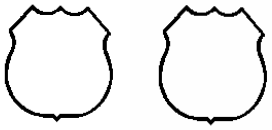
PART III: EXHIBITS

OREGON DEPARTMENT OF FORESTRY

TIMBER SALE OPERATIONS PLAN
(See Page 2 for instructions)

Date Received by STATE: _____

(5) State Brand Information (complete):



(1) Contract No.: 341-14-34

(2) Sale Name: Mulaker

(3) Contract Expiration Date: October 31, 2016 Project Completion Dates: October 31, 2015

(4) Purchaser: _____ _____

(6) Purchaser Representatives:

Projects: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Projects: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Projects: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Projects: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Logging: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Logging: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Logging: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Logging: _____	Phone: _____	Cell/Other Phone: _____	Home: _____

(7) State Representatives:

Projects: _____	Phone: _____	Cell/Other Phone: _____	Home: _____
Logging: _____	Phone: _____	Cell/Other Phone: _____	Home: _____

(8) Name of Subcontractors & Starting Dates:

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

(9) Comments: _____

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

EXHIBIT B

INSTRUCTION SHEET FOR OPERATIONS PLAN

SUBMIT ONE COPY OF PLAN TO STATE

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

Explanation of Item No. (from Page 1)

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

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

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

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

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

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

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

Cable Landing, with numbers for sequence.

Tractor Landing with alphabetical sequence.

_ _ _ _ _ Approximate setting boundary.

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

Tractor yarding roads.

X Temporary stream crossings.

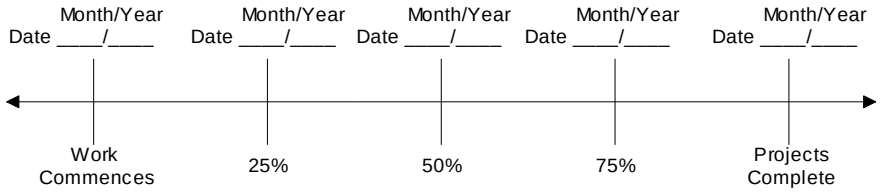
EXHIBIT B

OPERATIONS PLAN

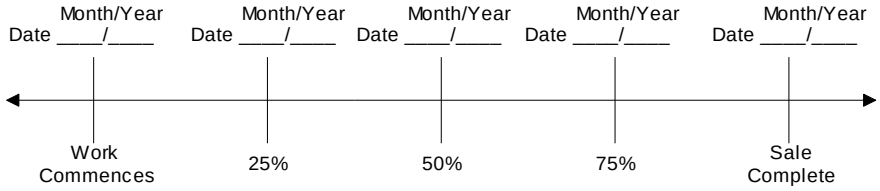
Completion Timeline

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

Projects



Harvest & Other Requirements



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

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

APPROVED: Date: _____

STATE OF OREGON - DEPARTMENT OF FORESTRY

_____

Title _____

SUBMITTED BY:
PURCHASER

_____

Title _____

Original: Salem
cc: District File
Purchaser

EXHIBIT C – SAWMILL GRADE (WESTSIDE SCALE)

SCALING INSTRUCTIONS -- LOCATION APPROVAL -- BRAND INFORMATION

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

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

(3) FROM: Astoria (04) Phone: (503) 325-5451
(State Forestry District)
Address 92219 Hwy 202, Astoria, OR 97103

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

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

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

(6) WESTSIDE SCALE: YES ☒ NO ☐
Use Region 6 actual taper rule. Logs over 40'.

(7) Weight Scale Sample ☐ ☒

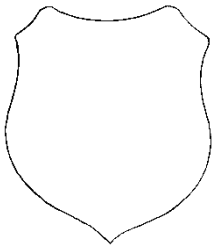
(8) **APPROVED SCALING LOCATIONS** (as shown on the ODF Approved Locations web-site)	**Species**	**Yard**	**Truck**	**Weight**

(9) SALE NAME: Mulaker
COUNTY: Clatsop

(10) STATE CONTRACT NUMBER: 341-14-34

(11) STATE BRAND REGISTRATION NUMBER:
_____

(12) STATE BRAND INFORMATION (COMPLETE):



(13) PAINT REQUIRED: YES ☒
COLOR: Orange

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

(15) **REMARKS** _____

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

(16) SIGNATURES:

_____
Purchaser or Authorized Representative Date

_____
State Forester Representative Date

_____
State Forester Representative PRINT NAME

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

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

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

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

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

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

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

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

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

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

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

(3) State District office, address and phone.

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

(5) Minimum Scaling Specifications.

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

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

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

(9) Enter sale name and county.

(10) Enter sale Contract number.

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

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

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

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

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

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

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

EXHIBIT C – PULP SORT

PROCESSING INSTRUCTIONS -- LOCATION APPROVAL -- BRAND INFORMATION

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

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

(3) FROM: Astoria (04) Phone: (503)325-5451
(State Forestry District)

(4) PURCHASER: _____

(5) Scaling Bureau (TPSO) Processing Weight receipts:

_____
Mailing Address: _____
Phone Number: _____

(6) **STATE Definition of Approved Pulp Sort:**

- Top portion of the tree (tops).
- All logs with a diameter (Big End) greater than 8 inches marked with blue paint.

(7) PULP FACILITY PROCESSING INSTRUCTIONS:

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

(8) TPSO PROCESSING INSTRUCTIONS

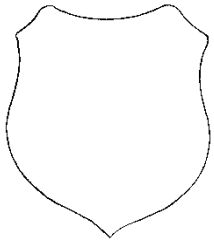
- Mail to ODF weekly.
- Convert to mbf using 10 tons per mbf.

(9) SALE NAME: Mulaker
COUNTY: Clatsop

(10) STATE CONTRACT NUMBER: 341-14-34

(11) STATE BRAND REGISTRATION NUMBER _____

(12) STATE BRAND INFORMATION: (COMPLETE BELOW)



(13) REMARKS: _____

Operator's Name (Optional inclusion by District):

_____

(14) SIGNATURES:

_____
Purchaser or Authorized Representative Date

_____
State Forester Representative Date

_____
State Forester Representative PRINT NAME

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

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

EXHIBIT C – PULP SORT

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SUBGRADE WIDTH	SURFACED WIDTH	POINT TO POINT	STATION TO STATION	DRAINAGE
16	12	A to B	0+00 to 23+70	Crowned/Ditched
16	12	C to D	0+00 to 2+50	Crowned/Ditched
16	12	2A to 2B	0+00 to 24+75	Crowned/Ditched
16	12	2C to 2D	0+00 to 5+00	Crowned/Ditched
16	12	3A to 3B	0+00 to 10+70	Crowned/Ditched
16	12	3C to 3D	0+00 to 2+00	Crowned/Ditched
16	12	4F to 4G	0+00 to 2+00	Crowned/Ditched
16	12	4H to 4I	0+00 to 1+00	Crowned/Ditched
16	12	4J to 4K	0+00 to 2+50	Crowned/Ditched
16	12	5B to 5C	0+00 to 2+50	Crowned/Ditched
16	12	I1 to I2	0+00 to 197+50	Crowned/Ditched
16	12	I3 to I4	0+00 to 55+50	Crowned/Ditched
16	12	I5 to I6	0+00 to 96+90	Crowned/Ditched
16	12	I7 to I8	0+00 to 19+00	Crowned/Ditched
16	12	I9 to I10	0+00 to 4+10	Crowned/Ditched
16	12	I11 to I12	0+00 to 17+60	Crowned/Ditched
16	12	I13 to I14	0+00 to 6+70	Crowned/Ditched
16	12	I15 to I16	0+00 to 27+80	Crowned/Ditched
16	12	I17 to I18	0+00 to 19+70	Crowned/Ditched
16	12	I19 to I20	0+00 to 25+00	Crowned/Ditched
16	12	I21 to I22	0+00 to 9+70	Crowned/Ditched
16	12	I23 to I24	0+00 to 10+00	Crowned/Ditched
16	12	I25 to I26	0+00 to 20+00	Crowned/Ditched

CLEARING. This work shall consist of clearing, removing, and disposing of all trees, Snags, Down Timber, brush, surface objects, and protruding obstructions within the clearing limits.

Where clearing limits have not been marked, the clearing limits shall extend 5 feet back of the top of the cutslope and 5 feet out from the toe of the fill slope, or as directed by STATE. Clearing debris shall not be placed or permitted to remain in or under any road embankment sections. Clearing debris shall not be left lodged against standing trees.

All danger trees, leaners, and Snags outside the clearing limits which could fall and hit the road shall be felled.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

GRUBBING. This work shall consist of the removal or digging out of stumps and protruding objects.

All stumps shall be completely removed within the limits of required grubbing. Stumps overhanging cutslopes shall be removed. Grubbing debris shall not be placed or permitted to remain in or under any road embankment sections. Grubbing debris shall not be left lodged against standing trees.

GRUBBING CLASSIFICATION.

New construction - from the top of the cutslope to the toe of the fill.

Improvements and reconstructions - 4 feet back from the shoulder of the subgrade or ditch, whichever is widest, or as marked in the field.

CLEARING AND GRUBBING DISPOSAL. Scatter in stable locations through openings in the timber outside of the cleared right-of-way, except areas where end-haul is required. In areas where end-haul is required, clearing and grubbing debris shall be fully contained and hauled to a designated waste area. Clearing and grubbing debris shall be left in a stable location, and not left lodged against standing trees.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

EXCAVATION. Excavation and grading shall not be done when weather and/or ground conditions are such that damage will result to existing subgrade or cause excessive erosion.

Excavation shall conform to STATE-specified lines, grades, dimensions, and plans when provided.

Unless road plans show otherwise, all roads shall be on a balanced cross section, except when the slope is over 50 percent, the road shall be on full bench for the width specified.

Suitable excavated material shall be used for the formation of fills, shoulders, and drainage structure backfills. Embankment materials shall be free of woody debris, brush, muck, sod, frozen material, and other deleterious materials.

Sidecast includes any road generated excess excavation material which is not essential as part of the road prism, is not compacted, and is below the roadway. Sidecast shall not be placed where it will enter a stream course or where material will accumulate in areas deemed a high-risk site by STATE.

All fills shall be machine compacted according to the “Compaction and Processing Requirements” in this Exhibit.

ROAD WIDTH LIMITATIONS. PURCHASER shall obtain advance written approval from STATE to construct the road to a greater width than specified. Extra subgrade width shall be required for:

Fill Widening. Add to each fill shoulder 1 foot for fills 3 feet to 6 feet high; 2 feet for fills over 6 feet high.

Curve Widening. Widen the inside shoulder of all curves as specified in the plans or as follows: 400 divided by the radius of the curve equals the amount of extra width.

DRAINAGE

Subgrade. Subgrade shall be crowned/outsloped at 4 to 6 percent as shown on the “Forest Road Specifications” table in this Exhibit.

Ditch. Construct "V" shaped ditch 3 feet wide and to a depth of 1 foot below subgrade.

Ditchouts. Construct ditchouts to drain away from subgrade at locations marked in the field or as directed by STATE.

TURNOUTS. Increase roadbed width an additional 8 feet for both subgrade and surfacing. Length shall be at least 50 feet, or as staked on the ground, plus 25-foot approaches at each end.

Location: Intervisible but not greater than 750 feet apart and as marked in the field.

SLOPES	Back Slopes	Fill Slopes
Solid Rock	Vertical to ¼ :1	
Fractured Rock	½ :1	
Soil - side slopes 50% and over	¾ :1	1½:1
Soil - side slopes less than 50%	1 :1	1½:1

Top of cutslope shall be rounded.

LANDINGS. Landings shall be constructed as posted in the field, no less than 50 feet wide and no more than 70 feet wide unless otherwise approved by STATE. Surface is to be crowned for drainage with general grade no more than 3 percent. Surface as shown in the “Road Surfacing” table in this Exhibit.

TURNAROUNDS. Increase subgrade width an additional 20 feet for a length of 20 feet at locations marked in the field.

SEASONAL WINTERIZATION. All unsurfaced roads or unfinished subgrades shall be waterbarred in accordance with the specifications in Exhibit J, and blocked from vehicular traffic prior to October 1, annually and as directed by STATE.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

GENERAL ROAD CONSTRUCTION INSTRUCTIONS:

1. Timber Removal. Remove all trees within posted right-of-way boundary or individually marked with an orange "C", as specified in Section 2210, "Designated Timber."

2. Excavated Materials. Excavated materials shall be utilized for road construction. Surplus excavation materials shall be hauled to the waste areas as marked in the field and/or designated on Exhibit A. Surplus excavated materials and waste materials shall be sloped and compacted for drainage. Fills shall be thoroughly compacted in accordance with this Exhibit.

3. Drainage Ditches. Construct ditchlines, including ditchouts, as directed by STATE. Cut slopes of ditchlines and ditchouts shall not exceed 1:1 slope. Construct culvert sediment basins. Waste materials from drainage ditches and sediment basins shall be placed in nearby waste areas and uniformly sloped and compacted for drainage, as directed by STATE.

4. Fill Armor and Energy Dissipator Construction. Where rock is specified for fill armor, rock shall be machine placed and tamped at a 1½:1 slope, beginning at the toe of the fill. Where rock is used for an energy dissipator, rock shall be placed below the culvert outlet and embedded for a minimum of 3 feet, in accordance with Exhibit I.

5. Equipment. All excavation and riprap placement shall be performed using a minimum 1½ cubic-yard, track-mounted excavator.

6. Subgrade Preparation and Application of Surfacing Rock.

   (a) Complete culvert installations, drainage ditches, ditchouts, fill construction, and other specified work prior to the application of surfacing rock.

   (b) Subgrade shall be crowned at 4 to 6 percent.

   (c) Upon completion of above required work, apply, process, and compact surfacing rock in accordance with specifications in the "Compaction and Processing Requirements" in this Exhibit. Final road surface shall be crowned at 4 to 6 percent.

SPECIFIC ROAD CONSTRUCTION INSTRUCTIONS

Segment	Station	Work Description:
A to B	0+00	Construct junction to blend in with new construction on 2A to 2B. On A to B, end-haul excess excavation to waste area at 23+70.
	8+00 to 9+50	Widen subgrade 2 feet each side of thru-cut. Construct ditch with 1 foot width.
	9+60 to 16+25	Construct French drains as necessary to intercept subsurface water. Utilize geotextile fabric and 24"-6" riprap for construction.
	9+60 to 22+40	Utilize geotextile fabric for subgrade separation.
	16+25	Armor both sides of fill utilizing 24"-6" riprap.
	23+70	Point B. Utilize old road grade area as a waste area for excess excavation from A to B and C to D. Construct turnaround and blend in new road construction to access existing road grade and future new road construction to the North.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD CONSTRUCTION INSTRUCTIONS

Segment	Station	Work Description:
C to D	0+00 to 2+50	Construct road to blend in with construction on A to B. End haul excess excavation to waste area at 23+70 on A to B.
	2+50	Construct a minimum 50 foot radius landing.

GENERAL ROAD IMPROVEMENT INSTRUCTIONS:

1. Timber Removal. Remove all trees within posted Right-of-Way Boundary or individually marked with an orange "C", as specified in Section 2210, Designated Timber.

2. Excavated Materials. Excavated materials shall be utilized for road construction. Surplus excavation materials shall be hauled to the waste areas as marked in the field and/or designated on Exhibit A. Surplus excavated materials and waste materials shall be sloped and compacted for drainage. Fills shall be thoroughly compacted in accordance with this Exhibit.

3. Bank Slough Removal. Excavate all bank slough. Bank slough material shall not be pulled across existing surfacing rock, but shall be placed in nearby waste areas and uniformly sloped and compacted for drainage, as directed by STATE. Waste materials shall be seeded and mulched in accordance with specifications in Exhibit M.

4. Culvert Replacement, Culvert Installation, Fill Reconstruction, and Fill Removal. Existing culvert geometry shall be modified to provide for optimum drainage and culvert performance. Modifications may include, skewing the culvert and/or installing the culvert at gradients equal to or exceeding the drainage (or ditch) gradient. Where fill reconstruction or culvert replacement is specified, fills shall be excavated to natural stream course levels. All woody debris encountered during fill excavation shall be removed. All waste materials shall be hauled to nearby waste areas and shall be uniformly sloped and compacted for drainage. Waste materials shall be seeded and mulched in accordance with specifications in Exhibit M. Fill reconstruction backfill shall consist of select materials and may be obtained from borrow pits, as directed by STATE. Backfill materials shall be hauled in where necessary and thoroughly compacted in accordance with this Exhibit. Crushed rock shall be used for backfilling excavation trenches less than 3 feet deep. STATE may require the use of crushed rock for culvert bedding. Removed culverts shall be hauled off of STATE land.

5. Drainage Ditches. Restore or construct ditchlines, including ditchouts, as directed by STATE. Clean out all culvert inlets and outlets for a 10-foot radius. Re-establish or construct culvert sediment basins. Waste materials from drainage ditches and sediment basins shall not be pulled across existing surfacing rock, but shall be placed in nearby waste areas or hauled to designated waste areas and uniformly sloped and compacted for drainage, as directed by STATE. Damaged culvert inlets and/or outlets shall be repaired by opening them with a hydraulic jack, or cutting off the culvert end to allow for free passage of water at peak flow levels. Install a culvert marker at each newly installed culvert and at each existing culvert that is missing a marker that could be reached by a grader blade.

6. Sod Removal. Remove sod from the crushed rock road surface. Separate sod from crushed rock surfacing as directed by STATE. Sod may be scattered in stable locations, however, if necessary, the sod shall be loaded and hauled to a designated waste area as directed by STATE.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

GENERAL ROAD IMPROVEMENT INSTRUCTIONS:

7. Fill Armor and Energy Dissipator Construction. Where rock is specified for fill armor, rock shall be machine placed and tamped at a 1½:1 slope, beginning at the toe of the fill. Where rock is used for an energy dissipator, rock shall be placed below the culvert outlet and embedded for a minimum of 3 feet, in accordance with Exhibit I.

8. Equipment. All excavation and riprap placement shall be performed using a minimum 1½ cubic yard, track-mounted excavator.

9. Rock Ditch Filter. Construct rock ditch filters as directed by STATE. Excavated material shall be hauled to the designated waste areas as marked in the field and/or designated on Exhibit A. Waste materials shall be sloped and compacted for drainage. Construct each rock ditch filter with clean drain rock (6"-4" pit-run rock) and placed at a 2:1 slope within the specified ditch. Construct the center of the rock ditch filter at least 6 inches lower than the ends, to act as a spillway for runoff and to prevent water from flowing around the filter. Space the filters so that the bottom elevation of the upper filter is the same as the top center elevation of the next filter. Rock ditch filter dimensions shall be as shown on the "Typical Rock Ditch Filter" exhibit or as directed by STATE. Locations of the filters shall be determined by STATE.

10. Subgrade Preparation and Application of Surfacing Rock.

    (a) Complete culvert installations, drainage ditches, fill reconstruction, ditchouts, and other specified work prior to the application of new surfacing rock.

    (b) Cut out all potholes and/or washboard sections from the existing surfacing.

    (c) Apply required patching and leveling rock, as directed by STATE.

    (d) Process (grade and mix) the existing surface and added base rock. Provide for a crown of 4 to 6 percent, and compact in accordance to the "Compaction and Processing Requirements" in this Exhibit.

    (e) Upon completion of above required work, apply, process, and compact surfacing rock in accordance to this Exhibit.

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS

Segment	Station	Work Description:
I1 to I2	Point I1	Begin Road Improvement as specified above in the General Instructions and below in the Specific Instructions. Begin sod removal. Begin lift of ¾"-0" crushed rock as shown in the rock surfacing tables. Utilize ¾"-0" crushed rock for subgrade leveling.
	7+10	Replace existing culvert. Utilize 1½"-0" crushed rock for culvert bedding and backfill. Install dissipator utilizing 11 yards of 24"-6" riprap.
	12+80	Replace existing culvert. Utilize 1½"-0" crushed rock for culvert bedding and backfill.
	28+10	Improve existing culvert inlet with hydraulic jack. Install new culvert marker.
	32+80	Replace existing culvert. Utilize 1½"-0" crushed rock for culvert bedding and backfill. Install dissipator utilizing 11 yards of 24"-6" riprap. Install new culvert marker.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS (CONTINUED)

Segment	Station	Work Description:
I1 to I2	37+00	Begin utilizing excavator to reestablish ditchline and improve cut slope, scatter waste.
	37+60	Landing construction Point 5A.
	38+00	End utilizing excavator to reestablish ditchline and improve cut slope.
	39+40	Replace existing culvert. Utilize 1½”-0” crushed rock for culvert bedding and backfill. Install new culvert marker.
	43+40	Turnout right, utilize 11 yards 4”-0” crushed rock for subgrade improvement.
	51+70	Replace existing culvert. Utilize 1½”-0” crushed rock for culvert bedding and backfill. Install new culvert marker.
	61+30	Turnout right, utilize 11 yards 4”-0” crushed rock for subgrade improvement.
	73+90	End lift ¾”-0” crushed rock surfacing. End ¾”-0” crushed rock for subgrade leveling. Begin lift 1½”-0” crushed rock as shown in the rock surfacing tables. Utilize 1½”-0” crushed rock for subgrade leveling.
	80+30	Replace existing culvert. Utilize 1½”-0” crushed rock for culvert bedding and backfill. Install dissipator utilizing 11 yards of 24”-6” riprap. Install new culvert marker.
	107+90	Replace existing culvert. Utilize 1½”-0” crushed rock for culvert bedding and backfill. Install new culvert marker.
	114+80	Landing construction Point 4D.
	124+30	Landing construction Point 4E.
	132+10	Road construction Point 4F.
	141+90	Install new culvert marker.
	152+70	Improve existing culvert inlet with hydraulic jack and saw. Utilize excavator to improve outlet ditchout, scatter waste. Install new culvert marker.
	163+10	Install new culvert marker.
	176+20	Replace existing culvert. Utilize 33 yards 1½”-0” crushed rock for additional culvert bedding and backfill. Install new culvert marker.
	188+30	Road construction Point 1A.
	197+50	Point I2, end road improvement. End sod removal. End lift of 1½”-0” crushed rock surfacing.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS (CONTINUED)

Segment	Station	Work Description:
I3 to I4	Point I3	Begin Road Improvement as specified above in the General Instructions and below in the Specific Instructions. Begin sod removal, ditch restoration, and cut slope improvement where needed. Utilize excavator to scatter material and end haul to waste area as necessary. Begin lift of 1½"-0" crushed rock as shown in the rock surfacing tables. Utilize 1½"-0" crushed rock for subgrade leveling.
	2+30	Install new culvert marker.
	5+30	Turnout right, utilize 11 yards 4"-0" crushed rock for subgrade improvement.
	55+50	Point I4, end road improvement. End sod removal. End utilizing excavator to reestablish ditchline and improve cutslope where needed. End lift of 1½"-0" crushed rock surfacing.
I5 to I6	Point I5	Begin Road Improvement as specified above in the General Instructions and below in the Specific Instructions. Begin sod removal. Begin lift of 1½"-0" crushed rock as shown in the rock surfacing tables. Utilize 1½"-0" crushed rock for subgrade leveling.
	4+90	Begin utilizing excavator to reestablish ditchline and improve cut slope, scatter waste.
	6+10	Utilize excavator to build ditchout left / daylight berm, scatter waste.
	7+10	End utilizing excavator to reestablish ditchline and improve cut slope.
	16+50	Turnout right, utilize 11 yards 4"-0" crushed rock for subgrade improvement.
	43+50	Turnout left, utilize 11 yards 4"-0" crushed rock for subgrade improvement.
	47+80	Begin utilizing excavator to reestablish ditchline and improve cut slope, end haul waste to designated waste area.
	50+30	End utilizing excavator to reestablish ditchline and improve cut slope. Utilize excavator to improve ditchout.
	73+50	Turnout left, utilize 11 yards 4"-0" crushed rock for subgrade improvement.
	78+30	Road construction Point 3C.
	85+10	Road construction Point 3A.
	87+50	Replace existing culvert. Utilize 1½"-0" crushed rock for culvert bedding and backfill.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS (CONTINUED)

Segment	Station	Work Description:
I5 to I6	95+10	Point I6, end road improvement. End sod removal. End lift of 1½”-0” crushed rock surfacing. Landing construction Point 3E.
I7 to I8	Point I7	Begin Road Improvement as specified above in the General Instructions and below in the Specific Instructions. Begin sod removal. Begin lift of 4”-0” crushed rock as shown in the rock surfacing tables. Utilize 4”-0” crushed rock for subgrade leveling.
	7+75	Install new culvert marker.
	16+00	Utilize excavator to improve ditchout.
	19+00	Point I8, end road improvement. End sod removal. End lift of 4”-0” crushed rock surfacing. Landing construction Point 3F.
I9 to I10	Point I9	Begin Road Improvement as specified above in the General Instructions and below in the Specific Instructions. Begin sod removal. Begin lift of 4”-0” crushed rock as shown in the rock surfacing tables. Utilize 4”-0” crushed rock for subgrade leveling.
	0+00	Begin removal of trees and stumps marked with orange “C.”
	4+10	Point I10, end road improvement. End sod removal. End removal of trees and stumps marked with orange “C.” End lift of 4”-0” crushed rock surfacing. Landing construction Point 3G.
I11 to I12	Point I11	Begin Road Improvement as specified above in the General Instructions and below in the Specific Instructions. Begin sod removal. Begin lift of 4”-0” crushed rock as shown in the rock surfacing tables. Utilize 4”-0” crushed rock for subgrade leveling.
	8+00	Install new culvert marker.
	10+90	Replace existing culvert. Utilize 1½”-0” crushed rock for culvert bedding and backfill. Install new culvert marker.
	11+30	Begin utilizing excavator to reestablish ditchline and improve cut slope, scatter waste.
	12+10	Road construction Point 5B.
	12+80	Turnout left, utilize 11 yards 4”-0” crushed rock for subgrade improvement.
	13+40	End utilizing excavator to reestablish ditchline and improve cut slope.
	14+70	Landing construction Point 5D.
	15+60	Replace existing culvert. Utilize 1½”-0” crushed rock for culvert bedding and backfill. Install new culvert marker.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS (CONTINUED)

Segment	Station	Work Description:
I11 to I12	17+60	Point I12, end road improvement. End sod removal. End lift of 4”-0” crushed rock surfacing.
I13 to I14	0+00	Begin Road Improvement as specified above in the General Instructions and below in the Specific Instructions. Begin sod removal. Begin lift of 4”-0” crushed rock as shown in the rock surfacing tables. Utilize 4”-0” crushed rock for subgrade leveling.
	6+70	Point I14, end road improvement. End sod removal. End lift of 4”-0” crushed rock surfacing.
I15 to I16	Point I15	Begin Road Improvement as specified above in the General Instructions and below in the Specific Instructions. Begin sod removal, ditch restoration and cut slope improvement where needed. Utilize excavator to scatter material and end haul to waste area as necessary. Begin lift of 4”-0” crushed rock as shown in the rock surfacing tables. Utilize 4”-0” crushed rock for subgrade leveling.
	3+00	End utilizing excavator to reestablish ditchline and improve cut slope.
	3+80	Install new culvert marker.
	6+50	Begin utilizing excavator to reestablish ditchline and improve cut slope, end haul waste to designated waste area.
	8+00	End utilizing excavator to reestablish ditchline and improve cut slope.
	9+70	Landing construction Point 4A.
	20+50	Landing construction Point 4B.
	24+80	Begin utilizing excavator to reestablish ditchline and improve cut slope, end haul waste to designated waste area.
	26+90	Landing construction Point 4C.
	27+80	Point I16, end road improvement. End sod removal. End utilizing excavator to reestablish ditchline and improve cut slope. End lift of 4”-0” crushed rock surfacing.
I17 to I18	0+00	Begin Road Improvement as specified above in the General Instructions and below in the Specific Instructions. Begin sod removal. Begin lift of 4”-0” crushed rock as shown in the rock surfacing tables. Utilize 4”-0” crushed rock for subgrade leveling.
	3+90	Begin utilizing excavator to reestablish ditchline and improve cut slope, end haul waste to designated waste area.
	4+60	End utilizing excavator to reestablish ditchline and improve cut slope.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS (CONTINUED)

Segment	Station	Work Description:
I17 to I18	9+70	Road construction Point 4H.
	13+70	Point I18, end road improvement. End sod removal. End lift of 4”-0” crushed rock surfacing. Road construction Point 4J.
I19 to I20	Point I19	Begin Road Improvement as specified above in the General Instructions and below in the Specific Instructions. Begin sod removal and ditch restoration. Utilize excavator to scatter material and end haul to waste area as necessary. Begin lift of 4”-0” crushed rock as shown in the rock surfacing tables. Utilize 4”-0” crushed rock for subgrade leveling.
	0+40	Replace culvert and fill. Inlet of new culvert will be in the same location as the existing culvert. New culvert will be ten feet less in length than existing pipe. End haul waste materials to the waste area. Borrow material for fill construction may be obtained at road widening and realignment portions of I19 to I20 and I21 to I22. Utilize 1 ½”-0” crushed rock for culvert bedding and backfill and 24”-6” riprap to armor fill slopes.
	0+90 to 3+20	Utilize 4”-0” crushed rock for subgrade reinforcement.
	1+60	Remove berm on left side of the road and widen road to improve alignment. Material may be used for fill replacement at 0+40, or hauled to the waste area. Resurface the road utilizing 4”-0” crushed rock.
	3+15	Replace culvert. Utilize 1½”-0” crushed rock for culvert bedding and backfill.
	5+30	Install new culvert. Utilize 1½”-0” crushed rock for culvert bedding and backfill. New culvert shall be installed in a location to accommodate the realignment of the road junction.
	6+40	Replace culvert. Utilize 1½”-0” crushed rock for culvert bedding and backfill.
	9+00	Replace culvert. Utilize 1½”-0” crushed rock for culvert bedding and backfill.
	10+30 to 12+50	Remove overhanging trees marked with orange “C.” Reconstruct and widen ditch through the thru-cut. Reslope cutslopes and remove stumps as directed by STATE. End haul material to the waste area.
	12+25	Install new culvert. Utilize 1½”-0” crushed rock for culvert bedding and backfill.
	12+50	Waste area right.
	12+80 to 15+00	Remove overhanging trees marked with orange “C.” Reconstruct and widen ditch through the thru-cut. Reslope cutslopes and remove stumps as directed by STATE. End haul material to the waste area.
	15+00	Begin road re-alignment. Widen and reconstruct road as posted in the field and according to plans provided by STATE. Excavated material shall be placed in approved waste areas.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS (CONTINUED)

Segment	Station	Work Description:
I19 to I20	17+70	Construct check dams in the ditchlines on both sides of the road fill. Construct three rock ditch filters in each ditchline, as directed by STATE, utilizing 24”-6” riprap.
	20+30	End road re-alignment. Install new culvert. Utilize 1½”-0” crushed rock for culvert bedding and backfill. Utilize 24”-6” riprap to construct dissipator. Waste area right.
	22+75	Install new culvert. Utilize 1½”-0” crushed rock for culvert bedding and backfill.
	24+70	Construct turnaround.
	25+00	Point I20, end road improvement. End sod removal. End lift of 4”-0” crushed rock surfacing. Road vacating Point V4.
I21 to I22	Point I21	Begin Road Improvement as specified above in the General Instructions and below in the Specific Instructions. Begin sod removal and ditch restoration. Utilize excavator to scatter material and end haul to waste area as necessary. Begin lift of 4”-0” crushed rock as shown in the rock surfacing tables. Utilize 4”-0” crushed rock for subgrade leveling.
	0+00	Blend road junction with new construction Point B.
	0+80	Construct turnout.
	2+60	Remove existing culvert and log puncheon. Install new culvert. Utilize 1½”-0” crushed rock for culvert bedding and backfill and 24”-6” riprap to construct dissipator and armor fill slopes. End haul material unsuitable for fill reconstruction to an approved waste area. If borrow material is needed for fill reconstruction, utilize material generated in road realignments. Begin road re-alignment. Widen and reconstruct road as posted in the field and according to plans provided by STATE. Excavated material shall be placed in approved waste areas.
	3+70	Construct turnout. Daylight berm on left side of the road.
	5+00	End road re-alignment. Replace culvert. Utilize 1½”-0” crushed rock for culvert bedding and backfill and 24”-6” riprap to construct dissipator and armor fill slopes.
	5+30	Install new culvert. Utilize 1½”-0” crushed rock for culvert bedding and backfill and 24”-6” riprap to construct dissipator.
	7+25	Construct turnout.
	9+70	Construct turnaround. Point I22, end road improvement. End sod removal. End lift of 4”-0” crushed rock surfacing. Road vacating Point V6.

EXHIBIT D

FOREST ROAD SPECIFICATIONS

SPECIFIC ROAD IMPROVEMENT INSTRUCTIONS (CONTINUED)

Segment	Station	Work Description:
I23 to I24	Point I23	Begin Road Improvement as specified above in the General Instructions and below in the Specific Instructions. Begin lift of 4”-0” crushed rock as shown in the rock surfacing tables.
	0+00	Construct new road junction alignment.
	5+30	Install new culvert. Utilize 1½”-0” crushed rock for culvert bedding and backfill. Install new culvert marker.
	9+00	Landing construction Point 1C.
	10+00	Point I24, end road improvement. End lift of 4”-0” crushed rock.
I25 to I26	Point I25	Begin Road Improvement as specified above in the General Instructions and below in the Specific Instructions. Begin sod removal and ditch restoration. Utilize 4”-0” crushed rock for subgrade leveling.
	16+20	Install culvert marker.
	20+00	Point I26, end road improvement. End sod removal.

EXHIBIT D

FULL BENCH AND END-HAUL REQUIREMENTS

POINT TO POINT	STA. TO STA.	CONTAINMENT - SIDECAST
A to B	Excess Excavation	2
C to D	0+00 to 2+50	2
I19 to I20	0+40	2
I19 to I20	10+30 to 12+50	2
I19 to I20	12+80 to 15+00	2
I19 to I20	15+00 to 20+30	2
I21 to I22	2+60	2
I21 to I22	2+60 to 5+00	2

Full Bench and End-Haul Areas General Requirements

Sidecast includes any road generated excess excavation material which is not essential as part of the road prism, is not compacted, and is below the roadway. Material shall not be sidecast unless specified above.

Clearing and grubbing debris may be scattered.

When controlled blasting is required, it shall be accomplished using timing devices, delayed charges, low intensity shots, or other suitable means to contain material within the road prism.

Containment/Sidecast

(1) Full: No excavated material remains below the road.

(2) Normal/Incidental: The amount of excavated material lost over the outside edge of the road shall not exceed 1 foot in depth.

(3) Sidecast: Material shall be spread evenly below the road so that it does not build up behind trees, snags or other debris, and shall not exceed 3 feet in depth. Sidecast shall not be placed where it will enter a stream course or where material will accumulate in areas deemed a high-risk site by STATE.

Any amount of material exceeding the containment requirements shall be removed by whatever means necessary and end-hauled to a designated waste area.

Waste Area Location

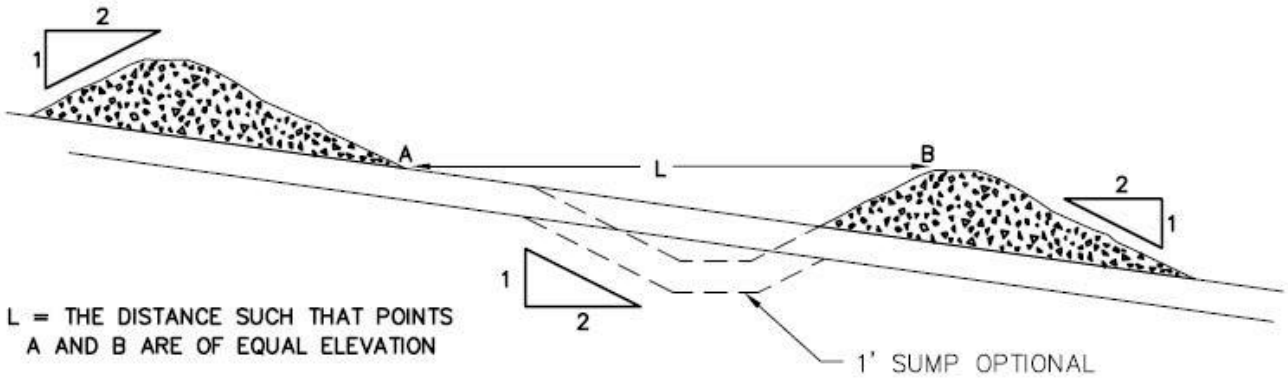
- As shown on Exhibit A and as marked in the field.

Waste Area Treatment

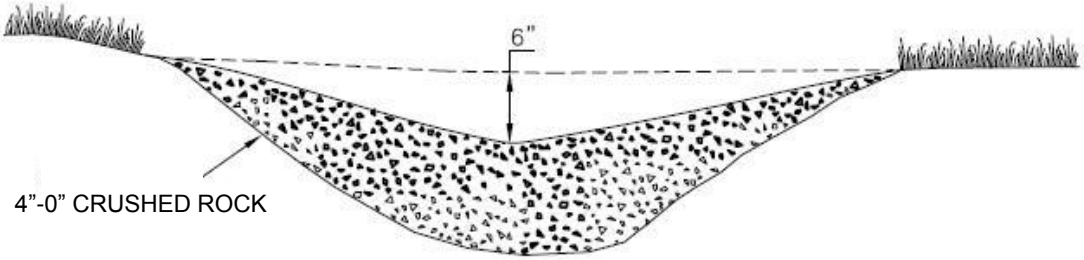
- Deposit at waste area, spread evenly, compact, and provide adequate drainage.
- Mulch and seed all waste areas in accordance with Exhibit M.

EXHIBIT D

TYPICAL ROCK DITCH FILTER



SPACING BETWEEN ROCK FILTERS



ROCK DITCH FILTER

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT: A to B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	A to B		0+00 to 23+70		
				Volume (CY) Per		Number of		
Base Rock	4"-0" crushed	0+00 to 23+70	10	station	63	stations	23.70	1,493
Junctions	4"-0" crushed	0+00, 7+50, 23+70	10	junction	22	junctions	3	66
Turnouts	4"-0" crushed	5+25, 7+50, 15+25, 17+60, 21+00	10	TO	33	TO's	5	165
Widening	4"-0" crushed	8+00 to 9+50	10	N/A	N/A	N/A	N/A	55
Turnaround	4"-0" crushed	23+70	10	TA	44	TA	1	44
Surfacing Rock	1 1/2"-0" crushed	0+00 to 23+70	3	station	19	stations	24	450
Junctions	1 1/2"-0" crushed	0+00, 7+50, 23+70	3	junction	22	junctions	3	66
Turnouts	1 1/2"-0" crushed	5+25, 7+50, 15+25, 17+60, 21+00	3	TO	11	TO's	5	55
Fill Armor	24"-6" riprap	16+25	N/A	N/A	N/A	N/A	N/A	110
Dissipator/ French Drain	24"-6' riprap	11+80, 9+60 to 16+25	N/A	N/A	N/A	N/A	N/A	58
Total Rock for Road Segment:								2,562
ROAD SEGMENT: C to D				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	C to D		0+00 to 2+50		
				Volume (CY) Per		**Number Of**		
Base Rock	4"-0" crushed	0+00 to 2+50	10	station	63	stations	2.50	158
Landing	6"-0" pit-run	2+50	N/A	landing	66	landings	1	66
Total Rock for Road Segment:								224
ROAD SEGMENT: 2A to 2B				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	2A to 2B		0+00 to 24+75		
				Volume (CY) Per		**Number of**		
Landing	6”-0” pit-run	24+75	N/A	landing	66	landings	1	66
Base Rock	4"-0" crushed	0+00 to 24+75	10	station	63	stations	27.75	1,559
Turnouts	4"-0" crushed	4+80, 7+40, 10+50, 16+50	10	turnouts	22	turnouts	4	88
Widening	4"-0" crushed	23+50 to 24+50	10	station	16	stations	1	16
Junctions	1 ½-0” crushed	0+00	3	junction	22	junctions	1	22
Traction Rock	1 ½-0” crushed	7+50 to 23+50	3	station	19	stations	16	304
Bedding and Backfill	1 ½-0” crushed	7+00, 9+00, 13+75	N/A	culvert	11	culverts	3	33
Total Rock for Road Segment:								2,088
ROAD SEGMENT: 2C to 2D				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	2C to 2D		0+00 to 5+00		
				Volume (CY) Per		**Number of**		
Landing	6”-0” pit-run	5+00	N/A	landing	66	landings	1	66
Base Rock	4"-0" crushed	0+00 to 5+00	10	station	63	stations	5	315
Turnouts	4"-0" crushed	2+50	10	turnouts	22	turnouts	1	22
Bedding and Backfill	1 ½-0” crushed	2+00	N/A	culvert	11	culverts	1	11
Total Rock for Road Segment:								414

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT: 3A to 3B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	3A to 3B		0+00 to 10+70		
				Volume (CY) Per		Number of		
Landing	6”-0” pit-run	9+00, 10+70	N/A	landing	66	landings	2	132
Base Rock	4"-0" crushed	0+00 to 10+70	10	station	63	stations	10.7	674
Turnouts	4"-0" crushed	5+00, 9+00	10	turnouts	22	turnouts	2	44
Junctions	1 ½-0” crushed	0+00	3	junction	22	junctions	1	22
Bedding and Backfill	1 ½-0” crushed	1+80	N/A	culvert	11	culverts	1	11
Total Rock for Road Segment:								883

ROAD SEGMENT: 3C to 3D				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	3C to 3D		0+00 to 2+00		
				Volume (CY) Per		Number of		
Landing	6”-0” pit-run	2+00	N/A	landing	66	landings	1	66
Base Rock	4"-0" crushed	0+00 to 2+00	10	station	63	stations	2	126
Junctions	1 ½-0” crushed	0+00	3	junction	22	junctions	1	22
Total Rock for Road Segment:								214

ROAD SEGMENT: 3E				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	3E		0+00		
				Volume (CY) Per		Number of		
Landing	6”-0” pit-run	0+00	N/A	landing	66	landings	1	66
Junctions	1 ½-0” crushed	0+00	3	junction	22	junctions	1	22
Total Rock for Road Segment:								88

ROAD SEGMENT: 3F				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	3E		0+00		
				Volume (CY) Per		Number of		
Landing	6”-0” pit-run	0+00	N/A	landing	66	landings	1	66
Total Rock for Road Segment:								66

ROAD SEGMENT: 3G				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	3G		0+00		
				Volume (CY) Per		Number of		
Landing	6”-0” pit-run	0+00	N/A	landing	66	landings	1	66
Total Rock for Road Segment:								66

ROAD SEGMENT: 4A				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	4A		0+00		
				Volume (CY) Per		Number of		
Landing	6”-0” pit-run	0+00	N/A	landing	66	landings	1	66
Total Rock for Road Segment:								66

ROAD SEGMENT: 4B				POINT TO POINT		Sta. to Sta.		TOTAL VOLUME (CY)
Application	Rock Size and Type	Location	Depth of Rock (inches)	4A		0+00		
				Volume (CY) Per		Number of		
Landing	6”-0” pit-run	0+00	N/A	landing	66	landings	1	66
Total Rock for Road Segment:								66

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT: 4C				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	4A		0+00		
				Volume (CY) Per		**Number of**		
Landing	6”-0” pit-run	0+00	N/A	landing	66	landings	1	66
Total Rock for Road Segment:								66
ROAD SEGMENT: 4D				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	4D		0+00		
				Volume (CY) Per		**Number of**		
Landing	6”-0” pit-run	0+00	N/A	landing	66	landings	1	66
Junctions	1 ½-0” crushed	0+00	3	junction	22	junctions	1	22
Total Rock for Road Segment:								88
ROAD SEGMENT: 4E				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	4E		0+00		
				Volume (CY) Per		**Number of**		
Landing	6”-0” pit-run	0+00	N/A	landing	66	landings	1	66
Junctions	1 ½-0” crushed	0+00	3	junction	22	junctions	1	22
Total Rock for Road Segment:								88
ROAD SEGMENT: 4F to 4G				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	4F to 4G		0+00 to 2+00		
				Volume (CY) Per		**Number of**		
Landing	6”-0” pit-run	2+00	N/A	landing	66	landings	1	66
Base Rock	4"-0" crushed	0+00 to 2+00	10	station	63	stations	2	126
Junctions	1 ½-0” crushed	0+00	3	junction	22	junctions	1	22
Bedding and Backfill	1 ½-0” crushed	1+00	N/A	culvert	11	culverts	1	11
Total Rock for Road Segment:								225
ROAD SEGMENT: 4H to 4I				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	4H to 4I		0+00 to 1+00		
				Volume (CY) Per		**Number of**		
Landing	6”-0” pit-run	1+00	N/A	landing	66	landings	1	66
Base Rock	4"-0" crushed	0+00 to 1+00	10	station	63	stations	1	63
Junctions	4”-0” crushed	0+00	3	junction	22	junctions	1	22
Bedding and Backfill	1 ½-0” crushed	0+00	N/A	culvert	11	culverts	1	11
Total Rock for Road Segment:								162
ROAD SEGMENT: 4J to 4K				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	4J to 4K		0+00 to 2+50		
				Volume (CY) Per		**Number of**		
Landing	6”-0” pit-run	2+50	N/A	landing	66	landings	1	66
Base Rock	4"-0" crushed	0+00 to 2+50	10	station	63	stations	2.5	158
Junctions	4”-0” crushed	0+00	3	junction	22	junctions	1	22
Bedding and Backfill	1 ½-0” crushed	0+00	N/A	culvert	11	culverts	1	11
Total Rock for Road Segment:								257

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT: 5A				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	5A		0+00		
				Volume (CY) Per		**Number of**		
Landing	6”-0” pit-run	0+00	N/A	landing	66	landings	1	66
Junctions	1 ½”-0” crushed	0+00	3	junction	22	junctions	1	22
Total Rock for Road Segment:								88
ROAD SEGMENT: 5B to 5C				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	5B to 5C		0+00 to 2+50		
				Volume (CY) Per		**Number of**		
Landing	6”-0” pit-run	2+50	N/A	landing	66	landings	1	66
Base Rock	4"-0" crushed	0+00 to 2+50	10	station	63	stations	2.5	158
Total Rock for Road Segment:								224
ROAD SEGMENT: 5D				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	5D		0+00		
				Volume (CY) Per		**Number of**		
Landing	6”-0” pit-run	0+00	N/A	landing	66	landings	1	66
Total Rock for Road Segment:								66

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT: I1 to I2				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size And Type**	**Location**	**Depth of Rock (inches)**	I1 to I2		0+00 to 197+50		
				Volume (CY) Per		**Number Of**		
Subgrade Leveling	¾"-0" crushed	2+30, 5+60, 12+20, 28+70, 43+40, 47+10	N/A	load	11	loads	6	66
Turnout Subgrade Improvement	4"-0" crushed	40+40, 61+30	N/A	TO	11	TO's	2	22
Surfacing	¾"-0" crushed	0+00 to 73+90	3	station	19	stations	73.9	1,404
Junctions	¾"-0" crushed	24+60, 49+20, 50+00, 63+60, 73+90	3	junction	11	junctions	5	55
Turnouts	¾"-0" crushed	10+50, 16+20, 27+30, 34+20, 37+50, 43+40, 52+20, 61+90, 66+30, 70+80	3	TO	11	TO's	10	110
Subgrade Leveling	1 ½"-0" crushed	76+60, 140+70, 163+10, 165+90, 170+00, 196+80	N/A	load	11	loads	6	66
Surfacing	1 ½"-0" crushed	73+90 to 197+50	3	station	19	stations	123.6	2,348
Junctions	1 ½"-0" crushed	103+40, 105+20, 133+90, 155+70, 160+80, 179+80	3	junction	11	junctions	6	66
Turnouts	1 ½"-0" crushed	78+50, 86+00, 89+90, 96+80, 110+10, 114+80, 127+50, 154+20, 164+40, 170+20, 173+20, 184+40, 191+30	3	TO	11	TO's	13	143
Culvert Bedding/ Backfill	1 ½"-0" crushed	7+10, 12+80, 32+80, 39+40, 51+70, 80+30, 107+90, 176+20	N/A	culvert	11	culverts	8	88
Additional Culvert Bedding/ Backfill	1 ½"-0" crushed	176+20	N/A	load	11	loads	3	33
Culvert Dissipator Rock	24"-6" riprap	7+10, 32+80, 80+30	N/A	culvert	11	culverts	3	33
Total Rock for Road Segment:			I1 to I2					4,434

ROAD SEGMENT: I3 to I4				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	I3 to I4		0+00 to 55+50		
				Volume (CY) Per		**Number of**		
Subgrade Leveling	1 1/2"-0" crushed	8+40, 15+20, 24+00, 41+16, 53+90	N/A	load	11	loads	5	55
Turnout Subgrade Improvement	4"-0" crushed	5+30	N/A	TO	11	TO's	1	11
Surfacing	1 1/2"-0" crushed	0+00 to 55+50	3	station	19	stations	55.50	1,055

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT: I3 to I4 (con't.)				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	I3 to I4		0+00 to 55+50		
				Volume (CY) Per		**Number Of**		
Junctions	1 1/2"-0" crushed	4+70, 7+70, 44+50, 46+00	3	junction	11	junctions	4	44
Turnouts	1 1/2"-0" crushed	5+30, 14+90, 24+10, 29+20, 39+10, 51+10	N/A	TO	11	TO's	6	66
Total Rock for Road Segment:			I3 to I4					1,231
ROAD SEGMENT: I5 to I6				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	I5 to I6		0+00 to 95+10		
				Volume (CY) Per		**Number of**		
Subgrade Leveling	1 1/2"-0" crushed	9+20, 14+30, 89+10, 90+60	N/A	load	11	loads	4	44
Turnout Subgrade Improvement	4"-0" crushed	7+50, 16+50, 43+50, 73+50,	N/A	TO	11	TO's	4	44
Surfacing	1 1/2"-0" crushed	0+00 to 95+10	2	station	13	stations	95.1	1,236
Junctions	1 1/2"-0" crushed	1+50, 88+30	2	junction	11	junctions	2	22
Turnouts	1 1/2"-0" crushed	7+50, 11+00, 16+50, 18+80, 27+50, 31+60, 36+70, 43+50, 48+75, 54+60, 57+10, 60+30, 73+50, 82+80	2	TO	11	TO's	14	154
Culvert Bedding/Backfill	1 1/2"-0" crushed	87+50	N/A	culvert	11	culverts	1	11
Total Rock for Road Segment:			I5 to I6					1,511
ROAD SEGMENT: I7 to I8				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	I7 to I8		0+00 to 19+00		
				Volume (CY) Per		**Number of**		
Subgrade Leveling	4"-0" crushed	2+75, 8+60	N/A	load	11	loads	2	22
Surfacing	4"-0" crushed	0+00 to 19+00	4	station	25	stations	19.0	475
Junctions	4"-0" crushed	6+50	4	junction	11	junctions	1	11
Total Rock for Road Segment:			I7 to I8					508
ROAD SEGMENT: I9 to I10				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	I9 to I10		0+00 to 4+10		
				Volume (CY) Per		**Number of**		
Subgrade Leveling	4"-0" crushed	0+70	N/A	load	11	loads	1	11
Surfacing	4"-0" crushed	0+00 to 4+10	4	station	25	stations	4.2	105
Total Rock for Road Segment:			I9 to I10					116

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT: I11 to I12				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	I11 to I12		0+00 to 17+60		
				Volume (CY) Per		**Number of**		
Subgrade Leveling	4"-0" crushed	12+60	N/A	load	11	loads	1	11
Turnout Subgrade Improvement	4"-0" crushed	12+80	N/A	TO	11	TO's	1	11
Surfacing	4"-0" crushed	0+00 to 17+60	4	station	25	stations	17.6	440
Junctions	4"-0" crushed	0+90, 1+60,	4	junction	11	junctions	2	22
Turnouts	4"-0" crushed	3+50, 9+50, 12+80, 14+70	4	TO	11	TO's	4	44
Culvert Bedding/ Backfill	1 1/2"-0" crushed	10+90, 15+60	N/A	culvert	11	culverts	2	22
Total Rock for Road Segment:			I11 to I12					550
ROAD SEGMENT: I13 to I14				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	I13 to I14		0+00 to 6+70		
				Volume (CY) Per		**Number Of**		
Subgrade Leveling	4"-0" crushed	4+30	N/A	load	11	loads	1	11
Surfacing	4"-0" crushed	0+00 to 6+70	4	station	25	stations	6.7	168
Total Rock for Road Segment:			I13 to I14					179
ROAD SEGMENT: I15 to I16				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	I15 to I16		0+00 to 27+80		
				Volume (CY) Per		**Number of**		
Subgrade Leveling	4"-0" crushed	5+90, 26+50	N/A	load	11	loads	2	22
Surfacing	4"-0" crushed	0+00 to 27+80	4	station	25	stations	27.8	695
Turnouts	4"-0" crushed	16+16, 20+50, 22+80, 24+00	4	TO	11	TO's	4	44
Total Rock for Road Segment:			I15 to I16					761
ROAD SEGMENT: I17 to I18				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	I17 to I18		0+00 to 13+70		
				Volume (CY) Per		**Number of**		
Surfacing	4"-0" crushed	0+00 to 13+70	4	station	25	stations	13.7	343
Turnouts	4"-0" crushed	8+90	4	TO	11	TO's	1	11
Total Rock for Road Segment:			I17 to I18					354

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT: I19 to I20				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	I19 to I20		0+00 to 25+00		
				Volume (CY) Per		**Number of**		
Base Rock	4"-0" crushed	0+00 to 25+00	8	station	50	stations	25.00	1,250
Subgrade Leveling	4"-0" crushed		N/A	N/A		N/A		165
Junctions	4"-0" crushed	0+00, 5+30	8	junction	22	junctions	2	44
Turnouts	4"-0" crushed	0+75, 5+70, 12+80, 15+25, 19+40	12	TO	33	TO's	5	165
Realignment Base	4"-0" crushed	15+00 to 20+50	8	station	50	stations	6	275
Turnaround	4"-0" crushed	24+70	8	TA	33	TA	1	33
Bedding and Backfill	1 1/2"-0" crushed	0+40, 3+15, 5+30, 6+40, 9+00, 12+25, 16+80, 20+30, 22+75	N/A	N/A		N/A		264
Junctions	1 1/2"-0" crushed	0+00, 5+30	3	junction	22	junctions	2	44
Rock Ditch Filter	24"-6" riprap	15+00 to 20+50	N/A	N/A		N/A		22
Fill Armor	24"-6" riprap	0+40	N/A	N/A		N/A		88
Dissipator	24"-6' riprap	20+30	N/A	dissipator	22	dissipators	1	22
Total Rock for Road Segment:			I19 to I20					2,372
ROAD SEGMENT: I21 to I22				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	I21 to I22		0+00 to 9+70		
				Volume (CY) Per		**Number Of**		
Base Rock	4"-0" crushed	0+00 to 9+70	8	station	50	stations	9.70	485
Subgrade Leveling	4"-0" crushed		8	N/A		N/A		55
Junctions	4"-0" crushed	0+00	8	junction	55	junctions	1.00	55
Turnouts	4"-0" crushed	0+80, 3+70, 7+25	12	TO	33	stations	3.00	99
Realignment Base	4"-0" crushed	2+60 to 5+00	8	station	50	stations	2.40	120
Turnaround	4"-0" crushed	9+70	8	TA	33	TA	1.00	33
Bedding and Backfill	1 1/2"-0" crushed	2+60, 5+00, 6+25	N/A	N/A		N/A		66
Fill Armor	24"-6" riprap	2+60, 5+00	N/A	N/A		N/A		99
Dissipator	24"-6' riprap	2+60, 5+00, 6+25	N/A	dissipator	22	dissipators	3	66
Total Rock for Road Segment:			I21 to I22					1,078

EXHIBIT D

ROAD SURFACING

ROAD SEGMENT: I23 to I24				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	I23 to I24		0+00 to 10+00		
				Volume (CY) Per		**Number of**		
Surfacing	4"-0" Crushed	0+00 to 10+00	4	station	25	stations	10.0	250
Realignment Surfacing	4"-0" Crushed	0+00	4	station	25	stations	2.0	50
Realignment Base	4"-0" Crushed	0+00	10	station	63	stations	1.0	63
Culvert Bedding/Backfill	1 1/2"-0" Crushed	5+30	N/A	culvert	11	culverts	1	11
Total Rock for Road Segment:				I23 to I24				374
ROAD SEGMENT: I25 to I26				**POINT TO POINT**		**Sta. to Sta.**		**TOTAL VOLUME (CY)**
Application	**Rock Size and Type**	**Location**	**Depth of Rock (inches)**	I25 to I26		0+00 to 20+00		
				Volume (CY) Per		**Number Of**		
Subgrade Leveling	4"-0" Crushed	0+00 to 20+00	N/A	load	11	loads	10	110
Total Rock for Road Segment:				I25 to I26				110

ROCK TOTALS (CY)	**24"-6"**	**6"-0”**	**4"-0”**	**1½"-0”**	**3/4"-0”**
21,579	498	1,320	11,149	6,977	1,635

Roads shall be uniformly graded, shaped and approved by STATE prior to rocking.

EXHIBIT D

ROCK ACCOUNTABILITY

PURCHASER shall obtain subgrade approval from STATE prior to rocking. Rocking shall be limited to periods when weather conditions are acceptable to STATE and when sediment will not enter streams. Additional surfacing needed because of construction season or construction practice is not included in the preceding ROAD SURFACING table, and shall be furnished at PURCHASER expense.

Rock accountability shall be determined by the following methods, as directed by STATE. STATE shall be given 24 hours' notice prior to rocking.

Rock Checking. All rock spreading shall be done only when a STATE representative is present. STATE shall issue a receipt for each load delivered, and rock shall be measured without allowance for shrinkage or shakedown during hauling. Total truck measure volume for each road segment shall be as shown on Exhibit D. Deliver at least 600 cubic yards per 8-hour shift, unless otherwise approved by STATE. A penalty of $10 for each 10 cubic yards which are not delivered during a single shift shall be billed, and payment shall be required prior to final acceptance of the project by STATE.

Depth Measurement. Rock shall be spread and compacted according to the depths specified in Exhibit D. Truck measure volumes are given, but shall not limit the amount of rock spread.

Depth shall be determined in the most compacted area of the surface cross section. The depth of compacted aggregates shall not vary more than 1 inch from the depth specified in the “Road Surfacing” table in Exhibit D. The average depth for each road segment shall be the specified depth or greater. If additional rock is required because of insufficient depth, the locations and volumes to be added shall be determined by STATE.

Load Records. Notify STATE before spreading the rock and maintain a record of all rock delivered for spreading. Make the record available for STATE inspection. A report listing the amount of rock delivered the prior month must be submitted no later than the 15th of each month.

EXHIBIT D

COMPACTION AND PROCESSING REQUIREMENTS

Moisture Content: Compaction must take place when moisture content of the materials being compacted is favorable for effective compaction as determined by STATE.

Compaction Pass: A pass is defined as traveling a road section forward and then backward over that same section.

Subgrade. Subgrade surfaces of the road segments listed below shall be graded and compacted prior to rocking. Compaction shall be accomplished by traveling all surfaces from shoulder to shoulder until the surface is smooth and hard and visible deformation ceases. At least 3 passes shall be made over the entire width and length of the road. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

Subgrade shall be crowned at 4 to 6 percent as specified in the "Forest Roads Specifications" table in Exhibit D.

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
All road segments that require rock surfacing.	1

Fills. Embankments and fills shall be placed in (approximately) horizontal layers not more than 8 inches in depth. Each layer shall be separately, and thoroughly, compacted. Compaction equipment shall be operated over the entire width of each layer until visible deformation of the layers ceases. At least 3 passes shall be made over the entire width and length of each layer.

Placing individual rocks or boulders with more depth than the allowed layer thickness shall be permitted, provided the embankment will accommodate them. Such rocks and boulders shall be at least 6 inches below the subgrade. They shall be carefully distributed and the voids filled with finer material, forming a dense and compacted mass. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
All road segments.	1, 2, or 3; and 4

EXHIBIT D

COMPACTION AND PROCESSING REQUIREMENTS

Crushed Rock. The rock shall be uniformly mixed and spread in layers on the approved roadbed. Each layer of crushed rock shall be moistened or dried to uniform moisture content suitable for maximum compaction and compacted in layers not to exceed 6 inches in depth. When more than 1 layer is required, each shall be shaped and compacted before the succeeding layer is placed. Any irregularities or depressions that develop during compaction of the top layer shall be corrected by loosening the material at these places and adding or removing material until the surface is smooth and uniform. Each layer shall be compacted with a minimum of 3 passes over the entire width and length of the road until the surface is smooth and hard and visible deformation ceases. Compaction shall be accomplished by using one or more of the approved equipment options listed below:

Rock shall be compacted and processed during the same project period it is spread, unless otherwise approved in writing by STATE.

Rock shall be crowned at 4 to 6 percent as specified in the “Forest Roads Specifications” table in Exhibit D.

ROAD SEGMENT	COMPACTION EQUIPMENT OPTIONS
All road segments requiring crushed rock surface.	1

COMPACTION EQUIPMENT OPTIONS

(1) Vibratory Rollers. The drum shall have a smooth surface, a diameter not less than 48 inches, a width not less than 58 inches, and a turning radius of 15 feet or less. Vibration frequency shall be regulated in steps to 1400, 1500, and 1600 VPM, corresponding to engine speeds of 1575, 1690, and 1800 RPM. The centrifugal force developed shall be 7 tons at 1600 VPM. It shall be activated by a power unit of not less than 25 horsepower. The vibratory roller shall be self-propelled and operated at speeds ranging from 0.9 miles to 1.8 miles per hour, as directed by STATE.

(2) Rubber-Tired Skidders. A rubber-tired skidder weighing a minimum of 20,000 pounds shall be operated over the fill layers so that the entire layered surface comes in contact with the tires. Skidders with oversized tires (high flotation) are not acceptable for compaction.

(3) Tampingfoot Compactors. Tampingfoot compactors shall exert a minimum pressure of 250 pounds per square inch on the ground area in contact with the tamping feet. The compactor shall cover a minimum width of 60 inches per pass and weigh a minimum of 16,000 pounds.

(4) Vibratory Hand-Operated or Backhoe-Mounted Tamper. Vibratory hand-held or hydraulic tampers shall be used for compaction of backfill materials around culverts (and/or bridge approach embankment materials around abutments). The tamper shoe dimensions shall be a minimum of 10" X 13" and capable of a centrifugal force of 2,250 pounds.

EXHIBIT E

CULVERT SPECIFICATIONS

All culvert materials shall be furnished and installed by PURCHASER, unless otherwise specified in the Contract.

Culverts shall be constructed of corrugated double-walled polyethylene, corrugated aluminized (Type 2) steel, or corrugated galvanized steel.

Polyethylene culverts shall be double-walled and meet the requirements of AASHTO M-294-06, Type S Culvert.

Aluminized (Type 2) steel culverts shall meet the requirements of AASHTO M-36-03[1].

Galvanized steel culverts shall meet the requirements of AASHTO M-36-03[1].

Polyethylene culverts shall not be used where required culvert diameter is over 24 inches.

Polyethylene joints shall be made with split couplings, corrugated to engage the culvert corrugations, and shall engage a minimum of 4 corrugations, 2 on each side of the culvert joint.

Culverts shall be located according to the alignment and grade as shown on the Plan and Profile, and/or as staked in the field, or as specified in special instructions.

The STATE Representative shall determine final culvert locations and stake the locations in the field prior to installation.

Cross drain culverts shall be installed at a slope steeper than the incoming ditch grade, but not less than 3 percent or greater than 10 percent.

The foundation and trench walls for all culverts shall be free from logs, stumps, limbs, stones, and other objects which would dent or damage the culvert. The culvert trench shall be excavated 3 culvert diameters wide to permit compaction and working on each side of the culvert. Tamping shall be done in 6-inch lifts, 1 culvert diameter each side of the culvert. Bedrock shall be excavated as required to provide a uniform foundation for the full length of the culvert.

A bedding of crushed rock, or rock crusher reject as specified shall be placed to provide a wide band of support and to transmit the load from above evenly over the entire length of the culvert for all culverts.

Backfill shall consist of, crushed rock, rock crusher reject, or job-excavated soil free of stumps, limbs, rocks, or other objects which would damage the culvert.

Transporting of the culvert shall be done carefully. Dragging or allowing free fall from trucks or into trenches shall not be permitted.

EXHIBIT E

CULVERT SPECIFICATIONS

Minimum height of cover over top of culvert to subgrade when road is to be rocked shall be as follows: 12" for culverts 18” to 36” and add 6" for roads which will not be rocked. Minimum vertical cover for other designs shall be as specified by STATE.

Lengths of individual culvert sections shall be not less than 10 feet, unless otherwise provided for in special instructions.

The ends of each culvert shall be free of logs and debris which would restrict the free flow of water.

The intake end of relief culverts shall be provided with a sediment catching basin 3 feet in diameter at the bottom. The outlet end of any culvert which would allow water to erode embankment soil shall be provided with an energy dissipator. Construct lead-off ditches away from culvert outlets where the slope gradients restrict the free flow of water.

Compaction by tamping utilizing a Vibratory Hand-Operated or Backhoe-Mounted Tamper is required for all culverts.

All culverts scheduled for replacement shall become property of the PURCHASER and be removed from STATE land and hauled to an approved refuse site in the same project period in which replacement occurred.

The intake ends of culverts in fills less than 3 feet to the top of the culvert shall be marked by driving white fiberglass posts within 6 inches of the downgrade side. Posts shall be a minimum of 6 feet long and 2½ inches wide, with the spade driven 2 feet into the ground.

A manufacturer's certification that the product was manufactured, tested, and supplied in accordance with this specification shall be furnished to STATE upon request.

Following are the minimum standard gauges for steel culvert and coupling bands. Some culverts may require different gauges and may be found in the culvert listing.

	Steel Culvert	Thickness			Band Widths (")	
Dia.	Gauge	Uncoated	Coated	Band Gauges	Annular	Helical
12-15	16	(0.0598")	(0.064”)	16	7	12
18-24	16	(0.0598")	(0.064”)	16	12	12
30-36	16	(0.0598")	(0.064”)	16	12	12

EXHIBIT E

CULVERT LIST

CULVERT NO.	DIAMETER (Inches)	LENGTH (Feet)	MATERIAL TYPE	ROAD SEGMENT POINT TO POINT	STATION
1	18	40	CPP	I1 to I2	7+10
2	18	40	CPP	I1 to I2	12+80
3	18	30	CPP	I1 to I2	32+80
4	18	40	CPP	I1 to I2	39+40
5	18	40	CPP	I1 to I2	51+70
6	18	40	CPP	I1 to I2	80+30
7	18	40	CPP	I1 to I2	107+90
8	18	40	CPP	I1 to I2	176+20
9	18	30	CPP	I5 to I6	87+50
10	18	30	CPP	I11 to I12	10+90
11	18	30	CPP	I11 to I12	15+60
12	24	70	CPP	I19 to I20	0+40
13	18	30	CPP	I19 to I20	3+15
14	18	30	CPP	I19 to I20	5+30
15	18	30	CPP	I19 to I20	6+40
16	18	40	CPP	I19 to I20	9+00
17	18	30	CPP	I19 to I20	12+25
18	18	30	CPP	I19 to I20	20+30
19	18	30	CPP	I19 to I20	22+75
20	18	40	CPP	I21 to I22	2+60
21	18	40	CPP	I21 to I22	5+00
22*	18	30	CPP	I21 to I22	5+30
23	18	30	CPP	I23 to I24	5+30
24	18	30	CPP	A to B	1+00
25	18	30	CPP	A to B	3+80
26	18	40	CPP	A to B	11+80
27	18	30	CPP	A to B	14+40
28	18	40	CPP	A to B	16+25
29	18	30	CPP	A to B	19+00
30	18	30	CPP	C to D	0+00
31	18	30	CPP	2A to 2B	7+00
32	18	30	CPP	2A to 2B	9+00
33	18	30	CPP	2A to 2B	13+75
34	18	30	CPP	2C to 2D	2+00
35	18	30	CPP	3A to 3B	1+80
36	18	30	CPP	4F to 4G	1+00
37	18	40	CPP	4H to 4I	0+00
38	18	40	CPP	4J to 4K	0+00

CPP = Corrugated Polyethylene Pipe
* = Ditch Disconnect Culvert

EXHIBIT F

ROCK QUARRY DEVELOPMENT AND USE

1. PURCHASER shall prepare a written development plan for the quarry area. The plan shall be submitted to STATE for approval prior to conducting any operation in quarry area. The plan shall include, but not be limited to:
   (a) Location of benches and roads to benches.
   (b) Disposal site for woody debris, overburden and reject material.
   (c) Time lines for rock quarry use.
   (d) Erosion Control measures.

2. PURCHASER shall schedule and coordinate quarry and stockpile usage with other existing or planned activity requiring quarry or stockpile usage. PURCHASER shall notify STATE 5 days prior to the start of quarry development activities.

3. The quarry site shall be left in a condition free from overburden and debris. Access roads to the quarry, and the quarry floor, shall be cleared at the termination of use. Overburden shall be removed for a distance of 20 feet beyond the developed rock source.

4. All overburden and reject material shall be hauled to the designated waste area as directed by STATE. Apply seed and mulch to any waste areas in accordance with Exhibit M.

5. PURCHASER shall conduct the operations relative to the disposal of waste material in such manner that sediment, rock, or debris shall not be washed, conveyed, or otherwise deposited in any stream.

6. At the Northrup Quarry, clear all material within the rock source area identified in the written development plan. All woody debris, including stumps and Slash shall be piled and burned as directed by STATE. PURCHASER shall obtain a FPA Burn Permit prior to debris disposal for the Northrup Quarry.

7. Controlled blasting techniques shall be utilized for any blasting operations, and shall be accomplished using timing devices, delayed charges, low intensity shots, or other suitable means to contain as much material as possible within the quarry development area. PURCHASER shall maintain a comprehensive blasting log that contains all pertinent data for all blasting operations. The blasting log shall be submitted to the STATE after the completion of all blasting activity. The blasting log is intended for STATE record keeping purposes only. Blasting shall not be allowed from April 1, through September 15, unless otherwise approved in writing by STATE.

8. Benches shall be maintained/constructed at intervals of 40 feet or less in height and shall be a minimum of 20 feet in width. Any gravel or talus slopes shall be left with a working face at an angle of 60 percent or less. There shall be a minimum of one bench with an access road to it. Said bench shall be easily accessible with tractors.

9. Quarry face shall be developed in a uniform manner. All quarry backslopes shall be left in a stable condition.

10. In the event that all available rock is utilized in the rock source area prior to project completion, PURCHASER shall schedule an on-site meeting with STATE to modify the quarry development plan to either utilize rock available in the floor, or to clear additional ground on the ridgetop. Any modification to the quarry development plan shall be approved by STATE.

11. Oversized material that is produced or encountered during development shall be broken down and utilized for crushing.

12. The quarry floor shall be developed to provide for drainage away from the quarry. All quarry and stockpile site drainage ditches shall be maintained. Quarry access roads shall be cleared and blocked upon completion of quarry use as directed by STATE.

13. Proper winterization and storm-water control measures such as waterbarring, drainage, utilization of filter bales, mulching and/or blocking access shall be constructed and maintained to protect the watershed and Project Work, as directed by STATE.

EXHIBIT F

ROCK QUARRY DEVELOPMENT AND USE

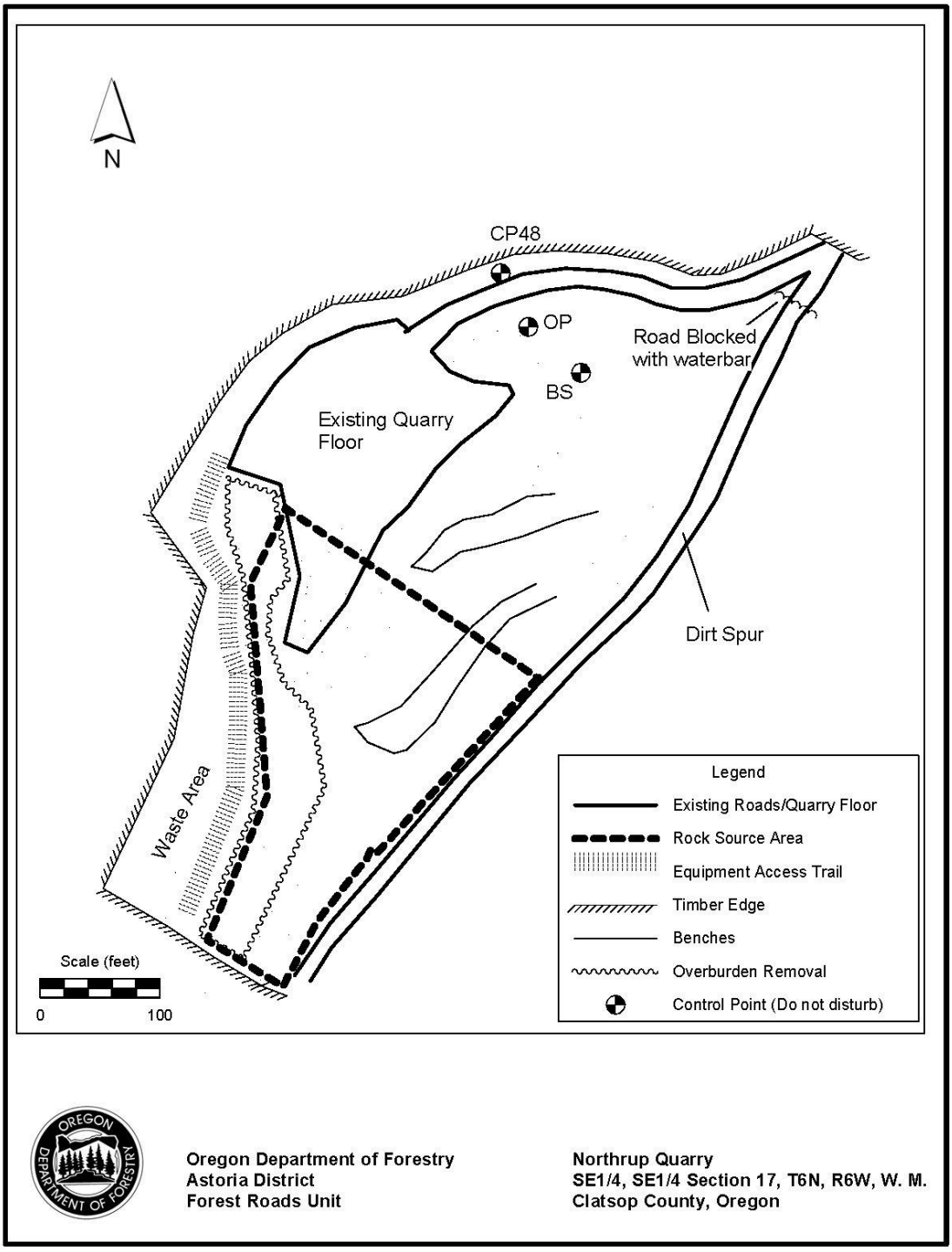


EXHIBIT G

CRUSHED ROCK SPECIFICATIONS

Materials. The material shall be fragments of rock crushed to the required size. The material shall be free from vegetation and lumps of clay. STATE may require screening and/or rejecting of materials utilized for production of crushed rock for the purpose of removing excess fine material. Excess fines are present, when greater than 5 percent of a total rock sample weight, passes a #200 sieve, or through visual inspection by STATE. Rock crushing shall be limited to periods when weather conditions are acceptable to STATE.

Quality and Grading Requirements. The base material shall be rock. River gravel shall not be used. Crushed rock shall meet the grading requirements that follow.

Rock strength: for rock not produced from STATE quarries, the material from which base material is produced or manufactured shall meet the following test requirement for Aggregate Hardness - Test Method AASHTO T 96, 35 percent Maximum.

For the purpose of crushing rock specified under the projects in Section 2610, “Project Work,” PURCHASER shall utilize a three-stage rock crusher, or equivalent, unless otherwise approved by STATE.

The rock crusher shall be calibrated to produce rock as specified in this exhibit. Prior to the commencement of production crushing, PURCHASER shall sample, test, and provide rock test results meeting STATE specifications. STATE may then sample and test crushed rock for approval to proceed. PURCHASER shall take one sample of each 2,000 cubic yards of crushed rock material produced thereafter, using approved AASHTO sampling procedures. PURCHASER shall submit samples to a certified laboratory or shall perform testing for gradation requirements using AASHTO T 11 and AASHTO T 27 testing procedures. Prior to testing, each sample shall be split, making one-half of the sample, with proper identification, available for testing by STATE. Each sample and the results of PURCHASER testing shall be made available to STATE within 24 hours of sampling. Any rock crushed prior to STATE approval to proceed shall not be credited to the required rock quantity. Any subsequent rock tests not meeting STATE specifications shall be reason for rejection of that portion of crushed rock produced after that test and shall not be credited to the required rock quantity. STATE may sample the crushed rock at any time during the operation. Results of STATE’s tests shall prevail over all other test results.

EXHIBIT G

CRUSHED ROCK SPECIFICATIONS

Grading Requirements

For 3/4"-0”	Passing	1" sieve	100%
	Passing	3/4" sieve	90-100%
	Passing	3/8" sieve	55-75%
	Passing	1/4" sieve	40-60%
	Passing	No. 10 sieve	20-40%
	Passing	No. 40 sieve	8-16%
For 1½"-0”	Passing	2" sieve	100%
	Passing	1½" sieve	90-100%
	Passing	3/4" sieve	60-90%
	Passing	1/4" sieve	30-50%
	Passing	No. 10 sieve	15-30%
	Passing	No. 40 sieve	7-15%
For 4"-0"	Passing	5” sieve	100%
	Passing	4" sieve	90-100%
	Passing	2" sieve	60-90%
	Passing	3/4" sieve	35-60%
	Passing	1/4" sieve	15-35%
	Passing	No. 10 sieve	0-20%

The referenced sieve shall have square openings as set forth in AASHTO M 92, Woven Cloth Series. The determinations of size and gradation shall be as set forth in AASHTO T 27.

PIT-RUN AND RIPRAP ROCK SPECIFICATIONS

For 6"-0” Pit-Run	Passing	10" sieve	100%
	Passing	6" sieve	60-85%
	Passing	3" sieve	30-50%
	Passing	1/4" sieve	0-20%

For 24"-6" Riprap A minimum of 50 percent of the material shall measure a minimum of 24 inches, measured in one dimension. Material shall be clean, well graded, and free of 2"-0" fines.

Control of gradation shall be by visual inspection by STATE.

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EXHIBIT H

GEOTEXTILE SPECIFICATIONS

GEOTEXTILE SPECIFICATIONS - shall be woven geotextile fabric designed for forest road subgrade surfacing purposes and shall meet or exceed the following requirements, unless otherwise approved in writing by STATE:

1.	Grab Tensile	300 lbs.	ASTM D4623
2.	Puncture strength	110 lbs.	ASTM D4833
3.	Mullen Burst	600 lbs.	ASTM D3786
4.	Width – 12.5 feet		

INSTALLATION REQUIREMENTS - fabric shall be installed according to the following requirements:

1. Subgrade surface shall be leveled and smoothed to remove humps and depressions which exceed 6 inches in height and depth. Small pieces of woody debris shall be removed. Light vegetation (grass, weeds, leaves, and fine woody debris) may be left in place.

2. Fabric shall be installed directly on the prepared surface. Longitudinal and traverse joints shall be overlapped at least 3 feet.

3. Surfacing course material shall be placed to the designated thickness in one lift and spread in the direction of fabric overlap. Hauling and spreading equipment shall not be operated on the fabric until the total thickness of surfacing course material is placed.

4. Torn, punctured, or separated sections of the fabric shall be repaired by installing a fabric patch over the break prior to placing the surfacing course material. The patch shall be at least 4 feet larger in horizontal dimensions than the break to be repaired.

5. Fabric failures resulting after rock placement and as evidenced by subgrade pumping or roadbed distortion shall be corrected. Correction measures shall consist of: (1) removing at least three-quarters the depth of surfacing course material in the affected area, (2) placing a fabric patch over the affected area with a minimum 4-foot overlap around the circumference of the area, and (3) replacing enough rock to cover the patch and blend in with the rest of the road.

6. Should STATE determine that installation of woven fabric on roads or portions of roads is not necessary, PURCHASER shall deliver an equivalent amount of woven road fabric to STATE.

7. Fabric locations:

Road Segment	Location
A to B	9+60 to 22+40

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EXHIBIT I

TYPICAL EMBEDDED ENERGY DISSIPATOR

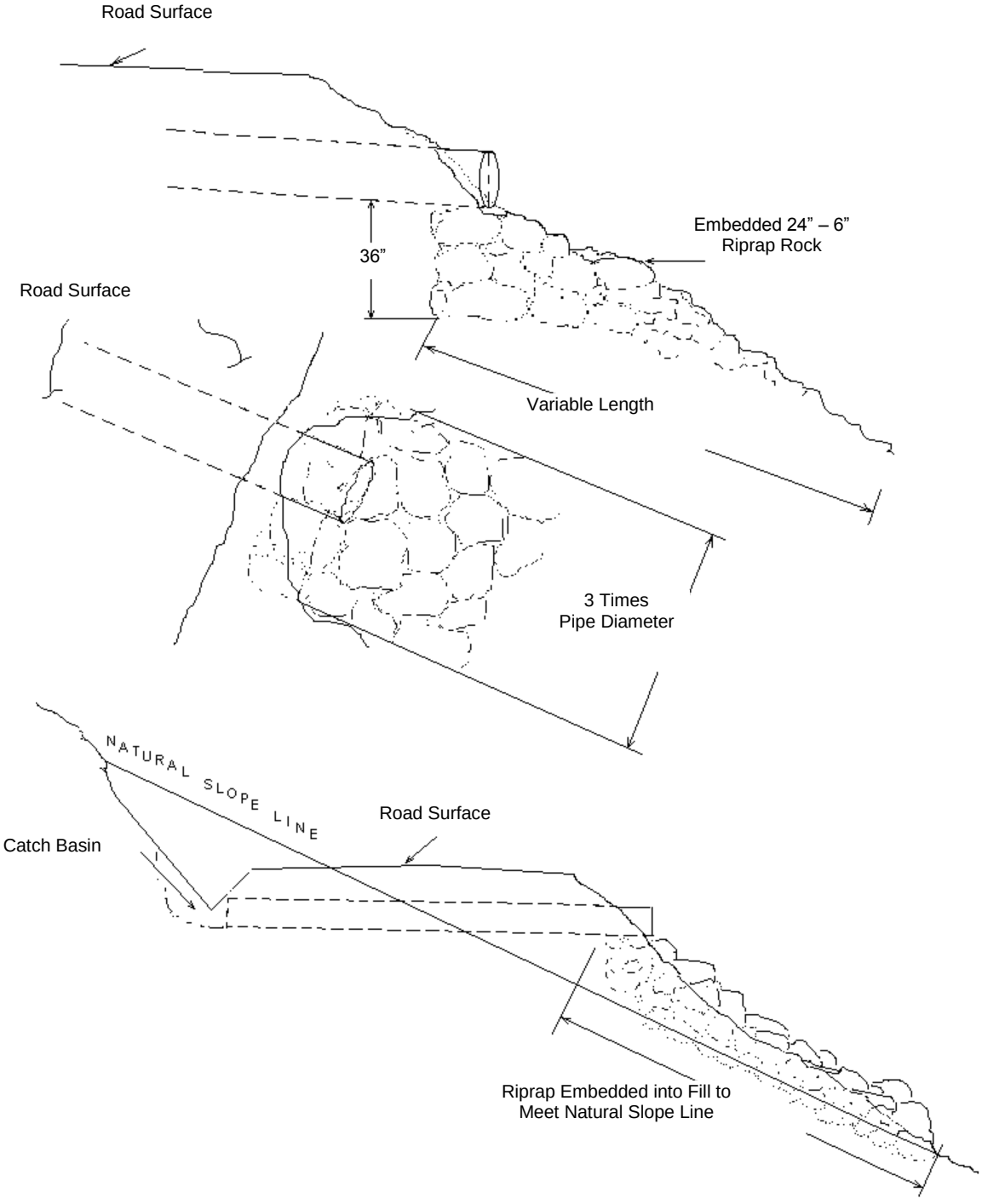

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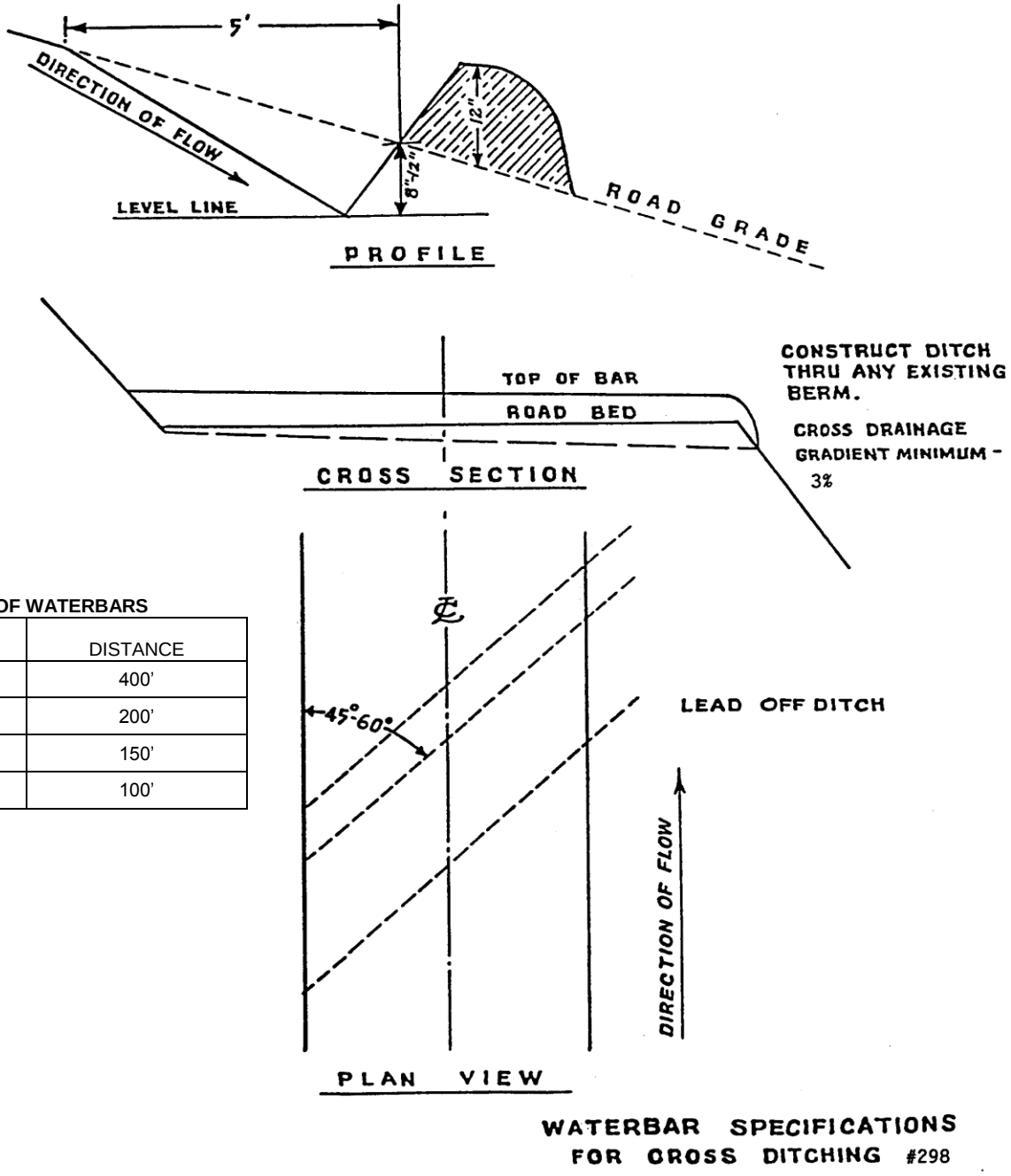
EXHIBIT J

WATERBAR SPECIFICATIONS



SPACING OF WATERBARS

ROAD GRADE	DISTANCE
≤ 5%	400'
6-10%	200'
11-15%	150'
16-20% or greater	100'

EXHIBIT K

ROAD VACATING SPECIFICATIONS

(1) Tree Removal. Cut or remove all trees necessary to access the project area and to facilitate vacating operations, as directed by STATE.

(2) Fill Removal and Stream Channel Development. Remove fills to the natural stream course level(s). Stream channel(s) shall be excavated/developed to specified widths. Developed stream banks shall be sloped at natural contours or no steeper than 1 ½:1, as directed by STATE.

(3) Culvert Removal. Remove drainage structures and culverts. Removed culverts shall be hauled to an approved refuse site off of STATE land.

(4) Outslope Road. Outslope road to restore natural contours or establish a minimum of 10% slope for drainage at designated locations. If the road grade exceeds 10%, outslope of the road shall be 2% greater than the road grade.

(5) Sidecast Pullback. Excavate/pullback previously sidecast materials below the road at designated locations. Developed slopes shall be pulled back to a 1 ½:1 slope or to natural ground contours. The beginning position for sidecast pullback shall be no greater than 20 feet vertical distance from the existing road surface, in accordance with Exhibit L.

(6) Use of Excavated Materials.

(A) Fill Excavation and Sidecast Pullback. Excavated materials shall be placed on the interior (cut) side of the road, and utilized to restore the cutslope to natural contours, or to a minimum 10 percent outsloped surface for drainage. Any excess material will be hauled to a designated waste area, as directed by STATE.

(B) Woody Debris Shall be placed on the surface of pullback/fill material.

(C) Block Roads. Use excavated material from fill removals to block roads from vehicle access, as directed by STATE.

(7) Erosion Control. Erosion control shall be completed in a progressive manner. Grass seed and straw mulch shall be applied for every 500 feet of road vacated, prior to continuing work.

All excavated material and bare soil shall utilize grass seed and straw mulch approved by STATE and in accordance with the specifications in Exhibit M. Applied mulch shall be a minimum of 2 inches deep and provide a uniform cover.

(8) Construct Waterbars as directed by STATE. Construct waterbars according to the specifications in Exhibit J.

(9) Equipment. A minimum 1½ cubic-yard, track mounted excavator shall be used for all excavation, culvert removal, streambed preparation, road blocking, and waterbarring, unless otherwise approved in writing by STATE.

(10) Dry Conditions. All work shall be performed during dry conditions acceptable to STATE.

EXHIBIT K

ROAD VACATING SPECIFICATIONS

SPECIFIC INSTRUCTIONS\SPECIFICATIONS:

Segment	Station	Work Description:
V1		Construct waterbar before failure, as directed by STATE. Remove existing culvert. Pull back slopes along failure. Reestablish stream channel.
V2	0+00	Construct waterbar.
	1+60	Construct waterbar.
	2+00	Pull back slopes along failure, maintain existing road width left of failure. Waste area.
	2+40	Construct waterbar.
	4+15	Construct waterbar.
	5+10	Remove existing culvert. Pull back slopes along fill. Reestablish stream channel.
	7+30	Construct waterbar.
V3	9+00	Construct waterbar.
V4 to V5	0+00	Block road. Construct waterbar. Begin outsloping of road prism.
	0+30	Remove culvert and fill. Restore natural contours.
	1+00	Remove culvert and fill. Restore natural contours. Begin sidecast pullback. Pullback around and in between existing trees. Minimize tree removal. STATE will identify trees that need to be removed with pullback operations.
	2+60	End sidecast pullback. Construct waterbar.
	3+85 to 4+25	Remove culvert and fill. Restore natural contours.
	6+60	Begin sidecast pullback. Pullback around and in between existing trees. Minimize tree removal. STATE will identify trees that need to be removed with pullback operations.
	8+50	Protect survey monument. Stop pullback around survey monument. Resume pullback on other side of survey monument.
	9+25	Remove culvert and fill. Restore natural contours.
	11+00	Remove culvert and fill. Restore natural contours. End sidecast pullback.
	12+00	Point V5. Block road. End outsloping.

EXHIBIT K

ROAD VACATING SPECIFICATIONS

SPECIFIC INSTRUCTIONS\SPECIFICATIONS:

Segment	Station	Work Description:
V6 to V7	0+00	Block road. Begin sidecast pullback. Pullback around and in between existing trees. Minimize tree removal. STATE will identify trees that need to be removed with pullback operations. Begin outsloping of road prism.
	1+20	Remove culvert and fill. Restore natural contours.
	2+15	Remove road fill. Establish drainage.
	4+35	Construct waterbar.
	6+30	Construct waterbar.
	8+25	Remove culvert and fill. Restore natural contours.
	10+40	Remove culvert and fill. Restore natural contours.
	12+95	Remove culvert and fill. Restore natural contours.
	15+30	Remove culvert and fill. Restore natural contours.
	17+25	Remove road fill. Establish drainage.
	19+20	End sidecast pullback. End outsloping. Block road. Point V7.

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EXHIBIT L

TYPICAL CROSS SECTION VIEW OF ROAD VACATING SIDECAST PULLBACK

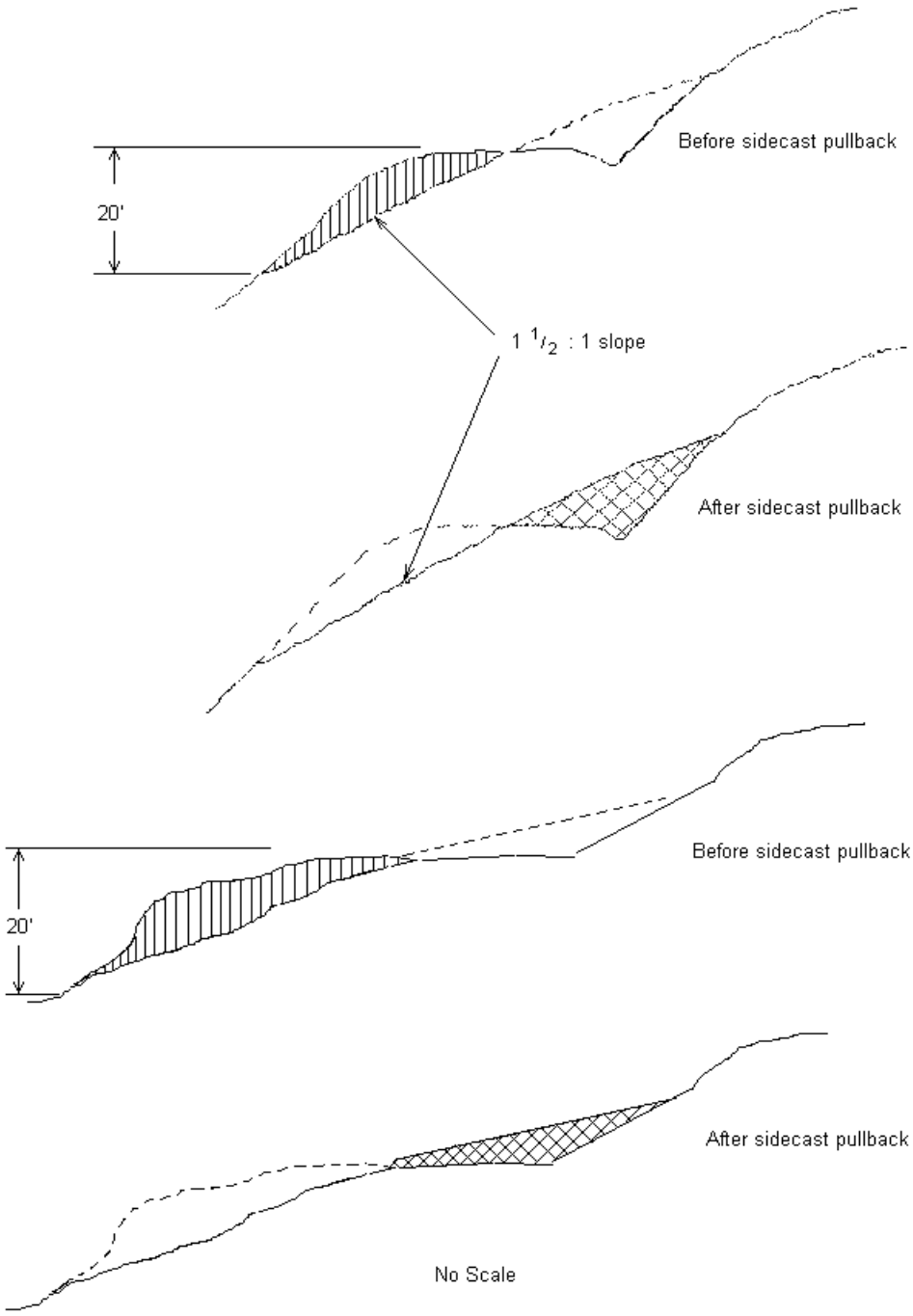

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EXHIBIT M

SEEDING AND MULCHING

This work shall consist of preparing seedbeds and furnishing and placing required seed, and straw mulch. Straw mulch shall consist of straw that is free of noxious weeds. Apply seed, and straw mulch to all waste areas, and bare soils resulting from Project Nos. 1, 2, 3 and 4.

Seeding Seasons. Seeding shall be performed only from March 1 through June 15 and August 15 through October 31. Seeding materials shall not be applied during windy weather or when the ground is excessively wet or frozen. Areas of disturbed soil shall be seeded by the end of the project period in which work was started.

APPLICATION METHODS FOR SEED

Dry Method. Mechanical seeders, seed drills, landscape seeders, cultipacker seeders, or other approved mechanical seeding equipment shall be used to apply the seed in the amounts and mixtures specified. Hand-operated seeding devices may be used when seed is applied in dry form.

APPLICATION RATES FOR SEED

The seed mixture listed below shall be applied at 100 lbs. per acre. The seed mixture shall be comprised of the following:

SPECIES	MIXTURE	PURE LIVE SEED	GERMINATION
Annual Rye	33%	95%	>90%
Orchard Grass	33%	95%	>90%
Perennial Rye	34%	95%	>90%

Mulching Period. Straw mulch shall be applied within 24 hours of spreading grass seed.

APPLICATION RATES FOR MULCH

Place straw mulch to a reasonably uniform thickness of 1½ to 2½ inches. This rate requires between 2 and 3 tons of dry mulch per acre.

Application Locations:

Road Segment	Location	Road Segment	Location
Waste Areas	As designated	V6 to V7	Bare soils
V1			
V2 to V3	2+20, 5+70		
V4 to V5	Bare soils		

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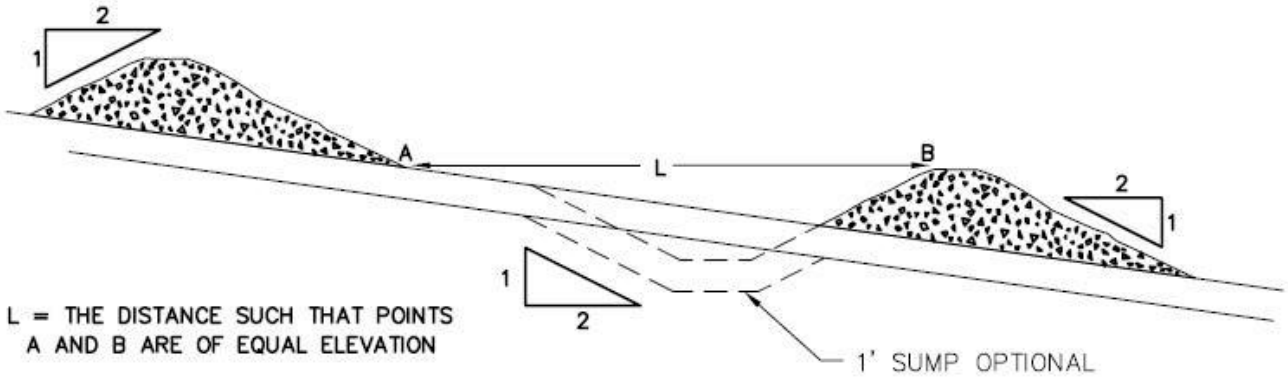
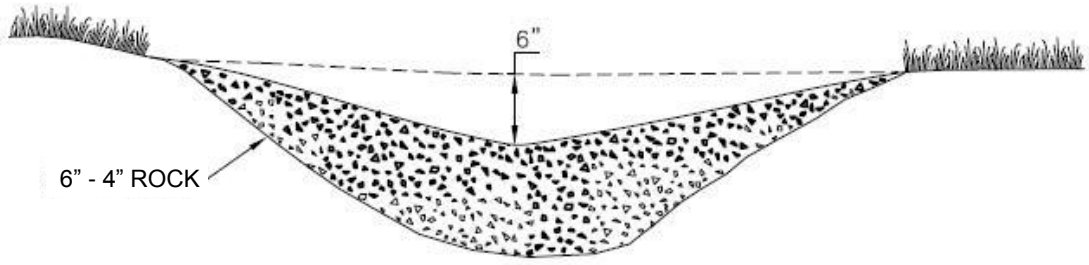
EXHIBIT N

TYPICAL CHECK DAM



SPACING BETWEEN CHECK DAMS



ROCK CHECK DAM

PART IV: OTHER INFORMATION

WRITTEN PLAN

STATUTORY WRITTEN PLAN

A **Statutory Written Plan** is required for any activities that will be within 100 feet of the following resource(s):

Stream Names: Unnamed tributary to Walker Creek, West Branch Mulak Creek, and Unnamed tributary to Crawford Creek.

Stream Classification: Unnamed tributary to Walker Creek-Small Type F, West Branch Mulak Creek-Medium Type F, and Unnamed tributary to Crawford Creek Small-Type F.

Riparian Management Area Width (each side of the stream):
Unnamed tributary to Walker Creek-Small Type F*:* Stream buffer distance on the west side of stream is 50 feet to 70 feet. The east side of the stream is outside the Timber Sale Area.
West Branch Mulak Creek-Medium Type F*:* Stream buffer distance on the west side of stream is 100 feet to 120 feet. The east side of the stream is outside the Timber Sale Area.
Unnamed tributary to Crawford Creek Small-Type F: End at the east boundary of the Timber Sale Area.

Statutory Written Plan required by:
ORS 527.670(3)(a) and OAR 629-605-0170(2) for an operation within 100 feet of a Type F or Type D stream.

Practices:
Along the above mentioned Type F streams that are adjacent to Areas 1 and 3, as well as all other perennial Type N streams not listed, the following practices are required under the timber sale contract:

- Cable corridors will utilize natural openings to the maximum extent possible.
- No trees will be felled within stream buffers (RMA's), except in cable corridors, and felled trees will be left in the RMA where felled.
- Trees adjacent to the stream buffers (RMA's) will be felled away from or parallel to the streams to prevent trees from entering the aquatic areas.
- No ground based logging equipment will be permitted within the RMA's.

It is anticipated that the only activity conducted within 100 feet of these Type F streams will be hanging logging lines through the riparian area. Logging lines may cross, but will not be lowered into the RMA's during yarding, except during rigging. During rigging the lines must be pulled out of the RMA's when changing corridors.

I, the undersigned, submit this written plan in compliance with the requirements in the Forest Practices Act regarding the operations conducted within 100 feet of Type F streams. I agree to the protection measures listed on this plan:

Submitted: _____ Date: _____
Purchaser/Operator Contract Representative

State Timber Sale Contract
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OREGON DEPARTMENT of FISH and WILDLIFE

FISH SCREENING PROGRAM

SMALL PUMP SCREEN SELF CERTIFICATION

The Oregon Water Resources Department in coordination and cooperation with the Oregon Department of Fish and Wildlife includes screen requirements on pumps to protect fish as a condition of many surface water and/or reservoir water right permits. This is done in accordance with ORS 537.153.

The Oregon Department of Fish and Wildlife does not usually inspect small pump screens at pumped diversions less than 225 GPM (Gallons per Minute), but furnishes the following fish screening criteria information to the water right permit tee:

Screen material open area must be at least 27% of the total wetted screen area.

Perforated plate: Openings shall not exceed 3/32 or 0.0938 inches (2.38 mm).
Mesh/Woven wire screen: Square openings shall not exceed 3/32 or 0.0938 inches (2.38mm) in the narrow direction, e.g., 3/32 inch x 3/32 inch open mesh.
Profile bar screen/Wedge wire: Openings shall not exceed 0.0689 inches (1.75 mm) in the narrow direction.

Screen area must be large enough to cause fish impact. Wetted screen area depends on the water flow rate and the water approach velocity. **Approach velocity** is the water velocity perpendicular to and approximately three inches in front of any part of the screen face.

An Active pump screen is a self cleaning screen that has a proven cleaning system. The **screen approach velocity for active pump screens** shall not exceed 0.4 fps (feet per second) or 0.12 mps (meters per second). The wetted screen area in square feet is calculated by dividing the maximum water flow rate in cubic feet per second (1 cfs = 449 gpm) by 0.4 fps.

A Passive pump screen is a screen that has no cleaning system other than periodic manual cleaning. **Screen approach velocity for passive pump screens** shall not exceed 0.2 fps or 0.06 mps. The wetted screen area in square feet is calculated by dividing the maximum water flow rate by 0.2 fps.

For further information on fish screening please contact:

Bernie Kepshire, Oregon Department of Fish and Wildlife,
7118 NE Vandenberg Avenue, Corvallis, OR 97330-9446 (541) 757-4186 x 255

As evidence of having met fish screen installation requirements, please sign the certification and send to: Oregon Water Resources Department, Water Rights Section, 725 Summer St. NE, Suite A, Salem, OR 97301-1271

Certification: I certify that my small pumped diversion of less than 225 gpm meets fish screening criteria, and that I will maintain it to comply with regulatory criteria. I also understand that should fish screening standards change, I may be required to modify my installation to meet applicable standards.

Applicant Signature:_____ Date: ___/____/___ WRD File #

Printed Name and Address: _____

Phone: (_____) _____ Fax: (_____) _____

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PUMPCERT.doc

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Mulaker

NOTICE OF TRANSFER OF STATE TIMBER

Instructions **629:-Form-301-010**

Complete Section 1. Mark the box which applies to you/your company in Section 2. Complete Section 3 and obtain signatures.

SECTION 1

On _____, state timber sale purchaser (Transferor)

_____, sold, exchanged or otherwise transferred to

_____, (Transferee) state timber originating from State

Timber Sale Contract No. _____.

Transferee hereby certifies that they:

(a) Will not export the unprocessed state timber which is the subject of this transaction;

(b) Will not sell, transfer, exchange or otherwise convey the unprocessed timber which is the subject of this transaction to any other person without first obtaining a like certification from that person; and

(c) Are not prohibited by OAR's 629-31-005 through 045 from purchasing state timber or logs directly from the State Forester, or this is a sale of Western Red Cedar for domestic processing.

SECTION 2

☐ Have not exported unprocessed timber originating from private lands in Oregon in the last 24 months.

☐ This is a sale of hardwood logs for domestic processing.

☐ This is a sale of Western Red Cedar for domestic processing.

☐ This is a sale of pulp logs or cull logs processed at domestic pulp mills, domestic chip plants or other domestic operations for the purpose of conversion of the logs into chips.

SECTION 3

The parties understand that falsely entering into this certification, or failure to comply with the terms of this certification is a violation of the Forest Conservation and Shortage Relief Act of 1990 and OAR Chapter 629, Division 31, and is subject to any and all penalties contained therein.

Transferor:	Transferee:
_____	_____
Signed	Signed
_____	_____
Title	Title
_____	_____
Dated	Dated

[Note: For the purpose of this form, the definition of unprocessed timber is the same as in OAR 629-31-005]

Mail To: State Forester
2600 State Street
Salem, OR 97310