PART III: EXHIBITS

State Timber Sale Contract
No. SW-341-2020-GF7919-01
Twins GNA

EXHIBIT B

629-Form 341-203
Revised 5/18

OREGON DEPARTMENT OF FORESTRY

TIMBER SALE OPERATIONS PLAN
(See Page 2 for instructions)

Date Received by STATE: _____

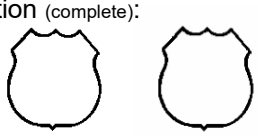
(1) Contract No.: SW-341-2020-GF7919-01

(2) Sale Name: Twins GNA

(3) Contract Expiration Date: 10/31/2024

(4) Purchaser: _____

(5) State Brand Information (complete):



Project Completion Dates: 10/31/21

(6) Purchaser Representatives:

Projects:		Phone:		Cell/Other Phone:		Email:	
Projects:		Phone:		Cell/Other Phone:		Email:	
Projects:		Phone:		Cell/Other Phone:		Email:	
Projects:		Phone:		Cell/Other Phone:		Email:	
Logging:		Phone:		Cell/Other Phone:		Email:	
Logging:		Phone:		Cell/Other Phone:		Email:	
Logging:		Phone:		Cell/Other Phone:		Email:	
Logging:		Phone:		Cell/Other Phone:		Email:	

(7) State Representatives:

Projects:		Phone:		Cell/Other Phone:		Email:	
Logging:		Phone:		Cell/Other Phone:		Email:	

(8) Name of Subcontractors & Starting Dates:

Projects:	No(s) _____-_____	Date:		Phone:	
	No(s) _____-_____	Date:		Phone:	
	No(s) _____-_____	Date:		Phone:	
	No(s) _____-_____	Date:		Phone:	
Logging:	Felling _____	Date:		Phone:	
Yarding:	_____	Date:		Phone:	

(9) Comments: _____

(10) Operations Map: Attach a copy of timber sale Exhibit A or other suitable map which plainly shows the items listed on the instruction sheet.

EXHIBIT B

INSTRUCTION SHEET FOR OPERATIONS PLAN

SUBMIT ONE COPY OF PLAN TO STATE

Operations shall be limited to the work shown in the plan until a revised plan or supplemental plan is submitted covering additional work. Compliance with this plan is not in lieu of compliance with any federal requirements related to the federal Endangered Species Act. If STATE has prepared a required Forest Practices Act (FPA) "Written Plan" for operations, PURCHASER shall comply with all provisions of the Written Plan.

Explanation of Item No. (from Page 1)

(5) All sales require you to use a brand furnished by STATE. If the State brand has not been assigned when the plan is submitted, it will be furnished and assigned later. Complete drawing. If more than one brand is assigned to the sale, complete both drawings.

(6) The contract requires you to have a designated representative available on the sale area or work location who is authorized to receive in your behalf any notice or instruction given by STATE and to take action in regard to performance under the contract. If logging and project work is widely separated, a representative is required for each.

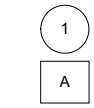
(7) The STATE representative will be designated when your plan is approved and is the person who will inspect and issue instructions regarding performance.

(8) Show names of subcontractors to be used for any or all phases of the operations. If subcontractors are not known, or are changed later, give notification to the STATE representative prior to commencement of work by subcontractor.

Show projected dates for commencement of both projects and logging. If projected dates need to be changed at a later date, notification must be given to the STATE representative by supplemental plan or otherwise, prior to commencement of such operations.

(10) The STATE representative will furnish extra copies of Exhibit A of the contract for your use in preparing the operations map. The map shall use the following legend and show:

1. Landing locations, approximate setting boundaries, and probable sequence of logging the settings. Number the settings in sequence.
2. Locations of spur roads planned for construction, other than those required by the timber sale contract. Provide spur road specifications.
3. Location of proposed tractor yarding roads. Show if and how marked on the ground.
4. Location of temporary stream crossings.
5. List the sequence of performing project work.
6. Location of rock sources - attach pit development plans.



Cable Landing, with numbers for sequence.

Tractor Landing with alphabetical sequence.

_ _ _ _ _ Approximate setting boundary.

- - - - - - - - Spur truck roads.

Tractor yarding roads.

X Temporary stream crossings.

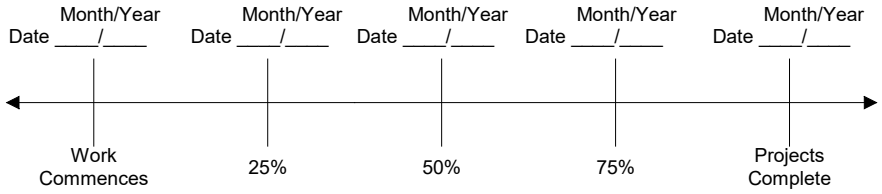
EXHIBIT B

OPERATIONS PLAN

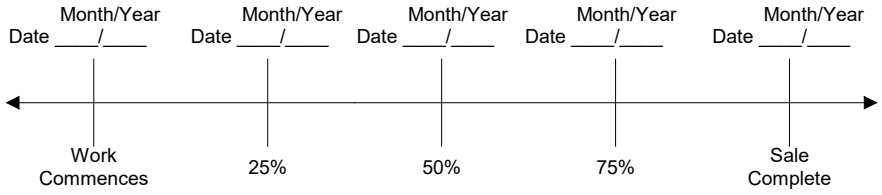
Completion Timeline

Indicate on the appropriate timeline below, the dates by which you plan to complete the work as required under this contract. The purpose of this section is to develop a plan that will ensure you complete the work as required, and meet the interim completion date(s) and contract expiration date. This plan is incorporated and made a part of the contract. When, in the opinion of STATE, operations are not commencing in a manner that meets the intent of this plan, you may be placed in violation of contract and your operations suspended until an amended plan is submitted and approved by STATE.

Projects



Harvest & Other Requirements



The Federal Endangered Species Act (ESA) prohibits a person from taking any federally listed threatened or endangered species. Taking under the federal ESA may include alteration of habitat. STATE's approval of this plan does not certify that PURCHASER's operation under the plan is lawful under the federal ESA. As provided in the timber sale contract, PURCHASERS must comply with all applicable state, federal, and local laws.

PURCHASER's compliance with this plan is not in lieu of compliance with any federal requirements related to the federal Endangered Species Act.

APPROVED: Date: _____

STATE OF OREGON - DEPARTMENT OF FORESTRY

_____

Title _____

SUBMITTED BY:
PURCHASER

_____

Title _____

Original: Salem
cc: District File
Unit
Purchaser
Operator
(Purchaser Representative)_____

EXHIBIT C – SAWMILL GRADE (WESTSIDE SCALE)

SCALING INSTRUCTIONS -- LOCATION APPROVAL -- BRAND INFORMATION

(1) ORIGINAL REGISTRATION ☐ Date _____
REVISION NUMBER _____ ☐ Date _____
CANCELLATION ☐ Date _____

(2) TO: * _____
(Third Party Scaling Organization)

(3) FROM: South Cascade Phone 541-726-3588
(State Forestry District)
Address 3150 Main St. Springfield, OR 97478

(4) PURCHASER: _____
Mailing Address: _____
Phone Number: _____

(5) **MINIMUM SCALING SPECIFICATIONS**	
SPECIES	MINIMUM NET VOLUME
Conifers	10
Hardwoods	10

* Apply minimum volume test to whole logs over 40' Westside

	YES	NO
(6) WESTSIDE SCALE: Use Region 6 actual taper rule. Logs over 40'.	X	☐
(7) Weight Scale Sample	☐	X

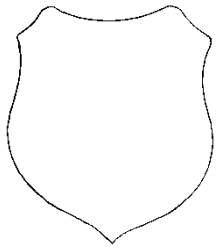
(8) **APPROVED SCALING LOCATIONS** (as shown on the ODF Approved Locations web-site)	Species	Yard	Truck	Weight

(9) SALE NAME: Twins GNA
COUNTY: Lane

(10) STATE CONTRACT NUMBER: SW-341-2020-GF7919-01

(11) STATE BRAND REGISTRATION NUMBER:
_____

(12) STATE BRAND INFORMATION (COMPLETE):



(13) PAINT REQUIRED: YES ☒
COLOR: Orange

(14) **SPECIAL REQUESTS** (Check applicable)	
PEELABLE CULL (all species)	X
NO DEDUCTIONS ALLOWED FOR MECHANICAL DAMAGE	☒
ADD-BACK VOLUME - Deductions due to delay	☒
OTHER:	

(15) **REMARKS** _____

Operator's Name (Optional inclusion by District): _____

(16) SIGNATURES:

_____
Purchaser or Authorized Representative Date

_____
State Forester Representative Date

_____
State Forester Representative PRINT NAME

Notify the District within one hour when branding or painting is inadequate for quick identification, the receipts are missing, not correctly or completely filled out, and/or when logs presented for scaling are impossible to scale accurately.

Distribution (See specific instructions on pg. 2): ORIGINAL: Salem / COPIES: TPSO, Approved Scaling Location, Purchaser, District, Mgmt. Unit

EXHIBIT C – SAWMILL GRADE
INSTRUCTIONS FOR FORM 343-307a (rev. 11/11)

(1) Check appropriate box. REVISION NUMBER requires comments. CANCELLATION requires logging and hauling to be complete, recall branding hammers, date and sign where indicated, write diagonally across page "CANCEL", and send to TPSO.

(2) Designate Third Party Scaling Organization (TPSO).

Columbia River Log Scaling & Grading Bureau
P.O. Box 7002, Eugene, OR 97401
Phone: (541) 342-6007 Fax: (541) 342-2631
Email: services@crls.com

Pacific Rim Log Scaling Bureau, Inc.
8288 28th Court North East, Lacey, WA 98516
Phone: (360) 528-8710 Fax: (360) 528-8718
Email: office@prlsb.com

Mountain Western Log Scaling & Grading Bureau
P.O. Box 580, Roseburg, OR 97470
Phone: (541) 673-5571 Fax: (541) 672-6381
Email: info@mwlsgb.com

Yamhill Log Scaling & Grading Bureau
P.O. Box 709, Forest Grove, OR 97116
Phone: (503) 359-4474 Fax: (503) 359-4476
Email: yamhill@attglobal.net

Northwest Log Scalers, Inc .
5526 NE 122nd Ave, Portland, OR 97230
Phone: (503) 254-0600 Fax: (503) 408-0919
Email: info@nwlogscalers.com

Pacific Log Scaling & Grading Bureau, Inc.
P.O. Box 23939, Portland, OR 97281
Phone: (503) 684-5599 Fax: (503) 639-4880
Email: PacLogScale@aol.com

(3) State District office, address and phone.

(4) Enter Purchaser's business name, address, and phone number as it appears on the Contract.

(5) Minimum Scaling Specifications.

(6) Westside – Region 6 actual taper segment scale. Check Yes or No. Special Service Rules on file with TPSO. See: Segment Scaling and Grading of Long Logs -- All Species -- State Forestry Department Scaling Practices (Westside).

(7) Weight Scale Sample – Check box if sale is to be a Weight Scale Sample. All specifics for handling, scaling and processing will be attached or explained in the Remarks section Item (15).

(8) Show scaling locations only applicable to TPSO. Location name should appear as it does on the ODF Approved Scaling Location web site: http://www.odf.state.or.us/DIVISIONS/management/asset_management/ScalingLocation.asp Locations with scaling and processing directions specific to their location should be on a separate form. Species should be identified if not capable of receiving "all" species. Check appropriate box for either: yard, truck scale, or weight. Refer to the web site listed above for the locations approval status.

(9) Enter sale name and county.

(10) Enter sale Contract number.

(11) Enter Oregon's State Brand Registry Number **(REQUIRED)**.

(12) Show brand assigned to timber sale. One brand only. If more than one brand is assigned to the sale: (1) make a separate form for each brand and (2) on each form, explain and show other brand(s) in the Remarks section Item (15).

(13) Check yes for Paint Required and designate "Orange" for color. Non required removal volumes may sometimes require blue paint.

(14) Special Requests. These are requests that will be applied to ODF timber sales. All boxes applicable to the timber sales designated in the Exhibit C form must be "marked." If "Other" is indicated, it must contain a description and any necessary comments.

(15) Use this space to designate any weight conversion factors, per load volumes, weight scale sample instructions or any other explanations to clarify scaling, processing and/or mailing requirements. If additional scaling locations are approved, revise original or current form showing all (old and new) locations. Check REVISION box at top of form and explain under remarks. Route as indicated.

(16) Require purchaser to sign and date completed form in addition to State Forester Representative, sign and print name on the form.

Salem Distribution Instructions: Original will be mailed to Salem after it is electronically scanned and placed in the Salem transfer drive \\WPODFFILL01\Transfer\ScalingInstructions or e-mailed directly to scaling@odf.state.or.us. Scaling instructions for each brand should be scanned separately, for each approved TPSO.

Distribution (See specific instructions on pg. 2): ORIGINAL: Salem / COPIES: TPSO, Approved Scaling Location, Purchaser, District, Mgmt. Unit

EXHIBIT C – PULP SORT

PROCESSING INSTRUCTIONS -- LOCATION APPROVAL -- BRAND INFORMATION

(1) ORIGINAL REGISTRATION ☐ Date _____
REVISION NUMBER _____ ☐ Date _____
CANCELLATION ☐ Date _____

(2) TO: _____
(Approved Pulp Processing Facility)

(3) FROM: South Cascade Phone 541-726-3588
(State Forestry District)
Address 3150 Main St. Springfield, OR 97478

(4) PURCHASER: _____

(5) Scaling Bureau (TPSO) Processing Weight receipts:
_____
Mailing Address: _____
Phone Number: _____

(6) **STATE Definition of Approved Pulp Sort:**
- Top portion of the tree (tops).
- All logs with a diameter (Big End) greater than __8__ inches marked with blue paint.

(7) PULP FACILITY PROCESSING INSTRUCTIONS:
- Pulp loads shall be weighed in lieu of scaling.
- One Ton = 2000 lbs (Short Ton).
- Pulp loads shall have a yellow Log Load Receipt attached.
- Gross weight and truck tare weight for each load shall be machine printed on the weight receipt.
- Weigher shall sign the weight receipt.
- Weigher shall record the Log Load Receipt number on the weight receipt.
- Weigher shall attach the Weight receipt to the Log Load Receipt and mail them weekly to the TPSO processing the Weight receipt.

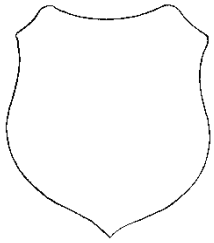
(8) TPSO PROCESSING INSTRUCTIONS
- Mail to ODF weekly.

(9) SALE NAME: Twins GNA
COUNTY: Lane

(10) STATE CONTRACT NUMBER: SW-341-2020-GF7919-01

(11) STATE BRAND REGISTRATION NUMBER _____

(12) STATE BRAND INFORMATION: (COMPLETE BELOW)



(13) REMARKS: *
_____
_____
_____

Operator's Name (Optional inclusion by District):
_____

(14) SIGNATURES:

_____
Purchaser or Authorized Representative Date

_____
State Forester Representative Date

_____
State Forester Representative PRINT NAME

Notify the District within one hour when branding is inadequate for quick identification, the logs are marked with orange paint, the receipts are missing, not correctly or completely filled out, and/or logs do not meet the specifications of the STATE definition of Approved Pulp Sort.

Distribution: ORIGINAL: Salem / COPIES: TPSO, Approved Pulp Processing Location, Purchaser, District, Mgmt. Unit

EXHIBIT C – PULP SORT

INSTRUCTIONS FOR FORM 343-307b (rev. 11/11)

(1) **Must Complete.** Check appropriate box. REVISION NUMBER requires comments in the Remarks Section (13). CANCELLATION requires logging and hauling to be complete, recall branding hammers, date and sign where indicated, write diagonally across page "CANCEL", and send to TPSO.

(2) **Must Complete**. Approved Pulp Processing Facility. Write in as written in the Approved Log Delivery Location http://www.odf.state.or.us/DIVISIONS/management/asset_management/ScalingLocation.asp

(3) **Must Complete.** State Forestry District and District Phone Number.

(4) **Must Complete**. Purchaser's business name as it appears on the Contract.

(5) **Must Complete.** Third Party Scaling Organization that will be processing the weight tickets, mailing address, and phone number.

Columbia River Log Scaling & Grading Bureau
P.O. Box 7002, Eugene, OR 97401
Phone: (541) 342-6007 Fax: (541) 342-2631
Email: services@crls.com

Pacific Rim Log Scaling Bureau, Inc.
8288 28th Court North East, Lacey, WA 98516
Phone: (360) 528-8710 Fax: (360) 528-8718
Email: office@prlsb.com

Mountain Western Log Scaling & Grading Bureau
P.O. Box 580, Roseburg, OR 97470
Phone: (541) 673-5571 Fax: (541) 672-6381
Email: info@mwlsgb.com

Yamhill Log Scaling & Grading Bureau
P.O. Box 709, Forest Grove, OR 97116
Phone: (503) 359-4474 Fax: (503) 359-4476
Email: yamhill@attglobal.net

Northwest Log Scalers, Inc .
5526 NE 122nd Ave, Portland, OR 97230
Phone: (503) 254-0600 Fax: (503) 408-0919
Email: info@nwlogscalers.com

Pacific Log Scaling & Grading Bureau, Inc.
P.O. Box 23939, Portland, OR 97281
Phone: (503) 684-5599 Fax: (503) 639-4880
Email: PacLogScale@aol.com

(6) **Must Complete.** Big end log not to exceed_____ inches. Big end of log is not to exceed 2 inches greater than the minimum removal specifications in the contract. Example: Minimum removal specifications 6 inches and 20 board feet, then the Big end of log not to exceed 8 inches. When conifer and hardwood removal specifications are different, use the smaller removal diameter to determine this specification.

(9) **Must Complete**. Enter sale name and county. If more than one county write in all the counties that the sale is located in.

(10) **Must Complete**. Enter sale Contract number.

(11) **Must Complete**. Enter Oregon's State Brand Registry Number **(REQUIRED)**.

(12) **Must Complete**. Show brand assigned to timber sale. One brand only. If more than one brand is assigned to the sale: (1) make a separate form for each brand and (2) on each form, explain and show other brand(s) in the Remarks section Item (13).

(13) Use this section to list any special instructions or the reason for any revisions in section item (1).

(14) **Must Complete.** Purchaser required to sign and date completed form in addition to State Forester Representative, sign and print name on the form.

Salem Distribution Instructions: Original will be mailed to Salem after it is electronically scanned and placed in the Salem transfer drive \\WPODFFILL01\Transfer\ScalingInstructions or e-mailed directly to scaling@odf.state.or.us . Scaling instructions for each brand should be scanned separately, for each approved TPSO.

EXHIBIT D

SEE THE FOLLOWING PAGES FOR DETAILS

TABLE PURSUANT TO C5.12# - USE OF ROADS BY PURCHASER (06/1999)

Restricted Road List

Road Number	Road Name	Termini		Map Legend	Description of Restrictions
		From	To		
1806000	Little Fall Creek	MP 0.00	MP 4.60	R, U, O	/2/, /3/, /5/, /11/, /12/, /13/
1806000	Little Fall Creek	MP 4.60	MP 7.66	R, U, O	/1/, /2/, /3/, /5/, /11/, /12/, /13/
1806000A	Weyerhaeuser Main Line	MP 0.00	MP 7.98	R, U, O	/2/, /3/, /5/, /11/, /12/
1806400	N/A	MP 0.00	MP 0.14	R, U, O	/1/, /2/, /3/, /5/
1806415	N/A	MP 0.00	MP 0.23	R, U, O	/1/, /2/, /3/, /5/
1806420	N/A	MP 0.00	MP 0.21	R, U	/1/, /2/, /3/, /5/
1806439	N/A	MP 0.00	MP 0.20	R, U, O	/1/, /2/, /3/, /5/
1806440	N/A	MP 0.00	MP 0.30	R, U, O	/1/, /2/, /3/, /5/, /12/
1806441	N/A	MP 0.00	MP 0.07	R, U, O	/1/, /2/, /3/, /5/
1806451	N/A	MP 0.00	MP 0.13	R, U, O	/1/, /2/, /3/, /5/
1806501	N/A	MP 0.00	MP 0.10	R, U, O	/1/, /2/, /3/, /5/, /7/
1817000	Cowhorn	MP 10.16	MP 12.00	R, U, O	/1/, /2/, /3/, /5/
1817363	N/A	MP 0.00	MP 0.50	R, U, O	/1/, /2/, /3/, /5/
1817365	N/A	MP 0.00	MP 0.54	R, U, O	/1/, /2/, /3/, /5/

/1/ Limited Structural Strength—this road has limited strength and is likely to be damaged if used when adverse conditions exist in the roadbed. Use of road may occur during the wet season (approximately November 1 through May 31) when placement of additional aggregate or other damage and erosion control mitigating measures are in place. These additional measures will be planned by the Purchaser in a manner to support haul during poor weather conditions at the expense of the Purchaser. Purchaser is required to monitor road conditions and erosion control measures and perform additional mitigation work if needed. When necessary, haul shall be suspended during periods of heavy rainfall to prevent sedimentation or if road use is causing rutting, ponding, failure of drainage structures or other actions that increase sediment delivery to protected stream courses.

/2/ Pre-haul—Road is unsuitable for hauling prior to all pre-haul road maintenance requirements identified in C5.31# being completed and accepted.

/3/ Keep open—Road is to remain open and accessible at all times to fire suppression resources. This includes nights and weekends.

/4/ Summer Weekend Haul—Hauling is restricted on weekends starting at 12 pm Friday through Sunday night. Hauling on Federal Holidays is restricted if holiday is on a Friday or Monday. This restriction is in place from Memorial Day through Labor Day.

/5/ All Year Weekend Haul—Hauling is restricted on weekend starting at 5 pm Friday through Sunday night. Hauling on Federal Holidays is restricted if holiday is on a Friday or Monday.

/6/ Native Surface Road—Haul is restricted during the wet weather season unless waived by the STATE. The wet weather season is typically November 1 through May 31. If a native surface road is to be winter hauled, it will be rocked to sufficient depth and strength as determined by an engineer during dry season (June 1- October 31).

/7/ Native Surface Road (Dry season haul)--Haul is restricted during the wet weather season. The wet weather season is typically November 1 through May 31. This restriction will not be waived.

/10/ Prohibited—Road use is prohibited.

/11/ Gate—Road closed by gate. Gate shall remain closed at all times except during periods of active haul, unless otherwise agreed.

/12/ License Agreement—Road use is not authorized prior to Temporary License Agreement payment and execution of agreement by Purchaser and Weyerhaeuser.

/13/ Bridge—Bridge located at MP 3.32. Use of road by commercial users with loads exceeding Oregon state legal loading for a Single Trip Permit and that will cross bridges under Forest Service jurisdiction shall apply for a Bridge Overload Permit (FSM 7736.05). A State highway overload permit (issued by ODOT, WSDOT) is not a valid permit for crossing Forest Service bridges.

/14/ Powerline road—Road shall remain accessible at all times due to powerline access route.

*****Other system roads shown on Exhibit A but not included in the above table may be used upon written agreement.

Title and Date of Governing Road Rules Document:

Road Rules for Commercial Haul Willamette National Forest	**December 2016**
Commercial Road Rules	**Effective Date**

Sale Name: GNA Twins TS

TABLE PURSUANT TO C5.31# – ROAD MAINTENANCE REQUIREMENTS (07/2001)
Purchaser shall maintain roads in accordance with the following
Contract Road Maintenance Requirements Summary:

Contract Road Maintenance Requirements Summary

Road	Termini		Miles	Applicable Prehaul Road Maintenance Specifications												
	From	To		T803	T811	T812	T813	T831	T832	T834	T835	T836	T838	T839	T842	T854	T891
1806000	0.00	7.66	7.66									P			P	P	
1806000A	0.00	7.98	7.98									P			P	P	
1806400	0.00	0.14	0.14											P		P	
1806415	0.00	0.23	0.23										P			P	
1806420	0.00	0.21	0.21										P			P	
1806439	0.00	0.20	0.20										P		P	P	
1806440	0.00	0.30	0.30		P							P			P	P	P
1806441	0.00	0.07	0.07										P		P	P	
1806451	0.00	0.13	0.13										P			P	
1806501	0.00	0.10	0.10											P		P	
1817000	10.16	12.00	1.84									P			P	P	
1817363	0.00	0.50	0.50										P		P	P	
1817365	0.00	0.54	0.54											P	P	P	

Contract Road Maintenance Requirements Summary

Road	Termini		Miles	Applicable During Haul Road Maintenance Specifications													
	From	To		T803	T811	T812	T813	T831	T832	T834	T835	T836	T838	T839	T842	T854	T891
1806000	0.00	7.66	7.66		P	P[1]	P					P			P	P	P
1806000A	0.00	7.98	7.98		P	P	P					P			P	P	P
1806400	0.00	0.14	0.14											P		P	P
1806415	0.00	0.23	0.23										P			P	P
1806420	0.00	0.21	0.21										P			P	P
1806439	0.00	0.20	0.20		P		P						P		P	P	P
1806440	0.00	0.30	0.30		P		P					P			P	P	P
1806441	0.00	0.07	0.07		P								P		P	P	P
1806451	0.00	0.13	0.13										P			P	P
1806501	0.00	0.10	0.10											P		P	P
1817000	10.16	12.00	1.84		P		P					P			P	P	P
1817363	0.00	0.50	0.50										P		P	P	P
1817365	0.00	0.54	0.54											P	P	P	P

1-Dust abatement only required between M.P. 0.00 and M.P. 3.32 or as directed by contracting officer.

Sale Name: GNA Twins TS

Contract Road Maintenance Requirements Summary

Road	Termini			Applicable Post Haul Road Maintenance Specifications												
	From	To	Miles	T803	T811	T812	T813	T831	T832	T834	T835	T836	T838	T839	T842	T854	T891
1806000	0.00	7.66	7.66		P							P					P
1806000A	0.00	7.98	7.98		P							P					P
1806400	0.00	0.14	0.14								P			P			P
1806415	0.00	0.23	0.23								P		P				P
1806420	0.00	0.21	0.21								P		P				P
1806439	0.00	0.20	0.20		P						P		P				P
1806440	0.00	0.30	0.30		P							P					P
1806441	0.00	0.07	0.07		P								P				P
1806451	0.00	0.13	0.13								P		P				P
1806501	0.00	0.10	0.10								P			P			P
1817000	10.16	12.00	1.84		P							P					P
1817363	0.00	0.50	0.50								P		P				P
1817365	0.00	0.54	0.54								P			P			P

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

Description of work required by the above listed T-specs is shown in the following ROAD MAINTENANCE REQUIREMENTS SPECIFICATION table, and included in the timber sale contract.

Sale Name: GNA Twins TS

*Apply water when ordered by STATE. Dust abatement applies to Rock Haul and Timber Haul.

ROAD MAINTENANCE REQUIREMENTS SPECIFICATION TABLE PURSUANT TO
C5.31# - ROAD MAINTENANCE REQUIREMENTS (7/01)

	1		2	3			4		5	6			7	8	9	
Road No.	Termini		Special Spec's	Travel Way Width	Travel Way X Slope	Travel Way Comp	Brushing and Log Out		Surfacing	Dust Abatement Product	Dust Abatement Applic Rate	Dust Abatement Width	Seasonal Maintenance	Snow Removal	Post Haul Block	Post Haul Treat
1806000	0.00	7.66		EX	AI	B	6L	6R	40 CY 1 ½" minus	W	VAR	EX	T836			
1806000A	0.00	7.98		EX	AI	B	6L	6R	560 CY 1 ½" minus	W	VAR	EX	T836			
1806400	0.00	0.14		EX	AI	B							T839, W		PR	PR
1806415	0.00	0.23		EX	AI	B							T838, W		PR	PR
1806420	0.00	0.21		EX	AI	B							T838, W		PR	PR
1806439	0.00	0.20		EX	OS	B	6L	6R	30 CY 1 ½" minus				T838, W		PR	PR
1806440	0.00	0.30		EX	AI	B	6L	6R	30 CY 1 ½" minus				T836			
1806441	0.00	0.07		EX	OS	B	6L	6R					T838			
1806451	0.00	0.13		EX	AI	B							T838, W		PR	PR
1806501	0.00	0.10		EX	AI	A							T839, W		PR	PR
1817000	10.16	12.00		EX	AI	B	6L	6R	20 CY 1 ½" minus				T836			
1817363	0.00	0.50		EX	AI	A	6L	R					T836			PR
1817365	0.00	0.54		EX	AI	A	6L	6R					T839, W		PR	PR

Sale Name: GNA Twins TS

ROAD MAINTENANCE REQUIREMENTS SPECIFICATION CODES TABLE
PURSUANT TO C5.31# - ROAD MAINTENANCE REQUIREMENTS (07/2001)

Column No.	Heading	Entry	Explanation
	Any	Blank	Except as otherwise described, no entry indicates Purchaser is not authorized or required to perform the work item(s).
	Any	RC	This work requirement applies only when haul of sale related construction materials occurs.
2	Special Project Specification	Number	Entry indicates Special Project Specification which applies.
3	Travel Way	EX	Purchaser shall maintain the traveled way to the width existing upon entry, or at the completion of Specified Road work.
		Numbers	Purchaser shall maintain the traveled way to the standard width indicated by the entry, plus curve widening, in accordance with Section T-811. If required, the road template shall be shaped to this width and to the designated cross slope before haul and during recurring maintenance.
		IS, C, OS, F, or AI	Cross slopes are designated as: IS (Inslope), C (Crown), OS (Outslope), F (Flat), AI (As Is).
		A or B	If compaction is required.
4	Brush and Log Out	Numeric & R and or L	Purchaser shall remove brush for specified width on either or both the right (R) side or left (L) side of road.
		As Staked	Limits of brushing are as staked or marked in the field.
		OPT	Purchaser may use hand or mechanical means of brushing.
		H	Only hand brushing may be used.

Sale Name: GNA Twins TS

ROAD MAINTENANCE REQUIREMENTS SPECIFICATION CODES TABLE
PURSUANT TO C5.31# - ROAD MAINTENANCE REQUIREMENTS (07/2001)

Column No.	Heading	Entry	Explanation
5	Surfacing	Aggregate Grading	Purchaser shall place surfacing on roads listed according to the grading indicated.
6	Dust Abatement	OPT	Product selection is Purchaser's choice from those listed in Section T-812.
		Product Abbr.	Unless otherwise agreed, Purchaser is restricted to product listed corresponding to the abbreviation shown in Section T-812; (i.e., LigS = Lignon Sulfonate) Application rates are estimated amounts.
		EX	Purchaser shall abate dust on the existing width
		VAR	Application will vary and should applied as needed.
		Numbers	Purchaser shall abate dust to the width indicated by entry.
7	Seasonal Maintenance	W	Waterbars and/or crossditching shall be required prior to expected seasonal precipitation.
		B	Entrance barriers shall be installed by Purchaser prior to nonuse periods.
8	Snow Removal	TS	Snowplowing authorized for Purchaser's Operations without recreation access being provided per Section T-803 requirements.
		JU	Snowplowing authorized, but must provide for recreation joint use per Section T-803 requirements.
		Blank	Snowplowing is not authorized. Forest Service may authorize plowing by permit when not in conflict with other uses.
9	Post Haul	PR	PR denotes that work is Purchaser's Responsibility to perform.

Road Maintenance T-Specifications

for

GNA Twins Timber Sale

06-06-2019

T - 800 SPECIFICATION DEFINITIONS

Wherever the following terms or pronouns are used in Specification T-800 the intent and meaning shall be interpreted as follows:

800-1.1 Agreement: Maintenance projects require a mutually acceptable method to resolve the problems which arise when incompatible situations arise between drawings and specifications and actual conditions on the ground to allow orderly and satisfactory progress of the maintenance.

These specifications have been developed in anticipation of those problem areas and have provided that such changes will be by Agreement.

It is intended that drawings and specifications will govern unless "on-the-ground" conditions warrant otherwise, when specifications call for "Agreement", "agreed", or "approval" such Agreement or approval shall be promptly confirmed in writing.

800-1.2 Annual Road Maintenance Plan: A plan prepared by various users of one or several roads. The plan is an Agreement on maintenance responsibilities to be performed for the coming year.

800-1.3 Base Course: Material used to reinforce subgrade or, as shown on drawings, placed on subgrade to distribute wheel loads.

800-1.4 Berm: Curb or dike constructed to prevent Roadway runoff water from discharging onto embankment slope.

800-1.5 Borrow: Select Material taken from designated borrow sites.

800-1.6 Crown, Inslope, and Outslope: The cross slope of the Traveled Way to aid in drainage and traffic maneuverability.

800-1.7 Culverts: A conduit or passageway under a road, trail, or other obstruction. A culvert differs from a bridge in that it is usually entirely below the elevation of the Traveled Way.

800-1.8 Drainage Dip: A dip in the Traveled Way which intercepts surface runoff and diverts the water off the Traveled Way. A Drainage Dip does not block the movement of traffic.

800-1.9 Drainage Structures: Manufactured structures which control the runoff of water from the Roadway including Inslope, overside drains, aprons, flumes, down drains, downpipes, and the like.

800-1.10 Dust Abatement Plan: A table which lists the road, dust palliative, application rates, and estimated number of subsequent applications.

800-1.11 Lead-off Ditches: A ditch used to transmit water from a Drainage Structure or Drainage Dip outlet to the natural drainage area.

800-1.12 Material: Any substances specified for use in the performance of the work.

800-1.13 Prehaul Maintenance: Road maintenance work which the Purchaser determines must be accomplished to maintain the roads to a satisfactory condition commensurate with the Purchaser's use provided Purchaser's Operations do not damage improvements under B6.22 or National Forest resources and hauling can be done safely. This work will be shown in the Annual Road Maintenance Plan as provided in C/CT5.4.

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

800-1.14 Roadbed: The portion of a road between the intersection of Subgrade and side slopes, excluding that portion of the ditch below Subgrade.

800-1.15 Road Maintenance Plan: A table which shows applicable road maintenance specifications to be performed by Purchaser on specific roads.

800-1.16 Roadside. A general term denoting the area adjoining the outer edge of the Roadway.

800-1.17 Roadway: The portion of a road within the limits of excavation and embankment.

800-1.18 Shoulder: That portion of Roadway contiguous with Traveled Way for accommodation of stopped vehicles, for emergency use, and lateral support of base and Surface Course, if any.

800-1.19 Slide: A concentrated deposit of Materials from above or on back slope extending onto the Traveled Way or Shoulders, whether caused by mass land movements or accumulated raveling.

800-1.20 Slough: Material eroded from the back slope which partially or completely blocks the ditch, but does not encroach on the Traveled Way so as to block passage of traffic.

800-1.21 – Slump: A localized portion of the Roadbed which has slipped or otherwise become lower than that of the adjacent Roadbed and constitutes a hazard to traffic.

800-1.22 Special Project Specifications: Specifications which detail conditions and requirements peculiar to the individual project.

800-1.23 Subgrade: Top surface of Roadbed upon which Base Course or Surface Course is constructed. For roads without Base Course or Surface Course, that portion of Roadbed prepared as the finished wearing surface.

800-1.24 Surface Course: The Material placed on Base Course or Subgrade primarily to resist abrasion and the effects of climate. Surface Course may be referred to as surfacing.

800-1.25 Surface Treatment Plan: A table which lists the roads and surface treatments to be applied.

800-1.26 Traveled Way: That portion of Roadway, excluding Shoulders, used for the movement of vehicles.

800-1.27 Turnouts: That portion of the Traveled Way constructed as additional width on single lane roads to allow for safe passing of vehicles.

800-1.28 Water Source: A place designated on the Road Maintenance Map for acquiring water for road maintenance purposes.

800-1.29 Water bar: A dip in the Roadbed which intercepts surface runoff and diverts the water off the Roadway. A Water bar is not designed to be traversable by logging trucks.

T-803 - SNOW REMOVAL (05/07)

803.01 Description

This Section provides for removal of snow from roads to facilitate logging operations and safe use.

803.02 Maintenance Requirements

(1) Erect signs required by the Sign Plan in the SUPPLEMENTAL SPECIFICATIONS.

(2) Perform work in a manner to preserve and protect roads and appurtenances, and prevent erosion damage to roads, streams, and other Forest values.

(3) Do not undercut banks. Do not blade gravel or other surfacing material off the road.

(4) Keep roadbed drainage ditches, drain dips, and culverts functional when needed during operations and upon completion of operations.

(5) Control snow removal to identify the usable traveled way having roadbed support. Reshape over-width plowing as necessary to define the usable width.

(6) Space, construct, and maintain drainage holes in the dike of snow or berm caused by snow removal operations. Place drain holes to obtain surface drainage without discharging on erodible fills.

(7) Close roads to wheeled vehicles at times and in the manner specified in C(T)5.12 or the Road Rules document.

(8) Upon seasonal completion of Purchaser's Operations, effectively block the road by a snow barricade, unless otherwise approved by the Contracting Officer.

(9) Remove snow for either public access or project use as established in the SUPPLEMENTAL SPECIFICATIONS and meet the following requirements:

(a) Removal for Public Access (Method JU) - Remove snow from all of the traveled way, including turnouts, for safe and efficient use for both timber transportation and the public. Remove intruding windfalls, debris, or slough and slide material for the full width of the traveled way and deposit out of drainage’s at locations designated by the Contracting Officer.

(b) Removal for Project Use (Method TS) - Remove snow from all or part of the traveled way, including sufficient turnouts for safe and efficient use for timber transportation and to protect the road. Remove intruding windfalls, debris or slough and slide material and dispose of only as necessary to provide passage for timber transportation. Removed materials may be deposited off the traveled way or outside the traveled way at locations designated by the Contracting Officer.

(10) When directed by the Contracting Officer, replace in kind, within sixty (60) days after the start of Normal Operating Season, any surfacing material which has been bladed off the road, unless otherwise agreed. Contracting Officer will notify Purchaser in writing as to the cubic yard equivalent of bladed off material by the start of the normal operating season.

803.03 Equipment

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

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

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

c. The use of plows or dozers to remove snow requires written approval by the Contracting Officer. Equip plows or dozers with shoes or runners to keep the dozer blade a minimum of 2 inches above the road surface unless otherwise approved by the Contractor Officer.

803.04 Ice Control

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

T - 811 BLADING (10/07)

811.01 Description

This work consists of surface blading the traveled way to a condition that facilitates traffic and provides proper drainage. Blading includes shaping the crown or slope of travel way, berms, and drainage dips in accordance with this specification. Compaction is required when shown on the ROAD LISTING.

811.02 Maintenance Requirements

A. Timing - Perform surface blading during the contract period as often as needed to provide conditions stated for the maintenance level of the road.

B. General

1. Blade and shape the existing traveled way and shoulders, including turnouts, to produce a surface which is uniform, consistent to grade, and crowned or cross-sloped as indicated by the character of the existing surface, unless otherwise shown in the ROAD LISTING, to at least ½ inch per 1 foot of width, but not more than ¾ inch per 1 foot of width. Thoroughly loosen surfacing material to no less than 2 inches depth or the depth of potholes or corrugations. Scarification to facilitate cutting to the full depth of potholes or corrugations may be elected, but will be considered incidental to blading. Do not scarify to a depth that will cause contamination of the surfacing.

2. Apply water during blading when sufficient moisture is not present to prevent segregation. Supply, haul, and apply water in accordance with Section T-891.

3. Shape existing native rock or aggregate surfaced drainage dips to divert surface runoff to existing outlet devices, ditches, or discharge locations.

4. Establish a blading pattern which provides a uniform driving surface, retains the surfacing on the roadbed, and provides a thorough mixing of the materials within the completed surface width. Upon final blading, no disturbed rock shall protrude more than 2 inches above the adjacent surface unless otherwise provided in the contract. Remove and place outside the roadbed, material not meeting this dimension so as not to obstruct drainage ways or structures. This material may be scattered off the roadbed if there is free drainage.

5. Where DESIGNATED ON THE GROUND, included in the ROAD LISTING, SHOWN ON THE DRAWINGS or as ordered by the Contracting Officer invasive species of concern prevention practices shall be followed as listed below.

Invasive Species of Concern Prevention Practices
NA

C. Routine Blading

1. Conform to the dimensions SHOWN ON THE DRAWINGS or designated in the SUPPLEMENTAL SPECIFICATIONS upon completion of blading.

2. Shape roadbed width in excess of the dimensions shown only as needed to provide drainage away from the traveled way. Do not remove established grasses and other vegetation from the excess width except as incidental to providing drainage or unless otherwise provided in the contract.

D. Compaction

1 Roads requiring compaction will be included in the ROAD LISTING.

2. Unless Compaction Method B is designated in the ROAD LISTING, all traveled ways requiring compaction may be compacted by Method A. Compaction shall commence immediately following blading.

Compaction methods are:

Compaction Method A: Breaking track while operating equipment on the traveled way.

Compaction Method B: 7-10 ton pneumatic, steel, or equivalent vibratory roller, operated to cover the full width two (2) times.

E. Undercutting - Undercutting roadway back slope is not permitted.

F. Intersections

At intersections, blade the roadbeds of side roads which are not closed or restricted from vehicular use to ensure smooth transitions.

Signing, cross ditching in the road surface (traveled way), earth berms, or other devices placed to discourage or eliminate use by passenger cars, are field evidence of road closure or restriction. Roads listed for work under Sections T-835, T-836, T-838, and T-839 shall be considered restricted.

Side roads listed for work under this Section are not restricted.

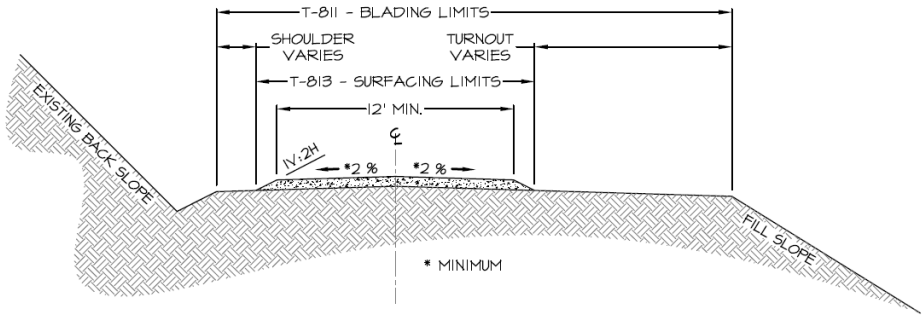
G. Cleaning of Structures - Do not allow materials resulting from work under this Section to remain on or in structures, such as bridges, culverts, cattle guards, or drainage dips.

H. Berms - Maintain existing berms to the condition of adjacent segments. Do not create new berms.

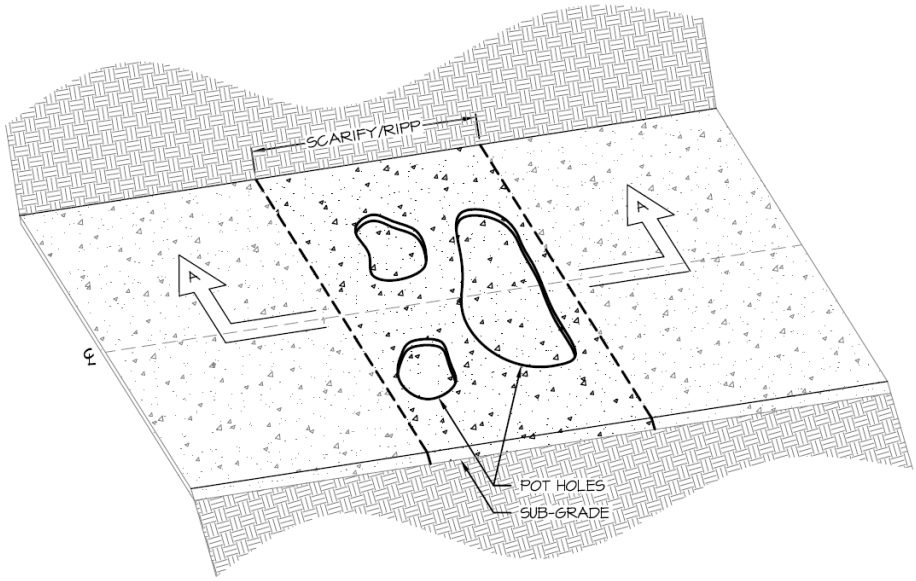
I. Smooth Blading - Smooth blading may be used as an interim measure to remove loose surfacing material from the wheel paths, and store removed materials in a recoverable windrow, until blade processing as described in this section is feasible.

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

Move and store loose surfacing materials on the high side of super-elevated curves and sections with uniform inslope or outslope. In crowned sections, store the material on either or both sides as elected. Windrow and place stored materials to provide not less than 12 feet of smooth traveled way on one-lane segments, or 20 feet of smooth traveled way on two-lane segments, or segments with turnouts. Cut holes through windrows, which may collect water on the road, for drainage at least every 500 feet.



BLADING & SPOT ROCK TYPICAL
Not to Scale



POT HOLE TREATMENT TYPICAL
Not to Scale

SECTION A - A
Not to Scale

NOTES:

1. GRADING - CROWN ROADS WITH A 2 % - 3 % CROWN. FOR IN-SLOPE/OUT-SLOPE ROADS SLOPE WITH A 2 % - 3 % CROSS SLOPE OVER THE ENTIRE ROAD WIDTH. COMPACTION METHOD SHALL BE COMPLETED AS SHOWN ON C5.31# - ROAD MAINTENANCE REQUIREMENTS TABLE
2. SURFACING SPOT ROCK - PLACE MATERIAL THE FULL ROAD WIDTH BY END DUMPING TO A MINIMUM DEPTH OF 3".
3. CLEANING DITCHES, WHEN REQUIRED BY REFERENCE, IS COVERED UNDER T-831, T-832, AND T-834.
4. POT HOLES - PRIOR TO GRADING AND SPOT ROCK ACTIVITIES, SCARIFY/RIPP ALL POT HOLES, FULL WIDTH, DOWN TO SUB-GRADE OR FIRM GROUND AS DIRECTED BY CONTRACTING OFFICER.

T-811 & T-813 TYPICALS (11/14)

T – 812 DUST ABATEMENT (05/09)

812.01 Description

This work consists of applying dust palliatives on roads shown in the Road Listing.

812.02 Materials

The dust palliative materials are shown in the Road Listing, unless shown as Optional for Purchaser's election. If Optional is shown then the Purchaser may use any of the products listed below. Dust palliative materials shall meet the following requirements:

A. Water (H2O) will be obtained from sources SHOWN ON THE DRAWINGS or listed in the SUPPLEMENTAL SPECIFICATIONS to Section T-891 Water Supply, unless otherwise approved by the Contracting Officer.

B. Lignin Sulfonate (LIG S) Provide certification that the material meets the requirements of Subsection 725.20 of the "Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (FP-03)" and the Forest Service Supplemental Specification 725.20.

C. Magnesium Chloride (MG CL2) Provide certification that that the material meets the requirements of Subsection 725.02 of the "Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (FP03) " and the Forest Service Supplemental Specification 725.02.

D. Calcium Chloride Brine (CA CL2B). Provide certification that the material meets the requirements of Subsection 725.02 of the " Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (FP03) " and the Forest Service Supplemental Specification 725.02.

E. Calcium Chloride Flake (CA CL2F). Provide certification that that the material meets the requirements of Subsection 725.02 of the "Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (FP03) " and the Forest Service Supplemental Specification 725.02.

F. Bituminous dust palliatives. Manufacture materials specifically for dust abatement purposes which conform to the requirements of Section T-892 for each listed road in the Road Listing.

812.03 Methods

As shown in the SUPPLEMENTAL SPECIFICATIONS, Purchaser may utilize a variety of methods to decrease or eliminate the need for dust abatement.

812.04 Equipment

A. Design, equip, and operate application equipment for spreading dust palliatives so that the material is uniformly applied at the rate and traveled way widths shown in the Road Listing.

B. For bituminous palliatives provide equipment that heats and applies the bituminous material. Provide a bituminous distributor that is self-powered and mounted on pneumatic tires and equipped with a pump and circulating spray bar, a tachometer, pressure gauges, accurate volume measuring devices such as visual volume dial or gauge calibrated to the tank, and a thermometer. Provide equipment which is a standard commercial type of proven performance.

C. Accomplish dilution of dust palliatives within the application vehicle with the water source protected from contamination. Circulate the resulting mixture at least five (5) minutes to ensure uniform mixing prior to application.

812.05 Maintenance Requirements

A. Limit water applications to abatement for hauling vehicles and provide at a frequency and rate which controls dust such that vehicle tail lights and turn signals remain visible. Vary rates of application as needed but remain low enough to avoid forming rivulets. Accomplish the abatement by sufficient frequency of application without saturating and softening the traveled way. Compacted or glazed road surface or wheel tracks may be loosened as needed for water penetration.

B. Apply all other dust palliatives at the rates and times agreeable to the Contracting Officer. The Road Listing shows the expected average application rate and may be varied to meet field conditions. Lignin Sulfonate, Magnesium Chloride, and Calcium Chloride Brine are listed as gallons per square foot of the undiluted product at fifty (50), thirty-three (33), and thirty-eight (38) percent respectively. Calcium Chloride Flake is listed in pounds per square foot at seventy-seven (77) percent concentration.

C. Apply bituminous dust palliatives only when the surface to be treated contains sufficient moisture to obtain uniform distribution of the dust palliative unless noted differently in the SUPPLEMENTAL SPECIFICATIONS.

D. Prior to initial application, when needed, the road will be bladed and shaped under Section T-811, Blading.

E. Required subsequent applications may be applied to the existing road surface without blading.

F. Dust palliatives will not be applied in a manner that spatters or mars adjacent structures or trees, or placed on or across cattleguards or bridges. Discharge dust abatement material only on roads approved by the Contracting Officer.

T - 813 SURFACING (10/07)

813.01 Description

This work consists of placing surface aggregate as DESIGNATED ON THE GROUND, or as ordered by the Contracting Officer. It includes preparing the area, furnishing, hauling, and placing all necessary materials and other work necessary to blend with the adjacent road cross section.

813.02 Materials

Materials will be Government-furnished when stated in the supplemental specifications.

Materials furnished by the Purchaser shall conform to the gradation and quality requirements of Section 703 of the "Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects FP-03 U.S. Customary Units" and FS supplements to the FP-03.

All materials transported onto National Forest System land shall be free of invasive species of concern. Written documentation of methods used to determine the invasive species of concern free status of any and all materials furnished by the Purchaser shall be submitted to the Contracting Officer before transport of any materials onto National Forest System land.

The Contracting Officer shall have 5 days, excluding weekends and Federal holidays, to review the methods and inspect the materials after the required written documentation is provided by the Purchaser. After satisfactory review and inspection or after such 5 day period, the Purchaser may transport the material onto National Forest System land.

Material or methods appropriate for establishing invasive species of concern free status for the particular invasive species of concern are listed below.

Invasive Species of Concern and Acceptable Methods specific to this project:

Invasive Species of Concern	Acceptable Methods
NA	NA

813.03 Maintenance Requirements

A. Thoroughly loosen the area to be surfaced to a minimum depth of 1 inch prior to placement of aggregate.

B. Mixing and Placing

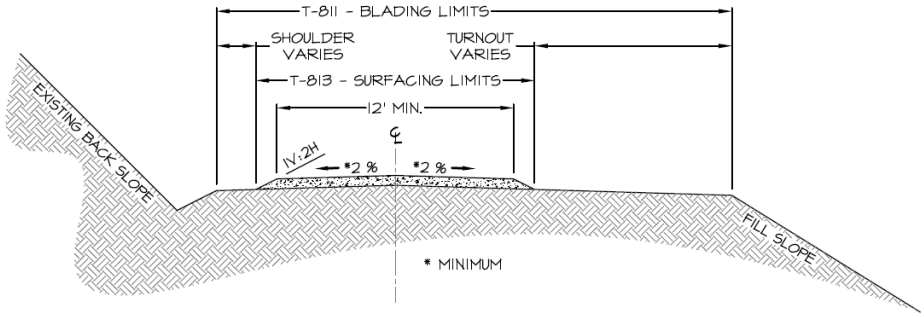
When scheduled coincidentally with work under Section T-811, and included in the SUPPLEMENTAL SPECIFICATIONS, mix surfacing and existing aggregate with water until a uniform mixture is obtained prior to final shaping and compaction.
Otherwise, spread the material on the prepared area in layers no more than 4 inches in depth. When more than one (1) layer is required, shape and compact each layer before the succeeding layer is placed. Upon completion, the surfacing shall reasonably conform to the adjacent cross section and provide smooth transitions in the road profile.

Compaction Methods

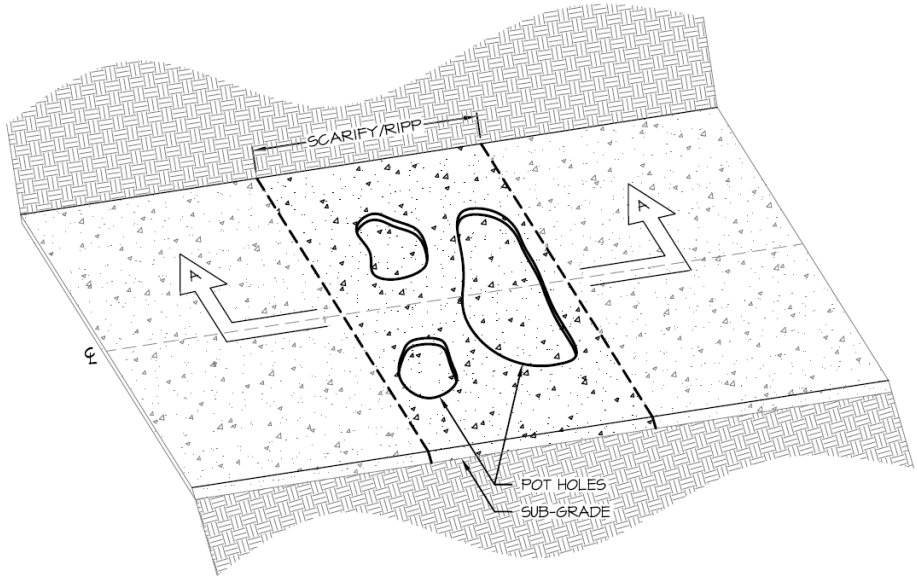
Compaction Method A: Breaking track while operating equipment on the traveled way.

Compaction Method B: 7-10 ton pneumatic, steel, or equivalent vibratory roller, operated to cover the full width two (2) times.

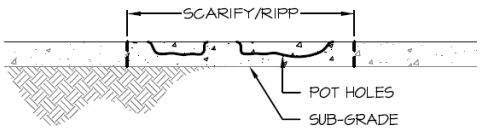
Either Method A or B may be used unless Method B is designated in the ROAD LISTING.



BLADING & SPOT ROCK TYPICAL
Not to Scale



POT HOLE TREATMENT TYPICAL
Not to Scale



SECTION A - A
Not to Scale

NOTES:

1. GRADING - CROWN ROADS WITH A 2 % - 3 % CROWN. FOR IN-SLOPE/OUT-SLOPE ROADS SLOPE WITH A 2 % - 3 % CROSS SLOPE OVER THE ENTIRE ROAD WIDTH. COMPACTION METHOD SHALL BE COMPLETED AS SHOWN ON C5.31# - ROAD MAINTENANCE REQUIREMENTS TABLE
2. SURFACING SPOT ROCK - PLACE MATERIAL THE FULL ROAD WIDTH BY END DUMPING TO A MINIMUM DEPTH OF 3".
3. CLEANING DITCHES, WHEN REQUIRED BY REFERENCE, IS COVERED UNDER T-831, T-832, AND T-834.
4. POT HOLES - PRIOR TO GRADING AND SPOT ROCK ACTIVITIES, SCARIFY/RIPP ALL POT HOLES, FULL WIDTH, DOWN TO SUB-GRADE OR FIRM GROUND AS DIRECTED BY CONTRACTING OFFICER.

T-811 & T-813 TYPICALS (11/14)

T - 831 DITCH MAINTENANCE (10/07)

831.01 Description

This Section provides for routine maintenance of various types of ditches to provide a waterway which is unobstructed, as shown on the ROAD LISTING or DESIGNATED ON THE GROUND.

831.02 Maintenance Requirements

A. Maintain ditches by removing rock, soil, wood, and other materials. Maintained ditches shall function to meet the intent of the original design.

B. Undercutting back slopes during removal operations is not permitted.

C. Suitable material up to 4 inches in greatest dimension removed from the ditches may be blended into existing native road surface and shoulder or placed in designated berm.

D. Do not blend material from ditch cleaning operations into aggregate surfaced roads. Do not blade material across aggregate or bituminous surfaced roads, unless approved in writing by the Contracting Officer.

E. Haul material in excess of 831.02 D or subject to 831.02 E to a designated waste area under Section T-832. Remove excess materials temporarily stored on the ditch slope or edge of the shoulder daily.

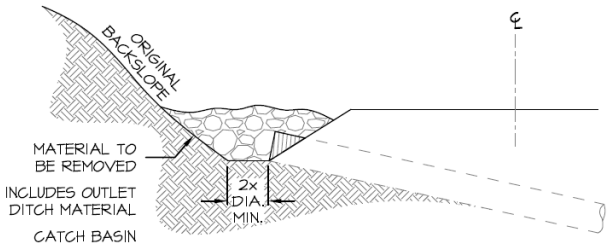
F. Remove limbs and wood chunks in excess of 12 inches in length or 3 inches in diameter from ditches and place outside the roadway.

G. Clean paved surfaces of all materials resulting from ditch maintenance work.

Shape lead-off ditches to drain away from the traveled way.

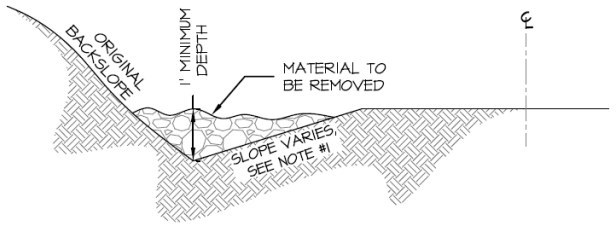
Where DESIGNATED ON THE GROUND, included in the ROAD LISTING, SHOWN ON THE DRAWINGS or as ordered by the Contracting Officer invasive species of concern prevention practices shall be followed as listed below.

Invasive Species of Concern Prevention Practices
NA



CULVERT CLEANING TYPICAL SECTION

Not to Scale



DITCH CLEANING TYPICAL SECTION

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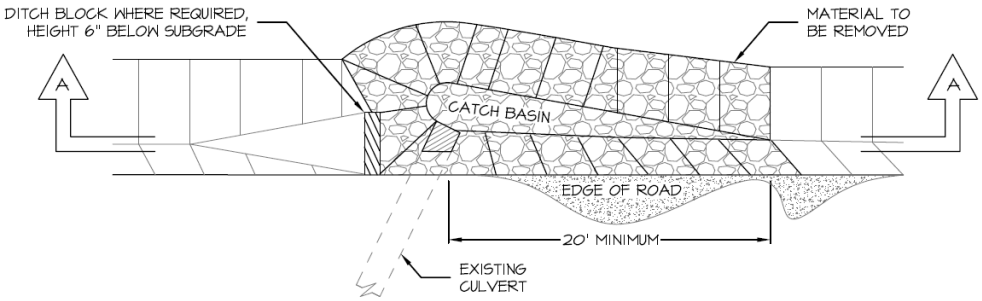
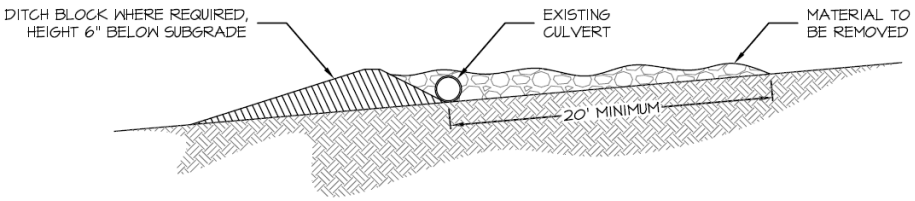


CULVERT CLEANING PLAN VIEW

Not to Scale



CULVERT CLEANING SECTION A - A

Not to Scale

NOTES:

1. DITCH SLOPE VARIES FROM 1V:3H, TYPICAL, TO A 1V:2H MINIMUM ALONG WIDTH RESTRICTED ROAD SEGMENTS. CLEAN AS DIRECTED BY CONTRACTING OFFICER.
2. DISPOSE OF EXCESS MATERIALS AT DESIGNATED WASTE AREAS.

T-831 & T-834 TYPICALS (11/14)

T - 832 REMOVE AND END HAUL MATERIALS (05/07)

832.01 Description

Work consists of loading, hauling, and placing of slide, slough, or excess materials such as rock, soil, vegetation, and other materials to designated disposal sites.

832.02 Maintenance Requirements

A. Remove, end haul, and dispose of excess materials generated by work under other Sections of this contract.

B. Remove the slide and slough materials in the area extending approximately 6 feet vertically above the road surface and not more than 3 feet down slope from the roadbed. Dispose of material at designated sites as SHOWN ON THE DRAWINGS, identified in SUPPLEMENTAL SPECIFICATIONS, or as ordered by the Contracting Officer.

Reshape the slope which generated the slide material as nearly as practical to its original condition by equipment operating from road surface. Reshaping of roadside ditches in slide area shall be in accordance with Section T-831.

C. When approved by the Contracting Officer, fill slumps by compacting selected materials into roadway depressions. Compaction is by Method 2.

D. Place all materials in disposal sites as specified in the SUPPLEMENTAL SPECIFICATIONS, as SHOWN ON THE DRAWINGS, or as ordered by the Contracting Officer.

1. Method 1 - Side Casting and End Dumping. Material may be placed by side casting and end dumping. Where materials include large rocks, provide a solid fill by working smaller pieces and fines into voids. Shape the finished surfaces to drain.

2. Method 2 Layer Placement - Step or roughen surfaces on which materials are to be placed prior to placing any material. Place materials in approximately horizontal layers no more than 12 inches thick. Compact each layer by operating hauling and spreading equipment over the full width of each layer.

E. Repair any damage to existing aggregate or pavement surfaces.

T - 834 DRAINAGE STRUCTURE MAINTENANCE (10/07)

834.01 Description

This work consists of cleaning and reconditioning culverts and other drainage structures.

834.02 Maintenance Requirements

A. Clean drainage structures, inlet structures, culverts, catch basins, and outlet channels specified in the SUPPLEMENTAL SPECIFICATIONS. Clean catch basins by removing the material within the area SHOWN ON THE DRAWINGS.

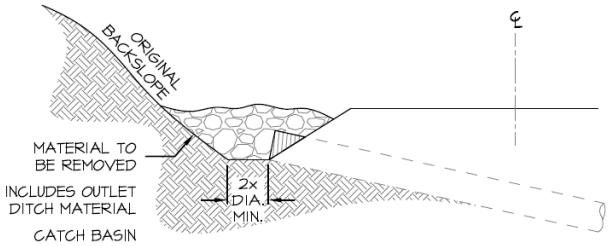
B. Clean the transition from the ditch line to the catch basin a distance of 10 feet from the catch basin. Clean outlet channels and lead-off ditches a distance of 6 feet. Remove and place debris and vegetation so as to not enter the channel or ditch, or obstruct traffic. Haul debris and vegetation to a designated disposal area in accordance with Section T-832.

C. Hydraulic flushing of drainage structures is not allowed unless provided for in the SUPPLEMENTAL SPECIFICATIONS.

Cleaning and reconditioning are limited to the first 3 feet of inlet and outlet, determined along the top of the structure. Recondition culvert inlet and outlet by field methods such as jacking out or cutting away damaged metal which obstructs flow. Treat cut edges with a zinc rich coating, in accordance with AASHTO M 36M and ASTM A 849.

E. Where DESIGNATED ON THE GROUND, included in the ROAD LISTING, SHOWN ON THE DRAWINGS or as ordered by the Contracting Officer invasive species of concern prevention practices shall be followed as listed below.

Invasive Species of Concern Prevention Practices
NA



CULVERT CLEANING TYPICAL SECTION

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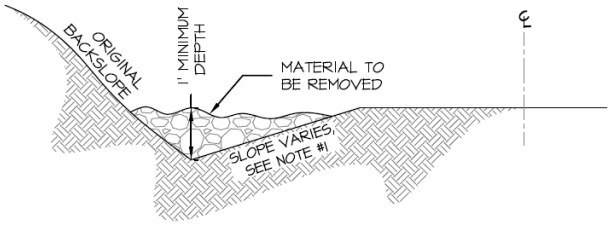

DITCH CLEANING TYPICAL SECTION

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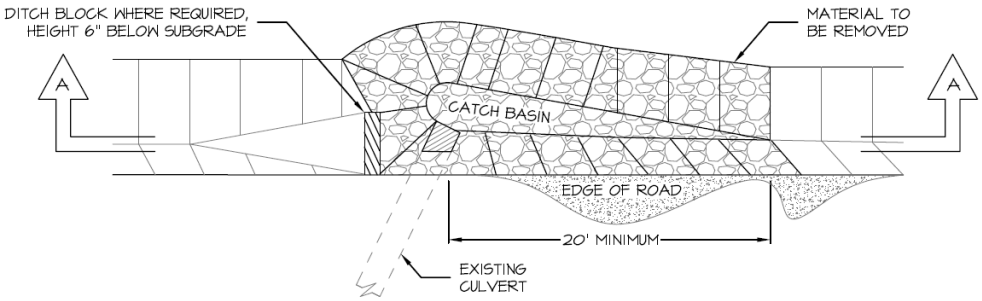
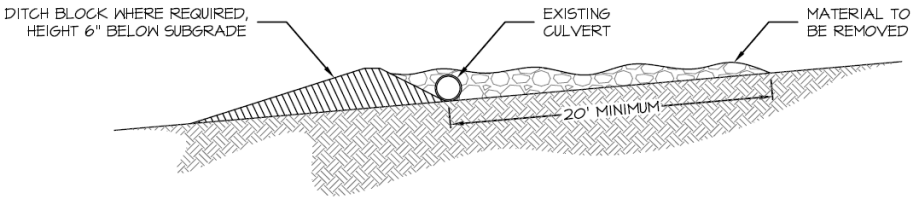


CULVERT CLEANING PLAN VIEW

Not to Scale



CULVERT CLEANING SECTION A - A

Not to Scale

NOTES:

1. DITCH SLOPE VARIES FROM 1V:3H, TYPICAL, TO A 1V:2H MINIMUM ALONG WIDTH RESTRICTED ROAD SEGMENTS. CLEAN AS DIRECTED BY CONTRACTING OFFICER.
2. DISPOSE OF EXCESS MATERIALS AT DESIGNATED WASTE AREAS.

T-831 & T-834 TYPICALS (11/14)

T - 835 ROADWAY DRAINAGE MAINTENANCE (05/07)

835.01 Description

This work consists of providing post haul drainage on roads.

835.02 Maintenance Requirements

A. Drainage

1. Upon completion of work, shape the roadway to provide for the removal of surface water. The roadway need not be passable to vehicles. Repair and reinstall water bars, barriers or berms existing prior to the Purchaser's operation. Areas where water is ponded by existing centerline profile sags in through cuts may be left untreated.

2. Continuous blade shaping of the roadbed is not required under this specification.

3. Work to be done at staked locations shall be as indicated on the stake and/or stated in SUPPLEMENTAL SPECIFICATIONS:

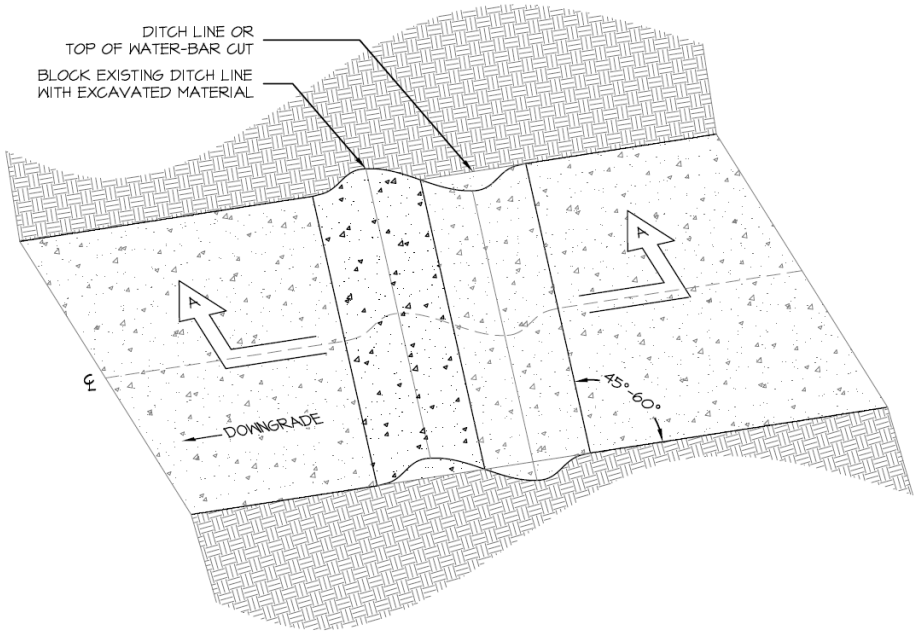
4. Any of the following methods are acceptable for use at eroded or rutted locations:

   Method A: Out-sloping the roadbed at not less than ½ inch per yard of width.

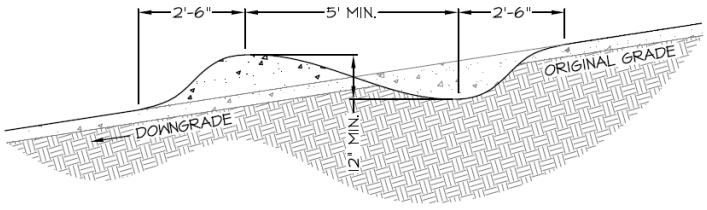
   Method B: In-sloping the roadbed at not less than ½ inch per yard of width.

   Method C: Water bar roadbed at locations staked on the ground and construct as SHOWN ON THE DRAWINGS or as included in SUPPLEMENTAL SPECIFICATIONS.

5. Drainage structures located in through fills and natural watercourses shall be fully functional without obstructions, including inlet and outlet channel within 20 feet of the structure.



WATER-BAR
PERSPECTIVE VIEW
Not to Scale



SECTION A - A
Not to Scale

NOTES:

1. CONSTRUCT WATER-BARS AS DIRECTED BY CONTRACTING OFFICER OR AS MARKED ON THE GROUND.
2. INLET OF WATER-BARS SHALL BE TO BOTTOM OF DITCH LINE OR A MINIMUM OF 6" BELOW THE EXISTING ROAD ELEVATION.
3. GRADE OF WATER-BARS SHALL BE OUT-SLOPED A MINIMUM OF 6% OR 2% MORE THAN THE EXISTING ROAD OUT-SLOPE, WHICHEVER IS GREATER.

T-835 WATER-BAR TYPICALS (11/14)

T - 836 MAINTENANCE FOR LIMITED USE (05/07)

836.01 Description

This work consists of making limited use roads passable for joint use by Purchaser and high clearance vehicles, and providing drainage from the traveled way and roadbed.

836.02 Maintenance Requirements

A. Traveled Way

Purchaser may smooth or fill existing cross ditches and water bars and by agreement modify existing road junctions to enable vehicle access. Prior to beginning haul and resumption of haul after an extended stoppage:

1. Remove brush, fallen trees, rocks, and other debris from traveled way, including turnouts, turnarounds, and other locations that interfere with needed maintenance as follows:

   a. No object extending over 4 inches above the road surface shall remain within the 12 feet usable traveled way and 10 feet turnout widths. Center the usable width on the roadbed or position away from the fill slope.

   b. Cut and remove standing or down trees, logs, brush, and limbs from within the area described in 1 a. above. Remove all encroaching limbs to a height of 14 feet above the traveled way surface. Scatter material not meeting utilization standards outside and below the roadbed on the fill side. Limb and remove timber which meets utilization standards or deck at agreed locations.

   c. Place all removed materials away from drainages.

   d. During use, maintain drainage structures, including dips, ditches and culverts in a useable condition.

2. Clean and recondition drainage facilities in accordance with: Section T-831 and T-834.

B. Slough and Slides

1. Slough and slides may be left in place, provided surface drainage is provided and at least 12 feet of width is available for vehicle passage.

2. Purchaser may reposition or ramp over slides and slough when the traveled way width is less than 12 feet providing the material is capable of supporting vehicles. Limit out slope to no more than six percent.

3. Reposition slough or slide materials on the roadbed which are not capable of supporting a vehicle to provide the 12 foot width. When directed by the Contracting Officer, slough or slide material will be removed under Section T-832.

C. Slumps and Washouts

1. Drain the roadbed immediately upgrade of slumps and longitudinal cracks to prevent water from entering slump area.

2. Slumps and longitudinal cracks at the edge of the roadbed shall not be considered a part of the usable width. Usable width may be reduced to 10 feet in the area of the slump.

3. Unless the Contractor Officer agrees to material being placed on slumps, ramp the slumps on both ends into undisturbed roadbed to provide at least 10 feet usable width. Use removed materials to guide vehicles to the ramp location or to aid in draining the area.

4. Washouts may be filled with suitable material.

D. Post haul

At the end of hauling or prior to entering into seasonal shutdowns or a period of extended inactivity:

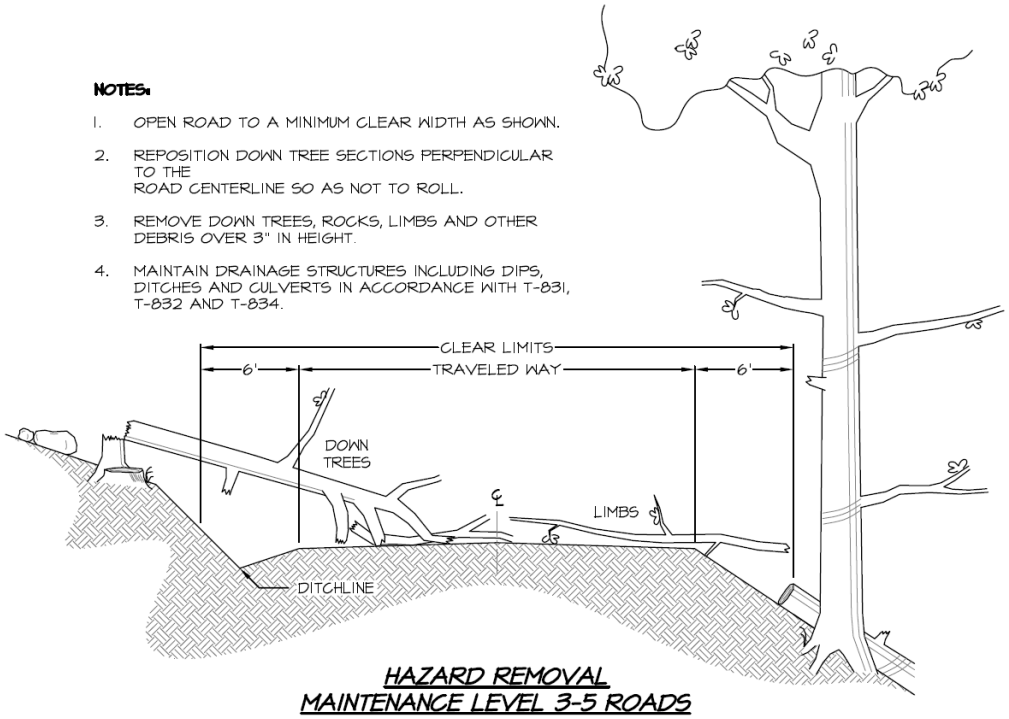
1. Shape the traveled way and disturbed roadbed to provide functional drainage.

2. Reinstall removed cross ditches and water bars and provide any additional drainage structures necessary to offset changes caused through use and maintenance.

3. Leave roads useable for high clearance vehicles. Remove or reshape purchaser modifications at road junctions to leave the entrance as it was before use, or as agreed at the time of improvement.

NOTES:

1. OPEN ROAD TO A MINIMUM CLEAR WIDTH AS SHOWN.
2. REPOSITION DOWN TREE SECTIONS PERPENDICULAR TO THE ROAD CENTERLINE SO AS NOT TO ROLL.
3. REMOVE DOWN TREES, ROCKS, LIMBS AND OTHER DEBRIS OVER 3" IN HEIGHT.
4. MAINTAIN DRAINAGE STRUCTURES INCLUDING DIPS, DITCHES AND CULVERTS IN ACCORDANCE WITH T-831, T-832 AND T-834.

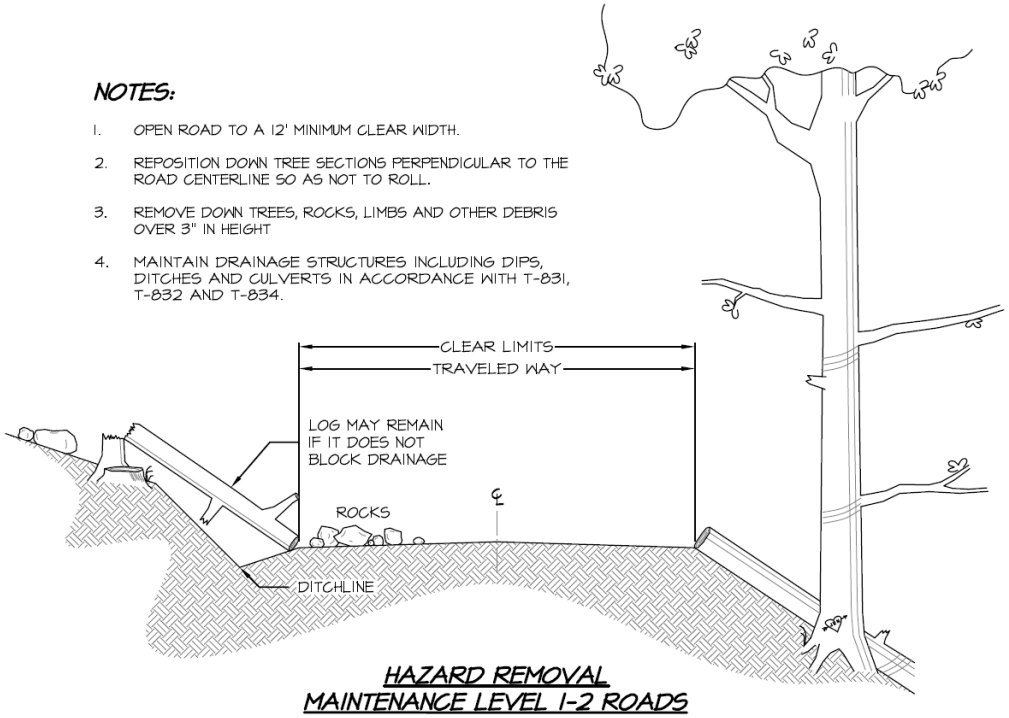


HAZARD REMOVAL
MAINTENANCE LEVEL 3-5 ROADS

Not to Scale

NOTES:

1. OPEN ROAD TO A 12' MINIMUM CLEAR WIDTH.
2. REPOSITION DOWN TREE SECTIONS PERPENDICULAR TO THE ROAD CENTERLINE SO AS NOT TO ROLL.
3. REMOVE DOWN TREES, ROCKS, LIMBS AND OTHER DEBRIS OVER 3" IN HEIGHT
4. MAINTAIN DRAINAGE STRUCTURES INCLUDING DIPS, DITCHES AND CULVERTS IN ACCORDANCE WITH T-831, T-832 AND T-834.



HAZARD REMOVAL
MAINTENANCE LEVEL 1-2 ROADS

Not to Scale

T-836, T-838 & T-839 TYPICALS (11/14)

T - 838 MAINTENANCE FOR HIGH CLEARANCE VEHICLE USE (05/07)

838.01 Description

This work consists of making limited use roads passable for project use by Purchaser and providing drainage from the traveled way and roadbed.

838.02 Maintenance Requirements

A. Traveled Way

Purchaser may smooth or fill existing cross ditches and water bars and as approved by the Contracting Officer modify existing road junctions to enable vehicle access. The Purchaser may perform the following work prior to beginning haul and resumption of haul after an extended stoppage:

1. Remove brush, fallen trees, rocks, and other debris from traveled way, including turnouts, turnarounds, and other locations that interfere with needed maintenance as follows:

   a. No object extending over 4 inches above the road surface shall remain within the 12 feet usable traveled way. Center the usable width on the roadbed or position away from the fill slope.

   b. Cut and remove standing or down trees, logs, brush, and limbs from within the area described in 1(a). Remove all encroaching limbs to a height of 14 feet above the traveled way surface. Scatter material not meeting utilization standards outside and below the roadbed on the fill side. Limb and remove timber that meets utilization standards or deck at locations approved by the Contracting Officer.

   c. Place all removed materials away from drainages.

   d. During use, maintain drainage structures including dips, ditches and culverts in a usable condition.

2. Clean and recondition drainage facilities in accordance with Section T-831 and T-834.

B. Slough and Slides

1. Slough and slides may be left in place, provided surface drainage is provided and at least 12 feet of width is available for vehicle passage.

2. Purchaser may reposition or ramp over slides and slough when the traveled way width is less than 12 feet providing the material is capable of supporting vehicles. Limit out slope to no more than six percent.

3. Reposition slough or slide materials, which are not capable of supporting a vehicle, on the roadbed to provide the 12 feet width. When directed by the Contracting Officer, slough or slide material will be removed under Section T-832.

C. Slumps and Washouts

1. Drain the roadbed immediately upgrade of slumps and longitudinal cracks to prevent water from entering slump area.

2. Slumps and longitudinal cracks at the edge of the roadbed shall not be considered a part of the usable width. Usable width may be reduced to 10 feet in the area of the slump.

3. Unless the Contracting Officer approves material being placed on slumps, ramp the slumps on both ends into undisturbed roadbed to provide at least 10 feet usable width. Use removed materials to guide vehicles to the ramp location or to aid in draining the area.

4. Washouts may be filled with suitable material.

D. Post haul

At the end of hauling or prior to entering into seasonal shutdowns or a period of extended inactivity:

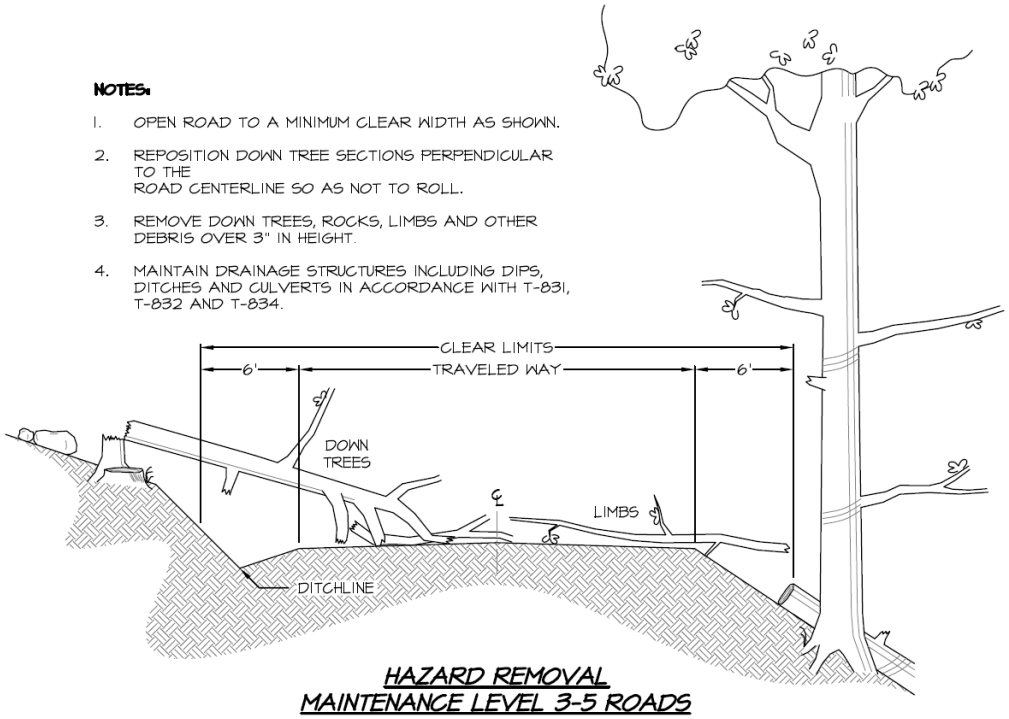
1. Shape the traveled way and disturbed roadbed to provide functional drainage.

2. Reinstall removed cross ditches and water bars and provide any additional drainage structures necessary to offset changes caused through use and maintenance.

3. Leave roads useable for high clearance vehicles. Remove or reshape purchaser modifications at road junctions to leave the entrance as it was before use, or as agreed at the time of improvement.

NOTES:

1. OPEN ROAD TO A MINIMUM CLEAR WIDTH AS SHOWN.
2. REPOSITION DOWN TREE SECTIONS PERPENDICULAR TO THE ROAD CENTERLINE SO AS NOT TO ROLL.
3. REMOVE DOWN TREES, ROCKS, LIMBS AND OTHER DEBRIS OVER 3" IN HEIGHT.
4. MAINTAIN DRAINAGE STRUCTURES INCLUDING DIPS, DITCHES AND CULVERTS IN ACCORDANCE WITH T-831, T-832 AND T-834.

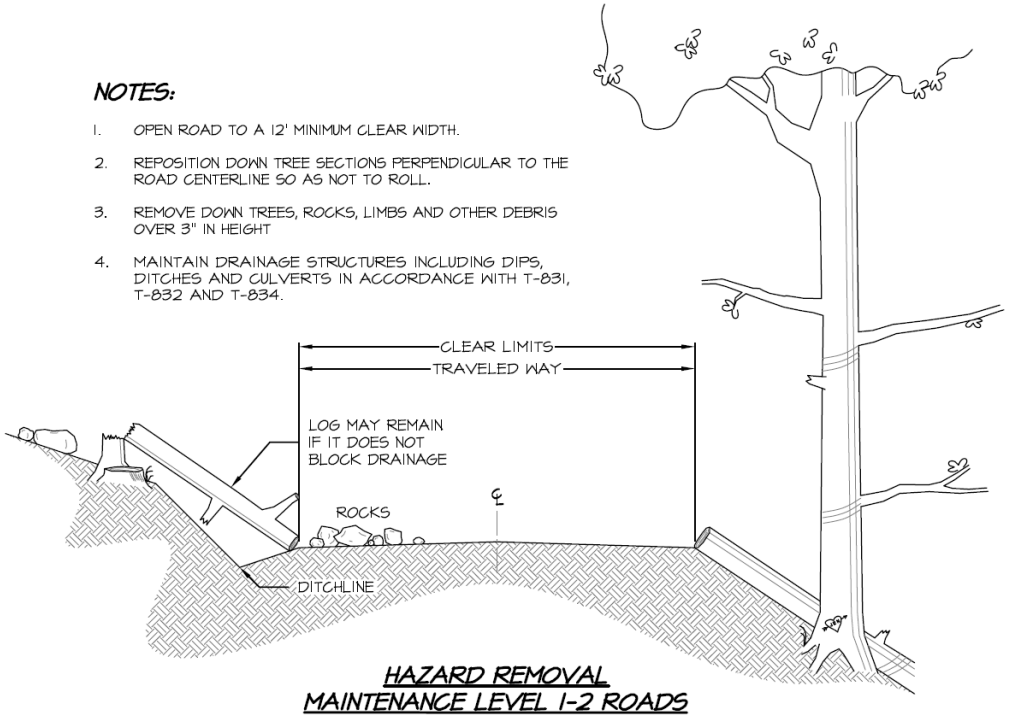


HAZARD REMOVAL
MAINTENANCE LEVEL 3-5 ROADS

Not to Scale

NOTES:

1. OPEN ROAD TO A 12' MINIMUM CLEAR WIDTH.
2. REPOSITION DOWN TREE SECTIONS PERPENDICULAR TO THE ROAD CENTERLINE SO AS NOT TO ROLL.
3. REMOVE DOWN TREES, ROCKS, LIMBS AND OTHER DEBRIS OVER 3" IN HEIGHT
4. MAINTAIN DRAINAGE STRUCTURES INCLUDING DIPS, DITCHES AND CULVERTS IN ACCORDANCE WITH T-831, T-832 AND T-834.



HAZARD REMOVAL
MAINTENANCE LEVEL 1-2 ROADS

Not to Scale

T-836, T-838 & T-839 TYPICALS (11/14)

T-839 MAINTENANCE FOR PROJECT USE (05/07)

839.01 Description

Work consists of providing minimum access required for Purchaser's Operations and associated Forest Service contract administration and preventing unacceptable resource or road damage.

839.02 Maintenance Requirements

A. Purchaser is authorized to perform the following maintenance to provide vehicle passage and drainage:

1. Removing log, earth, and rock barriers and/or improving existing road junctions to enable vehicle access as mutually agreed.

2. Smoothing or filling existing cross ditches and water bars.

3. Installing Purchaser-furnished culverts or other temporary drainage structures for shallow stream crossings as approved by the Contracting Officer.

4. Removing brush, fallen trees, rocks, and other materials from the traveled way and other locations that interfere with needed maintenance:

   a. Place all removed materials away from drainages.

   b. Limb and remove timber which meets utilization standards or deck at locations approved by the Contracting Officer. Scatter other woodymaterials, including limbs, off of and below the roadbed without creating concentrations.

5. Clean and recondition drainage structures in accordance with Section T-831 and Section T-834.

6. Reposition or ramp over slough and slides to provide adequate width of traveled way material.

7. Provide traveled way drainage above slumps and seal cracks in slump area. Ramp the slumps on both ends into undisturbed roadbed to provide usable width unless otherwise ordered by the Contracting Officer.

B. During use, the traveled way shall not channel water along the road. Prior to seasonal periods of anticipated rains and runoff, perform the following work:

1. Shape the traveled way and roadbed to drain.

2. Reinstall removed cross ditches and water bars and provide any additional drainage structures necessary to offset changes through use and maintenance.

3. Perform work outlined in 839.02 A (5), (6), and (7).

4. During periods of non use, replace original barrier or provide and maintain standard MUTCD, Type 3, barricades unless alternate type barriers are approved by the Contracting Officer.

839.03 Post Haul Requirements

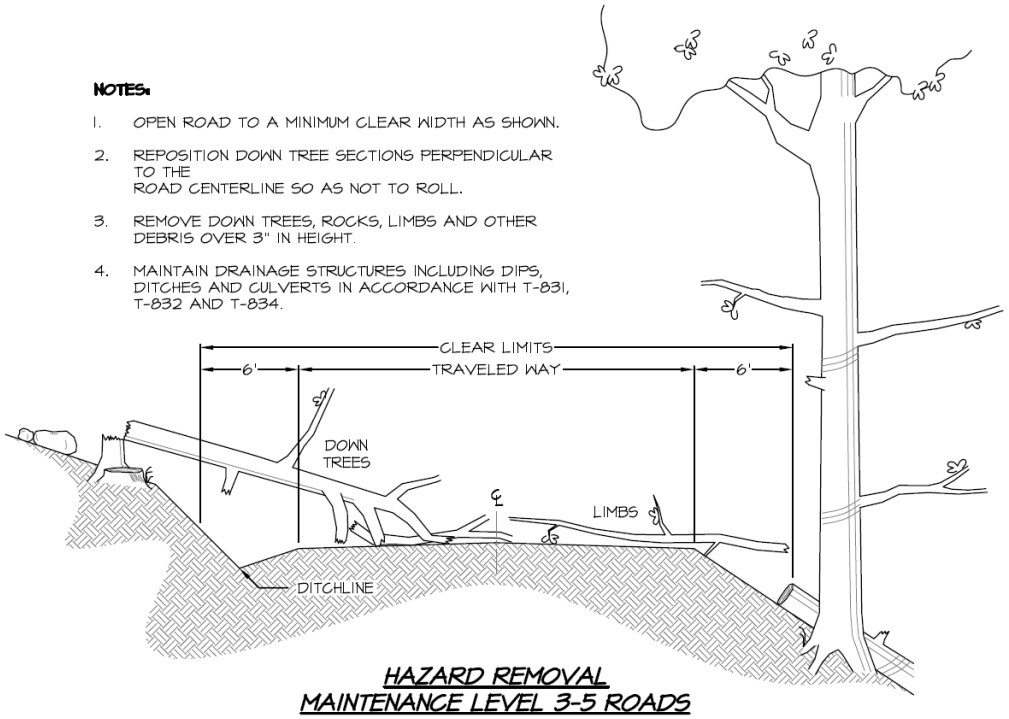
A. Upon completion of project use perform such work as needed to reasonably conform to the character of the existing road prior to Purchaser's maintenance for project use, unless otherwise provided in the SUPPLEMENTAL SPECIFICATIONS or the Road Listing. Work shall be in addition to requirements of 839.02 B and in accordance with 839.03 B and C.

B. Roads designated in the Road Listing to be blocked shall conform to the requirements of Section T-835. Unless otherwise approved by the Contracting Officer, remove Purchaser-installed temporary structures from National Forest System land. Associated commercially-obtained materials shall remain the property of the Purchaser.

C. Remove or reshape Purchaser improvements at road junctions, as approved by the Contracting Officer at the time of improvement.

NOTES:

1. OPEN ROAD TO A MINIMUM CLEAR WIDTH AS SHOWN.
2. REPOSITION DOWN TREE SECTIONS PERPENDICULAR TO THE ROAD CENTERLINE SO AS NOT TO ROLL.
3. REMOVE DOWN TREES, ROCKS, LIMBS AND OTHER DEBRIS OVER 3" IN HEIGHT.
4. MAINTAIN DRAINAGE STRUCTURES INCLUDING DIPS, DITCHES AND CULVERTS IN ACCORDANCE WITH T-831, T-832 AND T-834.

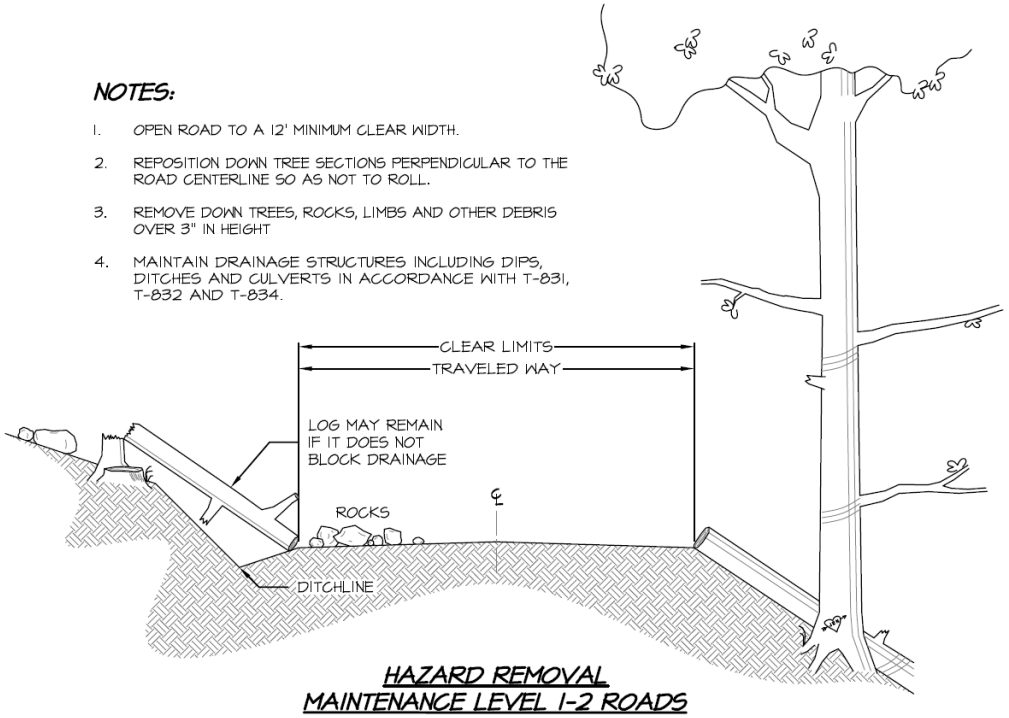


HAZARD REMOVAL
MAINTENANCE LEVEL 3-5 ROADS

Not to Scale

NOTES:

1. OPEN ROAD TO A 12' MINIMUM CLEAR WIDTH.
2. REPOSITION DOWN TREE SECTIONS PERPENDICULAR TO THE ROAD CENTERLINE SO AS NOT TO ROLL.
3. REMOVE DOWN TREES, ROCKS, LIMBS AND OTHER DEBRIS OVER 3" IN HEIGHT
4. MAINTAIN DRAINAGE STRUCTURES INCLUDING DIPS, DITCHES AND CULVERTS IN ACCORDANCE WITH T-831, T-832 AND T-834.



HAZARD REMOVAL
MAINTENANCE LEVEL 1-2 ROADS

Not to Scale

T-836, T-838 & T-839 TYPICALS (11/14)

T - 842 CUTTING ROADWAY VEGETATION (10/07)

842.01 Description

This work consists of cutting all vegetative growth, including trees and other vegetation less than 4 inches in diameter measured 6 inches above the ground, on roadway surfaces and roadsides.

842.02 Maintenance Requirements

A. General

1. Cut brush, trees, and other vegetation within each area treated to a maximum height of 6 inches above the ground surface or obstruction such as rocks or existing stumps. When work is performed under this Section, remove all limbs which extend into the treated area, or over the roadbed, to a height of 14 feet above the traveled way surface elevation.

2. Items to remain will be DESIGNATED ON THE GROUND.

3. Work may be performed either by hand or mechanically unless specifically shown in the Road Listing. Self-propelled equipment is not allowed on cut and fill slopes or in ditches.

4. Correct damage to trunks of standing trees caused by Purchaser's operation either by treatment with a commercial nursery sealer or by removing the tree as directed by the Contracting Officer.

5. Limb trees within the cutting limits which are over 4 inches -measured at 6 inches above the ground in lieu of cutting.

6. When trees are limbed, cut limbs within 4 inches of the trunk.

B. Cutting Side Vegetation

1. Show the width of vegetation to be removed in the Road Listing.

2. Unless otherwise included in the SUPPLEMENTAL SPECIFICATIONS or DESIGNATED ON THE GROUND:

   a. Commence work at the edge of the traveled way and proceed away from the road centerline.

   b. Roads without a defined traveled way: The starting point for cutting will be marked on the ground or defined in the SUPPLEMENTAL SPECIFICATIONS.

3. The points for establishing cutting limits are as follows:

   a. Fill and day lighted (wide roadbed) section cutting commences at the edge of the traveled way and proceeds away from the road center line.

   b. Drainage ditched section cutting commences at the bottom of the existing ditch and proceeds away from the road center line. Cutting on ditch fore slopes is not required.

   c. Non-ditched cut section cutting commences at the intersection of the cut bank and the roadbed and proceeds away from center line.

4. Provide transitions between differing increments of cutting width. Accomplish transitions in a taper length of not less than 50 feet or more than 70 feet.

C. Debris

1. Materials resulting from the cutting operation in excess of 12 inches in length or 3 inches in diameter are not allowed to remain on roadway slopes within the treated area, in ditches, or within water courses.

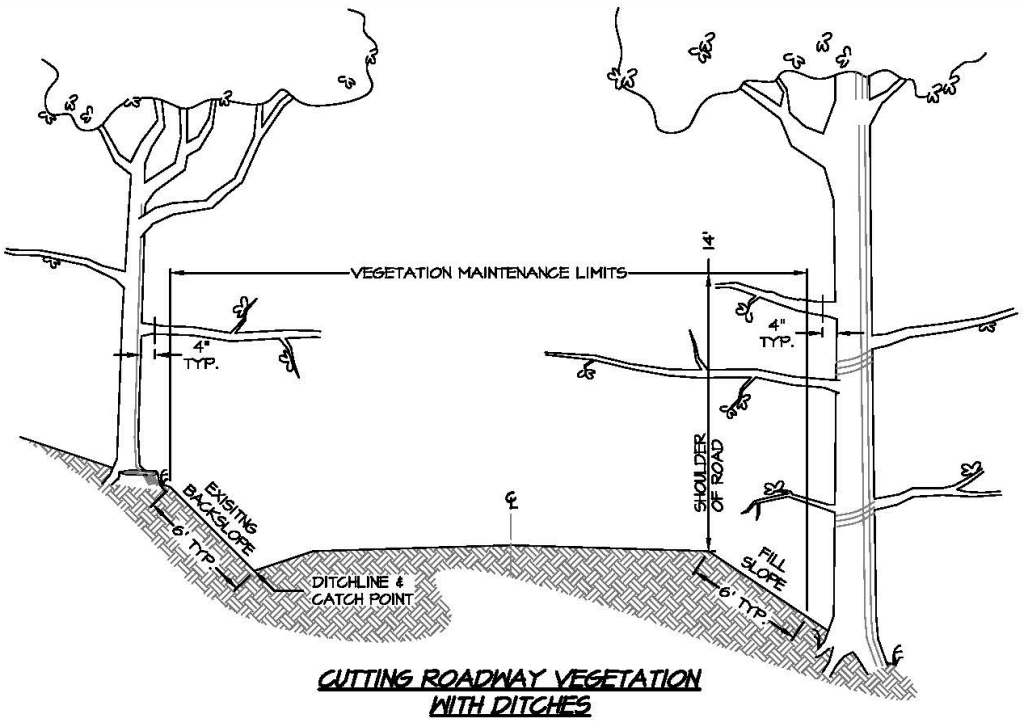
2. Remove limbs and chunks in excess of 3 inches in any dimension from the traveled way and shoulders.

3. Materials may be scattered down slope from the roadbed, outside of the work area and drainages unless otherwise listed in D. Invasive Species of Concern.

Invasive Species of Concern

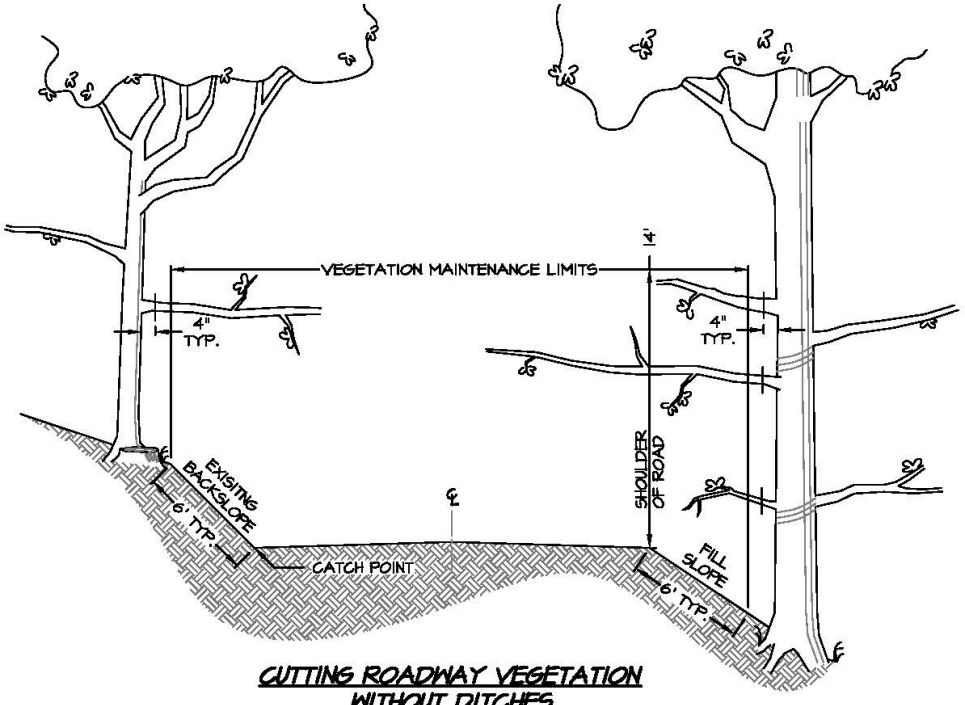
Where DESIGNATED ON THE GROUND, included in the ROAD LISTING, SHOWN ON THE DRAWINGS or as ordered by the Contracting Officer invasive species of concern prevention practices shall be followed as listed below.

Invasive Species of Concern Prevention Practices
NA



CUTTING ROADWAY VEGETATION WITH DITCHES

Not to Scale



CUTTING ROADWAY VEGETATION WITHOUT DITCHES

Not to Scale

NOTES:

1. EXTEND AN ADDITIONAL 5' ON THE INSIDE OF HORIZONTAL CURVES, WHERE DIRECTED BY CONTRACTING OFFICER, TO REDUCE OBSTRUCTIONS IN SIGHT DISTANCE.

T-842 TYPICALS (11/14)

T - 854 TREATMENT AND DISPOSAL OF DANGER TREES (5/07)

854.01 Description

This work consists of felling and disposal of designated live or dead danger trees sufficiently tall to reach roads used by the Purchaser. Any removal of logs is subject to prior agreement between the Contractor Officer and the Purchaser.

854.02 Requirements

A. Designation of danger trees.

Danger trees to be felled will be designated in advance by the Contracting Officer. Trees to be removed will be marked.

B. Falling, bucking and treatment for disposal.

Use controlled felling to ensure the direction of fall and prevent damage to property, structures, roadway, residual trees, and traffic. Stump heights, measured on the side adjacent to the highest ground, must not exceed 12 inches or 1/3 of the stump diameter, whichever is greater. Higher stump heights are permitted when necessary for safety.

Felled snags and trees, which are not marked for removal, will be left in a stable condition such that they will not roll or slide. Position logs away from standing trees so they will not roll, are not on top of one another, and are located out of roadway and drainage structures.

Fell, limb and, remove trees, which are marked for removal, that equal or exceed the utilization standards as listed in the Timber Sale contract or SUPPLEMENTAT SPECIFICATIONS. Dispose of merchantable timber designated for removal in accordance with B/BT2.32 Construction Clearing, of the Timber Sale Contract, or as described in SUPPLEMENTAL SPECIFICATIONS.

C. Slash treatment.

Within the roadway, remove limbs, chunks, and debris in excess of 12 inches in length and 3 inches in diameter, and concentrations that may plug ditches or culverts, and water courses.

Dispose of slash by scattering outside the roadway limits without damaging trees, or improvements.

Large accumulations of slash may be ordered hauled under T-832.

T - 891 WATER SUPPLY AND WATERING (5/07)

891.01 Description

This work consists of providing facilities to furnish an adequate water supply, hauling and applying water.

891.02 Materials

If the Purchaser elects to provide water from other than designated sources, the Purchaser is responsible to obtain the right to use the water, including any cost for royalties involved.

Suitable and adequate water sources available for Purchaser's use under this contract are designated as follows:

All water sources are designated by the Timber Sale Administrator

891.03 Equipment

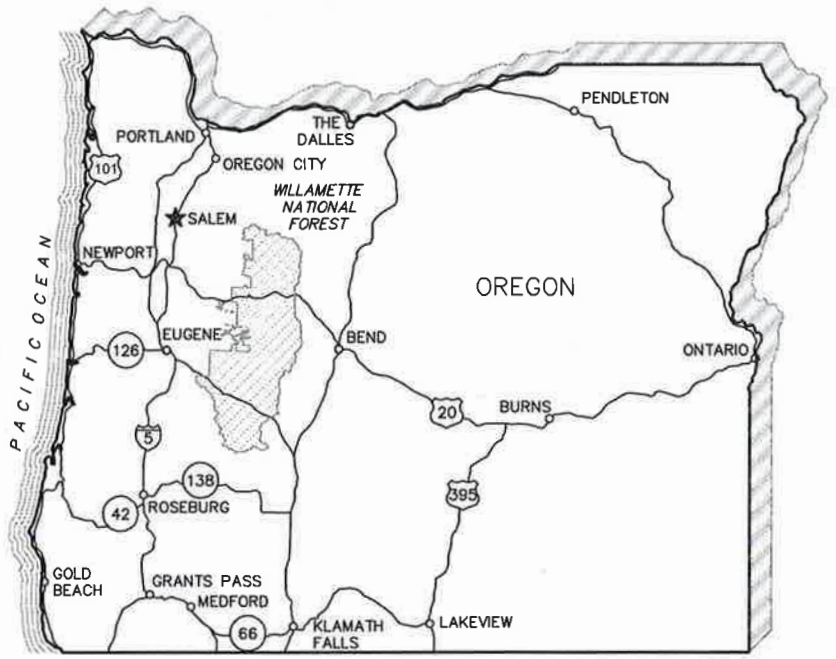
A. Positive control of water application is required. Equipment shall provide uniform application of water without ponding or washing.

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

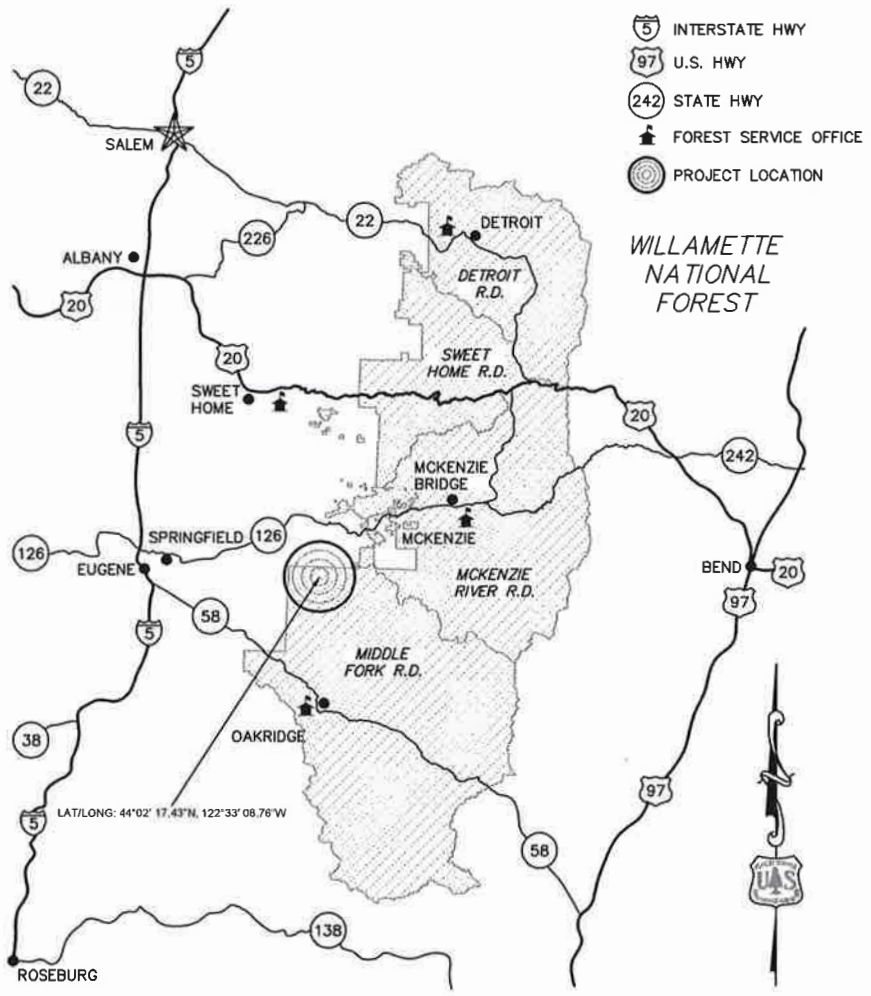
C. The designated water sources may require some work prior to their use. Such work may include cleaning ponded areas, installing temporary weirs or sandbags, pipe repair, pump installation or other items appropriate to the Purchaser's operations. Flowing streams may be temporarily sandbagged or a weir placed to pond water, provided a minimum flow of 10 cu. ft/sec is maintained. Obtain approval from the Contracting Officer on improvements for sandbags or weirs prior to placement.

EXHIBIT E

SEE THE FOLLOWING PAGES FOR DETAILS



STATE MAP



PROJECT LOCATION MAP

United States Department of Agriculture
Forest Service

06 PACIFIC NORTHWEST REGION
WILLAMETTE NATIONAL FOREST
MIDDLE FORK RANGER DISTRICT
LANE COUNTY

GNA
TWINS TIMBER SALE
SPECIFIED ROADS

SPECIFIED ROADS			
ROAD #	**ROAD NAME**	**LENGTH**	**TYPE OF WORK**
1806000	LITTLE FALL CREEK RD	7.66	RECONSTRUCTION
1806000A	WEYERHAEUSER MAIN LINE RD	7.98	RECONSTRUCTION
1806400	N/A	0.14	RECONSTRUCTION
1806415	N/A	0.23	RECONSTRUCTION
1806420	N/A	0.21	RECONSTRUCTION
1806451	N/A	0.13	RECONSTRUCTION
1806501	N/A	0.10	RECONSTRUCTION
1817000	COWHORN RD	1.84	RECONSTRUCTION

INDEX OF SHEETS	
SHEET	**SHEET TITLE**
1	TITLE SHEET
2 - 4	VICINITY MAP
5 - 6	ESTIMATE OF QUANTITIES
7	GENERAL NOTES
8 -14	RECONSTRUCTION SUMMARY
15 - 16	DRAINAGE LISTING
17 - 18	DRAINAGE TYPICALS
19	DROP INLET TYPICALS
20	NFSR 1806000 M.P. 5.58 DETAILS
21	NFSR 1817000 M.P. 11.12 DETAILS
22	ROAD RECONSTRUCTION DETAILS
23	LINEAR GRADING TYPICAL
24	DEWATERING TYPICALS
25	DISPOSAL SITE TYPICAL
26	SOIL EROSION AND POLLUTION CONTROL
27	TEMPORARY TRAFFIC CONTROL TYPICALS

DESIGNED BY
JERED HOGANSEN — 6/6/2019 DATE

REVIEWED BY
KYLE YEE — 6/11/2019 DATE

REVIEWED BY (DESIGNATED ENGINEER)
JOSH LATHAM — 6/6/2019 DATE

RECOMMENDED BY (ZONE ENGINEER)
BRANDON GREEN — 06/06/19 DATE

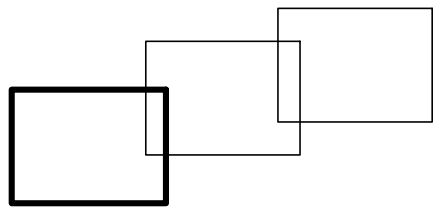
APPROVED BY (DISTRICT RANGER)
DUANE BISHOP — 06/10/2019 DATE

APPROVED BY (FOREST ENGINEER)
WALTER HISLOP — 06/06/19 DATE

STATION KEY

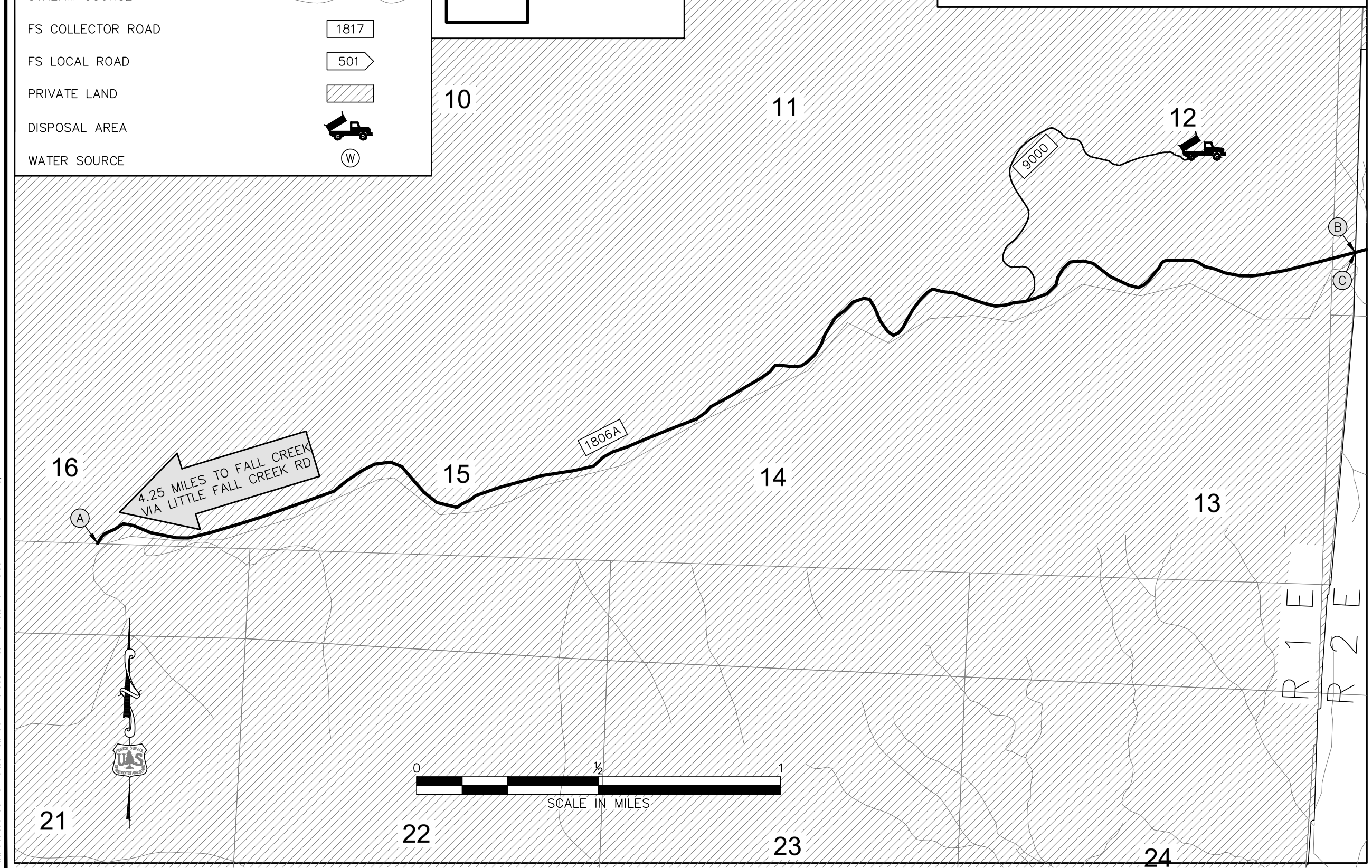
- RECONSTRUCTED ROAD
- FOREST ROAD
- STREAM COURSE
- FS COLLECTOR ROAD — 1817
- FS LOCAL ROAD — 501
- PRIVATE LAND
- DISPOSAL AREA
- WATER SOURCE — (W)

MAP KEY



MILE POST KEY

NFSR 1806000A		*NFSR 1806000*	
(A)	BOP – M.P. 0.00	(C)	BOP – M.P. 0.00
(B)	EOP – M.P. 7.98	(D)	EOP – M.P. 7.66



USDA FOREST SERVICE

United States Department of Agriculture
Forest Service

R06
PACIFIC NORTHWEST REGION

PROJECT NAME

GNA
TWINS TIMBER SALE
SPECIFIED ROADS

WILLAMETTE
NATIONAL FOREST

MIDDLE FORK
RANGER DISTRICT

DRAWING TITLE

VICINITY MAP
1 OF 3

DATE
06/05/2019

ARCHIVE NO.

DESIGNER
J. HOGANSEN

DRAWN
J. HOGANSEN

CHECKED
J. LATHAM

PROJECT NO.
N/A

DWG SHEET NO.

SHEET **2** OF **27**

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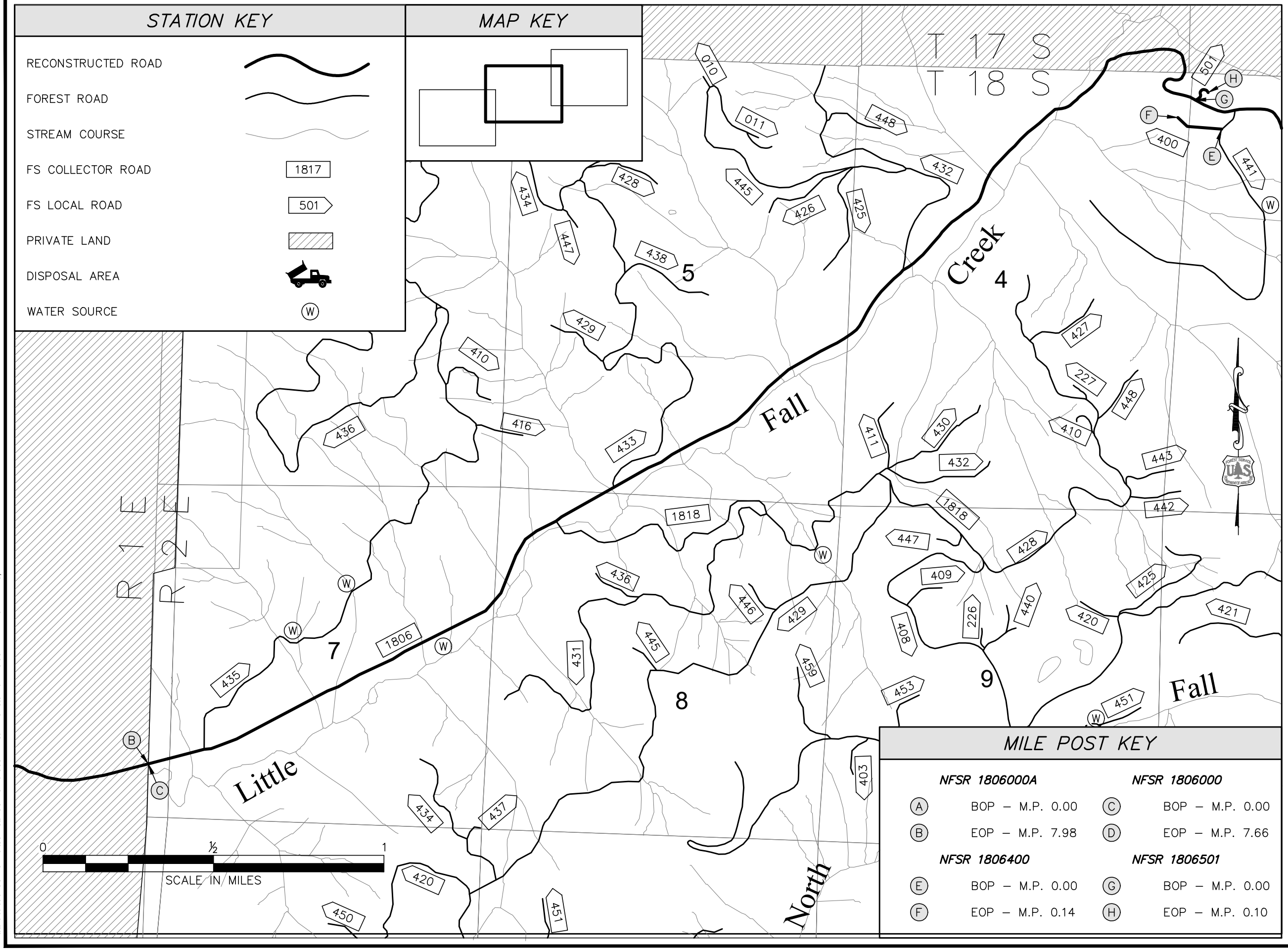
STATION KEY

- RECONSTRUCTED ROAD
- FOREST ROAD
- STREAM COURSE
- FS COLLECTOR ROAD — 1817
- FS LOCAL ROAD — 501
- PRIVATE LAND
- DISPOSAL AREA
- WATER SOURCE — (W)

MAP KEY



MILE POST KEY

NFSR 1806000A		*NFSR 1806000*	
(A)	BOP – M.P. 0.00	(C)	BOP – M.P. 0.00
(B)	EOP – M.P. 7.98	(D)	EOP – M.P. 7.66
NFSR 1806400		*NFSR 1806501*	
(E)	BOP – M.P. 0.00	(G)	BOP – M.P. 0.00
(F)	EOP – M.P. 0.14	(H)	EOP – M.P. 0.10

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service

R06
PACIFIC NORTHWEST REGION

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GNA
TWINS TIMBER SALE
SPECIFIED ROADS

WILLAMETTE
NATIONAL FOREST

MIDDLE FORK
RANGER DISTRICT

DRAWING TITLE

VICINITY MAP
2 OF 3

DATE
06/05/2019

ARCHIVE NO.

DESIGNER	DWG SHEET NO.
J. HOGANSEN	
DRAWN **J. HOGANSEN**	
CHECKED **J. LATHAM**	SHEET **3** OF **27**
PROJECT NO. **N/A**	

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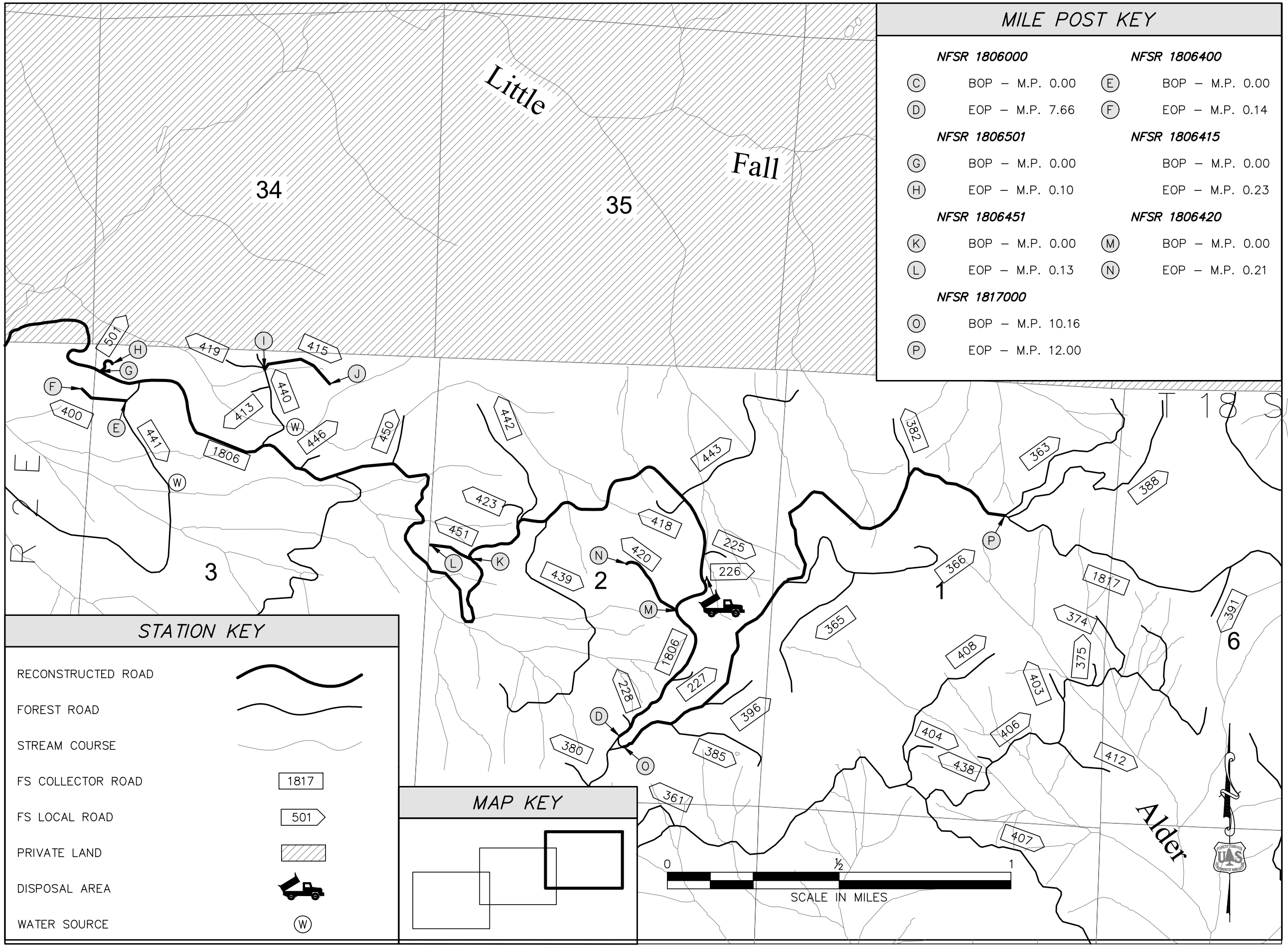

MILE POST KEY

NFSR 1806000

- (C) BOP – M.P. 0.00
- (D) EOP – M.P. 7.66

NFSR 1806501

- (G) BOP – M.P. 0.00
- (H) EOP – M.P. 0.10

NFSR 1806451

- (K) BOP – M.P. 0.00
- (L) EOP – M.P. 0.13

NFSR 1817000

- (O) BOP – M.P. 10.16
- (P) EOP – M.P. 12.00

NFSR 1806400

- (E) BOP – M.P. 0.00
- (F) EOP – M.P. 0.14

NFSR 1806415

- BOP – M.P. 0.00
- EOP – M.P. 0.23

NFSR 1806420

- (M) BOP – M.P. 0.00
- (N) EOP – M.P. 0.21

STATION KEY

- RECONSTRUCTED ROAD
- FOREST ROAD
- STREAM COURSE
- FS COLLECTOR ROAD — 1817
- FS LOCAL ROAD — 501
- PRIVATE LAND
- DISPOSAL AREA
- WATER SOURCE — (W)

MAP KEY

United States Department of Agriculture
Forest Service

R06
PACIFIC NORTHWEST REGION

PROJECT NAME

GNA
TWINS TIMBER SALE
SPECIFIED ROADS

WILLAMETTE
NATIONAL FOREST

MIDDLE FORK
RANGER DISTRICT

DRAWING TITLE

VICINITY MAP
3 OF 3

DATE
06/05/2019

ARCHIVE NO.

DESIGNER
J. HOGANSEN

DRAWN
J. HOGANSEN

CHECKED
J. LATHAM

PROJECT NO.
N/A

DWG SHEET NO.

SHEET **4** OF **27**

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ROAD NUMBER			1806000	1806000A	1806400	1806415	1806420	1806451	1806501	1817000	REMARKS
ITEM NUMBER	DESCRIPTION	UNIT	QUANTITIES								*DENOTES CONTRACT QUANTITIES
15101	Mobilization	Lump Sum	All	-	-	-	-	-	-	-	Applicable to all roads. Includes fire equipment, equipment washing and all required site surveying to complete work shown in the plans and specifications.
15713	Soil Erosion & Pollution Control	Lump Sum	All	-	-	-	-	-	-	-	Applicable to all roads. Includes dewatering, contractor furnished wattles & straw, and government furnished seed (located at the FS Flat Creek Work Center). Coordinate pick up with Contracting Officer.
20301	Removal of Culvert, Disposal Method A	Each	21	10	-	1	-	-	-	8	Remove from Forest Service lands.
20401	Roadway Excavation, Compaction Method B, Finishing Method B	Cubic Yard*	-	-	-	-	-	-	-	800	Work consists of removal of ravel material, as well as ripping and rock hammering cut slope to gain road width. Loading and haul of waste material produced is indirect to pay item 20416. See Sheet 21.
20416	Waste, Debris	Cubic Yard*	100	-	-	-	-	-	-	800	Dispose of waste at designated waste areas shown on the vicinity map.
20479	Drainage Excavation, Type Culvert Cleaning	Mile	5.03	7.98	-	-	-	-	-	1.84	Refer to FP-03 607.04 Cleaning Culverts In Place. Includes removal & disposal of all foreign material within the inlet ditch, catch basin, barrel & outlet ditch as well as jacking open inlet when designated.
20701	Earthwork Geotextile Fabric, Type IV (B)	Square Yard*	36.0	-	-	-	-	-	-	-	
21201	Linear Grading	Mile	-	-	0.14	0.23	0.21	0.13	0.10	-	Includes all required clearing & grubbing, excavation & embankment, drainage reconstruction and erosion control to reconstruct roadways and associated features.
25104A	Keyed Riprap, Class 2	Cubic Yard*	10	-	-	-	-	-	-	-	Commercial Source.
25104B	Keyed Riprap, Class 4	Cubic Yard*	15	-	-	-	-	-	-	-	Commercial Source.
30304	Road Reconditioning, Ditch	Mile	0.03	1.00	-	-	-	-	-	-	Work consists of removal, loading and disposal of any ditch line obstructions. Dispose of all produced waste material in designated disposal areas. Do not clean ditches that meet requirements in the ditch line typical and dimensions in the typical section.
30357	Roadway Reconditioning, Compaction Method B	Mile	5.03	6.98	-	-	-	-	-	1.84	Work consists of reconditioning ditch line, shoulders, roadbed and aggregate surface. Do not clean ditches that meet requirements in the ditch line typical and dimensions in the typical section.
32222*	Pit Run Maximum Size 4 Inches, Compaction Method B	Cubic Yard*	170	-	270	450	410	400	-	-	Government furnished - Cowhorn Quarry, located at NFSR 1818433 M.P. 0.20, 44°01' 36.07" N 122°32' 51.24" W. Aggregate quantities include curve widening. Sorting/screening required.
32232A	Haul and Place Stockpiled Aggregate, Compaction Method B	Cubic Yard*	2580	-	-	-	-	-	-	440	Government furnished - North Falls Quarry Stockpile, located at NFSR 1817420 M.P. 1.14, 43°59' 57.20" N 122°36' 11.54" W. Aggregate quantities include curve widening and turnouts.
32232B	Haul and Place Stockpiled Aggregate, Compaction Method B	Cubic Yard*	-	200	-	-	-	-	-	-	Private furnished by Weyerhauser - Scofield 2 Rock Source, located at Weyerhaeuser Rd 9000 M.P. 1.0, 44°00' 58.66 N 122°38' 02.91 W.
60263A	18-Inch Aluminized Steel, Type 2, Corrugated Steel Pipe, 0.064 Thickness, Method B	Foot	205	-	-	-	-	-	-	65	Includes bands, excavation, bedding, backfill, inlet/outlet ditch work & any individual trees that need to be removed.

USDA FOREST SERVICE

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R06
PACIFIC NORTHWEST REGION

PROJECT NAME

GNA
TWINS TIMBER SALE
SPECIFIED ROADS

WILLAMETTE
NATIONAL FOREST

MIDDLE FORK
RANGER DISTRICT

DRAWING TITLE

ESTIMATE OF QUANTITIES
1 OF 2

DATE
06/05/2019

ARCHIVE NO.

DESIGNER
J. HOGANSEN

DRAWN
J. HOGANSEN

CHECKED
J. LATHAM

PROJECT NO.
N/A

DWG SHEET NO.

SHEET 5 OF 27

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ROAD NUMBER			1806000	1806000A	1806400	1806415	1806420	1806451	1806501	1817000	REMARKS
ITEM NUMBER	DESCRIPTION	UNIT	QUANTITIES								*DENOTES CONTRACT QUANTITIES
60263B	24-Inch Aluminized Steel, Type 2, Corrugated Steel Pipe, 0.079 Thickness, Method B	Foot	752	-	-	35	-	-	-	185	Includes bands, gaskets, excavation, bedding, backfill, inlet/outlet ditch work & any individual trees that need to be removed.
60263C	36-Inch Aluminized Steel , Type 2, Corrugated Steel Pipe, 0.079 Thickness, Method B	Foot	68	-	-	-	-	-	-	-	Includes bands, gaskets, excavation, bedding, backfill, inlet/outlet ditch work & any individual trees that need to be removed.
60278A	18-Inch Corrugated Polyethylene Pipe, Type S, Compaction Method B.	Foot	-	250	-	-	-	-	-	-	Includes excavation, bedding, backfill, inlet/outlet ditch work & any individual trees that need to be removed.
60278B	24-Inch Corrugated Polyethylene Pipe, Type S, Compaction Method B.	Foot	-	250	-	-	-	-	-	-	Includes excavation, bedding, backfill, inlet/outlet ditch work & any individual trees that need to be removed.
60601	Spillway Assembly, 36-Inch Drop Inlet, Aluminized Steel Type 2, 0.079 Thickness	Each	-	-	-	-	-	-	-	1	Includes fabrication, installation and metal marker post.
63501	Temporary Traffic Control	Lump Sum	All	-	-	-	-	-	-	-	Applicable to all roads. Includes all necessary labor & materials.

United States Department of Agriculture
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NATIONAL FOREST

MIDDLE FORK
RANGER DISTRICT

DRAWING TITLE

ESTIMATE OF QUANTITIES
2 OF 2

DATE
06/05/2019

ARCHIVE NO.

DESIGNER
J. HOGANSEN

DRAWN
J. HOGANSEN

CHECKED
J. LATHAM

PROJECT NO.
N/A

DWG SHEET NO.

SHEET **6** OF **27**

GENERAL NOTES:

1. CONSTRUCTION EQUIPMENT SHALL BE CONFINED TO THE ROADWAY, UNLESS OTHERWISE APPROVED BY THE CONTRACTING OFFICER.
2. BORROW SOURCE LOCATIONS ARE SHOWN ON THE VICINITY MAP AND ESTIMATE OF QUANTITIES SHEETS.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR DEWATERING OF CULVERTS DURING CONSTRUCTION.
4. EACH CULVERT'S LOCATION, LENGTH AND SKEW SHALL BE FIELD VERIFIED BY THE CONTRACTOR AND APPROVED BY THE CONTRACTING OFFICER PRIOR TO ORDERING IN ACCORDANCE WITH FP–03 602.03.
5. CONSTRUCTION TOLERANCE CLASS D APPLICABLE TO ALL ROADS, REFER TO FSSS 204 – EXCAVATION AND EMBANKMENT.
6. DISPOSAL MATERIAL PRODUCED IN THE CONSTRUCTION OF THIS PROJECT SHALL BE HAULED TO THE DESIGNATED DISPOSAL AREAS SHOWN ON THE VICINITY MAP AND LISTED IN THE DESCRIPTION OF WORK. SHAPE AND COMPACT AREA TO DRAIN WITH SPREADING EQUIPMENT, 8' MAX HEIGHT, AS MARKED BY CONTRACTING OFFICER.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING ALL UNSUITABLE MATERIAL WITH UNCLASSIFIED BORROW NECESSARY TO COMPLETE THE WORK AS DETERMINED BY THE CONTRACTING OFFICER. NO ADDITIONAL PAYMENT SHALL BE MADE FOR ACQUIRING UNCLASSIFIED BORROW, PLACEMENT, OR DISPOSAL OF UNSUITABLE MATERIALS ENCOUNTERED. WASTE MATERIAL PRODUCED FROM EMBANKMENT EXCAVATION SHALL BE USED AS UNCLASSIFIED BORROW IF FOUND SUITABLE.
8. AGGREGATE SURFACING FOR NFSR 1806000 AND 1817000 SHALL COME FROM FS NORTH FALLS QUARRY STOCKPILE. ROCK FROM STOCKPILE AT NORTH FALLS QUARRY WILL NOT BE AVAILABLE PRIOR TO AUGUST 1, 2020. PIT RUN FOR NFSR 1806400, 1806415, 1806420 AND 1806451, AS WELL AS HEADWALL AND EMBANKMENT CONSTRUCTION SHALL COME FROM FS COWHORN QUARRY.
9. ALL AGGREGATE FOR NEW CULVERT INSTALLS ON WEYERHAEUSER MAINLINE RD SHALL COME FROM SCOFIELD–2 ROCK SOURCE LOCATED AT M.P. 1.0 ON WEYERHAEUSER RD 9000. ALL UNSUITABLE MATERIAL DISCOVERED WHILE PERFORMING DITCH RECONDITIONING AND CULVERT REPLACEMENT ON WEYERHAEUSER MAINLINE RD SHALL BE PLACED IN DESIGNATED DISPOSAL SITE LOCATED ADJACENT TO SCOFIELD–2 ROCK SOURCE.
10. PRIOR TO THE CULVERT REPLACEMENT AND EMBANKMENT CONSTRUCTION AT 1806000 M.P. 3.50, THE PURCHASER SHALL GIVE A MINIMUM OF 4 WEEK NOTICE TO WEYERHAEUSER LAND USE MANAGER, ANNETTE GRAINGER ANNETTE.GRAINGER@WEYERHAEUSER.COM 541–988–7563, OF PLANNED CONSTRUCTION WINDOW AS TO NOT CONFLICT WITH TIMBER HAUL SCHEDULE.
11. ALL IN–STREAM WORK SHALL BE COMPLETED BETWEEN JULY 1st TO AUGUST 31st. IN–STREAM WORK APPLIES TO CULVERT REPLACEMENTS ON INTERMITTENT AND PERENNIAL STREAMS FLOWING WATER AT THE TIME OF THE REPLACEMENT.
12. FOR CULVERT INSTALLATIONS ON WEYERHAEUSER MAINLINE M.P. 0.00 – M.P. 7.98 AND NFSR 1806000 INSURE WORK IS IN ACCORDANCE WITH FSSS 156.
13. NFSR 1817388 IS TO BE USED FOR EQUIPMENT USE ONLY, NO HAULING OF TIMBER.

ABBREVIATION LIST:

1. NFSR – NATIONAL FOREST SYSTEM ROAD
2. M.P. – MILE POST
3. BOP – BEGINNING OF PROJECT
4. EOP – END OF PROJECT
5. CMP – CORRUGATED METAL PIPE
6. HDPE – HIGH DENSITY POLYETHYLENE PIPE
7. CL – CENTERLINE
8. H:V – RATIO OF HORIZONTAL TO VERTICAL UNITS; EXAMPLE: 2H:1V = 2:1
9. FSSS – FOREST SERVICE SUPPLEMENTAL SPECIFICATION
10. FP–03 – STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS
11. MUTCD – MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES
12. AOP – AQUATIC ORGANISM PASSAGE

United States Department of Agriculture
Forest Service

R06
PACIFIC NORTHWEST REGION

PROJECT NAME

GNA
TWINS TIMBER SALE
SPECIFIED ROADS

WILLAMETTE
NATIONAL FOREST

MIDDLE FORK
RANGER DISTRICT

DRAWING TITLE

GENERAL NOTES

DATE
06/05/2019

ARCHIVE NO.

DESIGNER **J. HOGANSEN**	DWG SHEET NO.
DRAWN **J. HOGANSEN**	
CHECKED **J. LATHAM**	SHEET **7** OF **27**
PROJECT NO. **N/A**	

MILE POST	ITEM NUMBER	QUANTITY	UNIT	FSR 1806-000 RECONSTRUCTION SUMMARY	AS BUILT
0.00				Beginning of project at junction with 1806000A, boundary of Willamette National Forest.	
	32232A	350	Cubic Yard*	Quantity to be placed as spot rock surfacing at locations identitified by the Contacting Officer.	
0.15				NFSR 1806435 left.	
0.66				Existing 48" CMP.	
1.33	20301	1	Each	Remove existing 18" CMP.	
	60263B	50	Foot	Install 24" X 50' aluminized steel pipe, at existing grade and skew.	
	32232A	20	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
1.38				NFSR 1818000 right.	
1.55				Existing 60" CMP.	
1.57				NFSR 1806433 left.	
1.78	20301	1	Each	Remove existing 24" CMP.	
	60263B	60	Foot	Install 24" X 60' aluminized steel pipe, at existing grade and skew.	
	32232A	20	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
1.88	20301	1	Each	Remove existing 24" CMP.	
	60263B	52	Foot	Install 24" X 52' aluminized steel pipe, at existing grade and skew.	
	32232A	20	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
2.24				Existing 96" CMP.	
2.55	20301	1	Each	Remove existing 18" CMP.	
	60263A	50	Foot	Install 18" X 50' aluminized steel pipe, lower to ground at existing skew.	
	32232A	20	Cubic Yards*	Place aggregate surfacing, 6" thickness.	
2.62	20301	1	Each	Remove existing 18" CMP.	
	60263B	54	Foot	Install 24" X 54' aluminized steel pipe, lower to ground at existing skew.	
	32232A	20	Cubic Yard*	Place aggregate surfacing.	
2.63				NFSR 1806432 left.	
	20479	5.03	Mile	Begin cleaning all existng culverts.	
	30357	5.03	Mile	Begin roadway reconditioning.	
	32232A	1920	Cubic Yard*	Begin aggregate surfacing placement, 4" thickness.	
2.65	20301	1	Each	Remove existing 24" CMP.	
	60263B	56	Foot	Install 24" X 56' aluminized steel pipe, at existing grade and skew.	
	32232A	20	Cubic Yards*	Place aggregate surfacing, 6" thickness.	
2.75	20301	1	Each	Remove existing 24" CMP.	
	60263B	50	Foot	Install 24" X 50' aluminized steel pipe, lower to ground at existing skew.	
	32232A	20	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
2.98				Existing 96" CMP.	
3.14	20301	1	Each	Remove existing 18" CMP.	
	60263B	50	Foot	Install 24" X 50' aluminized steel pipe, lower to ground at existing skew.	
	32232A	20	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
3.23				Existing 18" CMP.	
3.32				Existing single-lane bridge.	
3.43				Existing 24" CMP.	
3.50	20301	1	Each	Remove existing 18" CMP.	
	60263B	70	Foot	Install 24" X 70' aluminized steel pipe, at existing grade and skew.	
	32232A	20	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
	32222	40	Cubic Yard*	Place pit-run **FILL SLOPE** embankment: 25FT L1 X 6FT L2 X 20FT H, D 3'. See Sheet 18 for typical.	
3.56				Existing 18" HDPE.	

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NATIONAL FOREST

MIDDLE FORK
RANGER DISTRICT

DRAWING TITLE

RECONSTRUCTION
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DATE
06/05/2019

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SHEET **8** OF **27**

MILE POST	ITEM NUMBER	QUANTITY	UNIT	NFSR 1806000 RECONSTRUCTION SUMMARY	AS BUILT
3.67				Existing 24" CMP.	
3.72				Existing 18" HDPE.	
3.84				Existing 18" HDPE.	
4.01				NFSR 1806501 left.	
4.01	20301	1	Each	Remove existing 18" CMP.	
	60263A	40	Foot	Install 18" X 40' aluminized steel pipe, at existing grade and skew.	
	32232A	10	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
4.13				NFSR 1806441 right.	
4.60				NFSR 1806440 left.	
				End of aggregate surfacing placement.	
4.74	20301	1	Each	Remove existing 18" CMP.	
	60263A	40	Foot	Install 18" X 40' aluminized steel pipe, at existing grade and skew.	
	32232A	10	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
4.83				Existing gate.	
4.86				NFSR 1806427 right.	
5.15				Existing 30" CMP.	
5.23				Existing 18" CMP.	
5.31				Existing 30" CMP.	
5.37	20301	1	Each	Remove existing 18" CMP.	
	60263B	35	Foot	Install 24" X 35' aluminized steel pipe, at existing grade and skew.	
	32232A	10	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
5.49				Existing 24" CMP.	
5.56	20301	1	Each	Remove existing 24" CMP.	
	60263B	40	Foot	Install 24" X 40' aluminized steel pipe, at existing grade and skew.	
	32232A	10	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
	25104A	2	Cubic Yard*	Place Class 2 riprap outlet slash apron, 6' L X 4' W X 2' D.	
5.58	20301	1	Each	Remove existing 30" CMP.	
	60263C	68	Foot	Install 36" X 68' aluminized steel pipe. See Sheet 20 for details.	
	32232A	20	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
	32222	130	Cubic Yard*	Place pit-run embankment protection and **DITCH BLOCK**.	
	25104A	6	Cubic Yard*	Place Class 2 riprap **OUTLET** slash apron.	
	25104B	15	Cubic Yard*	Place Class 4 riprap **INLET** headwall.	
	20701	36.0	Square Yard*	Place Geotextile Fabric below Class 4 riprap **INLET** headwall.	
5.62	20301	1	Each	Remove existing 24" CMP.	
	60263B	50	Foot	Install 24" X 50' aluminized steel pipe, at existing grade and skew.	
	32232A	10	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
5.68				Existing 18" CMP.	
5.78	20301	1	Each	Remove existing culvert.18" CMP.	
	60263A	35	Foot	Install 18" X 35' aluminized steel pipe, at existing grade and skew.	
	32232A	10	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
5.86				Existing 24" CMP.	
5.91	20301	1	Each	Remove existing 24" CMP.	
	60263B	50	Foot	Install 24" X 50' aluminized steel pipe, at existing grade and skew.	
	32232A	10	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
5.95				NFSR 1806451 left.	

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MILE POST	ITEM NUMBER	QUANTITY	UNIT	NFSR 1806000 RECONSTRUCTION SUMMARY	AS BUILT
5.96				Existing 18" CMP.	
6.12	20301	1	Each	Remove existing 18" CMP.	
	60263A	40	Foot	Install 18" X 40' aluminized steel pipe, at existing grade and skew.	
	32232A	10	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
6.23				NFSR 1806439 right.	
6.23				Existing 18" CMP.	
6.36	20301	1	Each	Remove existing 18" CMP.	
	60263B	40	Foot	Install 24" X 40' aluminized steel pipe, at existing grade and skew.	
	32232A	10	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
	25104A	2	Cubic Yard*	Place Class 2 riprap outlet splash apron, 6' L X 4' W X 2' D.	
6.44	20301	1	Each	Remove existing 24" CMP.	
	60263B	60	Foot	Install 24" X 60' aluminized steel pipe, at existing grade and skew.	
	32232A	10	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
6.48				Remove 36" tree from ditch right. Incidental to pay item 30357.	
6.54	20301	1	Each	Remove existing 18" CMP.	
	60263B	35	Foot	Install 24" X 35' aluminized steel pipe, at existing grade and skew.	
	32232A	10	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
6.61				Existing 18" CMP.	
6.75				NFSR 1806443 left.	
7.17				NFSR 1806420 right.	
7.19	30304	0.03	Mile	Begin ditch reconstruction. Removal 100 cubic yards of ravel material from ditch line.	
	20416	100	Cubic Yard*	Disposal of waste material.	
7.22				End ditch reconstruction.	
7.36				Existing 18" CMP.	
7.60				Existing 18" CMP.	
7.66				End of project at junction with NFSR 1806000 cut-through road left.	
				End cleaning all existng culverts.	
				End roadway reconditioning.	

MILE POST	ITEM NUMBER	QUANTITY	UNIT	1806000A RECONSTRUCTION SUMMARY	AS BUILT
0.00				Beginning of project at 'End County Maintenance' sign and gate Little Fall Creek Rd.	
	20479	7.98	Mile	Begin cleaning all existng culverts.	
	30304	1.00	Mile	Begin ditch reconstruction.	
1.00				End of existing asphalt.	
				End ditch reconstruction.	
	30357	6.98	Mile	Begin roadway reconditioning.	
1.13				Existing 18" CMP.	
1.18				Existing 18" CMP.	
1.25				Existing 36" CMP.	
1.40				Existing 24" CMP.	
1.47	20301	1	Each	Remove existing 24"CMP.	
	60278B	40	Foot	Install 24" X 40' HDPE, at existing grade and skew.	
	32232B	20	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
1.62				Existing 24" CMP.	

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MILE POST	ITEM NUMBER	QUANTITY	UNIT	1806000A RECONSTRUCTION SUMMARY	AS BUILT
1.67	20301	1	Each	Remove existing 18" CMP.	
	60278A	40	Foot	Install 18" X 40' HDPE, at existing grade and skew.	
	32232B	20	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
1.87	20301	1	Each	Remove existing 18" CMP.	
	60278A	60	Foot	Install 18" X 60' HDPE, at existing grade and skew.	
	32232B	20	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
1.89				Spur right.	
1.93				Existing 96" CMP.	
2.01				Existing 18" CMP.	
2.07				Existing 24" CMP.	
2.15				Existing 18" CMP.	
2.23				Spur right.	
2.25				Existing 30" CMP.	
2.31				Spur right.	
2.38	20301	1	Each	Remove existing 24" CMP.	
	60278B	60	Foot	Install 24" X 60' HDPE, at existing grade and skew.	
	32232B	20	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
2.43	20301	1	Each	Remove existing 18" CMP.	
	60278A	50	Foot	Install 18" X 50' HDPE, at existing grade and skew.	
	32232B	20	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
2.57				Spur right.	
2.58				Existing single-lane bridge.	
2.66				Existing 18" CMP.	
2.94				Existing 24" CMP.	
3.07				Spur left.	
3.20				Existing 120" CMP.	
3.27				Spur left.	
3.52				Existing 18" CMP.	
3.78				Existing 18" CMP.	
3.88				Existing 18" CMP.	
3.97				Existing 18" CMP.	
4.10	20301	1	Each	Remove existing 18" CMP.	
	60278A	50	Foot	Install 18" X 50' HDPE, at existing grade and skew.	
	32232B	20	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
4.25				Existing 30" HDPE.	
4.29				Existing 24" CMP.	
4.53				Existing 18" HDPE.	
4.60				Spur left. Spur right.	
4.72				Existing 6' CMP.	
4.79				Existing 18" CMP.	
4.87				Existing 48" CMP.	
4.95	20301	1	Each	Remove existing 18" CMP.	
	60278A	50	Foot	Install 18" X 50' HDPE, at existing grade and skew.	
	32232B	20	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
5.06				Spur left.	

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MILE POST	ITEM NUMBER	QUANTITY	UNIT	1806000A RECONSTRUCTION SUMMARY	AS BUILT
5.11				Existing 18" CMP.	
5.34				Existing 36" CMP.	
5.52				Existing 24" CMP.	
5.58	20301	1	Each	Remove existing 24" CMP.	
	60278B	50	Foot	Install 24" X 50' HDPE, at existing grade and skew.	
	32232B	20	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
5.77				Existing 48" CMP.	
5.78				Spur left.	
5.90				Existing 36" CMP.	
6.05				Spur left.	
6.25	20301	1	Each	Remove existing 24" CMP.	
	60278B	50	Foot	Install 24" X 50' HDPE, at existing grade and skew.	
	32232B	20	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
6.34				Existing 18" CMP.	
6.38				Existing 18" CMP.	
6.41				Existing 24" CMP.	
6.43				Existing 18" CMP.	
6.52				Existing 18" CMP.	
6.67				Existing single-lane bridge.	
6.75				Existing 24" CMP.	
6.83				Existing 24" CMP.	
6.92				Existing 24" HDPE. Spur left.	
7.00				Spur left.	
7.11				Existing 18" CMP.	
7.19	20301	1	Each	Remove existing 24" CMP.	
	60278B	50	Foot	Install 24" X 50' HDPE, at existing grade and skew.	
	32232B	20	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
7.31				Existing 18" CMP.	
7.44				Existing 18" CMP.	
7.60				Existing 18" CMP.	
7.82				Existing 18" CMP.	
7.86				Existing 36" CMP.	
7.90				Existing 24" CMP.Spur left.	
7.98				End of project at junction with NFSR 1806000, boundary of Willamette National Forest.	
				End cleaning all existing culverts.	
				End roadway reconditioning.	

MILE POST	ITEM NUMBER	QUANTITY	UNIT	NFSR 1806400 RECONSTRUCTION SUMMARY	AS BUILT
0.00				Beginning of project at junction with NFSR 1806441.	
	21201	0.14	Miles	Begin linear grading.	
	32222	270	Cubic Yard*	Begin pit-run surfacing placement, 8" thickness.	
0.14				End of project.	
				End linear grading.	
				End pit-run surfacing placement.	

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MILE POST	ITEM NUMBER	QUANTITY	UNIT	NFSR 1806415 RECONSTRUCTION SUMMARY	AS BUILT
0.00				Beginning of project at junction with NFSR 1806440.	
	21201	0.23	Miles	Begin linear grading.	
	32222	450	Cubic Yard*	Begin pit-run surfacing placement, 8" thickness.	
0.17	20301	1	Each	Remove existing 18" CMP.	
	60263B	35	Foot	Install 24" X 35" aluminized steel pipe, at existing grade and skew.	
0.23				End of project.	
				End linear grading.	
				End pit-run surfacing placement.	
MILE POST	**ITEM NUMBER**	**QUANTITY**	**UNIT**	**NFSR 1806420 RECONSTRUCTION SUMMARY**	**AS BUILT**
0.00				Beginning of project at junction with NFSR 1806000.	
	21201	0.21	Miles	Begin linear grading.	
	32222	410	Cubic Yard*	Begin pit-run surfacing placement, 8" thickness.	
0.21				End of project.	
				End linear grading.	
				End pit-run surfacing placement.	
MILE POST	**ITEM NUMBER**	**QUANTITY**	**UNIT**	**NFSR 1806451 RECONSTRUCTION SUMMARY**	**AS BUILT**
0.00				Beginning of project at junction with NFSR 1806000.	
	21201	0.13	Miles	Begin linear grading.	
	32222	400	Cubic Yard*	Begin pit-run surfacing placement, 12" thickness.	
0.13				End of project.	
				End linear grading.	
				End pit-run surfacing placement.	
MILE POST	**ITEM NUMBER**	**QUANTITY**	**UNIT**	**NFSR 1806501 RECONSTRUCTION SUMMARY**	**AS BUILT**
0.00				Beginning of project at juction with NFSR 1806000.	
	21201	0.10	Mile	Begin linear grading.	
0.10				End of project.	
				End linear grading.	
MILE POST	**ITEM NUMBER**	**QUANTITY**	**UNIT**	**NFSR 1817000 RECONSTRUCTION SUMMARY**	**AS BUILT**
10.16				Beginning of project at junction with NFSR 1806000 cut-through road.	
	20479	1.84	Mile	Begin cleaning all existing culverts.	
	30357	1.84	Mile	Begin roadway reconditioning.	
	32232A	200	Cubic Yard*	Quantity to be placed as spot rock surfacing at location identitified by the Contacting Officer.	
10.27				Existing 18" CMP.	
10.33				NFSR 1817385 right.	

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MILE POST	ITEM NUMBER	QUANTITY	UNIT	NFSR 1817000 RECONSTRUCTION SUMMARY	AS BUILT
10.35				Existing 18" CMP.	
10.45	20301	1	Each	Remove existing 18" CMP.	
	60263B	30	Foot	Install 24" X 30' aluminized steel pipe, at existing grade and skew.	
	32232A	10	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
10.54	20301	1	Each	Remove existing 18" CMP.	
	60263B	30	Foot	Install 24" X 30" aluminized steel pipe, at existing grade and skew.	
	32232A	10	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
10.64	20301	1	Each	Remove existing 18" CMP.	
	60263B	30	Foot	Install 24" X 30" aluminized steel pipe, at existing grade and skew.	
	32232A	10	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
10.73				Existing 18" CMP.	
10.84				Existing 18" CMP.	
10.90				NFSR 1817365 right.	
10.96				Existing 18" CMP.	
11.12	20401	800	Cubic Yard*	Begin roadway excavation of cut bank to gain road width. See Sheet 21 for typical.	
	20416	800	Cubic Yard*	Haul waste to designated disposal area.	
	32232A	160	Cubic Yard*	Begin aggregate surfacing placement, 6" thickness.	
11.18	20301	1	Each	Remove existing 18" CMP.	
	60263B	30	Foot	Install 24" X 30' aluminized steel pipe, at existing grade and skew.	
	32232A	10	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
	60601	1	Each	Install drop inlet. See Sheet 19 for typical.	
11.22				End roadway excavation.	
				End placement of aggregate surfacing.	
11.38	20301	1	Each	Remove existing 18" CMP.	
	60263B	30	Foot	Install 24" X 30' aluminized steel pipe, at existing grade and skew.	
	32232A	10	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
11.45				Existing 24" CMP.	
11.53	20301	1	Each	Remove existing 18" CMP.	
	60263A	35	Foot	Install 18" X 35' aluminized steel pipe, at existing grade and skew.	
	32232A	10	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
11.57				Existing 18" CMP.	
11.64	20301	1	Each	Remove existing 18" CMP.	
	60263A	30	Foot	Install 18" X 30' aluminized steel pipe, at existing grade and skew.	
	32232A	10	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
11.81				Existing 18" CMP.	
11.94	20301	1	Each	Remove existing 18" CMP.	
	60263B	35	Foot	Install 24" X 35' aluminized steel pipe, at existing grade and skew.	
	32232A	10	Cubic Yard*	Place aggregate surfacing, 6" thickness.	
12.00				End of project/junction with NFSR 1817363 left.	
				End cleaning all existing culverts.	
				End roadway reconditioning.	

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ROAD NUMBER	DESIGNED				AS BUILT			INSTALLATION DETAILS			PIT RUN		KEYED RIPRAP		AGGREGATE		REMARKS
	MILE POST	PIPE			STATION OR MILE POST	PIPE		TYPE	SKEW (°)	GRADE (%)	HEADWALL (CY)	EMBANKMENT (CY)	CLASS 4	CLASS 2	DEPTH (INCHES)	TOTAL (CY*)	
		DIAMETER (INCH)	LENGTH (FT)	THICKNESS (GA)		DIAMETER (INCH)	LENGTH (FT)						HEADWALL (CY)	SPLASH APRON (CY)			
1806000	1.33	24	50	14				#	#	#					6	20	
	1.78	24	60	14				#	#	#					6	20	
	1.88	24	52	14				#	#	#					6	20	
	2.55	18	50	16				#	#						6	20	Lower inlet and outlet onto exisitng ground
	2.62	24	54	14				#	#						6	20	Lower inlet and outlet onto exisitng ground
	2.65	24	56	14				#	#	#					6	20	
	2.75	24	50	14				#	#						6	20	Lower inlet and outlet onto exisitng ground
	3.14	24	50	14				#	#						6	20	Lower inlet and outlet onto exisitng ground
	3.50	24	70	14				#	#	#		40			6	20	
	4.01	18	40	16				#	#	#					6	10	
	4.74	18	40	16				#	#	#					6	10	
	5.37	24	35	14				#	#	#					6	10	
	5.56	24	40	14				#	#	#				2	6	10	
	5.58	36	68	14				#			90	30	15	6	6	10	See Sheet 20 for details
	5.62	24	50	14				#	#	#					6	10	
	5.78	18	35	16				#	#	#					6	10	
	5.91	24	50	14				#	#	#					6	10	
	6.12	18	40	16				#	#	#					6	10	
	6.36	24	40	14				#	#	#				2	6	10	
	6.44	24	60	14				#	#	#					6	10	
	6.54	24	35	14				#	#	#					6	10	
1806000A	1.47	24	40	N/A				#	#	#					6	20	
	1.67	18	40	N/A				#	#	#					6	20	
	1.87	18	60	N/A				#	#	#					6	20	
	2.38	24	60	N/A				#	#	#					6	20	
	2.43	18	50	N/A				#	#	#					6	20	
	4.10	18	50	N/A				#	#	#					6	20	
	4.95	18	50	N/A				#	#	#					6	20	
	5.58	24	50	N/A				#	#	#					6	20	
	6.25	24	50	N/A				#	#	#					6	20	
	7.19	24	50	N/A				#	#	#					6	20	
1806415	0.17	24	35	14				#	#	#							

# Denotes skew, grade and type shall match removed installation unless otherwise noted.

Some installations of culverts may require additional excavation below existing grade line to gain minimum cover requirements.

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6/5/19 10:00 JHOGANSEN C:\USERS\JHOGANSEN\DOCUMENTS\TWINS TS\CAD\TWINS TIMBER SALE PLANS.DWG;

ROAD NUMBER	DESIGNED				AS BUILT			INSTALLATION DETAILS			PIT RUN		KEYED RIPRAP		AGGREGATE		REMARKS
	MILE POST	PIPE			STATION OR MILE POST	PIPE		TYPE	SKEW (°)	GRADE (%)	HEADWALL (CY)	EMBANKMENT (CY)	CLASS 4	CLASS 2	DEPTH (INCHES)	TOTAL (CY*)	
		DIAMETER (INCH)	LENGTH (FT)	THICKNESS (GA)		DIAMETER (INCH)	LENGTH (FT)						HEADWALL (CY)	SPLASH APRON (CY)			
1817000	10.45	24	30	14				#	#	#					6	10	
	10.54	24	30	14				#	#	#					6	10	
	10.64	24	30	14				#	#	#					6	10	
	11.18	24	30	14				#	#	#					6	10	
	11.38	24	30	14				#	#	#					6	10	
	11.53	18	35	16				#	#	#					6	10	
	11.64	18	30	16				#	#	#					6	10	
	11.94	24	35	14				#	#	#					6	10	

# Denotes skew, grade and type shall match removed installation unless otherwise noted.

Some installations of culverts may require additional excavation below existing grade line to gain minimum cover requirements.

United States Department of Agriculture
Forest Service

R06
PACIFIC NORTHWEST REGION

PROJECT NAME

GNA
TWINS TIMBER SALE
SPECIFIED ROADS

WILLAMETTE
NATIONAL FOREST

MIDDLE FORK
RANGER DISTRICT

DRAWING TITLE

DRAINAGE LISTING
2 OF 2

DATE
06/05/2019

ARCHIVE NO.

DESIGNER
J. HOGANSEN

DRAWN
J. HOGANSEN

CHECKED
J. LATHAM

PROJECT NO.
N/A

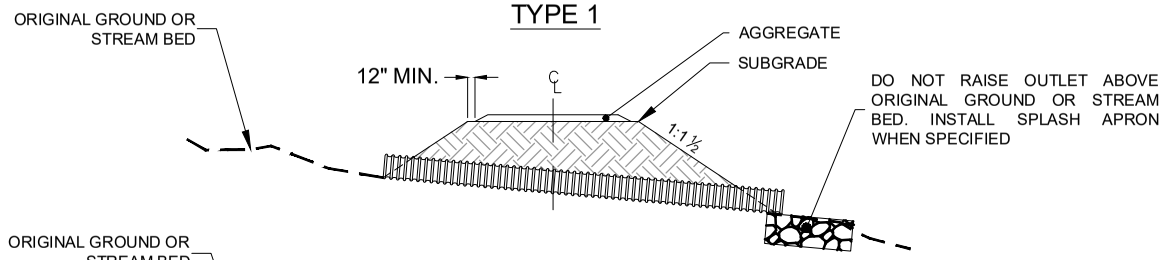
DWG SHEET NO.

SHEET **16** OF **27**

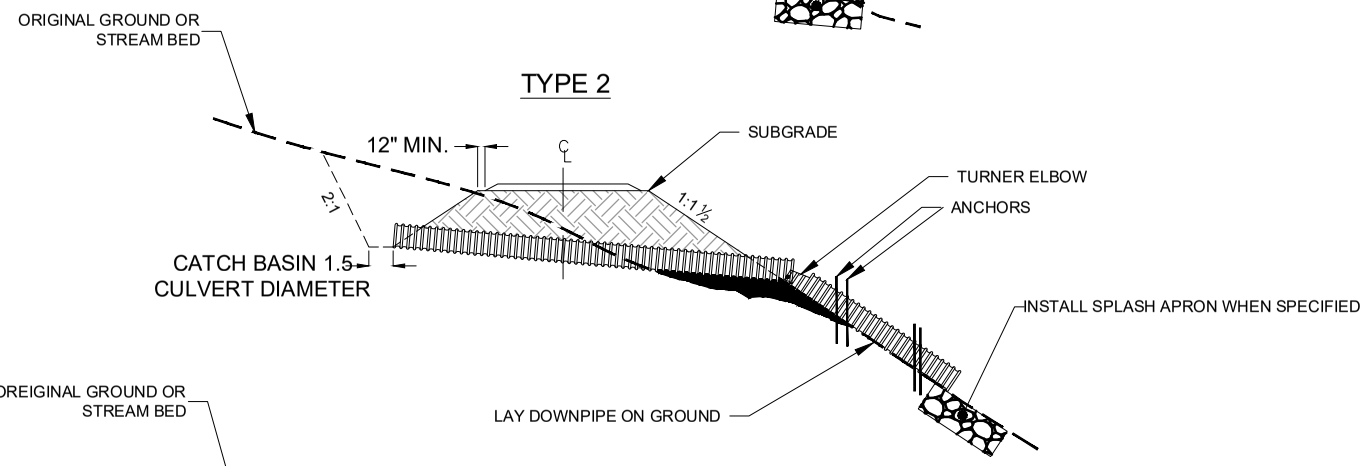
6/5/19 10:00 JHOGANSEN C:\USERS\JHOGANSEN\DOCUMENTS\TWINS TS\CAD\TWINS TIMBER SALE PLANS.DWG;

CULVERT TYPES

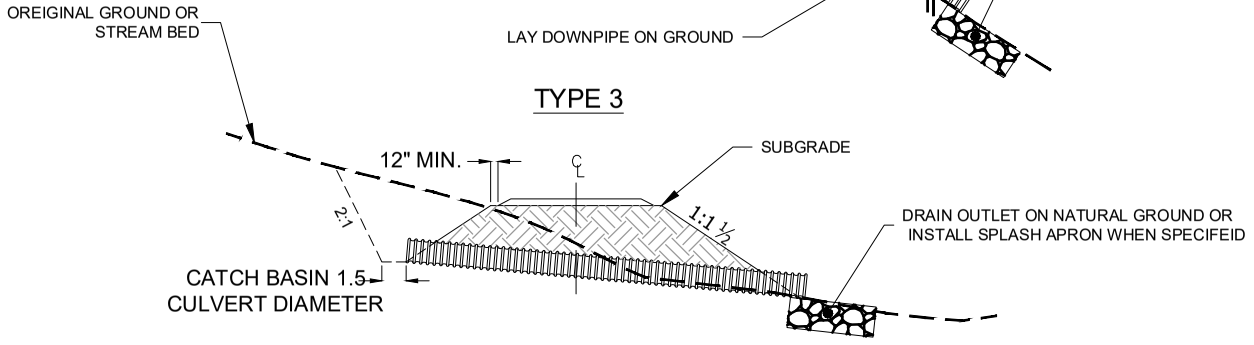
TYPE 1



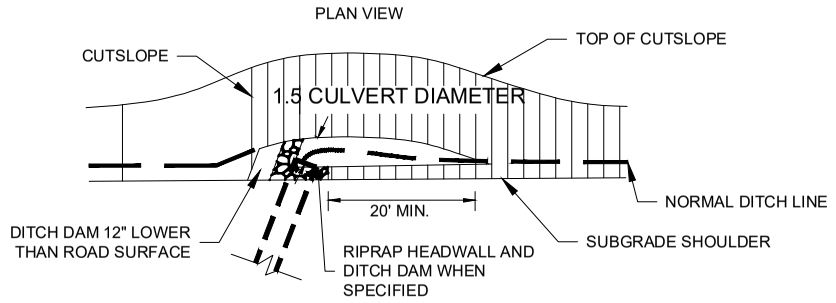
TYPE 2

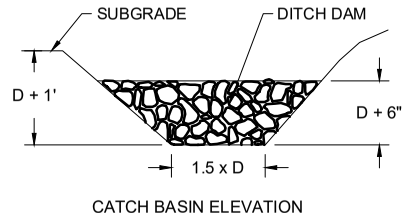


TYPE 3

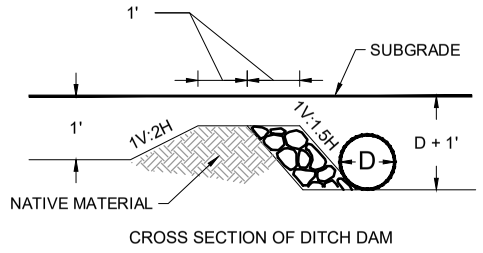


CATCH BASIN DETAIL



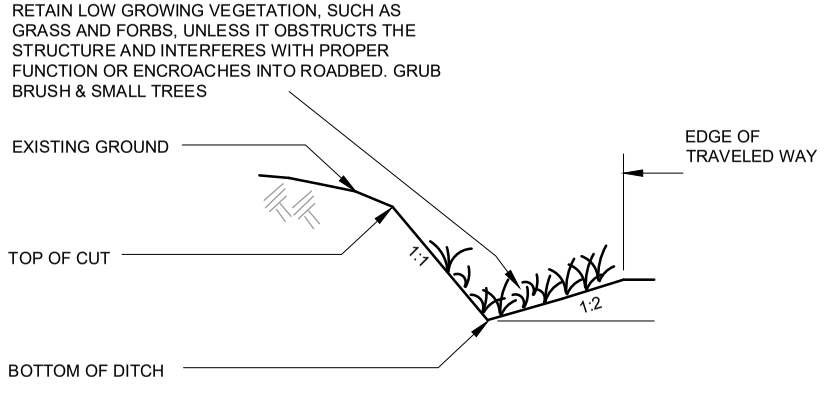


CATCH BASIN ELEVATION

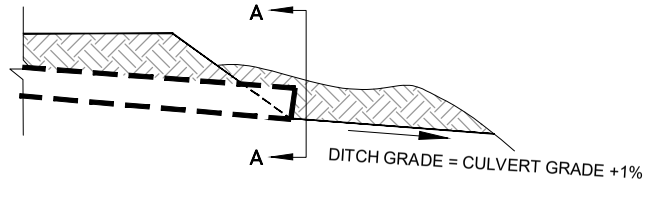


CROSS SECTION OF DITCH DAM

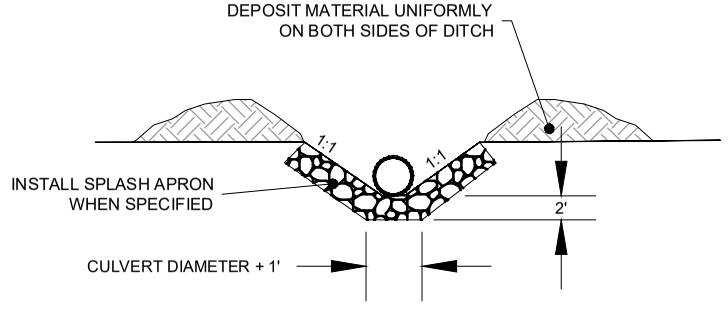
DITCH LINE TYPICAL



CULVERT LEAD OFF DITCH



CULVERT OUTLET DITCH SECTION A-A



NOTES:
1. DRAWINGS NOT TO SCALE.
2. SOME CULVERT INSTALLATIONS MAY REQUIRE ADDITIONAL EXCAVATION BELOW GRADE LINE TO GAIN MINIMUM COVER REQUIREMENTS.
3. ALL CULVERT INSTALLATIONS REQUIRE 1' MINIMUM COVER TO SUBGRADE.

United States Department of Agriculture
Forest Service

R06
PACIFIC NORTHWEST REGION

PROJECT NAME

GNA
TWINS TIMBER SALE
SPECIFIED ROADS

WILLAMETTE
NATIONAL FOREST

MIDDLE FORK
RANGER DISTRICT

DRAWING TITLE

DRAINAGE TYPICALS
1 OF 2

DATE
06/05/2019

ARCHIVE NO.

DESIGNER
J. HOGANSEN

DRAWN
J. HOGANSEN

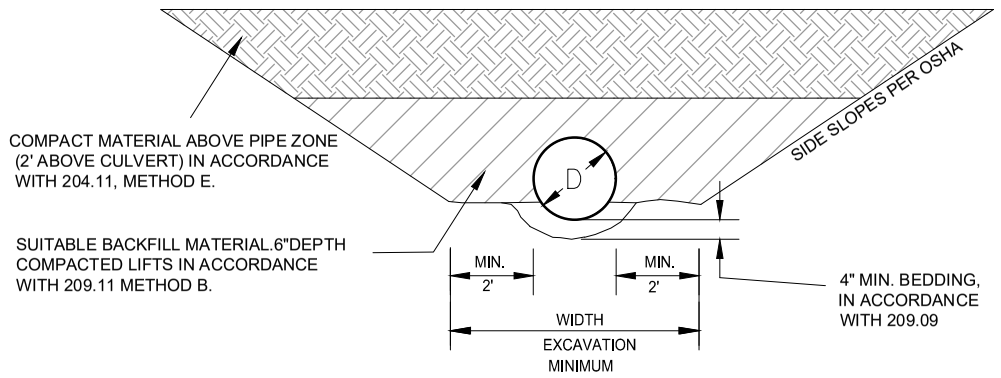
CHECKED
J. LATHAM

PROJECT NO.
N/A

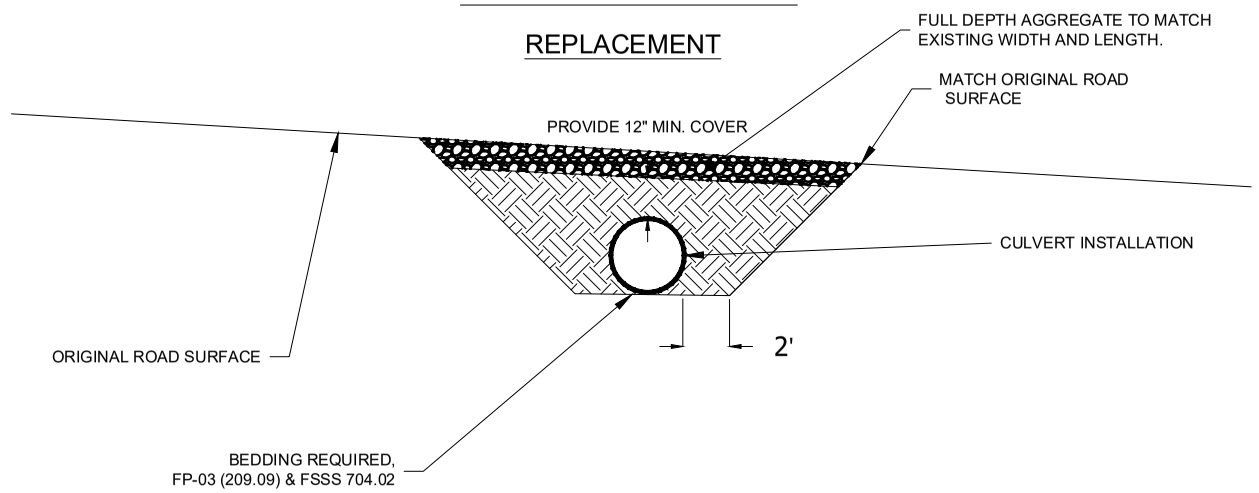
DWG SHEET NO.

SHEET **17** OF **27**

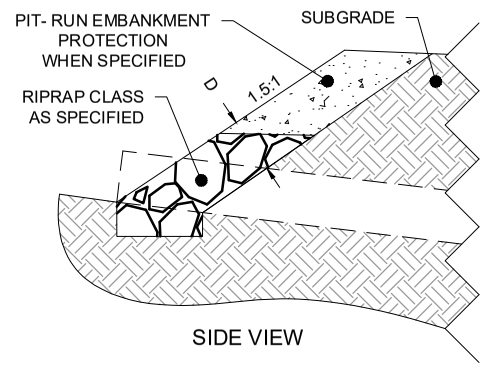
TYPICAL BEDDING AND BACKFILL DETAIL



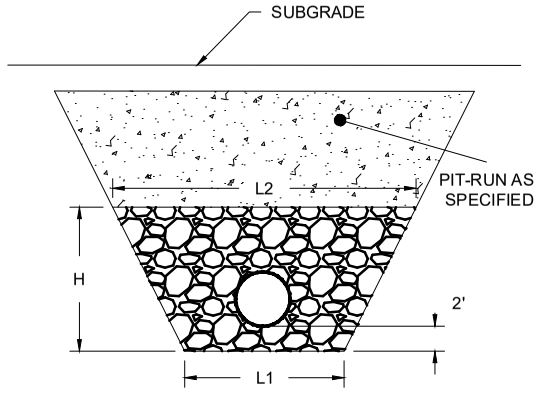
CULVERT SURFACE ROCK REPLACEMENT



PIT-RUN EMBANKMENT PROTECTION

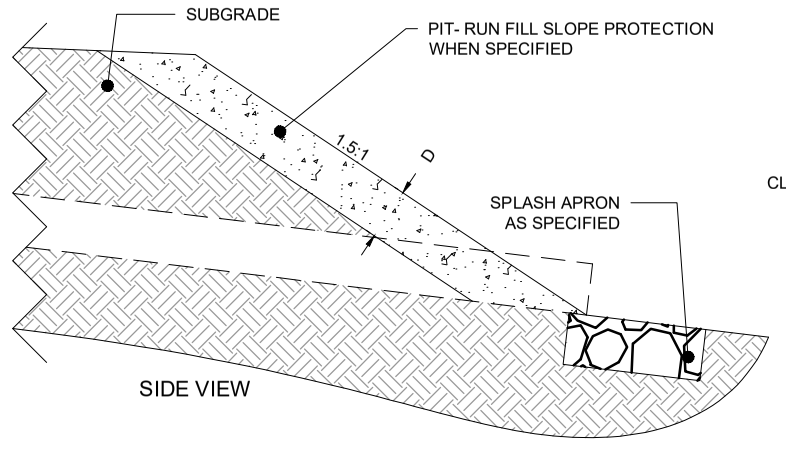


SIDE VIEW

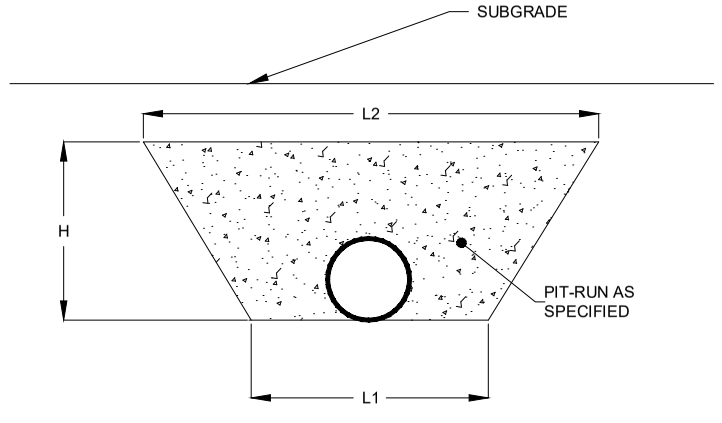


INLET VIEW

FILL SLOPE EMBANKMENT PROTECTION

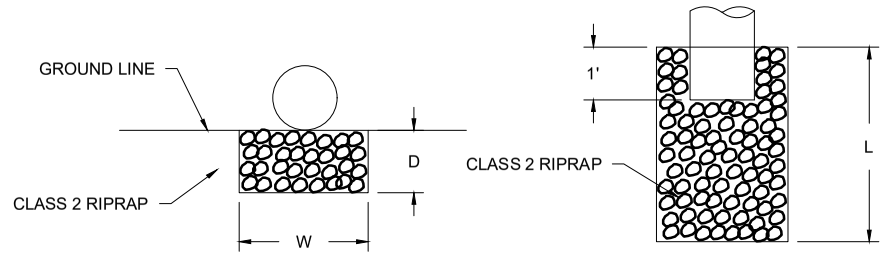


SIDE VIEW



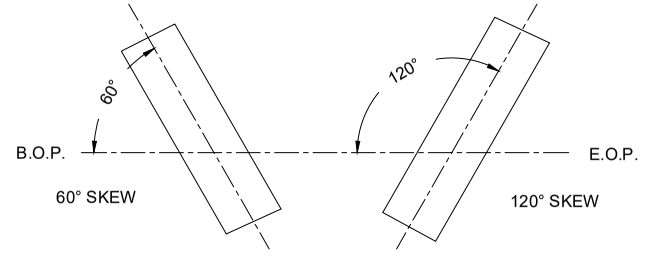
OUTLET VIEW

OUTLET SPLASH APRON DETAIL



APRON SURFACE MUST CONFORM TO SHAPE OF EXISTING GROUND AND BE LEFT ROUGH TO REDUCE WATER VELOCITY.

SKEW DIAGRAM



B.O.P. = BEGINNING OF PROJECT
E.O.P. = END OF PROJECT

NOTES:
1. DRAWINGS NOT TO SCALE.
SOME CULVERT INSTALLATIONS MAY REQUIRE ADDITIONAL EXCAVATION BELOW GRADE LINE TO GAIN MINIMUM COVER REQUIREMENTS.
2. ALL CULVERT INSTALLATIONS REQUIRE 1' MINIMUM COVER TO SUBGRADE.

6/5/19 10:00 JHOGANSEN C:\USERS\JHOGANSEN\DOCUMENTS\TWINS TS\CAD\TWINS TIMBER SALE PLANS.DWG;

United States Department of Agriculture
Forest Service

R06
PACIFIC NORTHWEST REGION

PROJECT NAME

GNA
TWINS TIMBER SALE
SPECIFIED ROADS

WILLAMETTE
NATIONAL FOREST

MIDDLE FORK
RANGER DISTRICT

DRAWING TITLE

DRAINAGE TYPICALS
2 OF 2

DATE
06/05/2019

ARCHIVE NO.

DESIGNER
J. HOGANSEN

DRAWN
J. HOGANSEN

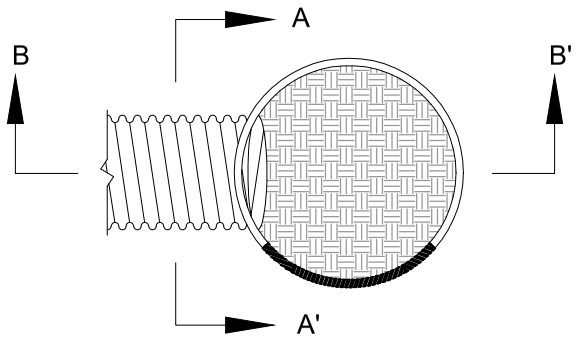
CHECKED
J. LATHAM

PROJECT NO.
N/A

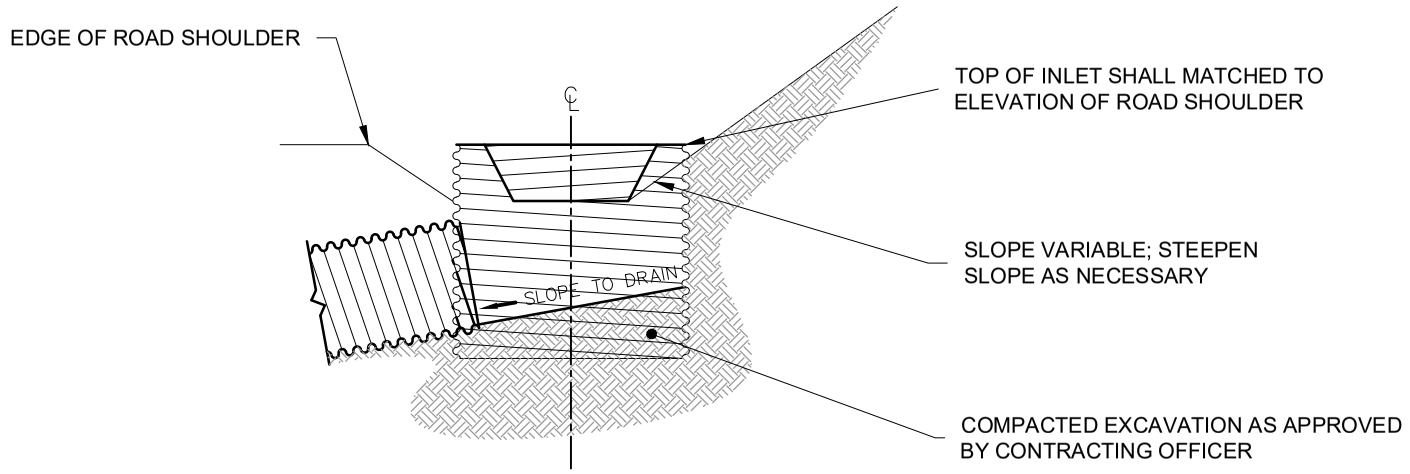
DWG SHEET NO.

SHEET **18** OF **27**

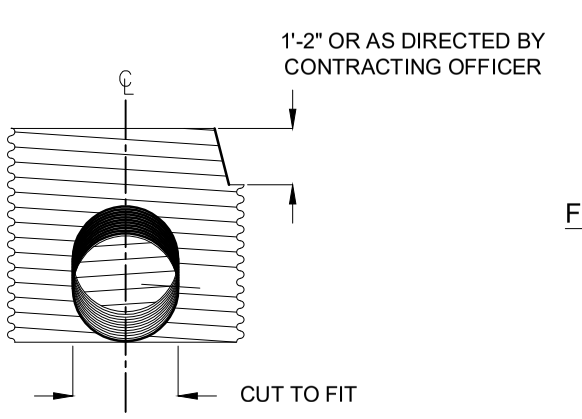
DROP INLET PLAN VIEW



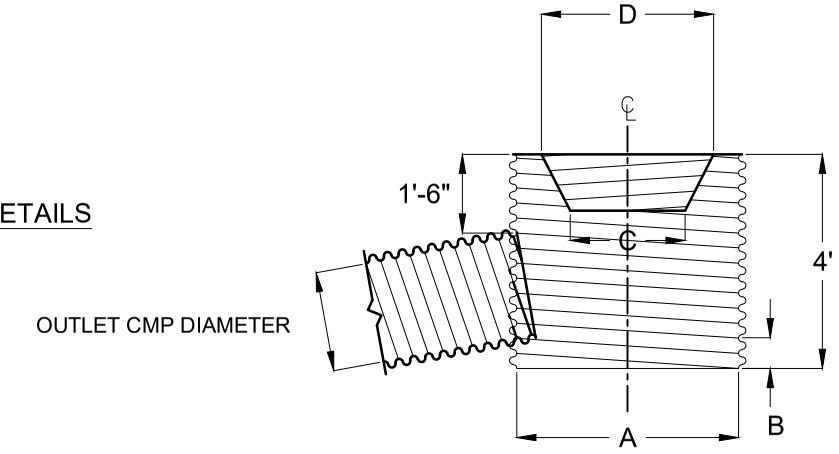
DROP INLET INSTALLATION DETAIL



FABRICATION DETAILS



SECTION A - A'



SECTION B - B'

NOTES:

1. DRAWING NOT TO SCALE.
2. OPENINGS MAY BE FIELD CUT. TOTAL AREA OF THE OPENINGS SHALL NOT BE LESS THAN SHOWN.
3. WHERE SPELTER COATING HAS BEEN BRUISED OR BROKEN IN THE SHOP, DURING SHIPPING OR BY FIELD CUTTING, REPAIRS SHALL BE IN ACCORDANCE WITH AASHTO M36.
4. ADDITIONAL FIELD MAY BE NECESSARY TO DRAIN. EACH DROP INLET'S FINAL LOCATION, AS WELL AS FIELD CUT, SHALL BE VERIFIED BY THE CONTRACTOR AND APPROVED BY THE CONTRACTING OFFICER.
5. ALL WORK AND MATERIALS REQUIRED TO CONSTRUCT/FABRICATE SPILLWAY ASSEMBLIES ARE CONSIDERED TO BE INCIDENTAL TO THE APPLICABLE PAY ITEMS.

DROP INLET DIMENSION TABLE

OUTLET PIPE DIAMETER	INLET DIAMETER & THICKNESS	A	B	C	D
24"	36"-0.079"	36"	6"	18"	24"

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service

R06
PACIFIC NORTHWEST REGION

PROJECT NAME

GNA
TWINS TIMBER SALE
SPECIFIED ROADS

WILLAMETTE
NATIONAL FOREST

MIDDLE FORK
RANGER DISTRICT

DRAWING TITLE

DROP INLET
TYPICALS

DATE
06/05/2019

ARCHIVE NO.

DESIGNER
J. HOGANSEN

DRAWN
J. HOGANSEN

CHECKED
J. LATHAM

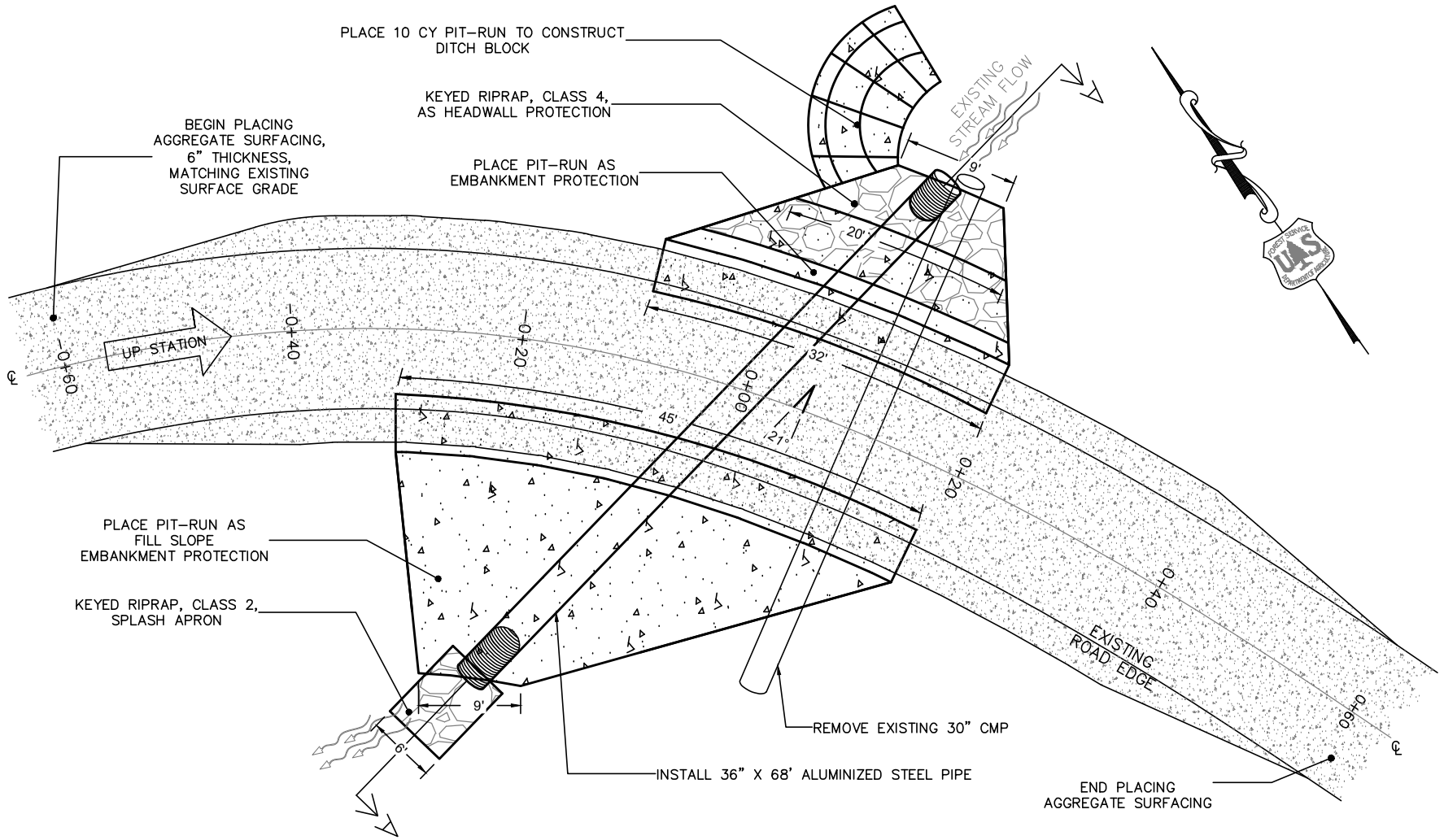
PROJECT NO.
N/A

DWG SHEET NO.

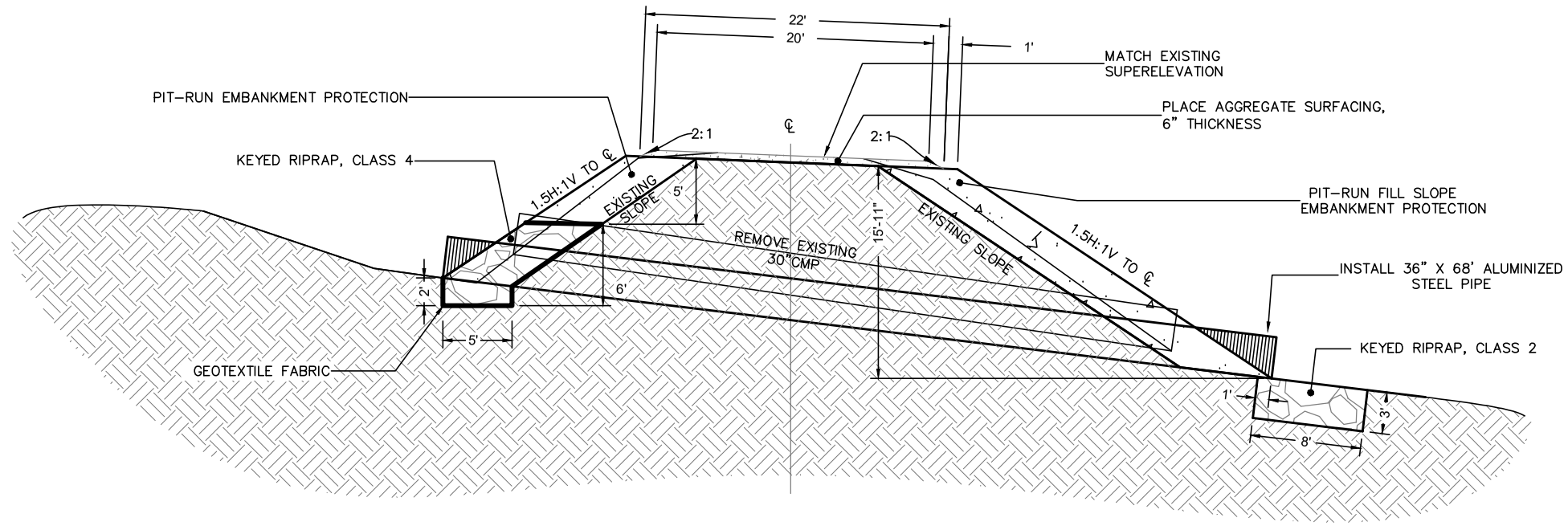
SHEET **19** OF **27**

6/5/19 10:00 JHOGANSEN C:\USERS\JHOGANSEN\DOCUMENTS\TWINS TS\CAD\TWINS TIMBER SALE PLANS.DWG;

NFSR 1806000 M.P. 5.58 DETAILS



PLAN VIEW
NOT TO SCALE



SECTION A - A
NOT TO SCALE

6/5/19 10:00 JHOGANSEN C:\USERS\JHOGANSEN\DOCUMENTS\TWINS TSCAD\TWINS TIMBER SALE PLANS.DWG;

United States Department of Agriculture
Forest Service

R06
PACIFIC NORTHWEST REGION

PROJECT NAME

GNA
TWINS TIMBER SALE
SPECIFIED ROADS

WILLAMETTE
NATIONAL FOREST

MIDDLE FORK
RANGER DISTRICT

DRAWING TITLE

NFSR 1806000 M.P. 5.58
DETAILS

DATE
06/05/2019

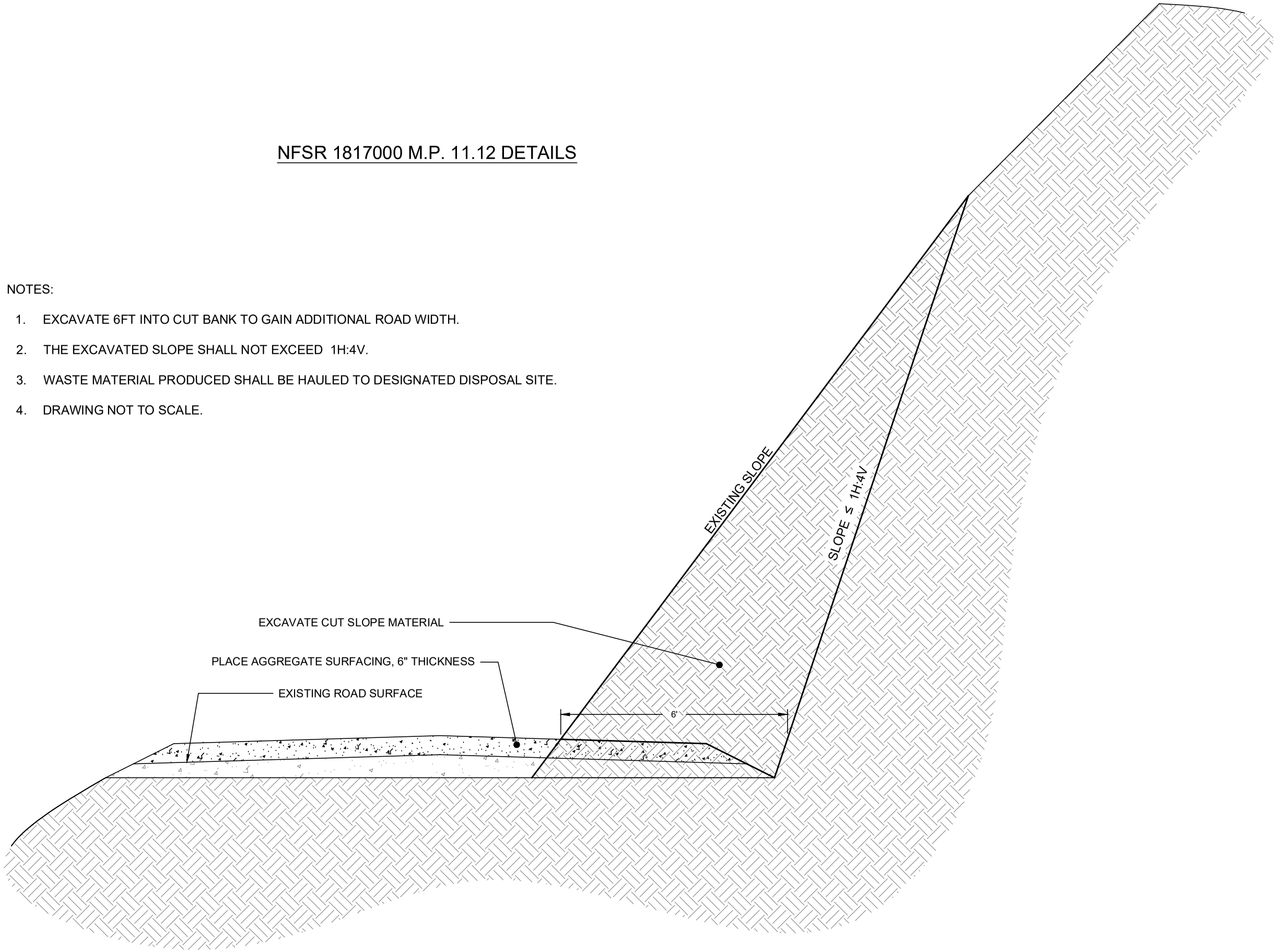
ARCHIVE NO.

DESIGNER	DWG SHEET NO.
J. HOGANSEN	
DRAWN **J. HOGANSEN**	
CHECKED **J. LATHAM**	SHEET **20** OF **27**
PROJECT NO. **N/A**	

NFSR 1817000 M.P. 11.12 DETAILS

NOTES:

1. EXCAVATE 6FT INTO CUT BANK TO GAIN ADDITIONAL ROAD WIDTH.
2. THE EXCAVATED SLOPE SHALL NOT EXCEED 1H:4V.
3. WASTE MATERIAL PRODUCED SHALL BE HAULED TO DESIGNATED DISPOSAL SITE.
4. DRAWING NOT TO SCALE.



United States Department of Agriculture
Forest Service

R06
PACIFIC NORTHWEST REGION

PROJECT NAME

GNA
TWINS TIMBER SALE
SPECIFIED ROADS

WILLAMETTE
NATIONAL FOREST

MIDDLE FORK
RANGER DISTRICT

DRAWING TITLE

NFSR 1817000 M.P.
11.12 DETAILS

DATE
06/05/2019

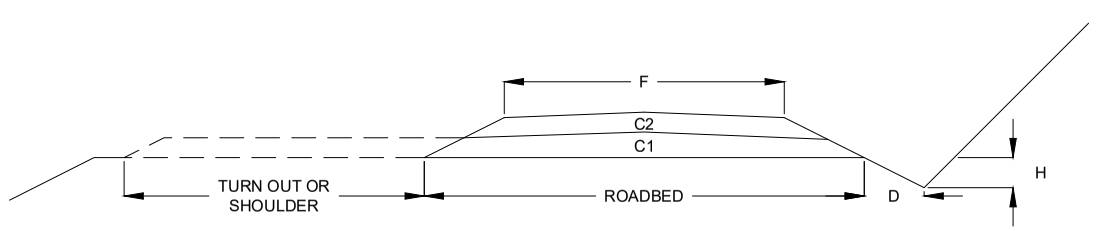
ARCHIVE NO.

DESIGNER	DWG SHEET NO.
J. HOGANSEN	
DRAWN	
J. HOGANSEN	
CHECKED	SHEET **21** OF **27**
J. LATHAM	
PROJECT NO.	
N/A	

ROAD NUMBER	BEGINNING MILE POST/STATION	ENDING MILE POST	CONSTRUCTION TOLERANCE	OUTSLOPED INSLOPED CROWNED	DITCH DIMENSIONS (FT)		PAVEMENT STRUCTURE						REMARKS
							TRAVELED WAY WIDTH (FT)	GRADATION		COMPACTED DEPTH (IN)		SLOPE RATIO AGG	
				%	D	H	F	C1	C2	C1	C2	H:V	
1806000	0.00	7.66	D	6 C	2	1	14*	F	-	6	-	1:2	For roadway reconditioning, culvert replacement and aggregate placement.
1806000A	0.00	7.98	D	3 C	2	1	14*	F	-	6	-	1:2	For roadway reconditioning, culvert replacement and aggregate placement.
1806400	0.00	0.14	D	3 O*	2	1	12*	M	-	6	-	1:2	For linear grading and pit run placement.
1806415	0.00	0.23	D	3 O*	2	1	12*	M	-	6	-	1:2	For linear grading, pit run placement and culvert replacement.
1806420	0.00	0.21	D	3 O*	2	1	12*	M	-	6	-	1:2	For linear grading and pit run placement.
1806451	0.00	0.13	D	3 O*	2	1	12*	M	-	12	-	1:2	For linear grading and pit run placement.
1806501	0.00	0.10	D	3 O*	2	1	12*	-	-	6	-	1:2	For linear grading.
1817000	10.16	12.00	D	6 C	2	1	14*	F	-	6	-	1:2	For roadway reconditioning, culvert replacement and aggregate placement.

* Dimensions may be adjusted by the Contracting Officer to fit field conditions.

TYPICAL SECTION FOR ROAD RECONSTRUCTION



USDA FOREST SERVICE

United States Department of Agriculture
Forest Service

R06
PACIFIC NORTHWEST REGION

PROJECT NAME

GNA
TWINS TIMBER SALE
SPECIFIED ROADS

WILLAMETTE
NATIONAL FOREST

MIDDLE FORK
RANGER DISTRICT

DRAWING TITLE

ROAD RECONSTRUCTION DETAILS

DATE
06/05/2019

ARCHIVE NO.

DESIGNER
J. HOGANSEN

DRAWN
J. HOGANSEN

CHECKED
J. LATHAM

PROJECT NO.
N/A

DWG SHEET NO.

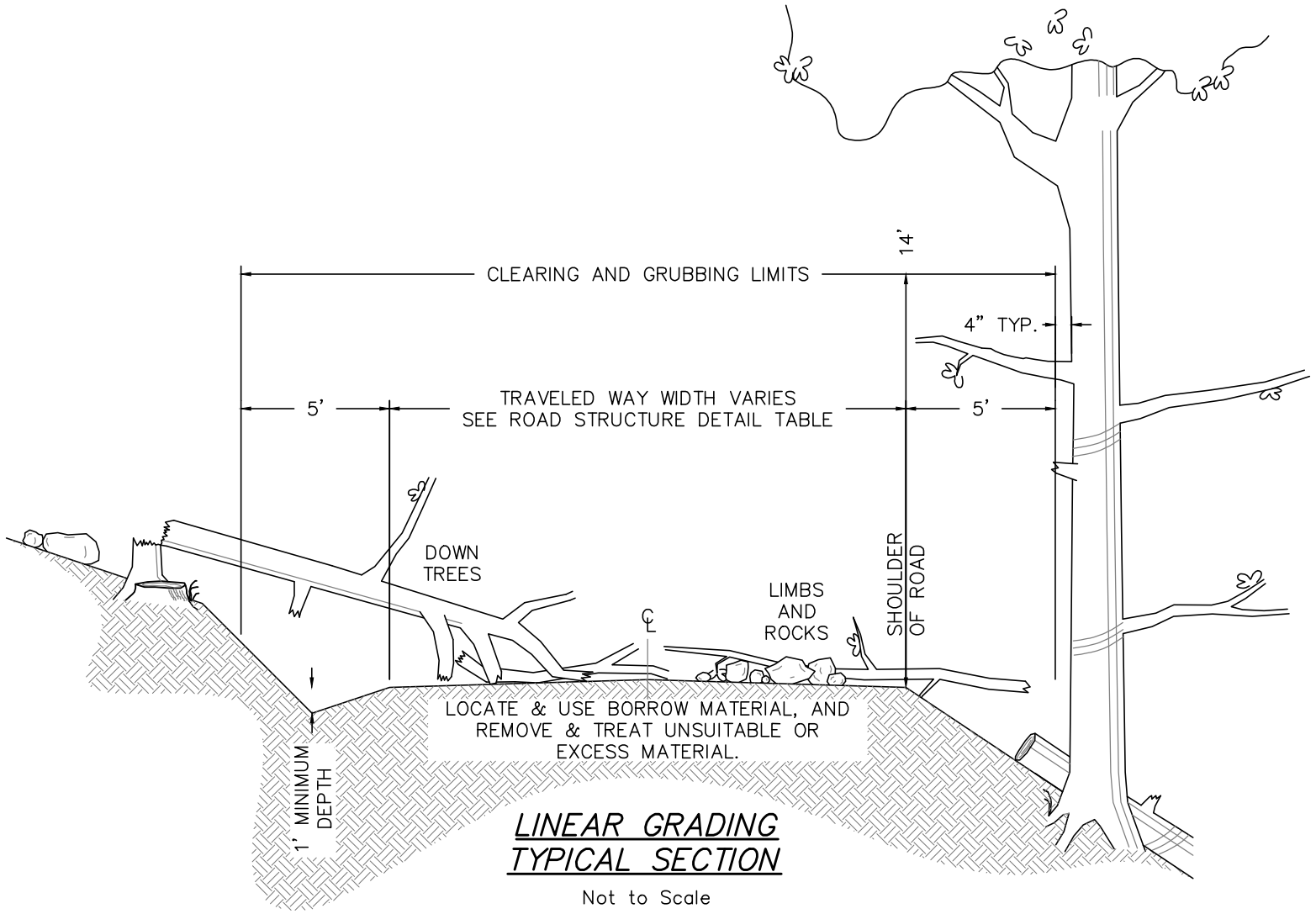
SHEET **22** OF **27**

6/5/19 10:00 JHOGANSEN C:\USERS\JHOGANSEN\DOCUMENTS\TWINS TS\CAD\TWINS TIMBER SALE PLANS.DWG;

LINEAR GRADING ROAD BED TABLE	
NFSR #	CROSS SLOPE
1806400	3% OUTSLOPE
1806415	3% OUTSLOPE
1806420	3% OUTSLOPE
1806451	3% OUTSLOPE
1806501	3% OUTSLOPE
QUANTITIES DO NOT INCLUDE ROCK FOR CULVERT INSTALLATIONS.	

LINEAR GRADING NOTES:

1. REFER TO FSSS 212 – LINEAR GRADING. ALL WORK IS INCIDENTAL TO 21201 – LINEAR GRADING, UNLESS OTHERWISE INCLUDED UNDER DIFFERENT PAY ITEMS IN THE DESCRIPTION OF WORK.
2. PLACE PIT RUN BORROW TO FILL SLUMPS IN TRAVELED WAY AT LOCATIONS DESIGNATED BY CONTRACTING OFFICER, INCIDENTAL TO 21201.
3. REPOSITION DOWN TREE SECTIONS PERPENDICULAR TO THE CENTERLINE SO AS NOT TO ROLL.
4. DECKING LOCATIONS SHALL BE FLAGGED BY CONTRACTING OFFICER.



LINEAR GRADING
TYPICAL SECTION

Not to Scale

United States Department of Agriculture
Forest Service

R06
PACIFIC NORTHWEST REGION

PROJECT NAME

GNA
TWINS TIMBER SALE
SPECIFIED ROADS

WILLAMETTE
NATIONAL FOREST

MIDDLE FORK
RANGER DISTRICT

DRAWING TITLE

LINEAR GRADING
TYPICAL

DATE
06/05/2019

ARCHIVE NO.

DESIGNER
J. HOGANSEN

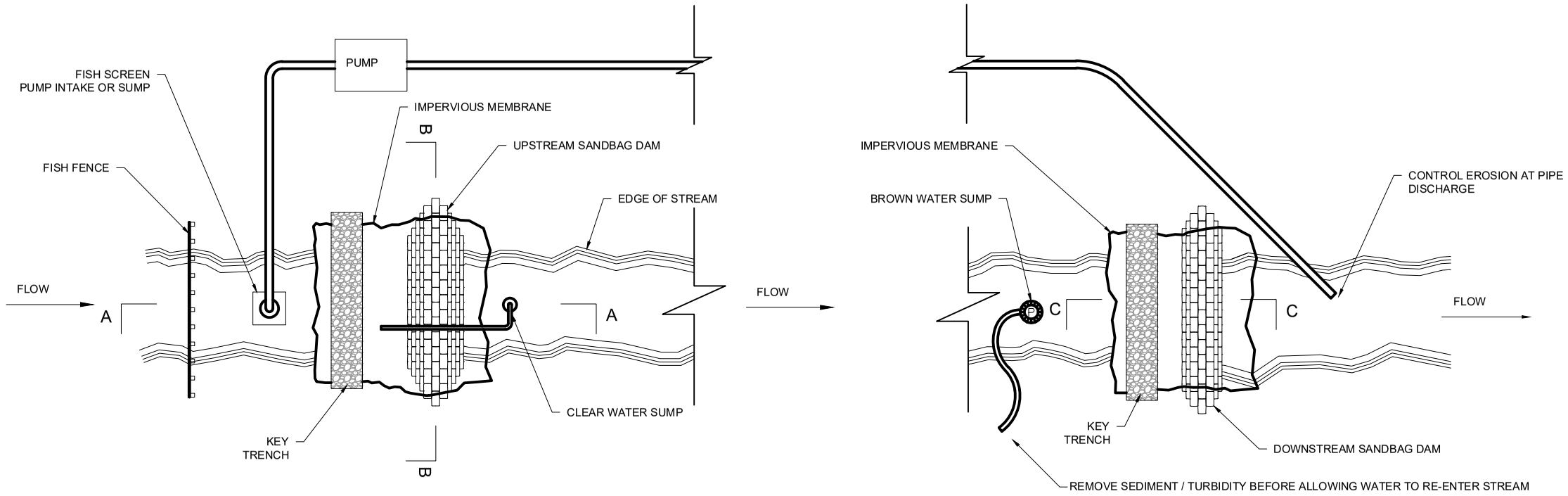
DRAWN
J. HOGANSEN

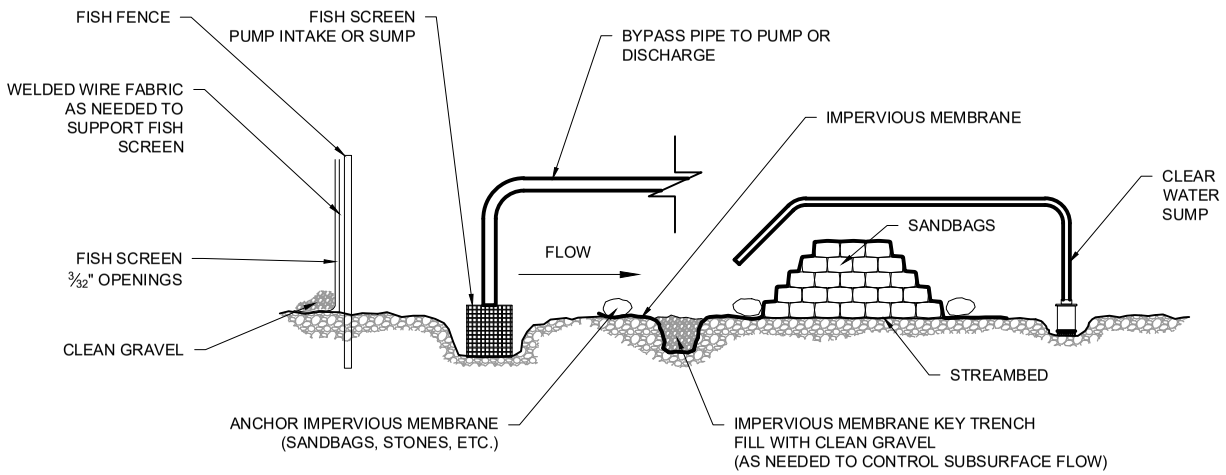
CHECKED
J. LATHAM

PROJECT NO.
N/A

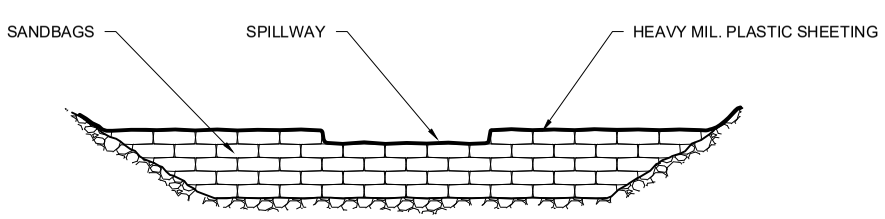
DWG SHEET NO.

SHEET **23** OF **27**





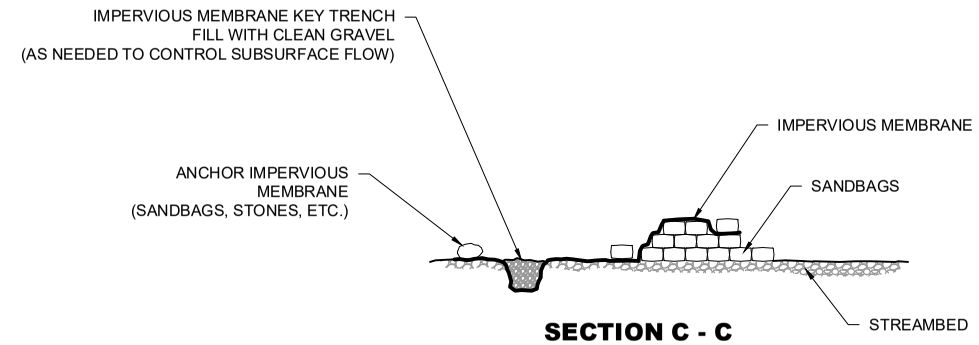
SECTION A - A



SECTION B - B

UPSTREAM SANDBAG BYPASS DAM DETAILS

NOT TO SCALE



SECTION C - C

DOWNSTREAM SANDBAG BYPASS DAM DETAILS

NOT TO SCALE

United States Department of Agriculture
Forest Service

R06
PACIFIC NORTHWEST REGION

PROJECT NAME

GNA
TWINS TIMBER SALE
SPECIFIED ROADS

WILLAMETTE
NATIONAL FOREST

MIDDLE FORK
RANGER DISTRICT

DRAWING TITLE

DEWATERING
TYPICALS

DATE
06/05/2019

ARCHIVE NO.

DESIGNER
J. HOGANSEN

DRAWN
J. HOGANSEN

CHECKED
J. LATHAM

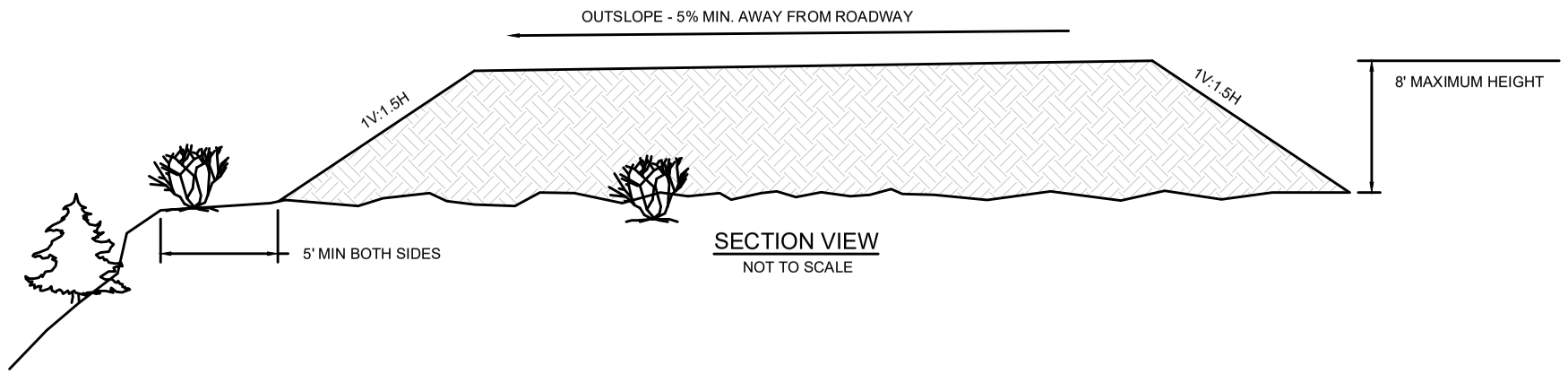
PROJECT NO.
N/A

DWG SHEET NO.

SHEET **24** OF **27**

6/5/19 10:00 JHOGANSEN C:\USERS\JHOGANSEN\DOCUMENTS\TWINS TS\CAD\TWINS TIMBER SALE PLANS.DWG;

DISPOSAL SITE TYPICAL



SECTION VIEW
NOT TO SCALE

DISPOSAL SITE TYPICAL NOTES

NOTES:

1. FOR WORK PERFORMED ON WEYERHAEUSER MAINLINE RD M.P. 0.00 - M.P. 7.98 AND NFSR 1806000 M.P. 0.00 - M.P. 4.60, ALL WASTE AND UNSUITABLE MATERIAL PRODUCED WHILE PERFORMING DITCH RECONDITIONING AND CULVERT REPLACEMENT SHALL BE HAULED AND PLACED AT THE DESIGNATED DISPOSAL SITE ADJACENT TO SCOFIELD-2 RS LOCATED AT M.P. 1.0 OF WEYERHAEUSER RD 9000.
2. FOR ALL OTHER WORK PERFORMED BESIDES WHAT IS DESCRIBED IN ABOVE (DISPOSAL AREA TYPICAL NOTES: 1), ALL WASTE AND UNSUITABLE MATERIAL PRODUCED WHILE PERFORMING WASTE/ DEBRIS REMOVAL, EMBANKMENT EXCAVATION, DITCH RECONDITIONING AND CULVERT REPLACEMENT SHALL BE HAULED AND PLACED AT THE DESIGNATED DISPOSAL SITE LOCATED AT NFSR 1806226 AS SHOWN ON SHEET 4: VICINITY MAP SECTION - 3.
3. DISPOSAL SITES SHALL BE CONSTRUCTED IN ACCORDANCE WITH INFORMATION FOUND IN GENERAL NOTES AND SOIL EROSION & POLLUTION CONTROL NOTES FOUND ON SHEET 6 AND SHEET 21.

United States Department of Agriculture
Forest Service

R06
PACIFIC NORTHWEST REGION

PROJECT NAME

GNA
TWINS TIMBER SALE
SPECIFIED ROADS

WILLAMETTE
NATIONAL FOREST

MIDDLE FORK
RANGER DISTRICT

DRAWING TITLE

DISPOSAL SITE
TYPICAL

DATE
06/05/2019

ARCHIVE NO.

DESIGNER
J. HOGANSEN

DRAWN
J. HOGANSEN

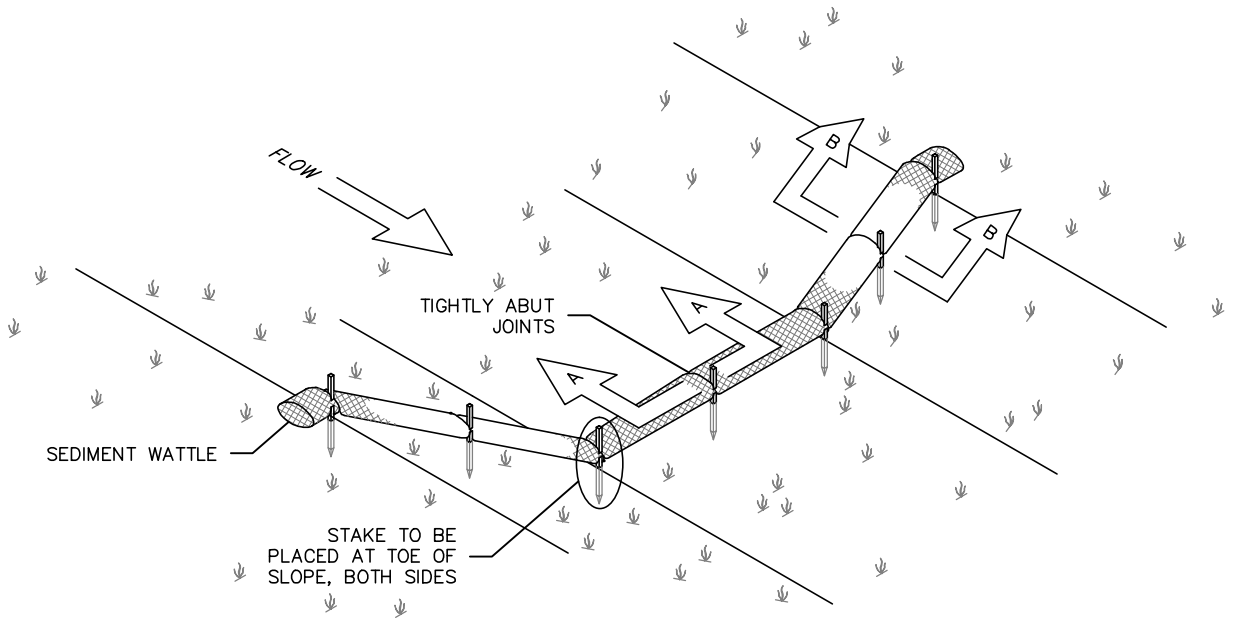
CHECKED
J. LATHAM

PROJECT NO.
N/A

DWG SHEET NO.

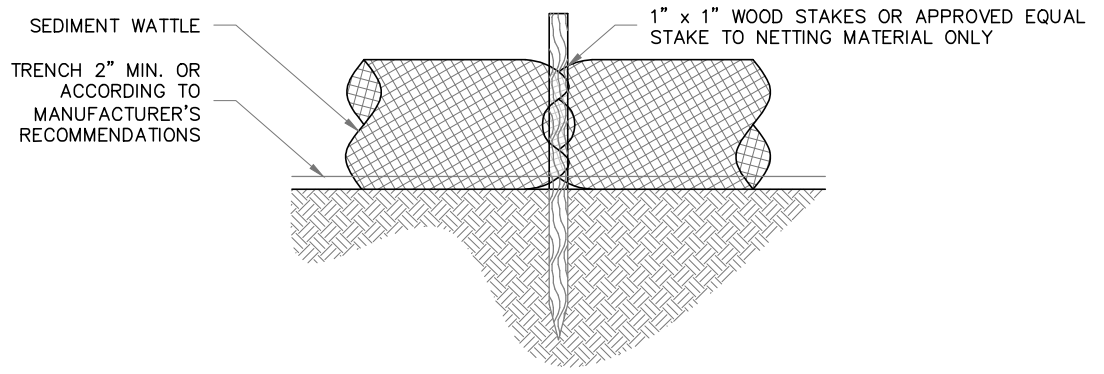
SHEET 25 OF 27

6/5/19 10:00 JHOGANSEN C:\USERS\JHOGANSEN\DOCUMENTS\TWINS TS\CAD\TWINS TIMBER SALE PLANS.DWG;



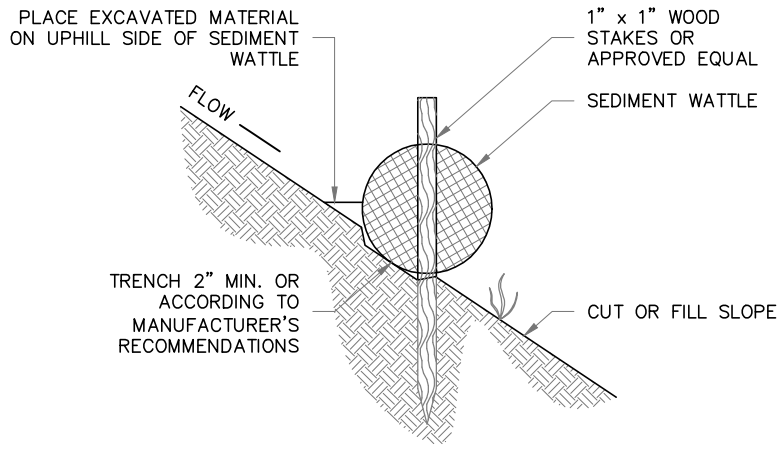
SEDIMENT WATTLE INSTALLATION TYPICAL

Not to Scale



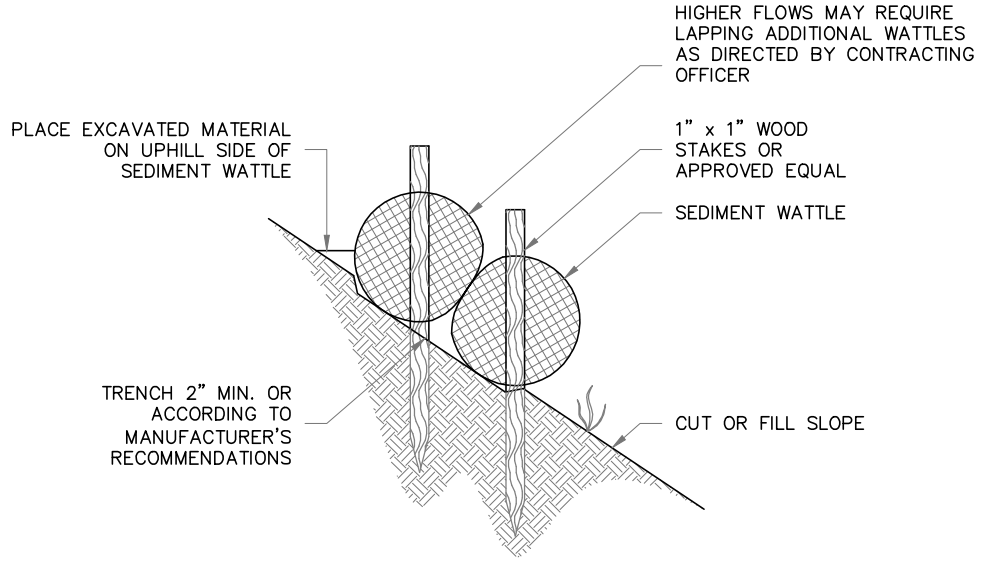
SECTION A – A WATTLE JOINT DETAIL

Not to Scale



SECTION B – B STAKE DETAIL

Not to Scale



SECTION B – B WATTLE LAPPING DETAIL

Not to Scale

NOTES:

1. **ALL DISTURBED GROUND, INCLUDING DISPOSAL SITES, SHALL BE COVERED USING A WEED FREE HAY OR STRAW A MIN OF 2" THICKNESS AS DIRECTED BY CONTRACTING OFFICER.** REFER TO 157 – SOIL EROSION CONTROL AND 713.05 – MULCH.
2. **PLACE A DITCH WATTLE ADJACENT TO EACH INTERMITTENT AND LIVE STREAM CULVERT AS DIRECTED BY THE CONTRACTING OFFICER.** TYPICAL WATTLE LENGTH MAY VARY AS APPROVED BY CONTRACTING OFFICER.
3. FOR EMBANKMENTS DEEPER THAN 10' VERTICAL, PLACE PARALLEL ROWS OF WATTLES WITH A MIN. SPACING OF **10' SLOPE DISTANCE** AS DIRECTED BY CONTRACTING OFFICER.
4. WATTLES SHALL BE INSTALLED AND MAINTAINED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
5. REPAIR ANY RILLS OR GULLIES PRIOR TO INSTALLATION.
6. CONSTRUCT TRENCHES FOR WATTLES PARALLEL TO SLOPE CONTOURS OR AS DIRECTED BY CONTRACTING OFFICER.
7. DRIVE STAKES INTO UNDISTURBED SOIL OF TRENCH BOTTOM 12" MIN. STAKE TO BE EXPOSED 2" MIN. ABOVE TOP OF WATTLE.
8. SPACE STAKES 24" O.C. MAX, 12" MAX AT WATTLE ENDS, OR ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
9. ALTERNATIVE STAKES MAY BE USED WITH THE APPROVAL OF THE CONTRACTING OFFICER.
10. WATTLE DIAMETERS CAN VARY. SIZE ACCORDING TO EXISTING GROUND CONDITIONS AS APPROVED BY CONTRACTING OFFICER.
11. 30" WOODEN STAKES ARE RECOMMENDED FOR 6", 9" AND 12" WATTLES 48" WOODEN STAKES ARE RECOMMENDED FOR 20" WATTLES.
12. ALL WATTLES MAY REMAIN PAST FINAL INSPECTION AND ACCEPTANCE.

SOIL EROSION & POLLUTION CONTROL

USDA FOREST SERVICE

United States Department of Agriculture
Forest Service

R06
PACIFIC NORTHWEST REGION

PROJECT NAME

GNA
TWINS TIMBER SALE
SPECIFIED ROADS

WILLAMETTE NATIONAL FOREST

MIDDLE FORK RANGER DISTRICT

DRAWING TITLE

SOIL EROSION AND POLLUTION CONTROL

DATE
06/05/2019

ARCHIVE NO.

DESIGNER
J. HOGANSEN

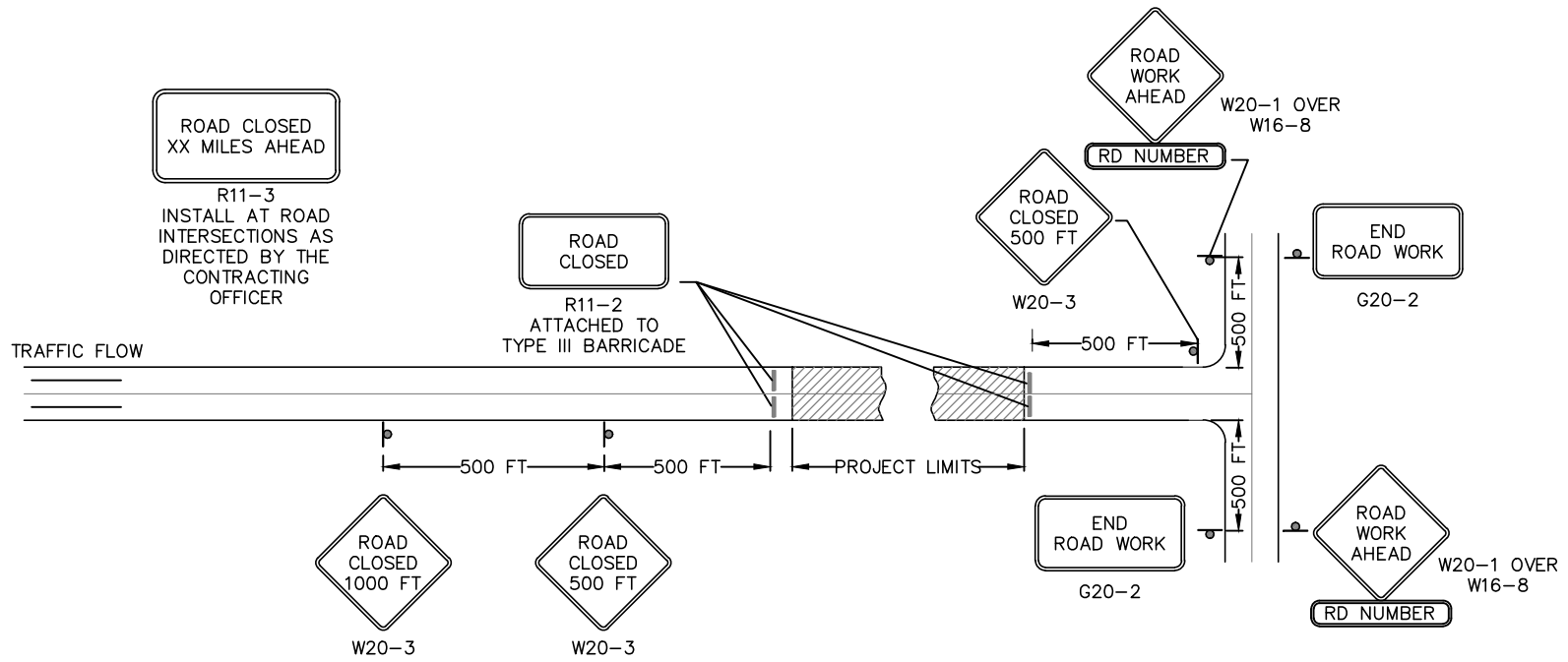
DRAWN
J. HOGANSEN

CHECKED
J. LATHAM

PROJECT NO.
N/A

DWG SHEET NO.

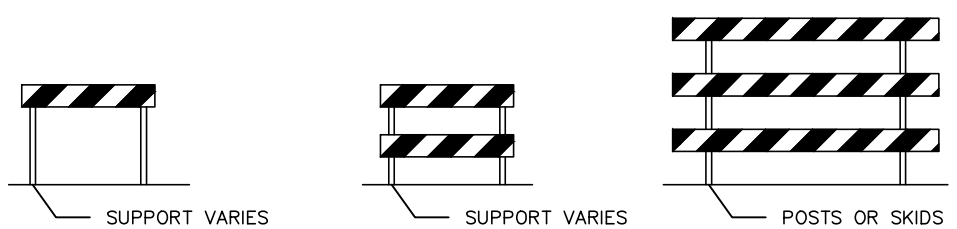
SHEET **26** OF **27**



ROAD CLOSURE WITHOUT FLAGGERS

Not to Scale

CONSTRUCTION SIGN SCHEDULE			
SIGN	**STATION**	**LOCATION**	**TEXT**
NA	NA	NA	NA
CONTRACTOR IS RESPONSIBLE FOR A TRAFFIC CONTROL PLAN AS APPROVED BY THE CONTRACTING OFFICER. SIGNS AND PLACEMENT SHALL CONFORM TO MUTCD STANDARDS.			

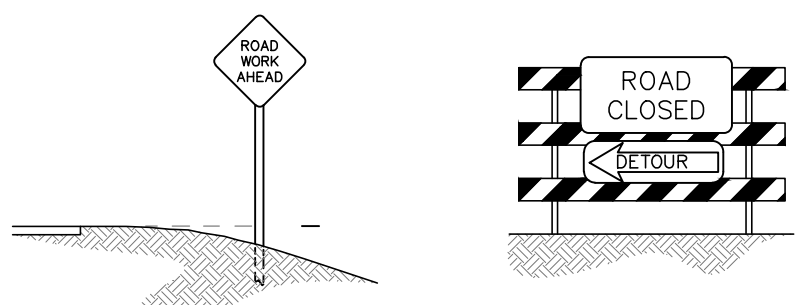


NOTE – STRIPES ARE 6" WIDE, ALTERNATING ORANGE AND WHITE.

TYPE I BARRICADE *TYPE II BARRICADE* *TYPE III BARRICADE*

NOTES:

1. FAILURE TO MAINTAIN PROPER TRAFFIC CONTROL MEASURES SHALL RESULT IN NON–COMPLIANCE WITH THE EXISTING CONTRACT AND WOULD NEED TO BE CORRECTED IMMEDIATELY BEFORE RESUMING WORK.
2. ERECT ALL ADVANCE WARNING SIGNS BEFORE STARTING CONSTRUCTION AT LOCATIONS APPROVED BY CONTRACTING OFFICER.
3. NOT ALL DETAILS SHOWN IN THE TEMPORARY TRAFFIC CONTROL TYPICALS MAY BE APPLICABLE TO THIS PROJECT. THE CONTRACTOR MAY ADD OR DELETE INFORMATION AND DETAILS IN THIS TRAFFIC CONTROL PLAN AS NECESSARY TO ACCOMMODATE ACTUAL OPERATIONS WITH WRITTEN APPROVAL FROM THE CONTRACTING OFFICER.
4. WHERE ADVANCE WARNING SIGNS, PLACED AS SHOWN, INTERFERE WITH PERMANENT SIGNS, LOCATE THE WARNING SIGNS AS DETERMINED BY THE CONTRACTING OFFICER. VARY MESSAGES AS REQUIRED.
5. USE TYPE III OR HIGHER TYPE SHEETING ON ALL SIGNS AND CHANNELING DEVICES. WARNING LIGHTS ARE NOT NORMALLY NEEDED ON DEVICES WITH TYPE III OR HIGHER TYPE SHEETING, BUT MAY BE BENEFICIAL TO ATTRACT THE DRIVERS ATTENTION IN FOG OR OTHER SPECIAL CONDITIONS. WHEN USED, APPLY THE APPROPRIATE TYPE OF WARNING LIGHT (TYPE A, B, C, OR D) PER THE MUTCD CHAPTER 6F.
6. ADDITIONAL OR DIFFERENT MESSAGE SIGNS MAY BE REQUIRED TO FIT THE ACTUAL CONSTRUCTION CONDITIONS.
7. ENSURE ALL SIGN SUPPORTS EXPOSED TO IMPACT BY TRAFFIC MEET THE REQUIREMENTS OF NCHRP–350 FOR CRASH WORTHINESS.
8. DO NOT STORE TRAFFIC CONTROL DEVICES ALONG THE ROADWAY WHEN NOT IN USE. COVER POST–MOUNTED SIGNS WHEN NOT APPLICABLE.
9. IF W20–1 IS ON A ROADWAY OTHER THAN THAT ON WHICH THE ACTUAL CONSTRUCTION WORK OCCURS, INCLUDE A SUPPLEMENTARY PLAQUE INDICATING THE NAME OF THE ROAD THE WORK IS ON.
10. IF SIGNS WILL BE IN PLACE MORE THAN 72 CONSECUTIVE HOURS, USE GROUND–MOUNTED POST.
11. SIGNS ARE SHOWN FOR ONE DIRECTION OF TRAVEL ONLY. PLACE DEVICES SIMILAR TO THOSE DEPICTED FOR THE OPPOSITE DIRECTION OF TRAVEL.
12. FINAL LOCATION AND SPACING OF SIGNS AND DEVICES MAY BE CHANGED TO FIT FIELD CONDITIONS AS APPROVED BY THE CONTRACTING OFFICER.
13. FOR PILOT CAR OPERATION, MOUNT THE "PILOT CAR FOLLOW ME" (G20–4) SIGN AT A CONSPICUOUS LOCATION ON THE REAR OF VEHICLE. PROMINENTLY DISPLAY THE NAME OF THE CONTRACTOR ON THE PILOT CAR.
14. FOR NIGHT TIME FLAGGING OPERATION, PROVIDE FLOODLIGHTING AT FLAGGER STATIONS PER OSHA REGULATIONS.
15. DO NOT ALLOW EQUIPMENT, MATERIALS OR VEHICLES TO BE PARKED OR STORED IN THE BUFFER SPACE.



TYPICAL INSTALLATIONS

United States Department of Agriculture
Forest Service

R06
PACIFIC NORTHWEST REGION

PROJECT NAME

GNA
TWINS TIMBER SALE
SPECIFIED ROADS

WILLAMETTE
NATIONAL FOREST

MIDDLE FORK
RANGER DISTRICT

DRAWING TITLE

TEMPORARY TRAFFIC CONTROL TYPICALS

DATE
06/05/2019

ARCHIVE NO.

DESIGNER
J. HOGANSEN

DRAWN
J. HOGANSEN

CHECKED
J. LATHAM

PROJECT NO.
N/A

DWG SHEET NO.

SHEET **27** OF **27**

6/5/19 10:00 JHOGANSEN C:\USERS\JHOGANSEN\DOCUMENTS\TWINS TS\CAD\TWINS TIMBER SALE PLANS.DWG;

A7 – Specified Roads, applicable to B5.2

Name and Date of Governing Road Specifications: Standard Specifications for Construction of Roads an Bridges On Federal Highway Projects, FP-03, 2003 Version

Project		Design Class	Approx. Length *(mi.)*	Sheet Numbers and Approval Date	Performance Responsibility		
Road No.	Name				Survey	Design	Const. Staking 1/
1806000	Little Fall Creek (R) (MP 0.00 to 7.66)	Single Lane- 15 mph	7.66	1-27, June 2019	FS	FS	PR, (BC)
1806000A	Weyerhaeuser Main Line (R) (MP 0.00 to 7.98)	Single Lane- 15 mph	7.98	1-27, June 2019	FS	FS	PR, (BC)
1806400	No name (R) (MP 0.00 to 0.14)	Single Lane- 5 mph	0.14	1-27, June 2019	FS	FS	PR, (BC)
1806415	No name (R) (MP 0.00 to 0.23)	Single Lane- 5 mph	0.23	1-27, June 2019	FS	FS	PR, (BC)
1806420	No name (R) (MP 0.00 to 0.21)	Single Lane- 5 mph	0.21	1-27, June 2019	FS	FS	PR, (BC)
1806451	No name (R) (MP 0.00 to 0.13)	Single Lane- 5 mph	0.13	1-27, June 2019	FS	FS	PR, (BC)
1806501	No name (R) (MP 0.00 to 0.10)	Single Lane- 5 mph	0.10	1-27, June 2019	FS	FS	PR, (BC)
1817000	Cowhorn (R) (MP 10.16 to 12.00)	Single Lane- 15 mph	1.84	1-27, June 2019	FS	FS	PR, (BC)

1/ Indicate timing, i.e., before clearing (BC) or after clearing (AC). Applicable to B5.212.

A8 – Forest Service Engineering Completion Schedule, applicable to B5.21

Road No.	Road Name	Type of Work	Completion Date
1806000	Little Fall Creek	*Construction Staking	10/31/21
1806000A	Weyerhaeuser Main Line	*Construction Staking	10/31/21
1806400	No name	*Construction Staking	10/31/21
1806415	No name	*Construction Staking	10/31/21
1806420	No name	*Construction Staking	10/31/21
1806451	No name	*Construction Staking	10/31/21
1806501	No name	*Construction Staking	10/31/21
1817000	Cowhorn	*Construction Staking	10/31/21
	* Any additional construction staking other than initial FS station staking is the responsibility of the purchaser. Refer to FP-03 & Supplemental Specification 152 – Construction Surveying and Staking		

FP-03 SPECIFICATION LIST

All specifications not included in the specification listing, but included by reference, are applicable. "X" denotes applicable standard and/or supplemental specification. The supplementals shown on the specification list are physically attached.

Standard Specifications

Section	Date	Title	1806000	1806000 A	1806400	0806415	1806420	1806451	1806501	1817000
101-109	2003	General Requirements	X	X	X	X	X	X	X	X
151	2003	Mobilization	X	X	X	X	X	X	X	X
157	2003	Soil Erosion Control	X	X	X	X	X	X	X	X
201	2003	Clearing and Grubbing			X	X	X	X	X	
203	2003	Removal of Structures and Obstructions	X	X		X				X
207	2003	Earthwork Geotextiles	X							
251	2003	Riprap	X							
303	2003	Road Reconditioning	X	X						X
602	2003	Culverts and Drains	X	X		X				X
606	2003	Corrugated Metal Spillways								X
625	2003	Turf Establishment	X	X	X	X	X	X	X	X
635	2003	Temporary Traffic Control	X	X	X	X	X	X	X	X

Supplemental Specifications

Section	Date	Title	1806000	1806000 A	1806400	1806415	1806420	1806451	1806501	1817000
Preface	03/15/04	Preface	X	X	X	X	X	X	X	X
101.01	01/22/09	Meaning of Terms	X	X	X	X	X	X	X	X
101.03	06/16/06	Abbreviations	X	X	X	X	X	X	X	X
101.04	03/29/07	Definitions	X	X	X	X	X	X	X	X
101.04	11/06/07	Definitions	X	X	X	X	X	X	X	X
102.00	02/16/05	Bid, Award, and Execution of Contract	X	X	X	X	X	X	X	X
103.00	02/16/05	Scope of Work	X	X	X	X	X	X	X	X
104.00	06/16/06	Control of Work	X	X	X	X	X	X	X	X
104.03	01/22/09	Specifications and Drawings	X	X	X	X	X	X	X	X
104.06	02/17/05	Use of Roads by Contractor	X	X	X	X	X	X	X	X
104.07	02/17/05	Other Contracts	X	X	X	X	X	X	X	X
105.02	01/18/07	Government Provided Sources	X	X	X	X	X	X	X	X
105.02	03/08/07	Contractor Provided Sources	X	X	X	X	X	X	X	X
105.02	02/17/05	Government provided sources	X	X	X	X	X	X	X	X
105.02	02/17/05	Designated Sources	X	X	X	X	X	X	X	X
105.05	05/12/04	Use of Material Found in the Work	X	X	X	X	X	X	X	X
106.01	07/31/07	Conformity with Contract Requirements	X	X	X	X	X	X	X	X
106.07	05/11/04	Delete	X	X	X	X	X	X	X	X
107.02	02/17/05	Protection and Restoration of Property and Landscape	X	X	X	X	X	X	X	X
107.05	05/11/04	Responsibility for Damage Claims	X	X	X	X	X	X	X	X
107.06	06/16/06	Contractor's Responsibility for Work.	X	X	X	X	X	X	X	X
107.08	03/29/05	Sanitation, Health, and Safety	X	X	X	X	X	X	X	X
107.09	06/16/06	Legal Relationship of the Parties	X	X	X	X	X	X	X	X
108.00	02/16/05	Prosecution and Progress	X	X	X	X	X	X	X	X
109.00	02/17/05	Measurement and Payment	X	X	X	X	X	X	X	X
109.02	06/16/06	Measurement Terms and Definitions	X	X	X	X	X	X	X	X
155.00	05/11/04	Schedules for Construction Contracts	X	X	X	X	X	X	X	X
156.00	04/28/08	Public Traffic	X	X	X	X	X	X	X	X
157.02	08/23/04	Materials	X	X	X	X	X	X	X	X
157.03	02/24/05	General	X	X	X	X	X	X	X	X
170.00	03/26/07	Develop Water Supply and Watering	X	X	X	X	X	X	X	X
201.00	08/05/09	Clearing and Grubbing			X	X	X	X	X	
201.01	02/18/05	Description			X	X	X	X	X	
201.04	02/22/05	Clearing			X	X	X	X	X	
201.04	11/09/05	Clearing			X	X	X	X	X	
201.06	02/18/05	Disposal			X	X	X	X	X	
203.01	02/25/05	Description			X	X	X	X	X	

Supplemental Specifications										
Section	Date	Title	1806000	1806000 A	1806400	1806415	1806420	1806451	1806501	1817000
203.05	02/18/200	Disposing of Material	X	X	X	X	X	X	X	X
203.05	03/26/07	Disposing of Material			X	X	X	X	X	
204.00	02/11/08	Excavation and Embankment	X		X	X	X	X	X	X
209.07	07/12/07	Dewatering	X	X	X	X	X	X	X	X
209.10	05/01/07	Backfill	X	X	X	X	X	X	X	X
209.11	05/01/07	Compacting	X	X	X	X	X	X	X	X
212.00	05/19/05	Linear Grading			X	X	X	X	X	
251.03	08/05/09	General	X							
251.08	08/05/09	Measurement	X							
303.01	03/02/05	Work	X	X						X
303.04	11/26/08	Shoulder Reconditioning	X	X						X
303.05	03/26/07	Roadbed Reconditioning	X	X						X
303.06	04/04/07	Aggregate Surface Reconditioning	X	X						X
322.00	10/14/11	Minor Aggregate Courses (Complete Spec)	X	X	X	X	X	X	X	X
602.03	09/06/05	General	X	X		X				X
602.03	10/02/08	General	X	X		X				X
602.03	03/17/10	General	X	X		X				X
602.06	08/05/09	Laying Plastic Pipe		X						
625.08	01/29/09	Turf Establishment	X	X	X	X	X	X	X	X
635.03	05/13/04	General	X	X	X	X	X	X	X	X
703.05	08/14/09	Subbase, base, surface course, and screened Aggregate	X	X	X	X	X	X		X
704.02	########	Bedding Material	X	X		X				X
714.03	########	Tables 714-1 and 714-4	X							

Willamette National Forest

Middle Fork Ranger District

Lane County

FP-03 - SUPPLEMENTAL SPECIFICATIONS

for

GNA
TWINS TIMBER SALE
SPECIFIED ROADS

Preface

Preface_wo_03_15_2004_m

Delete all but the first paragraph and add the following:

The Forest Service, US Department of Agriculture has adopted FP-03 for construction of National Forest System Roads.

101 - Terms, Format, and Definitions

101.01_nat_us_01_22_2009

101.01 Meaning of Terms

Delete all references to the FAR (Federal Acquisition Regulations) in the specifications.

101.03_nat_us_06_16_2006

101.03 Abbreviations.

Add the following to (a) Acronyms:

AFPA	American Forest and Paper Association
MSHA	Mine Safety and Health Administration
NIST	National Institute of Standards and Technology
NESC	National Electrical Safety Code
WCLIB	West Coast Lumber Inspection Bureau

.

Add the following to (b) SI symbols:

mp	Milepost
ppm	Part Per Million

101.04 Definitions.

Delete the following definitions and substitute the following:

Bid Schedule--The Schedule of Items.

Bridge--No definition.

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".

Culvert--No definition.

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.

Add the following:

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.

Change--"Change" means "change order" as used in the Federal Acquisition Regulations, or "design change" as used in the Timber Sale Contract.

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. Under these FP specifications this term is replaced by the term "Contract Quantities".

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

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

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

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.

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.

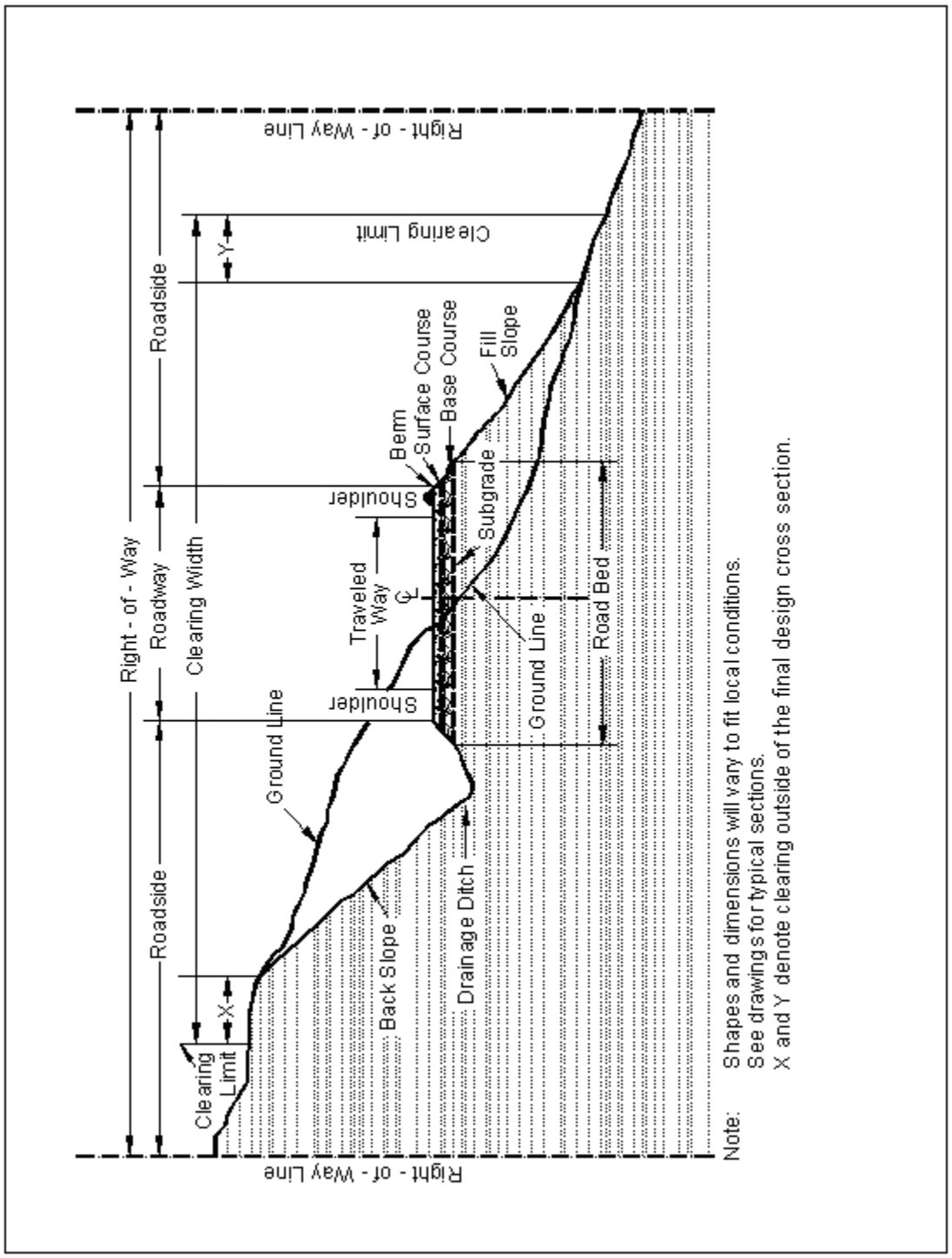
Schedule of Items--A schedule in the contract that contains a listing and description of construction items, quantities, units of measure, unit price, and amount.

STATE-- the Oregon Department of Forestry, State Forester, or a duly Authorized Representative of the State Forester.

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

Add Figure 101-1—Illustration of road structure terms:

Figure 101-1—Illustration of road structure terms.



101.04_nat_us_11_06_2007

101.04 Definitions.

Delete the following definitions:

Contract Modification

Day

Notice to Proceed

Solicitation

102 - Bid, Award, and Execution of Contract

102.00_nat_us_02_16_2005

102 Bid, Award, and Execution of Contract

Delete Section 102 in its entirety.

103 - Scope of Work

103.00_nat_us_02_16_2005

Deletions

Delete all but subsection 103.01 Intent of Contract.

104 - Control of Work

104.00_nat_us_06_16_2006

Deletions

Delete Sections 104.01, 104.02, and 104.04.

104.03_nat_us_01_22_2009

104.03 Specifications and Drawings.
Delete 104.03.

104.06_nat_us_02_17_2005

Add the following subsection:

104.06 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.

104.07_nat_us_02_17_2005

Add Subsection.

104.07 Other Contracts

There will be several timber sales that might start logging operations in the area and road maintenance work that could be happening during construction operations. Several other timber sale contracts will be utilizing the designated aggregate stockpile source(s) and borrow/pit run source, located at North Falls Quarry NFSR 1817420 M.P. 1.79 (left side), Scofield-2 Rock Source Weyerhaeuser Road 9000 M.P. 1.00 (right side) and Cowhorn Rock Source NFSR 1818433 M.P. 0.20 (right side), respectively.

105 - Control of Material

105.02_nat_us_01_18_2007

105.02 Material Sources.

105.02(a) Government-provided sources.

Add the following:

Comply with the requirements of 30 CFR 56, subparts B and H. Use all suitable material for aggregate regardless of size unless otherwise designated. When required, re-establish vegetation in disturbed areas according to section 625.

105.02_nat_us_03_08_2007

105.02 Material Sources.

105.02(a) Contractor-provided sources.

Add the following:

All material (e.g., soil, gravel, sand, borrow, aggregate, etc.) transported onto National Forest System land or incorporated into the work will be weed-free. STATE may request written documentation of methods used to determine the weed-free status of any and all materials furnished by the contractor. Contractor-provided expertise and methods to establish weed-free status must be appropriate for the weeds of concern in the local area.

105.02_nat_us_02_17_2005

105.02(a) Government Provided Sources.

(a) Government-provided sources. Add the following:

Government-provided sources for this project are identified as follows:

(1) Government-provided mandatory sources.

Obtain material for use as aggregate under Section (32211) from North Falls Rock Quarry, Road 1817420, MP 01.79, left side. Reshape site to drain prior to final acceptance.

Obtain material for use as pit run under Section (32222) from Cowhorn Rock Quarry, Road 1818433, MP 0.20, right side. Reshape site to drain prior to final acceptance.

Obtain material for use as aggregate under Section (32222) from Scofield-2 Rock Source, Weyerhaeuser Rd 9000, MP 1.00, right side. Reshape site to drain prior to final acceptance.

(2) Government-provided optional sources.

Material for use as **unclassified borrow can be obtained from the waste area on FSR 1806-226.**

105.02_nat_us_02_17_2005

Add the following:

105.02 (c) Designated Sources.

There is no mineral permit required for Twins TS for use of aggregate stockpile (Item 32232) from Scofield-2 Rock Source located on Weyerhaeuser Rd 9000, MP 1.00.

If Purchaser/Contractor elects to use the provided material, a "Contract for sale of mineral materials" (Form FS-2800-9), will be fully executed and advanced payment will be made to the Forest Service prior to removing material from the stockpile site. The advanced deposit will be the sum of the contract quantity at the rate of **$14.55** per loose cubic yard for crushed aggregate, **$1.80** per cubic yard for unclassified borrow, and an administrative charge of **($75.00).**

105.05_nat_us_05_12_2004

105.05 Use of Material Found in the Work.

Delete 105.05 (a) and (b) and the last sentence of the second paragraph and substitute the following:

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_nat_us_07_31_2007

106.01 Conformity with Contract Requirements.

Delete Subsection 106.01 and substitute the following:

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 or to these specifications, whichever is more strict.

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 (such as fence, wire, plates, rolled shapes, pipe conduits, etc., that are identified by gauge, unit mass, section dimensions, etc.), 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. Four methods of determining conformity and accepting work are described in Subsections 106.02 to 106.05 inclusive. 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) Disputing Government test results. **If the accuracy of Government test results is disputed, promptly inform the CO. If the dispute is unresolved after reasonable steps are taken to resolve the**

dispute, further evaluation may be obtained by written request. Include a narrative describing the dispute and a proposed resolution protocol that addresses the following:

(1) Sampling method;
(2) Number of samples;
(3) Sample transport;
(4) Test procedures;
(5) Testing laboratories;
(6) Reporting;
(7) Estimated time and costs; and
(8) Validation process.

If the evaluation requires additional sampling or testing be performed, mutually agree with the Government on witnessing procedures and on sampling and testing by a third party laboratory. Use a third party laboratory accredited by the AASHTO accreditation program. Provide proof of the laboratory's accreditation for the test procedures to be used. Do not use the same laboratory that produced the disputed Government test results or that produced the test results used as a basis for the dispute. The CO will review the proposed resolution protocol and may modify it before final approval and execution.

The Government will use the approved resolution protocol test results to determine the validity of the disputed testing. If the Government test results are validated, the Contractor will be responsible for all costs associated with developing and performing the resolution protocol. If the Government test results are not validated, the Government will be responsible for all costs associated with developing and performing the resolution protocol. If the validity of the Government test results cannot be determined, the Contractor and Government will equally share all costs associated with developing and carrying out the resolution protocol.

(b) 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.

106.07_nat_us_05_11_2004

106.07 Delete

Delete subsection 106.07.

107 - Legal Relations and Responsibility to the Public

107.02_nat_us_02_17_2005

107.02 Protection and Restoration of Property and Landscape.

Add the following:

Replace culverts running water during the instream work period. The instream work period is July 1 to August 31.

Reconstruction or maintenance of roads shall not be done when soils are saturated or run-off occurs, to minimize erosion and sedimentation.

Road reconstruction shall only be done from June 1st to October 31st, unless approved by STATE and weather allows.

107.05_nat_us_05_11_2004

107.05 Responsibility for Damage Claims.

Delete the entire subsection.

107.06_nat_us_06_16_2006

107.06 Contractor's Responsibility for Work.

Delete the following from the first paragraph.
"except as provided in Subsection 106.07".

107.08_nat_us_03_29_2005

107.08 Sanitation, Health, and Safety

Delete the entire subsection.

107.09_nat_us_06_16_2006

107.09 Legal Relationship of the Parties.

Delete the entire subsection.

108 - Prosecution and Progress

108.00_nat_us_02_16_2005

108 Delete.

Delete Section 108 in its entirety.

109 - Measurement and Payment

109.00_nat_us_02_17_2005

109 Deletions

Delete the following entire subsections:

109.06 Pricing of Adjustments.

109.07 Eliminated Work.

109.08 Progress Payments.

109.09 Final Payment.

109.02_nat_us_06_16_2006

109.02 Measurement Terms and Definitions.

(b) Contract quantity.

Add the following:

Contract quantities will be adjusted only when there are errors in the original design of 15% or more.

Change the following:

"(b) Cubic yard" to "(c) Cubic yard".

Add the following definition:

(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.

155 - Schedules for Construction Contracts

155.00_nat_us_05_11_2004

155 Delete.

Delete Section 155 in its entirety.

156 - Public Traffic

156.00_0618_us_04_28_2008

Delete Section 156 in its entirety and replace with the following:

Description

156.01 This work consists of controlling and protecting public traffic adjacent to and within the project.

Material

156.02 Conform to the MUTCD and the following Sections and Subsections:

Construction sign panels	633
Retro-reflective sheeting	718.01
Temporary concrete barrier	618
Temporary plastic fence	710.11
Temporary traffic control devices	718.22

156.03 General. Unless otherwise provided for in Table 156-1, keep existing roads open to all traffic during road improvement work, and maintain them in a condition that will adequately accommodate traffic. For all culvert installations on 1806000A (M.P. 0.00-7.98) and 1806000 (M.P. 0.00-4.60) culverts shall be installed so NO delays restrict the flow of traffic. For road 1806000 M.P. 3.50 is an exception to the before mentioned construction restriction and requires coordination with Weyerhaeuser as described in plans. Delays may not exceed **60** minutes at any one time followed by an open period of no less than **15** minutes.

Perform no work that interferes or conflicts with traffic or existing access to the roadway surface until a traffic control plan has been approved. Post construction signs and traffic control devices in conformance with MUTCD. All required signs will be in place and approved prior to beginning work on project.

If the Contractor agrees in writing to allow public traffic to use a new road being constructed prior to completion, it will be considered an existing road for traffic control purposes.

156.04 Temporary Traffic Control. Install and maintain temporary traffic control devices adjacent to and within the project as required by the approved traffic control plan and the MUTCD. Install and maintain traffic control devices as follows:

(a) Furnish and install traffic control devices before the start of construction operations.
(b) All detours outside of clearing limits will be approved in writing by STATE as part of the traffic control plan.
(c) Install only those traffic control devices needed for each stage or phase.
(d) Relocate temporary traffic control devices as necessary.
(e) Remove devices that no longer apply to the existing conditions.
(f) Immediately replace any device that is lost, stolen, destroyed, or inoperative.
(g) Keep temporary traffic control devices clean.
(h) Remove all temporary traffic control devices upon contract completion or when approved.
(i) When required, use flaggers certified by the American Traffic Safety Services Association, the National Safety Council, the International Municipal Signal Association, a state agency, or other acceptable organization. Perform the work described under MUTCD Part 6. Use type III, VII, VIII,

or IX retroreflective sheeting on flagger paddles. Do not use flags. Flaggers must wear high visibility safety apparel as required by MUTCD 6E.02.

156.05 Temporary Closures. Road segments may be closed as shown in Table 156-1. The maximum consecutive days of closure shall be followed by a minimum number of consecutive days open to traffic as shown. Maintain traffic control devices during closure period(s). Appropriate barricades and signs will be erected and maintained as shown in the traffic control plan or as otherwise designated.

Prior to closing roads during construction, give written notice to STATE at least 10 days in advance.

Table 156-1
Temporary Road Closures

Road Number	From Terminus	To Terminus	Maximum Consecutive Days of Closure	Minimum Consecutive Days Open
1806	3.32	3.50	3 Days	4 Days
1817	11.12	11.22	5 Days	2 Days

156.06 Acceptance. Public traffic work will be evaluated under Subsection 106.02.

Traffic control devices and services will be evaluated under Section 635.

Measurement and Payment

156.07 See Subsection 109.05.

Measure traffic control under Section 635.

157 - Soil Erosion Control

157.02_01_us_08_23_2004

157.02 Materials

Add the following:

Provide bales, wattles, logs and rolls from a certified noxious weed free source.

157.03_nat_us_02_24_2005

157.03 General

Delete the entire subsection and replace with the following:
Prior to the start of construction, submit a written plan that provides permanent and temporary erosion control measures to minimize erosion and sedimentation during and after construction. Do not begin work until the necessary controls for that particular phase of work have been implemented. Do not modify the type, size, or location of any control. An alternate erosion control plan with all necessary permits may be submitted 30 days before intended use.
Incorporate all permanent erosion control features into the project at the earliest practicable time, as outlined in the approved plan.
When erosion control measures are not functioning as intended, immediately take corrective action.

170 - Develop Water Supply and Watering

170.00_0618_us_03_26_2007

Description

170.01 This work consists of developing an acceptable water supply, furnishing, hauling, and applying water.

Materials

170.02 Conform to the following subsection.

Water	725.01.

Construction Requirements

170.03 Development of Supply & Access. Develop water supplies and access to the water supplies as required. Use designated water sources or other approved water sources. Before using non-designated water sources, obtain all necessary permissions, water rights, and permits.

170.04 Equipment.

(a) Water tanks. Provide mobile watering equipment with watertight tanks of known capacity. Provide for positive control of water application from the driver's position.

(b) Juvenile fish protection. All draft hoses being used to withdraw water from any live flowing stream or pond will utilize one of the following methods of screening.

(1) Perforated plate: Screen opening shall not exceed 3/32 or 0.0938-inches.

(2) Profile bar screen: The narrowest dimension in the screen openings shall not exceed 0.0689-inches in the narrowest direction.

(3) Woven wire screen: Screen openings shall not exceed 3/32 or 0.0938-inches in the narrow direction.

All methods shall be cleaned frequently with either wire brushing, flushing or other acceptable method.

170.05 Application. Apply water uniformly without ponding or washing.

170.06 Acceptance. Developing water supplies and watering will be evaluated under Subsections 106.02 and 106.04.

Measurement and Payment

170.07 See Subsection 109.05.
Do not measure develop water supply and watering for payment.

201 - Clearing and Grubbing

201.00_nat_us_08_05_2009

201.02 Material:

Delete Tree wound dressing material reference.

201.03 General.

Delete the last sentence.

201.04 Clearing.

Delete the last sentence of (d).

201.01_nat_us_02_18_2005

201.01 Description

Replace with the following

This work consists of clearing and grubbing within clearing limits and other designated areas.

201.04_nat_us_02_22_2005

201.04 Clearing. (c)

Delete paragraph (c) and replace with the following:

(c) In areas outside the excavation, embankment, and slope rounding limits, cut stumps to within 12 inches or one-third of the stump diameter of the ground, whichever is higher, measured on the side adjacent to the highest ground. For timber sales, stump heights will meet the requirements of the Timber Sale contract.

201.04 Clearing.

Delete subsection (d) and replace with the following:

(d) Do not cut vegetation less than 3 feet tall and less than 3 inches in diameter that is within the clearing limits but beyond the roadway and not in a decking area, and that does not interfere with sight distance along the road.

Add the following:

(e) Trim branches of remaining trees or shrubs to give a clear height of 14 feet above the roadbed unless otherwise indicated. Trim tree limbs as near flush with the trunk as practicable.

(f) Remove brush from log decks. Deck logs so that logs are piled parallel to one another; can be removed by standard log loading equipment; will not damage standing trees; will not interfere with drainage, and will not roll. Keep logs in log decks free of brush and soil.

201.06_nat_us_11_09_2005

201.04 Clearing.

Add the following:

Utilization standards for merchantable timber are listed below. Fall and buck merchantable material into lengths not to exceed 40 feet. Pieces (logs) meet utilization standards when such pieces would have met Utilization Standards if bucking lengths were varied to include such material.

Minimum Utilization Standards

Length	Diameter (Inside Bark) at Small End	40 % Net Scale in % of Gross Scale
8 feet	6 inches	

201.06 Disposal

Delete the first sentence of this paragraph and substitute the following:
Limb and deck logs that meet utilization standards at locations approved by the CO or otherwise designated. Deck logs according to 201.04 (f).

201.06_nat_us_02_18_2005

203 - Removal of Structures and Obstructions

203.01_nat_us_02_25_2005

203.01 Description.

Delete and replace with the following:

This work consists of disposing of construction slash and debris, salvaging, removing, and disposing of buildings, fences, structures, pavements, culverts, utilities, curbs, sidewalks, and other obstructions.

203.05_nat_us_02_18_2005

203.05 Disposing of Material.

Add the following:

(e) Windrowing Construction Slash. Place construction slash outside the roadway in neat, compacted windrows approximately parallel to and along the toeline of embankment slopes. Do not permit the top of the windrows to extend above subgrade. Use construction equipment to matt down all material in a windrow to form a compact and uniform pile. Construct breaks of at least 15 feet at least every 200 feet in a windrow. Do not place windrows against trees. Obtain approval for pioneer roads. A pioneer road may be constructed to provide an area for placement of windrows, provided the excavated material is kept within the clearing limits and does not adversely affect the road construction.

(f) Scattering. Scatter construction slash outside the clearing limits without damaging trees. Limb all logs. Place logs and stumps away from trees, positioned so they will not roll, and are not on top of one another. Limb and scatter other construction slash to reduce slash concentrations.

(g) Chipping or Grinding. Use an approved chipping machine to grind slash and stumps greater than 3 inches in diameter and longer than 3 feet. Deposit chips or ground woody material on embankment slopes or outside the roadway to a loose depth less than 6 inches. Minor amounts of chips or ground woody material may be permitted within the roadway if they are thoroughly mixed with soil and do not form a layer.

(h) Debris Mat. Use tree limbs, tops, cull logs, split stumps, wood chunks, and other debris to form a mat upon which construction equipment is operated. Place stumps upside down and blend stumps into the mat.

(i) Decking Firewood Material. Remove brush from decks. Limb and deck logs that do not meet Utilization Standards according to Subsection 201.04 as directed by the CO. Cut logs to lengths less than 30 feet. Ensure that logs stacks are stable and free of brush and soil.

(j) Removal to designated locations. Remove construction slash to designated locations.

(k) Piling. Pile construction slash in designated areas. Place and construct piles so that if the piles are burned, the burning will not damage remaining trees. Keep piles free of dirt from stumps. Cut unmerchantable logs into lengths of less than 20 feet.

(l) Placing Slash on Embankment Slopes. Place construction slash on completed embankment slopes to reduce soil erosion. Place construction slash as flat as practicable on the completed slope. Do not place slash closer than 2 feet below subgrade. Priority for use of available slash is for: (1) through fills; (2) insides of curves; and (3) ditch relief outlets.

(m) Hydrological Sensitive Placement. Where required use this method in combination with other designated methods to dispose of material to reduce erosion and to aid in re-vegetation:

1. Place windrow segments on contours, wrap in type I geotextile.
2. Place logs as log erosion barriers on contours. Place logs so that 80% of their length is on the ground surface.
3. Scatter slash on bare or disturbed areas within or outside the clearing limits as directed.
4. Scatter chips or ground woody material on bare or disturbed areas within or outside the clearing limits as directed.

Place stumps in swales or on sites to form planting pockets. Place windrow segments on contours, wrap in type I geotextile.

203.05_0618_us_03_26_2007

203.05 Disposing of Material.

(a) Remove from Project

Delete the last two sentences.

204 - Excavation and Embankment

204.00_0618_us_02_11_2008

Delete Section 204 in its entirety and replace with the following.

Description

204.01 This work consists of excavating material, constructing embankments and drainage excavation. This includes furnishing, hauling, stockpiling, placing, disposing, sloping, shaping, compacting, and finishing sand, earthen, and rocky material.

204.02 Definitions.

(a) Excavation. Excavation consists of the following:

(1) Roadway excavation. All material excavated from within the right-of-way or easement areas, except subexcavation covered in (2) below and structure excavation covered in Sections 208 and 209. Roadway excavation includes all material encountered regardless of its nature or characteristics.

(2) Subexcavation. Material excavated from below subgrade elevation in cut sections or from below the original groundline in embankment sections. Subexcavation does not include the work required by Subsections 204.05, 204.06(b), and 204.06(c).

(3) Borrow excavation. Material used for embankment construction that is obtained from outside the roadway prism. Borrow excavation includes unclassified borrow, select borrow, and select topping.

(b) Embankment construction. Embankment construction consists of placing and compacting roadway or borrow excavation. This work includes:

(1) Preparing foundation for embankment;
(2) Constructing roadway embankments;
(3) Benching for side-hill embankments;
(4) Constructing dikes, ramps, mounds, and berms; and
(5) Backfilling subexcavated areas, holes, pits, and other depressions.

(c) Conserved topsoil. Excavated material conserved from the roadway excavation and embankment foundation areas that is suitable for growth of grass, cover crops, or native vegetation.

(d) Waste. Excess and unsuitable roadway excavation and subexcavation that cannot be used.

Material

204.03 Conform to the following Subsections:

Backfill material	704.03
Select borrow	704.07
Select topping	704.08
Topping	704.05
Unclassified borrow	704.06
Water	725.01

Construction Requirements

204.04 Preparation for Roadway Excavation and Embankment Construction. Clear the area of vegetation and obstructions according to Sections 201 and 203.

204.05 Reserved.

204.06 Roadway Excavation. Excavate as follows:

(a) General. Do not disturb material and vegetation outside the construction limits.

Incorporate only suitable material into embankments. Replace any shortage of suitable material caused by premature disposal of roadway excavation

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.

Retrieve material deposited outside of the clearing limits as directed by the CO.

(b) Rock cuts. Blast rock according to Section 205. Excavate rock cuts to 6 inches below subgrade within the roadbed limits. Backfill to subgrade with topping or with other suitable material. Compact the material according to Subsection 204.11 When blasting rock, use blasting methods according to Subsection 205.08.

(c) Earth cuts. Scarify earth cuts to 6 inches below subgrade within the roadbed limits. Compact the scarified material according to Subsection 204.11.

(d) Pioneer Roads. Road pioneering, slash disposal, and grubbing of stumps may proceed concurrently with excavation. Conduct excavation and placement operations so material to be treated under Section 201 will not be incorporated into the roadway unless specified in the slash treatment method. Maintain drainage during pioneering operations.

Remove snow and ice in advance of the work and deposit beyond the roadway limits in a manner that will not waste material or generate sediment. Do not incorporate snow and ice into embankments. Place snow or ice in a manner to prevent resource damage.

(e) Drainage Excavation. Drainage excavation includes construction of all ditches, minor channel changes, drainage dips, catchbasins, surface water deflectors, and other minor drainage structures. Compact by Method (f) unless otherwise shown on the plans. Excavate on a uniform grade between control points.

204.07 Subexcavation. Excavate material to the limits as designated. Take cross-sections according to Section 152. Prevent unsuitable material from becoming mixed with the backfill. Dispose of unsuitable material according to Subsection 204.14. Backfill the subexcavation with topping, or other suitable material. Compact the material according to Subsection 204.11.

204.08 Borrow Excavation. Use all suitable roadway excavation in embankment construction. Do not use borrow excavation when it results in excess roadway excavation. Deduct excess borrow excavation from the appropriate borrow excavation quantity.

Obtain borrow source acceptance according to Subsection 105.02. Develop and restore borrow sources according to Subsection 105.03. Do not excavate beyond the established limits. When applicable, shape the borrow source to permit accurate measurements when excavation is complete.

204.09 Preparing Foundation for Embankment Construction. Prepare foundation for embankment construction as follows:

(a) Embankment less than 4 feet high over natural ground. Unless otherwise designated by the CO, remove topsoil. Break up the ground surface to a minimum depth of 6 inches by plowing or scarifying. Compact the ground surface according to Subsection 204.11.

(b) Embankments over an existing asphalt, concrete, or gravel road surface. Scarify gravel roads to a minimum depth of 6 inches. Scarify or pulverize asphalt and concrete roads to 6 inches below the pavement. Reduce all particles to a maximum size of 6 inches and produce a uniform material. Compact the surface according to Subsection 204.11.

(c) Embankment across ground not capable of supporting equipment. Dump successive loads of embankment material in a uniformly distributed layer to construct the lower portion of the embankment. Limit the layer thickness to the minimum depth necessary to support the equipment.

(d) Embankment on an existing slope steeper than 1V:3H. Cut horizontal benches in the existing slope to a sufficient width to accommodate placement and compaction operations and equipment. Bench the slope as the embankment is placed and compacted in layers. Begin each bench at the intersection of the original ground and the vertical cut of the previous bench.

204.10 Embankment Construction. Incorporate only suitable roadway excavation material into the embankment. When the supply of suitable roadway excavation is exhausted, furnish unclassified borrow to complete the embankment. Obtain written approval before beginning construction of embankments over 6 feet high at subgrade centerline. Construct embankments as follows:

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

During all stages of construction, route and distribute hauling and leveling equipment over the width and length of each layer of material.

Compact embankment side slopes flatter than 1V:1.75H with a tamping type roller or by walking with a dozer. For slopes 1V:1.75H or steeper, compact the slopes as construction of the embankment progresses.

Where placing embankment on one side of abutments, wing walls, piers, or culvert headwalls, compact the material using methods that prevent excessive pressure against the structure.

Where placing embankment material on both sides of a concrete wall or box structure, conduct operations so compacted embankment material is at the same elevation on both sides of the structure.

Where structural pilings are placed in embankment locations, limit the maximum particle size to 4 inches.

(b) Embankment within the roadway prism. Place embankment material in horizontal layers not exceeding 12 inches in compacted thickness. Incorporate oversize boulders or rock fragments into the 12-inch layers by reducing them in size or placing them individually as required by (c) below. Compact each layer according to Subsection 204.11 before placing the next layer.

Material composed predominately of boulders or rock fragments too large for 12-inch layers may be placed in layers up to 24 inches thick. Incorporate oversize boulders or rock fragments into the 24-inch layer by reducing them in size or placing them individually according to (c) below. Place sufficient earth and smaller rocks to fill the voids. Compact each layer according to Subsection 204.11 before placing the next layer.

(c) Individual rock fragments and boulders. Place individual rock fragments and boulders greater than 24 inches in diameter as follows:

(1) Reduce rock to less than 48 inches in the largest dimension.

(2) Distribute rock within the embankment to prevent nesting.

(3) Place layers of embankment material around each rock to a depth not greater than that permitted by (b) above. Fill all the voids between rocks.

(4) Compact each layer according to Subsection 204.11 before placing the next layer.

(d) Embankment outside of roadway prism. Where placing embankment outside the staked roadway prism, place material in horizontal layers not exceeding 24 inches in compacted thickness. Compact each layer according to Subsection 204.11.

204.11 Compaction. Compact the embankment using one of the following methods as specified:

(a) Compaction A. Use AASHTO T 27 to determine the amount of material retained on a Number 4 sieve. If there is more than 80 percent retained on the No. 4 sieve use procedure (1). If there is 50 to 80 percent retained on the No. 4 sieve use procedure (2). If there is less than 50 percent retained on the No. 4 sieve use procedure (3).

(1) Adjust the moisture content to a level suitable for compaction. Fill the interstices around rock with earth or other fine material as practical. Use compression-type rollers at speeds less than 6 feet per second and vibratory rollers at speeds less than 3 feet per second. Compact each layer of material full width with one of the following and until there is no visible evidence of further consolidation.

(a) Four roller passes of a vibratory roller having a minimum dynamic force of 40,000 pounds impact per vibration and a minimum frequency of 1000 vibrations per minute.

(b) Eight roller passes of a 20-ton compression-type roller.

(c) Eight roller passes of a vibratory roller having a minimum dynamic force of 30,000 pounds impact per vibration and a minimum frequency of 1000 vibrations per minute.

Increase the compactive effort for layers deeper than 12 inches as follows:

- For each additional 6 inches or fraction thereof, increase the number of roller passes in (a) above by four passes.
- For each additional 6 inches or fraction thereof, increase the number of roller passes in (b) and (c) above, by eight passes.

(2) Use AASHTO T 99 to determine the optimum moisture content of the portion of the material passing a No. 4 sieve. Multiply this number by the percentage of material passing a No. 4 sieve, and add 2 percent to determine the optimum moisture content of the material. Adjust the moisture content of material classified A-1 through A-5 to a moisture content suitable for compaction. Adjust the moisture content of material classified A-6 and A-7 to within 2 percent of the optimum moisture content.

Use compression-type rollers at speeds less than 6 feet per second and vibratory rollers at speeds less than 3 feet per second. Compact each layer of material full width according to (1) above.

(3) Classify the material according to AASHTO M 145. For material classified A-1 or A-2-4, determine the maximum density according to AASHTO T 180, method D. For other material classifications, determine the optimum moisture content and maximum density according to AASHTO T 99, method C.

Adjust the moisture content of material classified A-1 through A-5 to a moisture content suitable for compaction. Adjust the moisture content of material classified A-6 and A-7 to within 2 percent of the optimum moisture content.

Use compression-type or vibratory rollers. Compact each layer of material full width 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. When required, use AASHTO T 224 to correct for coarse particles.

(b) Compaction B. Place material by end dumping to the minimum depth needed for operation of spreading equipment. Adjust the moisture content of the material to obtain a mass that will not visibly deflect under the load of the hauling and spreading equipment. Operate compaction equipment over the full width of each layer until there is no visible evidence of further consolidation or, if when a sheepsfoot roller is used, the roller “walks out” of the layer. Make at least three complete passes.

(c) Compaction C. Place material by end dumping to the minimum depth needed for operation of spreading equipment. Level and smooth each embankment layer before placing the next layers. Operate hauling and spreading equipment uniformly over the full width of each layer. 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.

(d) Compaction D. Hauling and Spreading Equipment. Adjust the moisture content to a level suitable for compaction. Compact the material by operating equipment over the full width of the roadway.

(e) Compaction E. Roller Compaction. Adjust the moisture content to a level suitable for compaction. Operate Rollers over the full width of each layer until visual displacement ceases, but not fewer than three complete passes. Use rollers that meet the following requirements:

(1) Steel wheeled rollers, other than vibratory, capable of exerting a force of not less than 250 pounds per inch of width of the compression roll or rolls.

(2) Vibratory steel wheeled rollers equipped with amplitude and frequency controls with a minimum weight of 6 tons, specifically designed to compact the material on which it is used.

(3) Pneumatic-tired rollers with 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 psi.

(4) Sheepsfoot, tamping, or grid rollers capable of exerting a force of 250 lbs/inch of width of roller drum.

(f) Compaction F. Mechanical Tamper. Adjust the moisture content of the backfill material to a moisture content suitable for compaction. Compact each 6 inch layer with a minimum of three complete passes with a mechanical tamper.

204.12 Ditches. Slope, grade, and shape ditches. Remove all projecting roots, stumps, rock, or similar matter. Maintain all ditches in an open condition and free from leaves, sticks, and other debris.

Form furrow ditches by plowing or using other acceptable methods to produce a continuous furrow. Place all excavated material on the downhill side so the bottom of the ditch is approximately 18 inches below the crest of the loose material. Clean the ditch using a hand shovel, ditcher, or other suitable method. Shape to provide drainage without overflow.

204.13 Sloping, Shaping, and Finishing. Complete slopes, ditches, culverts, riprap, and other underground minor structures before placing aggregate courses. Slope, shape, and finish as follows:

(a) Sloping. Leave all earth slopes with uniform roughened surfaces, except as described in (b) below, with no noticeable break as viewed from the road. Except in solid rock, round tops and bottoms of all slopes including the slopes of drainage ditches. Round material overlaying solid rock to the extent practical. Scale all rock slopes. Slope rounding is not required on tolerance class D though M roads.

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 the slope to stabilize the slide. Reshape the cut or embankment slope to an acceptable condition.

(b) Stepped slopes. Where required by the contract, construct steps on slopes of 1⅓V:1H to 1V:2H. Construct the steps approximately 18 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.

(d) Finishing. Finish the roadbed to be smooth and uniform, and shaped to conform to the typical sections. Remove unsuitable material from the roadbed and replace it with suitable material. Finish roadbeds to the tolerance class shown in table 204-2.Ensure that the subgrade is visibly moist during shaping and dressing. Scarify to 6 inches below the bottom of low sections, holes, cracks, or depressions and bring back to grade with suitable material. Maintain proper ditch drainage.

For surfaced roads, remove all material larger than 6 inches from the top 6 inches of the roadbed.

For unsurfaced roads, use one of the following methods to finish the roadbed:

(1) Method A. Remove all material larger than 6 inches from the top 6 inches of the roadbed and replace with suitable material.

(2) Method B. Use a vibratory grid roller or approved equal with a minimum weight of 10 tons. Roll at least 5 full-width passes or until there is no visible evidence of further consolidation.

(3) Method C. For roads designated as Construction Tolerance Class K, L, or M, finish the roadbed by spreading the excavation. Eliminate rock berms.

204.14 Disposal of Unsuitable or Excess Material. Dispose of unsuitable or excess material at designated sites or legally off of the project.

When there is a pay item for waste, shape and compact the waste material in its final location according to Subsection 204.11 (c) Compaction C. Do not mix clearing or other material not subject to payment with the waste material. When there is not a pay item for waste, shape and compact the waste material in its final location according to Subsection 204.11 (c) Compaction C.

204.15 Acceptance. See Table 204-1 for sampling and testing requirements.

Material for embankment and conserved topsoil will be evaluated under Subsections 106.02 and 106.04.

Excavation and embankment construction will be evaluated under Subsections 106.02 and 106.04.

Clearing and removal of obstructions will be evaluated under Sections 201 and 203.

Measurement

204.16 Measure the Section 204 items listed in the bid schedule according to Subsection 109.02 and the following as applicable.

(a) Roadway excavation. Measure roadway excavation in its original position as follows:

(1) Include the following volumes in roadway excavation:

(a) Roadway prism excavation;

(b) Rock material excavated and removed from below subgrade in cut sections;

(c) Unsuitable material below subgrade and unsuitable material beneath embankment areas when a pay item for subexcavation is not shown in the bid schedule;

(d) Ditches, except furrow ditches measured under a separate bid item;

(e)Topsoil;

(f) Borrow material used in the work when a pay item for borrow is not shown in the bid schedule;

(g) Loose scattered rocks removed and placed as required within the roadway;

(h) Conserved material taken from stockpiles and used in Section 204 work; and

(i) Slide and slipout material not attributable to the Contractor's method of operation.

(2) Do not include the following in roadway excavation:

(a) Overburden and other spoil material from borrow sources;

(b) Overbreakage from the backslope in rock excavation;

(c) Water or other liquid material;

(d) Material used for purposes other than required;

(e) Roadbed material scarified in place and not removed;

(f) Material excavated when stepping cut slopes;

(g) Material excavated when rounding cut slopes;

(h) Preparing foundations for embankment construction;

(i) Material excavated when benching for embankments;

(j) Slide or slipout material attributable to the Contractor's method of operation;

(k) Conserved material taken from stockpiles constructed at the option of the Contractor; and

(l) Material excavated outside the established slope limits.

(3) When both roadway excavation and embankment construction pay items are shown in the bid schedule, measure the following as roadway excavation only:

(a) Unsuitable material below subgrade in cuts and unsuitable material beneath embankment areas when a pay item for subexcavation is not shown in the bid schedule;

(b) Slide and slipout material not attributable to the Contractor's method of operations; and

(c) Drainage ditches, channel changes, and diversion ditches.

(b) Unclassified borrow, select borrow, and select topping. When measuring by the cubic yard measure in its original position. If borrow excavation is measured by the cubic yard in place, take initial cross-sections of the ground surface after stripping overburden. Upon completion of excavation and after the borrow source waste material is returned to the source, retake cross-sections before replacing the overburden.

Do not measure borrow excavation used in place of excess roadway excavation.

(c) Embankment construction. Measure embankment construction in its final position. Do not make deductions from the embankment construction quantity for the volume of minor structures.

(1) Include the following volumes in embankment construction:

(a) Roadway embankments;

(b) Material used to backfill subexcavated areas, holes, pits, and other depressions;

(c) Material used to restore obliterated roadbeds to original contours; and

(d) Material used for dikes, ramps, mounds, and berms.

(2) Do not include the following in embankment construction:

(a) Preparing foundations for embankment construction;

(b) Adjustments for subsidence or settlement of the embankment or of the foundation on which the embankment is placed; and

(c) Material used to round fill slopes.

(d) Rounding cut slopes. Measure rounding cut slopes horizontally along the centerline of the roadway if a pay item for slope rounding is included in the bid schedule. If a pay item for slope rounding is not included in the bid schedule slope rounding will be considered subsidiary to excavation.

(e) Waste. Measure waste by the cubic yard in its final position. Take initial cross-sections of the ground surface after stripping over burden. Upon completion of the waste placement, retake cross-sections before replacing overburden.

(f) Slope scaling. Measure slope scaling by the cubic yard in the hauling vehicle.

Payment

204.17 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 109.05.

Table 204-1
Sampling and Testing Requirements

Material or Product	Type of Acceptance (Subsection)	Characteristic	Category	Test Methods Specifications	Sampling Frequency	Point of Sampling	Split Sample	Reporting Time
Topping (704.05) & unclassified borrow (704.06)	Measured and tested for conformance (106.04)	Classification	—	AASHTO M 145	1 per soil type	Processed material before incorporating in work	Yes, when requested	Before using in work
		Moisture-density	—	AASHTO T 180, method D(1) or T 99, method C(1)	1 per soil type but not less than 1 per 13,000 yd^3	"	"	"
		Compaction	—	AASHTO T 310 or other approved procedures	1 per 6000 yd^2 but not less than 1 per layer	In-place	—	Before placing next layer
Select borrow (704.07 & Select topping (704.08)	Measured and tested for conformance (106.04)	Classification	—	AASHTO M 145	1 per soil type but not less than 1 for each day of production	Processed material before incorporating in work	Yes, when requested	Before using in work
		Gradation	—	AASHTO T 27 & T 11	"	"	"	"
		Liquid limit	—	AASHTO T 89	"	"	"	"
		Moisture-density	—	AASHTO T 180, method D(1) or T 99, method C(1)	1 per soil type but not less than 1 per 13,000 yd^3	"	"	"
		Compaction	—	AASHTO T 310 or other approved procedures	1 per 6000 yd^2 but not less than 1 per layer	In-place	—	Before placing next layer

(1) Minimum of 5 points per proctor

Table 204-1 (continued)
Sampling and Testing Requirements

Material or Product	Type of Acceptance (Subsection)	Characteristic	Category	Test Methods Specifications	Sampling Frequency	Point of Sampling	Split Sample	Reporting Time
Earth embankment (204.11, Compaction A)	Measured and tested for conformance (106.04)	Classification	—	AASHTO M 145	1 per soil type	Source of Material	Yes, when requested	Before using in work
		Moisture-density	—	AASHTO T 180, method D[1] or T 99, method C[1]	1 per soil type but not less than 1 per 13,000 yd^3	"	"	"
		Compaction	—	AASHTO T 310 or other approved procedures	1 per 3500 yd^2 but not less than 1 per layer	In-place	—	Before placing next layer
Top of subgrade (204.11 Compaction A)	Measured and tested for conformance (106.04)	Compaction	—	AASHTO T 310 or other approved procedures	1 per 2500 yd^2	In-place	—	Before placing next layer

(1) Minimum of 5 points per proctor.

Table 204-2
Construction Tolerances

	Tolerance Class [a]												
	A	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**M**
Roadbed width (ft)	+0.5	+0.5	+1.0	+1.0	+1.0	+1.0	+1.5	+1.0	+2.0	+2.0	+2.0	+2.0	+2.0
Subgrade elevation (ft)	+0.1	+0.2	+0.2	+0.5	+0.5	+1.0	+1.0	+1.5	+2.0	+3.0	+2.0	+3.0	(c)
Centerline alignment (ft)	+0.2	+0.2	+0.5	+0.5	+1.0	+1.0	+1.5	+1.5	+2.0	+3.0	+3.0	+5.0	(c)
Slopes, excavation, and embankment (% slope[b])	+3	+5	+5	+5	+5	+5	+10	+10	+10	+10	+20	+20	+20

(a) Maximum allowable deviation from construction stakes and drawings.
(b) Maximum allowable deviation from staked slope measured from slope stakes or hinge points.
(c) Unless otherwise shown the centerline alignment and subgrade elevation, as built, have no horizontal curves with a radius of less than 80 feet, and no vertical curves with a curve length of less than 80 feet when the algebraic difference in the grade change is less than 10 percent, or a curve length of less than 100 feet when the algebraic difference of

209 - Structure Excavation and Backfill

.07_0618_us_07_12_2007

209.07 Dewatering.

Delete subsection 209.07 and substitute the following:

Dewatering. Where necessary to dewater, dewater according to Subsection 157.09.

209.10_0618_us_05_01_2007

209.10 Backfill.

(a) General.

Add the following:

Replace any pipe that is distorted by more than 5 percent of nominal dimensions, or that is ruptured or broken.

Do not place or backfill pipe that meets any of the following conditions until the excavation and foundation have been approved in writing by the CO:

- Embankment height greater than 6 feet at subgrade centerline.
- Installation in a protected streamcourse.
- Round pipe with a diameter of 48 inches or greater.
- Pipe arches with a span of 50 inches or greater.
- Any box culvert of structure other than pipe culverts.

(b) Pipe culverts.

(1) Pipe culverts with compacted backfill.

Add the following:

On each side of the pipe, excavate an area at least as wide AS SHOWN ON THE PLANS. Backfill without damaging or displacing the pipe. Complete backfilling of the trench with suitable material.

209.11 Compacting.

Delete the subsection and add the following:

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. For compaction under sections 252, 254, 255, 257, 258 and 262 compact with a vibratory steel wheeled roller with a mass of at least 8 tons.

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.

Table 209-1 Sampling and Testing Requirements

Add the following:

(2) Compaction methods (A) and (B) do not require AASHTO T-99 or T-310 test methods for foundation fill.

212 - Linear Grading

212.00_nat_us_05_19_2005

Delete the entire specification and replace it with the following:

Description

212.01 This work consists of clearing and grubbing, excavation and embankment, and erosion control to construct roadways and associated features.

Construction Requirements

212.02 Clearing & Disposal. Protect construction stakes and construction control markers. Remove or treat all trees, snags, downed timber, brush, and stumps within the clearing limits.

Immediately remove slash deposited in stream courses.

Fell all dead trees that are outside the clearing limits and that lean toward the road and are tall enough to reach the roadbed.

Leave stump heights less than 12 inches or one-third of the stump diameter; whichever is greater, measured on the side adjacent to the highest ground. Leave felled trees outside the clearing limits in place, and treat them no further unless otherwise designated.

Utilization standards for merchantable timber are listed below. Fall and buck merchantable material into lengths not to exceed **40** feet. Pieces (logs) will be considered as meeting utilization standards when such pieces would have met Utilization Standards if bucking lengths were varied to include such material.

Minimum Utilization Standards

Abide by applicable standards under the Twins timber sale contract.

Do not cut vegetation less than 3 feet in height and less than 3 inches in diameter that is within the clearing limits but beyond the roadway and not in a decking area and that does not interfere with sight distance along the road.

Merchantable Timber

Limb and deck logs that meet utilization standards at locations approved by the CO or otherwise designated. Deck logs according to 201.04(f).

Un-merchantable Timber and Large Construction Slash

(f) Scattering. Scatter construction slash outside the clearing limits without damaging trees. Limb all logs. Place logs and stumps away from trees, positioned so they will not roll, and are not on top of one another. Limb and scatter other construction slash to reduce slash concentrations.

(l) Placing Slash on Embankment Slopes. Place construction slash on completed embankment slopes to reduce soil erosion. Place construction slash as flat as practicable on the completed slope. Do not place slash closer than 2 feet below subgrade. Priority for use of available slash is for: (1) through fills; (2) insides of curves; and (3) ditch relief outlets.

212.03 Pioneering. Do not undercut the final back slope during pioneering operations. Deposit material inside the roadbed limits. Do not restrict drainage.

212.04 Grubbing. Within the clearing limits remove stumps with less than 6 inches of cover.

212.05 Excavation & Embankment. Construct the roadway to the required template. Protect backslopes from being undercut. Embankment may be placed by side casting and end dumping.

Locate and use borrow material, and remove and treat unsuitable or excess material.

Place rocks that are too large to be incorporated in the embankment outside the traveled way on the downhill side so that they will not roll, obstruct drainage, or hinder roadbed use and maintenance.

Leave slopes that are to be seeded in a roughened condition.

Use a crawler tractor with a dozer blade to shape and finish the roadbed. Provide for drainage of surface water, unless otherwise designated. Do not permit individual rocks in the roadbed to protrude more than 4 inches above the subgrade. A motor grader finish is not required.

Do not encroach on stream channels, wetlands, or extend beyond right-of-way or easement limits. Do not make alignment or profile grade adjustments that adversely affect drainage. Construct the roadbed within the following grading tolerances:

(a) Alignment (centerline). Alignment may be shifted a maximum of 10 feet left or right of the planned centerline. Curve radii may be reduced by up to 50 percent. Do not construct curves with radii less than 100 feet. Compound curves are permitted. Traveled way tolerance is (+) 2 feet unless otherwise designated.

(b) Profile grade. Profile grade may be shifted a maximum of 5 feet up or down from the plan elevation provided the new grade tangent does not vary more than 2 percent from the plan grade tangent. Connect revised forward and back grade tangents with a uniform vertical curve consistent with the design.

212.06 Drainage. Install culverts and other drainage structures according to Section 602 and Section 209.

212.07 Erosion Control. Install erosion control measures and seeding according to the drawings and Section 625.

212.08 Acceptance. Linear grading will be evaluated under Subsections 106.02 and 106.04.

Clearing and slash and timber treatment will be evaluated under Sections 201 and 203.

Measurement

212.09 Measure the Section 212 items listed in the bid schedule according to Subsection 109.02 and the following.

Do not measure changes in the clearing and grubbing quantity caused by alignment adjustments under Subsection 212.04.

Payment

212.10 The accepted quantities, measured as provided in Subsection 109.02 and above, will be paid at the contract price per unit of measurement for the Section 212 pay item listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

251 - Riprap

251.03_nat_us_08_05_2009

Construction Requirements

251.03 General.

Add the following:

Place riprap under or adjacent to structures before placing prefabricated superstructure units or constructing superstructure falsework unless otherwise approved by the CO.

251.08_nat_us_08_05_2009

251.08 Measurement.

Add the following:

Payment for excavation and embankment required for placement of riprap is indirectly included in the pay item for riprap.

303 - Road Reconditioning

303.01_nat_us_03_02_2005

303.01 Work.

Delete and add the following:

This work consists of reconditioning ditches, shoulders, roadbeds, cattleguards, asphalt surfaces, and aggregate surfaces.

303.04_0618_us_11_26_2008

303.04 Shoulder Reconditioning.

Delete and add the following:

Remove all slide material, vegetation and other debris from existing shoulders including shoulders of turnouts and other widened areas. Reshape shoulders and dispose of waste as designated.

303.05_0618_us_03_26_2007

303.05 Roadbed Reconditioning.

Delete fourth sentence and replace with the following:

Scarify to the depth and width shown on the drawings, remove surface irregularities, and shape to provide a uniform surface.

303.06_0618_us_04_04_2007

303.06 Aggregate Surface Reconditioning.

Delete and replace with the following:

Repair soft and unstable areas to the full depth of the aggregate surface and according to Subsection 204.07. Scarify to the depth and width shown in the drawings, and remove surface irregularities. Reshape, finish, and compact the entire aggregate surface according to Section 301, Section 321, or Section 322 as applicable.

Delete Table 303-1 and replace with the following:

Table 303-1
Sampling and Testing Requirements

Material or Product	Type of Acceptance (Subsection)	Characteristic	Category	Test Methods Specifications	Sampling Frequency	Point of Sampling	Split Sample	Reporting Time
Existing Roadway	Measured and tested for conformance (106.04)	Moisture-density Method D	—	AASHTO T 99 (1)	1 per each mixture or change in material	Processed material before incorporating in work	Yes, when requested	Before using in work
		Moisture-density Method E	—	R-1 Marshall	"	"	"	"
		Moisture-density Method F	—	AASHTO T 180(1)	"	"	"	"
		Moisture-density Method G	—	R-1 Marshall	"	"	"	"
		In-place density & moisture content	—	AASHTO T 310 or other approved procedures	1 per 3000 yd^2	In-place	—	Before placing next layer

(1) Minimum of 5 points per proctor.

322 - Minor Aggregate Courses

322.00_nat_us_10_14_2011

Description

322.01 This work consists of constructing one or more courses of aggregate on a prepared surface. Work includes producing aggregate by grid rolling, screening, or crushing methods, or placing pit-run or Government-furnished aggregate.

Surface aggregate grading is designated as shown in Table 703-3.

Subbase and base aggregate grading is designated as shown in Table 703-2.

Screened aggregate grading is designated as shown in Table 703-16.

Material

322.02 Conform to the following Subsections:

Aggregate	703.05
Water	725.01

Construction Requirements

322.03 General. Prepare the surface on which the aggregate course is placed according to Section 204 or 303 as applicable.

Request approval of the roadbed in writing before placing aggregate.

Develop, haul, and apply water in accordance to Section 170.

Submit target values within the gradation ranges shown in Table 703-2 or 703-3 for the required grading. After reviewing the proposed target values the CO will determine the final values for the gradation and notify the Contractor in writing.

No quality requirements or gradation other than maximum size will be required for pit run and grid-rolled material. For grid rolling, use all suitable material that can be reduced to maximum size.

After processing on the road, remove all oversize material from the road and dispose of it as directed by the CO.

If the aggregate is produced and stockpiled before placement, handle and stockpiled according to Section 320. Establish stockpile sites at approved locations.

322.04 Mixing and Spreading. Mix the aggregate and adjust the moisture content to obtain a uniform mixture with a moisture content suitable for the specified compaction method. Spread and shape the mixture on the prepared surface in a uniform layer with no segregation of size, and to a loose depth that will provide the required compacted thickness.

Do not place in layers exceeding 6 inches in compacted thickness for aggregate base and surface courses or twice the maximum particle size for screened aggregate. When more than one layer is necessary, compact each layer according to Subsection 322.05 before placing the next layer. Route hauling and leveling equipment uniformly over the full width.

When placing aggregate over geotextile, place aggregate in a single lift to the full depth specified.

322.05 Compacting. Compact each layer full width. Roll from the sides to the center, parallel to the centerline of the road. Along curbs, headers, walls, and all places not accessible to the roller, compact the material with approved tampers or compactors.

Compact the aggregate using one of the following methods as specified:

Compaction A. Operating spreading and hauling equipment over the full width of the travelway.

Compaction B. Operate rollers and compact as specified in Subsection 204.11(a)(1).

Compaction C. Moisten or dry the aggregate to a uniform moisture content between 5 and 7 percent based on total dry weight of the mixture. Operate rollers and compact as specified in Subsection 204.11(a)(1).

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

Compaction E. Removed.

Compaction F. Compact to a density of at least 95 per-cent of the maximum density, as determined by AASHTO T 180, method C or D.

Compaction G. Removed.

For all compaction methods, blade the surface of each layer during the compaction operations to remove irregularities and produce a smooth, even surface. When a density requirement is specified, determine the in place density and moisture content according to AASHTO T 310 or other approved test procedures.

322.06 Construction Tolerance. If grade finishing stakes are required, finish the surface to within ±0.10 feet from staked line and grade elevation.

If grade finishing stakes are not required, shape the surface to the required template and check the surface with a 10-foot straightedge. Defective areas are surface deviations in excess of 1/2 inch in 10 feet between any two contacts of the straightedge with the surface.

Correct all defective areas by loosening the material, adding or removing material, reshaping, and compacting.

Ensure that the compacted thickness is not consistently above or below the specified thickness. The maximum variation from the compacted specified thickness is ½ inch.

Ensure that the compacted width is not consistently above the specified width. The maximum variation from the specified width will not exceed +12 inches at any point.

322.07 Maintenance. Maintain the aggregate course to the correct line, grade, and cross-section by blading, watering, rolling, or any combination thereof until placement of the next course. Correct all defects according to Subsection 322.06.

322.08 Acceptance. See Table 322-1 or Table 322-2 as applicable, for sampling and testing requirements.

Aggregate gradation and surface course plasticity index will be evaluated under Subsection 106.04. If the aggregate is obtained from a Government stockpile then the above characteristics will be evaluated under Subsection 106.02. Other aggregate quality properties will be evaluated under Subsections 106.02 and 106.04. Placement of aggregate courses will be evaluated under Subsections 106.02 and 106.04.

The allowable upper and lower aggregate gradation limits are the Target Value plus or minus the allowable deviations shown in Tables 703-2 and 703-3.

The allowable upper and lower Plasticity index limits for surface courses are stated in 703.05(b).

Preparation of the surface on which the aggregate course is placed will be evaluated under Section 204 or 303 as applicable.

Measurement

322.09 Measure the Section 322 items listed in the bid schedule according to Subsection 109.02 and the following as applicable.

Measure square yard width horizontally to include the top of aggregate width including designed widening. Measure the square yard length horizontally along the centerline of the roadway.

If the measurement for aggregate is by cubic yard using contract quantities then measure aggregate by the cubic yard in-place once compacted, otherwise measurement for aggregate by the cubic yard is measured by the cubic yard in the hauling vehicle.

Measure thickness perpendicular to the grade of the travelway.

Measure width perpendicular to the centerline.

Payment

322.10 The accepted quantities will be paid at the contract price per unit of measurement for the Section 322 pay items listed in the bid schedule. Payment will be full compensation for the work prescribed in this Section. See Subsection 109.05.

Table 322-1
Sampling and Testing Requirements

Material or Product	Type of Acceptance (Subsection)	Characteristic	Category	Test Methods Specifications	Sampling Frequency	Point of Sampling	Split Sample	Reporting Time
Aggregate source quality 703.05	Measured and tested for conformance (106.04 & 105)	LA abrasion (coarse)	—	AASHTO T 96	1 per type & source of material	Source of material	Yes, when requested	Before using in work
		Sodium sulfate soundness loss (coarse & fine)	—	AASHTO T 104	"	"	"	"
		Durability index (coarse & fine)	—	AASHTO T 210	"	"	"	"
		Fractured faces	—	ASTM D 5821	"	"	"	"
Subbase, Base, and Surface courses	Measured and tested for conformance (106.04)	Sample	—	AASHTO T 2	2 per day	From windrow or roadbed after processing or from approved crusher sampling device	Yes	48 hours

Table 322-1 (continued)
Sampling and Testing Requirements

Material or Product	Type of Acceptance (Subsection)	Characteristic	Category	Test Methods Specifications	Sampling Frequency	Point of Sampling	Split Sample	Reporting Time
Subbase, Base, and Surface	Measured and tested for conformance (106.04)	Moisture-density Method D	—	AASHTO T 99 [1]	1 per type and source of material	Source of material	Yes, when requested	Before using in work
			—		"	"	"	"
		Moisture-density Method F	—	AASHTO T 180[1]	"	"	"	"
			—		"	"	"	"
		In-place density & moisture content	—	AASHTO T 310 or other approved procedures	3 per day	In-place	—	Before placing next layer

(1) Minimum of 5 points per proctor.

Table 322-2
Sampling and Testing Requirements

Material or Product	Type of Acceptance (Subsection)	Characteristic	Category	Test Methods Specifications	Sampling Frequency	Point of Sampling	Split Sample	Reporting Time
Screened Aggregate	Measured and tested for conformance (106.04)	Sample	—	AASHTO T 2	2 per day	From windrow or roadbed after processing or from approved crusher sampling device	Yes	48 hours

602 - Culverts and Drains

602.03_nat_us_09_06_2005

602.03 General.

Add the following:

Ensure that the final installed alignment of all pipe allows no reverse grades, and does not permit horizontal and vertical alignments to vary from a straight line drawn from center of inlet to center of outlet by more than 2 percent of pipe center length or 1.0 feet, whichever is less.

602.03_nat_us_10_02_2008

602.03 General.

Delete second paragraph and add the following:

The lengths and locations of individual pipe “as shown on the plans” are approximate. Do not order pipe until culvert locations are designated on the ground and a written list of the correct lengths is approved by the CO.

602.03_06_us_03_17_2010

602.03 General

Add the following:

Clean and paint damaged coating caused by welding, field cutting, or handling in accordance with AASHTO M 36M and ASTM A 849.

602.06_nat_us_08_05_2009

602.06 Laying Plastic Pipe.

Delete the second paragraph and substitute the following:
Provide soil-tight bell and spigot joints for plastic pipe culverts.

625 - Turf Establishment

625.08_0618_us_01_29_2009

625.08 Mulching. (a) Dry method.

Delete the paragraph and replace with the following:
Apply certified weed free straw mulch as shown on the plans.

635 - Temporary Traffic Control

635.03_nat_us_05_13_2004

635.03 General.

Add the following:

Install temporary traffic control signs to temporary posts or approved temporary sign mounts.

703 - Aggregate

703.05_nat_us_08_14_2009

Delete 703.05 and replace with the following:

703.05 Subbase, Base, Surface Course, and Screened Aggregate.

(a) Subbase or base aggregate. Furnish hard, durable particles or fragments of crushed stone, crushed slag, or crushed gravel conforming the following:

(1) Gradation	Table 703-2
(2) Liquid limit, AASHTO T 89	25 max.
(3) Plastic limit, AASHTO T 90	Nonplastic
(4) Los Angeles abrasion, AASHTO T 96	40% max.
(5) Sodium sulfate soundness loss (5 cycles), AASHTO T 104	12% max.
(6) Durability index (coarse), AASHTO T 210	35 min.
(7) Durability index (fine), AASHTO T 210	35 min.
(8) Fractured faces, ASTM D 5821	50% min.
(9) Free from organic matter and lumps or balls of clay	

Do not use material that breaks up when alternately frozen and thawed or wetted and dried.

Obtain the aggregate gradation by crushing, screening, and blending processes as necessary. Fine aggregate, material passing the No. 4 sieve, shall consist of natural or crushed sand and fine mineral particles.

(b) Surface course aggregate. Furnish hard, durable particles or fragments of crushed stone, crushed slag, or crushed gravel conforming the following:

(1) Gradation	Table 703-3
(2) Liquid limit, AASHTO T 89	35 max.
(3) Plastic Index, AASHTO T 90	
a) If the percent passing the No. 200 sieve is less than 12%	2 to 9
b) If the percent passing the No. 200 sieve is greater than 12%	Less than 2
(4) Los Angeles abrasion, AASHTO T 96	40% max.
(5) Sodium sulfate soundness loss (5 cycles), AASHTO T 104	12% max.
(6) Durability index (coarse), AASHTO T 210	35 min.
(7) Durability index (fine), AASHTO T 210	35 min.
(8) Fractured faces, ASTM D 5821	75% min.
(9) Free from organic matter and lumps or balls of clay	

Do not use material that breaks up when alternately frozen and thawed or wetted and dried.

Do not furnish material that contains asbestos fibers.

Obtain the aggregate gradation by crushing, screening, and blending processes as necessary. Fine aggregate, material passing the No. 4 sieve, shall consist of natural or crushed sand and fine mineral particles.

(c) Screened aggregate – Furnish hard, durable particles or fragments of stone, slag, or gravel conforming the following:

(1) Gradation	Table 703-16
(2) Plastic Index, AASHTO T 90	Less than 9
(3) Los Angeles abrasion, AASHTO T 96	55% max.

(4) Free from organic matter and lumps or balls of clay.

Do not use material that breaks up when alternately frozen and thawed or wetted and dried.

Obtain the aggregate gradation by crushing, screening, and blending processes as necessary.

Delete Table 703-2 and replace with the following:

Table 703-2
Target Values, Ranges for Subbase and Base Gradations

Sieve Size	Percent by Mass Passing Designated Sieve (AASHTO T 27 and T 11)				
	Grading Designation				
	A (Subbase)	B (Subbase)	C (Base)	D (Base)	E (Base)
2½ inch	100				
2 inch	97 – 100	100	100		
1½ inch		97 – 100			
1 inch	65 – 79 (6)		80 – 100 (6)	100	
3/4 inch			64 – 94 (6)	86 – 100 (6)	100
1/2 inch	45 – 59 (7)				
3/8 inch			40 – 69 (6)	51 – 82 (6)	62 – 90 (6)
No. 4	28 – 42 (6)	40 – 60 (8)	31 – 54 (6)	36 – 64 (6)	36 – 74 (6)
No. 40	9 – 17 (4)			12 – 26 (4)	12 – 26 (4)
No. 200	4.0 – 8.0 (3)	4.0 – 12.0 (4)	4.0 –7.0 (3)	4.0 – 7.0 (3)	4.0 – 7.0 (3)

( ) The value in the parentheses is the allowable deviation (±) from the target values..

Delete Table 703-3 and replace with the following:

Table 703-3
Target Value Ranges for Surface Course Aggregate

Sieve Size	Percent by Mass Passing Designated Sieve (AASHTO T 27 and T 11)					
	Grading Designation					
	F	G	H	S	T	U
1 1/2 inch	100			100		
1 inch	97-100	100		72 – 92 (6)	100	
3/4 inch	76-89 (6)	97 - 100	97 - 100			100
1/2 inch					71 – 91 (6)	
3/8 inch	56-68 (6)	70 – 80 (6)	80 – 92 (6)	51 – 71 (6)		71 – 90 (6)
No. 4	43-53 (7)	51 – 63 (7)	58 – 70 (7)	36 – 53 (7)	43 – 60 (7)	50 – 68 (7)
No. 8				26 – 40 (6)	30 – 46 (6)	34 – 51 (6)
No. 16	23-32 (6)	28 – 39 (6)	28 – 40 (6)			
No. 40	15-23 (5)	19 – 27 (5)	16 – 26 (5)	14 – 25 (5)	16 – 28 (5)	19 – 30 (5)
No. 200	10.0-16.0 (4)	10.0 – 16.0 (4)	9.0 – 14.0 (4)	8.0 – 15.0 (4)	8.0 – 15.0 (4)	8.0 – 15.0 (4)

( ) The value in the parentheses is the allowable deviation (±) from the target values.
If the plasticity index (PI) is greater than 0, the TV range for the No. 200 sieve size is 8-12 (4).

Add Table 703-16:

Table 703-16

Gradation Requirements for Screened Aggregate

Sieve Size	Percent by Mass Passing Designated Sieve (AASHTO T 27 and T 11)						
	Grading Designation						
	L	M	N	O	P	Q	R
6 inch	100	100					
4 inch			100	100			
3 inch					100	100	
2 inch							100
No. 4		15-45		15-45		15-45	

704 - Soil

704.02_nat_us_03_02_2005

704.02 Bedding Material.

Delete Subsection 704.02 and substitute the following:

Furnish a well graded, free draining material free of excess moisture, muck, frozen lumps, roots, sod, or other deleterious material conforming to the following:

(a) Maximum particle size	3 inch or half the corrugation depth, whichever is smaller
(b) Material passing No. 200 sieve, AASHTO T 27 and T 11	10% max.

714 - Geotextile and Geocomposite Drain Material

714.03_nat_us_02_25_2005

Tables 714-1 and 714-4.

Add the following note to both tables:

(4) Woven slit film will not be allowed.

Add the following:

714.03 Geogrids.

Furnish geogrids consisting of polymeric materials such as polypropylene, polyethylene, or polyester formed into a stable network of bars or straps fixed at their junctions such that the bars retain their relative position to each other.

Elevate and protect rolls with a waterproof cover if stored outdoors.

(a) Physical requirements. Furnish geogrid treated to resist ultraviolet degradation, and conforming to the physical strength requirements shown in table 714-7 according to ASTM D 4595 for the specified geogrid category. Strength values shown in table 714-7 represent minimum average roll values and are for the direction of primary reinforcement. Ensure that the aperture size for all geogrids is between ¾ to 3 inches.

(b) Evaluation procedures. Geogrids will be evaluated under Subsection 106.03. Furnish a certification and a sample of the geogrid.

Table 714-7—Physical strength requirements for geogrids.

Category	Minimum Ultimate Strength at Breakage *(lbs/ft)*
1	890
2	1985
3	2875
4	4110
5	5475
6	8215

Effective Date: **December 9, 2019**
Expiration Date: **December 31, 2024**

R6 5460 **NFS ROAD 1806, WY ROAD 9000, 9020, 9050, 9060**

TEMPORARY ROAD USE PERMIT

This Temporary Road Use Permit (this "**Permit**"), dated as of December 9, 2019 (the "**Effective Date**"), is made by and between **WEYERHAEUSER COMPANY**, a Washington corporation ("**Weyerhaeuser**") with an address of P.O. Box 275, Springfield, OR 97477, and **United States of America,** acting through the Forest Service, Department of Agriculture, hereinafter called ("**Permittee**"), with an address of Middle Fork Ranger District.

Recitals

A. On March 6, 1959, The Booth-Kelly Lumber Company, Weyerhaeuser Timber Company and United States Department of Agriculture entered into an Agreement for the purpose of granting to the Forest Service the non-exclusive right to use the Little Fall Creek Mainline (aka FS Road 1806) for all purposes incident to the management of Forest Service lands, but excluding hauling of forest products. This Temporary Road Use Permit grants to Permittee and its authorized contractors and subcontractors the non-exclusive right to use the Road System to transport forest products removed from Forest Service lands. The conditions upon which the rights hereinabove granted may be exercised are as follows:

I. Adhere to the Temporary Road Use Permit terms and conditions
II. Weyerhaeuser and Permittee shall meet prior to active hauling to determine road maintenance:
   i. If Permittee is the primary user, they shall be responsible for road maintenance and surface rock replacement.
   ii. If Weyerhaeuser is hauling out the road system at the same time as Permittee a road maintenance plan will be developed for responsibility of road maintenance by both parties.

1. ROAD USE PERMIT AREA & PERMITTED USES. Weyerhaeuser grants Permittee the non-exclusive right to enter and be upon those Weyerhaeuser roads located in the **County of Lane, State of Oregon**:

Willamette Meridian:
T. 17 S., R. 2 E., Sec. 33;
T. 18 S., R. 1 W., sec. 24 and 25;
T. 18 S., R. 1 E., Sec. 1, 11, 12, 14, 15, 16, 19, 20, and 21;
T. 18 S., R 2 E., Sec. 4, 5, 6, 7, 8.

NFS Road 1806, WY Roads 9000, 9020, 9050, and 9060

25 ft each side of centerline, and being approximately 16.76 miles in length; 0.40 miles new construction of temporary roads, and 16.36 of existing roads as shown on the map attached as Exhibit A. (each a "**Permit Road**" or collectively, the "**Permit Roads**") for the limited purpose of ingress to and egress from the property depicted on the map attached as Exhibit A.

This Permit is for the sole purpose of providing Permittee and its authorized contractors and subcontractors at all tiers (individually and collectively, "**Contractors**") commercial vehicular ingress and egress to and from its property for purposes of harvesting and hauling timber and completing pre-sale and post-sale harvest activities.

Permittee shall keep Weyerhaeuser informed of the identities of all Contractors that use the Permit Roads under the terms of this Permit. Other than use by Contractors, this Permit does not include any rights of third-party road use. This Permit confers no right of access for any reason to any Weyerhaeuser or other property other than the Permit Roads. The permission granted to Permittee in this Permit is limited to the Permit Roads. Weyerhaeuser makes no representation or warranty as to its ownership rights in the Permit Roads. All requirements in this Permit shall apply to Contractors, and Permittee shall be responsible for adherence to the terms of this Permit by all Contractors.

2. **TERM.** This Permit shall expire on **December 31, 2024**, unless terminated earlier under this section.

   Weyerhaeuser may suspend Permittee's activities under this Permit immediately by written notice of any default. Suspension will continue until the default is remedied. Any time after fourteen (14) days from such a suspension notice, if Permittee is still in default, Weyerhaeuser may terminate Permittee's rights under this Permit. Weyerhaeuser's right to suspend and terminate Permittee's rights under this paragraph are in addition to all other available remedies. The following events shall constitute events of default: (a) Failure to comply with any of the terms or conditions of this Permit; and (b) Commencement of any proceeding or petition under the Bankruptcy Code or any other federal or state bankruptcy, insolvency, receivership, or similar law.

3. **PERMIT FEES.** Prior to hauling on the Permit Road, Permittee shall pay a fee of $3,770.15 for rock replaced for the haul as shown in the table below.

Unit	Stand	Volume (MBF)	Miles to 1806 road	Total
6	39	576	0.5 miles on 9060 3.27 miles on 9000	$213.12 $1393.81
5	125	161	0.24 miles on 9050 2.67 miles on 9000	$28.60 $318.10
1, 2, 2A	274 & 0294	1594	0.65 miles on 9020 0.89 miles on 9000	$766.71 $1049.81
				$3,770.15

   Additional volume hauled will be charge at the rate of $0.74/MBF/Mile, if applicable, payable at the end of haul.

4. **INSURANCE.** Permittee is a Federal agency within the United States Department of Agriculture and as such, it is self-insured. As a Federal agency, the Federal Employee's Compensation Act, administered by the Department of Labor, Office of Workers' Compensation Program (OWCP), covers Permittee's workers' compensation liability. Before allowing Contractors to use a road under this Permit, Permittee shall cause its

Contractors to obtain and maintain in full force and effect during the term of this Permit, at Permittee's sole expense, the following insurance coverages:

a) If, under this Permit, Contractor will operate equipment not licensed for use on public highways, the minimum coverages and limits will be: Comprehensive or Commercial General Liability (occurrence form), covering bodily injury and property damage liability, including contractual, products, completed operations, broad form property damage, and independent operator/contractors, with minimum limits of at least $1,000,000 per occurrence and $1,000,000 general aggregate. Weyerhaeuser shall be designated as an Additional Insured evidenced by copy of the Additional Insured Endorsement attached to the Certificate of Insurance and the endorsement is to include that the insurance will cover "Weyerhaeuser Company and its subsidiaries and affiliates." The endorsement may be specific to this Permit (CG 20 10, 0704, or equivalent) or may be a Blanket Additional Insured Endorsement applicable to all agreements entered into by Permittee, again equivalent to the CG 20 10 07 04. Permittee's insurance or self-insurance shall be primary, and Weyerhaeuser's insurance or self-insurance is excess over other available coverage.

b) If, under this Permit, Contractor will operate equipment which is licensed for use on public highways, the minimum coverages and limits will be: Comprehensive Automobile Liability covering owned, hired, and non-owned vehicles with minimum limits of: (a) For heavy vehicles, equal to or more than 12,000 pounds (gross vehicle weight): combined single limit of $1,000,000; or (b) For light vehicles, less than 12,000 pounds (gross vehicle weight): combined single limit of $300,000.

On or before entering Weyerhaeuser property in connection with this Permit, Permittee shall furnish Weyerhaeuser with a Certificate of Insurance evidencing compliance herewith. Permittee shall give Weyerhaeuser at least thirty (30) days written notice prior to cancellation of said coverage, either in whole or in part, and the failure of Permittee to give said notice as required shall be considered a breach of this Permit by Permittee. Permittee shall ensure that all Contractors' insurance coverages and endorsements consistent with the above. Insurance companies providing coverage for Permittee and subcontractors shall have a Best's rating of no less than A- VII. All insurance or self-insurance of Weyerhaeuser and its subsidiaries and affiliates shall be excess of any insurance provided by Permittee or its Contractors.

5. **COMPLIANCE WITH ALL LAWS.** Permittee shall comply with all applicable federal, state, and local laws and regulations in connection with the activities under this Permit, including without limitation those pertaining to fire prevention and suppression, safety, water quality, other environmental resources, and endangered species.

6. **SUSPENSION OF USE.** Permittee agrees to immediately suspend use of the Permit Roads: (a) from time to time whenever Permittee observes conditions under which use of the Permit Roads would result in damage thereto; or (b) Permittee is requested by Weyerhaeuser to do so based on either the potential for damage to Permit Roads or danger of wildfire, which requests may be made from time to time in Weyerhaeuser's

sole discretion

7. **SAFETY**. Permittee shall comply with the safety rules listed below:
   a. Maximum speed is 25 mile-per-hour on all primary roads or as otherwise posted. Individual road conditions, weather, and limited visibility will require slower speeds.
   b. All vehicle occupants must wear seat belts on Weyerhaeuser roads.
   c. Drive with lights "on."
   d. Drive on the right.
   e. Be prepared to stop in no more than half your sight distance.
   f. Do not block roads or otherwise interfere with forestry operations.
   g. Take all reasonable precaution to prevent unauthorized persons from using the Permit Road(s) and from entering Weyerhaeuser or other lands by means of the Permit Road(s).
   h. Keep the Permit Road(s) open and not obstruct them at any time without Weyerhaeuser's prior written permission.
   i. Strictly comply with all additional safety rules and road use regulations provided to Permittee by Weyerhaeuser, which safety rules may be revised from time to time at the sole discretion of Weyerhaeuser.
   j. Suspend use of the Permit Road(s) whenever the use, due to weather conditions, will cause excessive damage to the Permit Road(s).
   k. After passing through, leave all gates in open or closed position as found prior to passing through, unless otherwise instructed by Weyerhaeuser to follow a different local gate policy.

8. **ROAD MAINTENANCE.**

Permittee shall maintain and leave the Permit Road(s) at in the same condition as on the day this Permit is entered into or better. If any portions of the Permit Roads are maintained by a third party, Permittee shall pay to the maintaining party Permittee's equitable share of the cost of such maintenance, to be agreed upon by the parties concerned. Acceptable road conditions for maintenance performed by the Permittee or a Third Party include the following:

a. Culverts need to be open, free flowing, and in good working order. If they become damaged, they shall be cut back, repaired, or replaced.

b. Permittee may install one culvert on Weyerhaeuser 9000 Road at Milepost 0.94 as identified by Permittee.

c. Cut banks shall be clean and free of debris to prevent debris from entering and blocking the ditch.

d. Ditches shall be free of all debris, well defined, and in good working order. They need to be able to accept and transport water to the nearest culvert or outlet and shall be cleaned if not functional.

e. Road surfaces shall be smoothed and shaped. Surface repair must be made if necessary.

f. Road maintenance activities shall minimize erosion and sediment delivery that impacts water quality. Such activities may include spreading an approved rock grade on road surfaces, water barring road, or placement of hay bales in ditches.

All road maintenance work performed by Permittee will be done in a manner that is consistent with the applicable requirements of the Sustainable Forestry Initiative (SFI®).

9. **FIRE PROTECTION**. Permittee shall comply with all laws and regulations pertaining to fire protection and suppression and take every possible precaution to prevent fires from igniting on or spreading onto Weyerhaeuser's property. If a fire should occur on or near the Permit Road, Permittee shall immediately notify Weyerhaeuser at 541-746-2511 and appropriate government agencies and shall make every reasonable effort to help suppress or contain the fire, provided the same can be done safely.

10. **HAZARDOUS MATERIALS**. Permittee shall not dump, spill or otherwise allow the release of any petroleum products, chemicals or other substances considered hazardous or regulated under federal or state law on Weyerhaeuser's property, and will follow all laws governing the transport, use, storage and handling of all petroleum products, chemicals and other such substances. In the case of any leak, over-fill, or accidental spill on or adjacent to Weyerhaeuser property, Permittee will immediately clean up the same, and report it to Weyerhaeuser (in addition to reporting it to the applicable governmental agency if required under applicable law).

11. **FIREARMS AND WEAPONS**. Permittee shall not possess, use or display firearms or weapons on Weyerhaeuser Property while operating under this Permit; however, this prohibition shall not apply to federal law enforcement officers who are authorized to carry weapons by applicable law.

12. **HOUSEKEEPING**. Permittee shall not leave or dispose of any debris, garbage or other materials, or burn the same, on Weyerhaeuser's property.

13. **NOTICES**. All notices provided for in this Permit, except notices regarding fire suppression or hazardous materials spills, must be written and given by either personal hand-delivery (including Federal Express or other recognized, national overnight mail carrier), or regular U.S. mail, postage prepaid to the address above. All notices regarding fire suppression or hazardous materials must be reported in person or by telephone as soon as possible. All notices must be given to the persons whose signatures appear at the end of this Permit.

14. **NO HARVESTING OR RELATED ACTIVITIES PERMITTED**. Permittee shall not conduct any harvesting operations upon the Permitted Roads or on any other Weyerhaeuser property including unloading, refueling or other activities related to Permittee's activities other than ingress and egress from the adjoining property.

15. **NON-ASSIGNMENT**. Permittee may not assign its rights under this Permit without Weyerhaeuser's prior written consent, which consent may be withheld in Weyerhaeuser's sole and absolute discretion, and Weyerhaeuser may consider any attempted assignment without this consent to be void and to terminate this Permit.

16. **INDEMNITY**. The United States Government is self-insured, and acting by and through the USDA-Forest Service, Willamette National Forest, it hereby agrees to bear any and

all costs and liabilities of any kind related to the exercise of its rights under this Temporary Road Use Permit to the extent it may legally do so under the Federal Tort Claims Act (FTCA), 28 U.S.C. 2671 et seq, or any other act wherein Congress has specifically waived the sovereign immunity of the United States.

17. **ASSUMPTION OF RISK.** Contractors operating under this Permit are required to carry liability and workers' compensation insurance. All Contractors and their contracts with subcontractors (at all tiers) shall include a provision that such contractor or subcontractor shall indemnify, defend, and hold harmless Weyerhaeuser Company and its subsidiaries from any claims or liabilities, including claims brought by third parties, and including all claims or liabilities asserted for property damage, personal injury or death, arising out of or relating to the actions or inactions of such contractors and subcontractors hereunder for their negligence or intentional acts.

18. **RELATIONSHIP OF PARTIES.** This Permit is not intended to create and shall not be construed to create any partnership or association for profit between Permittee and Weyerhaeuser, and any liabilities hereunder shall be several and not joint.

19. **RECORDING.** Permittee may not record this Permit in any public records.

20. **INTEGRATED AGREEMENT; MODIFICATION.** This Permit constitutes the entire agreement and understanding of the parties with respect to the subject matter of the Permit. This Permit may not be modified except in writing signed by the parties. The parties agree to execute any additional documents reasonably necessary to effectuate the provisions and purposes of this Permit.

21. **INTERPRETATION.** Each party acknowledges that it and its legal counsel have had the opportunity to review this Permit. The parties agree that the terms and conditions of this Permit shall not be construed against any party on the basis of such party's drafting, in whole or in part, of such terms and conditions.

22. **WAIVER.** Failure of either party to insist upon the strict performance of any of the terms and conditions of this Permit, or failure to exercise any rights or remedies provided in this Permit or by law, or to notify the other party in the event of breach, shall not release the other party of any of its obligations under this Permit, nor shall any purported oral modification or rescission of this Permit by either party operate as a waiver of any of the terms hereof. No waiver by either party of any breach, default, or violation of any term, warranty, representation, agreement, covenant, right, condition, or provision of this Permit shall constitute waiver of any subsequent breach, default, or violation of the same or other term, warranty, representation, agreement, covenant, right, condition, or provision.

23. **SEVERABILITY.** If any provision of this Permit is held to be invalid or unenforceable, this provision shall not affect or invalidate the remainder of this Permit, and to this end the provisions of this Permit are declared to be severable. If any such invalidity becomes known or apparent to the parties, the parties agree to negotiate promptly in good faith in an attempt to amend such provision as nearly as possible to be consistent with the intent of this Permit.

24. **GOVERNING LAW & VENUE.** The validity, construction, and performance of this Permit shall be governed by and construed in accordance with the laws of the state in which the

Permit Road(s) are located, without regard to its conflict of laws rules. The parties agree to submit to the jurisdiction of federal court within such state in any action or dispute resolution process arising out of the terms, enforcement, or breach of this Permit.

25. **COMPLIANCE WITH ALL LAWS; ENDANGERED SPECIES**. Permittee agrees to use the Permitted Roads for the purpose authorized in this Agreement strictly in accordance to all Federal, State and local laws, rules and regulations.

    Permittee shall promptly report to Weyerhaeuser any observations of the presence or other evidence of habitation by a federally designated threatened or endangered species on or along the Permit Roads.

26. **HEADINGS**. The headings in this Permit are for convenience only and are not intended to, and shall not be construed to, limit, enlarge, or affect the scope or intent of this Permit nor the meaning of any of its provisions.

27. **COUNTERPARTS**. This Permit may be executed in one or more counterparts, each of which shall be deemed an original, and all of which counterparts together shall constitute the same instrument which may be sufficiently evidenced by one counterpart.

28. **ADDITIONAL TERMS**.

    a. On Temporary roads, haul will be restricted during wet weather season unless roads are rocked at the sole cost of Permittee.

    b. Temporary dirt roads shall be water-barred prior to the wet season

    c. Temporary roads do not need to be replanted. Permittee shall block the road at property line when operations are completed.

IN WITNESS WHEREOF, the parties have executed this Road Use Permit as of the Effective Date.

WEYERHAEUSER COMPANY

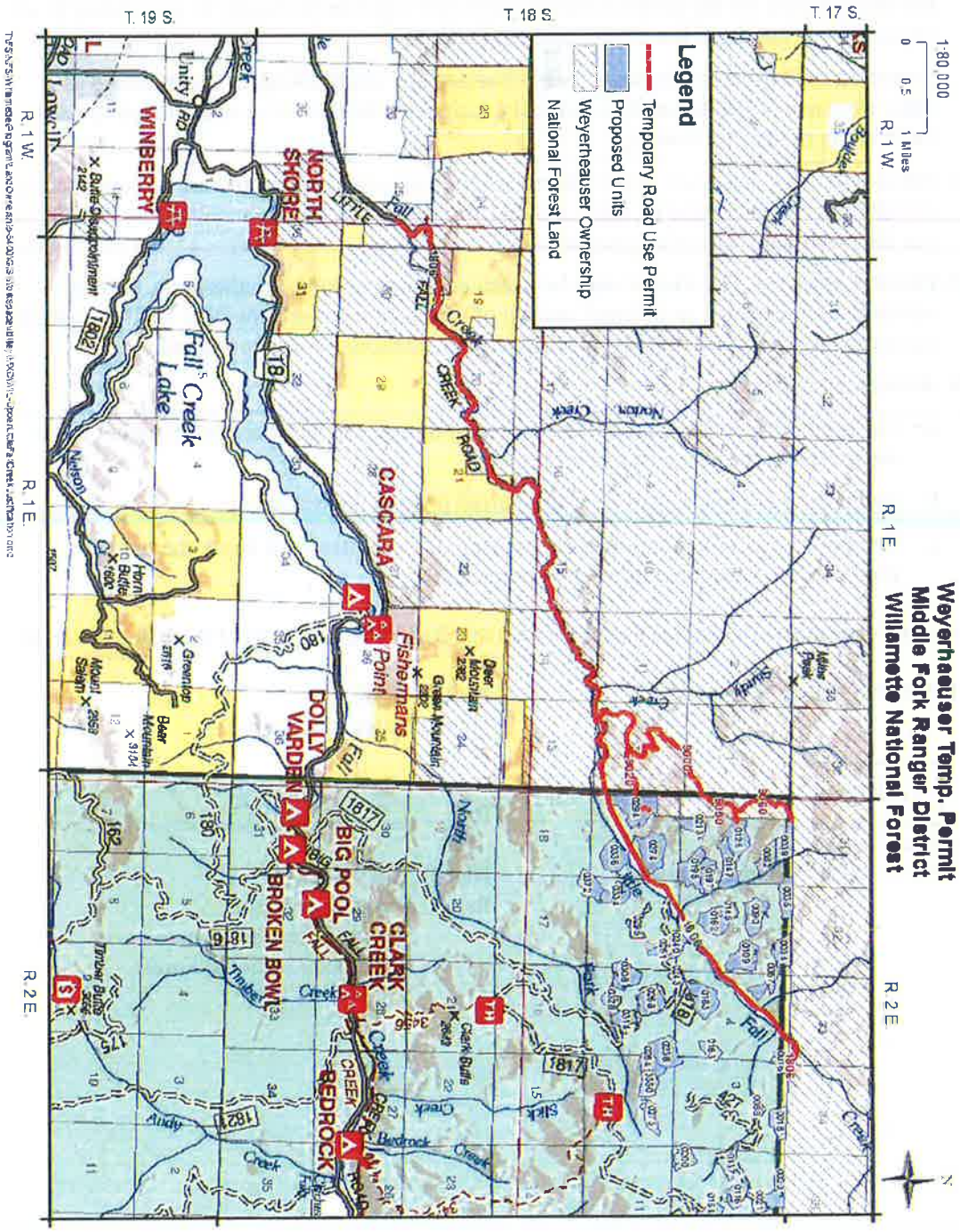
DocuSigned by:
By: Paul Davis
7AE402489AEA4A3...
Name: Paul Davis
Its: VP of Western Timberlands

PERMITTEE
United States of America:

By: Tracy Beck

Name: Tracy Beck
Its: Forest Supervisor
USDA-Forest Service
Willamette National Forest

EXHIBIT A
MAP OF PERMIT ROADS
NFS Road 1806, WY Roads 9000, 9020, 9050, 9060



U.S. DEPARTMENT OF AGRICULTURE – FOREST SERVICE
BRIDGE USE APPLICATION AND PERMIT
36CFR 261.12, and 261.54(c)

DATE RECEIVED:_____ EFFECTIVE DATES OF PERMIT (Section for Forest Servcie Use Only)
PERMIT NO.: _____ BEGINNING: _____ TERMINATING: _____ EXCLUDING: _____

PERMITTEE/APPLICANT: _____ PHONE: _____
ADDRESS: _____ FAX: _____
REASON FOR PERMIT: ☐ TIMBER SALE:_____
☐ CONSTRUCTION CONTRACT: _____
☐ OTHER: _____
DESIRED TRAVEL DATES: BEGIN: _____ END:_____
DESIRED TRAVEL ROUTE (Road #'s, Termini & Bridges): _____
_____
_____
_____
_____

==========

TYPE OF VEHICLE: _____
TOTAL GROSS WEIGHT:_____ POUNDS LICENSE NO: _____ STATE:____
MAXIMUM DIMENSIONS: LENGTH: _____WIDTH: _____ HEIGHT:_____

VEHICLE DESCRIPTION

AXLE NO.	AXLE SPACING FEET & INCHES	AXLE LOAD POUNDS	AXLE WIDTH (OUT – OUT) FEET INCHES	TIRE WIDTH (OUT-OUT) PER WHEEL LINE INCHES	NO. OF TIRES PER AXLE	TIRE SIZE
1		P1_____	____ ′ ____ ″	_____″	_____	_____
	D1 ____ ′ ____ ″					
2		P2_____	____ ′ ____ ″	_____″	_____	_____
	D2 ____ ′ ____ ″					
3		P3_____	____ ′ ____ ″	_____″	_____	_____
	D3 ____ ′ ____ ″					
4		P4_____	____ ′ ____ ″	_____″	_____	_____
	D4 ____ ′ ____ ″					
5		P5_____	____ ′ ____ ″	_____″	_____	_____
	D5 ____ ′ ____ ″					
6		P6_____	____ ′ ____ ″	_____″	_____	_____
	D6 ____ ′ ____ ″					
7		P7_____	____ ′ ____ ″	_____″	_____	_____
	D7 ____ ′ ____ ″					
8		P8_____	____ ′ ____ ″	_____″	_____	_____
	D8 ____ ′ ____ ″					
9		P9_____	____ ′ ____ ″	_____″	_____	_____
	D9 ____ ′ ____ ″					
10		P10_____	____ ′ ____ ″	_____″	_____	_____

SIGNATURE OF APPLICANT:

SIGNATURE: _____

_____
(Print Name)

TITLE: _____

DATE: _____

NAME OF REGISTERED PROFESSIONAL ENGINEER EVALUATING BRIDGE(S) FOR ABOVE VEHICLE: _____(PE)

FOREST BRIDGE INSPECTION PROGRAM MANAGER RECOMMENDATION AND REGIONAL BRIDGE ENGINEER CONCURRENCE

SUBJECT TO PROVISIONS AND ATTACHMENTS INCLUDED HEREIN

SIGNATURE: _____ DATE: _____
Forest Bridge Inspection Program Manager

SIGNATURE: _____ DATE: _____
R-6 Regional Bridge Engineer

APPROVAL OF PERMIT

PERMISSION IS HEREBY GIVEN TO THE ABOVE APPLICANT FOR THE USE OF THE DESIGNATED BRIDGE(S) IN THE MANNER DESCRIBED, SUBJECT TO THE PROVISIONS AND ATTACHMENTS INCLUDED WITH THIS PERMIT

SIGNATURE: _____ DATE: _____ _____

TITLE: _____
Forest Supervisor