

# Pre-Operations Report

**Operation Name:** Mad Burbank Combo  
**County:** Linn  
**Management Basin:** Mad Creek Basin

**Table 1. Operation Areas, Types and Acres**

Area	Type of Operation	Gross Acres	Net Acres
I	PC	253	229
II	RC	18	15
III	RC	27	23
IV	PC	46	42
V	MC	14	11
<b>Total</b>		<b>358</b>	<b>320</b>

## **I. PHYSICAL DESCRIPTION OF OPERATION AREA:**

The operation is located within a temperate climate area. Typically the fall and winter seasons are wet. This area receives approximately 89 inches of rainfall per year. The operation is located within the *Tsuga heterophylla* Zone (Natural Vegetation of Oregon and Washington, Franklin & Dyrness, 1973).

The landforms are gentle to moderate slopes with a few bands of steep slope below the spur-ridge between Mad Creek and Seven Mile Creek of the North Santiam River above Minto. The underlying rock in most of Area I and all of Areas II & III is Sedimentary and Volcaniclastic origin rocks of the Western Cascades, Lapilli tuff, mudflow deposits (lahars), flow breccia, and volcanic conglomerate. In the north portion of Area I and all of Areas IV & V, the underlying rock is igneous origin rock of the Western Cascades assemblage of continental, largely volcanogenic deposits of basalt and basaltic andesite, including flows and breccia, complexly interstratified with epiclastic and volcaniclastic deposits. Areas IV & V are mapped as landslide deposits, defined as unstratified mixtures of fragments of adjacent bedrock these map units are often very large scale landslide features.

The slopes in the operation range from 10% to 75% with an average slope of 35%. The soils within the operation are Pechuck. Pechuck are well-drained, fine textured colluvial soils. The average 50 year site index for Douglas-fir for the operation is 120 feet. The elevation of the operation ranges from 1,740 feet to 3,060 feet.

## **II. CURRENT STAND CONDITION:**

**Area I** is made up of stands ranging in age from **74 to 88-years-old**. This area is currently classified as **Understory**. The stands within Area I were commercially thinned in the early 1970's and fertilized in 1989. The overstory contains Douglas-fir, western hemlock and red alder. The understory consists of ferns, Oregon grape, vine maple and salal. Portions of Area I have a nice **understory of western hemlock**. Some of the hemlock is as tall as 30 feet and is making its way towards becoming a mid-story layer. Smaller hemlock seedlings can be found throughout the forest floor especially in old cable corridors used during the previous thinning. There is an average of **10 snags per acre** and **100 cubic feet per acre** of sound down wood within the area. There is approximately **1,200 cubic feet per acre** of down wood in all decay classes. (SLI 2002)

**Areas II and III** are made up of a stand that is **88-years-old**. This stand is currently classified as **Understory**. Area II was fertilized in 1989. The overstory of Area II consists of very dense Douglas-fir and western hemlock with some scattered western red cedar. The understory consists of vine maple, Oregon grape, and ferns. The overstory of Area III consists of Douglas-fir, western hemlock, western red cedar and noble fir. Area III is located on a site with shallow, rocky soils and a 50 year site index of 90 feet for Douglas-fir. The noble fir, western hemlock and western red cedar are growing much better and are healthier than the Douglas-fir on the site. The understory consists of dense rhododendron, vine maple, Oregon grape and ferns. There are approximately **9 snags per acre** and **100 cubic feet per acre** of sound down wood; there is **1,200 cubic feet per acre** of down wood in all decay classes. (SLI 2003)

**Areas IV and V** are made up of a stand that is **82-years-old**. This stand is currently classified as **Understory**. Area IV was commercially thinned in 1980 and fertilized in 1989. The overstory in Area IV is made up of Douglas-fir, western hemlock and western red cedar. The overstory in Area V contains the same species in the overstory, but these trees are over dense and are significantly smaller in diameter as Area V has not been commercially thinned before. The trees in Area V have a high height to diameter ratio. The understory of Area IV consists of vine maple, ferns, Oregon grape, and salal. The understory of Area V consists of very scattered fern and Oregon grape. There are approximately **3 snags per acre** located within the Areas IV and V; there is approximately **2,300 cubic feet per acre** of down wood in all decay classes within Areas IV and V; there is less than 20 cubic feet of sound down wood per acre within both areas. (SLI 2004)

**Table 2. Stand Inventory Information**

Area	Prescription	Stand ID <sup>1</sup>	Species	Age	DBH	BA	TPA	SDI	Acres <sup>2</sup>
I	PC-M	Target <sup>3</sup>			20	160	68	35	
		12657	DF	74	17	218	137	54	50
		12658	DF	77	14	191	178	52	32
		12659	DF	84	23	193	66	43	52
		12662	DF	87	20	214	102	50	70
		12661	DF	88	18	258	145	62	49
II	RC	Target <sup>3</sup>			24	54	12	8	
		12661	DF	88	18	258	145	62	18
III	RC	Target <sup>3</sup>			24	54	12	8	
		12661	DF	88	18	258	145	62	27
IV	PC-M	Target <sup>3</sup>			19	150	75	35	
		12506	DF	82	15	192	153	56	46
V	MC	Target <sup>3</sup>			18	8	5	2	
		12506	DF	82	15	192	153	56	14

1 The source of stand inventory information is SLI from 2002, 2003, and 2004.

2 The acres are based on GIS include roads, streams buffers, reserve areas, etc.

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

### III. DESIRED STAND CONDITION:

The desired future condition for one third of Area I and all of Areas IV and V is Layered. The desired future condition for the rest of Area I and Areas II and III is Older Forest Structure as shown on Map B.

The anticipated pathway for Areas I and IV to achieve their desired future condition is as follows:

- These areas will receive a moderate partial cut as part of this operation which will improve the growing condition for the residual trees,
- In approximately 15 years, these areas will be evaluated for another partial cut entry.

The current condition for Areas II, III and V do not lend themselves to easily move towards a complex stand condition. Areas II and V are over dense and the trees have a high height to diameter ratio. Area III has a low site index and the trees are already at the maximum height for that site class. The trees in these three areas would not respond to a thinning and thus would not be able to reach the eight 32 inch diameter trees or the thirty 18 inch diameter trees needed to achieve Older Forest Structure. The District feels that the most efficient and effective way to move these stands towards their desired future condition is by retaining the key structural components that are present, but otherwise start over with a new stand. The structural components left within the stands following the

operation will contribute to future snags and down wood and large live trees within the next regenerated stand.

The anticipated pathway for Areas II, III, and V is as follows:

- Areas II & III will receive a retention cut as part of this operation,
- Area V will receive a modified clearcut as part of this operation,
- All three areas will be promptly reforested and be reclassified as Regeneration stands,
- The areas will be periodically checked to determine if interplanting or vegetation management need to occur,
- When these stands reach approximately 10 years of age, they will be evaluated for possible pre-commercial thinning opportunities.

**Table 3. Stand Structure Information**

Area	Stand ID	Current	Post Harvest <sup>1</sup>	Desired Future	Acres
I	12657	UDS	UDS	LYR	50
	12658	UDS	UDS	LYR	32
	12659	UDS	UDS	OFS	52
	12662	UDS	UDS	OFS	70
	12661	UDS	UDS	OFS	49
II	12661	UDS	REG	OFS	18
III	12661	UDS	REG	OFS	27
IV	12506	UDS	UDS	LYR	46
V	12506	UDS	REG	LYR	14

<sup>1</sup> The stand is expected to develop into this condition in the five to ten years after this operation is completed.

#### **IV. PROPOSED MANAGEMENT PRESCRIPTION:**

Areas I and IV will receive a moderate partial cut. These areas will be thinned to a SDI of 35% for the overstory. All hemlock under 30 feet in height will be reserved from harvest. All hardwoods will be reserved from harvest. The SDI for the entire residual stand for Area I including understory trees will be at 37%. The SDI for the entire residual stand for Area IV including the understory trees will be at 40%

Existing down wood will be retained. Snags will be retained that do not pose a safety hazard, but some snags will be felled during the operation. No new snags or down wood will be developed during this entry. There are abundant snags and down wood within the stands surrounding this operation as a result of active management. The levels of snags and down wood in these surrounding stands coupled with the existing level of snags and down wood within the operation are in alliance with the landscape level targets of these components as described in the *NWO State Forests Management Plan*.

Areas II and III will receive a retention cut. Area V will receive a modified clearcut. To prepare the sites for reforestation, vine maple and rhododendron plants will be pulled up and piled along with logging slash. The piles will then be burned. There will also be a chemical treatment to manage competing vegetation before planting. All three areas will be replanted with a mix of noble fir, western hemlock and western red cedar. This species mix will add diversity within the units and the landscape as well to help move the stands towards their DFC. Approximately 12 green trees per acre will be retained within the Areas II and III. These will be the biggest and the best trees within the stands. In Area III noble fir, western hemlock and western red cedar will be given preference to be utilized as green trees. At least 5 green trees per acre will be retained within Area V. These will be the biggest and best trees within the stand.

Existing down wood will be retained. Snags will be retained that do not pose a safety hazard, but some snags will be felled during the operation. The objective is to retain all of the snags, but a minimum of 2 snags per acre will be within the stand at the completion of harvest. At least 600 cubic feet per acre of sound down wood will be retained within the clearcuts. This material may come from utilizing cull material that results from logging or from leaving logs as needed to reach the desired amount.

**V. ESTIMATED TIMBER AND REVENUE INFORMATION:**

**Table 4. Timber and Revenue**

Ownership		Sale Type	
BOF	CSL	Cash	Recovery
100%	%	<input type="checkbox"/>	x
Planned Quarter:		2	

	Conifer	Hardwood	Total
Net Volume (MBF)	3,874	1	3,875
Stumpage Value (\$/MBF)	\$350	\$150	
Estimated Gross Value	\$1,355,900	\$150	\$1,356,050
		Project Costs:	\$99,555
		Estimated Net Value:	\$1,256,495

**VI. TRANSPORTATION PLANNING AND HARVESTING:**

Access to the operation is via the Green Mountain and Mad Creek roads. These are surfaced collector roads and provide good access to the operation. Additional roads that will access the operation are the GM 400, MC 400, MC 420, MC 440, MC 500 and the MC 700. These are surfaced roads and will require brushing,

grading, and surfacing with a 4 inch lift of crushed rock except for the MC 700 which will require removal of a tank trap and waterbars only. An existing 1,100 foot spur off of the MC 440 will be improved and an 800 foot spur will be constructed from the end of the GM 400 road. The 800 foot spur road will be surfaced. The 1,100 foot spur road will remain unsurfaced and will be closed the completion of the operation. 1,000 cubic yards of crushed rock will be used to replenish the existing stockpile at the Potato Hill Junction.

Ground slopes range from 10 – 75% in the operation. Approximately 25 – 30% of the operation can be ground logged with the remainder requiring cable yarding. Long yarding will be required along the East boundary in Section 4 and in the NW corner of Section 5. The portion of Area I that is accessed from the MC 700 road can be ground logged by utilizing existing spur roads.

**Required Project Work:**

- Construct 800 feet of spur road, 16 foot subgrade with ditch, surfaced
- Improve 1,100 feet of existing spur road, 14 foot subgrade, out-sloped, unsurfaced.
- Improve 3.54 miles of collector road, brushing, grading, surface with a 4” lift of crushed rock.
- Brush 2.53 miles of road.
- Place 1,000 cubic yards of crushed rock in an existing stockpile site.

**Table 5. Transportation Planning Summary (Miles).**

Activity	Mainline	Collector	Rocked Spur	Dirt Spur
Construct	0	0	0.15	0
Improve	0	3.54	0	0.21
Maintain	0	12	0	0
Close/Block	0	0	0	0.21
Vacate	0	0	0	0

\* For determination of road class either use results of the Harvest and Habitat roads classifications, or if this information is not available then low use roads are spurs, medium use roads are collectors and high use roads are mainlines. Use these same criteria when comparing the total for all AOP sales to the IP plans.

**VII. AQUATIC RESOURCES AND WATER QUALITY:**

This operation is not in proximity to any streams where listed fish are present.

Seven Mile Creek, a large fish stream, runs along north eastern border of Areas IV and V. There are approximately 14 small, non-fish bearing streams that are located within or adjacent to the operation. These streams drain into either Seven Mile Creek, Burbank Creek or Mad Creek. The overstory along these

streams consists of Douglas-fir, western hemlock and red alder. The understory consists of salmonberry, vine maple, Oregon grape and ferns.

Management activities within riparian areas of streams will focus on achieving properly functioning aquatic and riparian habitat conditions over time. Riparian Management Areas (RMAs) will be established immediately adjacent to streams for the purpose of protecting aquatic and riparian resources and maintaining the functions and ecological processes of the streams. The Management Standards for Aquatic and Riparian Areas found in the *NWO State Forests Management Plan* (pg. J-1 – J-16) will be followed within these RMAs.

This operation is located within the City of Salem's watershed. The North Santiam River is the primary drinking source for residents in Salem. Water from the river is processed using large slow sand filters. The slow sand filtration process is unable to treat water with turbidity levels greater than 10 NTU. (an NTU is a unit of scientific measurement that describes the extent of discoloration due to suspended sediment.) The District has a long history of cooperation with the City of Salem on matters related to water quality. Generally speaking, representatives from the Public Works Division review all of the pre-operation reports for activities located within the watershed. Most of these areas are also visited on the ground to further review and discuss strategies related to maintenance of water quality. Suggestions offered for mitigation of potential impacts to water quality are carefully considered and incorporated into timber sale contracts when appropriate

The following measures will be used to minimize impacts to streams: 1. No ground based equipment will be allowed within 50 feet of the fish stream and 25 feet of the non-fish streams, 2. There will be seasonal restrictions as to when ground yarding and road construction will be allowed (i.e. during dry seasons), 3. Erosion control measures will be used on areas of soils exposed during road construction or improvement, 4. Road ditches will be disconnected from streams, 5. Road maintenance will be required during log hauling.

#### **VIII. T&E SPECIES CONSIDERATIONS:**

This operation was surveyed for Northern Spotted Owls with no response during the 2004 survey season. The operation will be surveyed again during the 2005 survey season.

The operation was checked against the Oregon Natural Heritage Program's database of known plant locations. The operation was also checked against district knowledge for any listed plant location. No records of threatened, endangered, rare or candidate plant species were found within the operation.

**IX. SLOPE STABILITY AND GEOTECHNICAL ISSUES:**

The initial assessment from the geotechnical specialist for Areas I through III is low. The geotechnical specialist may be consulted if concerns arise during sale layout. Due to steep slopes on both sides of the tributary to Seven Mile Creek, the assessment for Area IV is moderate. The mapped landslide deposit on the State Geology map is very large and probably not significant in relation to slope stability and timber harvest concerns. The geotechnical specialist will be consulted during sale layout and the need for field review will be assessed. Due to the strong band of very steep slopes near the tributary and Seven Mile Creek. The assessment for Area V is high. The geotechnical specialist will review the sale in the field. If the sale boundaries are changed prior to field review, the geotechnical specialist may be consulted and the need for field review may be reassessed.

**X. RECREATION RESOURCES:**

While there are no developed recreational resources within or in close proximity to this operation, hunting, sight seeing and horseback riding do occur in the area. There may be some delays on the Mad Creek, MC 500, MC 400, MC 410, Green Mtn. and GM 400 roads due to road work or logging, but through traffic and public access should not be impeded by the operation.

**XI. CULTURAL RESOURCES:**

There are no known cultural resources within the operation.

**XII. SCENIC RESOURCES:**

There are 63 acres within Area I and 17 acres within Area II that can be seen from Highway 22. These areas have a visual classification of moderate sensitivity according to Table 4-4 in the Northwest Oregon State Forests Management Plan, January 2001. (pg. 4-107) The partial cut in Area I should have very minimal impact on the visual classification. The modified clearcut in Area II will be surrounded by partial cuts. The green trees retained will help break up the visual impact within the clearcut.

**XIII. OTHER RESOURCE CONSIDERATIONS:**

To protect air quality, the pile burning will comply with the Oregon Smoke Management Plan. The Smoke Management Plan is designed to reduce emissions from prescribed burning in western Oregon and to minimize smoke intrusions into designated population areas.

#### **XIV. LAND MANAGEMENT CLASSIFICATION SUMMARY:**

**Table 6. Land Management Classification Summary**

Area	LMCS Subclass	Focused Stewardship	Special Stewardship
I	Visual	63	0
	Aquatic & Riparian	43	11
II	Aquatic & Riparian	1	0
	Visual	17	0
III	Aquatic & Riparian	5	1
IV	Aquatic & Riparian	6	3
V	Aquatic & Riparian	3	3

This table summarizes the acres of Focused and Special Stewardship within the operations. The acres in each operational area in this table do not necessarily add up to its gross or net acres, because of overlapping classifications under the Land Management Classification System. For example, a particular acre can be classified as Focused Stewardship for Aquatic and Riparian, Recreation, and Scenic resources.