Pothole Pre-Operations Report

Operation Name: Pothole (Alt)
Legal: Portions of Sections 14, 22, 23, 26, and 27, T2S, R7W
Management Basin: Trask

Table 1. Operation Areas, Types and Acres

Area	Type of Operation	Gross Acres	Net Acres[1]
1	Modified Clearcut	57	57
2	Retention Cut	137	133
3	Modified Clearcut	25	23
4	Modified Clearcut	80	77
5	Retention Cut	41	42
6	Retention Cut	60	60
Total		399	392

1. The net acres are based on orthophotos and GIS and exclude roads and stream buffers.

I. PHYSICAL DESCRIPTION OF OPERATION AREA:

Slopes in the sale areas range from 15% to 90+%. Elevations range from 1040 feet to 2640 feet. Areas 1, 4, 5, and 6 have a predominantly southwestern aspect. Areas 2 and 3 are mainly south facing. The major soil types are the Killam and Jewell series, with smaller areas of Osweg and Rye.

II. CURRENT STAND CONDITION:

Table 2. Stand Inventory Information[4]

Area	Prescription	Stand ID [1]	Species	Age	DBH	BA	TPA	SDI	Net Acres [2]
1	MC	311	DF	65	14	154	140	41	57
2	RC	312	DF,RA	50	14	170	150	46	133
	Target [3]	312	DF,RA	50	18.3	35	18	8	133
3	MC	313	DF,RA	55	16	157	115	42	23
4	MC	314	DF,RA	65	16	127	89	36	77
5	RC	315	DF,RA	65	14	167	162	46	42
	Target [3]	315	DF,RA	65	16.5	37	25	9	42
6	RC	316	DF	40	14	189	174	51	60
	Target [3]	316	DF	40	17.6	35	21	9	60

1. The source of stand inventory information is from cruise plots taken in 2008.
2. The net acres are based on GIS and GPS and exclude roads and stream buffers. Modified clear cut acres are not contiguous and do not exceed 120 acres.

3. The Target identifies expected stand characteristics (DBH, BA, TPA and SDI) after harvesting has been completed.

4. These numbers are based on plot data taken to this point and final numbers may differ significantly. The directive for minor and major modifications will be followed for further review.

All six areas burned in both the 1933 Tillamook Fire and the 1939 Saddle Mountain Fire. In addition, portions of areas 1, 2, 3, 4, and 5 burned in the 1951 North Fork/Elkhorn Fire (See specific area descriptions for details).

Area 1: The central portion of this area burned in the 1951 North Fork/Elkhorn Fire. The area naturally regenerated predominantly with Douglas-fir and is between about 60-70 years old. The area was partial cut harvested in 1996 (Toll Bark Sale). Bole diameters range from 10-18 inches and bole heights range from approximately 60-100 feet. Crown ratios range from roughly 50-80 percent. Understory components include Sword-fern and Oregon grape. There is relatively little overstory diversity in this stand; however there is a small component of red alder (< 8" dbh) found near Pothole Creek and along Murphy Camp Road. This area is deficient in both standing snags and down wood.

Area 2: The age of this stand ranges from 45-50 years old and is comprised mainly of planted Douglas-fir with a minor component of red alder. Alder is mainly found in the draws and creek bottoms. Bole diameters range from 8-21 inches while bole heights range from approximately 50-110 feet. Live crown ratios range from roughly 50-80 percent. Understory components include sword fern, Oregon grape, and Salal. Down wood is deficient in this area but some standing snags are present (mostly decay classes 1 - 3). Approximately 49 acres of the northern portion of Area 2 was burned in the 1951 North Fork/Elkhorn fire. The entire northern portion of Area 2 was hand planted with Douglas-fir in 1969-1970, while the very southern portion of the area was planted in 1963-1964. Approximately 20 acres within Area 2 were naturally regenerated (. Approximately 55 acres of the northern portion of this area was also partial-cut in 1996 (Toll Bark).

Area 3: Area 3 north of Murphy Camp Road was burned in the 1951 North Fork/Elkhorn fire. This area naturally regenerated, mainly with Douglas-fir, and is roughly 55 years old. The portion of Area 3 that lies south of Murphy Camp Road, was planted with Douglas-fir in 1961-1962. There is also a minor component of red alder mainly found along the creek bottoms. Bole diameters range from 9-19 inches while bole heights range from approximately 55-95 feet. Live crown ratios range from roughly 50-70 percent. Understory components include sword-fern, Oregon grape, and salal. This area is deficient in both standing snags and down woody debris. Area 3, south of Murphy Camp Road, was partial-cut in 1993 (Thin Murphy).

Area 4: This stand is roughly 60-70 years old. The northern portion of this area burned in the 1951 North Fork/Elkhorn fire (approximately 20 acres) and naturally regenerated mainly with Douglas-fir, but also with minor components of western

hemlock and red alder. Bole diameters range from 10-20 inches while bole heights range from approximately 40-100 feet. Live crown ratios range from roughly 50-70 percent. Understory components include sword fern, Oregon grape, and salal. This area is deficient in both standing snags and down woody debris although a small amount of snags (decay classes 1 and 2) were recorded during the timber cruise. Nearly the entire area was partial-cut in 2001 (Rock N' Murphy).

Area 5: Roughly 6 acres of this area burned in the 1951 North Fork/Elkhorn Fire. The entire area was naturally regenerated with Douglas-fir and is about 60-70 years old. There is also a small component of red alder mainly found along the roads and creek bottoms. Bole diameters range from 10-15 inches while bole heights range from approximately 60-70 feet. Live crown ratios range from roughly 50-80 percent. Understory components include sword-fern, Oregon grape, and Salal. This area is deficient in both standing snags and down woody debris. All of the area that didn't burn in 1951 was partial-cut in 1996 (Toll Bark Sale).

Area 6: This stand was planted with Douglas-fir in 1969-1970 and is about 40 years old. There is also a minor component of western hemlock mixed in with the Douglas-fir. Bole diameters range from 9-20 inches while bole heights range from approximately 60-80 feet. Live crown ratios range from roughly 60-80 percent. Understory components include sword-fern, Oregon grape, and salal. This area is deficient in both standing snags and down woody debris. None of this area burned in the 1951 North Fork/Elkhorn Fire. The entire area was partial-cut in 1996 (Toll Bark Sale).

See Table 2 for specific stand data.

III. DESIRED STAND CONDITION and VISION:

Table 3. Stand Structure Information

Area	Stand ID	Current	Post Harvest [1]	Desired Future	Net Acres
1	311	UDS	REG	GEN	57
2	312	UDS	REG	GEN	133
3	313	UDS	REG	GEN	23
4	314	UDS	REG	GEN	77
5	315	UDS	REG	GEN	42
6	316	UDS	REG	GEN	60

1. The stand is expected to develop into this condition in the five to ten years after this operation is completed except in REG stands which occur after harvest.

See Section IV: Proposed Management Prescription for more information on Green Tree, Down Wood, and Snag Strategies during operation. Also refer to Landscape Design in the Summary document for more information on strategies to move the district toward Desired Future Condition (DFC) goals.

Pothole Creek Landscape View:

The Pothole Creek basin is in the East Fork of the South Fork of the Trask River SAH basin. These basins are dominated by ODF ownership and were all affected by the Saddle Mountain fires of 1939 and 1951. The Pothole Creek basin is part of a paired watershed study on the East Fork Trask River. This operation, in combination with other operations in this basin, are part of planned harvests for the research study and will create openings (5-120 acres) and stands of differing residual densities where partial cuts and retention cuts have taken place.

Areas 1, 2, 3, 4, 5 and 6: The DFC for these areas is general (GEN).

Short Term Vision:
The planned operation is part of the East Fork Trask Watershed Study in partnership with Weyerhaeuser and Bureau of Land Management as well as Oregon State University. The research examines the effects of forest management strategies on aquatic ecosystems and resources using integrated, multidisciplinary, multiple-watershed approaches. The study looks at onsite responses as well as cumulative effects of contemporary forest harvest practices on anadromous fish, resident trout, stream food webs, aquatic habitat and water quality in the East Fork Trask Watershed.

The regeneration harvests will remove the Douglas-fir and alder. After the regeneration harvest this stand will be comprised of legacy structures retained from the present stand and a new cohort of western hemlock, alder, and cedar that will provide both horizontal and vertical diversity.

Long Term Vision: The vision for these stands is to have mixed species stands that have both vertical and horizontal diversity and have maintained productivity to maximize volumes at final harvest.

IV. PROPOSED MANAGEMENT PRESCRIPTION:

The prescriptions described below were determined in advance as part for the paired watershed study.

Modified Clearcut

Areas 1, 3, and 4

Prescription: Merchantable Douglas-fir and red alder will be harvested. A “trees per acre” target will be used to reserve Douglas-fir trees. All other conifer and hardwood species will be reserved.

Green Trees

Approximately 5 conifer trees per acre and will be clumped and scattered throughout the sale area. A component of alder will be retained in stream buffers, adjacent to, and within the harvest unit.

Snags
Snag creation will be done with this harvest operation. Approximately 2 snags per acre greater than 15" will be created within the sale area. Snags currently present in the stand will be reserved from felling as long as the snags are not a safety hazard. If snags are cut, they will be left to contribute to down wood goals.

Down Wood
The existing down wood will be reserved in the sale areas and additional down wood will be created during this harvest operation to meet the goal of 600 cubic feet per acre of wood in decay classes 1 and 2. The goal for down wood creation will be completed by bucking out obvious defect, in a minimum of 6 feet lengths, from felled Douglas-fir and western hemlocks and tops left during harvest.

Down wood recruitment is also expected through mortality and windthrow of residual trees and felled snags. Non-merchantable hardwoods and conifers will be retained in the sale areas with the expectation that they will eventually become down wood.

Pathway
The area will be reforested with a mixture of conifer species: western hemlock, SNC tolerant Douglas-fir and western red cedar. A minor component of other conifer species will be scattered across the area and alder will be retained in stream buffers. A pre-commercial thinning is anticipated at 12 to 17 years when the crowns begin to close. A commercial thinning will then be planned at age 35 to 40. At this time managers will review density, stand health, and landscape goals to decide future management prescriptions.

Retention Cut

Areas 2, 5, and 6

Prescription: Merchantable Douglas-fir and red alder will be harvested. Both a trees per acre and basal area target will be used. All other conifer and hardwood species will be reserved.

Green Trees: A minimum of 35 square feet of basal area (24-30 trees per acre) will be retained. These residual trees will consist of conifers 11" dbh or greater on every acre.

Snags: Snag creation will be done with this harvest operation. Approximately 2 snags per acre greater than 15" will be created within the sale area. Snags

currently present in the stand will be reserved from felling as long as the snags are not a safety issue. If snags are cut, they will be left to contribute to down wood goals.

Down Wood: The existing down wood will be reserved in the sale areas and additional down wood will be created during this harvest operation. Additional will be added to enhance down woody debris within the sale area to average approximately 600 cubic feet of logs in decay classes 1-2 per acre. . The goal for down wood creation will be completed by bucking and leaving obvious defect from felled Douglas-fir and western hemlocks. Additional trees may be felled to meet the down wood targets.

V. ESTIMATED TIMBER AND REVENUE INFORMATION:

Table 4. Timber and Revenue

Ownership		Sale Type	
BOF	CSL	Cash	**Recovery**
100%	0%		**X**
Planned Quarter:		(Alt)	

	Conifer	Hardwood	Total
Net Volume (MBF)	3239	78	3317
Stumpage Value ($/MBF)	$110.97	$189.10	
Estimated Gross Value	$359,425	$14,750	$374,175
		Project Costs:	$85,423
		Estimated Net Value:	$288,752

VI. HARVESTING AND ACCESS CONSIDERATIONS:

The sale areas are accessed via the South Fork Trask River Road to the East Fork Road to Murphy Camp Road to Steampot Ridge Road. South Fork Trask River Road, East Fork Road and Murphy Camp Road are all-weather roads and are surfaced with crushed rock. Additional abandoned roads will be reopened and surfaced to access cable logging areas.

Approximately 1 mile of road will be constructed and about 2 miles of road will be improved to provide access to cable yarding areas. It is anticipated that the new construction roads will be closed with the sale. See summary document for more information on road closure. No other project work is currently planned with this sale.

The operation will be approximately 90% cable yarding and 10% ground based (tractor) yarding.

Table 5. Transportation Planning Summary (Miles)[4]

Activity	Mainline	Collector	Rocked Spur[1]	Dirt Spur[1]
Construct			0.62	0.37
Improve			1.98	
Maintain[2]				
Close/Block[3]			0.62	.037
Vacate[3]				

1. *Additional roads may be built by the operator at the time of harvest and will be approved by the State through the Operations Plan. These will be short dead end spurs and closed or blocked after harvest*
2. *All roads accessing the sale area will be maintained during the life of the timber sale contract. Maintenance miles in the table are those roads not being constructed or improved.*
3. *Roads not closed/blocked or vacated at the end of the sale will be reviewed for closure after reforestation is established.*
4. *The numbers in this table reflect planned Project Work associated with the sale.*

VII. AQUATIC RESOURCES AND WATER QUALITY:

Pothole Creek is a perennial medium Type F stream that courses north and south through the center of the sale area. The entire sale area is within a designated Salmon Anchor Habitat (East Fork of the South Fork of the Trask River).

There are also small unnamed perennial and seasonal Type N streams that are within and adjacent to the sale areas and haul route. These streams will be reviewed and buffered appropriately during sale layout based on flow, topography, and terrain. Streams of unknown status will be treated as Type F until surveys are completed to verify fish use.

Stream buffers within or adjacent to harvest unit boundaries will be managed according to *Forest Management Plan* Riparian Strategies. The riparian areas will be reviewed during sale layout for current stand conditions and/or operational constraints for implementing FMP strategies.

Riparian management areas result in leave trees adjacent to the stream which protect stream temperature, provide nutrients, protect stream banks, and eventually provide wood to improve fish habitat.

VIII. T&E SPECIES CONSIDERATIONS:

The sale was reviewed by the Northwest Area Biologist. Surveys for marbled murrelets and northern spotted owls are not required due to the absence of potentially suitable habitat.

Streams in this sale are in the headwaters of the (Nehalem, Wilson, Trask, Nestucca) basin. As of March 2008, coastal coho salmon are listed as threatened for the Oregon Coast. The riparian and aquatic strategies combined with road and harvest practices described in this Annual Operations Plan and our Northwest Oregon State Forests Management Plan (FMP) are designed to minimize impacts and or restore aquatic habitats that influence aquatic species.

T & E Plant species: The sale areas were checked against the Oregon Natural Heritage Program (ONHP) database of known threatened or endangered listed plant locations as well as local records in the Land Management Classification System (LMCS). No listed plants were identified within or adjacent to the sale areas.

IX. SLOPE STABILITY AND GEOTECHNICAL ISSUES:

This assessment is based on USGS 1:24,000 topographic maps and available geologic maps. Areas 2, 3, and 4 contain high landslide hazard locations. Areas 1, 5, and 6 may contain high landslide hazard locations. The sale area drains to unnamed tributaries of the South Fork of the Trask River. The risk of landslides delivering to these streams from Areas 1, 5, and 6 is low and from Area 2 is low to moderate and from Areas 3 and 4 is moderate. Portions of the sale area may be located on large, deep-seated landslide landforms. The geotechnical specialist will be consulted if evidence of recent landslide activity is identified during sale layout.

X. RECREATION RESOURCES:

Land within the sale area is designated as Motorized in the *Tillamook State Forest Comprehensive Recreation Plan* (1993). This sale has been reviewed by the Recreation Planner.

There are currently at least three motorized trails, including the Ginsberg Point trail, running through or near the areas that will be harvested. The other two are unnamed motorcycle trails. There are additional motorcycle trails located within the study area boundary but are outside of harvest or road construction areas.

Recreational use common to this area includes hiking, hunting, camping, and OHV use.

XI. CULTURAL RESOURCES:

The *Tillamook State Cultural Assessment* does not list any cultural sites within the proposed sale boundary. There are cultural sites located northeast of the sale boundaries and include remnants from the historic Trask Willamette Camp and the Murphy Guard Station. The nearest site (CULT ID: 483, Cabin) is approximately 660 feet northeast of the sale boundary. The district will consult the Public Use Coordinator for appropriate protection and tracking if any sites are noted during sale preparation or administration.

There is also a portion of the Trask Toll Road within the sale area on the eastern border. The Public Use Coordinator is currently conducting field reconnaissance to determine the original route and identify any physical remnants that would require protection.

XII. SCENIC RESOURCES:

The sale areas have a visual classification of Level 3, low sensitivity. No scenic impact is expected.

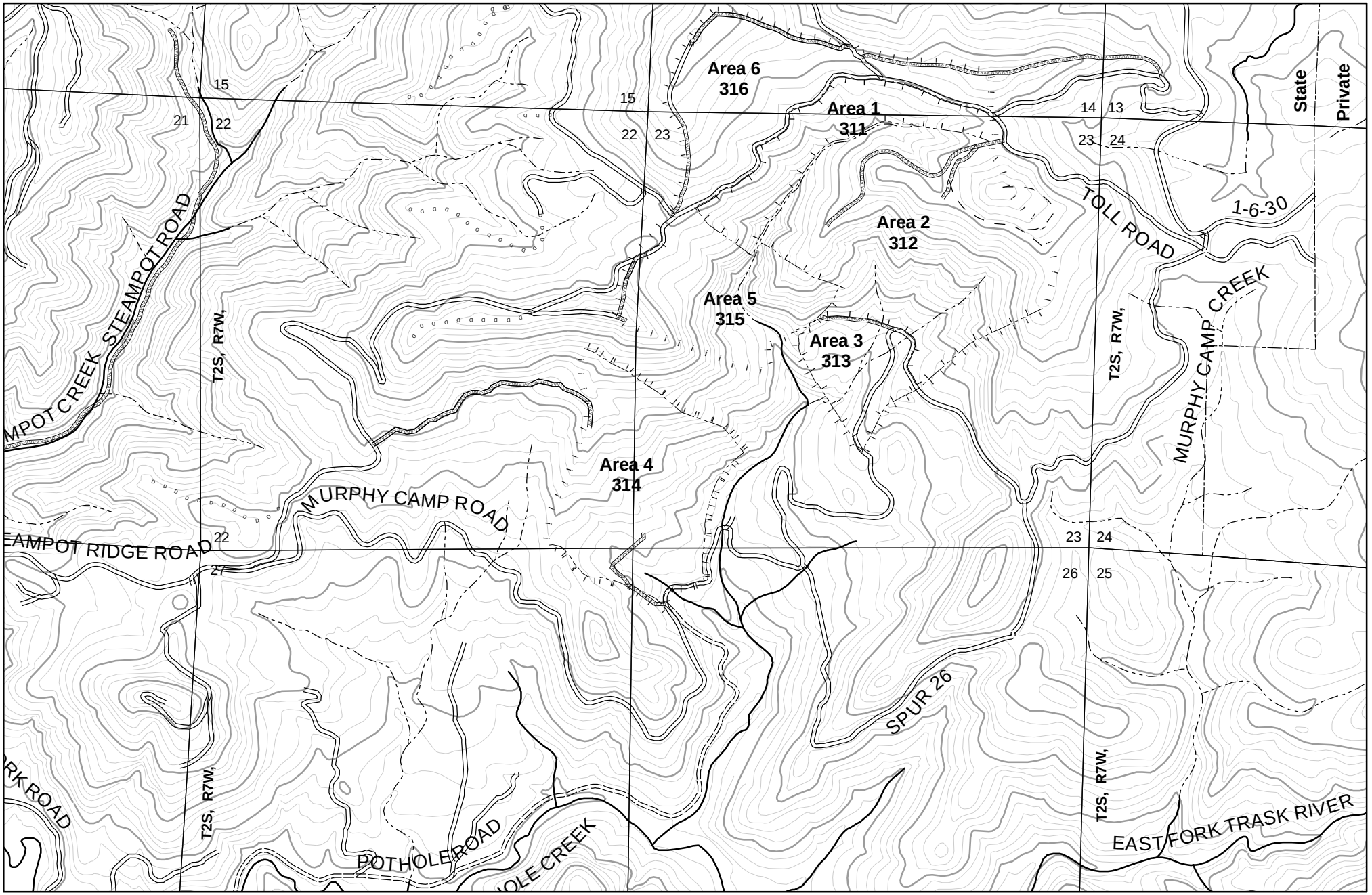
XIII. OTHER RESOURCE CONSIDERATIONS:

The sale is part of the larger East Fork Trask Watershed Study. See the Short Term Vision section for more details of the study. The Watershed Study began collecting data in 2007 with planned road building in 2010 and harvest in 2011. Final data management will end in 2014. The timing of the operations is critical for the study design data collection.

XIV. LAND MANAGEMENT CLASSIFICATION SUMMARY:

The sale area contains Focused and Special, Aquatic and Riparian Habitat, and Focused, Wildlife Habitat for the East Fork Trask Salmon Anchor Habitat. (See section VII. Aquatic Resources and Water Quality, for the management guidelines to be utilized.) The sale areas also contain Focused, Recreation, (See section X. Recreation Resources),

Boundary lines depicted on Attachment C are approximate; exact locations and site specific management activities will be determined during the sale preparation process.



Contour Interval 40'

- Area boundary
- Sale boundary
- Ownership boundary
- Perennial Type-F stream*
- Perennial Type-N stream*
- Unsurfaced road
- Surfaced road
- State/Federal highway
- Abandoned road
- Blocked road
- Road construction
- County road
- Transmission line

0 1,000 2,000 Feet

3

Pothole
-- Topography --
2010 SALE PLAN
TILLAMOOK DISTRICT

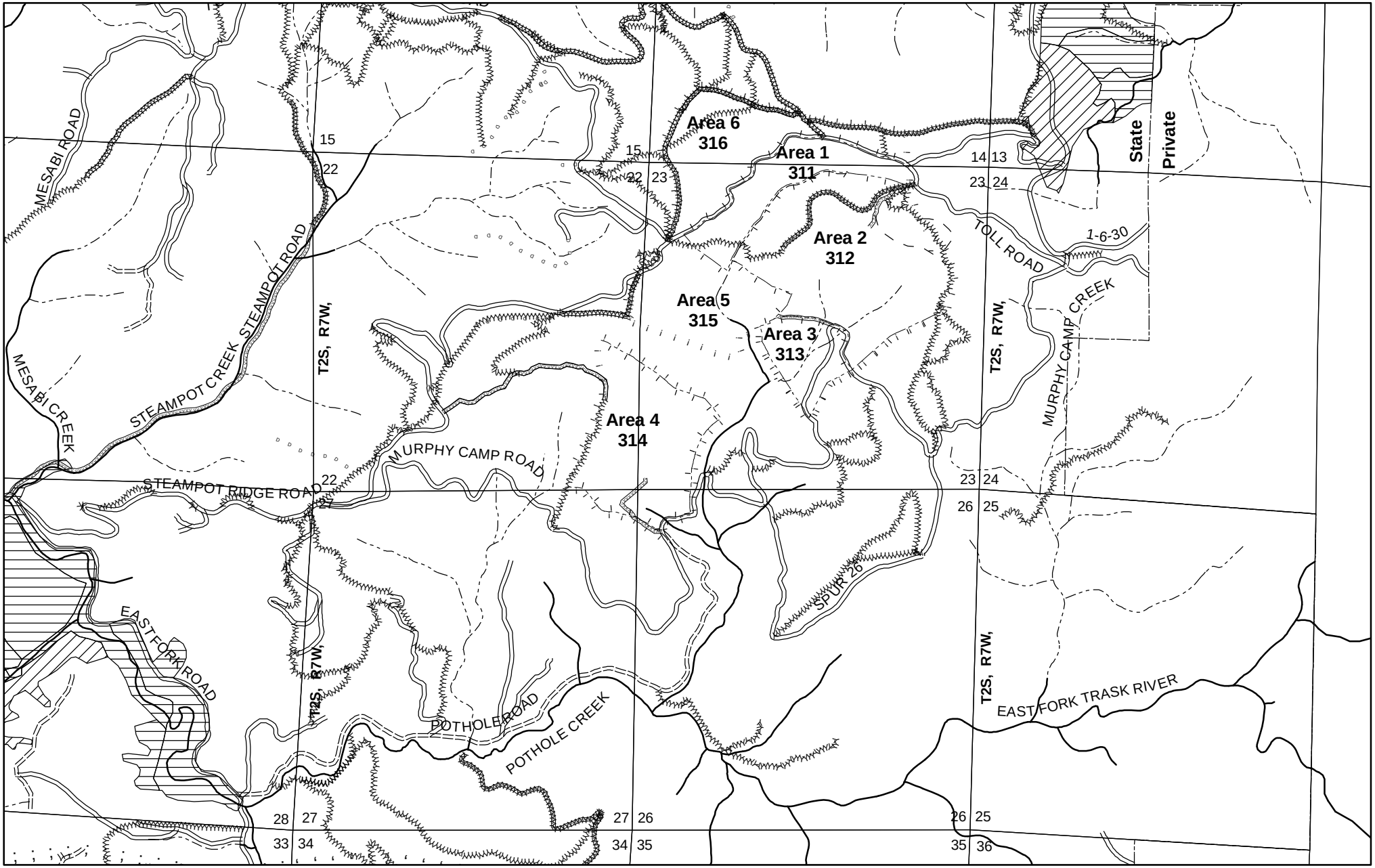
Portions of Sections 14, 22. 23, 26, and 27
T2S, R7W, W.M.,
Tillamook County, Oregon

*Streams of unknown fish presence are not shown but will be surveyed prior to the sale

Tillamook District GIS
3/20/2009
This product is for informational use and may not have been prepared for, or suitable for legal, engineering, or surveying purposes.

Area	Type of Operation
1	Modified Clearcut
2	Retention Cut
3	Modified Clearcut
4	Modified Clearcut
5	Retention Cut
6	Retention Cut

Attachment A



Desired future condition
- Layered
- Older forest

- Area boundary
- Sale boundary
- Ownership boundary
- Perennial Type-F stream*
- Perennial Type-N stream*
- Unsurfaced road
- Surfaced road
- State/Federal highway
- Abandoned road
- Blocked road
- Road construction
- County road
- Transmission line
- OHV trail
- Non-motorized trail

0 990 1,980 Feet

3

Pothole
-- Current and Future Condition --
2010 SALE PLAN
TILLAMOOK DISTRICT

Portions of Sections 14, 22, 23, 26, and 27
T2S, R7W, W.M.,
Tillamook County, Oregon

*Streams of unknown fish presence are not shown but will be surveyed prior to the sale

Area	Type of Operation
1	Modified Clearcut
2	Retention Cut
3	Modified Clearcut
4	Modified Clearcut
5	Retention Cut
6	Retention Cut

Tillamook District GIS
6/20/2009
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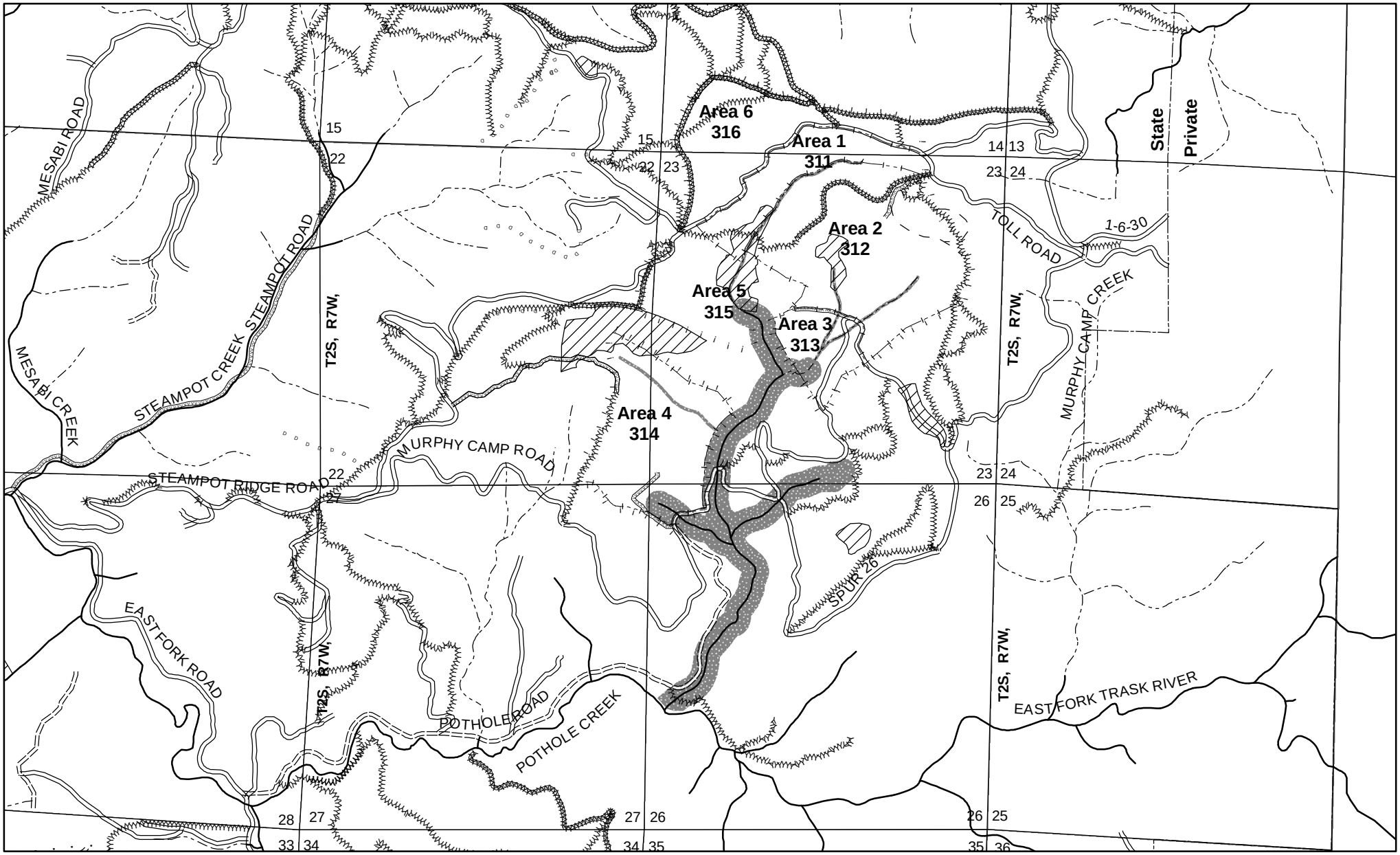
Attachment B



Buffer
Special

Area boundary
Sale boundary
Ownership boundary
Perennial Type-F stream*
Perennial Type-N stream*
Unsurfaced road
Surfaced road
State/Federal highway

Abandoned road
Blocked road
Road construction
County road
Transmission line
OHV trail
Non-motorized trail

0 1,000 2,000 Feet

Pothole
-- Key Resources/Operationally Limited --
2010 SALE PLAN
TILLAMOOK DISTRICT

Portions of Sections 14, 22, 23, 26, and 27
T2S, R7W, W.M.,
Tillamook County, Oregon

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6/20/2009
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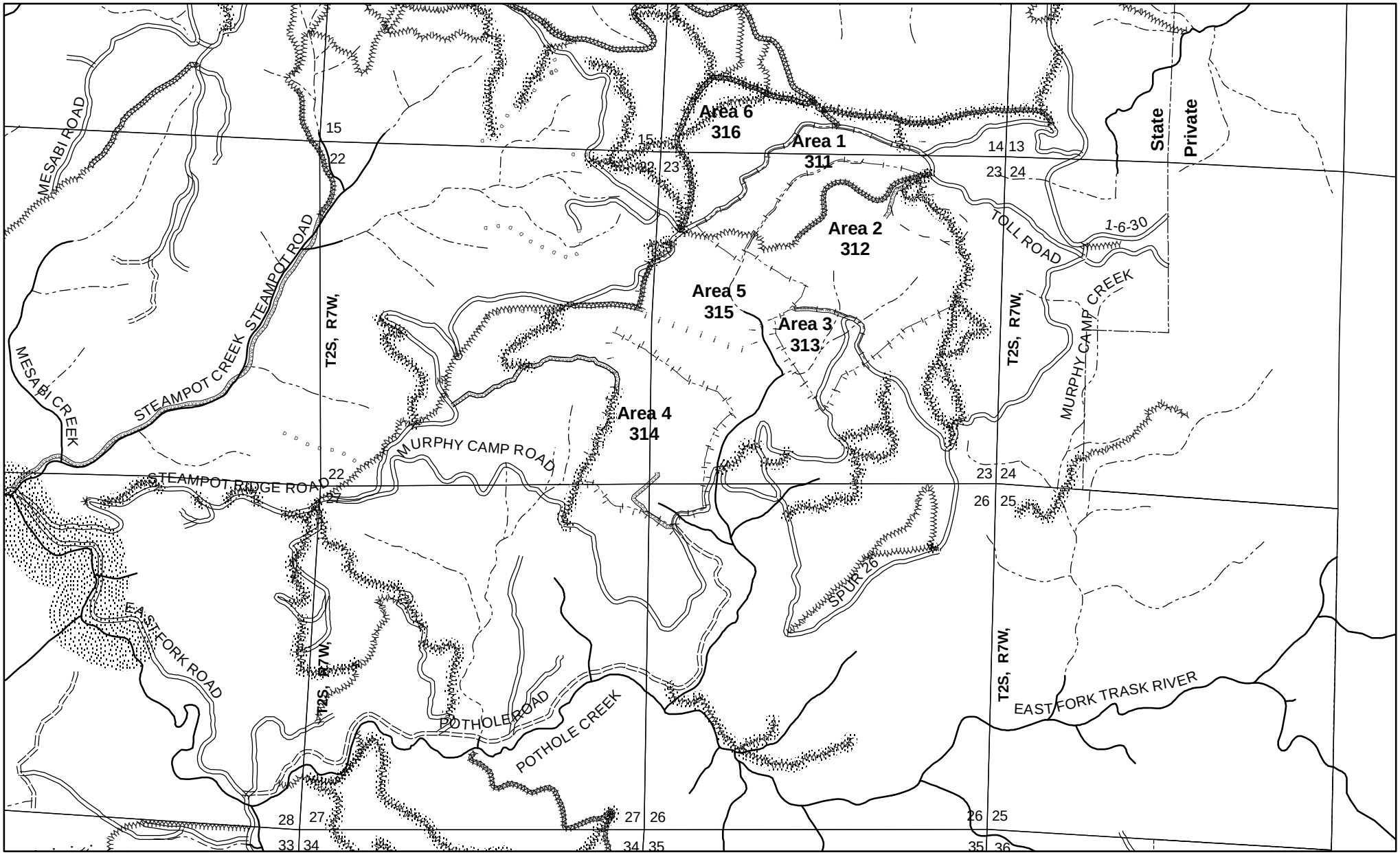
Area	Type of Operation
1	Modified Clearcut
2	Retention Cut
3	Modified Clearcut
4	Modified Clearcut
5	Retention Cut
6	Retention Cut

Attachment C



Focused

Area boundary
Sale boundary
Ownership boundary
Perennial Type-F stream*
Perennial Type-N stream*
Unsurfaced road
Surfaced road
State/Federal highway

Abandoned road
Blocked road
Road construction
County road
Transmission line
OHV trail
Non-motorized trail

0 1,000 2,000 Feet

3

Pothole
-- Key Resources /Recreation --
2010 SALE PLAN
TILLAMOOK DISTRICT

Portions of Sections 14, 22, 23, 26, and 27
T2S, R7W, W.M.,
Tillamook County, Oregon

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Tillamook District GIS
6/20/2009
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Area	Type of Operation
1	Modified Clearcut
2	Retention Cut
3	Modified Clearcut
4	Modified Clearcut
5	Retention Cut
6	Retention Cut

Attachment C2