Somes Bar Stewardship Project

Re-release

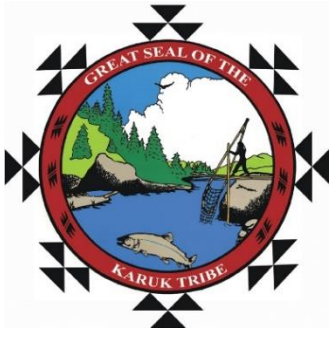
Ground-Based and Cable Yarding Density Management

Announcement and Request for Proposals (RFP)

Release Date: **July 26th, 2019**

Project Meeting: **August 7th, 2019**

Proposals Due: **August 23rd, 2019**



WESTERN KLAMATH
RESTORATION
PARTNERSHIP

Contents

Executive Summary

In partnership with the Karuk Tribe, Mid Klamath Watershed Council (MKWC), the United States Forest Service (USFS), and Lomakatsi Restoration Project (Lomakatsi) requests bid proposals from qualified logging contractors for the implementation of density management and habitat restoration on the Somes Bar Integrated Fire Management Project (SBIFMP).

Introduction and Background

The area addressed in this Request for Proposal (RFP) is the Somes Bar Integrated Fire Management Project Area within the administration area of Six Rivers National Forest. The Project Area is within the Western Klamath Restoration Partnership (WKRP) planning area, which encompasses Karuk Aboriginal Territory and also includes portions of the Klamath National Forest. The 1.2 million acre WKRP planning area provides critical cultural, ecological, social, and economic resources that are essential for sustaining communities and ecosystems alike. WKRP seeks to build trust and implement a shared vision for restoring fire resilience at the landscape scale. The past century of fire exclusion has severely impacted water supplies, forest health, communities, cultural resources, and threatened species throughout the Klamath Mountains and beyond. Under this contract, restoration goals will be achieved through commercial removal of designated material. Follow up treatments, including manual thinning and prescribed burning, will be accomplish outside of this contract.

Somes Project Implemented Through Agreements

The Somes Bar Integrated Fire Management Project Partnership is being implemented under a Master Stewardship Agreement (MSA) between the USFS Six Rivers National Forest and the Karuk Tribe, with a tiered Supplemental Project Agreement that also includes Lomakatsi and MKWC. Partners work collaboratively and share various responsibilities with specific roles and leadership assigned based on each Partner's expertise. The Somes Project builds upon the Partners' commitment to advance forest restoration, and increase employment and economic development in the Western Klamath Mountains.

Project Contract Administrator

For the purpose of this contract, Lomakatsi will serve as the Contract Administrator and oversee all aspects of the project. This Request for Proposal (RFP) solicitation and the selected vendor's technical proposal will serve as the basis for an executed contract between Lomakatsi and the selected vendor.

Period of Performance and Annual Operating Schedule

The period of performance under this contract is three operating seasons. All work must be completed by November 1st, 2021. The vendor must provide an annual operating schedule detailing anticipated project work to be completed for each year. The annual operating plan will be due by March 15th or 45 days before annual operations begin, whichever comes first.

Project Description

This RFP solicitation pertains to 806 acres of density management. Mandatory 797 acres are for ground-based operation. Optional cable yarding would take place on the remaining 9 acres. All units are cut tree marked by the partners and select based on designation by prescription. See Appendix F.8 Tree Designation/Prescriptions.

Project Area of Work

The project area is located on lands administered by the USFS, known as the Somes Bar Intergraded Fire Management Stewardship Project is located mainly in the Ukonom Ranger District of the Klamath National Forest, with a small portion located the Orleans Ranger District of the Six Rivers National Forest, and lies within the borders of the State of California. Both districts are administered by Six Rivers National Forest. The Somes Bar Stewardship Project area falls within ancestral Karuk Tribal Lands.

Current Work Items

Description of Required Timber Removal Items:

- Ground-based density management, including tree felling, yarding, decking and delivery of all commercial material as designated per unit
- Pre, during, and post haul road maintenance and specified road construction.

Description of Optional Timber Removal Items:

- Item 2: Cable Yarding density management, including tree felling, yarding, decking and delivery of all commercial material as designated per unit

For acreage and product volume estimates see:

- Appendix F.2: Volume Estimate and Utilization Standards
- Appendix F.4: Timber Rates. (Scaled)
- Appendix D: Volume Estimates by MBF/Tons

Disclaimer: Cruised volume is an estimate based on USFS cruise. It is the responsibility of the vendor to verify estimated volumes and to do due diligence in preparing their quotes.

Designation by Prescription and Marking Guide:

The Designation by prescription (see Appendix F.8) has been interpreted and marked based on a cut tree designation for all commercially applicable species using the following designations (see map Appendix C).

Somes Bar Project Applicable Paint and Flagging:

Unit Boundary	Pink Tracer Paint w/orange/red tags
Retention or no cut areas	Pink Tracer Paint w/orange/red tags
Cut Tree Designation	Ponderosa pine and Douglas fir only- Blue paint
Equipment Exclusion Zones (EEZ)	White and blue striped flagging and Green/Yellow Tags
Resource Protection	Orange and black striped flagging w/ Green/Yellow Tags

Operational Plan for Logging Operations

The vendor who is awarded this contract must submit a proposed operational plan to the contract administrator for review and approval no less than forty-five days before planned implementation. At a minimum, the plan will include cutting lane layout, skid road locations, log deck locations, timeline for unit completion, timeline for road maintenance and construction, delivery of designated products and quality control and resource protection measures.

General Timber Removal Requirements:

- Whole-tree yard with tops attached in all commercial plantations. Trees smaller than 24 inches DBH shall be skidded/yarded to agreed landing locations prior to limbing, bucking, and lopping.
- Trees larger than or equal to 24 inches DBH shall be bucked into two or more pieces with the butt portion being no longer than 40 feet prior to skidding/yarding. The butt log shall not be limbed prior to skidding/yarding.
- Cut trees shall be completely severed.

- Stump height shall not exceed 12” in height on the uphill side unless cutting is obstructed by natural obstacles. Stumps shall be as horizontal as possible, and absent of all spikes.
- If operations cause damage to any posted monuments, fences or other improvements, Lomakatsi will be notified immediately. Contractor will be responsible for restoration or replacement cost.
- Operations will be conducted to avoid damage to all leave trees and other resources, with minimal damage to retained species.
- Contractor shall follow the operational plan approved by Lomakatsi. Requirements other than those specified herein may be approved if they meet or exceed resource protection requirements and are submitted in writing. Contractor shall flag locations of landings, skid trails/roads, and cable yarding lanes for Lomakatsi approval prior to their use.

General Product Removal Specifications

All designated material shall be felled and whole tree yarded unless over 24 inches DBH to designated and approved landings. Commercial material will be defined as any tree bole that is 6” inside bark diameter at small end or greater and 10’ or greater in length. See Appendix F for more detailed specifications.

Export Restriction

The purchaser of this project must adhere to all compliance and prohibitions against export outlined in the Forest Resources Conservation and Shortage and Relief act of 1990, as amended (16 USC 620).

Inspection and Performance Review

All work included in the contract specifications shall be subject to inspections by Lomakatsi project managers and by a designated USFS representative at periodic intervals during the project. Although treatment inspections will be conducted by Lomakatsi and the USFS, the Contractor shall be responsible for quality control measures to assure that the work strictly complies with the contract requirements.

The Contractor's activity will be monitored throughout the operation for compliance to insure that resource mitigation measures and management objectives are being met. Compliance with all federal and state laws, environmental regulations, and restrictions will be adhered to. At any time Lomakatsi reserves the right to temporarily or completely suspend operations due to any non-compliance issues. Work will not be authorized to commence until Contractor remedies any known issues.

Contractor Reporting and Compliance Requirements

Contractor must maintain current status in System for Award Management www.sam.gov. Contractor must also provide monthly accounting for all volume delivered each month to each

designated facility. This must be in the form of a certified mill voucher. Any custom software or other tracking based reports must be approved by Lomakatsi.

Suspension and Debarment Certification

By submitting a bid for this project vendor certifies that the company, its principles and affiliates are not debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded and have not within a three-year period been convicted of any civil judgment involving fraud, making false statements or receiving stolen property. Vendor must also certify that within a three-year period, they have not defaulted or have had a federal project terminated.

Proof of Insurance and Minimum Requirements

Contractor shall have and maintain a minimum of the following general liability insurance during the life of this award.

- $1,000,000 each occurrence
- $2,000,000 Aggregate

Contractor shall provide proof of the listed coverage and list Lomakatsi as an additional insured within 30 days of award.

Proposal Selection Guidelines

Best Value

Award of this contract will be selected on a "*Best Value Basis.*" The current definition for best value, found in Section 60.5 of Forest Service Handbook (FSH) 2409.19, reads: *"Best Value Basis - The expected outcome of an acquisition that, in the Government's estimation, provides the greatest overall benefit in response to the requirements of the acquisition. It is a process of selecting a contractor based on price and non-price criteria. Evaluation factors may include, but are not limited to, past performance, work quality, experience, and benefits to the local community."*

Lomakatsi reserves the right to:

- Reject any or all offers and discontinue this RFP process without obligation or liability to any potential vendor
- Accept an offer other than the highest bid
- Award a contract on the basis of initial offers received, without discussions or requests for best and final offers

Proposal Submission Format

Vendor's proposal shall be submitted in several parts as set forth below. The vendor will confine its submission to those matters sufficient to define its proposal and to provide an adequate basis for review. Each proposal submitted on this solicitation will be evaluated according to all of the criteria stated below. The relative importance of the factors is indicated by the point totals herein. An objective evaluation will be performed on each vendor's proposal based on the information furnished. Accordingly, the following criteria will be scored respectively with the corresponding points associated with each area with a maximum 100 total points obtainable. The accepted proposal will become part of the contract with the selected vendor.

Please provide sufficient detail to give the review team enough information to adequately base the capacity, experience and ability of your company. **Please keep proposals to twenty pages or less**. Interested Vendors must provide **Eight Full copies** of the Technical and Price Proposals. **The Proposals must be received in Two Separate sealed envelopes, Cleary labeled with your Company name and either Technical or Price Proposal for each envelope.**

Proposal Review Process

Once the proposal submission period is closed, the review team, consisting of 1-2 representatives of each of the four partners, Lomakatsi, Karuk Tribe, MKWC, and the USFS will convene and score each properly submitted proposal based on the point system outlined below. The winning bidder will be announced within 30 days of the proposal submission deadline and letters will be sent to all vendors who submitted proposals. Unsuccessful bidders may request a proposal debriefing from representatives of the review team. The briefing will allow the unsuccessful vendor to receive review feedback on the components of their proposal. Following the vendor letter date of receipt, vendor will have five days to request a debriefing.

Technical Approach —20 maximum points available
Past Performance/Organization—10 maximum points available
Personnel Qualifications and Experience—10 maximum points available
Itemized Pricing—50 maximum points available
Indian Preference—10 maximum points available

Technical Approach

- Provide a brief overview of how your company plans to implement this contract as described in the solicitation. Describe how resource protection will be insured and how you intend to monitor quality control throughout the project. (5 points)
- Describe how you plan to implement the optional cable logging units. Please describe in detail, how you plan to harvest. (3 points)
- Plans that include the removal of biomass using mule trains and/or hayracks. (2 points)

- Indicate the company's use of local workforce. Primary preference will be for companies with workforce based in First Tier Communities local to the WKRP with a secondary preference for Second Tier Communities. (5 points for Tier One, 3 points for Tier Two)
- Include a general timeline and annual operating schedule to complete the project. Please be specific of when you plan to begin operations and your anticipated target for completion each year. (3 points)
- Please indicate and list if subcontractors will be used on this contract. Describe the company locations physical address and source of workforce for subcontractors to be used. *Note: Subcontractors not listed at time of submission may be added later by written request.* (2 points)

Past Performance/Organization History

- Include a list of references (with names, phone numbers, and addresses). (4 points)
- Include contract information, including size, type and other relevant information for each project reference listed. (4 points)
- Provide any past performance evaluations, letters, recognitions, and any other documents evaluating performance. (2 points)

Personnel Qualifications and Experience

- Provide a list of key personnel including managers and supervisors overseeing implementation for this contract. (4 points)
- Describe the duties and responsibilities of these individuals. (4 points)
- Provide general overview of their past experience for similar projects. (2 points)

Itemized Pricing

Fill out Appendix E "Itemized Pricing" by including the offered purchase price for the estimated saw timber.

- 50 full points will be awarded to the contractor, providing the best project value, which is evaluated based on the net cost for the project (Timber bid price plus any road maintenance and surface replacement deposits minus service work).
- Bidders with offers within 10 percent of the highest bidder will receive 25 points.
- Bidders with offers less than 10 percent of the highest bidder will be awarded a maximum of 15 points.

Indian Preference

10 evaluation points shall be granted to bidders who successfully demonstrate entitlement to Indian Preference, which points shall not be made available to non-Indian bidders.

Indian Preference is given to Indian-owned enterprises that provide proof of at least 51 percent ownership of the enterprise submitted on an Indian Enterprise Qualification Statement showing:

- Ownership, control, and interest;
- Certification by a tribe that bidder is an Indian;

- Evidence of stock ownership, structure, management, control, and financing affecting the Indian character of the enterprise;
- Evidence that the contractor has the technical, administrative, and financial capability to perform contract work of the size and type involved.

Or:

A maximum of 5 points for bidders demonstrating employment of Tribal workforce (please present FTEs of Tribal employees and percent of Tribal employees)

Optional Somes Bar RFP Project Area Contract Meeting

All vendors invited to submit a proposal are encouraged to have a designated representative attend the contract meeting with Lomakatsi and project partners on August 7th, 2019. Vendors who do not attend can have their proposals reviewed. A sign-in sheet will be provided for vendors to verify their attendance.

Lomakatsi representatives will document any pertinent questions and provide common answers to all vendors who attend the meeting. These answers will be sent out via email or standard mail with ample time to allow for vendors to submit their proposals by the required timeline.

Meeting Time and Tentative Location:

USFS Guard Ranger Station, Ti Bar Rd (13N11), Unit 2145

August 7th 11:00 am to 1:00pm

Schedule of Events and Project Timeline

All proposals are due by **5:00 pm** on August 23rd. Proposals submitted after this date will not be considered. Proposals can be submitted by the following methods (see proposal submission format page #5).

- Hand delivered: 645 Washington Street, Ashland, OR 97520
- USPS mail: PO Box 3084, Ashland, OR 97520 (Delivery Confirmation Preferred)
- Fed Ex or UPS – 645 Washington St. Ashland Oregon 97520

Description	Date/Time
Request for Proposal distribution	August 26th , 2019
Contract field meeting	August 7th , 2019
Proposal due date	August 23rd , 2019
Anticipated decision and award	August 28th, 2019
Anticipated completion of project implementation	November 1st, 2021

Administrative Contact

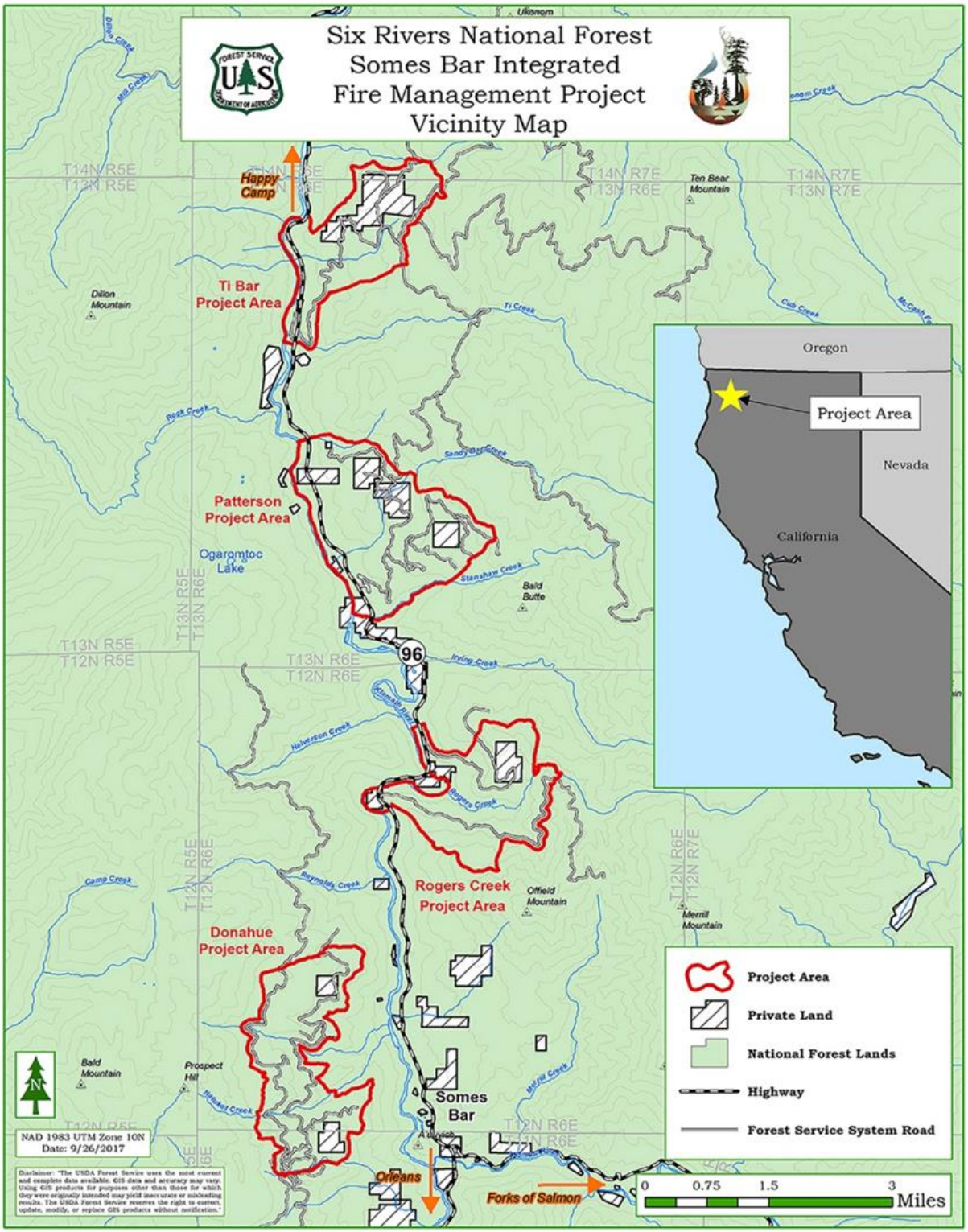
Any questions regarding the project or contract specifications can be directed to:

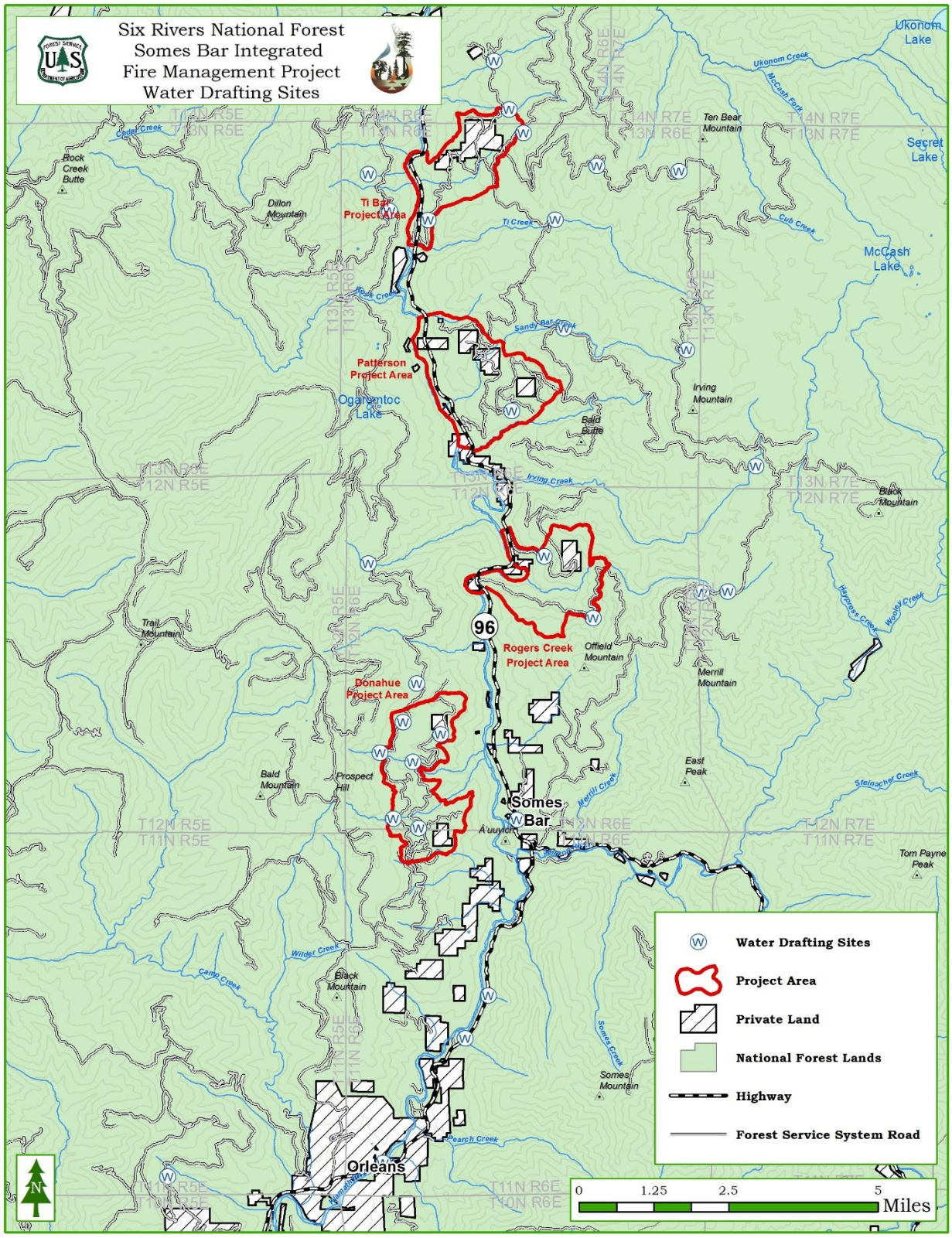
Joshua Budziak, Implementation Specialist - Lomakatsi Restoration Project

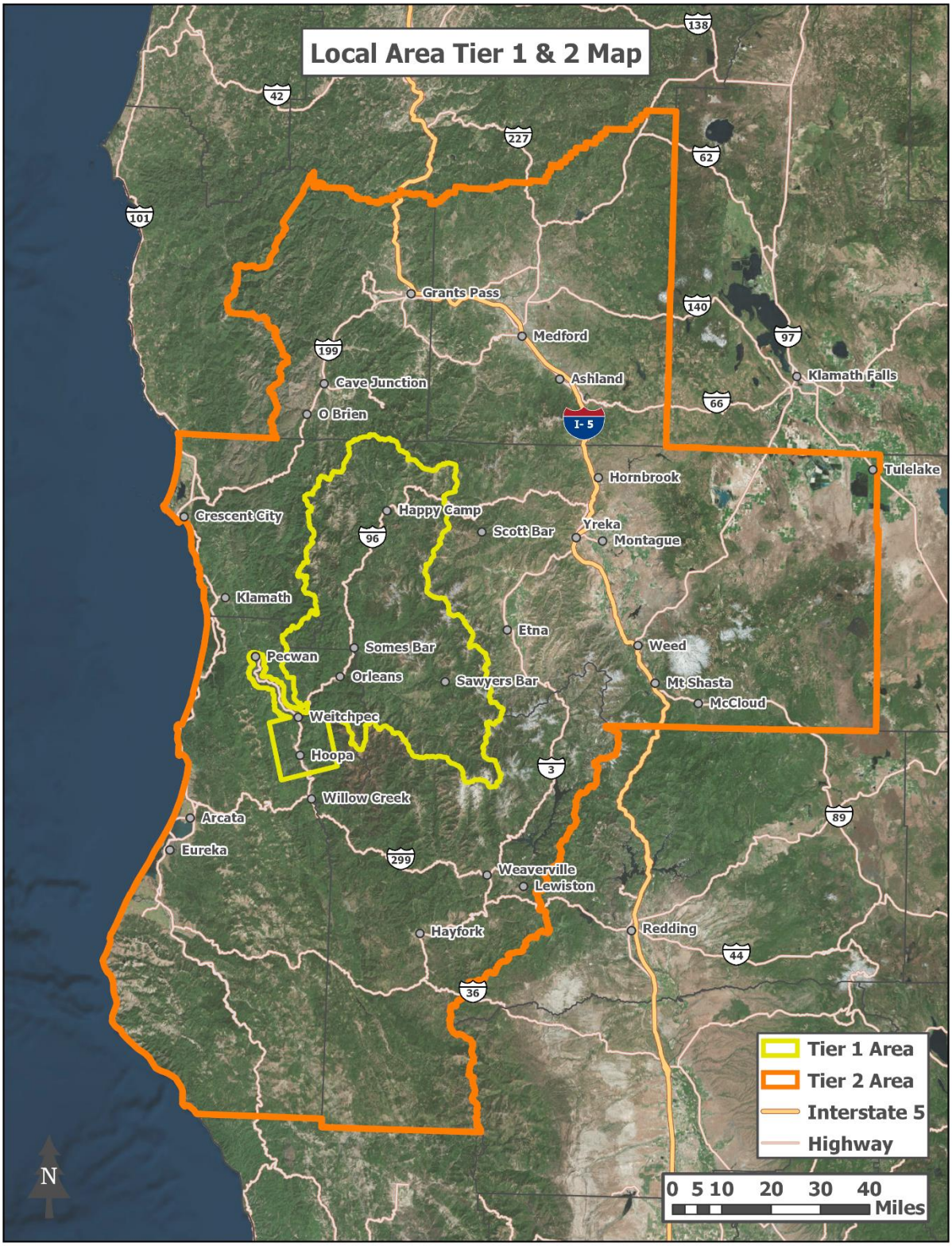
Physical Address: 645 Washington Street, Ashland, OR 97520
Phone: (541) 621-2678
Email: josh@lomakatsi.org

Attached Appendices
APPENDIX A – STEWARDSHIP PROJECT AREA LOCATOR MAP
APPENDIX B – SUBDIVISION AND CONTOUR MAP
APPENDIX C – USFS PROJECT MAP
APPENDIX D – VOLUME ESTIMATES BY SUBDIVISION
APPEBDIX E – ITEMIZED PRICING SHEET
APPENDIX F – TIMBER REMOVAL SPECIFICATIONS
APPENDIX G – GUIDELINES FOR OPERATIONS

APPENDIX A – STEWARDSHIP PROJECT AREA MAPS




Six Rivers National Forest
Somes Bar Integrated
Fire Management Project
Water Drafting Sites
Ti Bar Project Area
Patterson Project Area
Rogers Creek Project Area
Donahue Project Area
Somes Bar
Orleans
Ukonom Lake
Secret Lake
McCash Lake
Ogaremtoc Lake
Ten Bear Mountain
Dillon Mountain
Rock Creek Butte
Irving Mountain
Bald Butte
Black Mountain
Offield Mountain
Merrill Mountain
East Peak
Tom Payne Peak
Trail Mountain
Bald Mountain
Prospect Hill
Somes Mountain
96
Water Drafting Sites
Project Area
Private Land
National Forest Lands
Highway
Forest Service System Road
0 1.25 2.5 5 Miles


Local Area Tier 1 & 2 Map
138
42
227
62
101
Grants Pass
140
Medford
97
199
Cave Junction
Ashland
Klamath Falls
O Brien
66
I- 5
Hornbrook
Tulelake
Crescent City
Happy Camp
Scott Bar
Yreka
96
Montague
Klamath
Etna
Weed
Somes Bar
Pecwan
Orleans
Sawyers Bar
Mt Shasta
McCloud
Weitchpec
Hoopa
3
Willow Creek
89
Arcata
Eureka
299
Weaverville
Lewiston
Hayfork
Redding
44
36
Tier 1 Area
Tier 2 Area
Interstate 5
Highway
N
0 5 10 20 30 40
Miles

APPENDIX B – CUT TREE TALLIES AND ESTIMATED ENDLINE ACRES

Non-Plantation Units	
Diameter	# of Trees
10.6-11.5"	529
11.6-12.5"	1588
12.6-13.5"	862
13.6-14.5"	666
14.6-15.5"	783
15.6-16.5"	900
16.6-17.5"	176
17.6-18.5"	176
18.6-19.5"	250
19.6-20.5"	125
20.6-21.5"	0
21.6-22.5"	112
22.6-23.5"	86
23.6-24.5"	86
24.6-25.5"	86
25.6-26.5"	134
26.6-27.5"	0
27.6-28.5"	0
28.6-29.5"	51
29.6-30.5"	153
30.6-31.5"	0
31.6-32.5"	43
32.6-33.5"	78
33.6-34.5"	0
34.6-35.5"	32
35.6-36.5"	0
36.6-37.5"	32
Total Trees	**6948**

Table 1, Non-Plantation Tally

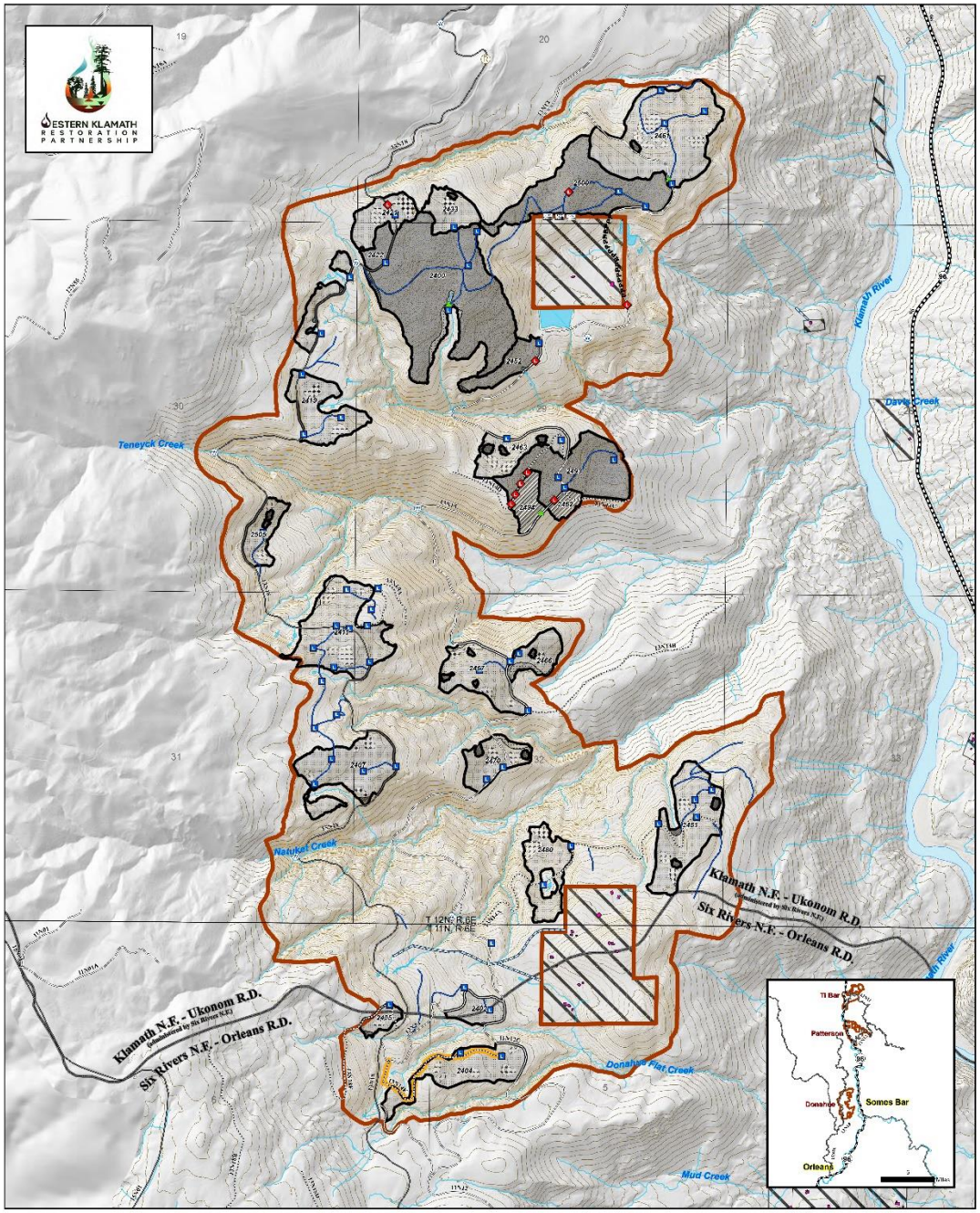
Plantation Tree Tally		
DBH	DF	PP
10-11.9"	6,555	1,756
12-13.9"	3,416	1,401
14-15.9"	1,387	720
16-17.9"	550	303
18-19.9"	202	76
20-21.9"	56	22
22-23.9"	14	3
24-25.9"	3	0
Total Trees	12,183	4,281

Table 2, Plantation Tally

Unit	Endline Acres
2101	0.21
2110	0.83
2113	0.24
2114	1.17
2116	1.28
2117	0.73
2127	1.15
2131	0.26
2132	2.39
2225	3.00
2226	0.68
2249	6.28
2260	0.47
2400	1.82
2404	0.17
2411	0.43
2466	1.13
2467	0.32
2470	0.85
Total	**23.40**

Table 3, estimated Endline Acres

APPENDIX C – PROJECT UNIT MAPS



Somes Bar Integrated Restoration Project Commercial Thinning

Donahue Project Area

N

0 0.25 0.5 Miles

Commercial Thinning Units

Yarding Operations
- Cable, Non-Plantation
- Ground-based, Non-Plantation
- Ground-based, Plantation

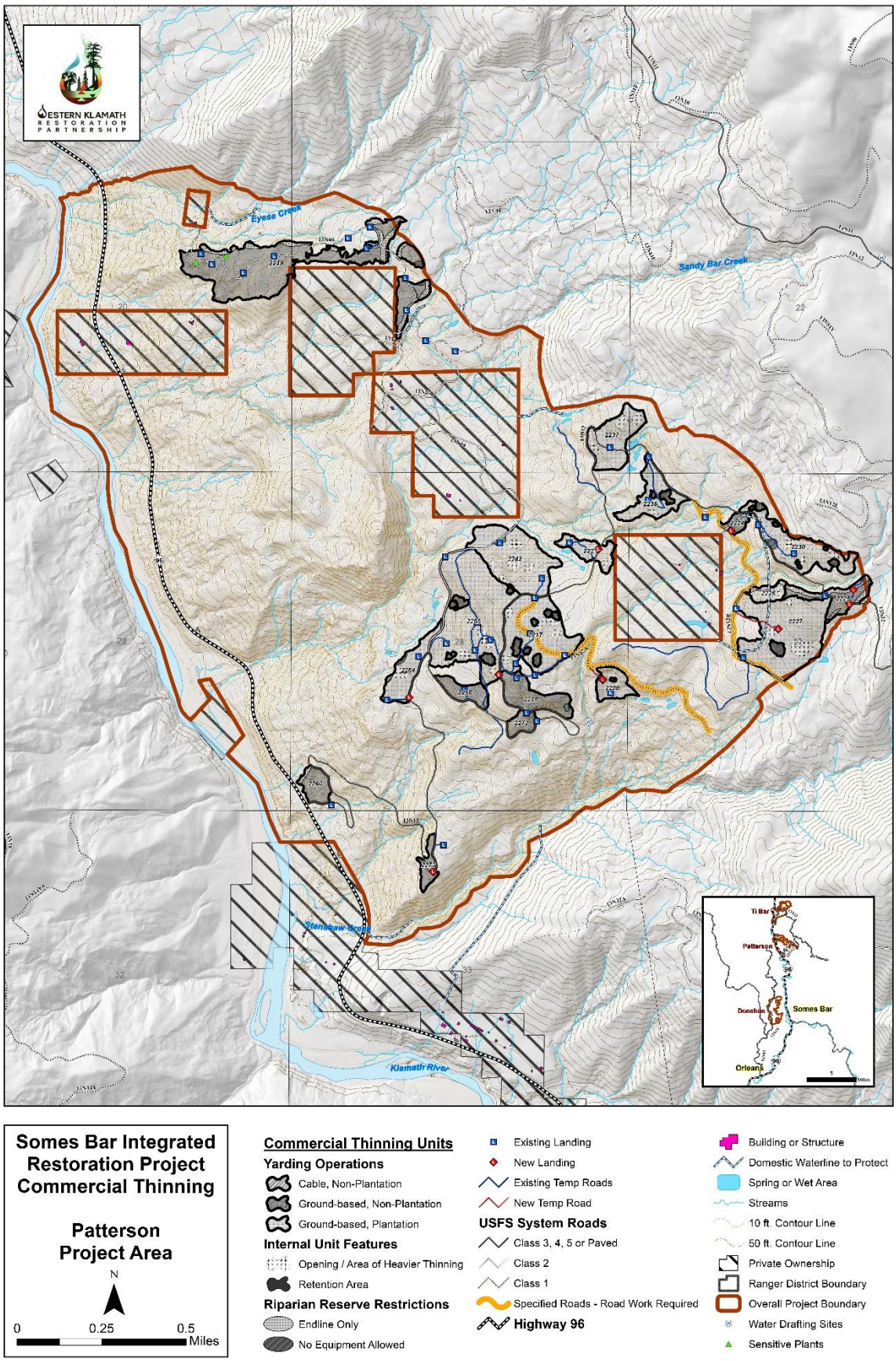
Internal Unit Features
- Opening / Area of Heavier Thinning
- Retention Area

Riparian Reserve Restrictions
- Endline Only
- No Equipment Allowed

- Existing Landing
- New Landing
- Existing Temp Roads
- New Temp Road

USFS System Roads
- Class 3, 4, 5 or Paved
- Class 2
- Class 1
- Specified Roads - Road Work Required
- **Highway 96**
- Use Prohibited

- Building or Structure
- Domestic Waterline to Protect
- Spring or Wet Area
- Streams
- 10 ft. Contour Line
- 50 ft. Contour Line
- Private Ownership
- Ranger District Boundary
- Overall Project Boundary
- Water Drafting Sites
- Sensitive Plants
- USFS Rock Source


Eyese Creek
Sandy Bar Creek
Klamath River
Ti Bar
Patterson
Donshue
Somes Bar
Orleans
Somes Bar Integrated Restoration Project Commercial Thinning
Patterson Project Area
N
0 0.25 0.5 Miles
Commercial Thinning Units
Yarding Operations
Cable, Non-Plantation
Ground-based, Non-Plantation
Ground-based, Plantation
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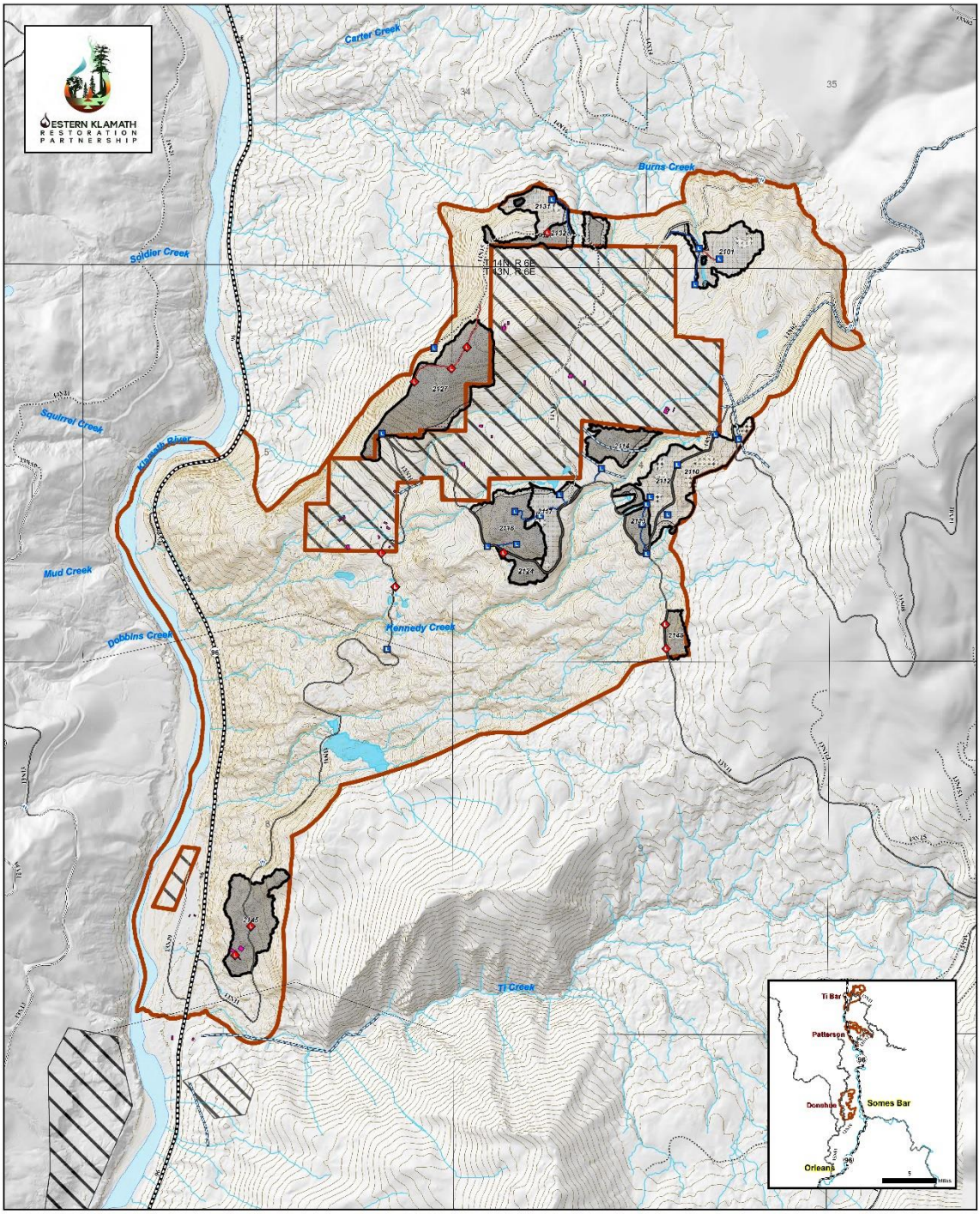
Sensitive Plants



Somes Bar Integrated Restoration Project Commercial Thinning

Ti Bar Project Area

N

0 0.25 0.5 Miles

Commercial Thinning Units

Yarding Operations
- Cable, Non-Plantation
- Ground-based, Non-Plantation
- Ground-based, Plantation

Internal Unit Features
- Opening / Area of Heavier Thinning
- Retention Area

Riparian Reserve Restrictions
- Endline Only
- No Equipment Allowed

- Existing Landing
- New Landing
- Existing Temp Roads
- New Temp Road

USFS System Roads
- Class 3, 4, 5 or Paved
- Class 2
- Class 1
- Specified Roads - Road Work Required
- **Highway 96**

- Building or Structure
- Domestic Waterline to Protect
- Spring or Wet Area
- Streams
- 10 ft. Contour Line
- 50 ft. Contour Line
- Private Ownership
- Ranger District Boundary
- Overall Project Boundary
- Water Drafting Sites
- Sensitive Plants

APPENDIX D– VOLUME ESTIMATES BY SUBDIVISION

Table #1- Ground Based Log Volume (Plantation Eastside)

Project Area	Unit #	Acres	DF Green Tons	PP Green Tons	Total Green Tons	DF volume (bf)	PP volume (bf)	net volume (bf)	net vol./acre	Management History
Ti Bar	2101	14.0	225.55	94.16	319.71	40,582	13,469	54,051	3,862	Plantation
Ti Bar	2110	14.2	228.78	95.50	324.28	41,162	13,661	54,823	3,860	Plantation
Ti Bar	2112	9.3	149.83	62.55	212.38	26,958	8,947	35,905	3,859	Plantation
Ti Bar	2117	10.1	162.72	67.93	230.65	29,277	9,717	38,994	3,847	Plantation
Ti Bar	2131	7.5	120.83	50.45	171.28	21,740	7,216	28,956	3,882	Plantation
Patterson	2200	5.3	85.39	35.65	121.03	15,363	5,099	20,462	3,896	Plantation
Patterson	2217	22.7	365.72	152.67	518.39	65,801	21,839	87,640	3,855	Plantation
Patterson	2221	5.7	91.83	38.34	130.17	16,523	5,484	22,007	3,873	Plantation
Patterson	2226	3.1	49.94	20.85	70.79	8,986	2,982	11,968	3,901	Plantation
Patterson	2227	29.8	480.11	200.43	680.53	86,382	28,670	115,052	3,856	Plantation
Patterson	2230	15.2	244.89	102.23	347.12	44,061	14,623	58,684	3,871	Plantation
Patterson	2235	9.3	149.83	62.55	212.38	26,958	8,947	35,905	3,880	Plantation
Patterson	2237	12.3	198.16	82.72	280.89	35,654	11,833	47,488	3,860	Plantation
Patterson	2242	22.0	354.44	147.97	502.41	63,772	21,166	84,938	3,860	Plantation
Patterson	2264	8.7	140.17	58.51	198.68	25,219	8,370	33,589	3,855	Plantation
Patterson	2265	40.3	649.28	271.04	920.32	116,819	38,771	155,590	3,858	Plantation
Donahue	2402	5.9	95.06	39.68	134.74	17,103	5,676	22,779	3,874	Plantation
Donahue	2404	17.8	286.77	119.72	406.49	51,597	17,125	68,722	3,859	Plantation
Donahue	2405	3.6	58.00	24.21	82.21	10,435	3,463	13,899	3,911	Plantation
Donahue	2407	22.6	364.11	152.00	516.11	65,511	21,743	87,254	3,867	Plantation
Donahue	2411	29.3	472.06	197.06	669.12	84,933	28,189	113,121	3,855	Plantation
Donahue	2419	15.3	246.50	102.90	349.41	44,351	14,720	59,070	3,869	Plantation
Donahue	2421	16.4	264.22	110.30	374.52	47,539	15,778	63,317	3,850	Plantation
Donahue	2433	8.2	132.11	55.15	187.26	23,770	7,889	31,659	3,879	Plantation
Donahue	2461	41.8	673.44	281.13	954.58	121,167	40,215	161,381	3,858	Plantation
Donahue	2463	11.1	178.83	74.65	253.49	32,176	10,679	42,855	3,859	Plantation
Donahue	2466	7.5	120.83	50.45	171.28	21,740	7,216	28,956	3,885	Plantation
Donahue	2467	15.7	252.94	105.60	358.54	45,510	15,105	60,615	3,866	Plantation
Donahue	2470	10.1	162.72	67.93	230.65	29,277	9,717	38,994	3,863	Plantation
Donahue	2480	13.1	211.05	88.10	299.16	37,973	12,603	50,576	3,846	Plantation
Donahue	2481	24.7	397.95	166.12	564.07	71,599	23,763	95,362	3,866	Plantation
Donahue	2505	7.5	120.83	50.45	171.28	21,740	7,216	28,956	3,849	Plantation
Totals/Average		**480.0**	**7,734.91**	**3,228.97**	**10,963.88**	**1,391,678**	**461,891**	**1,853,568**	**3,867**	

Table #2- Ground Based Log Volume (Non-Plantation Eastside)

Project Area	Unit #	Acres	DF Green Tons	PP Green Tons	Total Green Tons	DF volume (bf)	PP volume (bf)	net volume (bf)	net vol./acre	Management History
Ti Bar	2113	6.2	270.41	0.00	270.41	48,652	0	48,652	7,838	Previously Thinned
Ti Bar	2114	8.4	319.36	0.00	319.36	57,459	0	57,459	6,854	Previously Thinned
Ti Bar	2116	15.9	726.03	0.00	726.03	130,629	0	130,629	8,232	Previously Thinned
Ti Bar	2124	3.9	210.66	0.00	210.66	37,903	0	37,903	9,828	Previously Thinned
Ti Bar	2127	33.7	1380.50	0.00	1380.50	248,381	0	248,381	7,360	Previously Thinned
Ti Bar	2132	8.5	177.71	0.00	177.71	31,974	0	31,974	3,747	Previously Thinned
Ti Bar	2145	18.6	826.09	0.00	826.09	148,631	0	148,631	7,992	No Previous Harvest
Ti Bar	2148	4.2	144.83	0.00	144.83	26,058	0	26,058	6,145	Previously Thinned
Patterson	2218	9.4	295.50	0.00	295.50	53,167	0	53,167	5,632	Previously Thinned
Patterson	2224	2.1	94.50	0.00	94.50	17,003	0	17,003	8,194	No Previous Harvest
Patterson	2225	7.6	22.87	0.00	22.87	4,114	0	4,114	543	No Previous Harvest
Patterson	2249	45.4	1222.64	0.00	1222.64	219,980	0	219,980	4,850	Previously Thinned
Patterson	2260	4.9	83.35	0.00	83.35	14,997	0	14,997	3,090	Previously Thinned
Patterson	2266	4.7	131.21	0.00	131.21	23,607	0	23,607	4,972	Previously Thinned
Patterson	2272	3.0	67.57	0.00	67.57	12,157	0	12,157	4,013	Previously Thinned
Patterson	2273	3.2	89.51	0.00	89.51	16,105	0	16,105	4,981	No Previous Harvest
Donahue	2400	67.4	3692.48	0.00	3692.48	664,358	0	664,358	9,863	Previously Thinned
Donahue	2422	4.0	155.66	0.00	155.66	28,007	0	28,007	6,946	Previously Thinned
Donahue	2452	7.6	317.62	0.00	317.62	57,147	0	57,147	7,539	Previously Thinned
Donahue	2493	26.3	976.41	0.00	976.41	175,677	0	175,677	6,690	Previously Thinned
Donahue	2500	32.0	847.29	0.00	847.29	152,446	0	152,446	4,763	Previously Thinned
Totals/Average		**317.0**	**12,052.20**	**0.00**	**12,052.20**	**2,168,452**	**0**	**2,168,452**	**6,194**	

Table #3 –Cable Yarding Log Volume (Non-Plantation Eastside)

Project Area	Unit #	Acres	DF Green Tons	PP Green Tons	Total Green	DF volume (bf)	PP volume	net volume (bf)	net vol./acre	Management History
Donahue	2462	3.1	192.19	0.00	192.19	34,579	0	34,579	11,324	No Previous Harvest
Donahue	2494	6.2	484.61	0.00	484.61	87,192	0	87,192	14,170	No Previous Harvest
Totals/Average		**9.2**	**676.80**	**0**	**676.80**	**121,771**	**0**	**121,771**	**12,747**	

APPENDIX E – ITEMIZED PRICING SHEET

Interested Contractors must offer a purchase price "Bid" for designated saw timber which reflects the value of the products, less the costs for recovery. The minimum acceptable bid price is $6.12 per ton for item 1 and item 4 plus Road Maintenance and Surface Replacement Deposits (Item 2, $0.89 per ton and Item 3, $1.17 per ton) apply to mandatory Item 1, optional Item 4 and optional Item 5(minimum bid price of $0.10 per ton), less optional service work item 6 and less mandatory service work items 7 and 8. The Contractor with the Best "Net" project value will be awarded applicable points per the Best Value evaluation criteria (please refer to page 7, "Itemized Pricing"). If item 5 is accepted, a fee will be charged for the material, subject to negotiation but no less than $0.10 per ton will be charged in accordance with Item F-18 (Timber subject to agreement). Contractor will have two weeks after notice of award to submit an annual operating schedule, identifying the harvest plan for that year. Prior to cutting any timber, Contractor must pre-pay for 60 days of cutting and keep a positive sale balance of at least 45 days in advance of cutting at all times.

Pricing Item	**Units**	**Estimated Quantity**	**Minimum bid price $6.12 per ton**	**Total Cost**
Mandatory Timber Harvest Items			Bid Price	
1) Bid price for timber reflects Contractor cost for ground-based density management, including tree felling, yarding, decking and delivery of all designated commercial material	Per Ton	23,016 tons (4.022 MMBF)		
2) Road Maintenance Deposit	Per Ton		$0.89	
3) Surface Replacement Deposit	Per Ton		$1.17	
Optional Timber Harvest Items Subject to Agreement	**Units**	**Estimated Quantity**	Bid Price (item 4 must be the same as item 1 if opting to harvest)	**Total Cost**
4) Bid price for timber reflects Contractor cost for cable yarding density management, including delivery of all designated commercial material	Per Ton	677 tons (0.122 MMBF)		
5) Biomass/Non-saw Processing, Removal, and Delivery to a designated facility	Green* Tons			

Optional Timber Harvest Service Items Subject to Agreement	**Units**	**Estimated Quantity**	Bid Price	**Total Cost**
6) Bid price for timber reflects Contractor cost for cable yarding density management, including tree felling, yarding, and decking (stump to truck)	Per Ton	677 tons (0.122 MMBF)		
Mandatory Timber Harvest Service Items	**Total Cost**			
7) All Required Road Maintenance (see F.10-b)				
8) Specified Road Work (see worksheet below)				
Net Project cost	Total Purchase Price – Items 1-3 and optional Items 4 and 5, less optional service work item 6 and mandatory service items 7and 8			

***Green tons are not estimated at this time.**

Mandatory Pricing Item Road Maintenance Service Work Item 8 Worksheet (more specific information can be found in Appendix F.10a)					
WKRP - Road 13N12A (Patterson Area)					
Item No.	**Description**	**Pay Unit**	**Est. Qty.**	**Unit Price**	**Total Price**
15101	Mobilization	LS	1		
20103	Clearing and Grubbing, Disposal method Piling	MI	0.5		
20404	Roadway Excavation and Embankment, Compaction Placement Method 2	CY	120		
30315	Roadway Reconditioning, Compaction Method 3	Mi	0.5		
				Total	

WKRP - Road 13N12B (Patterson Area)					
Item No.	**Description**	**Pay Unit**	**Est. Qty.**	**Unit Price**	**Total Price**
15101	Mobilization	LS	1		
20103	Clearing and Grubbing, Disposal Method Piling	MI	0.3		
30315	Roadway Reconditioning, Compaction Method 3	Mi	0.3		
				Total	

WKRP - Road 13N14E (Donahue Flat Area)					
Item No.	**Description**	**Pay Unit**	**Est. Qty.**	**Unit Price**	**Total Price**
15101	Mobilization	LS	1		
20103	Clearing and Grubbing, Disposal Method Piling	MI	0.5		
20403	Roadway Excavation and Embankment, Compaction Method 2	CY	60		
30208	Aggregate Surface Course, Government Furnished	CY	40		
30305	Roadway Reconditioning, Compaction Method 2	Mi	0.5		
				Total	

Certification for Debarment Status

By submitting a bid for this project, Contractor certifies, that the company, its principles and affiliates are not debarred, suspended, proposed for debarment, declared ineligible or voluntarily excluded and have not within a three-year period been convicted of any civil judgment involving fraud, making false statements, or receiving stolen property. Contractor must also certify that within a three-year period they have not defaulted or have had a federal project terminated.

Disclaimer of Estimates

By submitting this bid, Contractor certifies, that they have inspected the project, and have independently estimated project timber volumes, and the associated cost for recovery and have reviewed all associated requirements. Contractor has based their Bid price and service cost on this review and has arrived at that cost independently of Lomakatsi. Contractor agrees to hold harmless, Lomakatsi for any errors, omissions, or valuations used in estimations for the amount of stated volume or other components in this proposal used for estimating costs.

Firm Offer

By submitting this price proposal and technical proposal, Vendor is aware that this constitutes a firm offer and binds the company, if selected to accept award under the terms of this solicitation and the pricing provided herein.

Signed _____ Date_____

Company Name _____

Certifying Official _____

Address _____

Phone number _____

Tax I.D. _____

Duns #_____

APPENDIX F – TIMBER REMOVAL SPECIFICATIONS

Somes Bar Integrated Fire Management

F.1 – Location and Area -			
This Stewardship Project Area of:	806	acres more or less are located in:	T11N, R6E, Sec. 5-6; T12N, R6E, Sec. 2-4, 9-11, 14-16, 19-21, and 29-33; T14N, R6E, Sec. 34-35; and T13N, R6E, Sec. 3, 5, 8-9, 17, 20-21, 27, 29, and 32-33; Humboldt Base Meridian, California.

F.2 -Volume Estimate and Utilization Standards.

				Minimum Specifications				
				Merchantable Tree		**Piece Required to be Removed**		
Species	**Product**	**Estimated Quantity**	**Unit of Measure**	**Diameter Breast High (d.b.h.)** *(inches)*	**Number of Minimum Pieces per Tree**	**Length** *(feet)*	**Diameter Inside Bark at Small End** *(inches)*	**Net Merch. Factor 1/**
Combined Softwoods	Sawtimber	23,693	Tons	10.0	1	10.0	6.0	12
Timber Subject to Agreement F.18								
All Species	Grn Bio Cv	Unestimat-ed	Tons	N/A	N/A	N/A	N/A	N/A
Total Quantity		23,693						

1/ Enter Merchantability Factor (Merch. Factor) or Net Scale in % of Gross Scale, whichever is appropriate.

F.3- High Stumps.

Species	**Product**	**Maximum Stump Height (inches)**
All	Sawtimber	12.0

F.4– Timber Rates. ***(Scaled)***

Cutting Unit Number	Approx. Acres	Species	Product	Quantity	Unit of Measure	Rate of Payment $/UOM	Required Deposit per unit of measure
All	809	Combined Softwoods	Sawtimber	23,693	Tons	$18.90	$0

F.5 - Timber Rates. ***(Tree Measurement)***

Payment Unit Number	Approx. Acres	Species	Product	Quantity	Unit of Measure	Total Payment	Required Deposit per Payment Unit

F.6 - Timber Designations. Timber designated for cutting shall be confined to the Stewarship Project Area. No undesignated timber shall be cut without prior notification to and approval of the Forest Service. Prescriptions/timber designations are included later in this subsection.

	Number	Acres
Clearcutting Units		
Specified Road Clearing		
Overstory Removal Units		
Understory Removal Units		
Individual Trees		806
Incompletely Marked Timber		

F.7 - Cutting Unit Boundary Designation. The boundaries of cutting units are designated as shown in the following table. The trees used for boundary designation are not to be cut.

Cutting Unit	Paint Color	Designation
All	Pink	Boundary trees are marked with pink tracer paint: A vertical line on each side of the tree that the boundary passes through, and three diagonal stripes facing into the cutting unit, and two stump marks, one on the uphill and downhill sides. Boundary trees also have orange/red tags to enhance their visibility.

F.8 - Tree Designation/Prescriptions.

Trees in 326 acres of pre-identified non-plantation commercial mechanical units have already been cut-tree marked with blue tracer paint according to the prescripitons described in the final SBIFMP Environmental Assessment. See Marking Guidelines #5 and #6 below.

Marking Guideline #5: Non Plantations with a minimum of 40% Canopy cover.

Units 2113, 2114, 2116, 2124, 2127, 2132, 2145, 2148, 2218, 2225, 2249, 2260, 2266, 2272, 2273, 2400, 2422, 2452, 2493, 2500.

1. Retain ALL predominant conifers (i.e. wolf trees with large branches, may have fire scars, broken tops, unique structure), dominate tree, Sugar Pines and Ponderosa Pines.

2. Release "Trees of Interest". These trees are defined as: mature trees (~ > 16 inch diameter – may choose smaller individuals of true oaks) of the following species, provided here in general priority order: Black Oak, White Oak, Sugar Pine, Madrone (especially large individuals), Ponderosa Pine, Chinquapin, Tan Oak (especially large individuals).
    a. Cut ALL Douglas-fir and white fir except dominants within the dripline of retention tree.

    b. Remove up to half of the conifers, prioritizing Douglas-fir and white fir, whose crowns are within 40 feet of the bole in any direction, thinning from below (leaving the bigger trees).

3. Cut up to 50% of ALL intermediate and suppressed DF (greater than 10 inch DBH) throughout the entire stand.

Marking Guideline #6: Non Plantations with a minimum of 60% Canopy cover.

Units 2116, 2132, 2145, 2224, 2249, 2400, 2464, 2493, 2494.

1. Retain ALL predominant conifers (i.e. wolf trees with large branches, may have fire scars, broken tops, unique structure), dominate tree, Sugar Pines and Ponderosa Pines.

2. Release "Trees of Interest". These trees are defined as: mature trees (~ > 16 inch diameter – may choose smaller individuals of true oaks) of the following species, provided here in general priority order: Black Oak, White Oak, Sugar Pine, Madrone (especially large individuals), Ponderosa Pine, Chinquapin, Tan Oak (especially large individuals).
    a. Cut ALL Douglas-fir and white fir except dominants within the dripline of retention tree.

    b. Remove up to half of the conifers, prioritizing Douglas-fir and white fir, whose crowns are within 40 feet of the bole in any direction, thinning from below (leaving the bigger trees).

3. Cut up to 50% of ALL intermediate and suppressed DF (greater than 10 inch DBH) throughout the entire stand.

DxP elements common to plantations (480 acres)

Marking Guideline #1: Douglas-fir Plantations (generally older than 40 years in age) – Overall retention target: 120 ft^2 basal area using a 10 BAF

Units 2101, 2110, 2131, 2200, 2221, 2230, 2237, 2411, 2419, 2461, 2463.

1. Retain all predominate trees – all species. These may or may not exist in all plantations.

2. Retain best 4-5 hardwoods at a minimum (this would account to 40-60 ft^2 basal area) where possible using 10 BAF (maximum of 60 ft^2 basal area retention)

    - Retain all hardwoods greater than 12 inches (largest trees)
    - Choose remaining retention trees greater than 6 inches DBH in the following priority order: Black oak, white oak, dogwood, madrone, chinquapin, live oak, maple, bay, tanoak.
    - All hardwood leave trees must have live crown ratio > 20%, root systems must appear to be stable, and trees should be relatively upright (less than 20 degrees lean from vertical between base and highest point). **Retain ALL black oak and white oak regardless of these criteria; count toward residual basal area if they are "in" with a 10 BAF.**

- When multiple stems in a hardwood clump are to be retained, retain the largest 25-50% of stems when individual stem DBH is greater than 6 inches.

3. Retain the largest conifers where possible using 10 BAF to bring the total residual BA to an average of 120 (100 minimum, max 130)
   - Retain all Pacific yew and sugar pine. These would only count toward the residual basal area if they are considered "in trees".

     - Do not retain conifers that overtop or infringe on the crowns of leave hardwoods. Conifers that have live limbs extending closer than 8 feet or more from the drip line of hardwood crowns should be removed unless total basal area would fall below 80 ft^2 basal per acre (this condition would be in a "sparsely populated area."
     - All conifer leave trees should have live crown ratio > 35%, must be > 30%.

4. Remove all DF that have chlorotic (yellowing needles) and sparse foliage, especially if showing signs of pitch flow from lower bole or are within 30 feet of dead DF stems. **This condition describes black stain root disease and aims to prevent spread improving stand health.**

5. **If there is not enough hardwoods or conifers to meet BA requirements, meet required BA with whatever species is present to meet target, or get as close it as possible.**

Marking Guideline #2: Douglas-fir Plantations (generally up to 40 years old) – Overall retention target: 100 ft^2 basal area using a 10 BAF

Units 2110, 2217, 2226, 2242, 2264, 2402, 2404, 2405, 2433, 2466, 2467, 2480, 2481, 2505.

1. Retain all predominate trees – all species. These may or may not exist in all plantations.

2. Retain best 3-4 hardwoods at a minimum (this would account to 30-40 ft^2 basal area) where possible using 10 BAF (could be maximum up to 50 ft^2 basal area retention)

   - Retain all hardwoods greater than 12 inches (largest trees)
   - Choose remaining retention trees greater than 6 inches DBH in the following priority order: Black oak, white oak, dogwood, madrone, chinquapin, live oak, maple, bay, tanoak.
   - All hardwood leave trees must have live crown ratio > 20%, root systems must appear to be stable, and trees should be relatively upright (less than 20 degrees lean from vertical between base and highest point). **Retain ALL black oak and white oak regardless of these criteria; count toward residual basal area if they are "in" with a 10 BAF.**

- When multiple stems in a hardwood clump are to be retained, retain the largest 25-50% of stems when individual stem DBH is greater than 6 inches.

3. Retain the largest conifers where possible using 10 BAF to bring the total residual BA to an average of 100 (80 minimum, max 110)
    - Retain all Pacific yew and sugar pine. These would only count toward the residual basal area if they are considered "in trees".

        - Do not retain conifers that overtop or infringe on the crowns of leave hardwoods. Conifers that have live limbs extending closer than 8 feet from the drip line of hardwood crowns should be removed unless total basal area would fall below 80 ft^2 basal per acre (this condition would be in a "sparsely populated area.")
        - All conifer leave trees should have live crown ratio > 35%, must be > 30%.

4. Remove all DF that have chlorotic (yellowing needles) and sparse foliage, especially if showing signs of pitch flow from lower bole or are within 30 feet of dead DF stems. **This condition describes black stain root disease and aims to prevent spread improving stand health.**

5. **If there is not enough hardwoods or conifers to meet BA requirements, meet required BA with whatever species is present to meet target, or get as close it as possible.**

Marking Guideline #3: Ponderosa Pine Plantations (generally older than 40 years) – Overall retention target: 100 ft^2 basal area using a 10 BAF

Units 2101, 2112, 2117, 2265, 2407, 2411, 2419, 2421, 2470.

1. Retain all predominate trees – all species. These may or may not exist in all plantations.

2. Retain best 3-4 hardwoods at a minimum (this would account to 30-40 ft^2 basal area) where possible using 10 BAF (could be maximum up to 50 ft^2 basal area retention)

    - Retain all hardwoods greater than 8 inches (largest trees)
    - Choose remaining retention trees greater than 6 inches DBH in the following priority order: Black oak, white oak, dogwood, madrone, chinquapin, live oak, maple, bay, tanoak.
    - All hardwood leave trees must have live crown ratio > 20%, root systems must appear to be stable, and trees should be relatively upright (less than 20 degrees lean from vertical between base and highest point). **Retain ALL black oak and white oak regardless of these criteria; count toward residual basal area if they are "in" with a 10 BAF.**
    - When multiple stems in a hardwood clump are to be retained, retain the largest 25-50% of stems when individual stem DBH is greater than 6 inches.

3. Retain the largest conifers where possible using 10 BAF to bring the total residual BA to an average of 100 (80 minimum, max 110)
    - Retain all Pacific yew and sugar pine. These would only count toward the residual basal area if they are considered "in trees".

        - Do not retain conifers that overtop or infringe on the crowns of leave hardwoods. Conifers that have live limbs extending closer than 8 feet from the drip line of hardwood crowns should be removed unless total basal area would fall below 80 ft^2 basal per acre (this condition would be in a "sparsely populated area.")
        - All conifer leave trees should have live crown ratio > 35%, must be > 30%.
        - DF should be favored over ponderosa pine.

4. **If there is not enough hardwoods or conifers to meet BA requirements, meet required BA with whatever species is present to meet target, or get as close it as possible.**

Marking Guideline #4: Ponderosa Pine Plantations (generally younger than 40 years old) – Overall retention target: 80 ft^2 basal area using a 10 BAF

Units 2227, 2235.

1. Retain all predominate trees – all species. These may or may not exist in all plantations.

2. Retain best 3-4 hardwoods at a minimum (this would account to 30-40 ft^2 basal area) where possible using 10 BAF (could be maximum up to 40 ft^2 basal area retention)

    - Retain all hardwoods greater than 8 inches (largest trees)
    - Choose remaining retention trees greater than 6 inches DBH in the following priority order: Black oak, white oak, dogwood, madrone, chinquapin, live oak, maple, bay, tanoak.
    - All hardwood leave trees must have live crown ratio > 20%, root systems must appear to be stable, and trees should be relatively upright (less than 20 degrees lean from vertical between base and highest point). **Retain ALL black oak and white oak regardless of these criteria; count toward residual basal area if they are "in" with a 10 BAF.**
    - When multiple stems in a hardwood clump are to be retained, retain the largest 25-50% of stems when individual stem DBH is greater than 6 inches.

3. Retain the largest conifers where possible using 10 BAF to bring the total residual BA to an average of 80 (70 minimum, max 90)
    - Retain all Pacific yew and sugar pine. These would only count toward the residual basal area if they are considered "in trees".

- Do not retain conifers that overtop or infringe on the crowns of leave hardwoods. Conifers that have live limbs extending closer than 8 feet from the drip line of hardwood crowns should be removed unless total basal area would fall below 80 ft^2 basal per acre (this condition would be in a "sparsely populated area.")
- All conifer leave trees should have live crown ratio > 35%, must be > 30%.
- DF should be favored over ponderosa pine.

4. **If there is not enough hardwoods or conifers to meet BA requirements, meet required BA with whatever species is present to meet target, or get as close it as possible.**

- All plantations units are cut tree designated with a blue paint by the partners.

F.9 - Control of Operations.

Discovery, by either the Partners, Contractor or the Forest Service, of additional areas, resources, species, or members of species needing special protection shall be promptly reported to the other partys.

Special protection measures needed to protect sensitive areas are identified on harvest cards, they include:

Equipment Exclusion Zones: Equipment exclusion zones (EEZ) have been established throughout the project area for a variety of reasons. EEZs are identified by yellow tags on the boundary of the EEZ. Each boundary tree of the EEZ has three tags on it: One tag is oriented horitontally, facing into the cutting unit, while the other two vertically oriented tags face the next boundary tree.

Wildlife:

Activity	KNF	SRF	Lifting Conditions
Anything that modifies existing NR&F habitat	**Feb 1- Sept 15**	**Feb 1- Sept 15**	**Lifted if surveys indicate no NSO nesting activity ***
Noise above ambient levels	**0.25 miles of NR & F *or within* known AC cores** **Feb 1 - July 9**	**0.25 miles of NR & F *or within* known AC cores** **Feb 1 - July 31**	**Lifted if surveys indicate no nesting activity or non-occupancy *** **Doesn't apply to travel on roadways**
Smoke	**0.25 miles NR & F *within* known AC cores** **Feb 1 - July 31**	**0.25 miles of NR & F *or within* known AC cores** **Feb 1 - July 31**	**Lifted if surveys indicate no nesting activity or non-occupancy *** **Doesn't apply to travel on roadways**

* The USFS will be doing surveys as the weather permits access in March, April and May.
The forest may be able to lift the LOPs for area with no detections of NSO by the beginning of June.

- LOPs does not apply to travel on roadways. Hauling and Loading of decked material are allowed.

• No project activities that modify NSO nesting/roosting and foraging habitat from February 1 to September 15, unless protocol surveys determine no nesting activity. If surveys result in determining no NSO nesting activity, this restricted project operations time period would be lifted for the year in consultation with the US Fish and Wildlife Service (USFWS).

• No project activities that result in creating noise above ambient levels within 0.25 miles of nesting/roosting and foraging habitat or within known NSO AC cores from February 1 to July 9 on the KNF (Ukonom RD). No project activities that create smoke within 0.25 miles of nesting/roosting and foraging habitat within known NSO ACs from February 1 to July 31 on the KNF (Ukonom RD). If surveys result in determining no NSO nesting activity or non-occupancy, this restricted project operations time period would be lifted for the year. This project design feature is not intended to be applied to motor-vehicle travel on roadways.

• No project activities that result in creating smoke or noise above ambient levels within 0.25 miles of nesting/roosting and foraging habitat or within known NSO AC cores from February 1 to July 31 on the SRNF (Orleans RD). If surveys result in determining no NSO nesting activity or non-occupancy, this restricted project operations time period would be lifted for the year. This project design feature is not intended to be applied to motor-vehicle travel on roadways.

During project design with the Level 1 team and the USFWS, it was determined that four (4) NSO ACs (1250, 1073, 58 and 53) cores (0 to 0.5 mile) were deficit in habitat. The following units in the deficit cores would receive an 18-inch-dbh limit. These units would maintain post-treatment average overstory canopy cover of 60 percent in treatment units mapped as nesting/roosting habitat and would maintain an average overstory canopy cover of 40 percent in treatment units mapped as foraging or dispersal habitat.

Table 2-16. Units with 18-inch-dbh cutting limit.

Project Area	Unit	NSO Activity Center (AC) Number	Treatment Method
Donahue	2421	58	Mechanical
Donahue	2480	53	Mechanical
Ti Bar	2110	1250	Mechanical
Patterson	2225	1073	Mechanical
Patterson	2227	1073	Mechanical

• Fisher, marten and wolverine surveys have been conducted with camera stations. Detections of marten and fisher have been documented in the project area. Although no den sites have been located, if a den is found, no project activities associated with loud noise above ambient levels and smoke-producing activities would occur within 0.25 miles from February 1 to May 31 adjacent to an active den site.

• Protect other known or discovered raptor nest sites from management activities and human disturbance until fledging has been documented. Levels of protection vary by the requirements of the species involved. A Forest Service biologist will be notified if a raptor nest is discovered during implementation and appropriate steps will be taken.

• Snags and logs would be retained per KNF LRMP standards and guidelines (S&Gs) Table 4-4; KNF LRMP FEIS Table I-1 provides standards for snag retention. The KNF LRMP guidelines recommend five (5) snags per

acre averaged across a 100-acre area. This site-specific recommendation (FEIS Table I-1) advises that NSO high-quality habitat would have eight (8) snags per acre on an average area basis. Each acre need not meet these standards. Five (5) to eight (8) snags per acre is safe with the higher standard being applied to high-quality habitat.

• Maintain five (5) to 20 pieces of coarse woody debris (CWD) per acre in various stages of decay, and leave large logs (conifer and hardwood) at least 20 inches in diameter and about 40 cubic feet in volume when they are available. Down logs should reflect the mix of species in the stand (KNF LRMP p. 4-25 S&G 6-16).

• Snags and logs would be retained as per SRNF LRMP S&G Table IV-8 and Appendix L. Treatments within late-successional reserves (LSRs), riparian reserves, critical habitat units (CHU), and suitable Northern spotted owl habitat (regardless of land allocation) would maintain snags (20″ dbh and greater or the largest available in younger seral stages) and downed logs (20″ and greater and at least 10 feet long or the largest available) at the 80 to 100 percent level, unless they pose a safety hazard or would not meet fuel treatment objectives. Hazard trees are defined as any tree that is dead, dying, or showing signs of failure that has the potential to hit the area of operations (leaning toward the site and within tree-height distance).

• No snags will be cut during implementation, unless they present a particular safety issue that cannot be avoided.

• Slash will not be piled against large trees or snags to reduce loss of structural elements during prescribed burning.

• All pre-dominant and dominant tree species would be retained. The project would not remove potential threatened, endangered, and sensitive species (TES) nest trees or affect the canopy around potential nest trees in suitable habitat. Directional falling would be used to protect all pre-dominant trees and any tree forming a canopy around the pre-dominant tree.

• Roadside and ingress/egress fuelbreaks (300 feet each side of the road) would retain approximately 30 percent of uncut understory vegetation to provide cover for other wildlife species. Leave about 30 percent of existing understory vegetation in a mosaic pattern that feathers more leave patches in the latter half (150 feet to 300 feet) of the fuelbreak.

Landowner Notification: Keep Lomakatsi informed of the approximate timeline when implementation is planned to occur adjacent to private property at least two (2) weeks prior to when activities are planned.

Cultural Resources:

• All work within (or adjacent to) site boundaries shall be monitored by a Forest Service archaeologist or tribal monitor to ensure that the work is culturally desirable (i.e., for restoration purposes) and to ensure that ground disturbance is minimized and that features and artifacts are protected.

• All treatments within site boundaries will adhere to On-Site Historic Property Protection Measures as stipulated in the Region 5 Programmatic Agreement (R5 PA).

• In the event that cultural resources are discovered during implementation, all work in the area shall cease and the Forest Heritage Program Manager and Karuk Tribal Historic Preservation Officer (THPO) shall be notified immediately.

• Should inadvertent effects to or unanticipated discoveries of human remains be made on Region 5 lands, the County Coroner (California Health and Safety Code 7050.5(b)) shall be notified immediately. If the remains are determined to be Native American or if Native American cultural items pursuant to NAGPRA are uncovered, the provisions of NAGPRA and its regulations at 43 CFR 10 and ARPA at 43 CFR 7 shall be followed on federal lands (R5 PA Stipulation 7.9 (a)).

• Any trees cut near or within site boundaries will be directionally felled away from archaeological features or artifacts.

• Full suspension or one-end suspension will be the preferred method of tree extraction when conducting tree harvest near sites.

• One-end suspension may be utilized within site boundaries on a case-by-case basis, but only after a Forest Service archaeologist or tribal monitor determines that trees can be removed without impacting any archaeological features or artifact concentrations.

• For linear sites (e.g., mining ditches, historic trails), equipment may cross in areas where their features or characteristics clearly lack historic integrity. Crossings will be designated by a Forest Service archaeologist. The remainder of the site will be avoided, and traffic will be clearly routed through designated crossings.

• No new landings will be constructed within the boundary of any site.

• Re-utilizing existing landings may be allowable within the boundaries of some post-contact sites (not allowable for pre-contact sites), where a Forest Service archaeologist has determined: a) access to and from the landing is on a previously established route, b) only the current extent of the existing landing will be used, c) the existing landing is devoid of any archaeological features or artifacts, and d) no subsurface component is likely to be present.

• All new temporary roads or skid trails shall be constructed outside of site boundaries.

• Previous temporary roads or skid trails may be determined acceptable for re-use if vehicles stay on the previously disturbed roadbed.

Botany:

Sensitive Plants – Vascular Plants

• *Thermopsis robusta*
Donahue Units 2461, 2494, and 2400:
- Equipment exclusion buffer marked on the ground, typically along the edge of the units listed above.

• Lichen (*Sulcaria badia*)
Patterson Unit 2249, two (2) equipment exclusion buffers marked on the ground, less than 0.1 miles apart:
- Maintain existing overstory canopy cover.
- Consider incorporating sites within retention patches.
- For follow up treatments, manual/prescribed burn treatments are recommended within equipment exclusion buffer.
- Locate burn piles outside of buffers.

Invasive Weeds

- Avoid yarding/skidding through Himalayan blackberry patches prioritized for treatment.
- All mechanical equipment used in the project, including equipment related to road maintenance, shall be pressured washed prior to operating on the Forest and before moving to another Focal Area.
- Treatment of mechanical units shall follow a **progression of work** (POW) schedule, whereby treatment occurs first where invasive plants are limited to non-existent before moving to heavily infested areas (e.g. units along sections of FS access routes within 1.0 miles of Highway 96). If progression of work is not feasible, equipment operating in heavily infested units or Focal Areas shall be cleaned before relocating. The objective of POW is to reduce the risk of spread of invasive plant species from an area of high invasive plant cover (primarily associated with road edges, clearings, and landings) to one of relatively less or no cover of invasive plants. Progression of work applies to road maintenance associated with this project as well (see tables below).

Mech. Units to be completed first

Unit Number	Focal Area
2101	TI
2110	TI
2112	TI
2113	TI
2114	TI
2116	TI
2117	TI
2124	TI
2127	TI
2131	TI
2132	TI
2148	TI
2151	TI
2221	Patterson
2224	Patterson
2225	Patterson
2226	Patterson
2227	Patterson
2230	Patterson
2235	Patterson
2237	Patterson
2249	Patterson
2400	Donahue
2402	Donahue
2404	Donahue
2405	Donahue
2407	Donahue
2411	Donahue
2419	Donahue
2421	Donahue
2422	Donahue

2433	Donahue
2452	Donahue
2461	Donahue
2462	Donahue
2463	Donahue
2466	Donahue
2467	Donahue
2470	Donahue
2493	Donahue
2494	Donahue
2500	Donahue
2505	Donahue

Progression of Work: Units to be Completed Last to Avoid Equipment Cleaning and Inspection

FOCAL AREA	PRESCRIPTION	UNIT #	ROAD SEGMENT
Ti Bar	Mechanical	2145	Unit along lower section of 13N11, near Hwy 96
Patterson	Mechanical	2264,2265, 2266, 2272, 2217, 2218, 2242, 2200, 2260	Units along the stretch 13N12 from intersection with 13N12A intersection south to Hwy 96 and Units along 13N12A
Donahue	Mechanical	2480, 2481	Units along 13N14A

Equipment Cleaning -- Areas known by Forest Service prior to timber removal RFP that are infested with invasive species of concern will be shown on Stewardship Project Area Maps. A current list of invasive species of concern and a map showing the extent of known infestations is available at the Forest Supervisor's Office. Contractor shall not move any Off-Road Equipment, which last operated in an area that is infested with one or more invasive species of concern onto Stewardship Project Area without having first taken reasonable measures to make each such piece of equipment free of soil, seeds, vegetative matter, or other debris that could contain or hold seeds. This cleaning must be inspected and approved by USFS and/or Lomakatsi prior to entry on to the Stewardship Project Area. Contractor shall identify the location of the equipment's most recent operations. If the prior location of the Off-Road Equipment cannot be identified, Contractors will assume that it is infested with seeds of invasive species of concern. In addition, prior to moving Off-Road Equipment from a cutting unit on this stewardship project that is shown on Stewardship Project Area Map to be infested with invasive species of concern to any other unit that is indicated on Stewardship Project Area Map as being free of invasive species of concern, Contractor shall again take reasonable measures to make each such piece of equipment free of soil, seeds, vegetative matter, or other debris that could contain or hold seeds.

"Off-Road Equipment" includes all logging and construction machinery, except for log trucks, chip vans, service vehicles, water trucks, pickup trucks, cars, and similar vehicles.

If the Contractor's desire to clean Off-Road Equipment on National Forest land, such as at the end of a project or prior to moving to a new unit that is free of invasive species of concern, Lomakatsi, Contractors and Forest Service shall agree on locations for the cleaning and control of off-site impacts, if any.

New infestations of invasive species of concern to Forest Service, identified by either Lomakatsi, Contractor, or Forest Service on the Stewardship Project Area, shall be promptly reported to the other parties and operations shall be delayed or interrupted at that location until Partners, Operator, and Forest Service agree on treatment methods.

Treatment #1 – Small sites (Table 2-13).
1. Where Himalayan blackberry (blackberry) exists as a discrete site with few plants (<10 plants) or as a small patch (<0.01 acres/est. 435 ft2),

- Include treatment area in a retention mosaic for mechanical units OR retain an estimated 20 feet of native vegetation around treatment site for manual and prescribed fire units;
- Avoid operating equipment or yarding logs across retention areas;

Treatment #2 – Moderate sites (Table 2-13).
2. Where blackberry exists as a moderately sized patch (e.g., 0.02 acres/est. 1,152 ft2):

- Include treatment area in a retention mosaic for mechanical units OR retain an estimated 20 feet of native vegetation around treatment site for manual, prescribed burn units;
- Avoid operating equipment or yarding logs across the retention area for mechanical units;

Treatment #3 – Landings (Table 2-13).
3. Before using the landing, where blackberry exists as a small site:

- Mechanically remove blackberry by blading down to ground surface, pile on site away from operations;

3a. Before using landing, where blackberry exists as a large site:

- Mechanically remove blackberry by blading down to ground surface, pile on site away from operations.

Table 2-13. Site-specific project design features (PDFs) for invasive weed treatments.

Project Area	Prescription	Unit #	Treatment
Ti Bar	Mechanical (1b)	2117	#1
Ti Bar	Mechanical (2)	2124	#1
Ti Bar	Mechanical (2)	2116	#2
Patterson	Mechanical (1a)	2230	#1
Patterson	Mechanical (1a)	2230	#3 – landing
Patterson	Mechanical (1b)	2227	#3a – landing
Patterson	Mechanical (1a)	2217	#3a – landing
Donahue	Mechanical (1b)	2463	#1
Donahue	Mechanical (2)	2452	#3a – landing
Donahue	Mechanical (2)	2452	#3a – landing

Riparian Reserves:

Endlining within the outer portion of riparian reserves would occur in the following mechanical units and as marked on the ground (Table 2-14):

Table 2-14. Endlining and/or special treatments in riparian reserves.

Project Area	Unit	Treatment Method	Project Area	Unit	Treatment Method
Ti Bar	2101	Mechanical	Patterson	2249	Mechanical
Ti Bar	2110	Mechanical	Patterson	2260	Mechanical
Ti Bar	2113	Mechanical	Patterson	2264	Mechanical
Ti Bar	2114	Mechanical	Donahue	2400	Mechanical
Ti Bar	2116	Mechanical	Donahue	2402	Mechanical
Ti Bar	2117	Mechanical	Donahue	2404	Mechanical
Ti Bar	2127	Mechanical	Donahue	2405	Mechanical
Ti Bar	2131	Mechanical	Donahue	2407	Mechanical
Ti Bar	2132	Mechanical	Donahue	2411	Mechanical
Patterson	2200	Mechanical	Donahue	2419	Mechanical
Patterson	2217	Mechanical	Donahue	2421	Mechanical
Patterson	2221	Mechanical	Donahue	2422	Mechanical
Patterson	2224	Mechanical	Donahue	2452	Mechanical
Patterson	2225	Mechanical	Donahue	2461	Mechanical
Patterson	2226	Mechanical	Donahue	2466	Mechanical
Patterson	2227	Mechanical	Donahue	2467	Mechanical
Patterson	2230	Mechanical	Donahue	2470	Mechanical
Patterson	2235	Mechanical	Donahue	2480	Mechanical
Patterson	2237	Mechanical	Donahue	2481	Mechanical
Patterson	2242	Mechanical	Donahue	2505	Mechanical
Patterson	2273	Mechanical			

When operating heavy equipment in designated riparian reserve buffers, and as marked on the ground, work in linear strips to avoid unnecessary turning and subsequent soil displacement.

F.10 - Roads. Contractor is/are authorized to construct and maintain roads, bridges, and other transportation facilities, as needed for conducting treatments on National Forest and other lands where Forest Service has such authority. As used in this Supplemental Project Agreement, "construct" includes "reconstruct."

F.10-a– Specified Roads.

Name and Date of Governing Road Specifications: Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects FP-14 and incorporated Supplemental Specifications.

Project		Design	Approx.	Sheet Numbers	Performance Responsibility		
Road No.	Name	Class	Length *(mi./km.)*	and Approval Date	Survey	Design	Const. Staking
13N14E		1	0.50				
13N12A		1	0.80				
13N12B		1	0.90				

Cost estimates to do the work required on specified roads are as follows:

WKRP - Road 13N12A (Patterson Area)

Item No.	Description	Pay Unit	Est. Qty.	Unit Price	Total Price
15101	Mobilization	LS	1	$500.00	$500.00
20103	Clearing and Grubbing, Disposal method Piling	MI	0.5	$6,400.00	$3,200.00
20404	Roadway Excavation and Embankment, Compaction Placement Method 2	CY	120	$12.00	$1,440.00
30315	Roadway Reconditioning, Compaction Method 3	Mi	0.5	$10,000.00	$5,000.00
				Total	$10,140.00

From Mile Post 0.3 to 0.8
Recondition the roadbed
Remove slide material and haul to designated disposal sites (400 CY total at multiple sites)
Repair slumps
Clean culverts and ditches
Minimum 14 FT wide Road or match existing (whichever is wider), and out sloped.

WKRP - Road 13N12B (Patterson Area)

Item No.	Description	Pay Unit	Est. Qty.	Unit Price	Total Price
15101	Mobilization	LS	1	$500.00	$500.00
20103	Clearing and Grubbing, Disposal Method Piling	MI	0.3	$6,400.00	$1,920.00
30315	Roadway Reconditioning, Compaction Method 3	Mi	0.3	$3,500.00	$1,050.00
				Total	$3,470.00

Mile Post 0.0 to 0.5 requires work under the Road Maintenance Plan - C5.31
Mile Post 0.5 to 0.8 requires the Specified Road work
Recondition the roadbed
Clean culverts and ditches
Minimum 14 FT wide Road or match existing, outsloped.

WKRP - Road 13N14E (Donahue Flat Area)

Item No.	Description	Pay Unit	Est. Qty.	Unit Price	Total Price
15101	Mobilization	LS	1	$500.00	$500.00
20103	Clearing and Grubbing, Disposal Method Piling	MI	0.5	$6,400.00	$3,200.00
20403	Roadway Excavation and Embankment, Compaction Method 2	CY	60	$18.00	$1,080.00
30208	Aggregate Surface Course, Government Furnished	CY	40	$23.00	$920.00
30305	Roadway Reconditioning, Compaction Method 2	Mi	0.5	$3,500.00	$1,750.00
				Total	$7,450.00

From Mile Post 0 to 0.5
Reconstruct road from existing temp
Construct outsloped road
Realign the intersection with the main road and use borrow material to match grade
Spot rock intersection with main road and mile post 0.08
Minimum 14 FT wide Road or match existing, outsloped.

Specified Road Cost Summary

Road	Estimated Cost
13N12A	$10,140.00
13N12B	$3,470.00
13N14E	$7,450.00
Total	$21,060.00

F.10-b - Road Maintenance Requirements. Contractor shall maintain roads in accordance with the following Road Maintenance Requirements as described in FSH 2409.14 Timber Sale Administration Handbook. Amendment No. 2409.15-99-4. These are attached to this SPA at the end of Appendix G.

Road Maintenance Requirements Summary

Road	Termini		Miles	Applicable Prehaul Road Maintenance Specifications									
	From	To		801	802	803	804	805	806	807	808	809	810
15N01	0.00	7.0	7.0	C	C					C			

13N18	0.00	2.0	2.0	C	C					C			
13N18	2.0	4.0	2.0	C	C	C		C		C			
13N18	4.0	6.0	2.0	C	C	C		C		C			
13N18A	0.0	0.25	0.25			C				C			
13N18E	0.0	0.25	0.25			C				C			
13N14	0.0	0.9	0.9	C	C	C		C		C			
13N14	0.9	4.0	3.1	C	C	C		C		C			
13N14A	0.0	0.5	0.5										
13N14A	0.5	1.2	0.7										
13N14D	0.0	0.25	0.25	C	C	C		C		C			
13N14E	0.0	0.5	0.5	C	C	C		C		C			
13N12	0.0	1.8	1.8		C	C		C		C			
13N12	1.8	3.1	1.3		C	C		C		C			
13N12	3.1	4.7	1.6		C	C		C		C			
13N12A	0.0	0.8	0.8			C		C		C			
13N12B	0.0	0.9	0.9			C		C		C			
13N44	0.0	1.6	1.6			C		C		C			
13N40	0.0	1.0	1.0			C		C		C			
13N11	0.0	0.4	0.4			C		C		C			
13N11	0.4	2.0	1.6	C	C	C		C		C			
13N11	2.0	3.4	1.4	C	C	C		C		C			
13N11	3.4	4.0	0.6		C	C		C		C			
14N14	0.0	0.51	0.51		C	C		C		C			
14N14	0.51	0.9	0.39		C	C		C		C			
14N15	0.0	0.25	0.25		C	C		C		C			
14N15	0.25	0.77	0.52		C	C		C		C			
14N01	0.0	0.55	0.55		C	C		C		C			

C = Contractor Performance Item, D = Deposit to Forest Service, D3 = Deposit to Third Party

Road	Termini		Miles	Applicable During Haul Road Maintenance Specifications									
	From	To		801	802	803	804	805	806	807	808	809	810
15N01	0.00	7.0	7.0	C									
13N18	0.00	2.0	2.0										
13N18	2.0	4.0	2.0						C				
13N18	4.0	6.0	2.0						C				
13N18A	0.0	0.25	0.25						C				
13N18E	0.0	0.25	0.25						C				
13N14	0.0	0.9	0.9						C				
13N14	0.9	4.0	3.1						C				
13N14A	0.0	0.5	0.5						C				
13N14A	0.5	1.2	0.7						C				
13N14D	0.0	0.25	0.25						C				
13N14E	0.0	0.5	0.5						C				
13N12	0.0	1.8	1.8						C				
13N12	1.8	3.1	1.3						C				
13N12	3.1	4.7	1.6						C				
13N12A	0.0	0.8	0.8						C				
13N12B	0.0	0.9	0.9						C				
13N44	0.0	1.6	1.6						C				
13N40	0.0	1.0	1.0						C				
13N11	0.0	0.4	0.4										
13N11	0.4	2.0	1.6										
13N11	2.0	3.4	1.4										

13N11	3.4	4.0	0.6										
14N14	0.0	0.51	0.51						C				
14N14	0.51	0.9	0.39						C				
14N15	0.0	0.25	0.25						C				
14N15	0.25	0.77	0.52						C				
14N01	0.0	0.55	0.55										

C = Contractor Performance Item, D = Deposit to Forest Service, D3 = Deposit to Third Party

Road	**Termini**			**Applicable Post Haul Road Maintenance Specifications**									
	From	**To**	**Miles**	**801**	**802**	**803**	**804**	**805**	**806**	**807**	**808**	**809**	**810**
15N01	0.00	7.0	7.0										
13N18	0.00	2.0	2.0										
13N18	2.0	4.0	2.0			C							
13N18	4.0	6.0	2.0			C							
13N18A	0.0	0.25	0.25			C						C	C
13N18E	0.0	0.25	0.25			C						C	C
13N14	0.0	0.9	0.9			C							
13N14	0.9	4.0	3.1			C							
13N14A	0.0	0.5	0.5			C							
13N14A	0.5	1.2	0.7			C						C	
13N14D	0.0	0.25	0.25			C						C	C
13N14E	0.0	0.5	0.5			C						C	C
13N12	0.0	1.8	1.8			C							
13N12	1.8	3.1	1.3			C							
13N12	3.1	4.7	1.6			C							
13N12A	0.0	0.8	0.8			C						C	
13N12B	0.0	0.9	0.9			C						C	
13N44	0.0	1.6	1.6			C							
13N40	0.0	1.0	1.0			C							
13N11	0.0	0.4	0.4										
13N11	0.4	2.0	1.6										
13N11	2.0	3.4	1.4										
13N11	3.4	4.0	0.6										
14N14	0.0	0.51	0.51			C							
14N14	0.51	0.9	0.39			C							
14N15	0.0	0.25	0.25			C						C	
14N15	0.25	0.77	0.52			C						C	
14N01	0.0	0.55	0.55										

C = Contractor Performance Item, D = Deposit to Forest Service, D3 = Deposit to Third Party

Definitions:
801-Slide and Slump Removal
802-Ditch Cleaning
803-Surface Blading
804-Surface Repair
805-Drainage Structure Cleaning
806-Dust Abatement
807-Roadside Vegetation Removal
808-Miscellaneous Stuctures
809-Water Bars
810-Barriers

F.10-c - Use of Roads By the Contractor. Contractor's use of existing roads identified on Stewardship Project Area Map by the following codes is prohibited or subject to restrictive limitations, unless agreed to otherwise:

Code	Use Limitations
X	Hauling prohibited
R	Hauling restricted
U	Unsuitable for hauling prior to completion of agreed reconstruction
P	Use prohibited
A	Public use restriction
W	Regulation waiver

Roads coded A will be signed by the Forest Service to inform the public of use restrictions. Contractor's use of roads coded R, A, or W shall be in accordance with the following restrictions:

Restricted Road List

Road Number	Road Name	Termini		Map Legend	Description of Restrictions
		From	To		
13N14	N/A	National Forest Boundary /Private Property	Private Property/National Forest Boundary	P	Use Prohibited on Private Property

F.11– Scaling Instructions and Specifications.

Name and Date of Governing Instructions: FSH 2409.11a, National Forest Cubic Log Scaling Handbook, as amended and supplemented. Governing instructions for products contained in E.2.

F.12– Scaling Services,

Species	Product	Unit of Measure	Site and Geographic Location	Method	Standard Estimated Cost per Unit $
All	Sawtimber	Ton	Contractor shall request a scaling site per G.36 which meets the requirements contained in G.38	Total (100%) weight scale.	$0.00

F.13 - Advance Deposits. Contractor agree(s) to make advanced deposits in advance of cutting. These deposits may be in the form of cash, acceptable payment bond, earned stewardship credit or any combination thereof. Advanced deposits will be in such amounts as to maintain an unobligated balance sufficient enough to cover the value of timber to be cut. Lomakatsi and Contractor will agree on a systematic approach to provide sufficient advanced deposits.

If the credit balance in the IRSA is less than the amount due for timber, the Forest Service will suspend all or any part of Contractor's operations until payment or acceptable payment guarantee is received.

F.14- Title Passage.

Scaled: All right, title, and interest in and to any included timber shall remain with the Forest Service until it has been cut, scaled, and removed from the Stewardship Project Area or other authorized cutting area, and paid for, at which time title shall then vest with Contractor. Timber cut under cash deposit or acceptable payment guarantee shall be considered to have been paid for. Title to any included timber that has been cut, scaled and paid for, but not removed from the Stewardship Project Area or other authorized cutting area by the Contractor on or prior to the termination date, shall remain with the Forest Service.

Tree Measurement. All right, title, and interest in and to any included timber shall remain with the Forest Service until it has been measured, paid for, and removed from the Stewardship Stewardship Project Area or other authorized cutting area, at which time title shall then vest with Contractor. Timber cut under cash deposit or acceptable payment guarantee shall be considered to have been paid for. Title to any included timber that has been measured and paid for, but not removed from the Stewardship Project Area or other authorized cutting area by Contractor on or prior to the termination date, shall remain with the Forest Service.

F.15– Liability.

Liability for Loss. If Included Timber is destroyed or damaged by an unexpected event that significantly changes the nature of Included Timber, such as fire, wind, flood, insects, disease, or similar cause, the party holding title shall bear the timber value loss resulting from such destruction or damage; except that such losses after removal of timber from the Stewardship Project Area, but before scaling, shall be borne by Contractor at current SPA Rates and Required Deposits. Deterioration or loss of value of salvage timber is not an unexpected event.

In the event Included Timber to which Forest Service holds title is destroyed, Contractor will not be obligated to remove and pay for such timber. In the event Included Timber to which Forest Service holds title is damaged, the Forest Service shall make an appraisal to determine for each species the difference between the appraised unit value of Included Timber immediately prior to the value loss and the appraised unit value of timber after the loss. Current SPA Rates in effect at the time of the value loss shall be adjusted by differences to become the redetermined rates. There shall be no obligation for the Forest Service to supply, or for Contractor to accept and pay for, other timber in lieu of that destroyed or damaged. This Subsection shall not be construed to relieve either party of liability for negligence.

Cooperator's Obligation per Operations Fire,
Maximum Amount: $ **27,900**

F.16- Soils

- Heavy-equipment operations shall occur when soils are dry enough to avoid deep rutting or puddling; operate over a duff and slash "mattress" if possible.
- Limit temporary roads and landings, and skid trail use to less than 15 percent of the unit area.
- Existing utilized skid trails would require ripping to mitigate compaction in the following units:
    - Ti Bar: 2117 and 2127
    - Patterson: 2242
    - Donahue: 2467, 2493 and 2500.

- Single-pass feller-buncher and masticator routes are generally not restricted to 15% area, however these are limited to dry soil conditions as with skidding equipment, and effort should be made to minimize turning-related (skid-steer) soil displacement.

F.17- Temporary Roads

- All temporary roads shall be winterized and closed to vehicle traffic every rainy season, typically October 30 to June 1, for the life of the project.
- When no longer needed for operations, remove culverts and associated fill. Rehabilitate roads and landings by decompacting, outsloping, and mulching with slash or seeding with native grasses. Physically close to vehicle access.

F. 18 – Timber Subject to Agreement

In addition, there is within Stewardship Project Area an unestimated quantity of:

Species	Product
All Species	Grn Bio Cv
	Unestimated

that shall be Included Timber upon written agreement

APPENDIX G - GUIDELINES FOR OPERATIONS

Somes Bar Stewardship

The following Guidelines for Operations apply to activities under this SPA, when relevant to the project. These guidelines are intended to clarify the expectations of the parties related to these specific areas of operations.

1. **Stewardship Project Area Map (Map).** This is the boundary of the Stewardship Project Area as shown in Appendix B and designated on the ground by the Forest Service to meet the anticipated needs of the parties. The following are identified on the Map:

    a) Identified patented claims.
    b) Boundaries of all harvest and stewardship treatment units.
    c) Diameter limits for overstory and understory removal units.
    d) Areas where leave trees are marked to be left uncut.
    e) Specified roads.
    f) Sources of base course, surface rock, and rock riprap listed in the Schedule of Items;
    g) Roads where log hauling or use is prohibited or restricted.
    h) Roads and trails to be kept open.
    i) Improvements to be protected.
    j) Locations of known wildlife or plant habitat and cave resources to be protected.
    k) Locations of areas known to be infested with specific invasive species of concern.
    l) Maximum stump heights when more than one height is listed by areas.
    m) Skidding or yarding methods.
    n) Streamcourses to be protected.
    o) Locations of meadows requiring protection.
    p) Locations of wetlands requiring protection.
    q) Locations of temporary roads to be kept open.
    r) Payment units, if required

2. **Use of Roads by the Contractor.** The Contractor is/are authorized to use existing National Forest system roads and specified roads. The Parties will determine that such use will not cause damage to the roads or National Forest resources.

3. **Plan of Operations for Roads.** Annually, prior to start of operations, Contractor will prepare a supplement to the Technical Proposal that shall include a schedule of proposed maintenance and construction progress and a description of planned measures to be taken to provide erosion control for work in progress, including special measures to be taken on any segments of construction not substantially completed prior to periods of seasonal precipitation or runoff. The Contractor shall submit a revised schedule when they propose a significant deviation from the progress schedule. Prior to beginning construction on any portion of specified roads identified as sensitive on plans, the parties shall agree on the proposed method of construction and maintenance.

4. **Protection of Residual Trees.** The Contractor's operations shall not unnecessarily damage young

growth or other trees to be reserved.

5. **Safety.** The Contractor's operations shall facilitate the Forest Service's safe and practical inspection of Contractor's operations and conduct of other official duties on the Stewardship Project Area. The Contractor has/have all responsibility for compliance with safety requirements for Contractor's employees.

   When operations are in progress adjacent or on Forest Service controlled roads and trails open to public travel, Contractor shall furnish, install, and maintain all temporary traffic controls that provide the user with adequate warming of hazardous or potentially hazardous conditions associated with operations occurring in the area. The parties shall agree to a specific traffic control plan prior to commencement of work. Devices shall be appropriate to current conditions and shall be covered or removed when not needed.

   During periods of general recreation activity within Stewardship Project Area or vicinity, the Forest Service may restrict road construction, timber cutting, yarding, and other harvesting operations to days other than Saturdays, Sundays, and holidays.

LOGGING AND MAINTENANCE OPERATIONS SIGNING STANDARDS

All signs must be manufactured & installed as specified in the FHWA "**Manual on Uniform Traffic Control Devices**" (MUTCD) & FS publication "**Standards for Forest Service Signs & Posters**"(EM 7100-15).

SIGN STANDARDS

SHAPE & COLOR: Generally, signs for logging and maintenance operations are either diamond-shaped or rectangular. All signs are ***reflective orange background with black legend and border*** unless shown otherwise. Handpainted, homemade signs are not legal. Fluorescent paint is not reflectorized.

SUBSTRATE: Sign substrate material may be High Density Overlay (HDO) Plywood, Aluminum, Fiberglass Reinforced Plastic, Corrugated Plastic or Roll-up Fabrics.

SIGN SIZE: Sign size is a factor of speed and MUTCD & FS standards. Where conditions of speed, volume, or special hazard require greater visibility or emphasis, larger signs should be used. Minimum sizes for the most common signs can be found in Figure 4. Refer to the EM-7100-15 for additional sign sizes.

LEGEND: All lettering shall be Series "C" alphabet, conforming to Standard Alphabets for Highway Signs. Letter size is also a function of speed - use letter size and word messages as specified in MUTCD and EM-7100-15.

SIGN PLACEMENT

Signs are to be installed in locations as agreed to in the traffic control plan. All signs are to be

removed, covered, or folded when operations are not in progress or the sign message is not applicable. Signs should generally be located on the right-hand side of the roadway. When special emphasis is needed, signs may be placed on both the left and right sides of the road. Sign message shall be clearly visible to road users, mounted on posts or portable sign stands.

LATERAL CLEARANCE

From the edge of the road - 2 foot minimum, where slope limits to less than 6 feet. 6-12 foot preferred.

HEIGHT

Minimum of 7 feet, measured from the bottom of the sign to the near edge of the travelway. The height to the bottom of a supplemental sign mounted below the primary sign will be 6 feet.

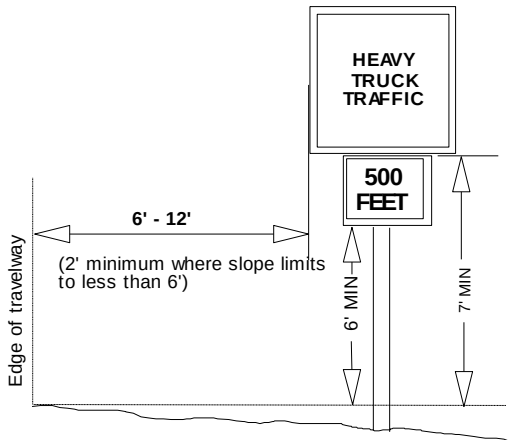


Figure 1: Sign Placement

Dimensions

PLACEMENT DISTANCE

Signs must be located 100-500 feet prior to the activity, (both ends if a through road) and maintained at that distance. This distance is based on speed. Refer to Figure 2 , Table II-1, MUTCD, a portion of which is reproduced here, to determine correct placement distance.

Posted or 85 percentile speed MPH	Declaration to listed advisory speed MPH				
	10	**20**	**30**	**40**	**50**
20	NA				
25	100				
30	150	100			
35	200	175			
40	275	250	175		
45	350	300	250		
50	425	400	325	225	
55	500	475	400	300	
60	575	550	500	400	300
65	650	625	575	500	375

Figure 2: A Portion of MUTCD TABLE II-1

SIGN SUPPORTS

POSTS: Signs are to be mounted on separate posts. Supplemental signs such as Speed Advisory plates are to be mounted on the same post as the primary sign. ***Do not mount signs on trees or other signs.*** Posts may be wood, metal, carsonite or similar material. Where sign supports cannot be sufficiently offset from the road edge, supports will meet breakaway standards. Single wood posts with less than 24 square inches do not require breakaway design.

TEMPORARY/PORTABLE SUPPORTS: Portable supports may be used for short-term, short-duration, and mobile conditions. MUTCD defines this time period as one work shift, 12 hours or less. All portable supports must meet MUTCD standards, including breakaway. These must be a minimum of 1 foot above the road surface or more if visibility requires it.

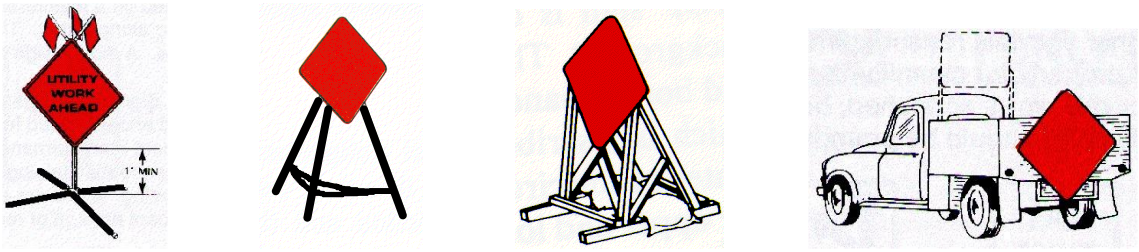
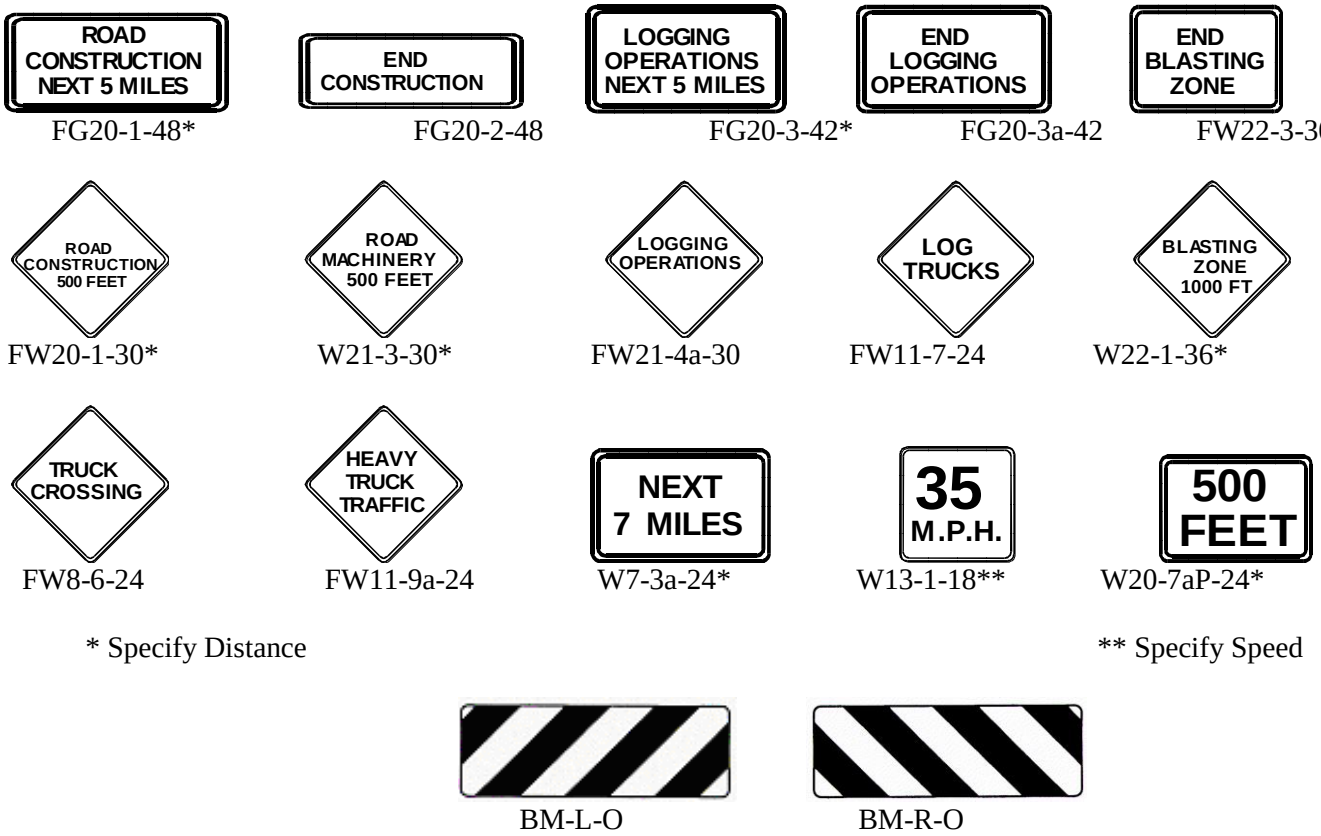


Figure 3: Examples of Temporary/Portable Supports

SIGNS

The following signs meet the intent of the Safety standard. ***This is not a complete listing of signs that may be needed.***



Barricade Markers (See MUTCD for length and stripe size)

6. **Safety (Timber Hauling).** Contractor shall secure all products transported by truck with at least two chain or cable wrappers over the load, such wrappers being securely fastened to effectively contain every bolt or log in at least two places.

7. **Accident and Injury Notification.** Contractor shall notify Forest Service of any lost time personal injury accident or any accident or vandalism resulting in personal property damage over $400 in value that occurs as a result of or is associated with Contractor's Operations.

Contractor shall notify Forest Service within 8 hours of any personal injury accident. For vandalism and personal property accidents, Contractor shall notify Forest Service at the same time notification is given to the state and local law enforcement authorities.

Contractor shall take all reasonable measures after an accident or vandalism event to preserve the scene of the incident and provide information to facilitate a Forest Service investigation.

8. **Sanitation and Servicing.** Contractor shall take all reasonable precautions to prevent pollution of air, soil, and water by Contractor's operations. Precautions shall include if facilities for employees are established on the Stewardship Project Area, they shall be operated in a sanitary manner. The parties shall agree to the cleanup and restoration of a polluted site. Contractor shall maintain all equipment operating on Stewardship Project Area in good repair and free of abnormal leakage of lubricants, fuel, coolants, and hydraulic fluid. Contractor shall not service tractors, trucks, or other equipment on National Forest lands where servicing is likely to result in pollution to soil or water. Contractor shall furnish oil-absorbing mats for use under all stationary equipment or equipment being serviced to prevent leaking or spilled petroleum-based products from contaminating soil and water resources. Contractor shall remove from National Forest lands all contaminated soil, vegetation, debris, vehicle oil filters (drained of free-flowing oil), batteries, oily rags, and waste oil resulting from use, servicing, repair, or abandonment of equipment.

9. **Prevention of Oil Spills.** If Contractor maintain(s) storage facilities for oil or oil products on the Stewardship Project Area, Contractor shall take appropriate preventive measures to ensure that any spill of such oil or oil products does not enter any stream or other waters of the United States or any of the individual States. If the total oil or oil products storage exceeds 1,320 gallons in containers of 55 gallons or greater, Contractor shall prepare a Spill Prevention Control and Countermeasures Plan. Such plan shall meet applicable EPA requirements (40 CFR 112), including certification by a registered professional engineer. Contactor shall notify the Forest Service and appropriate agencies of all reportable (40 CFR 110) spills of oil or oil products on or in the vicinity of the Stewardship Project Area that are caused by Contractor's employees, agents, contractors or their employees or agents, directly or indirectly, as a result of Contractor's operations. Contractor will take whatever initial action may be safely accomplished to contain all spills.

10. **Hazardous Substances.** Contractor shall notify the National Response Center and Forest Service principal contact of all releases of reportable quantities of hazardous substances on or in the vicinity of the Stewardship Project Area that are caused by Contractor's employees, agents, contractors or their employees or agents, directly or indirectly, as a result of Contractor's operations, in accordance with 40 CFR 302.

11. **Equipment Cleaning**. In order to prevent the spread of noxious weeds into the Stewardship Project Area, Contractor shall be required to clean all off-road logging and construction equipment **prior** to entry on to the Stewardship Project Area. This cleaning must be inspected and approved by USFS and/or Lomakatsi prior to entry on to the Stewardship Project Area. This cleaning shall remove all soil, plant parts, seeds, vegetative matter, or other debris that could contain or hold seeds. Only logging and construction equipment so cleaned and inspected by the Contractor will be allowed to operate within the Stewardship Project Area. All subsequent move-ins of equipment to the

Stewardship Project Area shall be treated in the same manner as the initial move in. "Off-road equipment" includes all logging and construction machinery, except for log trucks, chip vans, service vehicles, water trucks, pickup trucks, cars, and similar vehicles.

Contractor shall employ whatever cleaning methods are necessary to ensure that off-road equipment is free of noxious weeds. Equipment shall be considered free of soil, seed, and other such debris when a visual inspection does not disclose such material. Disassembly of equipment components or specialized inspection tools is not required.

As agreed upon, Contractor shall inspect equipment at cleaning location, and provide documentation of inspection to the Forest Service.

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

12. **Conduct of Logging.** Unless otherwise specifically provided herein, Contractor shall fell trees designated for cutting and shall remove the portions that meet Utilization Standards, prior to acceptance of work for completion of logging and stewardship projects. Forest Service may make exceptions for occasional trees inadvertently not cut or trees or pieces not removed for good reason, including possible damage to forest resources or gross economic impracticability at the time of removal of other timber.

13. **Felling and Bucking.** Felling shall be done to minimize breakage of included timber and damage to residual timber. Unless agreed otherwise, felling shall be done by saws or shears. Bucking shall be done to permit removal of all minimum pieces. Contractor may buck out cull material when necessary to produce pieces meeting utilization standards. Such bucked out material shall contain a minimum amount of sound wood, not in excess of the net scale in percentage of gross scale, or based on the merchantability factor. If necessary to assess extent of defect, Contractor shall make sample saw cuts or wedges.

14. **Felling in Clearings.** Insofar as ground conditions, tree lean, and shape of clearings permit, trees shall be felled so that their tops do not extend outside clearcutting units, construction clearings, and areas of regeneration cutting.

15. **Stump Heights.** Stumps shall not exceed, on the side adjacent to the highest ground, the maximum heights set forth in Appendix E except that occasional stumps of greater heights are acceptable when Contractor determine(s) that they are necessary for safe and efficient conduct of logging. Unless otherwise agreed, Contractor shall re-cut high stumps so they will not exceed heights specified in F-14 and shall dispose of severed portions in the same manner as other logging debris. The stump heights shown in Appendix F were selected with the objective of maximum reasonable utilization of the timber, unless the Map shows special areas where stump heights are lower for aesthetic, land treatment, or silvicultural reasons.

16. **Bucking Lengths.** Trees shall be bucked in various lengths to obtain the greatest utilization of material meeting utilization standards.

17. **Limbing.** Contractor shall cut exposed limbs from products prior to skidding, as necessary to minimize damage to the residual stand during skidding. Contractor may leave uncut those limbs that cannot be cut with reasonable safety.

18. **Skidding and Yarding.** Methods of skidding or yarding specified for particular areas, if any, are indicated on the Map. Outside clearcutting units and construction clearings, insofar as ground conditions permit, products shall not be skidded against reserve trees or groups of reproduction and tractors shall be equipped with a winch to facilitate skidding.

19. **Rigging.** Insofar as practicable, needed rigging shall be slung on stumps or trees designated for cutting.

20. **Landings and Skid Trails.** Location of all landings, tractor roads, and skid trails shall be agreed upon prior to their construction. The cleared or excavated size of landings shall not exceed that needed for efficient skidding and loading operations.

21. **Arches and Dozer Blades.** Skidding tractors equipped with pull-type arches or dozer blades wider than tractor width or C-frame width, whichever is greater, shall not be used in residual timber outside clearcutting units and other authorized clearings, except on constructed tractor roads or landings, unless there is written agreement that residual timber will not be damaged materially by such use.

22. **Protection of Streamcourses.** Contractor's Operations shall be conducted to prevent debris from entering streamcourses, except as may be authorized under paragraph (d). In event Contractor cause(s) debris to enter streamcourses in amounts that may adversely affect the natural flow of the stream, water quality, or fishery resource, Contractor shall remove such debris as soon as practicable, but not to exceed 2 days, and in an agreed manner that will cause the least disturbance to streamcourses.

    a) Culverts or bridges shall be required on Temporary Roads at all points where it is necessary to cross Streamcourses. Such facilities shall be of sufficient size and design and installed in a manner to provide unobstructed flow of water and to minimize damage to streamcourses. Trees or products shall not be otherwise hauled or yarded across streamcourses unless fully suspended.
    b) Wheeled or track-laying equipment shall not be operated in streamcourses, except at crossings agreed to by Contractor and the Forest Service or as essential to construction or removal of culverts and bridges.
    c) Flow in streamcourses may be temporarily diverted only if such diversion is necessary for Contractor's planned construction and Forest Service gives written authorization. Such flow shall be restored to the natural course as soon as practicable and, in any event, prior to a major storm runoff period or runoff season.

23. **Erosion Prevention and Control.** Contractor's operations shall be conducted reasonably to minimize soil erosion. Equipment shall not be operated when ground conditions are such that

excessive damage will result. Contractor shall adjust the kinds and intensity of erosion control work done, to ground conditions and weather conditions and the need for controlling runoff. Erosion control work shall be kept current immediately preceding expected seasonal periods of precipitation or runoff.

Prior to periods of accelerated water runoff, especially during the spring runoff and periods of heavy rainfall, Contractor shall inspect and open culverts and drainage structures, construct special cross ditches for road runoff, and take other reasonable measures needed to prevent soil erosion and siltation of streams.

Unless otherwise agreed in writing, Contractor shall complete erosion prevention and control work, including streamcourse protection, within 15 calendar days after completion of skidding and/or yarding operations for each landing.

Designation of on the ground work shall be done as promptly as feasible unless it is agreed that the location of such work can be established without marking on the ground.

During periods of accelerated water runoff, especially during the spring runoff and periods of heavy rainfall, Contractor shall inspect and open culverts and drainage structures, construct special cross ditches for road runoff, and take other reasonable measures needed to prevent soil erosion and siltation of streams.

After September 15, erosion control work will be kept current and will be completed as soon as practicable.

24. **Protection of Improvements.** So far as practicable, Contractor shall protect specified roads and other improvements (such as roads, trails, telephone lines, ditches, and fences):
    a) Existing in the operating area,
    b) Determined to have a continuing need or use, and
    c) Designated on the Map.

    Contractor shall keep roads and trails needed for fire protection or other purposes and designated on the Map reasonably free of equipment and products, slash, and debris resulting from Contractor's operations. Contractor shall make timely restoration of any such improvements damaged by Contractor's operations and, when necessary because of such operations, shall move such improvements.

25. **Meadow Protection.** Reasonable care shall be taken to avoid damage to the cover, soil, and water in meadows shown on the Map. Vehicular or skidding equipment shall not be used on meadows, except where roads, landings, and tractor roads are approved. Unless otherwise agreed, trees felled into meadows shall be removed by endlining. Resulting logging slash shall be removed where necessary to protect cover, soil, and water.

26. **Wetlands Protection.** Wetlands requiring protection under Executive Order 11990 are shown on the Map. Vehicular or skidding equipment shall not be used in such wetlands, except where roads, landings, and tractor roads are approved.

27. **Temporary Roads.** As necessary to attain stabilization of roadbed and fill slopes of temporary roads, Contractor shall employ such measures as outsloping, drainage dips, and water-spreading ditches. After a temporary road has served Contractor's purpose, Contractor shall give notice to the Forest Service and shall remove bridges and culverts, eliminate ditches, outslope roadbed, remove ruts and berms, effectively block the road to normal vehicular traffic where feasible under existing terrain conditions, and build cross ditches and water bars, as staked or otherwise agreed to. When bridges and culverts are removed, associated fills shall also be removed to the extent necessary to permit normal maximum flow of water.

28. **Temporary Roads to Remain Open.** All bridges and culverts shall remain in place and ditches shall not be eliminated on Temporary Roads, shown as "Remained Open on the Map. All drainage structures shall be left in functional condition.

29. **Landings.** After landings have served Contractor's purpose, Contractor shall ditch and slope them to permit water to drain or spread. Unless agreed to otherwise, cut and fill banks around landings shall be sloped to remove overhangs and otherwise minimize erosion.

30. **Skid Trails and Fire Lines.** Contractor shall construct cross ditches and water-spreading ditches on tractor roads and skid trails, where needed to prevent erosion. By agreement, Contractor may use other comparable erosion control measures, such as backblading skid trails, in lieu of cross ditching.

31. **Current Operating Areas.** Where logging, road construction, or other stewardship project work is in progress but not completed, unless agreed to otherwise, Contractor shall, before operations cease annually, remove all temporary log culverts and construct temporary cross drains, drainage ditches, dips, berms, culverts, or other facilities needed to control erosion. Such protection shall be provided, for all disturbed, unprotected ground that is not to be disturbed further prior to end of operations each year, including roads and associated fills, tractor roads, skid trails, and fire lines. When weather permits operations, Contractor shall keep such work on any additional disturbed areas as up to date as practicable.

32. **Erosion Control Structure Maintenance.** During the period of this SPA, Contractor shall provide maintenance of soil erosion control structures constructed by Contractor until they become stabilized, but not for more than one year after their construction.

33. **Slash Disposal.** Contractor's timing of product removal and preparatory work shall not unnecessarily delay slash disposal. Specific slash disposal measures to be employed by Contractor are stated in Appendix G.49.

34. **Scaling.** Scaling includes:
    a) Various volume determination methods, such as log rule, sampling, measuring, linear measuring, counting, weighing, or another method or combination of methods;
    b) Various sites, such as truck Scaling stations, rollways, weighing stations, woods landings, water Scaling stations, or other sites.
    c) Various geographic locations.

35. **Third Party Scaling Services.** Scaling services shall be performed by Forest Service personnel or parties under contract to Forest Service, except that weighing services may be performed by personnel or parties approved by the Forest Service. Scaling designated in Appendix F shall be conducted by a third party scaling organization approved by the Forest Service. Purchaser shall bear the costs for scaling service. Scaling shall be provided in accordance with the instructions and specifications in Appendix F. Scalers shall be currently certified to perform accurate Scaling services. The scaling services provided shall be selected exclusively by the Forest Service.

36. **Scaling Location.** The Forest Service shall provide scaling services at the scaling site(s) shown in Appendix F. The Scaling site(s) shown in Appendix F normally will be a non-exclusive site where more than one National Forest Contractor may be served. Contractor may request, in writing, an alternate scaling site, such as at a private mill yard, private truck ramp, or a privately operated log transfer facility. The Forest Service may approve an alternate scaling site, when the Forest Service determines that scaling conditions at an alternate site are acceptable. Such conditions shall include at a minimum:

    a) Scaler safety and comfort,
    b) Product accountability and security,
    c) Facilities and practices conducive to accurate and independent Scaling, and
    d) The ability to provide for remote check Scaling.

    Upon approval of an alternate scaling site, the Forest Service and Contractor shall enter into a written memorandum of agreement governing Scaling at that alternate location. Contractor agree(s) that Forest Service personnel or persons under contract with the Forest Service shall perform scaling services at an alternative scaling site. In no instance shall Contractor perform scaling services.

37. **Scaling Adjustments.** The Forest Service shall check the accuracy of the scaling performed on National Forest logs. Scaling will be satisfactory if performed within the accuracy standards in governing instructions identified in Appendix F. In the event the Forest Service check scale(s) shows a variance in net scale in excess of the allowable variance, an adjustment to volume reported scaled may be made by the Forest Service. Such adjustment will be based on the difference between Forest Service check Scale(s) and original Scale for SPA volume Scaled within the adjustment period. The volume to which this difference will be applied will be:
    a) One-half of the volume Scaled between the last satisfactory check Scale and the first unsatisfactory check Scale or, if a period of 120 days or more occurs without Scaling National Forest timber for stumpage, the adjustment will be applied to 100 percent of the volume Scaled after this period and
    b) 100 percent of the volume Scaled between unsatisfactory check Scales and
    c) One-half of the volume Scaled between the last unsatisfactory check Scale and the next satisfactory check Scale, or if no satisfactory check Scale is completed and a period of 120 days or more occurs without Scaling of National Forest timber for stumpage, the adjustment will be applied to 100 percent of the volume Scaled since the last unsatisfactory check Scale.

    Adjustments may increase or decrease the original Scaled volume. Adjustments will be applied to Integrated Resource Account to correct charges for Included Timber, plus deposits, Scaled during the adjustment period.

38. **Weighing Services.** Weighing services for stumpage payment purposes may be provided by either public or privately owned and operated weighing facilities. A "Weighing Services Agreement," approved by the Forest Supervisor, must be executed at each weighing facility providing weighing services.

    Scales used to weigh National Forest products for payment purposes must be a currently certified scale in accordance with State law and be capable of weighing the entire load of logs in a single operation. The weighing of less than the entire load or weighing two loads at once is prohibited. Unless otherwise agreed, the minimum sized weighing facility shall be a 60-ton capacity scale with a 10 foot by 70 foot platform or larger. The weighmaster must work in a position where it is possible to verify that the truck wheels are on or off the scales.Weighing facilities shall meet the following minimum requirements:
    a) Be an electronic design,
    b) Use electronic load cells or have a fully enclosed and sealed weigh-beam,
    c) Have digital weight meters sealed with a seal approved by the State,
    d) Have a zero interlocking device on the printer,
    e) Have an automatic zero-setting mechanism,
    f) Have an automatic motion-detecting device,
    g) Be shielded against radio or electromagnetic interference, and
    h) Have a date and time stamp and gross and tare weights that print electronically with each weighing. The Forest Service may waive electronic printing for public or third party weighing facilities. Contractor shall bear all charges or fees for weighing services.

39. **Presentation for Scaling.** Contractor shall present products so that they may be Scaled in an economical and safe manner.

40. **Accountability.** When Scaling is performed away from Stewardship Project Area, products shall be accounted for in accordance with Forest Service written instructions, as follows:
    a) Contractor shall plainly mark or otherwise identify products prior to hauling;
    b) Forest Service shall issue removal receipts to Contractor;
    c) Contractor shall assign a competent individual at the landing to complete removal receipts and attach them to each load of products removed from Stewardship Project Area;
    d) Removal receipts shall be returned to Forest Service at periodic intervals;
    e) When products are in transit, the truck driver shall possess or display removal receipt and show it upon request as evidence of authority to move products;
    f) The scaler's portion of removal receipt shall be surrendered at point of Scaling, the unloading point, or as requested by Forest Service; and
    g) Contractor shall notify Forest Service of lost or off-loaded logs and their location within 12 hours of such loss. Contractor shall not place products in storage for deferred Scaling until an accountability system has been agreed to in writing for a stated period.

41. **Route of Haul.** As part of the annual Operating Schedule, Contractor shall furnish a map showing the route of haul over which unscaled products will be transported from the Stewardship Project Area to the approved Scaling location. Such route of haul shall be the shortest, most economical haul route available between the points.

Upon advance written agreement, other routes may be approved. All unscaled products removed from Stewardship Project Area shall be transported over the designated routes of haul. Contractor shall notify Forest Service when a load of products, after leaving Stewardship Project Area, will be delayed for more than 12 hours in reaching Scaling location.
Contractor shall require truck drivers to stop, if requested by Forest Service, for the following reasons:

a) For accountability checks when products are in transit from Stewardship Project Area to the designated Scaling location or
b) For a remote check Scale when products are in transit after being truck Scaled at the designated Scaling location.

Contractor and Forest Service shall agree to locations for accountability checks and remote check Scales in advance of haul. Such locations shall be established only in areas where it is safe to stop trucks. The Forest Service shall notify Contractor of the methods to be used to alert truck drivers of an impending stop.

42. **Product Identification.** Before removal from the Stewardship Project Area, unless the Forest Service determines that circumstances warrant a written waiver or adjustment, Contractor shall:
    a) Hammer brand all products that are eight (8) feet or more in length and one-third (1/3) or more sound, on each end that is seven (7) inches or more in diameter.
    b) West of the 100th meridian, paint with a spot of highway-yellow paint all domestic processing products that are eight (8) feet or more in length and one-third (1/3) or more sound, on each end that is seven (7) inches or more in diameter. Each paint spot must be not less than three (3) square inches in size.

    The Forest Service shall assign brands and, if the Stewardship Project Area is within a State that maintains a log brand register, brands shall be registered with the State. Contractor shall use assigned brand exclusively on logs under this SPA until Forest Service releases brand. Contractor will furnish and apply highway-yellow paint of a lasting quality (oil-base or equivalent).
    All hammer brands and/or highway-yellow paint must remain on logs until they are domestically processed. Contractor shall replace identifying marks if they are lost, removed, or become unreadable. Contractor may remanufacture products into different log lengths. Except for logs remanufactured as part of the mill infeed process immediately before processing, remanufactured products must be rebranded with the assigned SPA brand and repainted with highway-yellow paint, unless otherwise agreed to in writing by the Forest Service Representative. For such remanufactured products, Forest Service may approve use of a brand to be used exclusively as a catch brand, in lieu of the assigned SPA brand.

43. **Scaling Lost Products.** The volume of lost products shall be determined by the best methods currently available, using data from the records for the period in which the loss occurred or the most applicable period if loss should occur substantially after cutting. In the absence of specific information indicating size or species of lost products, species distribution and volume for entire truckloads shall be assumed to be the same as the average volume Scaled per truck during the report period, and for individual products it shall be assumed that the volume and species were the average volume of the highest priced species Scaled during the report period.

44. **Scaling Lost Sample Loads.** If Scaling is being done by sampling loads of logs, Contractor shall present such sample loads for Scaling by Forest Service. If loads of logs selected to be sample Scaled are placed in the decks before they are Scaled, they will be considered as lost sample loads. It will be difficult, if not impossible, to determine the volume and species contained in such loads for payment purposes. Therefore, lost sample loads will be deemed to have a Scale volume and species composition equal to that of the highest value load Scaled during the sampling period, as established by Forest Service. If no sample loads were Scaled during the period, the Scale data for the high valued load will be taken from the most current preceding sampling period with Scale. Sample loads lost as a result of Forest Service actions shall be treated as non-Scaled loads.

45. **Scale Reports.** The Forest Service shall provide Contractor a copy of Forest Service scaler's record, if requested in writing.

46. **Fire Precautions and Control**
    a) **Plans.** Prior to initiating Contractor's operations during Fire Precautionary Period, Contractor shall file with Forest Service a Fire Prevention and Control Plan providing for the prevention and control of fires on the Stewardship Project Area and other areas of Contractor's Operations. Such plan shall include a detailed list of personnel and equipment at Contractor disposal for implementing the plan. This requirement may be met by preparing a single plan for more than one SPA.

    b) **Fire Precautions.** Specific fire precautionary measures listed in this Appendix shall be applicable during Contractor's Operations in "Fire Precautionary Period" described. The dates of Fire Precautionary Period may be changed by agreement, if justified by unusual weather or other conditions. Required tools and equipment shall be kept in serviceable condition and immediately available for fire fighting at all times during Contractor's operations in Fire Precautionary Period.

    c) **Substitute Precautions.** The Forest Service may authorize substitute measures or equipment, or waive specific requirements by written notice, if substitute measures or equipment will afford equal protection or some of the required measures and equipment are unnecessary.

    d) **Emergency Precautions.** The Forest Service may require the necessary shutting down of equipment on portions of Contractor's Operations, as specified by the emergency fire precautions schedule. Under such conditions, after Contractor cease(s) active operations, Contractor shall release for hire by Forest Service, if needed, Contractor's shutdown equipment for fire standby on the Stewardship Project Area or other areas of Contractor's Operations and personnel for fire standby or fire patrol, when such personnel and equipment are not needed by Contractor for other fire fighting or protection from fire. Equipment shall be paid for at fire fighting equipment rates common in the area or at prior agreed rates and, if Contractor request(s), shall be operated only by personnel approved by the Contractor. Personnel so hired shall be subject to direction and control by Forest Service and shall be paid by Forest Service at fire fighting rates common in the area or at prior agreed rates.

    e) **Fire Precautionary Period and Fire Precautions.** Specific fire precautionary measures are set

forth below. Upon request of Forest Service, Contractor shall permit and provide an individual to assist in periodic testing and inspection of required fire equipment. Contractor shall promptly remedy deficiencies found through such inspecting and testing.

1. The following requirements shall apply during the period **May 1 – December 1** and during other such periods as specified by Forest Service.

2. *(Include Regional fire precautionary requirements, below.)*

CT7.2# - SPECIFIED FIRE PRECAUTIONS. (06/2012)

Purchaser or a designated Purchaser's Representative shall certify compliance with specific Timber Sale Contract and California Public Resources Code (CPRC) fire precautionary measures in BT7.1 Plans, CT7.2# and CT7.22#. Certification shall be provided prior to starting operations during Fire Precautionary Period and shall be updated as needed.

Listing of specific fire precautionary measures in the following subsections is not intended to relieve Purchaser in any way from compliance with State fire laws covering fire prevention and suppression equipment applicable to Purchaser's Operations.

Upon request of Forest Service, Purchaser shall permit and assist in periodic testing and inspection of required fire equipment.

The following definitions shall apply to CT7.2# and CT7.22#:

Active Landing: A location Purchaser is skidding logs into, or performing other operations such as delimbing, log manufacturing, and chipping logs. Except for EV and E days, loading logs or stockpiled chips only on a cleared landing does not constitute an Active Landing.

Hot Saw: A harvesting system that employs a high-speed (>1100 rpm) rotating felling head (i.e., full rotation lateral tilt head).

Mechanical Operations: The process of felling, skidding, chipping, shredding, piling, log processing and/or yarding which requires the use of motorized power which includes, chainsaws, chippers, motorized carriages, masticators, stroke delimbers, skidders etc.

Specific equipment requirements and fire precautionary measures are shown in the following table and in CT7.22#:

A. Fire Tools and Equipment	Purchaser shall meet applicable parts of Section 4428 of the CPRC.

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

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

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

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

B. Fire Extinguishers

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

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

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

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

C. Spark Arresters and Mufflers

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

Spark Arresters shall be a model tested and approved under Forest Service Standard 5100-1a as shown in the National Wildfire Coordinating Group Spark Arrester

Guide, Volumes 1 and 2, and shall be properly mounted and maintained according to manufacturer's specifications.

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

D. Power Saws

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

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

E. Fire Supervisor & Fire Patrolperson

Purchaser shall designate in the fire plan required by BT7.1 and furnish on Sale Area during operating hours a fire supervisor, named in writing and authorized to act on behalf of Purchaser in fire prevention and suppression matters.

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

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

A. Seasonal Permits

Purchaser shall obtain written permits from Forest Service before allowing welding, warming fires or burning, subject to CT7.22# – Emergency Precautions.

G. Clearing of Fuels

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

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

H. Smoking

All smoking shall be confined within a car, truck, crew rig or other enclosed cab after 1:00 PM on Ev days and all hours on E days (CT7.22#). At other times, any smoking shall be done while sitting in an area at least 3 feet in diameter, cleared of flammable materials. Burning tobacco and matches shall be extinguished before they are properly disposed.

I. Reporting Fires

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

J. Tank Truck

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

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

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

Temp	Sea				

	Level		1000 Feet		2000 Feet		3000 Feet		4000 Feet	
55	179	23	174	23	169	23	165	22	161	22
70	175	23	171	23	166	22	162	22	158	22
85	171	23	168	23	163	22	159	22	155	22
100	168	23	164	23	159	22	155	22	152	22
	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM

Temp	5000 Feet		6000 Feet		7000 Feet		8000 Feet		9000 Feet		10000 Feet	
55	157	22	153	22	150	21	146	21	142	21	139	21
70	154	22	150	21	147	21	143	21	139	21	136	20
85	151	21	147	21	144	21	140	21	136	20	133	20
100	148	21	144	21	141	21	137	20	133	20	131	20
	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM	PSI	GPM

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

2) 300 feet of 3/4-inch inside diameter rubber-covered high-pressure hose mounted on live reel attached to pump with no segments longer than 50 feet, when measured to the extreme ends of the couplings. Hose shall have reusable compression wedge type 1-inch brass or lightweight couplings (aluminum or plastic). One end of hose shall be equipped with a coupling female section and the other end with a coupling male section. The hose shall, with the nozzle closed, be capable of withstanding 200 PSI pump pressure without leaking, distortions, slipping of couplings, or other failures.

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

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

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

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

(6) This equipment and accessories shall be deliverable to a fire in the area of operations and is subject to the requirements for each specific activity level identified in CT7.22#.

K. Compressed Air Foam System (CAFS)

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

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

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

Tank truck, trailer or equivalent may be substituted with a 30 Gallon CAFS with at least 550 feet of one inch hose and an adjustable nozzle with

enough water, air and foam concentrate for at least one recharge.

This equipment and accessories shall also be deliverable to a fire in the area of operations and subject to the requirements for each specific activity level identified in CT7.22#.

L. Communications

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

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

M. Cable Yarding Tank Unit

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

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

N. Helicopter Yarding Fire Precautions

Purchaser shall provide and maintain fire equipment as follows:

1. The fire tool box required under this provision shall be equipped for attachment to the helicopter long line so that it may be hauled to needed locations. Such attachment device shall not interfere with access to fire tools. Unless agreed otherwise, the fire tool box shall be located at the Active Landing ready for immediate dispatch.
2. An external helibucket readily attachable to the helicopter, with a capacity of at least 500 gallons, and having a remote control door mechanism adequate for rapid dropping of water. The helibucket shall be located at the helicopter service landing and shall be filled with water ready for immediate dispatch unless otherwise agreed.
3. All aircraft used in conjunction with Purchaser's Operations shall be equipped with an operable radio

system capable of meeting Region Five avionics requirements.

4. For protection of fuel servicing operations, fire extinguishers which have the following ratings based on the open hose discharge capacity, i.e., "broken hose," of the aircraft fueling system shall be readily available:

   a. Where said capacity does not exceed 200 gallons per minute, at least one approved extinguisher having a minimum rating of 20-B;

   b. Where said capacity is in excess of 200 gallons per minute, but not over 350 gallons per minute, one approved extinguisher having a minimum rating of 80-B;

   c. Where said capacity is in excess of 350 gallons per minute, two approved extinguishers, each having a minimum rating of 80-B.

5. By agreement, a suitable CAFS may also be used in lieu of the above extinguishers.

6. Extinguishers of over 50 pounds gross weight shall be of wheeled type or be mounted on carts to provide mobility and ease of handling.

CT7.22# - EMERGENCY PRECAUTIONS. (06/2012) Purchaser's Operations shall conform to the limitations or requirements in the Project Activity Level (PAL) table below. Unless otherwise agreed in writing, Project Activity Levels applicable to this project shall be the predicted levels for the Fire Danger Rating Area(s), or fire weather station(s) stated in the Sale Area Map legend.

Forest Service, in its sole discretion, may change the predicted activity level if the current fire suppression situation, weather and vegetation conditions warrant an adjustment. If practicable, Forest Service will determine the following day's activity level by 6:00 PM. Purchaser shall obtain the predicted Project Activity Level from the appropriate Ranger District Office before starting work each day.

Forest Service may change the Project Activity Level Table to other values upon revision of the National Fire Danger Rating System. When Purchaser is notified, the revised Project Activity Levels will supersede the levels in the Project Activity Level Table below.

PROJECT ACTIVITY LEVEL (PAL) – CT7.22# - EMERGENCY PRECAUTIONS

PROJECT ACTIVITY LEVEL TABLE

Level	***Project Activity Minimum Requirements and Restrictions. Restrictions at each level are cumulative.***
A	Minimum required by CT7.2#.
B	1. Tank truck, trailer, or approved CAFS substitute shall be on or adjacent to the Active Landing.

C	1. When Hot Saws or Masticators are operating, a tank truck, trailer or approved CAFS substitute shall be within ¼ mile of these operations. Effective communications shall exist between the operator and the Active Landing. 2. Immediately after Mechanical Operations cease, Fire Patrol is required for two hours.
D	1. Immediately after Hot Saw or Masticator operations cease, Fire patrol is required for three hours. 2. No Dead Tree felling after 1:00 PM, except recently dead. 3. No Welding or cutting of metal after 1:00 PM, except by special permit.
Ev	1. The following activities may operate all day: a) Loading and hauling logs decked at approved landings. b) Loading and hauling chips stockpiled at approved landings. c) Servicing equipment at approved sites. d) Dust abatement, road maintenance (Chainsaw use prohibited), culvert installation within cleared area, chip sealing, paving, earth moving or rock aggregate stock pile loading and installation (does not include pit or quarry development). e) Chainsaw and log processing operations associated with loading logs or other forest products at approved landings. 2. Hot Saws or Masticators may operate until 1:00 PM; provided that: a) A tractor or other equipment with a blade capable of constructing fireline is on or adjacent to the active landing or within ¼ mile of the operating equipment. This piece of equipment shall have effective communication with the Hot Saw or Masticator. b) Any additional restrictions specified by the Forest. 3. All other conventional Mechanical Operations are permitted until 1:00 PM. **4. Some operations may be permitted after 1:00 PM, on a case-by-case basis, under the terms of a PAL Ev Variance Agreement. Activities for which a Variance may be issued are:** • **Rubber Tire Skidding** • **Chipping on Landings** • **Helicopter Yarding** • **Fire Salvage** When approved by a Line Officer, a Variance Agreement can be implemented when the criteria specified in the agreement are met and mitigation measures are in place. This approval is good for ten (10) days unless cancelled sooner or extended by the Contracting Officer for an additional ten (10) days. Variance approval can be withdrawn at the sole discretion of Forest Service. Variance approval is contingent on the 7-day fire weather forecast, fuel conditions, site characteristics, current fire situation, state of Purchaser's equipment for prevention and suppression readiness, type of operation

	and social and community considerations etc. (See attached Project Activity Level Variance Agreement).
E	The following activities may operate all day: 1. Loading and hauling logs decked at approved landings. 2. Loading and hauling chips stockpiled at approved landings. 3. Servicing Equipment at approved sites. 4. Dust abatement, road maintenance (chainsaw use prohibited) or loading stock piles and rock aggregate installation (does not include pit or quarry development). 5. Chainsaw operation associated with loading at approved landings. All other activities are prohibited.

Sample Variance Agreement

Sale Name: Page

SPECIFICATIONS PURSUANT TO C7.22# - EMERGENCY PRECAUTIONS. (10/2010)

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

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

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

Sale Name: Page

Ev Proposed Actions

- ☐ **Rubber Tired Skidding**
- ☐ **Chipping on Landings**
- ☐ **Helicopter Yarding**
- ☐ **Fire Salvage**

Description of Mitigation Measures

Fire Management Officer Concurrence — Date

Line Officer Approval — Date

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

Contracting Officer — Date

Purchaser/Contractor Rep. — Date

47. **Fire Control.** Contractor shall, both independently and in cooperation with Forest Service, take all reasonable and practicable action to prevent and suppress fires resulting fromContractor's Operations and to suppress any forest fire on Stewardship Project Area.contractor's independent initial fire suppression action on such fires shall be immediate and shall include the use of all necessary personnel and equipment at Contractor's disposal on Stewardship Project Area or within the distance of Stewardship Project Area: ***1 mile***.

    a) **The Contractor's Reinforcement Obligations.** Whenever an Operations Fire or Negligent Fire, whether on or off Stewardship Project Area or any other forest fire on Stewardship Project Area, has not been suppressed by initial action and appreciable reinforcement strength is required, Forest Service may require further actions by Contractor until such fire is controlled and mopped up to a point of safety. Such actions may include any or all of the following as necessary to fight such fire:

    b) **Suspend Operations.** To suspend any or all of Contractor's Operations.

    c) **Personnel.** To release for employment by Forest Service any or all of Contractor's personnel engaged in Contractor's Operations or timber processing within the distance of Stewardship Project Area: ***1 mile***. Any organized crew so hired shall include Contractor's supervisor, if any. Personnel so employed shall be paid at Forest Service standard emergency fire fighting rates.

    d) **Equipment.** To make available for Forest Service rental at fire fighting equipment rates common in the area or at prior agreed rates any or all of Contractor's equipment suitable for fire fighting and currently engaged in Contractor's Operations within the distance of Stewardship Project Area: ***1 mile***. Equipment shall be operated only by personnel approved by Contractor, if so requested by Contractor.

48. **Temporary Roads and Skid Trails**. Contractor shall locate Temporary Roads and Skid Trails on locations approved by the Forest Service. Such location shall include the marking of road centerline or grade-line and the setting of such construction stakes as are necessary to provide a suitable basis for economical construction and the protection of National Forest lands.

    Temporary road surface width shall be limited to truck bunk width plus four (4) feet, except for needed turnouts which shall not exceed two (2) times the bunk width plus four (4) feet. If shovels or cranes with revolving carriage are used to skid or load, temporary road surface width equal to track width plus tail swing shall be permitted.

    As necessary to attain stabilization of roadbed and fill slopes of Temporary Roads, Contractor shall employ such measures as outsloping, drainage dips, and water-spreading ditches.

49. Slash Treatment Requirements. The slash treatment method for each subdivision is to be accomplished by the Contractor in accordance with specifications listed herein.

A. Landing and Decking Area Slash

Machine pile all activity slash that is created on or around the landing. All piles shall be reasonably compact and free of soil to facilitate burning and shall be constructed of such size and at such

distance from trees so that burning shall not result in unnecessary damage to residual timber. Such Logging Slash shall be bucked into lengths not exceeding ten feet prior to piling. Unless otherwise agreed, piles shall be located a distance of at least twice their height in feet from the outer edge of tree crowns or snags. An eight foot fuelbreak shall be cleared of all but fine material around each Machine Pile and an 18 inch wide fireline shall be cleared to mineral soil around the outer ring of the fuelbreak. In areas where there is a potential for burning material to roll, firelines, including those for Machine Piles, shall be trenched on the downhill side of each pile to adequately prevent material from crossing firelines. Trenches shall be constructed by hand unless otherwise agreed. Landing piles shall be partailly covered in two layers of waxed paper. Covered areas will be at least four (4) feet by twenty (20) feet each and placed in multiple locations.

B. Roadway Slash:

All slash from the Contractor's operations will be removed from the road surfaces, ditchline, culverts, and other drainage structures. Slash is to be piled or scattered beyond the top of cutbank and the bottom of fill slopes or outside the clearing limits of roadways unless otherwise agreed to.

C. Whole Tree Yarding:

Whole-tree yard with tops attached in all commercial plantations. Trees smaller than 24 inches DBH shall be skidded/yarded to agreed landing locations prior to limbing, bucking, and lopping.

Trees larger than or equal to 24 inches DBH shall be bucked into two or more pieces with the butt portion being no longer than 40 feet prior to skidding/yarding. The butt log shall not be limbed prior to skidding/yarding.

Road Maintenance T-Specifications
For
Timber Sale Contracts

To be used with Timber Sale Contract Form 2400-6(T), 2400-3(T), C(T)5.31#

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

(5/83)

SPECIFICATION T-800 DEFINITIONS

Wherever the following terms or pronouns are used in Specifications T-801 through T-811, the intent and meaning shall be interpreted as follows:

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

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

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

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

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

800-1.4 - Berm. Curb or dike constructed to prevent roadway run-off 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 culverts, overside drains, aprons, flumes, downdrains, downpipes, and the like.

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

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 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 B6.31.

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

800-1.14 - Roadbed. The portion of a road between the intersection of subgrade and sideslopes, excluding the 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 specified roads.

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

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

800-1.18 - Shoulder. That portion of roadway contiguous with traveled way for accommodation of stopped vehicles, for emergency use, and lateral support of base and surface course, if any.

800-1.19 - Slide. A concentrated deposit of materials from above or on backslope extending onto the traveled way or shoulders, whether caused by mass land movements or accumulated raveling.

800-1.20 - Slough. Material eroded from the backslope which partially or completely blocks the ditch, but does not encroach on the traveled way to as to block passage of traffic.

800-1.21 - slump. A localized portion of the roadbed which has slipped or otherwise become lower than that of the adjacent roadbed and constitutes a hazard to traffic.
800-1.22 - Special Project Specifications. Specifications which detail conditions and requirements peculiar to the individual project.

800-1.23 - Subgrade. Top surface of roadbed upon which base course or surface course is constructed. For roads without base course or surface course, that portion of roadbed prepared as the finished wearing surface.

800-1.24 - Surface Course. The material placed on base course or subgrade primarily to resist abrasion and the effects of climate. Surface course may be referred to as surfacing.

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

800-1.26 - Traveled Way. That portion of roadway, excluding shoulders, used for the movement of vehicles.

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

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

800-1.29 - Waterbar. A dip in the road bed which intercepts surface runoff and diverts the water off the roadway. A waterbar is not designed to be traversable by logging trucks.

SPECIFICATION T-801 - SLIDE AND SLUMP REPAIR

DESCRIPTION

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

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

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

REQUIREMENTS

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

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

Slide material which cannot be used for other beneficial purposes shall be disposed of at disposal sites SHOWN ON THE SALE AREA MAP. Material placed in disposal sites will not require compaction unless compaction is SHOWN ON THE ROAD MAINTENANCE PLAN.

3.2 When filling slumps or washouts, material shall be moved from agreed locations or borrow site SHOWN ON THE SALE AREA MAP, placed in layers, and compacted by operating the hauling and spreading equipment uniformly over the full width of each layer.

Existing aggregate surfacing shall be salvaged when practical and relaid after depressions have been filled.

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

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

3.3 The maximum volume of Purchaser responsibility for slide and slump repair is SHOWN ON ROAD MAINTENANCE PLAN. Greater volumes of slide and slump repair not qualifying as Catastrophic Damage are Forest Service responsibility.

SPECIFICAITON T-802 DITCH CLEANING

DESCRIPTION

1.1 Ditch cleaning is removing and disposing of all slough material from roadside ditches to provide a free-draining waterway.

REQUIREMENTS

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

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

Material removed from ditches that is not by agreement blended into existing roads or placed in Berms shall be loaded and hauled to the disposal site SHOWN ON THE SALE AREA MAP.

3.3 Roadway backslope or Berm shall not be undercut.

T-802-1
(5/83)

SPECIFICATION T-803 SURFACE BLADING

DESCRIPTION

1.1 Surface blading is keeping a native or aggregate Roadbed in a condition to facilitate traffic and provide proper drainage. It includes maintaining the crown, inslope or outslope of Traveled Way, Turnouts, and Shoulder; repairing Berms, blending approach road intersections; and cleaning of bridge decks, Drainage Dips and Lead-off Ditches.

REQUIREMENTS

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

3.2 The surface blading shall preserve the existing cross section. Surface irregularities shall be elminiated and the surface left in a free draining state and to a smoothness needed to facilitate traffic. Surface material which has been displaced from the Shoulders or Turnouts shall be returned to the Traveled Way. The blading operation shall be conducted to prevent the loss of surface material and to provide for a thorough mixing of the material being worked.

3.3 Water, taken from Water Sources DESIGNATED ON THE SALE AREA MAP, shall be applied during blading if sufficient moisture is not present to cut, mix, or compact the surface material.

3.4 On native surfaced roads, Material generated from backslope sloughing and ditch cleaning may be blended with the surface material being worked. On aggregate surfaced roads this Material shall not be blended with Surface or Base Course material unless agreed otherwise.

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

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

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

3.8 Rocks or other material remaining on the Traveled Way after the final pass that are larger than 4 inches in diameter or are larger than the maximum size of imported surfacing shall be removed from the Traveled Way. The oversized material shall be disposed or by sidecasting unless SHOWN OTHERWISE ON THE SALE AREA MAP. Sidecasting into streams, leakes or water courses will not be permitted.

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

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

T-803-1
(5/83)

SPECIFICATION T-804 SURFACING REPAIR

DESCRIPTION

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

MATERIAL

2.1 Material used in the repair of soft areas on aggregate or native surfaced roads may be acquired from approved commercial sources, Forest Service borrow areas SHOWN ON THE SALE AREA MAP or borrow sources agreed to. The quality and quantity of the imported Material used in the repair will be limited to that needed to provide a stable Traveled Way or hauling and to minimize damage to the road and adjacent resources. The quantity of imported repair material used in the appraisal estimate will be SHOWN ON THE ROAD MAINTENANCE PLAN. However, the magnitude of the work may vary depending on Purchase's hauling schedule and ground conditions.

2.2 Material used in the repair of bituminous pavements may be acquired from local commercial sources. If a mixing table is required, the location shall be approved by the Forest Service. The bituminous mixture to be used by the Purchaser shall be approved by the Forest Service. The Purchaser's share of the quantity of bituminous mixture used in the appraisal estimate will be SHOWN ON THE ROAD MAINTENANCE PLAN. However, Purchaser's share of the work may vary depending on Purchaser's hauling schedule, ground conditions, other traffic, etc.

REQUIREMENTS

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

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

3.3 Bituminous Pavement Repairs

The areas to receive bituminous pavement repairs will be marked on the road surface by the Forest Service just prior to Purchaser performing the work.

3.4 Potholes (deep patch

Surface Course and Base Course materials shall be excavated to a depth necessary to reach firm, suitable material. The minimum depth of excavation shall be two inches and the maximum depth of excavation shall be to the top of the Subgrade.

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

Prepared potholes shall be patched or barricaded immediately.

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

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

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

3.5 Skin Patches

Prior to skin patching, potholes shall be patched, and the surface shall be cleaned of loose or deleterious material. Apply a tack coat with a slow-setting emulsified asphalt at the rate of 0.1 gallons per square yard.

Bituminous mixture shall be distributed uniformly with feathered edges in layers not to exceed two inches compacted depth. When multiple layers are ordered, joints shall be offset at least six inches between layers.

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

3.6 Asphalt Berms

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

3.7 Disposal

All materials removed from potholes, patches, and Berms shall be disposed of at disposal sites SHOWN ON THE SALE AREA MAP.

T-804-2
(5/83)

SPECIFICATION T-805 DRAINAGE STRUCTURES

DESCRIPTION

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

MATERIALS

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

REQUIREMENTS

3.1 Drainage Structures and related items shall be cleared of all foreign material which has been deposited above the bottom of the structure and all vegetative growth which interferes with the flow pattern. Material removed that cannot be incorporated into maintenance work shall be hauled to a disposal site SHOWN ON THE SALE AREA MAP.

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

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

SPECIFICAITON T-806 DUST ABATEMENT

DESCRIPTION

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

MATERIALS

2.1 The roads requiring dust abatement, type of dust abatement material to be used, the rates of application, and frequency of applications will be SHOWN ON THE DUST ABATEMENT PLAN (C(T)5.31#). The Dust Abatement Plan may be changed by written agreement.

2.2 Water

Water sources are covered under C(T)5.36, and the locations are SHOWN ON THE SALE AREA MAP.

2.3 Dust abatement material shall met the requirements of the following subsections of Forest Service Standard Specifications for Construction of Roads and Bridge or ATTACHED SPECIAL PROJECT SPECIFICAITONS.

REQUIREMENTS

3.1 General

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

3.2 Compaction

When the methods listed below specify compaction, Traveled Way shall be compacted by an 8- to 10-tine pneumatic, steel-wheeled or equivalent vibrating roller making 2 passes over the full Traveled Way and Shoulder width, unless compaction is not required on the DUST ABATEMENT PLAN (C5.31#).

3.4 Preparation for Dust Abatement with Water

Traveled Way shall be prepared in accordance with Specification T-803 Surface Blading when required.

SPECIFICATION T-806 DUST ABATEMENT

DESCRIPTION

1.1 This work shall consist of preparing the Traveled Way and furnishing and applying Materials to abate dust. All work shall meet the requirements of Section 306 – Dust Palliative of the Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects (FP03) or attached Special Project Specifications.

MATERIALS

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

REQUIREMENTS

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

3.2 Compaction. When the application method specifies compaction, the Traveled Way shall be compacted by an 8 to 10 ton pneumatic, steel-wheeled or equivalent vibrating roller making 2 passes over the full Traveled Way and Shoulder width, unless compaction is not required on the Dust Abatement Plan.

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

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

3.5 Water. Water supply and use are referenced in the contract under C5.31 - Road Maintenance Requirements and C5.35 – Road and Water Use. The locations of Water Sources are shown on Sale Area Map.

When water-drafting from all waters the following requirements shall be met:

Operating Guidelines

1. Operations are restricted to one hour after sunrise to one hour before sunset in fish bearing streams.
2. Pumping rate shall not exceed 350 gallons per minute.
3. The pumping rate shall not exceed ten percent of the stream flow.
4. Seek streams and pools where water is deep and flowing, as opposed to streams with low flow and small isolated pools.
5. Pumping shall be terminated when the tank is full. The effect of single pumping operations, or multiple pumping operations at the same location, shall not result in obvious draw-down of either

upstream or downstream pools.
6. Each pumping operation shall use a fish screen. The screen face should be oriented parallel toflow for best screening performance. The screen shall be designed and used such that it can be submerged with at least one-screen-height-clearance above and below the screen.
7. Operators shall keep a log on the truck containing the following information: *Operator's Name, Date, Time, Pump Rate, Filling Time, Screen Cleaned (Y or N), Screen Condition, Comments.* These guidelines should be included as instructions in a logbook with serially numbered pages. This assures each truck operator easy access to this information.

Screen Construction Criteria

1. Surface Area
The total (unobstructed) surface area of the screen shall be at least 2.5 square feet, based on the upper limit of pumping of 350 gpm5. Larger surface areas are recommended where debris buildup is anticipated, and where stream depth is adequate to keep the screen submerged at approximately middepth.
2. Screen Mesh
Screen Mesh must be in good repair and present a sealed, positive barrier- effectively preventing entry of the "design fish" into the intake. The design fish in this case is a immature (20-30mm) salmon or steelhead fry.

The screen mesh size shall be: Round openings - maximum 3/32 inch diameter (.09 inch)
Square openings - maximum 3/32 inch diagonal (.09 inch)
Slotted openings - maximum 1/16 inch width (.07 inch)

3. Screen Design
Water drafting screens may be off-the-shelf products, but they are often custom-made devices appropriate to the scale and duration of pumping operation. To keep the screen supported and correctly positioned in the water column, adjustable support legs are advised. Screen geometry can be configured either as rectangular or cylindrical, i.e.- as a shallow "box-shape" or tubular.

The intake structure shall be designed to promote uniform velocity distribution at all external mesh surfaces. This can be accomplished with a simple internal baffle device that distributes the flow evenly across the entire surface of the screen. In order to accomplish this, the designer needs to understand the hydraulic characteristics of these devices. There is a tendency for most of the intake water to enter the screen near the hose end, so a typical internal baffle would consist of a pipe (or a manifolded set of pipes) which have variable porosity holes at predetermined spacing. We recommend starting near the hose end with approximately 5-10% average open area, and gradually increasing the porosity toward the length of the screen. At a point where screen length exceeds three times the diameter of the suction hose, the baffling effect tends to diminish rapidly. At this point the baffle porosity may approach 100%. A successful baffle system will functionally distribute flow to all areas of the screen. A poorly designed screen may result in high-velocity "hot spots," which could lead to fish impingement on the screen face. Hydraulic testing of prototype screen designs is recommended where the application is on-going and extensive.
4. Screen Structure
The screen frame must be strong enough to withstand the hydraulic forces it will experience. However,

structural frames, braces, and other elements that block the flow, change flow direction, or otherwise decrease the screen surface area should be minimized.

5. Screen Cleaning

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

If the operator notes any fish getting stuck on the screen face or getting sucked through the screen, he/she should stop operations and notify the Contracting Officer's Representatives in the contract, and they will notify the Department of Fish & Game and/or NMFS hydraulic engineering staff:

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

SPECIFICATION T-807 ROADSIDE VEGETATION

DESCRIPTION

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

REQUIREMENTS

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

3.2 Vegetative matter removed from the roadway shall be windrowed and/or scattered outside the roadbed.

SPECIFICATION T-808 MISCELLANEOUS STRUCTURES

DESCRIPTION

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

MATERIALS

2.1 Any materials needed in the maintenance of miscellaneous structures shall be similar in type and quality to the material in the structure being maintained.

REQUIREMENTS

3.1 Cattleguards

Loose rails shall be welded or bolted back in place.

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

3.2 Gates

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

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

SPECIFICATION T-809 WATERBARS

DESCRIPTION

1.1 This work consists of installing or removing waterbars in the Roadbed.

REQUIREMENTS

3.1 Waterbars shall be installed on roads SHOWN ON THE ROAD MAINTENANCE PLAN in accordance with the ATTACHED DRAWING AND AT LOCATIONS DESIGNATED OR STAKED ON THE GROUND.

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

3.2 Waterbars shall be removed on roads SHOWN ON ROAD MAINTENANCE PLAN by blading the Berm into the adjacent depression to form a smooth transition along the Traveled Way. The length and width of the fill material shall be compacted by the equipment performing the work.

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

T-809-1
(5/83)

SPECIFICAITON T-810 BARRIERS

DESCRIPTION

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

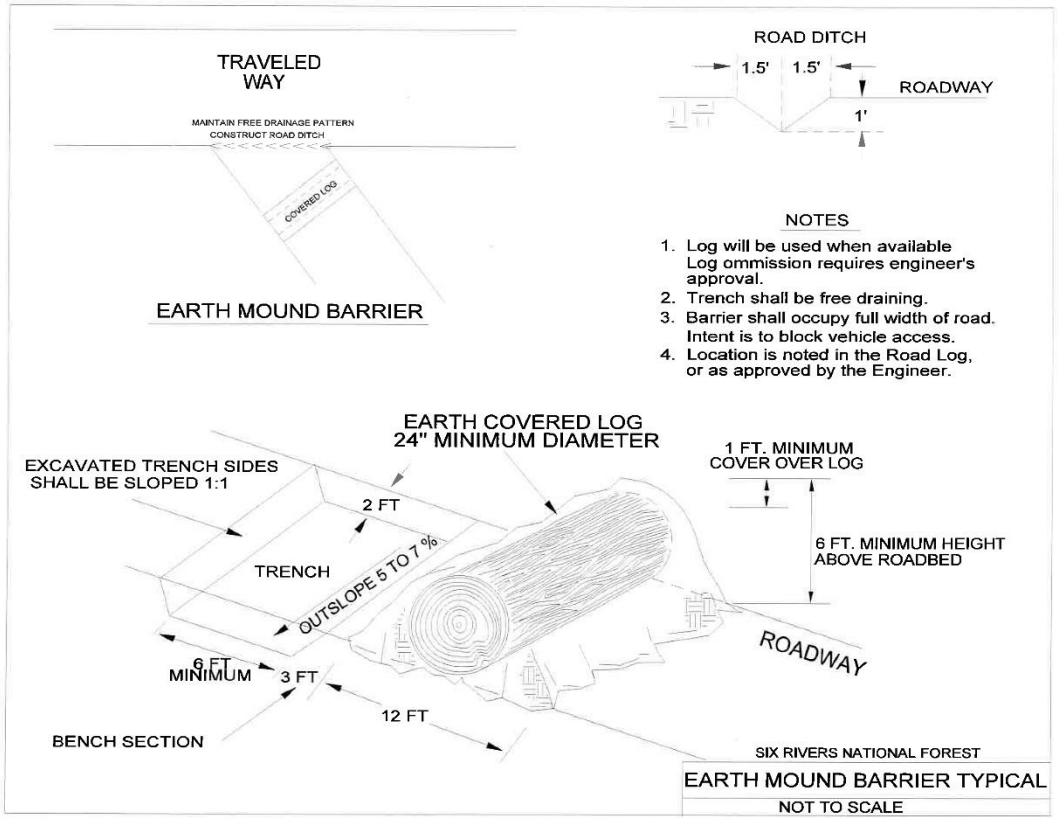
MATERIALS

2.1 Materials for barriers shall meet the requirements AS SHOWN ON THE ATTACHED DRAWING.

REQUIREMENTS

3.1 Barriers shall be installed in accordance with the ATTACHED DRAWING.

The location of barriers to be removed or installed is SHOWN ON THE SALE AREA MAP. Installation or removal may occur as often as road use is terminated and resumed.



T-810-1
(5/83)

SPECIFICATION T-811 SURFACE TREATMENT

DESCRIPTION

1.1 This work shall consist of applying a chip seal, sand seal, or fog seal to a Traveled Way.

Chip seals may consist of single or double applications or bituminous material and cover aggregate.

MATERIALS

2.1 The roads requiring surface treatments, the type of seal coat to be applied, the rate of application, and type of grade of bituminous material, and the rate of application and grading of cover aggregate will be SHOWN ON THE SURFACE TREATEMNT PLAN (C(T)5.31#).

2.2 Emulsions used for fog seals shall be diluted with an equal amount of water and shall be applied at the diluted application rate SHOWN ON THE SURFACAE TREATMENT PLAN in C(T)5.31#.

2.3 Seal coat materials shall meet the requirements of the following Subsections of Forest Service Standard Specifications for Construction of Roads and Bridge or ATTACHED SPECIAL PROJECT SPECIFICATIONS:

Bituminous Materials

Asphalt Cement 702.01
Liquid Asphalts. 702.02
Emulsified Asphalt 702.03
Application Temperatures 702.05

Cover Aggregate 703.13
Blotter Material. 703.14
Water for Diluting. 712.01

2.4 The cover aggregate shall be surface damp at the time of application when using emulsified asphalt and dry when using an asphalt cement or liquid asphalt. Excess water on the aggregate surface will not be permitted.

MAINTENANCE REQUIREMENTS

3.1 Traffic

Traffic shall be maintained in accordance with B(T)6.33.

3.2 Weather Limitations

Fog seal and chip seal shall not be applied when the weather is foggy or rainy.

Seal coats requiring cover aggregate shall not be applied when the temperature of the surface being treated in below 65 degrees Fahrenheit in the shade.

Fog seal coats shall not be applied when the surface temperature is below 50 degrees Fahrenheit in the shade.

3.3 Equipment

The following equipment or its equivalent shall be used:

A distributor truck equipped to spread the material uniformly at the designated rate, within the temperature range specified and within 0.04 gallons per square yard of the rate specified. The distributor shall be equipped with a thermometer and a hand hose with spray nozzle.

A rotary power broom and/or blower.

When cover aggregates area applied: A pneumatic tire roller, 8-ton minimum weight with all tires equally inflated to a pressure of at least 90 pounds per square inch. Rollers shall be equipped with devices for applying water to the tires.

Self-propelled aggregate spreader supported by at least four wheels equipped with pneumatic tires on two axles, situated so that at no time will the tires contact the uncovered bituminous materials. The aggregate spreader shall be equipped with positive controls so that the required amount of materials will be deposited uniformly over the full width.

Trucks with spreading attachments shall not be used.

3.4 Preparation of Surface

Immediately before applying the bituminous material, the surface to be sealed shall be cleaned of all foreign and loose material.

3.5 Application of Bituminous Material

Bituminous material shall be applied in a uniform, continuous spread. The distributor shall be moving forward at proper application speed at the time the spray bar is opened. Skipped areas or deficiencies shall be corrected prior to the application of cover aggregate.

The spread of bituminous material shall not be more than 6 inches wider than the width to be covered by the cover aggregate. Operations shall not proceed if the bituminous material is allowed to cool, set up, dry, or otherwise impair retention of cover aggregate.

Fog seal shall be allowed to penetrate and dry before traffic is permitted on the sealed portion.

The surfaces of structures and trees adjacent to the area being treated shall be protected to prevent their being spattered or marred.

3.6 Application of Cover Aggregate and Blotter

Immediately following the application of the bituminous material, cover aggregate shall be spread at the specified rate. Joints between adjacent applications of cover aggregate shall be approximately in the center of two-lane roads.

The aggregate spreader shall not be operated at speeds which cause the aggregate to roll over after striking the bituminous material. The cut-of of aggregate shall be complete, and any excess aggregate shall be removed from the surface prior to resuming operations. Immediately after the cover aggregate has been spread, any piles, ridges, and uneven distribution shall be corrected.

Cover aggregate may be applied by hand in areas inaccessible to spreading equipment.

Rolling shall begin immediately after spreading the cover aggregate and shall consist of a minimum of two complete coverages.

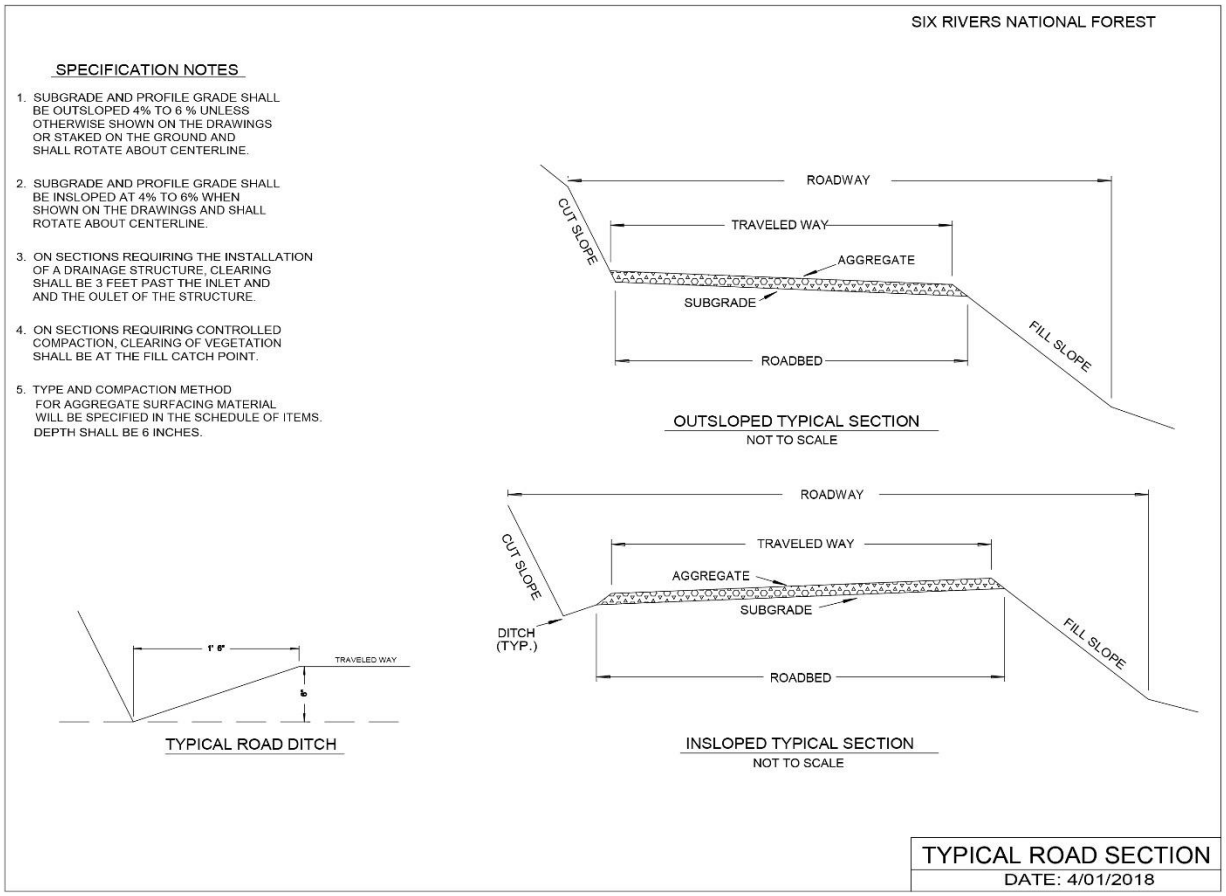
The second treatment of a double chip seal shall not be applied until at least 24 hours after completion of a first treatment, when an emulsion of asphalt cement is used. If a medium cure liquid asphalt is used, 48 hours shall be allowed between applications. Prior to the second treatment, any loose cover aggregate remaining on the surface after the first treatment shall be removed in such a manner that the cover aggregate set in the bituminous material will not be displaced.

After rolling, traffic shall be controlled to a maximum speed of 15 miles per hour for a period of 4 hours.

The day following the final application a cover aggregate, any concentrations of loose cover aggregate shall be redistributed without disturbing the embedded aggregate. Four days after the final application of cover aggregate, all excess cover aggregate shall be removed. During this period, any bituminous material that comes to the surface shall be covered with additional cover aggregate or approved blotter material.

3.7 Blotter material for fog seal shall be spread in sufficient quantity to prevent tire pickup.

T-811-3
(5/83)



WKRP SPECIFIED ROADS

SUPPLEMENTAL SPECIFICATIONS TO THE STANDARD SPECIFICATIONS FOR THE CONSTRUCTION OF ROADS AND BRIDGES ON FEDERAL HIGHWAY PROJECTS

FP-14

Table of Contents

a. Preface

Preface_wo_02_23_2018

Delete all but the first paragraph and add the following:

The Forest Service, US Department of Agriculture has adopted FP-14 for construction of National Forest System Roads.

b. 101 - Terms¸ Format¸ and Definitions

101.01_National_11_9_2016

Add the following paragraph to Subsection 101.01:

a. 101.01 Meaning of Terms.

Delete all references to the TAR (Transportation Acquisition Regulations) in the specifications.

101.03_National_11_9_2016

Add the following to Subsection 101.03:

b. 101.03 Abbreviations.

(a) Acronyms.

AGAR — Agriculture Acquisition Regulations

AFPA — American Forest and Paper Association

FSAR — Forest Service Acquisition Regulations

MSHA — Mine Safety and Health Administration

NESC — National Electrical Safety Code

WCLIB — West Coast Lumber Inspection Bureau

(f) Miscellaneous unit abbreviations.

MP	—	milepost	location
ppm	—	parts per million	volume
STA		station	location

Make the following changes to Subsection 101.04:

c. 101.04 Definitions.

Delete these definitions and replace the following:

Bid Schedule — The Schedule of Items.

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

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 — Any structure with a bottom, regardless of fill depth, depth of invert burial, or presence of horizontal driving surface, or any bottomless (natural channel) structure with footings that will not have wheel loads in direct contact with the top of the structure.

Drawings — (Public Works Contracts) Design sheets or fabrication, erection, or construction details submitted to the CO by the Contractor according to FAR Clause 52.236-21 Specifications and Drawings for Construction. Also refers to submissions and submittals.

Notice to Proceed — (Public Works Contracts) Written notice to the Contractor to begin the contract work.

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.

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

Add the following definitions:

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

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

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.

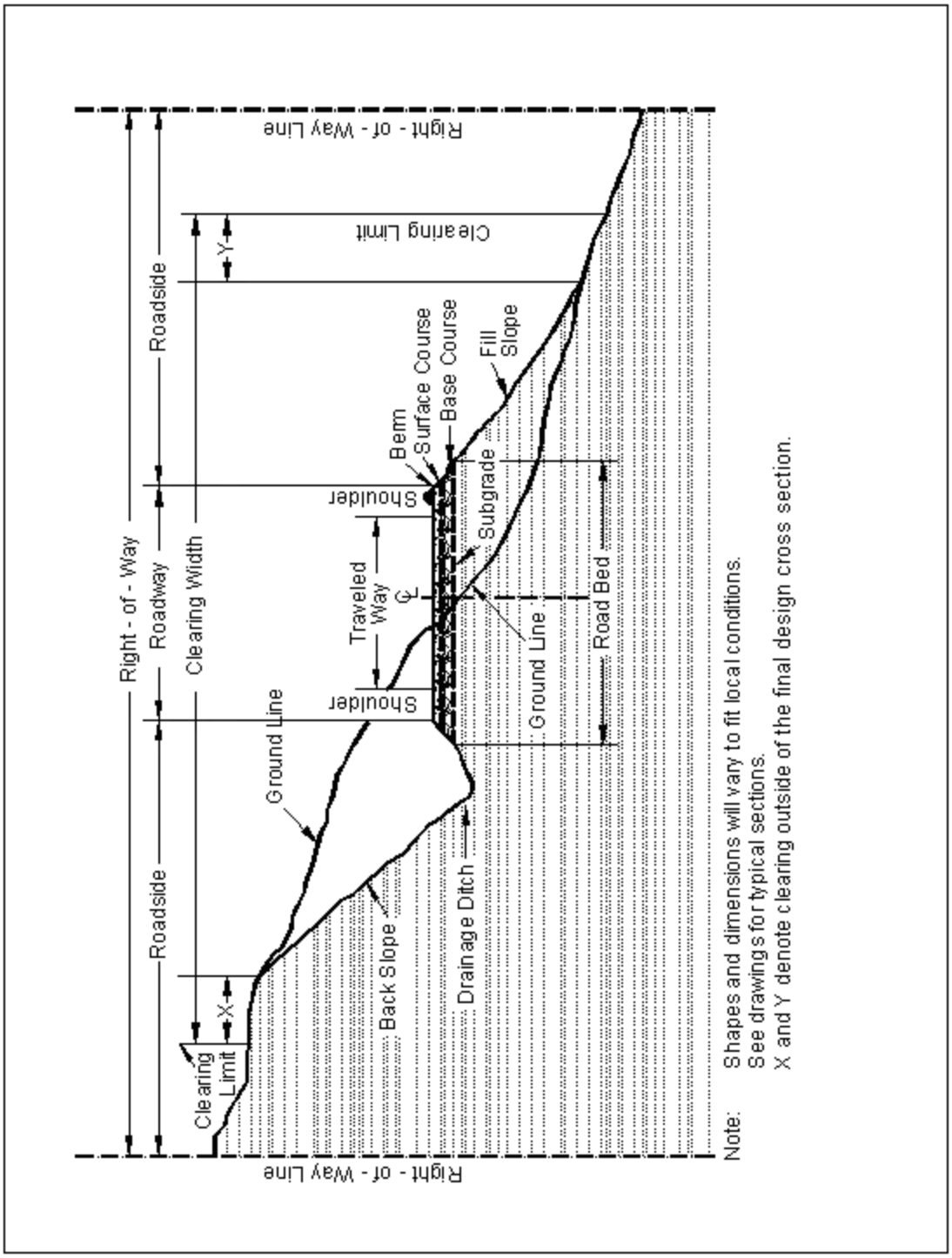
Road Order — An order affecting and controlling traffic on roads under Forest Service jurisdiction. Road Orders are issued by a designated Forest Officer under the authorities of 36 CFR, part 260.

Shop Drawings — (Timber and Stewardship Contracts) Referred to as "Drawings" in FP-14, include drawings, diagrams, layouts, schematics, descriptive literature, illustrations, lists or tables, performance and test data, and similar materials furnished by Purchaser to explain in detail specific portions of the work required by the contract.

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.



c. 102 - Bid¸ Award¸ and Execution of Contract

102.00_National_11_9_2016

Delete Section 102 in its entirety.

a. Delete Section 102.

d. 103 - Scope of Work

103.00_National_11_9_2016

Delete all of Section 103 except Subsection 103.01 Intent of Contract.

a. Delete Subsections 103.02, 103.03, 103.04, 103.05.

e. 104 - Control of Work

104.00_National_11_9_2016

Delete Subsections 104.01, 104.02, and 104.04.

a. Delete Subsections 104.01, 104.02, 104.04.

104.06_National_11_9_2016

Add the following to Subsection 104.06:

b. 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.

106.01_National_7_18_2017

Delete Subsection 106.01 and replace with the following:

a. 106.01 Conformity with Contract Requirements.

Follow the requirements of FAR Clause 52.246-12 Inspection of Construction.

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

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

Incorporate manufactured materials into the work according to the manufacturer's recommendations 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, repair, or replace work that does not conform to the contract, or to prevailing industry standards where no specific contract requirements are noted. Removing, repairing, or replacing work; providing temporary traffic control; and any other related work to accomplish conformity will be 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.

b.

Delete Subsection 106.02 and replace with the following:

c. 106.02 Visual Inspection.

Acceptance is based on visual inspection of the work for compliance with the specific contract requirements. Use prevailing industry standards in the absence of specific contract requirements or tolerances.

g. 107 - Legal Relations and Responsibility to the Public

107.05_National_7_18_2017

Delete Subsection 107.05.

a. Delete Subsection 107.05.

h. 108 - Prosecution and Progress

108.00_National_11_9_2016

Delete Section 108 in its entirety.

a. Delete Section 108.

i. 109 - Measurement and Payment

109.00_National_11_9_2016

Delete Subsections 109.06, 109.07, 109.08, and 109.09:

a. Delete Subsections 109.06, 109.07, 109.08, 109.09.

109.02_National_11_9_2016

Add the following sentence to Subsection 109.02(b):

b. 109.02 Measurement Terms and Definitions.

(b) Contract quantity.

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

j. 155 - Schedules for Construction Contracts

155.00_National_11_9_2016

Delete Section 155 in its entirety.

a. Delete Section 155.

k. 201 - Clearing and Grubbing

201.06_National_11_2_2016

Delete the first sentence of this Subsection 201.06 and replace the following:

a. 201.06 Disposal.

Dispose of merchantable timber designated for removal according to the provisions of the timber sale contract.

201.06_National_2_22_2018

Delete the first sentence of Subsection 201.06 and replace the following:

b. 201.06 Disposal.

Merchantable timber is Government property.

Add the following to Subsection 203.05:

a. 203.05 Disposing of Material.

(e) Windrowing Construction Slash. Place construction slash outside the roadway in neat, compacted windrows approximately parallel to and along the toe line 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.

(f) Scattering. Scatter construction slash in designated areas 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. When scattering for erosion control, place construction slash as flat as practicable on the completed slope.

(g) Chipping. Use an approved chipping machine to chip slash longer than 3 feet. Deposit chips 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. Remove brush from designated log deck areas. Limb and top logs.

Logs not meeting the Utilization Standards described in Subsection 201.04(c) shall be cut to lengths less than **<number>** feet and decked in designated log deck location.

Merchantable timber not associated with an existing timber sale shall be cut to length meeting the Utilization Standards described in Subsection 201.04(c).

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.

(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.

m. 204 - Excavation and Embankment

204.00_National_11_4_2016

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

a. Section 204. — EXCAVATION AND EMBANKMENT

Description

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

204.02 Definitions.

(a) Excavation. Excavation consists of the following:

(1) Roadway excavation. Material excavated from within the right-of-way or easement areas, except subexcavation covered in Subsection 204.02(a)(2) 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 ground-line in embankment sections. Subexcavation excludes the work required by Subsection 204.05 or 204.06.

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

Topping	704.05
Unclassified borrow	704.06
Water	725.01(c)

Construction Requirements

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

Road pioneering, slash disposal, and grubbing of stumps may proceed concurrently with excavation and embankment. Maintain drainage during pioneering operations.

204.05 Conserved Topsoil. When designated, conserve topsoil from roadway excavation and embankment foundation areas. Stockpile conserved topsoil in low windrows immediately beyond the rounding limits of cut and embankment slopes or in other approved locations. Separate conserved topsoil from other excavated material. When designated, place conserved topsoil on completed slopes according to Section 624.

204.06 Roadway Excavation. Excavate as follows:

(a) Rock cuts. Blast rock according to Section 205. Excavate rock cuts to 6 inches (150 millimeters) below subgrade within the roadbed limits. Backfill to subgrade with topping or other suitable material. Compact the material according to Subsection 204.11.

(b) Earth cuts. Scarify earth cuts to 6 inches (150 millimeters) below subgrade within the roadbed limits. Compact the scarified material according to Subsection 204.11.

(c) Pioneer Roads. 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.

(d) Drainage Feature. Drainage feature includes construction of all ditches, minor channel changes, drainage dips, catch basins, surface water deflectors, and other minor drainage structures. Compact the material according to Subsection 204.11. Excavate on a uniform grade between control points.

Do not disturb material and vegetation outside the construction limits. Retrieve material deposited outside the construction limits. Dispose of unsuitable or excess excavation material according to Subsection 204.14. Replace shortage of suitable material caused by premature disposal of roadway excavation.

Shape to drain and compact the work area to a uniform cross-section at the end of each day's operations.

204.07 Subexcavation. Excavate material to the required limits. Dispose of unsuitable material according to Subsection 204.14. Take cross-sections according to Section 152. Backfill subexcavated area with suitable material in horizontal layers not exceeding 12 inches (300 millimeters) in compacted thickness and compact according to Subsection 204.11. Prevent unsuitable material from mixing with suitable backfill material.

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

Obtain borrow source approval according to Subsection 105.02. Develop and restore borrow sources according to Subsections 105.03 and 105.06. 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 over natural ground. Remove topsoil and break up the ground surface to a minimum depth of 6 inches (150 millimeters) 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 (150 millimeters). Scarify or pulverize asphalt and concrete roads to 6 inches (150 millimeters) below the pavement. Reduce particles to a maximum size of 6 inches (150 millimeters) 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 steps in the existing slope to a sufficient width to accommodate placement and compaction operations and equipment. Step the slope as the embankment is placed and compacted in layers. Begin each step at the intersection of the original ground and the vertical cut of the previous step.

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 (2 meters) 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 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 with a tamping foot roller, by walking with a dozer, or by over-building the fill and then removing excess material to the final slope line. For slopes 1V:1¾H or steeper, compact the slopes as embankment construction progresses.

(b) Embankment within the roadway prism. Place embankment material in horizontal layers not exceeding 12 inches (300 millimeters) in compacted thickness. Incorporate oversize boulders or rock fragments into the 12-inch (300-millimeter) layers by reducing them in size or placing them individually as required 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 (300-millimeter) layers may be placed in layers up to 24 inches (600 millimeters) thick. Incorporate oversize boulders or rock fragments into the 24-inch (600-millimeter) layer by reducing them in size or placing individual rock fragments and boulders greater than 24 inches (600 millimeters) in diameter as follows:

(1) Reduce rock to less than 48 inches (1200 millimeters) 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 above. Fill voids between rocks; and

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

(c) Embankment outside of roadway prism. When placing embankment outside the staked roadway prism, place material in horizontal layers not exceeding 24 inches (600 millimeters) 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) Placement Method 1. Use AASHTO T 27 to determine the quantity of material retained on a No. 4 (4.75-millimeter) sieve. Compact as follows:

(1) More than 80 percent retained on a No. 4 (4.75-millimeter) sieve. 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 (1.8 meters) per second and vibratory rollers at speeds less than 3 feet (1 meter) 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 (180 kilonewtons) impact per vibration and a minimum frequency of 1000 vibrations per minute;

(b) Eight roller passes of a 20-ton (20-metric ton) compression-type roller; or

(c) Eight roller passes of a vibratory roller having a minimum dynamic force of 30,000 pounds (130 kilonewtons) impact per vibration and a minimum frequency of 1000 vibrations per minute.

Increase the compactive effort for layers deeper than 12 inches (300 millimeters) as follows:

- For each additional 6 inches (150 millimeters) or fraction thereof, increase the number of roller passes in Subsection 204.11(a)(1)(a), by four passes; or

- For each additional 6 inches (150 millimeters) or fraction thereof, increase the number of roller passes in Subsection 204.11(a)(1)(b) and (c), by eight passes.

(2) 50 to 80 percent retained on a No. 4 (4.75-millimeter) sieve. Classify the material according to AASHTO M 145. 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 AASHTO T 99 to determine the optimum moisture content of the portion of the material passing a No. 4 (4.75-millimeter) sieve. Multiply this number by the percentage of material passing a No. 4 (4.75-millimeter) sieve, and add 2 percent to determine the optimum moisture content of the material.

Use nonvibratory rollers at speeds less than 6 feet (1.8 meters) per second and vibratory rollers at speeds less than 3 feet(1 meter) per second. Compact each layer of material full width according to Subsection 204.11(a)(1).

(3) Less than 50 percent retained on a No. 4 (4.75-millimeter) sieve. 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 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) Placement Method 2. Adjust the moisture content of the material to a moisture content suitable for compaction. Fill the interstices around rock with earth or other fine material as practical.

Operate roller 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. Use compression-type rollers at speeds less than 6 feet (1.8 meters) per second and vibratory rollers at speeds less than 3 feet (1 meter) per second. Ensure rollers meet the following requirements:

(1) Steel wheeled rollers, other than vibratory, capable of exerting a force of not less than 250 pounds per inch (4.5 kilogram/millimeter) of width of the compression roll or rolls.

(2) Vibratory steel wheeled rollers equipped with amplitude and frequency controls with a minimum dynamic force of 30,000 pounds (130 kilonewtons) impact per vibration, 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 (550 Kilopascals).

(4) Sheepsfoot, tamping, or grid rollers capable of exerting a force of 250 pounds per inch (4.5 kilogram/millimeter) of width of roller drum.

(c) Placement Method 3. Adjust the moisture content of the material to a moisture content suitable for compaction. Fill the interstices around rock with earth or other fine material as practical. Operate hauling and spreading equipment uniformly over the full width of each layer until there is no visible evidence of further consolidation. Make at least three complete passes.

(d) Placement Method 4. Adjust the moisture content of the material to a moisture content suitable for compaction. Fill the interstices around rock with earth or other fine material as practical. Operate hauling and spreading equipment uniformly over the full width of each layer.

(e) Placement Method 5. Adjust the moisture content of the material to a moisture content suitable for compaction. Compact the complete surface with a bucket of an excavator larger than 39,000 pounds (18 metric ton) Gross Vehicle Weight using a minimum of three blows. Overlap compaction by ½ width of bucket.

(f) Placement Method 6. Adjust the moisture content of the material to a moisture content suitable for compaction. Compact using an approved mechanical tamper for a minimum of three complete passes.

When compacting with rollers or hauling and spreading equipment is not practical, use approved mechanical tampers for a minimum of three complete passes.

204.12 Drainage Features. Slope, grade, and shape all drainage features. Remove projecting roots, stumps, rock, or similar matter. Maintain all drainage features in an open condition and without sticks, and other debris.

Form furrow ditches by plowing or using other acceptable methods to produce a continuous furrow. Place excavated material on the downhill side so the bottom of the ditch is approximately 18 inches (450

millimeters) below the crest of the loose material. Clean the ditch using a hand shovel or other suitable method. Shape to provide drainage without overflow.

204.13 Sloping, Shaping, and Finishing. Complete subgrade, slopes, drainage features, culverts, riprap, and other underground minor structures before placing aggregate courses. Slope, shape, and finish to the designated tolerance class as defined in Table 204-2 as follows:

(a) Sloping. Leave earth slopes with uniform roughened surfaces, except as described in Subsection 204.13(b), with no noticeable break as viewed from the road. Except in solid rock, round tops and bottoms of slopes including the slopes of drainage ditches. Round material overlaying solid rock to the extent practical. Scale rock slopes. Slope rounding is not required on tolerance class D through M roads.

If a slide or slipout occurs on a cut or embankment slope, remove or replace the material and repair or restore 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, construct steps on slopes of 1⅓V:1H to 1V:2H. Construct the steps approximately 18 inches (450 millimeters) high. Blend the steps into natural ground at the end of the cut. If the slope contains non-rippable 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. Ensure that the subgrade is visibly moist during shaping and dressing; smooth and uniform, and shaped to conform to the typical sections. Remove material larger than 6 inches (150 millimeters) from the top 6 inches (150 millimeters) of the roadbed. Remove unsuitable material from the roadbed, and replace it with suitable material. Scarify to 6 inches (150 millimeters) below the bottom of low sections, holes, cracks, or depressions and bring back to grade with suitable material.

Maintain proper ditch drainage.

204.14 Disposal of Unsuitable or Excess Material. Dispose of unsuitable or excess material at designated sites or according to Subsection 203.05(a)

When there is a pay item for waste, shape and compact the waste material in its final location. Do not mix clearing or other material not subject to payment with the waste material.

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

Subexcavation will be evaluated under Subsections 106.02 and 106.04.

Measurement

204.16 Measure the Section 204 pay 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 listed in the bid schedule;

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

(e) Conserved topsoil;

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

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

(h) Conserved material taken from pre-existing stockpiles and used in Section 204 work, except topsoil measured under 624; 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;

(l) Material excavated outside the established slope limits; and

(m) Road pioneering for the convenience of the Contractor.

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

(a) Unsuitable material below subgrade in cuts and unsuitable material beneath embankment areas when a pay item for subexcavation is not listed 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, and topping. When measuring by the cubic yard (cubic meter) measure in its original position. If borrow excavation is measured by the cubic yard (cubic meter) 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 until suitable roadway excavation is depleted.

(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. If a pay item for slope rounding is included in the bid schedule measure rounding cut slopes horizontally along the centerline of the roadway. If a pay item is not included for slope rounding is not included in the bid schedule payment will be considered indirect to roadway excavation.

(e) Waste. Measure waste by the cubic yard (cubic meter) 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 (cubic meter) in the hauling vehicle.

(g) Subexcavation. Measure subexcavation by the cubic yard (cubic meter) in its original position.

(h) Drainage features. Measurement includes all excavation, embankment, shaping, and grading necessary for a completed drainage feature.

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, Testing, and Acceptance Requirements

Material or Product (Subsection)	Type of Acceptance (Subsection)	Characteristic	Category	Test Methods Specifications	Sampling Frequency	Point of Sampling	Split Sample	Reporting Time
Source								
Topping (704.05)	Measured and tested for conformance (106.04 & 105)	Classification(1)	–	AASHTO M 145	1 per soil type and source of material	Processed material	Yes	Before using in work
Unclassified borrow (704.06)	"	"	–	"	"	"	"	"
Production								
Topping (704.05) and (204.11(a))	Measured and tested for conformance (106.04)	Moisture-density	–	T 99, Method C(2)	1 per soil type, but not less than 1 per each 13,000 yd^3 (10,000 m^3)	Processed material	Yes	Before using in work
		Density	–	AASHTO T 310 or other approved procedures	1 per 3500 yd^2 (3000 m^2), but not less than 3 per layer	In-place	No	Before placement of next layer

Table 204-1
Sampling, Testing, and Acceptance Requirements

Material or Product (Subsection)	Type of Acceptance (Subsection)	Characteristic	Category	Test Methods Specifications	Sampling Frequency	Point of Sampling	Split Sample	Reporting Time
Unclassified borrow (704.06) and (204.11(a))	"	Moisture-density	–	T 99, Method C[(2)]	1 per soil type, but not less than 1 per each 13,000 yd^3 (10,000 m^3)	Processed material	Yes	Before using in work
		Density	–	AASHTO T 310 or other approved procedures	1 per 3500 yd^2 (3000 m^2), but not less than 3 per layer	In-place	No	Before placement of next layer
Production (continued)								
Earth embankment (204.11(a))	Measured and tested for conformance (106.04)	Classification	–	AASHTO M 145	1 per soil type	Source of material	Yes	Before using in work
		Moisture-density	–	T 99, Method C[(2)]	1 per soil type, but not less than 1 per each 13,000 yd^3 (10,000 m^3)	"	"	"

Table 204-1
Sampling, Testing, and Acceptance Requirements

Material or Product (Subsection)	Type of Acceptance (Subsection)	Characteristic	Category	Test Methods Specifications	Sampling Frequency	Point of Sampling	Split Sample	Reporting Time
		Density	–	AASHTO T 310 or other approved procedures	1 per 3500 yd^2 (3000 m^2), but not less than 3 per layer	In-place	No	Before placement of next layer
Top of subgrade (204.11(a))	"	Density	–	AASHTO T 310 or other approved procedures	1 per 2500 yd^2 (2000 m^2), but not less than 3 per layer	In-place	No	Before placement of next layer
Finished Product								
Roadbed (204.13)	Measured and tested for conformance (106.04)	Final line & grade	–	Field measured	Determined by the CO	Determined by the CO	No	Before placement of next layer

(1) Not required when using Government-provided source.
(2) Minimum 5 points per proctor.

Table 204-2
Construction Tolerances

Location Description	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 the grade change is greater than or equal to 10 percent. The centerline grade is not to exceed 20 percent in 100 feet of length.

n. 302 - Minor Crushed Aggregate

302.04_National_7_18_2017

Add the following to Subsection 302.04 and 302.04(a)

a. 302.04 Placing Crushed Aggregate.

Written approval of the surface is required before placing aggregate.

(a) Roadway aggregate.

For pit run or grid-rolled material, furnish material smaller than the maximum size, no gradation will be required otherwise. After processing on the road, remove all oversize material from the road and dispose as directed by the CO.