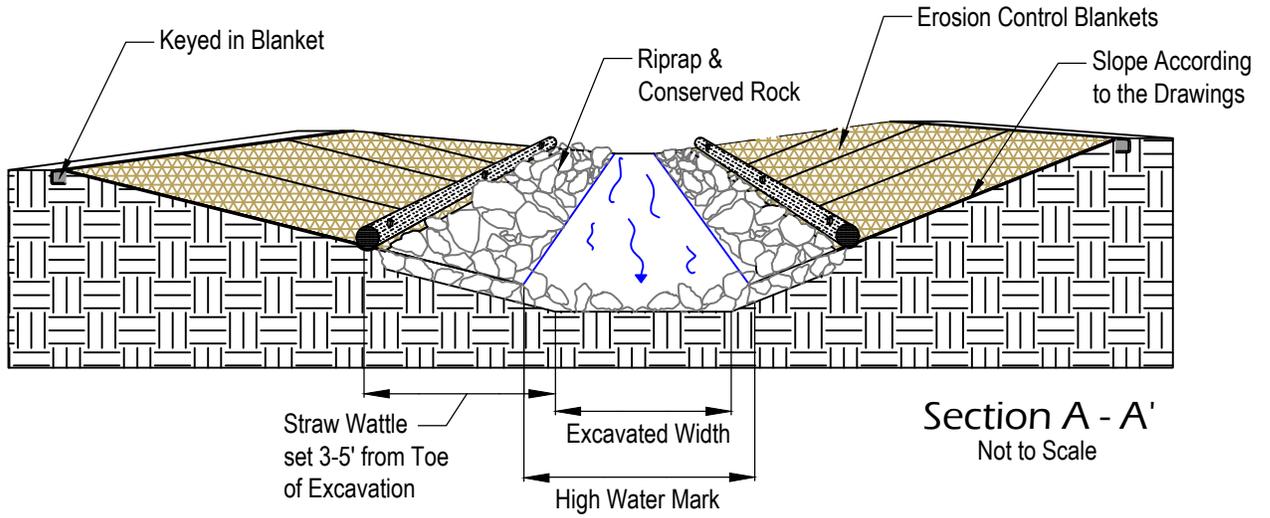
# Stream Channel Restoration (cont.)

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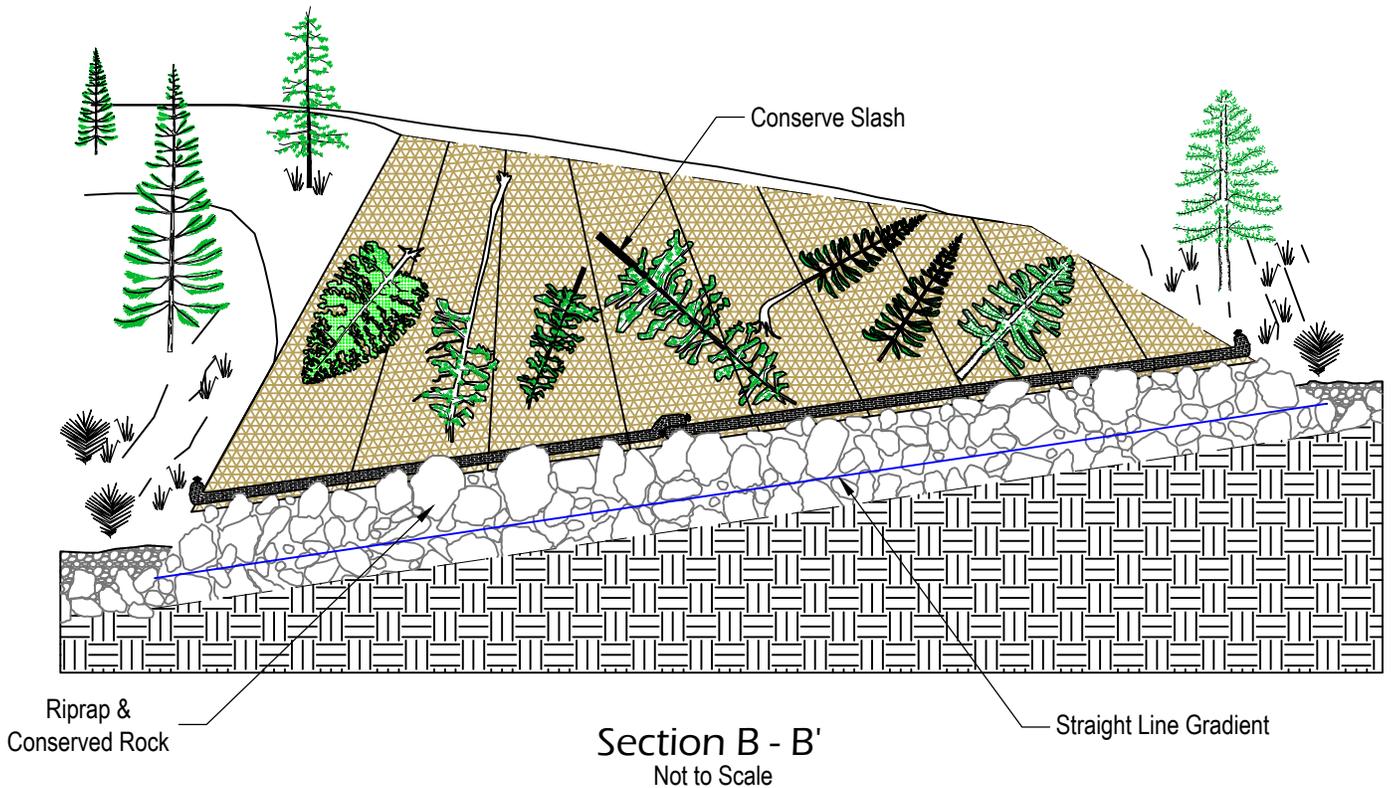
## Keyed in Blanket

Not to Scale



## Section A - A'

Not to Scale



## Section B - B'

Not to Scale

**79B ROAD LOG. . . Elbow B**

STATION	MILE POST	WORK DESCRIPTION	20401 BERM	20402 WB	62201 EXCAV.
0+00	0.000	Begin Work at Jnct with FSRD 79A, MP 0.120.			
		<b>Place two Large Boulders to Block Road</b>			
		<b>Find Rocks in Area</b>			
		<b>Use 1 Hr Excavator</b>			<b>1</b>
	***	Road is Flat and Does Not Require Any Other Work.			
10+55	0.200	End Road			
		End Project			
		<b>TOTALS:</b>	<b>0</b>	<b>0</b>	<b>1</b>

**79Y ROAD LOG. . . Lindbergh Lake Y**

STATION	MILE POST	WORK DESCRIPTION	20401 BERM	20402 WB	30308 SCARIFY
0+00	0.000	Begin Work at Jnct with Rd 79, MP 0.087.			
		Protect all Utilities and Locate Prior to Construction. Call UDIG to Locate Utilities (406) 755-8344, or 1-800-551-8344.			
<b>0+75</b>	<b>0.014</b>	<b>Existing Berm</b>			
		<b>Remove and Replace</b>	<b>1</b>		
<b>0+90</b>	<b>0.017</b>	<b>Cut Existing Barb Wire Fence</b>			
<b>1+80</b>	<b>0.034</b>	<b>Existing Berm</b>			
		<b>Remove and Replace</b>	<b>1</b>		
		<b>Begin Scarifying</b>			
		<b>Seed and mulch all Scarified Areas</b>			
		<b>Place Brush on Roadbed at Entrance</b>			
<b>7+05</b>	<b>0.133</b>	<b>Rd 79Z Right</b>			
		<b>End Scarifying</b>			
39+60	0.750	End Road			
		End Project			
		<b>TOTALS:</b>	<b>2</b>	<b>0</b>	<b>0.10</b>



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Design           K. Levanen            
Checked           P. Siers            
Reviewed           P. Siers          

Forest  
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Project Name  
SWAN FLATS DECOMMISSIONING

Sheet Title  
Road 79Y  
Scale  
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**9573 ROAD LOG . . . Middle Herrick**

STATION	MILE POST	WORK DESCRIPTION	20401 BERM	20402 WB	21104 STRM RESTORE
0+00	0.000	Begin project @ Jct with FSRD 9575, MP 0.781			
<b>1+05</b>	<b>0.019</b>	<b>Construct Berm</b>	<b>1</b>		
<b>3+50</b>	<b>0.066</b>	<b>Construct Waterbar</b>		<b>1</b>	
<b>7+20</b>	<b>0.136</b>	<b>Construct Waterbar</b>		<b>1</b>	
<b>10+45</b>	<b>0.197</b>	<b>Existing 18" cmp, Remove</b>			<b>1</b>
		Move Dirt Ahead and Back			
<b>12+20</b>	<b>0.231</b>	<b>Construct Waterbar</b>		<b>1</b>	
<b>16+00</b>	<b>0.303</b>	<b>Construct Waterbar</b>		<b>1</b>	
<b>16+80</b>	<b>0.318</b>	<b>Existing 18" cmp, Remove</b>			<b>1</b>
		Move Dirt Ahead to Wide Area			
22+10	0.418	End Road			
		End Project			
		<b>TOTALS:</b>	<b>1</b>	<b>4</b>	<b>2</b>



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Reviewed: P. Siers

Forest: FLATHEAD NATIONAL FOREST  
Project Name: SWAN FLATS DECOMMISSIONING

Sheet Title: Road 9573  
Scale: AS SHOWN  
Sheet Number: 10 of 12

# Stream Channel Restorations Road 9573

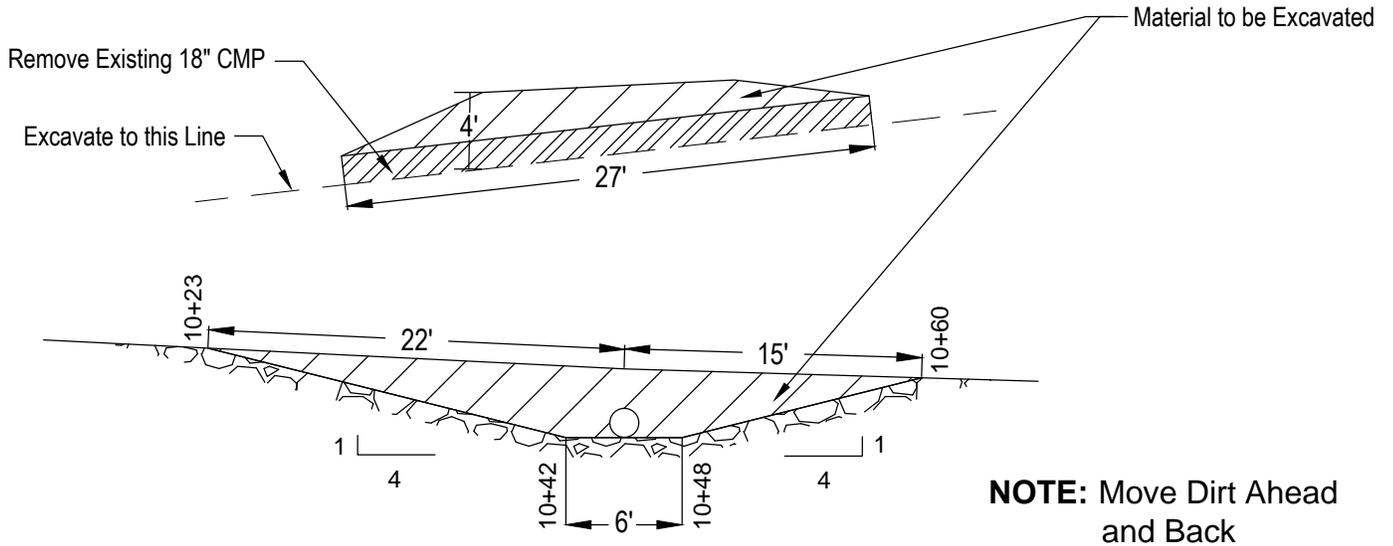
**NOTE:** Calculated Lengths and Depths, Actual Distances May Vary

## STA 10+45

\*\* Conserve Rock

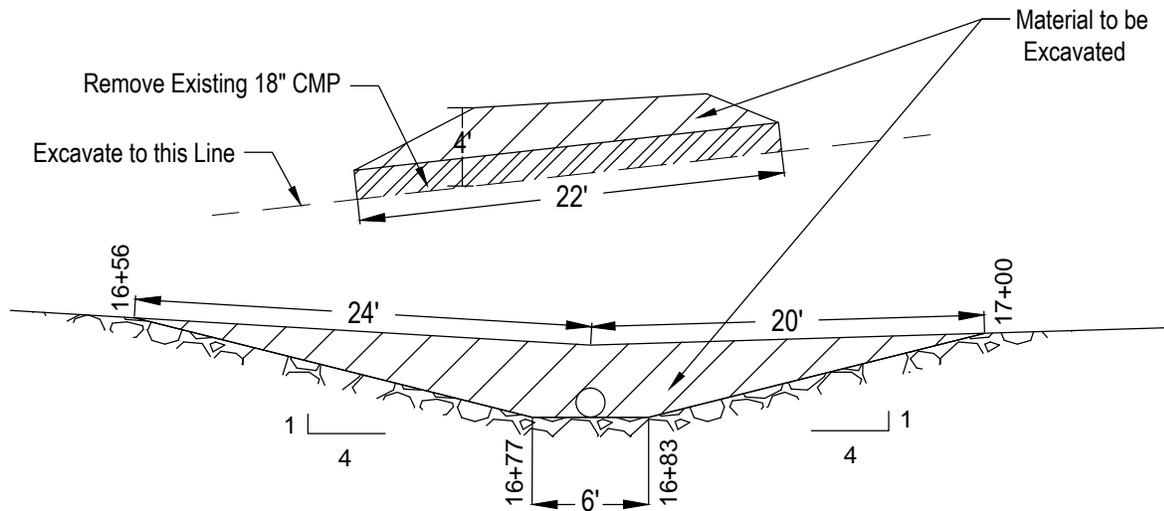


SCALE: FEET



## STA 16+80

\*\* Conserve Rock



**NOTE:** Move Dirt Ahead to Wide Area

**10730 ROAD LOG . . . Herrick-Lind**

STATION	MILE POST	WORK DESCRIPTION	20401 BERM	20402 WB
0+00	0.000	Begin Work at Jnct with FSRD 79, MP 8.300		
<b>0+30</b>	<b>0.006</b>	<b>Existing Rock Barrier</b>	<b>1</b>	
		<b>Construct Berm</b>		
<b>1+35</b>	<b>0.025</b>	<b>Construct Waterbar</b>		<b>1</b>
4+75	0.090	Road Jct Left		
<b>6+10</b>	<b>0.115</b>	<b>Construct Waterbar</b>		<b>1</b>
7+00	0.132	Existing Waterbar		
8+10	0.153	Existing Waterbar		
9+40	0.178	Existing Waterbar		
10+20	0.193	Existing Waterbar		
11+00	0.208	Existing Waterbar		
		Begin Heavy Brush		
23+75	0.450	End Road		
		End Project		
		<b>TOTALS:</b>	<b>1</b>	<b>2</b>



# **FOREST SERVICE CONTRACT SPECIFICATIONS**

**For**

## **SWAN FLATS ROAD DECOMMISSIONING**

**Road No. 79B, 79Y, 9573, & 10730**

**Swan Flats Road**

**Decommissioning**

**U.S.D.A Forest Service, Region 1  
Flathead National Forest, Swan Lake Ranger District  
Flathead County, Montana**

**April, 2013**

# **SWAN FLATS ROAD DECOMMISSIONING SPECIFICATIONS**

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## 101 - Terms, Format, and Definitions

### 101.01 Meaning of Terms.

These specifications are generally written in the imperative mood. In sentences using the imperative mood, the subject, "*the Contractor*," is implied. Also implied in this language are "*shall*," "*shall be*," or similar words and phrases. In material specifications, the subject may also be the supplier, fabricator, or manufacturer supplying material, products, or equipment for use on the project.

Wherever "*directed*," "*required*," "*prescribed*," or other similar words are used, the "*direction*," "*requirement*," or "*order*" of the Contracting Officer is intended. Similarly, wherever "*approved*," "*acceptable*," "*suitable*," "*satisfactory*," or similar words are used, the words mean "*approved by*," "*acceptable to*," or "*satisfactory to*" the Contracting Officer.

The word "*will*" generally pertains to decisions or actions of the Contracting Officer.

Whenever in these specifications, or in other contract documents, the following terms (or pronouns in place of them) are used, the intent and meaning shall be interpreted as follows: reference to a specific standard, test, testing method, or specification shall mean the latest published edition or amendment that is in effect at the solicitation issue date for Public Works Contracts.

### 101.02 Specifications Format.

These specifications are divided into the following Divisions.

Division 100 consists of general contract requirements for which no direct payment is made. The requirements contained in Division 100 are applicable to all contracts.

Division 150 consists of project contract requirements that are applicable to all contracts. Work under Division 150 is paid for directly or indirectly according to Subsection 109.05 and the Section ordering the work. When there is no pay item in the bid schedule, no direct payment is made.

Divisions 200 through 600 consist of construction contract requirements for specific items of work. Work under these Divisions is paid for directly or indirectly according to Subsection 109.05 and the Section ordering the work. When there is no pay item in the bid schedule, no direct payment is made.

Division 700 contains the material requirements for Divisions 150 through 600. No direct payment is made in Division 700. Payment for material is included as part of the work required in Divisions 150 through 600.

The first three digits of the pay item number in the Bid Schedule identify the Section under which the work is performed.

### 101.03 Abbreviations.

Whenever these abbreviations are used in the specifications, they represent the following:

#### (a) Acronyms.

**AASHTO** — American Association of State Highway and Transportation Officials

**ACI** — American Concrete Institute

**ACPA** — American Concrete Pavement Association

**ADA** — Americans with Disabilities Act

**AFPA** — American Forest and Paper Association  
**AISC** — American Institute of Steel Construction  
**AISI** — American Iron and Steel Institute  
**AITC** — American Institute of Timber Construction  
**ANSI** — American National Standards Institute  
**APWA** — American Public Works Association  
**ASTM** — American Society for Testing and Materials  
**AWPA** — American Wood Preservers Association  
**AWS** — American Welding Society  
**CFR** — Code of Federal Regulations  
**CO** — Contracting Officer and all representatives  
**CRSI** — Concrete Reinforcing Steel Institute  
**FAR** — Federal Acquisition Regulations (48 CFR Chapter 1)  
**FHWA** — Federal Highway Administration  
**FLH** — Federal Lands Highways  
**FSS** — Federal Specifications and Standards  
**FTMS** — Federal Test Method Standard  
**FUTA** — Federal Unemployment Tax Act  
**GSA** — General Services Administration  
**MSHA** — Mine Safety and Health Administration  
**MUTCD** — Manual on Uniform Traffic Control Devices (for Streets and Highways)  
**NFPA** — National Forest Products Association  
**NIST** — National Institute of Standards and Technology  
**OSHA** — Occupational Safety and Health Administration  
**SF** — Standard Form  
**UL** — Underwriter's Laboratory  
**U.S.** — United States of America  
**USC** — United States Code  
**USGS** — United States Geological Survey  
**WCLIB** — West Coast Lumber Inspection Bureau

**(b) Slope notation (horizontal : vertical).** Express the slope as the ratio of a number of units horizontal to one unit vertical.

**(c) Abbreviations.**

Agg	Aggregate
AQ	Actual quantities
BMP	Best Management Practice
CCA	Chromated copper arsenate
CMP	Corrugated metal pipe

CMPA	Corrugated metal pipe arch
CO	Contracting Officer
CSP	Corrugated steel pipe
CSPA	Corrugated steel pipe arch
CTB	Cement-treated base
CY	Cubic Yard
Dia	Diameter
DQ	Designed quantities
Dwgs	Drawings
EA	Each
Ft	Foot
GAL	Gallon
GFM	Government-furnished materials
Gr	Grade
Ht	Height
hr	Hour
Hor	Horizontal
In	Inch
L	Length
Lbs	pounds
LF	Linear Foot
LS	Lump Sum
Matl	Material
max.	Maximum
Mbf	Thousand board feet
Mi	Mile
MFBM	One thousand feet board measure
M Gals	One thousand gallons
min.	Minimum
Misc	Miscellaneous
MSF	One thousand square feet
PG	Performance-graded
PI	Plasticity index
ppm	Parts per million
PVC	Polyvinylchloride
Sec	Section
SF	Square Feet
SQ	Staked quantities
STA	Station
SY	Square Yard
T	Temperature
Th	Thickness
Vert	Vertical

Yd	Yard
W	Width
W/	With
W/O	Without
"	Inches
'	Feet

**101.05 Definitions.**

**Adjustment in Contract Price**— “Equitable adjustment,” as used in the Federal Acquisition Regulations, or “construction cost adjustment,” as used in the Timber Sale Contract, as applicable.

**Arch** — A culvert section, usually formed of bolted structural plates, that is an arc of a circle (usually one-half or less); that is, a bottomless culvert.

**Award** — The written acceptance of a bid by the CO.

**Backfill** — Material used to replace or the act of replacing material removed during construction. Material placed or the act of placing material adjacent to structures.

**Base** — The layer or layers of material placed on a subbase or subgrade to support a surface course.

**Berm**— Curb or dike constructed to control roadway runoff water. (See figure 102-1.)  
A mound or bank of earth, used especially as a barrier to control vehicular traffic.

**Best Management Practice**— A series of water quality protection practices and procedures approved or certified by the State water quality agency under the provisions of sections 319 and 402 of the Clean Water Act, as amended.

**Bid** — A written offer by a bidder to perform work at a quoted price.

**Bidder** — Any individual or legal entity submitting a bid.

**Bid Guarantee** — A form of security assuring that the bidder will not withdraw a bid within the period specified for acceptance and will execute a written contract and furnish required bonds.

**Bid Schedule**—The Schedule of Items.

**Bridge**— A structure, including supports, erected over a depression or an obstruction, such as water, a road, a trail, or a railway, and having a floor for carrying traffic or other moving loads

**Change**— “Change” means “change order” as used in the Federal Acquisition Regulations, or “design change” as used in the Timber Sale Contract.

**Clear Zone** — The portion of the roadside, including the shoulder, available for the safe use by an errant vehicle in which the driver may regain control of the vehicle. Recommended distances for the clear zone are in the AASHTO Roadside Design Guide.

**Commercial Certification** — See Subsection 106.03.

**Construction Limits** — The limits on each side of the project that establish the area disturbed by construction operations and beyond which no disturbance is permitted.

Typically the construction limits are the same as the clearing limits, except when additional clearing is required.

**Contract** — The written agreement between the Government and the Contractor setting forth the obligations of the parties for the performance of and payment for the prescribed work.

**Contracting Officer (CO)** — An official of the Government with the authority to enter into, administer, and terminate contracts and make related determinations and findings. The term includes certain authorized representatives of the CO acting within the limits of their authority as delegated by the CO.

**Contract Modification** — Any written change in the terms of the contract. Contract modifications are of the following forms:

(a) **Administrative change.** A unilateral contract change, in writing, that does not affect the substantive rights of the parties (e.g., a change in the paying office or the appropriation data).

(b) **Change order.** A written order, signed by the CO, directing the Contractor to make a change that FAR Clause 52.243-4 Changes authorizes the CO to order without the Contractor's consent.

(c) **Supplemental agreement.** A contract modification that is accomplished by the mutual action of the parties.

**Contractor**—The individual or legal entity contracting with the Government for performance of prescribed work. In a timber sale contract, the contractor is the “purchaser”.

**Contract Time** — The specified time allowed for completion of all contract work.

**Cross-Section** — A vertical section of the ground or structure at right angles to the centerline or baseline of the roadway or other work.

**Culvert**— A conduit or passageway under a road, trail, or other obstruction. A culvert differs from a bridge in that it is usually constructed entirely below the elevation of the traveled way.

**Day** — Each and every day shown on the calendar, beginning and ending at midnight.

**Density** — Mass per unit volume of material. Specific gravity multiplied by the unit mass of water.

**Design Quantity**— “Design quantity” is a Forest Service method of measurement from the FS-96 *Forest Service Specifications for the Construction of Roads and Bridges*. [See Subsection 109.03(a)].

**Detour** — A temporary rerouting of public traffic onto alternate existing roadways in order to avoid the work or part of the work.

**Diversion** — A temporary rerouting of public traffic onto a temporary alignment within the project limits in order to bypass the work or a portion of the work.

**Drawings** — Design sheets or fabrication, erection, or construction details submitted to the Government by the Contractor according to FAR Clause 52.236-21 Specifications and Drawings for Construction. Also refers to submissions and submittals.

**Forest Service**--The United States of America, acting through the Forest Service, U.S. Department of Agriculture.

**Government** — The Government of the United States of America.

**Highway, Street, or Road** — A general term denoting a public way for purposes of vehicular travel, including the entire area within the right-of-way.

**Inspector**—The Government-authorized representative designated in writing by the Contracting Officer, Contracting Officer's Representative, or Engineering Representative responsible for detailed inspection.

**Invert** — The lowest point of the internal cross section of culvert or pipe arch.

**Layer** — See "lift."

**Lift** — Defined as follows:

(a) When placing and compacting soils and aggregates, a lift is any single, continuous layer of material that receives the same compactive effort throughout during a single work operation.

(b) When installing culvert pipe less than or equal to 48 inches in diameter, the backfill material placed on both sides of the pipe is considered to be contained in the same lift when the material is placed to the same elevation on both sides of the culvert, the compactive effort applied to one side of the culvert is the same as that applied to the other, and the compactive effort is applied to both sides of the pipe in a continuous operation.

**Live Stream** — A defined streambed with flowing water.

**Material** — Any substances specified or necessary to satisfactorily complete the contract work.

**Maximum Particle Size** — The smallest sieve opening through which all particles in the material will pass.

**Measurement** — The process of identifying the dimensions, quantity, or capacity of an item. See Section 109 for measurement methods, terms, and definitions.

**Neat Line**—A line defining the proposed or specified limits of an excavation or structure.

**Nominal Dimensions or Weights**—The numerical values shown on the drawings or in the specifications as measurements of material to be used in the construction.

**Notice to Proceed** — Written notice to the Contractor to begin the contract work.

**Pay Item** — A specific item of work for which a unit and price is provided in the contract.

**Payment Bond** — The security executed by the Contractor and surety or sureties and furnished to the Government to ensure payments as required by law to all persons supplying labor or material according to the contract.

**Performance Bond** — The security executed by the Contractor and surety or sureties furnished to the Government to guarantee completion of the contract work.

**Pioneer Road**—Temporary construction access built along the route of the project.

**Pipe**— A culvert that is circular (round) in cross section.

**Pipe Arch**— A pipe that has been factory-deformed from a circular shape such that the width (or span) is larger than the vertical dimension (or rise).

**Plans** — The contract plans furnished by the Government showing the location, type, dimensions, and details of the work.

**Production Certification** — See Subsection 106.03.

**Professional Engineer** — Engineers who hold valid State licenses permitting them to offer engineering services directly to the public, who are experienced in the work for which they are responsible, who take legal responsibility for their engineering designs, and who are bound by a code of ethics to protect the public health.

**Profile Grade** — The trace of a vertical plane intersecting a particular surface of the proposed road construction located as shown on the plans, usually along the longitudinal centerline of the roadbed. Profile grade means either elevation or gradient of the trace according to the context.

**Project** — The specific section of the highway or other property on which construction is to be performed under the contract.

**Project Specifications** — The specifications that detail the conditions and requirements specific to the individual project, including additions and revisions to Standard Specifications.

**Purchaser** — The individual, partnership, joint venture, or corporation contracting with the Government under the terms of a Timber Sale Contract and acting independently or through agents, employees, or subcontractors.

**Protected Streamcourse** — A drainage shown on the plans or timber sale area map that requires designated mitigation measures.

**Reasonably Close Conformity** — Compliance with reasonable and customary manufacturing and construction tolerances, performing all work and furnishing all materials in “reasonably close conformity” with lines, grades, cross sections, dimensions, and material requirements shown on the drawings, indicated in the specifications, or designated on the ground.

**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) Real property necessary for the project, including roadway, buffer areas, access, and drainage areas.

**Roadbed** — The graded portion of a highway prepared as a foundation for the pavement structure and shoulders.

**Road Order** — An order affecting and controlling traffic on roads under Forest Service jurisdiction. Road Orders are issued by a designated Forest Officer under the authorities of 36 CFR, part 260.

**Roadside** — All area within the right-of-way excluding the traveled way and shoulders.

**Roadway** — In general, the portion of a highway, including shoulders, for vehicular use.

A divided highway has two or more roadways. In construction specifications, the portion of a highway within the construction limits.

**Roadway Prism** — The volume defined by the area between the original terrain crosssection and the final design cross-section multiplied by the horizontal distance along the centerline of the roadway.

**Roller Pass** — One trip of a roller in one direction over any one spot.

**Schedule of Items**—A schedule in the contract that contains a listing and description of construction items, quantities, units of measure, unit price, and amount.

**Shoulder** — The portion of the roadway contiguous to the traveled way for accommodation of stopped vehicles, for emergency use, and for lateral support of the pavement structure.

**Sieve** — See AASHTO M 92.

**Solicitation** — The complete assembly of documents (whether attached or incorporated by reference) furnished to prospective bidders.

**Special Contract Requirements** — Additions and revisions to the standard specifications applicable to an individual project.

**Specifications** — The written requirements for performing work.

**Standard Forms** — Numbered forms issued by the General Services Administration for use as contract documents.

**Standard Plans** — Detailed plans approved for repetitive use and included as part of the plans.

**Standard Specifications** — The Specifications approved for general application and repetitive use.

**Station** — (1) A measure of distance used for highways and railroads. A station is equal to 100 feet. (2) A precise location along a survey line.

**Structures** — Bridges, culverts, catch basins, drop inlets, retaining walls, cribbing, manholes, endwalls, buildings, sewers, service pipes, underdrains, foundation drains, and other constructed features that may be encountered in the work.

**Subbase** — The layer or layers of material placed on a subgrade to support a base.

**Subcontract** — The written agreement between the Contractor and an individual or legal entity prescribing the performance of a specific portion of the work.

**Subcontractor** — An individual or legal entity with which the Contractor sublets part of the work. This includes all subcontractors in any tier.

**Subgrade** — The top surface of a roadbed upon which the pavement structure, shoulders, and curbs are constructed.

**Substantial Completion** — The point at which the project is complete such that it can be safely and effectively used by the public without further delays, disruption, or other impediments. For conventional bridge and highway work, the point at which all bridge deck, parapet, pavement structure, shoulder, drainage, sidewalk, permanent signing and markings, traffic barrier, safety appurtenance, utility, and lighting work is complete.

**Substructure** — All of the bridge below the bearings of simple and continuous spans, skewbacks of arches, and tops of footings of rigid frames including backwalls, wingwalls, and wing protection railings.

**Suitable Material** — Rock or earth material that will provide stable foundations, embankments, or roadbeds, and is reasonably free of organic matter, roots, muck, sod, or other detrimental material. Suitable material may require drying or adding water, root picking, and other methods of manipulation before use. Suitable material includes the classifications of materials for which the project was designed.

**Superintendent** — The Contractor's authorized representative in responsible charge of the work.

**Superstructure** — The entire bridge except the substructure.

**Surety** — An individual or corporation legally liable for the debt, default, or failure of a Contractor to satisfy a contract obligation.

**Surface Course** — The top layer or layers of a pavement structure designed to accommodate the traffic load and resist skidding, traffic abrasion, and weathering.

**Target Value (TV)** — A number established as a center for operating a given process.

Once established, adjustments should be made in the process as necessary to maintain a central tendency about the target value. Test results obtained from a well-controlled process should cluster closely around the established target value and the mean of the test results should be equal to or nearly equal to the established target value.

**Traveled Way** — The portion of the roadway designated for the movement of vehicles, including curve widening, exclusive of shoulders.

**Unit of Measurement** — The unit and fractions of units designated in the schedule of items.

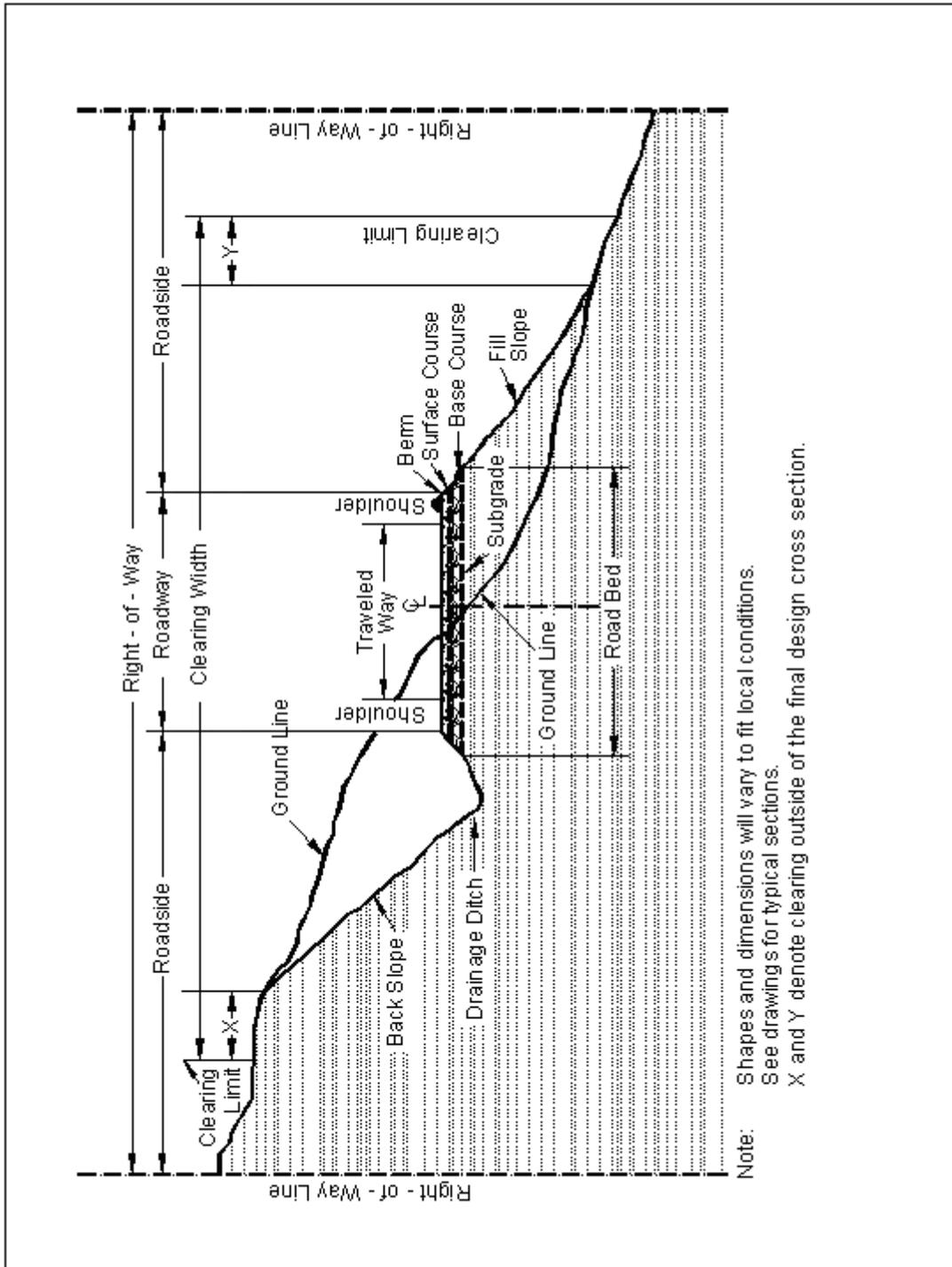
**Unsuitable Material** — Material not capable of creating stable foundations, embankments, or roadbeds. Unsuitable material includes muck, sod, or soils with high organic contents.

**Utilization Standards**—The minimum size and percent soundness of trees described in the specifications to determine merchantable timber.

**Work** — The furnishing of all labor, material, equipment, and other incidentals necessary to successfully complete the project according to the contract.

Figure 101-1—Illustration of road structure terms.

Figure 101-1—Illustration of road structure terms.



## 103 - Scope of Work

**103.01 Intent of Contract.** The intent of the contract is to decommission 1.82 miles of Forest Service roads. Work involves the construction of waterbars, road closure earth berms, removal and disposal of stream aligned culverts, road spreading excavated material, placing boulders, and restoration of stream crossing sites using erosion control and re-vegetation methods. Work includes:

- 0.20 miles of FSRD 79B shall have 2 large boulders place to block road entrance.
- 0.75 miles of FSRD 79Y shall have 2 berms constructed, and 0.10 miles of road scarified.
- 0.42 miles of FSRD 9573 shall have 1 berm constructed, 4 waterbars installed, and restore 2 stream channels.
- 0.45 miles of FSRD 10730 shall have 1 berm constructed and 2 waterbars installed.

This work includes but is not limited to erosion control measures, removing and disposing existing culvert crossings, riprap placement, determining stake locations to coincide with road logs, seeding and mulching all disturbed areas, placement of erosion control blankets and straw wattles at all stream restoration sites, and all incidental items necessary to complete the project in accordance with the plans and specifications.

Construction staking of the road logs is the contractor's responsibility. Maintain the survey work until construction has been completed. Reestablishing the road stakes according to the road logs will require walking the road prism with a roll-a-tape or driving the road with a DMI (Distance Measurement Instrument). The roads were surveyed and staked in 2012.

The project site is located approximately 80 miles south of Kalispell, Montana on the Swan Lake Ranger District of the Flathead National Forest. See the Vicinity Map included in the plans for specific locations.

All work in live streams shall be completed after **July 15**. Contract time extensions will not be allowed.

The precise details of performing the work are not stipulated except as considered essential for the successful completion of the work. Furnish all labor, material, equipment, tools, transportation, and supplies necessary to complete the work according to the contract.

## **104 - Control of Work**

**104.01 Specifications and Drawings.** The Contractor shall keep on the work site a copy of the drawings and specifications and record quality control measurements and inspection data. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of difference between drawings and specifications, the specifications shall govern.

**104.02 Load Restrictions.** Comply with all legal load restrictions when hauling material and equipment on public roads to and from the project. A special permit does not relieve the Contractor of liability for damage resulting from the moving of material or equipment.

When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any Federal, State, or local law or regulation.

**104.03 Use of Roads by Contractor.** The Contractor is authorized to use roads under the jurisdiction of the Forest Service for all activities necessary to complete this contract, subject to the limitations and authorizations designated in the Road Order(s) or described in the contract, when such use will not damage the roads or national forest resources, and when traffic can be accommodated safely.

## 105 - Control of Material

### 105.01 Material Sources.

Perform all work necessary to produce acceptable material including site development, preparation, erosion control, and restoration.

The quality of material in provided sources is acceptable in general, but may contain layers or pockets of unacceptable material. It is not feasible to ascertain from samples the quality of material for an entire deposit, and variations may be expected. Determine the quantity and type of equipment and work necessary to select and produce acceptable material.

After operations are complete, move all waste back into the source. Neatly trim and flatten the side slopes to the extent practicable. Shape the area to blend into the surrounding natural terrain.

**105.02 Storing and Handling Material.** Store and handle material to preserve its quality and fitness for the work. Stored material approved before storage may again be inspected before use in the work. Stockpile, load, and transport riprap in a manner that will preserve specified gradation and avoid contamination. Locate stored material to facilitate prompt inspection.

Use only approved portions of the right-of-way for storing material and equipment. Provide all additional space needed. Do not use private property for storage without written permission of the owner or lessee. Furnish copies of all agreements. Restore all Government-provided storage sites to their original condition.

The Contractor is responsible for the security of all stored material.

**105.03 Use of Material Found in the Work.** Material, such as stone, gravel, or sand, found in the excavation may be used. Excavate or remove material only from within the grading limits, as indicated by the slope and grade lines. The right to use and process material found in the work does not include the use and processing of material for nongovernment contract work except for the disposal of waste material. Materials produced or processed from Government lands in excess of the quantities required for performance of this contract are the property of the Government. The Government is not obligated to make reimbursement for the cost of producing these materials.

## 106 - Acceptance of Work

**106.01 Conformity with Contract Requirements.** Follow the requirements of FAR Clause 52.246-12 Inspection of Construction.

References to standard test methods of AASHTO, ASTM, GSA, and other recognized standard authorities refer to the methods in effect on the date of solicitation for bids.

Perform all work to the lines, grades, cross-sections, dimensions, and processes or material requirements shown on the plans or specified in the contract.

Incorporate manufactured materials into the work according to the manufacturer's recommendations and/or as SHOWN ON THE DRAWINGS.

Plan dimensions and contract specification values are the values to be strived for and complied with as the design values from which any deviations are allowed. Perform work and provide material that is uniform in character and reasonably close to the prescribed value or within the specified tolerance range. The purpose of a tolerance range is to accommodate occasional minor variations from the median zone that are unavoidable for practical reasons.

When standard manufactured items are specified, the identification will be considered to be nominal masses or dimensions. Unless specific contract tolerances are noted, established manufacturing tolerances will be accepted.

The Government may inspect, sample, or test all work at any time before final acceptance of the project. When the Government tests work, copies of test reports are furnished to the Contractor upon request. Government tests may or may not be performed at the work site. If Contractor testing and inspection is verified by the Government, the Contractor's results may be used by the Government to evaluate work for acceptance. Do not rely on the availability of Government test results for process control.

Acceptable work conforming to the contract will be paid for at the contract unit bid price. Three methods of determining conformity and accepting work are described in Subsections 106.02 to 106.04. The primary method of acceptance is specified in each Section of work. However, work may be rejected at any time it is found by any of the methods not to comply with the contract.

Remove and replace work that does not conform to the contract, or to prevailing industry standards where no specific contract requirements are noted, at no cost to the Government.

(a) **Alternatives to removing and replacing non-conforming work.** As an alternative to removal and replacement, the Contractor may submit a written request to:

- (1) Have the work accepted at a reduced price; or
- (2) Be given permission to perform corrective measures to bring the work into conformity.

The request must contain supporting rationale and documentation. Include references or data justifying the proposal based on an evaluation of test results, effect on service life, value of material or work, quality, aesthetics, and other tangible engineering basis. The CO will determine disposition of the nonconforming work.

**106.02 Visual Inspection.** Acceptance is based on visual inspection of the work for compliance with the contract and prevailing industry standards.

**106.03 Certification.** For manufactured material, require the manufacturer to clearly mark the material or packaging with a unique product identification or specification standard to which it is produced.

Material accepted by certification may be sampled and tested at any time. If found not in conformance with the contract, the material will be rejected whether in place or not.

The following certification may be required:

**(a) Production certification.** Material requiring a production certification is identified in the Acceptance Subsection of each Section. Require the manufacturer to furnish a production certification for each shipment of material. Include the following with each production certification:

- (1) Date and place of manufacture;
- (2) Lot number or other means of cross-referencing to the manufacturer's inspection and testing system; and
- (3) Substantiating evidence that the material conforms to the contract quality requirements as required by FAR 46.105(a)(4), including all of the following:
  - (a) Test results on material from the same lot and documentation of the inspection and testing system;
  - (b) A statement from the manufacturer that the material complies with all contract requirements; and
  - (c) Manufacturer's signature or other means of demonstrating accountability for the certification.

**(b) Commercial certification.** When a certification is required, but not a production certification, furnish one commercial certification for all similar material from the same manufacturer.

A commercial certification is a manufacturer's or Contractor's representation that the material complies with all contract requirements. The representation may be labels, catalog data, stamped specification standards, or supplier's certifications indicating the material is produced to a commercial standard or specification.

**106.04 Measured or Tested Conformance.** Provide all necessary production and processing of the work and control performance of the work so that all of the work complies with the contract requirements.

Results from inspection or testing shall have values within the specified tolerances, the surveillance plan performance standards, or specification limits. When no tolerance values are identified in the contract, the work will be accepted based on customary manufacturing and construction tolerances.

**106.05 Final Acceptance.** Maintain the work during construction and until the project is accepted. Damage caused by the contractor prior to final acceptance of the entire project will be repaired at the Contractor's expense.

When notified that the entire project is complete, an inspection will be scheduled. If all work is determined to be complete, the inspection will constitute the final inspection and the Contractor will be notified in writing of final acceptance as of the date of the final inspection. Final acceptance relieves the Contractor of further responsibility for the maintenance of the project.

If the inspection discloses any unsatisfactory work, the CO will provide to the Contractor a list of the work that is incomplete or requires correction. Immediately complete or correct the work. Furnish notification when the work has been completed as provided above.

## **107 - Legal Relations and Responsibility to the Public**

**107.01 Laws to be Observed.** Comply with all applicable laws, ordinances, safety codes, regulations, orders, and decrees. Protect and indemnify the Government and its representatives against any claim or liability arising from or based on the alleged violation of the same.

Comply with all permits and agreements obtained by the Government for performing the work that is included in the contract. Obtain all additional permits or agreements and modifications to Government-obtained permits or agreements that are required by the Contractor's methods of operation. Furnish copies of all permits and agreements.

**107.02 Protection and Restoration of Property and Landscape.** Preserve public and private property, and protect monuments established for the purpose of perpetuating horizontal, vertical, cadastral, or boundary control. When necessary to destroy a monument, reestablish the monument according to applicable state statute or by the direction of the agency or individual who established the monument.

Do not work within the wetted perimeter of streams before July 15, which allows work to be completed during low flow. Do not disturb the area beyond the construction limits. Replace trees, shrubs, or vegetated areas damaged by construction operations as directed and at no cost to the Government.

Do not excavate, remove, damage, alter, or deface any archeological or paleontological remains or specimens. Control the actions of employees and subcontractors on the project to ensure that protected sites are not disturbed or damaged. Should any of these items be encountered, suspend operations at the discovery site, notify the CO, and continue operations in other areas. The CO will inform the Contractor when operations may resume at the discovery site.

**107.03 Contractor's Responsibility for Work.** Assume responsibility for all work until final acceptance. This includes periods of suspended work. Protect the work against injury, loss, or damage from all causes whether arising from the execution or non-execution of the work. Rebuild, repair, restore, and make good all losses, injuries, or damages to any portion of the work. This includes losses, injuries, or damages caused by vandalism, theft, and weather that occurs during the contract.

The Government will only be responsible for losses, injuries, and damages to work put in place that was caused by declared enemies and terrorists of the Government and cataclysmic natural phenomenon such as tornadoes, earthquakes, major floods, and other officially declared natural disasters. The Government will only be responsible for costs attributable to repairing or replacing damaged work. The Government will not be responsible for delay costs, impact costs, or extended overhead costs.

**107.04 Sanitation, Health, and Safety.** Observe rules and regulations of Federal, State, and local health officials. Do not permit any worker to work in surroundings or under conditions that are unsanitary, hazardous, or dangerous.

Admit any OSHA inspector or other legally responsible official involved in safety and health administration to the project work site upon presentation of proper credentials.

Report accidents on forms furnished by the Government or, with prior approval, on forms used to report accidents to other agencies or insurance carriers. Maintain a "*Log of Work Related Injuries and Illnesses*," OSHA Form 300, and make it available for inspection.

Install a reverse signal alarm audible above the surrounding noise level on all motorized vehicles having an obstructed view and on all earth-moving and compaction equipment.

**107.05 Environmental Protection.** Do not operate mechanized equipment or discharge or otherwise place any material within the wetted perimeter of any waters of the U.S. within the scope of the Clean Water Act (33 USC § 1251 et seq.). This includes wetlands unless authorized by a permit issued by the U.S. Army Corps of Engineers according to 33 USC § 1344, and, if required, by any State agency having jurisdiction over the discharge of material into the waters of the U.S. In the event of an unauthorized discharge:

- (a) Immediately prevent further contamination;
- (b) Immediately notify appropriate authorities; and
- (c) Mitigate damages as required.

Comply with the terms and conditions of any permits that are issued for the performance of work within the wetted perimeter of the waters of the U.S.

Separate work areas, including material sources, by the use of a dike or other suitable barrier that prevents sediment, petroleum products, chemicals, or other liquid or solid material from entering the waters of the U.S. Use care in constructing and removing the barriers to avoid any discharge of material into, or the siltation of, the water. Remove and properly dispose of the sediment or other material collected by the barrier.

Repair leaks on equipment immediately. Do not use equipment that is leaking. Keep a supply of acceptable absorbent materials at the job site in the event of spills. Acceptable absorbent materials are those that are manufactured specifically for the containment and clean up of hazardous materials.

Design and locate equipment repair sites, stationary refueling sites, or other facilities to minimize the potential and impacts of hazardous material spills on Government land.

Immediately notify the CO of all hazardous material spills. Provide a written narrative report form no later than 24 hours after the initial report and include the following:

- Description of the item spilled (including identity, quantity, manifest number, and other identifying information).
- Whether amount spilled is EPA or state reportable, and if so whether it was reported, and to whom.
- Exact time and location of spill including a description of the area involved.
- Containment procedures.
- Summary of any communications Contractor had with news media, Federal, state and local regulatory agencies and officials, or Forest Service officials.

- Description of clean-up procedures employed or to be employed at the site including final disposition and disposal location of spill residue.

When available, provide copies of all spill related clean up and closure documentation and correspondence from regulatory agencies.

The Contractor is solely responsible for all spills or leaks that occur during the performance of this contract. Clean up spills or leaks to the satisfaction of the CO and in a manner that complies with Federal, state, and local laws and regulations.

**107.8 Protection of Forests, Parks, and Public Lands.** Comply with all regulations of the State fire marshal, conservation commission, Forest Service, National Park Service, Bureau of Land Management, Fish & Wildlife Service, Bureau of Indian Affairs, or other authority having jurisdiction governing the protection of land including or adjacent to the project.

## 109 - Measurement and Payment

**109.01 Measurement & Payment.** Take and record measurements and perform calculations to determine pay quantities for invoicing for work performed. Take or convert all measurements of work according to United States customary measure.

Unless otherwise specified, measure when the work is in place, complete, and accepted.

Measure the actual work performed, except do not measure work outside the design limits or other adjusted or specified limits (staked limits). Measure structures to the lines shown on the plans or to approved lines adjusted to fit field conditions.

Compensation provided for in the contract is full payment for performing all contract work in a complete and acceptable manner. All risk, loss, damage, or expense arising out of the nature or prosecution of the work is included in the compensation provided by the contract.

Work required by the contract will not be paid for directly unless a PAY ITEM for the work is DESIGNATED IN THE SCHEDULE OF ITEMS.

Work referenced for measurement under another section will not be paid for directly unless a PAY ITEM for the work is DESIGNATED IN THE SCHEDULE OF ITEMS for the referenced section.

Work not paid for directly is considered to be included under the other contract PAY ITEMS.

Unless otherwise shown, work measured and paid for under one PAY ITEM will not be paid for under any other PAY ITEM.

The quantity to be paid for is the quantity DESIGNATED IN THE SCHEDULE OF ITEMS. No payment will be made for work performed in excess of that staked, ordered, or otherwise authorized.

**109.02 Measurement Terms and Definitions.** Unless otherwise specified, the following terms are defined as follows:

**(a) Acre.** 43,560 square feet. Make longitudinal and transverse measurements for area computations horizontally unless specified on the ground surface. Do not make deductions from the area computation for individual fixtures having an area of 500 square feet or less.

**(b) Cubic yard.**

**(1) Cubic yard in place.** Measure solid volumes by a method approved by the CO or by the average end area method as follows:

*(a)* Take cross-sections of the original ground and use with design or staked templates or take other comparable measurements to determine the end areas. Do not measure work outside of the established lines or slopes.

*(b)* If any portion of the work is acceptable but is not completed to the established lines and slopes, retake cross-sections or comparable measurements of that portion of the work. Deduct any quantity outside the designated or staked limits. Use these measurements to calculate new end areas.

*(c)* Compute the quantity using the average end areas multiplied by the horizontal distance along a centerline or reference line between the end areas. Deduct any quantity outside the designed or staked limits.

**(2) Cubic yard in the hauling vehicle.** Measure the cubic yard volume in the hauling vehicle using three-dimensional measurements at the point of delivery. Use vehicles bearing a legible identification mark with the body shaped so the actual contents may be readily and accurately determined. Before use, mutually agree in writing on the volume of material to be hauled by each vehicle. Vehicles carrying less than the agreed volume may be rejected or accepted at the reduced volume.

Level selected loads. If leveling reveals the vehicle was hauling less than the approved volume, reduce the quantity of all material received since the last leveled load by the same ratio as the current leveled load volume is to the agreed volume. Payment will not be made for material in excess of the agreed volume.

Material measured in the hauling vehicle may be weighed and converted to cubic yards for payment purposes if the conversion factors are mutually agreed to in writing.

**(3) Cubic yard in the structure.** Measure according to the lines of the structure as shown on the plans except as altered by the CO to fit field conditions. Make no deduction for the volume occupied by reinforcing steel, anchors, weep holes, piling, or pipes less than 8 inches in diameter.

**(4) Cubic yard by metering.** Use an approved metering system.

**(c) Each.** One entire unit. The quantity is the actual number of units completed and accepted.

**(d) Gallon.** The quantity may be measured by any of the following methods:

**(1)** Measured volume container.

**(2)** Metered volume. Use an approved metering system.

**(3)** Commercially-packaged volumes.

When asphalt material is measured by the gallon, measure the volume at 60 °F or correct the volume to 60 °F using recognized standard correction factors.

**(e) Hour.** Measure the actual number of hours ordered by the CO and performed by the Contractor.

**(f) Linear foot.** As applicable, measure the work along its length from end-to-end; parallel to the base or foundation; along the top; along the front face; or along the invert. Do not measure overlaps.

**(g) Lump sum.** Do not measure directly. The bid amount is complete payment for all work described in the contract and necessary to complete the work for that item. The quantity is designated as "All." Estimated quantities of lump sum work shown in the contract are approximate.

**(h) M-gallon.** 1,000 gallons. Measure according to (e) above.

**(i) Mile.** 5,280 linear feet. Measure horizontally along the centerline of each roadway, approach road, or ramp.

**(j) Pound.** Measure according to Subsection 109.03. If sacked or packaged material is furnished, the net weight as packed by the manufacturer may be used.

**(k) Square foot.** Measure on a plane parallel to the surface being measured.

**(l) Square yard.** 9 square feet. Longitudinal and transverse measurements for area computations will be made horizontally. No deductions from the area computation will be made for individual fixtures having area of 9 square feet or less.

**(m) Station.** 100 linear feet. Measure horizontally along centerline or reference line of each roadway, approach road, or ramp.

**(o) Ton.** 2,000 pounds avoirdupois.

**(p) Thousand Board Feet (Mbf).** 1,000 board feet based on nominal widths, thickness, and extreme usable length of each piece of lumber or timber actually incorporated in the job. For glued laminated timber, 1,000 board feet based on actual width, thickness, and length of each piece actually incorporated in the job.

No adjustment in a contract unit price will be made for variations in quantity due to differences in the specific gravity or moisture content.

Use net-certified scale masses, or masses based on certified volumes.

**109.03 Methods of Measurement.** One of the following methods of measurement for determining final payment is DESIGNATED IN THE SCHEDULE OF ITEMS for each PAY ITEM:

**(a) Designed Quantities (DQ).** These quantities denote the final number of units to be paid for under the terms of the contract. They are based upon the original design data available prior to advertising the project. Original design data include the preliminary survey information, design assumptions, calculations, drawings, and the presentation in the contract. Changes in the number of units DESIGNATED IN THE SCHEDULE OF ITEMS may be authorized under any of the following conditions:

(1) Changes in the work authorized by the CO.

(2) A determination by the CO that errors exist in the original design that cause a PAY ITEM quantity to change by 15 percent or more.

(3) A written request submitted to the CO showing evidence of errors in the original design that cause the quantity of a PAY ITEM to change by 15 percent or more. The evidence must be verifiable and consist of calculations, drawings, or other data that show how the designed quantity is in error.

**(b) Staked Quantities (SQ).** These quantities are determined from staked measurements prior to construction.

**(c) Actual Quantities (AQ).** These quantities are determined from measurements of completed work.

**(d) Vehicle Quantities (VQ).** These quantities are measured or weighed in hauling vehicles. Measure according to 109.02(b)(2).

**(e) Lump Sum Quantities (LSQ).** These quantities denote one complete unit of work as required by or described in the contract, including necessary materials, equipment, and labor to complete the job.

**109.04 Receiving Procedures.** When the method of measurement requires weighing or volume measurement in the hauling vehicle, furnish a person to direct the distribution of material and to record the location and placement of the material on the project. During the placement, maintain a record of each delivery and document it in an acceptable manner. Include the following information as applicable:

- (a) Project identification;
- (b) Contract pay item number and description;
- (c) Location where placed;
- (d) Date;
- (e) Time of arrival;
- (f) Mass or volume; and
- (g) Distribution person's signature.

Use an approved format for the delivery record(s). Furnish the original record(s) and a written certification of the delivery of the material at the end of each shift.

## 151 - Mobilization

### Description

**151.01 Work.** This work consists of washing and treating construction equipment and vehicles necessary for equipment transport to remove seeds, plants, and plant fragments before the equipment is used on Forest Service Lands.

Wash the sides, tops, and undercarriages of all construction equipment. Remove all seeds, plants, plant fragments, dirt, and debris from the construction equipment. Only equipment inspected by the Forest Service will be allowed to operate within the project area. All subsequent move-ins of equipment to the project area will be treated in the same manner as the initial move-in. This requirement does not apply to cars, pickup trucks, and other vehicles that regularly travel between the construction site and areas off the National Forest.

Equipment will be considered free of soil, seed, and other such debris when a visual inspection does not disclose such material. Disassembly of equipment, components or the need for specialized inspection tools is not required.

Notify the CO in writing at least 24 hours before moving any construction equipment onto the national forest. Notification will include an agreed upon location where the equipment will be available for inspection by the Forest Service. Inspection will be required after every cleaning.

Use methods of cleaning and locations for cleaning approved by the CO.  
For work at a commercial washing facility, use an approved facility.

New infestations of noxious weeds of concern to Forest Service and identified by either Contractor or Forest Service, on the Project Area or on the haul route, will be promptly reported to the other party. Contractor and Forest Service will agree on treatment methods to reduce or stop the spread of noxious weeds when new infestations are found. A current list of noxious weeds of concern to Forest Service is available at each Forest Service office.

### Measurement

**151.02 Method.** Measure mobilization by the lump sum.

### Payment

**151.03 Basis.** The accepted quantity, measured as provided above, will be paid at the contract price per unit of measurement for the pay item shown in the bid schedule. Payment will be full compensation for the work prescribed in this Section.

Progress payments for mobilization lump sum will be paid as follows:

- (a) Payment for equipment washing is incidental to Pay Item 15101 Mobilization.
- (b) If applicable, bond premiums will be reimbursed according to FAR clause 52.232-5, Payment Under Fixed-Price Construction Contracts, after receipt of evidence of payment.
- (c) When 5 percent of the original contract amount is earned from other bid items, 50 percent of the mobilization item, or 5 percent of the original contract amount, whichever is less, will be paid.

(d) When 10 percent of the original contract amount is earned from other bid items, 100 percent of the mobilization item, or 10 percent of the original contract amount, whichever is less, will be paid.

(e) Any portion of the mobilization item in excess of 10 percent of the original contract amount will be paid after final acceptance.

<u>Pay Item</u>	<u>Pay Unit</u>
15101 Mobilization.....	Lump Sum

## 153 - Contractor Quality Control

### Description

**153.01 Work.** Provide Quality control in conformance with the Inspection of Construction provisions of this contract to ensure compliance with the drawings, specifications, and provisions of the contract. Measure the quantities of completed work in conformance with the provisions of the applicable specification. Provide all personnel. Equipment, tests, and reports necessary to meet the requirements of this specification.

### Construction

**153.02 Quality Control & Quantity Measurement System.** The Contractor, not the Government, is responsible for management and quality control actions to meet the terms of this contract. Contractor's descriptions, sketches, charts, and plans for site specific quality control action, measurements, and procedures, shall be provided within thirty (30) days of contract award. The Contractor's plans for Quality Control shall be incorporated into the Surveillance Plan.

Minimum of required submittals for a Contractor's Quality Control plan shall include:

- (a) Plans and procedures for control for security of Government-provided items such as keys, lock combinations, and other supplied materials.
- (b) Location plans for review and distribution of inspection documents.
- (c) Plans for corrective or preventive actions that will be taken to meet quality standards.
- (d) Statement of contractor's routine in customer feedback and comments process.

**153.03 Records.** Records of quality inspections shall be kept and made available to the Government throughout the performance period and for the period after contract completion until final settlement of any claims under this contract.

### Measurement

**153.04 Method.** Do not make separate measurements for this section.

### Payment

**153.05 Basis.** Quality control and quantity measurement is incidental to other specified work.

## 201 - Clearing & Grubbing

### Description

**201.01 Work.** This work consists of removing all vegetative material including limbs, residual slash, live roadside brush, and small trees within the brushing limits SHOWN ON THE DRAWINGS.

### Construction

**201.02 Brushing.** Cut or grub all brush and trees located on the roadbed and SHOWN ON THE DRAWINGS as nearly flush to the road surface as possible so stumps will not become a hazard to vehicle tires.

Cut all brush and small trees (6 inches diameter, or less, at the point of cut) outside the roadbed, but still inside the brushing limits, no higher than 4 inches above ground level (6 inches for machine brushing). If rocks or other obstructions are encountered, cut no higher than 6 inches above the obstruction. Limb live trees with a diameter larger than 6 inches a clear height of 10 feet above the road surface.

**201.03 Windfalls.** Limb windfalls lying within or across the brushing limits, cut off at the top of the existing cut slope or 5 feet from the shoulder on the fill slope. Dispose of windfall material as slash.

**201.04 Road Junctions.** Do not deposit brushing debris on the roadway of adjoining roads.

**201.05 Slash Treatment.** Unless otherwise SHOWN ON THE DRAWINGS, scatter slash outside the brushing limits without damaging residual trees. Slash is defined as any material that has a length greater than 36 inches or a diameter greater than 2 inches at any point. Do not deposit material in streams, streambeds, culvert inlets or outlets, drainage ways, or cattle guards.

## 203 - Removal of Structures and Obstructions

### Description

**203.01 Work.** Salvage, remove, and/or dispose of buildings, fences, structures, pavements, culverts, utilities, curbs, sidewalks, and other obstructions as SHOWN ON THE DRAWINGS. Salvage designated materials and backfill the resulting trenches, holes, pits, or as SHOWN ON THE DRAWINGS.

### Construction Requirements

**203.02 Salvaging Material.** Unless shown on the plans, remove all designated material from the project area and National Forest land.

**203.03 Removing Material.** Remove structures and obstructions to the lines and grades as SHOWN ON THE DRAWINGS.

Culverts removed shall become the property of the Contractor and will be removed from National Forest lands.

Remove structures and obstructions in the roadbed to 12 inches below subgrade elevation. Remove structures and obstructions outside the roadbed to 12 inches below finished ground or to the natural stream bottom.

Prior to removal, place rock and soil material located on the bridge deck, or structure so that it does not enter a stream.

Remove the substructures of existing structures down to the natural stream bottom, and remove the parts outside of a stream down to at least 12 inches below natural ground surface or finished groundline, whichever is lower. Remove portions of existing structures that lie wholly or in part within the limits for a new structure to accommodate construction of the proposed structure.

Except in excavation areas, fill cavities left by structure removal with material to the level of the finished ground, and compact. Place and compact the type of backfill material that is SHOWN ON THE DRAWINGS, designated in the PROJECT SPECIFICATIONS, or approved by the CO.

### **203.04 Disposing of Material.**

- (a) **Remove from project.** All culverts designated for removal shall become the property of the Contractor and will be removed from National Forest lands. Recycle or dispose of material legally off the project.
- (b) **Scattering.** Scatter construction slash along existing fillslope or excavation and embankment of stream channel restorations. Place logs and stumps, positioned so they will not roll, and are not on top of one another. Limb and scatter other construction slash to reduce slash concentrations.

### **Measurement**

**203.05 Method.** Do not make separate measurements for this section.

### **Payment**

**203.06 Basis.** Payment for the Removal of Structures and Obstructions is incidental to other specified work

## 204 - Excavation and Embankment

### Description

**204.01 Work.** Excavate material and construct embankments, waterbars, and earth berms. Furnish, haul, stockpile, place, dispose of, slope, shape, compact, and/or finish earthen and rocky material.

**204.02 Excavation.** Excavation consists of the excavation and placement of all excavated material that is not included under other PAY ITEMS listed in the SCHEDULE OF ITEMS.

**204.03 Borrow Excavation.** Excavate and utilize material from sources SHOWN ON THE DRAWINGS or described in the PROJECT SPECIFICATIONS. Additional sources of borrow excavation will be subject to advance approval by the CO. Develop sources in accordance with Section 105.04.

### Construction

**204.04 Clearing & Grubbing.** Clear and grub in accordance with Section 201 before work under Section 204 begins. Road pioneering, slash disposal, and grubbing of stumps may proceed concurrently with excavation when approved by the CO. Conduct excavation and placement operations so material to be treated under Section 201 will not be incorporated in the roadway unless specifically included in the slash treatment method.

**204.05 Pioneering.** During pioneering operations, prevent undercutting of the final excavation slope. Avoid any restriction of drainages while pioneering the road. Keep all materials within the roadway limits unless otherwise SHOWN ON THE DRAWINGS.

**204.06 Utilization of Excavated Materials.** Use all suitable excavated material in the construction of embankments, subgrades, shoulders, slopes, bedding, and backfill for structures and other purposes, as SHOWN ON THE DRAWINGS.

- (a) **Excess Excavation.** Place excess excavation on adjacent fill slopes or AS DIRECTED BY THE ENGINEER.
- (b) **Rock for Slope Protection.** Conserve and use suitable excavated rock for protecting embankments.
- (c) **Conserving Material.** Excavated material suitable for cushion, road finishing, or other purposes may be conserved and utilized instead of materials from designated sources. Field drain and dry excessively wet material that is otherwise suitable for embankment before placement.
- (d) **Excavation of Unsuitable Material & Backfill.** Place unsuitable excavated material as SHOWN ON THE DRAWINGS or DIRECTED BY THE ENGINEER. Backfill excavated areas with suitable material when necessary to complete the work. Do not place frozen material in embankments.

Break up rocks that are too large to be incorporated into the embankment or move them to locations approved by the CO. Broken pieces of rock may be placed on the face of the embankment and embedded so they will not roll or obstruct the use and maintenance of the

roadbed. Immediately remove any excavated material that inadvertently reaches a stream course.

(e) **Conservation of Topsoil.** When SHOWN ON THE DRAWINGS, remove, transport, and deposit suitable topsoil in the designated stockpile areas.

(f) **Abandoned Structures & Obstructions.** Treat abandoned structures and obstructions in accordance with Section 203.

**204.07 Drainage Excavation.** Construct waterbars, catch basins, drain dips and sags, side ditches, minor channel changes, inlet and outlet ditches, furrow ditches, ditches along the road but beyond roadway limits, and other minor earth drainage structures as SHOWN ON THE DRAWINGS. Utilize excavated material in accordance with Subsection 204.06. Where SHOWN ON THE DRAWINGS obtain compaction by using equipment listed in Subsection 204.13. Ensure moisture content of the material is suitable for compaction. Operate compaction equipment over the full length and width of each drain dip until visible deformation ceases. Make at least three complete passes.

**204.08 Sloping, Shaping, & Finishing.** Complete slopes and ditches before placing aggregate courses. Slope, shape, and finish as follows:

(a) **Sloping.** Leave all earth slopes with uniform roughened surfaces, except as described in Subsection 204.08(b), with no noticeable break as viewed from the road. Except in solid rock, round the tops and bottoms of all slopes, including the slopes of drainage ditches, where SHOWN ON THE DRAWINGS. Round the material overlaying solid rock to the extent practical.

If a slide or slipout occurs on a cut or embankment slope, remove or replace the material, and repair or restore all damage to the work. Bench or key slope to stabilize the slide. Reshape the cut or embankment slope to an acceptable condition.

(b) **Stepped Slopes.** Where SHOWN ON THE DRAWINGS, construct steps on slopes of 1.3:1 to 1:2. Construct the steps about 20 inches high. Blend the steps into natural ground at the end of the cut. If the slope contains nonrippable rock outcrops, blend steps into the rock. Remove loose material found in transitional area. Except for removing large rocks that may fall, scaling stepped slopes is not required.

(c) **Shaping.** Shape the subgrade to a smooth surface and to the cross section required. Shape slopes to gradually transition into slope adjustments without noticeable breaks. At the ends of cuts and at intersections of cuts and embankments, adjust slopes in the horizontal and vertical planes to blend into each other or into the natural ground. For roads receiving base or surface course, rocks may remain in place if they do not protrude above the subgrade more than one-third of the depth of the base or surface course, or 3 inches, whichever is less.

(d) **Finishing.** Finish the road surface to be reasonably smooth, uniform, and shaped to conform to the typical sections as SHOWN ON THE DRAWINGS. Remove unsuitable material from the roadbed and replace it with suitable material. Finish roadbeds to the tolerance class shown in table 204-1 or as SHOWN ON THE DRAWINGS.

Ensure that the subgrade for both surfaced and unsurfaced roads is visibly moist during shaping and dressing. Bring low sections, holes, cracks, or depressions to grade with suitable material. Compact the subgrade as required by the designated embankment placing method.

Finish the roadbed for unsurfaced roads using one of the following methods, as SHOWN ON THE DRAWINGS:

- (1) *Method A.* Ensure that the top 4 inches below the finished roadbed contains rocks no larger than 4 inches. Remove oversize material, reduce to acceptable size, or cover by importing suitable material approved by the CO.
- (2) *Method B.* Roll the roadbed to break down rocky material. Roll a minimum of five full-width passes, or until visual displacement ceases, with a vibratory grid roller or equivalent weighing a minimum of 9 t.
- (3) *Method C.* Tractor finish work by spreading the excavation for roads SHOWN ON THE DRAWINGS as Construction Tolerance Class K, L, or M, as shown in table 204-1. Eliminate rock berms that may form during embankment construction with a tractor finish.

Table 204-1 - - Construction Tolerances

	Tolerance Class <sup>a</sup>												
	A	B	C	D	E	F	G	H	I	J	K	L	M
Roadbed width (inches)	6	6	12	12	12	12	12	18	12	24	24	24	24
Subgrade elevation (inches)	±1.5	±3	±3	±6	±6	±12	±12	±18	±24	±36	±24	±36	- <sup>c</sup>
Centerline alignment (inches)	2.5	2.5	6	6	12	12	12	18	24	36	36	60	- <sup>c</sup>
Slopes, excavation, and embankment (%slope) <sup>b</sup>	±3	±5	±5	±5	±5	±5	±10	±10	±10	±10	±20	±20	±20

<sup>a</sup>. Maximum allowable deviation from construction stakes and drawings.

<sup>b</sup>. Maximum allowable deviation from staked slope measured from slope stakes or hinge points.

<sup>c</sup>. Unless otherwise SHOWN ON THE DRAWINGS, the centerline alignment and subgrade elevation, as built, have no horizontal curves with a radius of less than 85 ft., and no vertical curves with a curve length of less than 80 ft. when the algebraic difference in the grade change is less than 10 percent, or a curve length of less than 100 ft. when the algebraic difference of the grade change is greater than or equal to 10 percent. The centerline grade is not to exceed 20 percent in 100 ft. of length.

**204.09 Snow Removal.** Remove snow and ice in advance of the work and deposit beyond the roadway limits in a manner that will not waste material. Snow and ice will not be incorporated into the embankment or be placed to cause damage.

**204.10 Finishing Slopes.** Ensure that finished slopes conform reasonably to the lines STAKED ON THE GROUND or SHOWN ON THE DRAWINGS. Finish slopes in a roughened condition to facilitate the establishment of vegetative growth. The finish associated with template and stringline or hand-raking methods will not be required. Remove rock, debris, and other loose material that are more than 6 inches in diameter, unless otherwise SHOWN ON THE DRAWINGS.

**204.11 Landscape & Stream Protection.** Confine excavation, blasted material, and embankment material within the roadway limits, unless otherwise approved by the CO, to avoid overbuilding and to protect the landscape and streams. Retrieve and incorporate into designated areas all material deposited outside of the clearing limits.

**204.12 Earth Berms.** Construct earth berms where called for in the road logs and as SHOWN ON THE DRAWINGS to prevent motorized vehicle access.

**204.13 Compaction Equipment.** Use equipment capable of obtaining compaction requirements. The compacting units may be of any type, provided that they are capable of compacting each lift of material as specified, and that they meet the minimum requirements specified below. Heavier compacting units may be required to achieve the specified density of the embankment. Minimum requirements for rollers are as follows:

- (a) Sheepsfoot, tamping, or grid rollers shall be capable of exerting a force of 250 pounds per inch of width of roller drum.
- (b) Steel-wheel rollers, other than the vibratory type, shall be capable of exerting a force of not less than 250 pounds per inch of width of the compression roll or rolls.
- (c) Vibratory steel-wheel rollers shall have a minimum weight of 6 tons. The compactor shall be equipped with amplitude and frequency controls, and specifically designed to compact the material on which it is used.
- (d) Pneumatic-tire rollers shall have smooth tread tires of equal size that will provide a uniform compacting pressure for the full width of the roller and capable of exerting a ground pressure of at least 80 pounds per square inch.

**204.14 Embankment Placement.** Place embankment in accordance with the following requirements:

- (a) **All Methods.** Construct the lower part of the embankment in a single layer to the minimum depth necessary to support construction equipment when an embankment is to be placed across swampy ground and removal of unsuitable material or subgrade treatment is not required.
- (b) **Specific Methods.** Place all embankments using one or more of the following methods, as SHOWN ON THE DRAWINGS and listed in the SCHEDULE OF ITEMS:

(1) *Method 1—Side Casting & End Dumping.* Embankment may be placed by side casting and end dumping. Build solid embankments by working smaller rocks and fines in with the larger rocks and fines to fill the voids. Obtain compaction by operating hauling/placement equipment over the full width of the placed layer until visible deformation of the layer ceases.

(2) *Method 2—Layer Placement.* Roughen or step surfaces steeper than a ratio of 1 vertical to 3 horizontal (1:3) upon which embankment is to be placed, when SHOWN ON THE DRAWINGS, in order to provide permanent bonding of new and old materials.

Layer place embankment, except over rock surfaces. Over rock surfaces, material may be placed by end dumping to the minimum depth needed for operation of spreading equipment. Level and smooth each embankment layer before placement of subsequent layers. Operate hauling and spreading equipment uniformly over the full width of each layer.

Place suitable material in layers no more than 12 inches thick, except when the material contains rock more than 9 inches in diameter, in which case layers may be of sufficient thickness to accommodate the material involved. Ensure that no layer exceeds 24 inches before compaction.

Placing individual rocks or boulders greater than 24 inches in diameter will be permitted, provided that the embankment will accommodate them and that they are at least 6 inches below the subgrade. Carefully distribute rocks and fill the voids with finer material to form a dense and compacted mass.

Where material containing large amounts of rock is used to construct embankments, make layers of sufficient thickness to accommodate the material involved. Construct a solid embankment with adequate compaction by working smaller rock and fines in with the larger rocks to fill the voids, and by operating hauling and spreading equipment uniformly over the full width of each layer as the embankment is constructed.

Ensure that material is at a moisture content suitable to obtain a mass that will not visibly deflect under the load of the hauling and spreading equipment. Handle excessively wet material in accordance with Subsection 204.06(c).

(3) *Method 3—Layer Placement (Roller Compaction).* Place embankments as specified in method 2. Place in horizontal layers not exceeding 12 inches prior to compaction, except when the material contains rock more than 9 inches in diameter, in which case layers may be of sufficient thickness to accommodate the material involved. Obtain compaction using equipment listed in Subsection 204.13. Operate compaction equipment over the full width of each layer until visible deformation of the layer ceases or, in the case of the sheepsfoot roller, the roller “walks out” of the layer. Make at least three complete passes.

(4) *Method 4—Controlled Compaction.* Place embankments as specified in method 2; but place earth embankments in horizontal layers not exceeding 12 inches (loose measure), and compact them. Ensure that the moisture content of material is suitable for attaining the required compaction. Compact the embankments and the top 12 inches of excavation

sections to at least 95 percent of the maximum density, as determined by AASHTO T 99, method C or D.

Determine the density of the embankment material during the progress of the work, in accordance with AASHTO T 191, T 205, or T 238; and T 217, T 239, or T 255. Correct for coarse particles in accordance with AASHTO T 224.

Density requirements will not apply to portions of rock embankments that cannot be tested in accordance with approved methods. When this condition exists, accomplish compaction by working smaller rocks and fines in with the larger rocks to fill the voids and by operating equipment over the embankment materials.

- (5) *Method 5—Special Project Controlled Compaction.* Place and compact embankments to at least 90 percent of the maximum density determined by AASHTO T 180, method C or D, but obtain compaction of not less than 95 percent of AASHTO T 180, method C or D, for a minimum depth of 12 inches below subgrade for the width of the roadbed in both excavation and embankment sections.

Determine density during the work in accordance with AASHTO T 191, T 205, or T 238; T 217, T 239, or T 255; and T 224.

**204.15 Construction Tolerances.** Construct to the tolerance class as SHOWN ON THE DRAWINGS and in accordance with table 204-1. Construct roadway ditches to flow in the direction SHOWN ON THE DRAWINGS.

Ensure that deviations are uniform in the direction of change for a distance of 200 feet or more along the project centerline.

**204.16 Haul.** Haul is incidental to excavation and borrow excavation, unless listed as a separate PAY ITEM in the SCHEDULE OF ITEMS.

### Measurement

**204.17 Method.** Use the method of measurement that is DESIGNATED IN THE SCHEDULE OF ITEMS.

Quantities of excavation will include:

- (a) Roadway excavation.
- (b) Rock and unsuitable material below the required grade, and unsuitable material beneath embankment areas.
- (c) Furrow ditches outside the roadway, except when furrow ditches are included in the SCHEDULE OF ITEMS.
- (d) Topsoil and other material removed and stockpiled as directed.
- (e) Borrow material used in the work, except when borrow is included in the SCHEDULE OF ITEMS.
- (f) The volume of conserved materials taken from stockpiles and used in the work, except topsoil included under other PAY ITEMS.

(g) Slide material not attributable to negligence of the Contractor.

Quantities of excavation will not include:

- (a) Material used for other than approved purposes.
- (b) Unauthorized excavation or borrow.
- (c) Quantity of material excavated from slope rounding or slope tapering.
- (d) Overbreakage from the backslope in rock excavation requiring blasting.
- (e) Material scarified in place to receive the first layer of embankment.
- (f) Benching or stepping existing ground for embankment foundation.
- (g) Stepping or scaling cut slopes.
- (h) Oversize material removed when finishing unsurfaced roads.

When designed quantities are DESIGNATED IN THE SCHEDULE OF ITEMS as the method of measurement, estimate the quantities from design data based on undisturbed ground surface elevations.

When staked quantities are DESIGNATED IN THE SCHEDULE OF ITEMS as the method of measurement, determine excavation quantities by the average end area method using slope stake information taken prior to construction.

When actual quantities are DESIGNATED IN THE SCHEDULE OF ITEMS as the method of measurement, take preliminary cross sections, or comparable measurements, of the undisturbed ground surface; and measure final quantities in accordance with the following:

- (a) When excavation is designated as a PAY ITEM in the SCHEDULE OF ITEMS, take final cross sections, or comparable measurements, of the completed and accepted work.
- (b) When embankment is designated as a PAY ITEM in the SCHEDULE OF ITEMS, determine measurement in the final position.
- (c) When borrow excavation is designated as a PAY ITEM in the SCHEDULE OF ITEMS, determine measurement in the original position or as SHOWN ON THE DRAWINGS.

### Payment

**204.18 Basis.** The accepted quantities will be paid at the contract price per unit of measurement for the Section 204 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.01.

<u>Pay Item</u>	<u>Pay Unit</u>
20401 Earth Berm.....	Each
20402 Waterbar.....	Each

## 208 - Structural Excavation for Minor Structures

### Description

**208.01 Work.** Excavate, backfill, and dispose of material for the construction of culverts and minor structures. Preserve channels; shore and brace; seal foundations; dewater; excavate; prepare foundations; bed; and backfill.

### Materials

**208.02 Requirements.** Ensure that material conforms to specifications in the following sections and subsections:

- (a) **Foundation Fill.** Furnish granular material free of excess moisture, frozen lumps, roots, sod, and other deleterious material and conforming to the following:
  - (1) Material passing 2 inch sieve ..... 100%
  - (2) Soil classification, AASHTO M 145 ..... A-1-a
  - (3) In wet environments, material passing 200 sieve ... 6% max.
- (b) **Bedding.** Furnish approved sand or fine granular material free of excess moisture, muck, frozen lumps, roots, sod, and other deleterious material. Remove all rock particles and hard earth clods larger than 1.5 inches.
- (c) **Backfill Material.** Furnish granular material or fine compatible soil free of excess moisture, muck, frozen lumps, roots, sod, and other deleterious material. Remove all rock particles and hard earth clods larger than 3 inches in the longest dimension.

### Construction

**208.03 Preparation for Structural Excavation.** Clear the area of vegetation and obstructions according to Sections 201 and 203.

**208.04 Culvert Removal.** All designated drainage structures and appurtenances (culverts, downpipe, anchors, drop inlets, and trash racks, etc.) will be removed as described in Section 203 and as SHOWN ON THE DRAWINGS.

**208.05 General.** Excavate trenches or foundation pits according to the following:

- (a) **Minor Structures.** Clean all loose material from all rock or other foundation material and cut to a firm surface that is level, stepped, or serrated. Remove all loose and disintegrated rock and thin strata. When the footing is to rest on material other than rock, complete the excavation just before the footing is to be placed.
- (b) **Culverts.** Construct the width of trenches in natural ground to permit satisfactory joining of the culvert sections and thorough tamping of the bedding material under and around the culvert. Excavate trenches to a minimum width equal to the culvert diameter plus 24 inches. Construct trenches for culverts being placed in embankments to a width of one diameter, plus one diameter on each side.

Excavate unsuitable foundation material below the invert of the culvert to an approximate depth of 24 inches and a width of at least the culvert diameter plus 4 feet. Remove rock, hardpan, or other unyielding material below the foundation grade for a

depth of at least 12 inches and a width of at least 24 inches greater than the outside width of the culvert.

Excavate to foundation grade without unduly disturbing the trench or foundation surface. Foundation grade is the elevation at the bottom of any bedding for the installation of the structure.

**208.06 Channel Preservation.** Perform work in or next to a running waterway as follows:

- (a) Excavate inside cofferdams, sheeting, or other approved separations such as dikes or sandbags.
- (b) Do not disturb the natural bed of the waterway adjacent to the work.
- (c) Backfill the excavation with structural backfill to original groundline.
- (d) Do not pump water from foundation excavations directly into live streams. Pump water into settling areas as SHOWN ON THE DRAWINGS or as approved BY THE ENGINEER.

**208.07 Dewatering.** All work within stream channels with live water must be dewatered in accordance with the state issued 124 permit.

**208.08 Foundation Preparation.** Excavate any unsuitable material present at foundation grade, and replace it with foundation fill.

**208.09 Utilization of Excavated Materials.** Utilize all suitable excavated material as backfill or embankment. Do not place excavated material in live streams.

Dispose of all surplus material as SHOWN ON THE DRAWINGS or DIRECTED BY THE ENGINEER. Do not deposit excavated material in a manner that will endanger the partly finished structure.

**208.10 Backfill & Embankments for Minor Structures.** Backfill excavated areas around minor structures to the level of the original ground surface. Backfill with selected material placed in horizontal layers not over 6 inches (loose measure) in depth. Use compactable material free of frozen lumps, chunks of highly plastic clay, or other objectionable material. Do not use rocks larger than 3 inches in diameter within 12 inches of the structure. Compact each layer in accordance with Subsection 204.14(b), method 3, using a mechanical tamper.

**208.11 Compacting.** Compact backfill using designated compaction method A, B, or C:

**Method A.** Ensure that backfill density exceeds the density of the surrounding embankment.

**Method B.** Adjust the moisture content of the backfill material to a moisture content suitable for compaction. Compact each layer using appropriate compaction equipment until visual displacement ceases.

**Method C.** Determine optimum moisture content and maximum density according to AASHTO T 99 method C. Adjust the moisture content of the backfill material to a moisture content suitable for compaction. Compact material placed in all layers to at least 95 percent of the maximum density. Determine the in place density and moisture content according to AASHTO T 310 or other approved test procedures.

## **Measurement**

**208.12 Method.** The method of measurement is for hauling of waste materials is the volume shown in the summary of quantities for Structural Excavation.

## **Payment**

**208.13 Basis.** The accepted quantities will be paid at the contract price per unit of measurement for the Section 208 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.01.

## 211 - Stream Restoration

### Description

**211.01 Work.** This work consists of excavating material associated with culvert removals, stream restorations, erosion control work, road spreading excavated material, and re-establishing turf in all disturbed areas. This includes hauling, stockpiling, placing, disposing, sloping, shaping, and compacting earthen and rocky material.

This work may also include necessary diverting of live streams, pumping, bailing, draining, sheeting, bracing, and miscellaneous items, required for execution of the work.

### Materials

**211.02 Requirements.** Furnish material that conforms to the specifications in the following Subsections:

Riprap Rock	705.02
Seed	713.02
Mulch	713.03
Erosion Control Bales, Wattles, Logs, and Rolls	713.04
Temporary Rolled Erosion Control Products	713.05

### Construction Requirements

**211.03 Streams.** Any site where there is running water through a channel crossing shall be dewatered by rerouting the flow around the site before and during excavation operations that has the potential for sediment delivery to the live stream. For work in stream channels with flowing water include a detailed dewatering plan.

**211.04 Culverts.** All designated drainage structures and appurtenances (culverts, downpipe, anchors, drop inlets, and trash racks, etc.) will be removed as described in Section 203 and as SHOWN ON THE DRAWINGS.

**211.05 Excavation.** Excavation includes the removal of fill material over culverts and bedding material underneath, reconstruction of the natural channel course and blending of sideslopes. Stream channel width after drainage structures have been removed will be as shown in the plans. The depth and alignment of excavation will be to the depth and position of the existing culvert, plus removal of any material between the natural channel and the culvert (bedding), unless specified otherwise in the plans. A uniform grade shall be constructed from the inlet to the outlet to facilitate a free draining channel for the entire length.

**(a) General.** Excavate all material at stream restoration sites to the lines and elevations SHOWN ON THE DRAWINGS. Culvert removal excavation consists of placing and compacting excavated material. This excavation includes all material encountered regardless of its nature or characteristics. This work includes:

- (1) Moving and/or hauling excavated material away from the excavation site to desired setbacks or disposal areas.
- (2) Placing excavated material away from existing road fill slope.

(3) Placing excavated material into existing road back slope.

(4) Shaping excavated material slopes no steeper than 5(H):1(V) or as SHOWN ON THE DRAWINGS.

Do not disturb material and vegetation outside the construction limits.

At the end of each day's operations, shape to drain and compact the work area to a uniform cross-section. Eliminate all ruts and low spots that could hold water.

**(b) Sloping, shaping, and finishing.**

(1) **Sloping.** Round the tops of all slopes. Leave all earth slopes with uniform roughened surfaces with no noticeable break as viewed from the lower extent of the excavation. In solid rock, round the material overlaying solid rock to the extent practical.

(2) **Shaping.** Shape the slopes to a smooth surface and to the cross section required. Shape slopes to gradually transition into slope adjustments without noticeable breaks. Adjust slopes in the horizontal and vertical planes to blend into each other or into the natural ground. Shape slopes of excavated material no steeper than 5(H):1(V) or as SHOWN ON THE DRAWINGS.

(3) **Finishing Slopes.** Ensure that finished slopes conform reasonably to the lines SHOWN ON THE DRAWINGS. Finish slopes in a roughened condition to facilitate the establishment of vegetative growth. Establish turf according to Section 625. Place wattles and blankets according to manufacturer specifications and as SHOWN ON THE DRAWINGS.

**(c) Conserved Rock.** Conserve suitable rock from culvert excavation areas. Utilize all suitable excavated rock for stream restorations as SHOWN ON THE DRAWINGS.

**211.06 Riprap.** Place riprap along banks and channel bottom according to section 251 and as SHOWN ON THE DRAWINGS.

**211.07 Wattles and Erosion Control Blankets.** Place wattles and erosion blankets on excavated slopes according to manufacturer specifications and as SHOWN ON THE DRAWINGS.

**211.08 Seeding.** Seed, fertilize, and mulch all disturbed ground according to section 625.

**211.09 Acceptance.** Stream Restoration will be evaluated under Subsections 106.02 and 106.04. Performance standards and evaluation criteria for Section 211 items are listed in the surveillance plan.

### **Measurement**

**211.10 Method.** Measure the Section 211 items listed in the bid schedule according to Subsection 109.02.

**Payment**

**211.11 Basis.** The accepted quantities will be paid at the contract price per unit of measurement of the Section 211 pay items listed in the bid schedule. Payment for the listed item includes all quantities of structural excavation and the removal of culverts replaced by bridges. Payment will be full compensation for the work prescribed in this section. See Subsection 109.01.

**Pay Item**

**Pay Unit**

21104 Stream Restoration .....	Each
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## 251 - Riprap

### Description

**251.01 Work.** This work consists of obtaining riprap from government designated sources, hauling, and placing of riprap for bank protection, slope protection, drainage structures, erosion control, and other features shown on the plans.

Riprap designated for stream restoration sites is in excess of riprap material conserved during excavation according to Section 204.06(b).

Riprap classes are designated as shown in Table 705-1.

### Material

**251.02 Requirements.** Furnish material that conforms to the specifications in the following Subsections:

Riprap rock	705.01
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### Construction Requirements

**251.03 Excavation.** Perform the work under Section 204. Dress the slope to produce a smooth surface.

**251.04 Placed Riprap.** Placed riprap is rock placed on a prepared surface to form a well-graded mass.

Place riprap to its full thickness in one operation to avoid displacing the underlying material. Do not place riprap material by methods that cause segregation or damage to the prepared surface. Place or rearrange individual rocks by mechanical or hand methods to obtain a dense uniform blanket with a reasonably smooth surface.

**251.05 Keyed Riprap.** Keyed riprap is rock placed on a prepared surface and set into place by impact pressure.

Place rock for keyed riprap according to Subsection 251.04 above. Set the riprap into place by exerting impact pressure with a hydraulic-powered bucket or an approximate 5000-pound flat-faced mass. Repeated impacts should be made until the rock is firmly seated and forms a reasonably uniform surface without reducing the effective sizes of the rocks. Do not use impact pressure on riprap below the water surface.

**251.06 Acceptance.** See Table 251-1 for sampling and testing requirements.

Rock for riprap will be evaluated under Subsection 106.02.

Rock placement for riprap will be evaluated under Subsections 106.02 and 106.04.

Structure excavation will be evaluated under Section 208.

### Measurement

**251.07 Method.** Measure the Section 251 items listed in the bid schedule according to Subsection 109.02 and the following as applicable.

Measure riprap by the cubic yard in hauling vehicles.

## **Payment**

**251.08 Basis.** The accepted quantities will be paid at the contract price per unit of measurement for the Section 251 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.01.

Payment for excavation, hauling, and placement of riprap is indirectly included in the pay item for riprap.

## 622 – Rental Equipment

### Description

**622.01 Work.** This work consists of furnishing and operating equipment for construction work and not otherwise provided for under the contract.

### Construction Requirements

**622.02 Rental Equipment.** The FS will order rental equipment for use on the project. Submit the model number and serial number for each piece of equipment before use. Make equipment available for inspection and approval before use.

Hydraulic Excavator. Provide a track-mounted hydraulic excavator, 1990 model year or newer. Bucket must be equipped with a hydraulic “thumb”. It is anticipated that an excavator of a size capable of performing the excavation needs for the project will be of an adequate size to be acceptable for any work that the Contractor may be directed to perform under this section.

Large Dump Truck. Provide a large dump truck with a minimum capacity of 10 cubic yards.

Furnish and operate equipment with such auxiliary attachments, oilers, etc., as are usually needed for efficient operation of the equipment. Keep the equipment in good repair and capable of operating 90 percent of the working time.

Obtain approval of the length of workday and workweek before beginning work. Keep daily records of the number of unit-hours of operation. Submit the records and, if applicable, certified copies of the payroll.

**622.03 Acceptance.** Rental equipment work will be evaluated under Subsection 106.02.

### Measurement

**622.04 Method.** Measure the Section 622 items listed in the bid schedule according to Subsection 109.02 and the following as applicable. Round portions of an hour up to the next half hour. Measure time in excess of 40 hours per week at the same rate as the first 40 hours.

The Forest Service reserves the right to reduce or eliminate entirely the work under this item with no adjustment in contract unit price.

Measure the time for moving equipment between project work sites. Do not measure nonoperable equipment or equipment dependent upon another piece of nonoperable equipment.

### Payment

**622.05 Basis.** The accepted quantities will be paid at the contract price per unit of measurement for the Section 622 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.01.

### Pay Item

### Pay Unit

62201 Hydraulic Excavator.....Hour

## 625 - Turf Establishment

### Description

**625.01 Work.** This work consists of soil preparation, seeding, fertilizing, laying erosion control blankets, wattles, and mulching. Seeding, fertilizing, and mulching methods are designated as dry or hydraulic.

### Material

**625.02 Requirements.** Furnish material that conforms to the specifications in the following Subsections:

Mulch	713.03
Seed	713.02
Erosion Control Wattles	713.04
Temporary Rolled Erosion Control Products	713.05

### Construction Requirements

**625.03 General.** Apply turf establishment to finished slopes, waterbars, and berms within 14 days after completion of construction. Do not seed during windy weather or when the ground is excessively wet, frozen, snow covered, extremely dry, cloddy, hard pan, or not friable.

Lay erosion control wattles and blankets at stream restoration sites according to the manufacturer's recommendations and as SHOWN ON THE DRAWINGS.

**625.04 Preparing Seedbed.** Finish the areas to be seeded, as required by other applicable sections, to the lines and grades SHOWN ON THE DRAWINGS. Restore areas that are damaged by erosion or other causes. Ensure that the surface soil is in a roughened condition favorable for germination and growth

**625.05 Seeding.** Apply seed having a seed mix as listed below by the dry method.

**(a) Dry method.** Use hand-operated devices, mechanical, landscape, or cultipacker seeders, seed drills, fertilizer spreaders, or other approved mechanical seeding equipment to apply the seed. Lightly compact the seedbed within 24 hours after seeding.

**(b) Seed Mix.** In terms of pure live seed, furnish and apply the following kinds and amounts of seed. Obtain the pounds of seed to furnish per acre by dividing the pounds of pure live seed required per acre by the product of the percent purity and percent germination.

<u>Kind of Seed</u>	<u>Quantity of Pure Live Seed (Lbs/Acre)</u>
1. Slender Wheatgrass ( <i>elymus trachycaulus</i> )	6.0
2. Mountain Brome ( <i>bromus marginatus</i> )	9.0
3. Bluebunch Wheatgrass ( <i>pseudoroegneria spicata</i> )	4.0
4. Blue Wild Rye ( <i>elymus glaucus</i> )	<u>5.0</u>
	Total
	24.0

Pounds of seed to be furnished per acre shall be obtained by dividing the pounds of pure live seed required per acre by the product of the percent purity and percent germination.

Example:  $\frac{5 \text{ lbs. PPLS}}{0.90 \times 0.85} = 6.55 \text{ lbs commercial seed per acre applied}$

Where: 5 lbs. PPLS = pounds pure live seed per acre required; Purity = 90%; Germination = 85%

**Contractor shall provide to the Forest Service:**

1. **Blue tags, or copies of blue tags from each seed lot used in the specified mix. Only certified, blue-tagged seed shall be used. The blue tag represents a field certification and serves as evidence of the genetic purity and varietal identity of the seed contained in the seed lot.**
2. **Labels which indicate the percentage composition of the various species in the seed mix.**
3. **Copies of the Seed analysis Report from a certified seed analyst for each lot used in the specified seed mix. Analysis report must include at a minimum, content of any noxious weed seeds listed on the current "State of Montana Noxious Weeds List". The Contractor will obtain this report from the seed provider. Only after the Forest Service has verified that the seed does not contain any weed seeds on the current "State of Montana Noxious Weeds List" will the seed be accepted and used.**

**625.06 Mulching.** Apply certified weed free straw mulch immediately after seeding. Apply mulch uniformly over the disturbed area not covered by erosion control blankets. Apply by hand methods so that by visual observation, 60 percent of the seeded area is covered by a thin layer of straw.

**625.07 Protecting and Caring for Seeded Areas.** Protect and care for seeded areas until final acceptance. Repair all damage to seeded areas by reseeding, and remulching. Apply supplemental applications of seed, mulch, or fertilizer.

**625.08 Acceptance.** Seed will be evaluated under Subsections 106.02, 106.03, and 713.02.

Mulch and other turf establishment material will be evaluated under Subsections 106.02 and 106.03.

Turf establishment work will be evaluated under Subsections 106.02 and 106.04.

**Measurement**

**625.09 Method.** Use the method of measurement that is DESIGNATED IN THE SCHEDULE OF ITEMS.

**Payment**

**625.10 Basis.** The accepted quantities will be paid at the contract price per unit of measurement for the Section 625 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.01.

**Pay Item**

**Pay Unit**

62502 Seed and Mulch Dry Method.....Lump Sum

## 705 - Rock

**705.01 Riprap Rock.** Furnish hard, durable, angular rock that is resistant to weathering and water action and free of organic or other unsuitable material. Do not use shale, rock with shale seams, or other fissile or fissured rock that may break into smaller pieces in the process of handling and placing. Conform to the following:

- (a) Gradation for the class specified      Table 705-1

**Table 705-1  
Gradation Requirements for Riprap**

<b>Class</b>	<b>Percent of Rock by Mass</b>	<b>Mass (pounds)</b>	<b>Approximate Cubic Dimension<sup>(2)(3)</sup> (inches)</b>
1	20	22 to 33	6 to 8
	30	11 to 22	5 to 6
	40	1 to 11	2 to 5
	10 <sup>(1)</sup>	0 to 1	0 to 2
2	20	55 to 110	8 to 10
	30	22 to 55	6 to 8
	40	2 to 22	3 to 6
	10 <sup>(1)</sup>	0 to 2	0 to 3
3	20	220 to 330	14 to 16
	30	110 to 220	10 to 14
	40	11 to 110	5 to 10
	10 <sup>(1)</sup>	0 to 11	0 to 5
4	20	550 to 770	18 to 20
	30	220 to 550	14 to 18
	40	22 to 220	6 to 14
	10 <sup>(1)</sup>	0 to 22	0 to 6
5	20	1540 to 2200	26 to 28
	30	770 to 1540	20 to 26
	40	55 to 770	8 to 20
	10 <sup>(1)</sup>	0 to 55	0 to 8
6	20	1870 to 3530	28 to 34
	30	1100 to 1870	22 to 28
	40	110 to 1100	10 to 22
	10 <sup>(1)</sup>	0 to 110	0 to 10

(1) Furnish spalls and rock fragments graded to provide a stable dense mass.

(2) The volume of a rock with these cubic dimensions has a mass approximately equal to the specified rock mass.

(3) Furnish rock with breadth and thickness at least one-third its length.

## 713 - Roadside Improvement Material

**713.01 Seed.** Conform to the federal Seed Act, the Federal Noxious Weed Act, and applicable State and local seed and noxious weed laws. Do not use wet, moldy, or otherwise contaminated or damaged seed.

Provide seeds as follows:

- (a) Furnish each seed type in a separate standard sealed container. Clearly label each container with the following:
  - (1) Name and type of seed.
  - (2) Lot number.
  - (3) Net weight.
  - (4) Percent of purity, germination, and hard seed.
  - (5) Percent of maximum weed seed content.

Inoculate legume seed with approved cultures, in accordance with the manufacturer's instructions.

- (b) Furnish a product certification for each kind or type of seed, certifying that the seed was tested by a recognized laboratory within 6 months of the date of delivery. Include the following:
  - (1) Name and address of testing laboratory.
  - (2) Date of test.
  - (3) Seed identification.
  - (4) Test results showing the percentages of purity, germination, and weed content.
  - (5) Certified weed-free seed.

### 713.02 Mulch.

**(a) Straw.** Obtain straw for mulching from oats, wheat, rye, or other grain crops that are free from weeds, mold, and other objectionable material. Furnish straw mulch in an air-dry condition suitable for placing by hand methods or with mulch blower equipment.

**(b) Hay.** Obtain hay from herbaceous mowing. Ensure that it is free from weeds, mold, and other objectionable material. Furnish hay in an air-dry condition suitable for placing by hand methods or with mulch blower equipment.

### 713.03 Erosion Control Bales, Wattles, Logs, and Rolls.

**Straw wattles, logs or rolls.** Furnish straw wattles that are manufactured from certified weed free straw and wrapped in a tubular photodegradable plastic netting made from 85% high density polyethylene, 14% ethyl vinyl acetate and 1% color for UV inhibition. Conform to the following:

- |                             |                                |
|-----------------------------|--------------------------------|
| 1) Diameter                 | 9 inches min.                  |
| 2) Netting strand thickness | 0.030 inches                   |
| 3) Netting knot thickness   | 0.055 inches                   |
| 4) Mass of netting          | 0.315 to 0.385 ounces per foot |

**713.04 Temporary Rolled Erosion Control Products.**

**Short-term double net erosion control blankets.** Furnish temporary rolled erosion control products composed of natural fibers mechanically bound between two natural fiber nettings to form a continuous matrix with a 12-month typical functional longevity designed for use on geotechnically stable slopes with gradients as SHOWN ON THE DRAWINGS.

The following products meet the above requirements:

1. East Coast Erosion Blanket ECS-2B.
2. North American Green S-150BN.
3. American Excelsior Curlex II Fibernet.
4. Western Excelsior Products Excel SS-2 (All Natural).
5. Ero-Guard EG-2s (NN)