



"STEWARDSHIP IN FORESTRY"

# Timber Sale Appraisal Knot Berry

Sale TL-341-2018-38-

District: Tillamook

Date: August 08, 2017

## Cost Summary

|                            | Conifer      | Hardwood          | Total          |
|----------------------------|--------------|-------------------|----------------|
| Gross Timber<br>Sale Value | \$893,508.95 | \$240,124.14      | \$1,133,633.09 |
|                            |              | Project Work:     | (\$303,520.00) |
|                            |              | Advertised Value: | \$830,113.09   |



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**District: Tillamook**

**Date: August 08, 2017**

## Timber Description

**Location:** Portions of Sections 16, 21, 22, 27, and 28, T1N, R8W, W.M., Tillamook County, Oregon.

**Stand Stocking:** 40%

| Specie Name           | AvgDBH | Amortization (%) | Recovery (%) |
|-----------------------|--------|------------------|--------------|
| Douglas - Fir         | 14     | 0                | 95           |
| Western Hemlock / Fir | 16     | 0                | 95           |
| Sitka Spruce          | 25     | 0                | 95           |
| Alder (Red)           | 14     | 0                | 90           |

| Volume by Grade       | 2S  | 3S    | 4S  | 8" - 9" | 10" - 11" | 12"+ | 6" - 7" | Total |
|-----------------------|-----|-------|-----|---------|-----------|------|---------|-------|
| Douglas - Fir         | 509 | 1,378 | 574 | 0       | 0         | 0    | 0       | 2,461 |
| Western Hemlock / Fir | 59  | 33    | 8   | 0       | 0         | 0    | 0       | 100   |
| Sitka Spruce          | 19  | 16    | 2   | 0       | 0         | 0    | 0       | 37    |
| Alder (Red)           | 0   | 0     | 0   | 139     | 112       | 135  | 327     | 713   |
| <b>Total</b>          | 587 | 1,427 | 584 | 139     | 112       | 135  | 327     | 3,311 |

**Comments:** Pond Values Used: Local Pond Values, June 2017.

Western redcedar and Other Cedars Stumpage Price = Pond Value minus Logging Cost:  
 $\$1,125/\text{MBF} = \$1,425/\text{MBF} - \$300/\text{MBF}$

Pulp (Conifer and Hardwood) Price =  $\$25/\text{MBF}$

SCALING COST ALLOWANCE =  $\$5.00/\text{MBF}$

BRANDING AND PAINTING COST ALLOWANCE =  $\$2.00/\text{MBF}$

FUEL COST ALLOWANCE =  $\$3.00/\text{Gallon}$

HAULING COST ALLOWANCE

Hauling costs equivalent to  $\$780$  daily truck cost.

Other Costs (with Profit & Risk to be added):

Snag Creation (Area 1: 180 snags, Area 2: 176 snags)  $356 \text{ snags} \times \$10/\text{snag} = \$3,560$

TOTAL Other Costs (with Profit & Risk to be added) =  $\$3,560$

Other Costs (No Profit & Risk added):

Machine Cleaning:  $\$1,000/\text{machine} \times 2 \text{ machines} = \$2,000$

Heliport Construction: 6 hours machine loader time for slash moving @  $\$140/\text{hour} = \$840$

Non-Project Road 1:  $\$100/\text{station} \times 16+45 \text{ stations} = \$1,645$

Non-Project Road 2:  $\$350/\text{station} \times 1+85 \text{ stations} = \$648$

Non-Project Road 3:  $\$565/\text{station} \times 2+85 \text{ stations} = \$1,610$

Non-Project Road 4:  $\$850/\text{station} \times 35+50 \text{ stations} = \$30,175$

Road Blocking (Non-Project Roads 1, 2, 3, and 4):  $\$50/\text{block} \times 4 \text{ roads} = \$200$

Slash Piling and Sorting (Cable Ground):  $\$5/\text{acre} \times 133 \text{ acres} = \$665$

Ditch Cleaning and Bank Sluff Removal:

Mobilization: once – dump truck w/tilt bed & small excavator:  $\$890 \times 1 = \$890$

Small Excavator (Cat 312 or equivalent): 20 hours @  $\$95/\text{hour} = \$1,900$

Dump Truck: 20 hours @  $\$70/\text{hour} = \$1,400$

TOTAL Other Costs (No Profit & Risk added) =  $\$41,973$

ROAD MAINTENANCE:

Cedar Butte, Muesial Creek, Kilchis Lookout, and in-unit roads.

Spot Rocking:  $20\text{cy}/\text{mmbf}/\text{mile} \times 3.3 \text{ MMBF} \times \$16.00/\text{cy} \times 7.8 \text{ miles}/3,311 \text{ MBF} = \$2.49/\text{MBF}$

Interim Grading, 1 time:  $\$250/\text{mile} \times 7.8 \text{ miles} \times 1 \text{ time}/3,311 \text{ MBF} = \$0.59/\text{MBF}$

Final Maintenance Grading:  $\$500 \times 7.8 \text{ miles}/3,311 \text{ MBF} = \$1.18/\text{MBF}$

Final Maintenance Compaction:  $\$700/\text{mile} \times 2.2 \text{ miles}/3,311 \text{ MBF} = \$0.46/\text{MBF}$

TOTAL Road Maintenance:  $\$4.72/\text{MBF}$



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**Logging Conditions**

|                          |                                                                 |                                 |        |
|--------------------------|-----------------------------------------------------------------|---------------------------------|--------|
| <b>Combination#: 1</b>   |                                                                 | Douglas - Fir                   | 69.09% |
| <b>Logging System:</b>   | Cable: Medium Tower >40 - <70                                   | <b>Process:</b> Stroke Delimber |        |
| <b>yarding distance:</b> | Medium (800 ft)                                                 | <b>downhill yarding:</b> No     |        |
| <b>tree size:</b>        | Mature Private Forest / Regen Cut (250 Bft/tree), 6-11 logs/MBF |                                 |        |
| <b>loads / day:</b>      | 5.77                                                            | <b>bd. ft / load:</b> 3600      |        |
| <b>cost / mbf:</b>       | \$288.85                                                        |                                 |        |
| <b>machines:</b>         | Log Loader (A)<br>Stroke Delimber (A)<br>Tower Yarder (Medium)  |                                 |        |
| <hr/>                    |                                                                 |                                 |        |
| <b>Combination#: 2</b>   | Western Hemlock / Fir                                           | 70.00%                          |        |
|                          | Sitka Spruce                                                    | 70.00%                          |        |
| <b>Logging System:</b>   | Cable: Medium Tower >40 - <70                                   | <b>Process:</b> Stroke Delimber |        |
| <b>yarding distance:</b> | Medium (800 ft)                                                 | <b>downhill yarding:</b> No     |        |
| <b>tree size:</b>        | Mature Private Forest / Regen Cut (250 Bft/tree), 6-11 logs/MBF |                                 |        |
| <b>loads / day:</b>      | 9                                                               | <b>bd. ft / load:</b> 3600      |        |
| <b>cost / mbf:</b>       | \$185.19                                                        |                                 |        |
| <b>machines:</b>         | Log Loader (A)<br>Stroke Delimber (A)<br>Tower Yarder (Medium)  |                                 |        |
| <hr/>                    |                                                                 |                                 |        |
| <b>Combination#: 3</b>   | Alder (Red)                                                     | 69.21%                          |        |
| <b>Logging System:</b>   | Cable: Medium Tower >40 - <70                                   | <b>Process:</b> Stroke Delimber |        |
| <b>yarding distance:</b> | Medium (800 ft)                                                 | <b>downhill yarding:</b> No     |        |
| <b>tree size:</b>        | Mature Private Forest / Regen Cut (250 Bft/tree), 6-11 logs/MBF |                                 |        |
| <b>loads / day:</b>      | 5.8                                                             | <b>bd. ft / load:</b> 3600      |        |
| <b>cost / mbf:</b>       | \$287.36                                                        |                                 |        |
| <b>machines:</b>         | Log Loader (A)<br>Stroke Delimber (A)<br>Tower Yarder (Medium)  |                                 |        |
| <hr/>                    |                                                                 |                                 |        |
| <b>Combination#: 4</b>   | Douglas - Fir                                                   | 30.91%                          |        |
|                          | Western Hemlock / Fir                                           | 30.00%                          |        |
|                          | Sitka Spruce                                                    | 30.00%                          |        |
|                          | Alder (Red)                                                     | 30.79%                          |        |
| <b>Logging System:</b>   | Shovel                                                          | <b>Process:</b> Stroke Delimber |        |
| <b>yarding distance:</b> | Short (400 ft)                                                  | <b>downhill yarding:</b> No     |        |
| <b>tree size:</b>        | Mature Private Forest / Regen Cut (250 Bft/tree), 6-11 logs/MBF |                                 |        |
| <b>loads / day:</b>      | 12                                                              | <b>bd. ft / load:</b> 3600      |        |
| <b>cost / mbf:</b>       | \$73.43                                                         |                                 |        |
| <b>machines:</b>         | Stroke Delimber (B)                                             |                                 |        |



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## Logging Costs

|                             |                               |
|-----------------------------|-------------------------------|
| Operating Seasons: 1.00     | Profit Risk: 12%              |
| Project Costs: \$303,520.00 | Other Costs (P/R): \$3,560.00 |
| Slash Disposal: \$0.00      | Other Costs: \$41,973.00      |

### Miles of Road

Road Maintenance: \$4.72

| Dirt | Rock<br>(Contractor) | Rock<br>(State) | Paved |
|------|----------------------|-----------------|-------|
| 0.0  | 0.0                  | 0.0             | 0.0   |

### Hauling Costs

| Species               | \$ / MBF | Trips/Day | MBF / Load |
|-----------------------|----------|-----------|------------|
| Douglas - Fir         | \$0.00   | 3.0       | 4.2        |
| Western Hemlock / Fir | \$0.00   | 3.0       | 4.0        |
| Sitka Spruce          | \$0.00   | 3.0       | 4.0        |
| Alder (Red)           | \$0.00   | 4.0       | 3.6        |



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**Logging Costs Breakdown**

| Logging                      | Road Maint | Fire Protect | Hauling | Other P/R appl | Profit & Risk | Slash Disposal | Scaling / Brand & Paint | Other   | Total    |
|------------------------------|------------|--------------|---------|----------------|---------------|----------------|-------------------------|---------|----------|
| <b>Douglas - Fir</b>         |            |              |         |                |               |                |                         |         |          |
| \$222.26                     | \$4.96     | \$1.32       | \$65.00 | \$1.08         | \$35.35       | \$0.00         | \$7.00                  | \$12.68 | \$349.65 |
| <b>Western Hemlock / Fir</b> |            |              |         |                |               |                |                         |         |          |
| \$151.66                     | \$4.96     | \$1.32       | \$68.25 | \$1.08         | \$27.27       | \$0.00         | \$7.00                  | \$12.68 | \$274.22 |
| <b>Sitka Spruce</b>          |            |              |         |                |               |                |                         |         |          |
| \$151.66                     | \$4.96     | \$1.32       | \$68.25 | \$1.08         | \$27.27       | \$0.00         | \$7.00                  | \$12.68 | \$274.22 |
| <b>Alder (Red)</b>           |            |              |         |                |               |                |                         |         |          |
| \$221.50                     | \$5.19     | \$1.32       | \$59.59 | \$1.08         | \$34.64       | \$0.00         | \$7.00                  | \$12.68 | \$343.00 |

| Specie                | Amortization | Pond Value | Stumpage | Amortized |
|-----------------------|--------------|------------|----------|-----------|
| Douglas - Fir         | \$0.00       | \$697.52   | \$347.87 | \$0.00    |
| Western Hemlock / Fir | \$0.00       | \$580.06   | \$305.84 | \$0.00    |
| Sitka Spruce          | \$0.00       | \$458.46   | \$184.24 | \$0.00    |
| Alder (Red)           | \$0.00       | \$679.78   | \$336.78 | \$0.00    |



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### Amortized

| Specie                | MBF | Value  | Total  |
|-----------------------|-----|--------|--------|
| Douglas - Fir         | 0   | \$0.00 | \$0.00 |
| Western Hemlock / Fir | 0   | \$0.00 | \$0.00 |
| Sitka Spruce          | 0   | \$0.00 | \$0.00 |
| Alder (Red)           | 0   | \$0.00 | \$0.00 |

### Unamortized

| Specie                | MBF   | Value    | Total        |
|-----------------------|-------|----------|--------------|
| Douglas - Fir         | 2,461 | \$347.87 | \$856,108.07 |
| Western Hemlock / Fir | 100   | \$305.84 | \$30,584.00  |
| Sitka Spruce          | 37    | \$184.24 | \$6,816.88   |
| Alder (Red)           | 713   | \$336.78 | \$240,124.14 |

### Gross Timber Sale Value

Recovery: \$1,133,633.09

Prepared By: David Wells

Phone: 503-842-2545



## PROJECT SUMMARY SHEET

Sale: Knot Berry

### CONSTRUCTION

|                              |        |      |            |                   |
|------------------------------|--------|------|------------|-------------------|
| Point                        | E to F | 2+35 | stations = | \$8,986.71        |
| <b>SUBTOTAL CONSTRUCTION</b> |        |      |            | <b>\$8,986.71</b> |

### IMPROVEMENT

|                             |          |       |            |                     |
|-----------------------------|----------|-------|------------|---------------------|
| Point                       | A to B   | 96+00 | stations = | \$56,330.40         |
| Point                       | C to D   | 7+00  | stations = | \$459.90            |
| Point                       | E to F   | 51+05 | stations = | \$64,338.93         |
| Point                       | I to J   | 15+20 | stations = | \$18,199.14         |
| Point                       | S to T   | 12+80 | stations = | \$1,045.80          |
| Point                       | Point Y  | 2+55  | stations = | \$11,985.96         |
| Point                       | AA to BB | 70+40 | stations = | \$85,388.98         |
| Point                       | Point CC | 0+00  | stations = | \$106.60            |
| Point                       | Point DD | 0+00  | stations = | \$574.00            |
| <b>SUBTOTAL IMPROVEMENT</b> |          |       |            | <b>\$238,429.71</b> |

### SPECIAL PROJECTS

|                                        |                 |                    |
|----------------------------------------|-----------------|--------------------|
| Road Brushing                          | 203.14 Stations | \$5,001.55         |
| Wolf Point Pit Stripping               |                 | \$2,478.27         |
| Feldshaw Pit Stripping and wood piling |                 | \$34,809.41        |
| Point A 4"-0" Stockpile                | 500CUYDs        | \$6,590.00         |
| Point Z 4"-0" Stockpile                | 500CUYDs        | \$5,730.00         |
| <b>SUBTOTAL SPECIAL PROJECTS</b>       |                 | <b>\$48,879.23</b> |

|                |                   |
|----------------|-------------------|
| <b>MOVE IN</b> | <b>\$7,224.35</b> |
|----------------|-------------------|

|                    |                     |
|--------------------|---------------------|
| <b>GRAND TOTAL</b> | <b>\$303,520.00</b> |
|--------------------|---------------------|

# SUMMARY OF CONSTRUCTION COST

Sale:

**Knot Berry**

Road:

**A to B**

|                       |      |          |                      |       |          |                         |      |          |
|-----------------------|------|----------|----------------------|-------|----------|-------------------------|------|----------|
| <u>Construction -</u> | 0+00 | stations | <u>Improvement -</u> | 96+00 | stations | <u>Reconstruction -</u> | 0+00 | stations |
|                       | 0.00 | miles    |                      | 1.82  | miles    |                         | 0.00 | miles    |

## **IMPROVEMENT:** EXCAVATION -

|                         |      |       |        |           |                   |
|-------------------------|------|-------|--------|-----------|-------------------|
| Widening(Ravel Removal) | 2855 | cy. @ | \$1.50 | per c.y.= | \$4,282.50        |
| <b>TOTAL EXCAVATION</b> |      |       |        |           | <b>\$4,282.50</b> |

## **IMPROVEMENT:** ENDHAUL -

|                         |       |    |       |      |       |        |           |                    |
|-------------------------|-------|----|-------|------|-------|--------|-----------|--------------------|
| Widening(Ravel Removal) | 0+00  | to | 64+17 | 210  | cy. @ | \$3.33 | per c.y.= | \$699.30           |
| Widening(Ravel Removal) | 64+17 | to | 65+67 | 205  | cy. @ | \$3.05 | per c.y.= | \$625.25           |
| Widening(Ravel Removal) | 65+97 | to | 69+41 | 1350 | cy. @ | \$3.15 | per c.y.= | \$4,252.50         |
| Widening(Ravel Removal) | 73+76 | to | 74+46 | 75   | cy. @ | \$3.21 | per c.y.= | \$240.75           |
| Widening(Ravel Removal) | 78+02 | to | 82+54 | 450  | cy. @ | \$3.24 | per c.y.= | \$1,458.00         |
| Widening(Ravel Removal) | 80+00 | to | 86+50 | 565  | cy. @ | \$5.34 | per c.y.= | \$3,017.10         |
| <b>TOTAL ENDHAUL</b>    |       |    |       |      |       |        |           | <b>\$10,292.90</b> |

## **ROCK**

|                       |       |       |        |        |   |         |           |                    |
|-----------------------|-------|-------|--------|--------|---|---------|-----------|--------------------|
| 64+95 to              | 96+00 | 1,680 | cy. of | Jawrun | @ | \$17.17 | per c.y.= | #####              |
| Intersection Widening | 0+00  | 50    | cy. of | Jawrun | @ | \$14.73 | per c.y.= | \$736.50           |
| Spot Patching         | 0+69  | 30    | cy. of | Jawrun | @ | \$13.40 | per c.y.= | \$402.00           |
| Landing               | 59+20 | 40    | cy. of | Pitrun | @ | \$11.52 | per c.y.= | \$460.80           |
| Landing               | 64+95 | 30    | cy. of | Jawrun | @ | \$16.70 | per c.y.= | \$501.00           |
| Spot Patching         | 84+74 | 20    | cy. of | Jawrun | @ | \$15.95 | per c.y.= | \$319.00           |
| Spot Patching         | 86+55 | 20    | cy. of | Jawrun | @ | \$16.00 | per c.y.= | \$320.00           |
| Landing               | 85+85 | 100   | cy. of | Pitrun | @ | \$12.33 | per c.y.= | \$1,233.00         |
| Landing               | 95+03 | 100   | cy. of | Pitrun | @ | \$12.61 | per c.y.= | \$1,261.00         |
| <b>TOTAL ROCK</b>     |       |       |        |        |   |         |           | <b>\$34,078.90</b> |

## **SPECIAL PROJECTS**

|                                                    |       |            |          |             |                 |
|----------------------------------------------------|-------|------------|----------|-------------|-----------------|
| Construct Stockpile Area                           | 6.00  | hours @    | \$145.00 | per hour    | 870.00          |
| Grade and shape road -                             | 96.00 | stations @ | \$15.50  | per station | 1,488.00        |
| Remove road contaminates, endhaul to waste area #2 | 31.05 | stations @ | \$95.00  | per station | 2,949.75        |
| Roll Road following grading -                      | 96.00 | stations @ | \$13.20  | per station | 1,267.20        |
| Grass seed and fertilize -                         | 5.00  | acres @    | \$220.00 | per acre    | 1,100.00        |
| <b>TOTAL SPECIAL PROJECTS</b>                      |       |            |          |             | <b>7,674.95</b> |

**GRAND TOTAL**

**56,329.25**

SUMMARY OF CONSTRUCTION COST

|                                                      |             |                   |                      |             |          |                         |                               |                 |
|------------------------------------------------------|-------------|-------------------|----------------------|-------------|----------|-------------------------|-------------------------------|-----------------|
| Sale:                                                |             | <u>Knot Berry</u> |                      | Road:       |          | <u>C to D</u>           |                               |                 |
| <u>Construction -</u>                                | <u>0+00</u> | stations          | <u>Improvement -</u> | <u>7+00</u> | stations | <u>Reconstruction -</u> | <u>0+00</u>                   | stations        |
|                                                      | 0.00        | miles             |                      | 0.13        | miles    |                         | 0.00                          | miles           |
| <u>IMPROVEMENT: EXCAVATION -</u>                     |             |                   |                      |             |          |                         |                               |                 |
| Widening(Ravel Removal)                              |             |                   | 70                   | cy. @       | \$1.40   | per c.y.=               | \$98.00                       |                 |
|                                                      |             |                   |                      |             |          |                         | <b>TOTAL EXCAVATION</b>       | <b>\$98.00</b>  |
| <u>IMPROVEMENT: ENDHAUL -</u>                        |             |                   |                      |             |          |                         |                               |                 |
| Widening(Ravel Removal)                              | 0+00        | to                | 5+00                 | 70          | cy. @    | \$2.05                  | per c.y.=                     | \$143.50        |
|                                                      |             |                   |                      |             |          |                         | <b>TOTAL ENDHAUL</b>          | <b>\$161.00</b> |
| <b>SPECIAL PROJECTS</b>                              |             |                   |                      |             |          |                         |                               |                 |
| Grade and shape road -                               |             |                   | 7.00                 | stations @  | \$15.50  | per station             | \$108.50                      |                 |
| Roll subgrade w/ vibratory roller prior to rocking - |             |                   | 7.00                 | stations @  | \$13.20  | per station             | \$92.40                       |                 |
|                                                      |             |                   |                      |             |          |                         | <b>TOTAL SPECIAL PROJECTS</b> | <b>\$200.90</b> |
|                                                      |             |                   |                      |             |          |                         | <b>GRAND TOTAL</b>            | <b>\$459.90</b> |

## SUMMARY OF CONSTRUCTION COST

|                         |             |          |                      |              |          |                         |             |          |
|-------------------------|-------------|----------|----------------------|--------------|----------|-------------------------|-------------|----------|
| Sale: <u>Knot Berry</u> |             |          | Road: <u>E to F</u>  |              |          |                         |             |          |
| <u>Construction -</u>   | <u>2+35</u> | stations | <u>Improvement -</u> | <u>51+05</u> | stations | <u>Reconstruction -</u> | <u>0+00</u> | stations |
|                         | <u>0.04</u> | miles    |                      | <u>0.97</u>  | miles    |                         | <u>0.00</u> | miles    |

|                                                                                                                                            |                |           |                |                       |                   |                      |                       |                         |
|--------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|----------------|-----------------------|-------------------|----------------------|-----------------------|-------------------------|
| <b>CONSTRUCTION:</b> CLEARING, GRUBBING, SCATTERING, EXCAVATION, COMPACTION, LOADING, END-HAULING AND SPREADING/COMPACTING AT WASTE AREA - |                |           |                |                       |                   |                      |                       |                         |
|                                                                                                                                            | <u>Station</u> | <u>to</u> | <u>Station</u> | <u>Avg. Sideslope</u> | <u>Avg. Dist.</u> | <u>To W.A. (mi.)</u> | <u>Outslope/Ditch</u> | <u>Cost per Station</u> |
|                                                                                                                                            | 51+05          |           | 53+40          |                       |                   |                      |                       | \$2,860                 |
|                                                                                                                                            |                |           |                |                       |                   |                      |                       | =                       |
|                                                                                                                                            |                |           |                |                       |                   |                      |                       | \$6,721.00              |
|                                                                                                                                            |                |           |                |                       |                   |                      |                       | <b>TOTAL</b>            |
|                                                                                                                                            |                |           |                |                       |                   |                      |                       | <b>\$6,721.00</b>       |

|                                  |  |  |  |      |       |        |           |                         |
|----------------------------------|--|--|--|------|-------|--------|-----------|-------------------------|
| <b>IMPROVEMENT:</b> EXCAVATION - |  |  |  |      |       |        |           |                         |
| Widening(Ravel Removal)          |  |  |  | 3400 | cy. @ | \$1.50 | per c.y.= | \$5,100.00              |
|                                  |  |  |  |      |       |        |           | <b>TOTAL EXCAVATION</b> |
|                                  |  |  |  |      |       |        |           | <b>\$5,100.00</b>       |

|                               |       |    |       |      |       |        |           |                      |
|-------------------------------|-------|----|-------|------|-------|--------|-----------|----------------------|
| <b>IMPROVEMENT:</b> ENDHAUL - |       |    |       |      |       |        |           |                      |
| Widening(Ravel Removal)       | 12+90 | to | 15+83 | 700  | cy. @ | \$3.23 | per c.y.= | \$2,261.00           |
| Widening(Ravel Removal)       | 18+26 | to | 19+40 | 150  | cy. @ | \$3.45 | per c.y.= | \$517.50             |
| Widening(Ravel Removal)       | 20+33 | to | 22+92 | 550  | cy. @ | \$3.53 | per c.y.= | \$1,941.50           |
| Widening(Ravel Removal)       | 31+89 | to | 39+73 | 2000 | cy. @ | \$2.65 | per c.y.= | \$5,300.00           |
|                               |       |    |       |      |       |        |           | <b>TOTAL ENDHAUL</b> |
|                               |       |    |       |      |       |        |           | <b>\$10,020.00</b>   |

|                                                |  |  |                                     |           |            |  |   |                       |
|------------------------------------------------|--|--|-------------------------------------|-----------|------------|--|---|-----------------------|
| <b>CULVERTS - MATERIALS &amp; INSTALLATION</b> |  |  |                                     |           |            |  |   |                       |
|                                                |  |  | <u>Culverts</u>                     |           |            |  |   |                       |
|                                                |  |  | 150                                 | LF of 18" |            |  | 0 | LF of 24"             |
|                                                |  |  |                                     |           | \$2,625.00 |  |   | \$0.00                |
|                                                |  |  |                                     |           | \$2,625.00 |  |   | \$0.00                |
|                                                |  |  | <u>Culvert Stakes &amp; Markers</u> |           |            |  |   |                       |
|                                                |  |  | 5 markers                           |           | \$40.00    |  |   |                       |
|                                                |  |  |                                     |           | \$40.00    |  |   |                       |
|                                                |  |  |                                     |           |            |  |   | <b>TOTAL CULVERTS</b> |
|                                                |  |  |                                     |           |            |  |   | <b>\$2,665.00</b>     |

|                   |               |       |        |         |   |         |           |                    |
|-------------------|---------------|-------|--------|---------|---|---------|-----------|--------------------|
| <b>ROCK</b>       |               |       |        |         |   |         |           |                    |
| 0+00 to 31+90     | 31+90         | 1,030 | cy. of | Jaw Run | @ | \$17.18 | per c.y.= | \$17,695.40        |
| 31+90 to 53+40    | 53+40         | 1,070 | cy. of | Pitrun  | @ | \$12.98 | per c.y.= | \$13,888.60        |
| Culvert Backfill  | 15yds/culvert | 90    | cy. of | Jawrun  | @ | \$15.79 | per c.y.= | \$1,421.10         |
| Energy Dissipator | 5yds/culvert  | 30    | cy. of | Rip Rap | @ | \$12.76 | per c.y.= | \$382.80           |
| Energy Dissipator | 23+35         | 5     | cy. of | Rip Rap | @ | \$12.50 | per c.y.= | \$62.50            |
| Spot Rock         | 35+26         | 30    | cy. of | Pitrun  | @ | \$12.76 | per c.y.= | \$382.80           |
| Spot Rock         | 38+85         | 40    | cy. of | Pitrun  | @ | \$12.87 | per c.y.= | \$514.80           |
| Turnout           | 20yds/turnout | 60    | cy. of | Jawrun  | @ | \$16.02 | per c.y.= | \$961.20           |
| Turnout           | 30yds/turnout | 90    | cy. of | Pitrun  | @ | \$12.95 | per c.y.= | \$1,165.50         |
| Turnaround        | 50+91         | 30    | cy. of | Pitrun  | @ | \$13.23 | per c.y.= | \$396.90           |
| Turnaround        | 40+31         | 50    | cy. of | Pitrun  | @ | \$12.47 | per c.y.= | \$623.50           |
| Landing Rock      | 49+34         | 100   | cy. of | Pitrun  | @ | \$13.19 | per c.y.= | \$1,319.00         |
| Landing Rock      | 53+40         | 120   | cy. of | Pitrun  | @ | \$13.31 | per c.y.= | \$1,597.20         |
|                   |               |       |        |         |   |         |           | <b>TOTAL ROCK</b>  |
|                   |               |       |        |         |   |         |           | <b>\$40,411.30</b> |

|                                                      |  |       |            |          |             |                               |  |                   |
|------------------------------------------------------|--|-------|------------|----------|-------------|-------------------------------|--|-------------------|
| <b>SPECIAL PROJECTS</b>                              |  |       |            |          |             |                               |  |                   |
| Construct Ditches(Endhaul)                           |  | 44.79 | stations @ | \$120.00 | per station | \$5,374.80                    |  |                   |
| Construct Ditches(No Endhaul)                        |  | 12.89 | stations @ | \$60.00  | per station | \$773.40                      |  |                   |
| Construct ditchouts -                                |  | 1.00  | @          | \$20.00  | each        | \$20.00                       |  |                   |
| Grade and shape road -                               |  | 51.05 | stations @ | \$15.50  | per station | \$791.28                      |  |                   |
| Roll subgrade w/ vibratory roller prior to rocking - |  | 51.05 | stations @ | \$13.20  | per station | \$673.86                      |  |                   |
| Remove large stumps -                                |  | 2.00  | lump sum @ | \$250.00 |             | \$500.00                      |  |                   |
| Grass seed and fertilize -                           |  | 1.25  | acres @    | \$220.00 | per acre    | \$275.00                      |  |                   |
|                                                      |  |       |            |          |             | <b>TOTAL SPECIAL PROJECTS</b> |  | <b>\$8,408.34</b> |

|                    |                    |
|--------------------|--------------------|
| <b>GRAND TOTAL</b> | <b>\$73,325.64</b> |
|--------------------|--------------------|

SUMMARY OF CONSTRUCTION COST

|                                                      |             |          |                      |              |          |                         |                               |                    |
|------------------------------------------------------|-------------|----------|----------------------|--------------|----------|-------------------------|-------------------------------|--------------------|
| Sale: <u>Knot Berry</u>                              |             |          | Road: <u>I to J</u>  |              |          |                         |                               |                    |
| <u>Construction -</u>                                | <u>0+00</u> | stations | <u>Improvement -</u> | <u>15+20</u> | stations | <u>Reconstruction -</u> | <u>0+00</u>                   | stations           |
|                                                      | <u>0.00</u> | miles    |                      | <u>0.29</u>  | miles    |                         | <u>0.00</u>                   | miles              |
|                                                      |             |          |                      |              |          |                         |                               |                    |
| <u>IMPROVEMENT:</u> EXCAVATION -                     |             |          |                      |              |          |                         |                               |                    |
| Widening                                             |             |          | 350                  | cy. @        | \$1.50   | per c.y.=               | <u>\$525.00</u>               |                    |
| Widening(Ravel Removal)                              |             |          |                      |              |          |                         | <b>TOTAL EXCAVATION</b>       | <b>\$525.00</b>    |
|                                                      |             |          |                      |              |          |                         |                               |                    |
| <u>IMPROVEMENT:</u> ENDHAUL -                        |             |          |                      |              |          |                         |                               |                    |
| Widening(Ravel Removal)                              | 0+00        | to       | 15+00                | 350          | cy. @    | \$2.77                  | per c.y.=                     | <u>\$969.50</u>    |
|                                                      |             |          |                      |              |          |                         | <b>TOTAL ENDHAUL</b>          | <b>\$969.50</b>    |
|                                                      |             |          |                      |              |          |                         |                               |                    |
| <b>ROCK</b>                                          |             |          |                      |              |          |                         |                               |                    |
| 0+00 to                                              | 15+20       | 520      | cy. of               | Jaw Run      | @        | \$16.88                 | per c.y.=                     | \$8,777.60         |
| Landing Rock                                         | Landings    | 160      | cy. of               | Pitrun       | @        | \$11.57                 | per c.y.=                     | \$1,851.20         |
| Junction                                             | 0+00        | 60       | cy. of               | Jawrun       | @        | \$16.66                 | per c.y.=                     | <u>\$999.60</u>    |
|                                                      |             |          |                      |              |          |                         | <b>TOTAL ROCK</b>             | <b>\$11,628.40</b> |
|                                                      |             |          |                      |              |          |                         |                               |                    |
| <b>SPECIAL PROJECTS</b>                              |             |          |                      |              |          |                         |                               |                    |
| Clear Waste Area #2                                  |             |          | 16.00                | hours @      | \$290.00 | per hour                | \$4,640.00                    |                    |
| Grade and shape road -                               |             |          | 15.20                | stations @   | \$15.50  | per station             | \$235.60                      |                    |
| Roll subgrade w/ vibratory roller prior to rocking - |             |          | 15.20                | stations @   | \$13.20  | per station             | <u>\$200.64</u>               |                    |
|                                                      |             |          |                      |              |          |                         | <b>TOTAL SPECIAL PROJECTS</b> | <b>\$5,076.24</b>  |
|                                                      |             |          |                      |              |          |                         |                               |                    |
| <b>GRAND TOTAL</b>                                   |             |          |                      |              |          |                         |                               | <b>\$18,199.14</b> |

SUMMARY OF CONSTRUCTION COST

|                            |  |                   |  |          |  |                         |  |               |  |                               |  |
|----------------------------|--|-------------------|--|----------|--|-------------------------|--|---------------|--|-------------------------------|--|
| Sale:                      |  | <u>Knot Berry</u> |  |          |  | Road:                   |  | <u>S to T</u> |  |                               |  |
| <u>Construction -</u>      |  | <u>0+00</u>       |  | stations |  | <u>Improvement -</u>    |  | <u>12+80</u>  |  |                               |  |
|                            |  | <u>0.00</u>       |  | miles    |  |                         |  | <u>0.24</u>   |  |                               |  |
|                            |  |                   |  |          |  | miles                   |  |               |  |                               |  |
| <u>Reconstruction -</u>    |  | <u>0+00</u>       |  | stations |  | <u>Reconstruction -</u> |  | <u>0+00</u>   |  |                               |  |
|                            |  | <u>0.00</u>       |  | miles    |  |                         |  | <u>0.00</u>   |  |                               |  |
|                            |  |                   |  |          |  |                         |  |               |  |                               |  |
| <b>ROCK</b>                |  |                   |  |          |  |                         |  |               |  |                               |  |
| Spot Patch                 |  | 12+60             |  | 20       |  | cy. of                  |  | Pitrun        |  | @                             |  |
|                            |  |                   |  |          |  |                         |  |               |  | \$48.99 per c.y. =            |  |
|                            |  |                   |  |          |  |                         |  |               |  | <u>\$979.80</u>               |  |
|                            |  |                   |  |          |  |                         |  |               |  | <b>TOTAL ROCK</b>             |  |
|                            |  |                   |  |          |  |                         |  |               |  | <b>\$979.80</b>               |  |
| <b>SPECIAL PROJECTS</b>    |  |                   |  |          |  |                         |  |               |  |                               |  |
| Grass seed and fertilize - |  |                   |  | 0.30     |  | acres @                 |  | \$220.00      |  | per acre                      |  |
|                            |  |                   |  |          |  |                         |  |               |  | <u>\$66.00</u>                |  |
|                            |  |                   |  |          |  |                         |  |               |  | <b>TOTAL SPECIAL PROJECTS</b> |  |
|                            |  |                   |  |          |  |                         |  |               |  | <b>\$66.00</b>                |  |
|                            |  |                   |  |          |  |                         |  |               |  | <b>GRAND TOTAL</b>            |  |
|                            |  |                   |  |          |  |                         |  |               |  | <b>\$1,045.80</b>             |  |

SUMMARY OF CONSTRUCTION COST

|                         |             |          |                      |             |          |
|-------------------------|-------------|----------|----------------------|-------------|----------|
| Sale: <b>Knot Berry</b> |             |          | Road: <b>Point Y</b> |             |          |
| <u>Construction -</u>   | <u>0+00</u> | stations | <u>Improvement -</u> | <u>2+55</u> | stations |
|                         | <u>0.00</u> | miles    |                      | <u>0.05</u> | miles    |
| <u>Reconstruction -</u> | <u>0+00</u> | stations |                      |             |          |
|                         | <u>0.00</u> | miles    |                      |             |          |

|             |    |      |     |        |         |   |                    |                   |                   |
|-------------|----|------|-----|--------|---------|---|--------------------|-------------------|-------------------|
| <b>ROCK</b> |    |      |     |        |         |   |                    |                   |                   |
| 0+00        | to | 2+55 | 180 | cy. of | Jaw Run | @ | \$18.33 per c.y. = | <u>\$3,299.40</u> |                   |
|             |    |      |     |        |         |   |                    | <b>TOTAL ROCK</b> | <b>\$3,299.40</b> |

|                                                      |         |            |          |             |                 |  |  |                               |                           |
|------------------------------------------------------|---------|------------|----------|-------------|-----------------|--|--|-------------------------------|---------------------------|
| <b>SPECIAL PROJECTS</b>                              |         |            |          |             |                 |  |  |                               |                           |
| Excavate and Endhaul Material to Waste Area #3       | 1350.00 | CUYDS @    | \$5.00   | per CUYD    | \$6,750.00      |  |  |                               |                           |
| Excavate and Endhaul Woody Debris to Waste Area #3   | 6.00    | hours @    | \$265.00 | per hour    | \$1,590.00      |  |  |                               |                           |
| Roll subgrade w/ vibratory roller prior to rocking - | 2.55    | stations @ | \$13.20  | per station | \$33.66         |  |  |                               |                           |
| Remove culverts from state lands                     | 1.00    | @          | \$202.90 | total       | \$202.90        |  |  |                               |                           |
| Grass seed and fertilize -                           | 0.50    | acres @    | \$220.00 | per acre    | <u>\$110.00</u> |  |  |                               |                           |
|                                                      |         |            |          |             |                 |  |  | <b>TOTAL SPECIAL PROJECTS</b> | <b>\$8,686.56</b>         |
|                                                      |         |            |          |             |                 |  |  | <b>GRAND TOTAL</b>            | <b><u>\$11,985.96</u></b> |

## SUMMARY OF CONSTRUCTION COST

Sale: **Knot Berry**

Road: **AA to BB**

|                       |             |                 |                      |              |                 |                         |             |                 |
|-----------------------|-------------|-----------------|----------------------|--------------|-----------------|-------------------------|-------------|-----------------|
| <u>Construction -</u> | <u>0+00</u> | <u>stations</u> | <u>Improvement -</u> | <u>70+40</u> | <u>stations</u> | <u>Reconstruction -</u> | <u>0+00</u> | <u>stations</u> |
|                       | <u>0.00</u> | <u>miles</u>    |                      |              | <u>miles</u>    |                         | <u>0.00</u> | <u>miles</u>    |

**IMPROVEMENT:** CLEARING AND GRUBBING -

|          |       |       |   |          |            |                   |                   |
|----------|-------|-------|---|----------|------------|-------------------|-------------------|
| Widening | 3.000 | acres | @ | \$660.00 | per acre = | <u>\$1,980.00</u> |                   |
|          |       |       |   |          |            |                   | <b>\$1,980.00</b> |

**IMPROVEMENT:** EXCAVATION -

|                                   |      |     |   |        |           |                    |                    |
|-----------------------------------|------|-----|---|--------|-----------|--------------------|--------------------|
| Pullback                          | 250  | cy. | @ | \$1.50 | per c.y.= | \$375.00           |                    |
| Widening(Move road into hillside) | 5700 | cy. | @ | \$2.00 | per c.y.= | <u>\$11,400.00</u> |                    |
|                                   |      |     |   |        |           |                    | <b>\$11,775.00</b> |

**IMPROVEMENT:** ENDHAUL -

|                                   |       |    |       |      |     |   |        |           |                    |                    |
|-----------------------------------|-------|----|-------|------|-----|---|--------|-----------|--------------------|--------------------|
| Pullback                          | 4+40  | to | 26+37 | 250  | cy. | @ | \$3.95 | per c.y.= | \$987.50           |                    |
| Widening(Move road into hillside) | 16+59 | to | 18+76 | 1700 | cy. | @ | \$6.27 | per c.y.= | \$10,659.00        |                    |
| Widening(Move road into hillside) | 21+51 | to | 22+42 | 800  | cy. | @ | \$4.61 | per c.y.= | \$3,688.00         |                    |
| Widening(Move road into hillside) | 25+08 | to | 27+29 | 3200 | cy. | @ | \$5.43 | per c.y.= | <u>\$17,376.00</u> |                    |
|                                   |       |    |       |      |     |   |        |           |                    | <b>\$32,710.50</b> |

**CULVERTS - MATERIALS & INSTALLATION**

Culverts

|     |           |                   |     |           |                   |
|-----|-----------|-------------------|-----|-----------|-------------------|
| 210 | LF of 18" | <u>\$3,675.00</u> | 100 | LF of 24" | <u>\$2,700.00</u> |
|     |           | \$3,675.00        |     |           | \$2,700.00        |

Miscellaneous

|                   |          |                 |   |           |               |
|-------------------|----------|-----------------|---|-----------|---------------|
| 60                | LF of 8" | \$200.00        | 0 | LF of 30" | \$0.00        |
| 18" to 8" Adapter |          | \$150.00        | 0 | LF of 42" | <u>\$0.00</u> |
| 90deg Elbow       |          | <u>\$150.00</u> |   |           |               |
|                   |          | \$350.00        |   |           | \$0.00        |

Culvert Stakes & Markers

|            |                |
|------------|----------------|
| 7 stakes   | \$56.00        |
| 10 markers | <u>\$80.00</u> |
|            | \$136.00       |

**TOTAL CULVERTS \$6,861.00**

**ROCK**

|                   |               |       |        |        |   |         |           |                 |                    |
|-------------------|---------------|-------|--------|--------|---|---------|-----------|-----------------|--------------------|
| 0+00 to           | 37+55         | 1,320 | cy. of | Jawrun | @ | \$11.86 | per c.y.= | \$15,655.20     |                    |
| Culvert Backfill  | 20yds/culvert | 200   | cy. of | Jawrun | @ | \$10.51 | per c.y.= | \$2,102.00      |                    |
| Fill              | 21+40         | 70    | cy. of | Pitrun | @ | \$6.36  | per c.y.= | \$445.20        |                    |
| Fill              | 21+40         | 30    | cy. of | Riprap | @ | \$6.96  | per c.y.= | \$208.80        |                    |
| Energy Dissipator | 24+95         | 20    | cy. of | Riprap | @ | \$6.96  | per c.y.= | \$139.20        |                    |
| Energy Dissipator | 26+05         | 20    | cy. of | Riprap | @ | \$6.96  | per c.y.= | \$139.20        |                    |
| Energy Dissipator | 5yds/culvert  | 35    | cy. of | Riprap | @ | \$6.96  | per c.y.= | <u>\$243.60</u> |                    |
|                   |               |       |        |        |   |         |           |                 | <b>\$18,933.20</b> |

**SPECIAL PROJECTS**

|                                                      |       |            |          |             |                 |                    |
|------------------------------------------------------|-------|------------|----------|-------------|-----------------|--------------------|
| Clean Ditchline-No Endhaul                           | 19.52 | stations @ | \$60.00  | per station | \$1,171.20      |                    |
| Clean Ditchline-Endhaul                              | 34.08 | stations @ | \$120.00 | per station | \$4,089.60      |                    |
| Clean Ditchline-Drill & Shoot                        | 12.00 | stations @ | \$200.00 | per station | \$2,400.00      |                    |
| Construct waste areas -                              | 20.00 | hours @    | \$150.00 | per hour    | \$3,000.00      |                    |
| Construct ditchouts -                                | 1.00  | @          | \$60.00  | each        | \$60.00         |                    |
| Grade and shape road -                               | 70.40 | stations @ | \$15.50  | per station | \$1,091.20      |                    |
| Roll subgrade w/ vibratory roller prior to rocking - | 70.40 | stations @ | \$13.20  | per station | \$929.28        |                    |
| Grass seed and fertilize -                           | 0.40  | acres @    | \$220.00 | per acre    | \$88.00         |                    |
| Mulching -                                           | 0.500 | acres @    | \$600.00 | per acre    | <u>\$300.00</u> |                    |
|                                                      |       |            |          |             |                 | <b>\$13,129.28</b> |

**GRAND TOTAL \$85,388.98**

SUMMARY OF CONSTRUCTION COST

|                       |  |                   |          |                      |         |                 |                    |                         |                 |                    |                 |
|-----------------------|--|-------------------|----------|----------------------|---------|-----------------|--------------------|-------------------------|-----------------|--------------------|-----------------|
| Sale:                 |  | <u>Knot Berry</u> |          | Road:                |         | <u>Point CC</u> |                    |                         |                 |                    |                 |
| <u>Construction -</u> |  | <u>0+00</u>       | stations | <u>Improvement -</u> |         | <u>0+00</u>     | stations           | <u>Reconstruction -</u> |                 | <u>0+00</u>        | stations        |
|                       |  | 0.00              | miles    |                      |         | 0.00            | miles              |                         |                 | 0.00               | miles           |
| <b>ROCK</b>           |  |                   |          |                      |         |                 |                    |                         |                 |                    |                 |
| Sinkhole Backfill     |  | 0+00              | 10       | cy. of               | Rip Rap | @               | \$10.66 per c.y. = |                         | <u>\$106.60</u> |                    |                 |
|                       |  |                   |          |                      |         |                 |                    |                         |                 | <b>TOTAL ROCK</b>  | <b>\$106.60</b> |
|                       |  |                   |          |                      |         |                 |                    |                         |                 | <b>GRAND TOTAL</b> | <b>\$106.60</b> |

SUMMARY OF CONSTRUCTION COST

|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|------------------------------------------------|--|--|-------------------------------------|-----------|----------------|----------------------|--|--|-----------------|-----------|--------|
| Sale:                                          |  |  | <u>Knot Berry</u>                   |           |                | Road:                |  |  | <u>Point DD</u> |           |        |
| <u>Construction -</u>                          |  |  | <u>0+00</u>                         | stations  |                | <u>Improvement -</u> |  |  | <u>0+00</u>     | stations  |        |
|                                                |  |  | 0.00                                | miles     |                |                      |  |  | 0.00            | miles     |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
| <b>CULVERTS - MATERIALS &amp; INSTALLATION</b> |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  | <u>Culverts</u>                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  | 20                                  | LF of 18" | \$350.00       |                      |  |  | 0               | LF of 24" | \$0.00 |
|                                                |  |  | <u>Culvert Stakes &amp; Markers</u> |           |                |                      |  |  |                 |           |        |
|                                                |  |  | 4                                   | stakes    | <u>\$32.00</u> |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
|                                                |  |  |                                     |           |                |                      |  |  |                 |           |        |
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## ROCK PIT DEVELOPMENT AND CRUSHING COST SUMMARY

|             |                   |                    |                         |
|-------------|-------------------|--------------------|-------------------------|
| Pit:        | Wolf Point        | Location:          | Sec. 17, T1S, R7W, W.M. |
| Sale:       | <b>Knot Berry</b> | Road:              | 20 c.y.                 |
| Swell:      | 1.40              | Stockpile:         | c.y.                    |
| Shrinkage   | 1.16              | Total Truck Loads: | 20 c.y.                 |
| Drill Pct.: | 0%                | In Place Total:    | 14 c.y.                 |

|                  |                |   |            |   |         |
|------------------|----------------|---|------------|---|---------|
| Load Dump Truck: | \$0.70 /cu.yd. | x | 20 cu.yds. | = | \$14.00 |
|                  |                |   | Subtotal   |   | \$14.00 |

|                   |   |   |          |   |          |
|-------------------|---|---|----------|---|----------|
| Move in Excavator | 1 | @ | \$661.12 | = | \$661.12 |
| Move in Trucks    | 2 | @ | \$128.71 | = | \$257.42 |
|                   |   |   | Subtotal |   | \$918.54 |

|                           |         |            |                        |          |
|---------------------------|---------|------------|------------------------|----------|
| Base Cost Pitrun/rip rap= | \$46.63 | Per Cu.Yd. | TOTAL PRODUCTION COSTS | \$932.54 |
|---------------------------|---------|------------|------------------------|----------|

| Road Segment               | Haul Cost<br>\$/cu.yd. | Proc Cost<br>\$/cu.yd. | Base Cost.<br>\$/cu.yd. | Cost<br>\$/cu.yd. | Number<br>Cu. Yds | ROCK<br>COST |
|----------------------------|------------------------|------------------------|-------------------------|-------------------|-------------------|--------------|
| S to T Spot Patch (Pitrun) | 1.96                   | 0.40                   | 46.63                   | 48.99             | 20                | \$979.80     |

|            |    |           |          |
|------------|----|-----------|----------|
| Total C.Y. | 20 | Sub Total | \$979.80 |
|------------|----|-----------|----------|

|                     |          |
|---------------------|----------|
| TOTAL ROCKING COSTS | \$979.80 |
|---------------------|----------|

## ROCK PIT DEVELOPMENT AND CRUSHING COST SUMMARY

|             |                   |                    |                         |
|-------------|-------------------|--------------------|-------------------------|
| Pit:        | Fledshaw          | Location:          | Sec. 16, T1N, R8W, W.M. |
| Sale:       | <b>Knot Berry</b> | Road:              | 8510 c.y.               |
| Swell:      | 1.40              | Stockpile:         | c.y.                    |
| Shrinkage   | 1.16              | Total Truck Loads: | 8510 c.y.               |
| Drill Pct.: | 75%               | In Place Total:    | 6079 c.y.               |

Pit Development & Cleanup including Clearing and grubbing of  
Waste Area @ adjacent to pit, place overburden  
in Waste Area, spread and compact.

PerCY \$0.00  
\$0.00

|                  |                |            |
|------------------|----------------|------------|
| Drill & Shoot:   | \$2.50 /cu.yd. | 6440 CUYDS |
| Rip Rock:        | \$1.90 /cu.yd. | 2070 CUYDS |
| Push Rock:       | \$0.70 /cu.yd. | 8510 CUYDS |
| Load Crusher:    | \$0.70 /cu.yd. | 6290 CUYDS |
| Crush Rock(4"):  | \$2.35 /cu.yd. | 6290 CUYDS |
| Load Dump Truck: | \$0.70 /cu.yd. | 8510 CUYDS |

|                                         |   |   |          |          |            |
|-----------------------------------------|---|---|----------|----------|------------|
| Move In/Set-up Crusher                  | 1 |   |          |          | \$1,799.00 |
| Move In and set up Drill and Compressor | 1 | @ | =        |          | \$447.87   |
| Move in D-8                             | 1 | @ | =        | \$603.14 | \$603.14   |
| Move in Loader                          | 1 | @ | =        | \$480.48 | \$480.48   |
| Move in Water Truck                     | 1 | @ | =        | \$151.29 | \$151.29   |
|                                         |   |   | Subtotal |          | \$3,481.78 |

Base Cost= \$7.36 Per Cu.Yd.(4") \$3.71 Per Cu.Yd.(6") \$4.31 Per Cu.Yd.Rip Rap  
6290 cu yds 2070 cu yds 150 cu yds

| Road Segment                          | Haul Cost \$/cu.yd. | Proc Cost \$/cu.yd. | Base Cost. \$/cu.yd. | Cost \$/cu.yd. | Number Cu. Yds | ROCK COST    |
|---------------------------------------|---------------------|---------------------|----------------------|----------------|----------------|--------------|
| Point A 4"-0" Stockpile               | 4.92                | 0.90                | 7.36                 | 13.18          | 500            | \$6,590.00   |
| A to B 6495 9600 (Jawrun)             | 7.36                | 2.45                | 7.36                 | 17.17          | 1680           | \$28,845.60  |
| A to B Intersection Widening (Jawrun) | 4.92                | 2.45                | 7.36                 | 14.73          | 50             | \$736.50     |
| A to B Spot Patching (Jawrun)         | 4.94                | 1.10                | 7.36                 | 13.40          | 30             | \$402.00     |
| A to B Landing (Pitrun)               | 6.71                | 1.10                | 3.71                 | 11.52          | 40             | \$460.80     |
| A to B Landing (Jawrun)               | 6.89                | 2.45                | 7.36                 | 16.70          | 30             | \$501.00     |
| A to B Spot Patching (Jawrun)         | 7.49                | 1.10                | 7.36                 | 15.95          | 20             | \$319.00     |
| A to B Spot Patching (Jawrun)         | 7.54                | 1.10                | 7.36                 | 16.00          | 20             | \$320.00     |
| A to B Landing (Pitrun)               | 7.52                | 1.10                | 3.71                 | 12.33          | 100            | \$1,233.00   |
| A to B Landing (Pitrun)               | 7.80                | 1.10                | 3.71                 | 12.61          | 100            | \$1,261.00   |
| E to F 0 3190 (Jaw Run)               | 7.37                | 2.45                | 7.36                 | 17.18          | 1030           | \$17,695.40  |
| E to F 3190 5340 (Pitrun)             | 8.17                | 1.10                | 3.71                 | 12.98          | 1070           | \$13,888.60  |
| E to F Culvert Backfill (Jawrun)      | 7.53                | 0.90                | 7.36                 | 15.79          | 90             | \$1,421.10   |
| E to F Energy Dissipator (Rip Rap)    | 7.85                | 0.60                | 4.31                 | 12.76          | 30             | \$382.80     |
| E to F Energy Dissipator (Rip Rap)    | 7.59                | 0.60                | 4.31                 | 12.50          | 5              | \$62.50      |
| E to F Spot Rock (Pitrun)             | 7.95                | 1.10                | 3.71                 | 12.76          | 30             | \$382.80     |
| E to F Spot Rock (Pitrun)             | 8.06                | 1.10                | 3.71                 | 12.87          | 40             | \$514.80     |
| E to F Turnout (Jawrun)               | 7.56                | 1.10                | 7.36                 | 16.02          | 60             | \$961.20     |
| E to F Turnout (Pitrun)               | 8.14                | 1.10                | 3.71                 | 12.95          | 90             | \$1,165.50   |
| E to F Turnaround (Pitrun)            | 8.42                | 1.10                | 3.71                 | 13.23          | 30             | \$396.90     |
| E to F Landing Rock (Pitrun)          | 7.66                | 1.10                | 3.71                 | 12.47          | 120            | \$1,496.40   |
| E to F Landing Rock (Pitrun)          | 8.38                | 1.10                | 3.71                 | 13.19          | 100            | \$1,319.00   |
| E to F Landing Rock (Pitrun)          | 8.50                | 1.10                | 3.71                 | 13.31          | 120            | \$1,597.20   |
| I to J 0 1520 (Jaw Run)               | 7.07                | 2.45                | 7.36                 | 16.88          | 520            | \$8,777.60   |
| I to J Landing Rock (Pitrun)          | 6.96                | 0.90                | 3.71                 | 11.57          | 160            | \$1,851.20   |
| I to J Junction (Jawrun)              | 6.85                | 2.45                | 7.36                 | 16.66          | 60             | \$999.60     |
| Point Y 0 255 (Jaw Run)               | 8.52                | 2.45                | 7.36                 | 18.33          | 180            | \$3,299.40   |
| AA to BB 0 3755 (Jawrun)              | 2.05                | 2.45                | 7.36                 | 11.86          | 1320           | \$15,655.20  |
| AA to BB Culvert Backfill (Jawrun)    | 2.05                | 1.10                | 7.36                 | 10.51          | 200            | \$2,102.00   |
| AA to BB Fill (Pitrun)                | 2.05                | 0.60                | 3.71                 | 6.36           | 70             | \$445.20     |
| AA to BB Fill (Riprap)                | 2.05                | 0.60                | 4.31                 | 6.96           | 30             | \$208.80     |
| AA to BB Energy Dissipator (Riprap)   | 2.05                | 0.60                | 4.31                 | 6.96           | 20             | \$139.20     |
| AA to BB Energy Dissipator (Riprap)   | 2.05                | 0.60                | 4.31                 | 6.96           | 20             | \$139.20     |
| AA to BB Energy Dissipator (Riprap)   | 2.05                | 0.60                | 4.31                 | 6.96           | 35             | \$243.60     |
| Point CC Sinkhole Backfill (Rip Rap)  | 3.85                | 2.50                | 4.31                 | 10.66          | 10             | \$106.60     |
| Point Z 4"-0" Stockpile               | 3.20                | 0.90                | 7.36                 | 11.46          | 500            | \$5,730.00   |
|                                       |                     |                     | Total C.Y.           | 8510           | Sub Total      | \$121,650.70 |

|                     |              |
|---------------------|--------------|
| TOTAL ROCKING COSTS | \$121,650.70 |
|---------------------|--------------|

## Move-In Calculations for Project Work not Involving Rocking/Pit Work

Sale: **Knot Berry**

| LOWBOY HAUL (Round Trip) |                 |                    |
|--------------------------|-----------------|--------------------|
| DIST. (mi)               | ROADWAY         | AVE SPEED<br>(mph) |
| 35.6                     | Pavement        | 30                 |
| 5.0                      | Main Lines      | 7                  |
| 2.5                      | Steep<br>Grades | 2                  |

| No. | EQUIPMENT DESCRIPTION              | Move in Cost | Pilot Cars | Within Area Move (\$/mile) | Begin Mileage        | End Mileage | Total Miles | Within Area Cost | Total Cost |
|-----|------------------------------------|--------------|------------|----------------------------|----------------------|-------------|-------------|------------------|------------|
| 1   | Brush Cutter                       | \$435.43     |            | \$4.00                     | 0.00                 | 0.28        | 0.28        | \$1.12           | \$436.55   |
| 1   | Graders                            | \$486.81     |            | \$3.65                     | 0.00                 | 0.00        | 0           | \$0.00           | \$486.81   |
| 1   | Rollers (smooth/grid) & Compactors | \$403.80     |            | \$5.00                     | 0.00                 | 0.00        | 0           | \$0.00           | \$403.80   |
| 3   | Excavators (Large)                 | \$2,065.24   | 1          | \$44.80                    | 0.00                 | 4.24        | 4.24        | \$569.86         | \$2,635.10 |
| 1   | Tractors (D6)                      | \$509.97     | 0          | \$7.10                     | 0.00                 | 4.24        | 4.24        | \$30.10          | \$540.07   |
| 1   | Tractor (D8)                       | \$657.73     | 2          | \$15.10                    | 0.00                 | 0.00        | 0           | \$0.00           | \$657.73   |
| 5   | Dump Truck (10 cy + )              | \$790.33     | 0          | \$2.85                     | 0.00                 | 0.00        | 0           | \$0.00           | \$790.33   |
| 2   | Dump Truck (Off Hiway)             | \$1,092.89   | 1          | \$4.75                     | 0.00                 | 4.24        | 4.24        | \$40.28          | \$1,133.17 |
| 1   | Water Truck (1500 Gal)             | \$128.71     |            | \$2.85                     | 0.00                 | 4.24        | 4.24        | \$12.08          | \$140.79   |
|     |                                    |              |            |                            | TOTAL MOVE-IN COSTS: |             |             |                  | \$7,224.35 |



# OREGON DEPARTMENT OF FORESTRY

## CRUISE REPORT

### *Knot Berry*

#### 1. Type of Sale

Regeneration harvest, Recovery

#### 2. Legal Description

Sections 16, 21, 22, 27, and 28, T1N, R8W, W.M., Tillamook County, Oregon

#### 3. Sale Acreage

Sale acreage was determined by GPS and orthophotographs along with GIS.

|                            | ACRES        |            |
|----------------------------|--------------|------------|
|                            | <u>Gross</u> | <u>Net</u> |
| Area 1 (Modified Clearcut) | 128          | 90         |
| Area 2 (Modified Clearcut) | 119          | 88         |
| Area 3 (Rock Pit)          | 2            | 2          |

#### Gross Acres

Area within the Timber Sale Boundary signs

#### Net acres

*Used for calculating the advertised volume.*

Gross acres, less green tree retention, roads, Non-required thinning areas, and riparian areas classified as Special Stewardship in LMCS inside the sale boundary.

#### 4. Cruising Procedures

##### A. Cruise Method

Area 1 was cruised with 350' between plots and 700' between lines. Area 2 was cruised on a 350' square grid. All trees on all plots were measured. To calculate the volume of Area 3, Rock pit, the volume per acre of the adjacent stand in the Feldshaw Timber Sale (341-16-36) was used

The timber sale areas 1 and 2 were cruised using variable plot sampling. All conifers 8" DBH and greater containing 20 board feet and all hardwoods 10" DBH and greater containing 30 board feet were recorded on all plots. On all plots tree species were recorded along with diameter, form factor, and merchantable heights to 6" and 7" outside bark for conifers and hardwoods, respectively.

##### B. Plot size

BAF used on for all areas was 27.78. Point of tree observation was 4.5 feet.

##### C. Grading System

All species were graded using the Columbia River Log Scaling and Grading Bureau rules, favoring a 40' log.

## 5. Computation Procedure

Plot data was entered into SuperAce for computation of basal areas, ingrowth, advertised volumes, volume summaries, log stock tables and stand tables for each species and type. Areas 1 and 2 were originally cruised in 2015 and in Area 2 additional plots were added in 2016 to reduce the Standard Error.

All areas were grown forward to September 2017. The net sale acreage was used for volume calculation.

| Statistics – Net Board Feet/ Acre |                    |      |      |
|-----------------------------------|--------------------|------|------|
|                                   | # Plots<br>measure | SE % | CV % |
| Area 1                            | 18                 | 9.7  | 40.2 |
| Area 2                            | 33                 | 9.8  | 56.1 |
| Total                             | 51                 | 8.3  | 59.5 |

## 6. Hidden Defect and Breakage

A 1% reduction was applied to conifers and a 2% reduction to hardwood volumes for hidden defect and breakage.

## 7. Timber Description

Areas 1 and 2 were burned in the 1933 Tillamook and 1939 Saddle Mountain Fires. Virtually all of Area 1 and 75% of Area 2 was planted in 1956-57. Area 2 received additional reforestation work in the 1960s and early 70s when the remaining 25% of the area was re-forested by an unrecorded method. About 19 acres of Area 1 was commercially thinned with the L.O.R.D. Berry sale completed in 1998. No other stand management has occurred.

The stands are composed of Douglas-fir and red alder with minor components of western hemlock, Sitka spruce, and big leaf maple.

| Sale Area - Species | DBH | Merchantable<br>Bole Height | Merchantable<br>Top |
|---------------------|-----|-----------------------------|---------------------|
| Area 1: Douglas-fir | 14  | 60                          | 5"                  |
| Area 1: Alder       | 14  | 52                          | 6"                  |
| Area 1: Hemlock     | 14  | 65                          | 5"                  |
| Area 2: Douglas-fir | 14  | 57                          | 5"                  |
| Area 2: Alder       | 13  | 44                          | 6"                  |
| Area 2: Hemlock     | 18  | 67                          | 5"                  |

*Above data derived from Statistics (type) report using SuperAce 2008, developed by Atterbury consultants, Inc.*

**8. Cruiser/Dates**

Areas 1 and 2, Contract 2015; Area 2, additional plots ODF 2016.

**9. Revenue Distribution**

FDF: 100%

Tax Code: 5600 (100%)

Deed Number: 161

**10. Attachments**

Stand Tables (Areas 1 and 2)

Log Stock Tables (Areas 1 and 2)

Volume Summary

Logging Plan Map

**11. Stand and Log Stock Tables Species Key**

DF – Douglas-fir take

RA – Red alder take

SS – Sitka spruce take

WH – Western hemlock take

BM – Big leaf maple take

OC1 – Snag Class 1

OC2 – Snag Class 2



| FI TLOGSTVB         |        |     |           | Log Stock Table - MBF |              |          |              |          |                                          |           |     |                    |       |       |       |       |       |       |       |     |  |  |
|---------------------|--------|-----|-----------|-----------------------|--------------|----------|--------------|----------|------------------------------------------|-----------|-----|--------------------|-------|-------|-------|-------|-------|-------|-------|-----|--|--|
|                     |        |     |           | Project: KNOTBERR     |              |          |              |          |                                          |           |     |                    |       |       |       |       |       |       |       |     |  |  |
| T01N R08W S28 TSALE |        |     |           |                       |              |          |              |          |                                          |           |     | T01N R08W S28 TSAL |       |       |       |       |       |       |       |     |  |  |
| Twp                 | Rge    | Sec | Tract     | Type                  | Acres        | Plots    | Sample Trees | Page     |                                          |           |     |                    |       |       |       |       |       |       |       |     |  |  |
| 01N                 | 08W    | 28  | 627_AREA1 | SALE                  | 90.00        | 33       | 215          | 2        | Date                                     | 4/25/2017 |     |                    |       |       |       |       |       |       |       |     |  |  |
|                     |        |     |           |                       |              |          |              |          | Time                                     | 7:25:07AM |     |                    |       |       |       |       |       |       |       |     |  |  |
| S<br>Spp            | So     | Gr  | Log       | Len                   | Gross<br>MBF | %<br>Def | Net<br>MBF   | %<br>Spc | Net Volume by Scaling Diameter in Inches |           |     |                    |       |       |       |       |       |       |       |     |  |  |
|                     |        |     |           |                       |              |          |              |          | 2-3                                      | 4-5       | 6-7 | 8-9                | 10-11 | 12-13 | 14-15 | 16-19 | 20-23 | 24-29 | 30-39 | 40+ |  |  |
| RA                  | H      | 4   | 18        |                       | 9            |          | 9            | 1.7      |                                          |           | 7   | 1                  |       |       |       |       |       |       |       |     |  |  |
| RA                  | H      | 4   | 19        |                       | 2            |          | 2            | .4       |                                          |           | 2   |                    |       |       |       |       |       |       |       |     |  |  |
| RA                  | H      | 4   | 20        |                       | 11           |          | 11           | 2.0      |                                          |           | 8   | 3                  |       |       |       |       |       |       |       |     |  |  |
| RA                  | H      | 4   | 21        |                       | 2            |          | 2            | .4       |                                          |           | 2   |                    |       |       |       |       |       |       |       |     |  |  |
| RA                  | H      | 4   | 22        |                       | 6            |          | 6            | 1.1      |                                          |           | 6   |                    |       |       |       |       |       |       |       |     |  |  |
| RA                  | H      | 4   | 23        |                       | 4            |          | 4            | .8       |                                          |           | 4   |                    |       |       |       |       |       |       |       |     |  |  |
| RA                  | H      | 4   | 24        |                       | 8            |          | 8            | 1.5      |                                          |           | 1   |                    | 7     |       |       |       |       |       |       |     |  |  |
| RA                  | H      | 4   | 26        |                       | 5            |          | 5            | 1.0      |                                          |           | 5   |                    |       |       |       |       |       |       |       |     |  |  |
| RA                  | H      | 4   | 28        |                       | 12           |          | 12           | 2.3      |                                          |           | 12  |                    |       |       |       |       |       |       |       |     |  |  |
| RA                  | H      | 4   | 29        |                       | 3            |          | 3            | .6       |                                          |           | 3   |                    |       |       |       |       |       |       |       |     |  |  |
| RA                  | H      | 4   | 30        |                       | 6            |          | 6            | 1.1      |                                          |           | 6   |                    |       |       |       |       |       |       |       |     |  |  |
| RA                  | H      | 4   | 31        |                       | 4            |          | 4            | .8       |                                          |           | 4   |                    |       |       |       |       |       |       |       |     |  |  |
| RA                  | H      | 4   | 32        |                       | 46           | 14.8     | 39           | 7.4      |                                          |           | 21  | 14                 | 4     |       |       |       |       |       |       |     |  |  |
| RA                  | H      | 4   | 33        |                       | 13           | 4.3      | 13           | 2.4      |                                          |           | 13  |                    |       |       |       |       |       |       |       |     |  |  |
| RA                  | H      | 4   | 34        |                       | 13           |          | 13           | 2.4      |                                          |           | 13  |                    |       |       |       |       |       |       |       |     |  |  |
| RA                  | H      | 4   | 37        |                       | 26           | 12.8     | 22           | 4.2      |                                          |           | 22  |                    |       |       |       |       |       |       |       |     |  |  |
| RA                  | H      | 4   | 39        |                       | 24           | 2.7      | 23           | 4.4      |                                          |           | 23  |                    |       |       |       |       |       |       |       |     |  |  |
| RA                  | H      | 4   | 40        |                       | 156          | 3.3      | 151          | 28.6     |                                          |           | 111 | 40                 |       |       |       |       |       |       |       |     |  |  |
| RA                  | H      | 4   | 41        |                       | 4            |          | 4            | .8       |                                          |           | 4   |                    |       |       |       |       |       |       |       |     |  |  |
| RA                  | Totals |     |           |                       | 555          | 4.8      | 528          | 31.4     |                                          |           | 275 | 65                 | 95    | 27    | 37    | 23    | 7     |       |       |     |  |  |
| WH                  | CO     | 2   | 40        |                       | 38           | 2.0      | 37           | 69.1     |                                          |           |     |                    | 7     |       | 30    |       |       |       |       |     |  |  |
| WH                  | CO     | 3   | 32        |                       | 3            |          | 3            | 5.3      |                                          |           |     |                    | 3     |       |       |       |       |       |       |     |  |  |
| WH                  | CO     | 3   | 40        |                       | 12           |          | 12           | 22.1     |                                          |           | 9   | 3                  |       |       |       |       |       |       |       |     |  |  |
| WH                  | CO     | 4   | 15        |                       | 1            |          | 1            | .9       |                                          | 1         |     |                    |       |       |       |       |       |       |       |     |  |  |
| WH                  | CO     | 4   | 16        |                       | 0            |          | 0            | .8       |                                          |           | 0   |                    |       |       |       |       |       |       |       |     |  |  |
| WH                  | CO     | 4   | 32        |                       | 1            |          | 1            | 1.9      |                                          | 1         |     |                    |       |       |       |       |       |       |       |     |  |  |
| WH                  | Totals |     |           |                       | 54           | 1.4      | 54           | 3.2      |                                          | 2         | 9   | 3                  | 3     | 7     |       | 30    |       |       |       |     |  |  |
| SS                  | CO     | 3   | 32        |                       | 9            | 5.4      | 8            | 44.6     |                                          |           |     |                    |       |       |       |       | 8     |       |       |     |  |  |
| SS                  | CO     | 3   | 40        |                       | 9            | 11.3     | 8            | 42.2     |                                          |           |     |                    |       |       |       |       | 8     |       |       |     |  |  |
| SS                  | CO     | 4   | 20        |                       | 1            |          | 1            | 3.4      |                                          |           |     | 1                  |       |       |       |       |       |       |       |     |  |  |
| SS                  | CO     | 4   | 27        |                       | 1            |          | 1            | 3.6      |                                          |           | 1   |                    |       |       |       |       |       |       |       |     |  |  |
| SS                  | CO     | 4   | 40        |                       | 1            |          | 1            | 6.3      |                                          |           | 1   |                    |       |       |       |       |       |       |       |     |  |  |
| SS                  | Totals |     |           |                       | 20           | 7.3      | 18           | 1.1      |                                          |           | 2   | 1                  |       |       |       | 8     |       | 8     |       |     |  |  |
| OC                  | *      | *   | 32        |                       | 12           |          | 12           | 100.0    |                                          |           | 12  |                    |       |       |       |       |       |       |       |     |  |  |
| OC                  | Totals |     |           |                       | 12           |          | 12           | .7       |                                          |           | 12  |                    |       |       |       |       |       |       |       |     |  |  |
| BM                  | H      | 2   | 40        |                       | 8            | 5.0      | 8            | 90.5     |                                          |           |     |                    | 8     |       |       |       |       |       |       |     |  |  |
| BM                  | H      | 4   | 16        |                       | 1            |          | 1            | 9.5      |                                          |           | 1   |                    |       |       |       |       |       |       |       |     |  |  |
| BM                  | Totals |     |           |                       | 9            | 4.5      | 8            | .5       |                                          |           | 1   |                    |       | 8     |       |       |       |       |       |     |  |  |
| Total All Species   |        |     |           |                       | 1,737        | 3.1      | 1,683        | 100.0    |                                          | 211       | 494 | 272                | 256   | 168   | 106   | 120   | 45    | 10    |       |     |  |  |

| FI                  |     | TSTNDSUM |           |        |                |             |              |             |        |               |        |        |                  | Stand Table Summary |        |       |  |  |  |  |  |  |  |  |  |  |  |
|---------------------|-----|----------|-----------|--------|----------------|-------------|--------------|-------------|--------|---------------|--------|--------|------------------|---------------------|--------|-------|--|--|--|--|--|--|--|--|--|--|--|
| Project             |     |          |           |        |                |             |              |             |        |               |        |        |                  | KNOTBERR            |        |       |  |  |  |  |  |  |  |  |  |  |  |
| T01N R08W S28 TSALE |     |          |           |        |                |             |              |             |        |               |        |        |                  | T01N R08W S28 TSALE |        |       |  |  |  |  |  |  |  |  |  |  |  |
| Twp                 | Rge | Sec      | Tract     | Type   |                |             | Acres        |             | Plots  | Sample Trees  |        |        | Page: 1          |                     |        |       |  |  |  |  |  |  |  |  |  |  |  |
| 01N                 | 08W | 28       | 627_AREA1 | SALE   |                |             | 90.00        |             | 33     | 215           |        |        | Date: 04/25/2017 |                     |        |       |  |  |  |  |  |  |  |  |  |  |  |
|                     |     |          |           |        |                |             |              |             |        |               |        |        |                  | Time: 7:26:40AM     |        |       |  |  |  |  |  |  |  |  |  |  |  |
| Spc                 | T   | Sample   |           | Av     | Trees/<br>Acre | BA/<br>Acre | Logs<br>Acre | Average Log |        | Tons/<br>Acre | Net    | Net    | Tons             | Totals              |        |       |  |  |  |  |  |  |  |  |  |  |  |
|                     |     | DBH      | Trees     | FF 16' |                |             |              | Ht Tot      | Cu.Ft. |               | Bd.Ft. | Cu.Ft. |                  | Bd.Ft.              | Cunits | MBF   |  |  |  |  |  |  |  |  |  |  |  |
| DF                  |     | 8        |           | 88     | 74             | 14.420      | 5.11         | 14.64       | 7.2    | 38.0          | 3.01   | 105    | 556              | 271                 | 95     | 50    |  |  |  |  |  |  |  |  |  |  |  |
| DF                  |     | 9        |           | 86     | 69             | 11.393      | 5.11         | 11.56       | 8.3    | 38.0          | 2.75   | 96     | 440              | 247                 | 87     | 40    |  |  |  |  |  |  |  |  |  |  |  |
| DF                  |     | 10       |           | 86     | 87             | 6.152       | 3.41         | 9.37        | 9.4    | 43.2          | 2.50   | 88     | 405              | 225                 | 79     | 36    |  |  |  |  |  |  |  |  |  |  |  |
| DF                  |     | 11       |           | 84     | 108            | 7.627       | 5.11         | 16.77       | 9.3    | 41.5          | 4.44   | 156    | 695              | 399                 | 140    | 63    |  |  |  |  |  |  |  |  |  |  |  |
| DF                  |     | 12       |           | 85     | 78             | 10.681      | 8.52         | 16.26       | 13.5   | 51.1          | 6.27   | 220    | 832              | 565                 | 198    | 75    |  |  |  |  |  |  |  |  |  |  |  |
| DF                  |     | 13       |           | 86     | 90             | 12.742      | 11.92        | 24.02       | 15.3   | 57.0          | 10.44  | 366    | 1,369            | 940                 | 330    | 123   |  |  |  |  |  |  |  |  |  |  |  |
| DF                  |     | 14       |           | 85     | 93             | 3.924       | 4.26         | 7.17        | 18.9   | 68.0          | 3.85   | 135    | 487              | 347                 | 122    | 44    |  |  |  |  |  |  |  |  |  |  |  |
| DF                  |     | 15       |           | 82     | 89             | 5.469       | 6.81         | 9.71        | 20.8   | 70.3          | 5.76   | 202    | 683              | 518                 | 182    | 61    |  |  |  |  |  |  |  |  |  |  |  |
| DF                  |     | 16       |           | 85     | 88             | 6.609       | 9.37         | 12.81       | 21.9   | 83.9          | 7.98   | 280    | 1,075            | 718                 | 252    | 97    |  |  |  |  |  |  |  |  |  |  |  |
| DF                  |     | 17       |           | 88     | 99             | 3.726       | 5.96         | 7.56        | 27.7   | 110.3         | 5.97   | 209    | 834              | 537                 | 188    | 75    |  |  |  |  |  |  |  |  |  |  |  |
| DF                  |     | 18       |           | 87     | 103            | 3.323       | 5.96         | 7.23        | 30.7   | 119.6         | 6.33   | 222    | 864              | 570                 | 200    | 78    |  |  |  |  |  |  |  |  |  |  |  |
| DF                  |     | 19       |           | 87     | 95             | 1.704       | 3.41         | 3.03        | 37.6   | 130.3         | 3.25   | 114    | 394              | 292                 | 103    | 36    |  |  |  |  |  |  |  |  |  |  |  |
| DF                  |     | 20       |           | 88     | 96             | 1.923       | 4.26         | 3.90        | 37.0   | 130.6         | 4.12   | 144    | 510              | 371                 | 130    | 46    |  |  |  |  |  |  |  |  |  |  |  |
| DF                  |     | 21       |           | 86     | 99             | 2.093       | 5.11         | 4.25        | 42.2   | 154.6         | 5.11   | 179    | 657              | 460                 | 161    | 59    |  |  |  |  |  |  |  |  |  |  |  |
| DF                  |     | 23       |           | 85     | 93             | .872        | 2.55         | 1.77        | 49.6   | 171.0         | 2.50   | 88     | 303              | 225                 | 79     | 27    |  |  |  |  |  |  |  |  |  |  |  |
| DF                  |     | 24       |           | 88     | 99             | 1.869       | 5.96         | 4.61        | 46.8   | 191.5         | 6.15   | 216    | 882              | 554                 | 194    | 79    |  |  |  |  |  |  |  |  |  |  |  |
| DF                  |     | 25       |           | 86     | 114            | .246        | .85          | .75         | 44.6   | 183.1         | .95    | 33     | 137              | 86                  | 30     | 12    |  |  |  |  |  |  |  |  |  |  |  |
| DF                  |     | 26       |           | 91     | 104            | .228        | .85          | .46         | 71.7   | 311.0         | .94    | 33     | 144              | 85                  | 30     | 13    |  |  |  |  |  |  |  |  |  |  |  |
| DF                  |     | 32       |           | 82     | 120            | .150        | .85          | .46         | 77.8   | 335.2         | 1.01   | 36     | 153              | 91                  | 32     | 14    |  |  |  |  |  |  |  |  |  |  |  |
| DF                  |     | 34       |           | 87     | 114            | .266        | 1.70         | .54         | 121.5  | 484.6         | 1.87   | 66     | 262              | 168                 | 59     | 24    |  |  |  |  |  |  |  |  |  |  |  |
| DF                  |     | 42       |           | 90     | 125            | .087        | .85          | .18         | 184.4  | 710.1         | .93    | 33     | 126              | 84                  | 29     | 11    |  |  |  |  |  |  |  |  |  |  |  |
| DF                  |     | Totals   |           | 86     | 86             | 95.504      | 97.94        | 157.03      | 19.2   | 75.2          | 86.14  | 3,022  | 11,808           | 7,752               | 2,720  | 1,063 |  |  |  |  |  |  |  |  |  |  |  |
| RA                  |     | 9        |           | 86     | 78             | 9.333       | 4.23         | 11.28       | 8.9    | 42.0          | 2.76   | 100    | 473              | 248                 | 90     | 43    |  |  |  |  |  |  |  |  |  |  |  |
| RA                  |     | 10       |           | 85     | 78             | 7.560       | 4.23         | 7.61        | 9.9    | 44.1          | 2.08   | 76     | 336              | 188                 | 68     | 30    |  |  |  |  |  |  |  |  |  |  |  |
| RA                  |     | 11       |           | 84     | 85             | 12.496      | 8.46         | 12.59       | 15.8   | 59.8          | 5.46   | 199    | 753              | 492                 | 179    | 68    |  |  |  |  |  |  |  |  |  |  |  |
| RA                  |     | 12       |           | 85     | 62             | 12.600      | 10.15        | 13.75       | 15.0   | 51.6          | 5.66   | 206    | 710              | 509                 | 185    | 64    |  |  |  |  |  |  |  |  |  |  |  |
| RA                  |     | 13       |           | 85     | 75             | 6.263       | 5.92         | 9.01        | 17.0   | 59.8          | 4.21   | 153    | 539              | 379                 | 138    | 48    |  |  |  |  |  |  |  |  |  |  |  |
| RA                  |     | 14       |           | 85     | 64             | 6.943       | 7.61         | 10.88       | 15.5   | 57.0          | 4.63   | 168    | 620              | 416                 | 151    | 56    |  |  |  |  |  |  |  |  |  |  |  |
| RA                  |     | 15       |           | 83     | 62             | 4.704       | 5.92         | 5.41        | 24.0   | 73.4          | 3.57   | 130    | 398              | 321                 | 117    | 36    |  |  |  |  |  |  |  |  |  |  |  |
| RA                  |     | 16       |           | 84     | 60             | 2.953       | 4.23         | 4.76        | 20.8   | 69.5          | 2.72   | 99     | 331              | 245                 | 89     | 30    |  |  |  |  |  |  |  |  |  |  |  |
| RA                  |     | 17       |           | 87     | 57             | 4.185       | 6.77         | 6.32        | 23.3   | 81.3          | 4.05   | 147    | 514              | 365                 | 133    | 46    |  |  |  |  |  |  |  |  |  |  |  |
| RA                  |     | 18       |           | 86     | 74             | .467        | .85          | .47         | 47.6   | 146.9         | .62    | 22     | 69               | 55                  | 20     | 6     |  |  |  |  |  |  |  |  |  |  |  |
| RA                  |     | 19       |           | 79     | 73             | .838        | 1.69         | 1.27        | 22.0   | 83.9          | .77    | 28     | 106              | 69                  | 25     | 10    |  |  |  |  |  |  |  |  |  |  |  |
| RA                  |     | 20       |           | 74     | 70             | 1.134       | 2.54         | 1.52        | 28.1   | 73.4          | 1.18   | 43     | 112              | 106                 | 39     | 10    |  |  |  |  |  |  |  |  |  |  |  |
| RA                  |     | 21       |           | 84     | 60             | 1.371       | 3.38         | 2.07        | 34.3   | 113.7         | 1.95   | 71     | 235              | 176                 | 64     | 21    |  |  |  |  |  |  |  |  |  |  |  |
| RA                  |     | 22       |           | 79     | 70             | .937        | 2.54         | 1.26        | 39.4   | 136.4         | 1.37   | 50     | 172              | 123                 | 45     | 15    |  |  |  |  |  |  |  |  |  |  |  |
| RA                  |     | 23       |           | 84     | 57             | 1.715       | 5.08         | 2.02        | 51.4   | 152.9         | 2.85   | 104    | 308              | 256                 | 93     | 28    |  |  |  |  |  |  |  |  |  |  |  |
| RA                  |     | 24       |           | 89     | 78             | .262        | .85          | .53         | 45.9   | 178.3         | .67    | 24     | 94               | 60                  | 22     | 8     |  |  |  |  |  |  |  |  |  |  |  |
| RA                  |     | 26       |           | 92     | 72             | .224        | .85          | .45         | 55.1   | 225.6         | .68    | 25     | 102              | 61                  | 22     | 9     |  |  |  |  |  |  |  |  |  |  |  |
| RA                  |     | Totals   |           | 85     | 71             | 73.984      | 75.29        | 91.20       | 18.0   | 64.4          | 45.22  | 1,644  | 5,871            | 4,070               | 1,480  | 528   |  |  |  |  |  |  |  |  |  |  |  |
| WH                  |     | 11       |           | 91     | 74             | 1.248       | .85          | 1.27        | 15.4   | 63.8          | .63    | 20     | 81               | 56                  | 18     | 7     |  |  |  |  |  |  |  |  |  |  |  |
| WH                  |     | 21       |           | 83     | 94             | .343        | .85          | .70         | 36.3   | 122.3         | .81    | 25     | 85               | 73                  | 23     | 8     |  |  |  |  |  |  |  |  |  |  |  |
| WH                  |     | 24       |           | 90     | 106            | .525        | 1.70         | 1.33        | 53.4   | 219.0         | 2.27   | 71     | 291              | 205                 | 64     | 26    |  |  |  |  |  |  |  |  |  |  |  |
| WH                  |     | 27       |           | 83     | 108            | .207        | .85          | .63         | 55.4   | 219.7         | 1.12   | 35     | 139              | 101                 | 31     | 12    |  |  |  |  |  |  |  |  |  |  |  |
| WH                  |     | Totals   |           | 89     | 87             | 2.323       | 4.26         | 3.92        | 38.4   | 151.9         | 4.83   | 151    | 596              | 434                 | 136    | 54    |  |  |  |  |  |  |  |  |  |  |  |
| SS                  |     | 31       |           | 84     | 81             | .336        | 1.70         | .51         | 85.6   | 205.5         | 1.14   | 44     | 105              | 102                 | 39     | 9     |  |  |  |  |  |  |  |  |  |  |  |
| SS                  |     | 32       |           | 87     | 64             | .157        | .85          | .32         | 75.0   | 303.0         | .62    | 24     | 97               | 56                  | 22     | 9     |  |  |  |  |  |  |  |  |  |  |  |
| SS                  |     | Totals   |           | 85     | 75             | .493        | 2.55         | .83         | 81.5   | 243.0         | 1.76   | 68     | 202              | 158                 | 61     | 18    |  |  |  |  |  |  |  |  |  |  |  |
| OC                  |     | 14       |           | 84     | 75             | .774        | .85          | .77         | 31.1   | 83.2          | .60    | 24     | 64               | 54                  | 22     | 6     |  |  |  |  |  |  |  |  |  |  |  |

| FI                  |   | TSTNDSUM |       |     |          |                |             |              |               |               |               |        |                     |             | Stand Table Summary |       |  |       |  |            |  |  |  |  |  |  |  |
|---------------------|---|----------|-------|-----|----------|----------------|-------------|--------------|---------------|---------------|---------------|--------|---------------------|-------------|---------------------|-------|--|-------|--|------------|--|--|--|--|--|--|--|
| Project             |   |          |       |     |          |                |             |              |               |               |               |        | KNOTBERR            |             |                     |       |  |       |  |            |  |  |  |  |  |  |  |
| T01N R08W S28 TSALE |   |          |       |     |          |                |             |              |               |               |               |        | T01N R08W S28 TSALE |             |                     |       |  |       |  |            |  |  |  |  |  |  |  |
| Twp                 |   | Rge      |       | Sec |          | Tract          |             | Type         |               |               | Acres         |        | Plots               |             | Sample Trees        |       |  | Page: |  | 2          |  |  |  |  |  |  |  |
| 01N                 |   | 08W      |       | 28  |          | 627_AREA1      |             | SALE         |               |               | 90.00         |        | 33                  |             | 215                 |       |  | Date: |  | 04/25/2017 |  |  |  |  |  |  |  |
|                     |   |          |       |     |          |                |             |              |               |               |               |        | Time:               |             | 7:26:40AM           |       |  |       |  |            |  |  |  |  |  |  |  |
| S<br>Spc            | T | Sample   |       | FF  | Av<br>Ht | Trees/<br>Acre | BA/<br>Acre | Logs<br>Acre | Average Log   |               | Tons/<br>Acre | Net    | Net                 | T o t a l s |                     |       |  |       |  |            |  |  |  |  |  |  |  |
|                     |   | DBH      | Trees | 16' | Tot      |                |             |              | Net<br>Cu.Ft. | Net<br>Bd.Ft. |               | Cu.Ft. | Bd.Ft.              | Tons        | Cunits              | MBF   |  |       |  |            |  |  |  |  |  |  |  |
| OC                  |   | 21       |       | 50  | 43       | .344           | .85         | .34          | 70.0          | 187.2         | .60           | 24     | 64                  | 54          | 22                  | 6     |  |       |  |            |  |  |  |  |  |  |  |
| OC                  |   | Totals   |       | 74  | 65       | 1.118          | 1.71        | 1.12         | 43.1          | 115.2         | 1.20          | 48     | 129                 | 108         | 43                  | 12    |  |       |  |            |  |  |  |  |  |  |  |
| BM                  |   | 19       |       | 92  | 71       | .419           | .85         | .84          | 30.3          | 110.2         | .68           | 26     | 93                  | 61          | 23                  | 8     |  |       |  |            |  |  |  |  |  |  |  |
| BM                  |   | Totals   |       | 92  | 71       | .419           | .85         | .84          | 30.3          | 110.2         | 0.68          | 26     | 93                  | 61          | 23                  | 8     |  |       |  |            |  |  |  |  |  |  |  |
| Totals              |   |          |       | 85  | 80       | 173.841        | 182.59      | 254.95       | 19.5          | 73.3          | 139.83        | 4959   | 18,698              | 12,584      | 4,463               | 1,683 |  |       |  |            |  |  |  |  |  |  |  |

| FI TLOGSTVB         |          |          |            | Log Stock Table - MBF |          |            |              |                                          |           |                    |     |       |       |       |       |       |       |       |     |
|---------------------|----------|----------|------------|-----------------------|----------|------------|--------------|------------------------------------------|-----------|--------------------|-----|-------|-------|-------|-------|-------|-------|-------|-----|
|                     |          |          |            | Project: KNOTBERR     |          |            |              |                                          |           |                    |     |       |       |       |       |       |       |       |     |
| T01N R08W S28 TSALE |          |          |            |                       |          |            |              |                                          |           | T01N R08W S28 TSAL |     |       |       |       |       |       |       |       |     |
| Twp                 | Rge      | Sec      | Tract      | Type                  | Acres    | Plots      | Sample Trees | Page                                     | 1         |                    |     |       |       |       |       |       |       |       |     |
| 01N                 | 08W      | 28       | 673_AREA2  | SALE                  | 88.00    | 18         | 100          | Date                                     | 4/25/2017 |                    |     |       |       |       |       |       |       |       |     |
|                     |          |          |            |                       |          |            |              | Time                                     | 7:33:24AM |                    |     |       |       |       |       |       |       |       |     |
| S<br>Spp            | So<br>rt | Gr<br>de | Log<br>Len | Gross<br>MBF          | %<br>Def | Net<br>MBF | %<br>Spc     | Net Volume by Scaling Diameter in Inches |           |                    |     |       |       |       |       |       |       |       |     |
|                     |          |          |            |                       |          |            |              | 2-3                                      | 4-5       | 6-7                | 8-9 | 10-11 | 12-13 | 14-15 | 16-19 | 20-23 | 24-29 | 30-39 | 40+ |
| DF                  | CO       | 2        | 40         | 240                   | 4.5      | 229        | 16.5         |                                          |           |                    |     | 84    | 91    | 55    |       |       |       |       |     |
| DF                  | CO       | 3        | 18         | 2                     | 25.0     | 1          | .1           |                                          |           |                    |     | 1     |       |       |       |       |       |       |     |
| DF                  | CO       | 3        | 20         | 11                    |          | 11         | .8           |                                          |           |                    |     | 11    |       |       |       |       |       |       |     |
| DF                  | CO       | 3        | 32         | 97                    | 9.6      | 88         | 6.3          |                                          |           | 2                  | 42  | 43    |       |       |       |       |       |       |     |
| DF                  | CO       | 3        | 36         | 3                     |          | 3          | .2           |                                          |           | 3                  |     |       |       |       |       |       |       |       |     |
| DF                  | CO       | 3        | 38         | 3                     |          | 3          | .2           |                                          |           | 3                  |     |       |       |       |       |       |       |       |     |
| DF                  | CO       | 3        | 40         | 803                   | 5.4      | 760        | 54.6         |                                          |           | 128                | 252 | 357   |       |       | 5     |       | 18    |       |     |
| DF                  | CO       | 4        | 14         | 7                     |          | 7          | .5           |                                          |           |                    | 7   |       |       |       |       |       |       |       |     |
| DF                  | CO       | 4        | 16         | 1                     |          | 1          | .1           |                                          |           |                    | 1   |       |       |       |       |       |       |       |     |
| DF                  | CO       | 4        | 18         | 6                     |          | 6          | .4           |                                          | 6         |                    |     |       |       |       |       |       |       |       |     |
| DF                  | CO       | 4        | 20         | 14                    |          | 14         | 1.0          |                                          | 14        |                    |     |       |       |       |       |       |       |       |     |
| DF                  | CO       | 4        | 22         | 11                    |          | 11         | .8           |                                          | 11        |                    |     |       |       |       |       |       |       |       |     |
| DF                  | CO       | 4        | 24         | 46                    |          | 46         | 3.3          |                                          | 46        |                    |     |       |       |       |       |       |       |       |     |
| DF                  | CO       | 4        | 26         | 39                    |          | 39         | 2.8          |                                          | 39        |                    |     |       |       |       |       |       |       |       |     |
| DF                  | CO       | 4        | 28         | 10                    |          | 10         | .7           |                                          | 10        |                    |     |       |       |       |       |       |       |       |     |
| DF                  | CO       | 4        | 30         | 38                    |          | 38         | 2.8          |                                          | 38        |                    |     |       |       |       |       |       |       |       |     |
| DF                  | CO       | 4        | 31         | 4                     |          | 4          | .3           |                                          | 4         |                    |     |       |       |       |       |       |       |       |     |
| DF                  | CO       | 4        | 32         | 6                     |          | 6          | .5           |                                          | 6         |                    |     |       |       |       |       |       |       |       |     |
| DF                  | CO       | 4        | 34         | 53                    |          | 53         | 3.8          |                                          | 53        |                    |     |       |       |       |       |       |       |       |     |
| DF                  | CO       | 4        | 36         | 3                     |          | 3          | .2           |                                          | 3         |                    |     |       |       |       |       |       |       |       |     |
| DF                  | CO       | 4        | 38         | 9                     |          | 9          | .7           |                                          | 9         |                    |     |       |       |       |       |       |       |       |     |
| DF                  | CO       | 4        | 40         | 48                    |          | 48         | 3.5          |                                          | 48        |                    |     |       |       |       |       |       |       |       |     |
| DF                  | Totals   |          |            | 1,454                 | 4.4      | 1,391      | 84.3         |                                          | 289       | 135                | 303 | 412   | 84    | 91    | 60    |       | 18    |       |     |
| RA                  | H        | 2        | 12         | 5                     |          | 5          | 2.6          |                                          |           |                    |     | 5     |       |       |       |       |       |       |     |
| RA                  | H        | 2        | 18         | 11                    |          | 11         | 5.6          |                                          |           |                    |     |       | 11    |       |       |       |       |       |     |
| RA                  | H        | 2        | 24         | 12                    | 8.3      | 11         | 6.0          |                                          |           |                    |     | 11    |       |       |       |       |       |       |     |
| RA                  | H        | 2        | 30         | 15                    |          | 15         | 7.7          |                                          |           |                    |     | 15    |       |       |       |       |       |       |     |
| RA                  | H        | 3        | 40         | 19                    | 11.1     | 17         | 8.7          |                                          |           |                    |     | 17    |       |       |       |       |       |       |     |
| RA                  | H        | 4        | 16         | 5                     |          | 5          | 2.8          |                                          |           | 5                  |     |       |       |       |       |       |       |       |     |
| RA                  | H        | 4        | 32         | 23                    | 22.2     | 18         | 9.3          |                                          |           |                    | 18  |       |       |       |       |       |       |       |     |
| RA                  | H        | 4        | 36         | 19                    | 16.7     | 16         | 8.3          |                                          |           | 16                 |     |       |       |       |       |       |       |       |     |
| RA                  | H        | 4        | 40         | 106                   | 10.5     | 95         | 49.2         |                                          |           | 36                 | 59  |       |       |       |       |       |       |       |     |
| RA                  | Totals   |          |            | 215                   | 10.5     | 192        | 11.7         |                                          |           | 57                 | 77  | 17    | 31    | 11    |       |       |       |       |     |
| WH                  | CO       | 2        | 40         | 23                    |          | 23         | 48.8         |                                          |           |                    |     |       |       | 23    |       |       |       |       |     |
| WH                  | CO       | 3        | 32         | 21                    | 11.1     | 18         | 39.0         |                                          |           | 11                 |     | 7     |       |       |       |       |       |       |     |
| WH                  | CO       | 4        | 19         | 5                     |          | 5          | 9.8          |                                          | 5         |                    |     |       |       |       |       |       |       |       |     |
| WH                  | CO       | 4        | 20         | 1                     |          | 1          | 2.4          |                                          | 1         |                    |     |       |       |       |       |       |       |       |     |
| WH                  | Totals   |          |            | 49                    | 4.7      | 47         | 2.8          |                                          | 6         | 11                 |     | 7     |       |       | 23    |       |       |       |     |
| SS                  | CO       | 2        | 32         | 19                    |          | 19         | 100.0        |                                          |           |                    |     |       |       | 19    |       |       |       |       |     |
| SS                  | Totals   |          |            | 19                    |          | 19         | 1.2          |                                          |           |                    |     |       |       | 19    |       |       |       |       |     |
| Total All Species   |          |          |            | 1,738                 | 5.1      | 1,649      | 100.0        |                                          | 294       | 204                | 379 | 436   | 115   | 121   | 82    |       | 18    |       |     |

| FI                  |   | TSTNDSUM |       |           |           |                |             |              |               |               |               |                |                |        | Stand Table Summary |             |           |       |  |            |  |  |  |  |  |  |  |
|---------------------|---|----------|-------|-----------|-----------|----------------|-------------|--------------|---------------|---------------|---------------|----------------|----------------|--------|---------------------|-------------|-----------|-------|--|------------|--|--|--|--|--|--|--|
|                     |   |          |       |           |           |                |             |              |               |               |               |                |                |        | Project KNOTBERR    |             |           |       |  |            |  |  |  |  |  |  |  |
| T01N R08W S28 TSALE |   |          |       |           |           |                |             |              |               |               |               |                |                |        | T01N R08W S28 TSALE |             |           |       |  |            |  |  |  |  |  |  |  |
| Twp                 |   | Rge      |       | Sec       |           | Tract          |             | Type         |               |               | Acres         |                | Plots          |        | Sample Trees        |             |           | Page: |  | 1          |  |  |  |  |  |  |  |
| 01N                 |   | 08W      |       | 28        |           | 673_AREA2      |             | SALE         |               |               | 88.00         |                | 18             |        | 100                 |             |           | Date: |  | 04/25/2017 |  |  |  |  |  |  |  |
|                     |   |          |       |           |           |                |             |              |               |               |               |                |                |        | Time:               |             | 7:35:51AM |       |  |            |  |  |  |  |  |  |  |
| S<br>Spc            | T | Sample   |       | Av        |           | Trees/<br>Acre | BA/<br>Acre | Logs<br>Acre | Average Log   |               | Tons/<br>Acre | Net            |                | Net    |                     | T o t a l s |           |       |  |            |  |  |  |  |  |  |  |
|                     |   | DBH      | Trees | FF<br>16' | Ht<br>Tot |                |             |              | Net<br>Cu.Ft. | Net<br>Bd.Ft. |               | Cu.Ft.<br>Acre | Bd.Ft.<br>Acre | Tons   | Cunits              | MBF         |           |       |  |            |  |  |  |  |  |  |  |
| DF                  |   | 8        |       | 88        | 66        | 13.049         | 4.79        | 13.43        | 6.2           | 35.9          | 2.37          | 83             | 482            | 208    | 73                  | 42          |           |       |  |            |  |  |  |  |  |  |  |
| DF                  |   | 9        |       | 87        | 79        | 10.310         | 4.79        | 10.61        | 9.7           | 53.8          | 2.91          | 102            | 571            | 256    | 90                  | 50          |           |       |  |            |  |  |  |  |  |  |  |
| DF                  |   | 10       |       | 89        | 83        | 19.486         | 11.18       | 20.05        | 10.5          | 46.1          | 6.24          | 211            | 925            | 549    | 185                 | 81          |           |       |  |            |  |  |  |  |  |  |  |
| DF                  |   | 11       |       | 91        | 94        | 6.902          | 4.79        | 9.47         | 11.3          | 48.4          | 3.06          | 107            | 458            | 269    | 95                  | 40          |           |       |  |            |  |  |  |  |  |  |  |
| DF                  |   | 12       |       | 88        | 112       | 7.733          | 6.39        | 15.91        | 13.5          | 56.5          | 6.13          | 216            | 899            | 540    | 190                 | 79          |           |       |  |            |  |  |  |  |  |  |  |
| DF                  |   | 13       |       | 89        | 91        | 9.883          | 9.58        | 18.65        | 14.7          | 62.6          | 7.77          | 273            | 1,167          | 684    | 240                 | 103         |           |       |  |            |  |  |  |  |  |  |  |
| DF                  |   | 14       |       | 89        | 88        | 4.261          | 4.79        | 8.77         | 17.1          | 68.1          | 4.26          | 150            | 598            | 374    | 132                 | 53          |           |       |  |            |  |  |  |  |  |  |  |
| DF                  |   | 15       |       | 89        | 95        | 13.609         | 17.57       | 26.74        | 19.9          | 81.5          | 15.12         | 532            | 2,178          | 1,331  | 468                 | 192         |           |       |  |            |  |  |  |  |  |  |  |
| DF                  |   | 16       |       | 89        | 93        | 14.136         | 20.76       | 29.09        | 23.6          | 92.7          | 19.56         | 688            | 2,697          | 1,721  | 605                 | 237         |           |       |  |            |  |  |  |  |  |  |  |
| DF                  |   | 17       |       | 87        | 95        | 5.779          | 9.58        | 11.89        | 27.6          | 104.9         | 9.35          | 329            | 1,248          | 822    | 289                 | 110         |           |       |  |            |  |  |  |  |  |  |  |
| DF                  |   | 18       |       | 88        | 93        | 6.014          | 11.18       | 12.38        | 31.1          | 113.0         | 10.95         | 385            | 1,398          | 964    | 339                 | 123         |           |       |  |            |  |  |  |  |  |  |  |
| DF                  |   | 19       |       | 82        | 92        | .771           | 1.60        | 1.59         | 31.3          | 102.2         | 1.41          | 50             | 162            | 124    | 44                  | 14          |           |       |  |            |  |  |  |  |  |  |  |
| DF                  |   | 21       |       | 92        | 110       | 2.784          | 6.39        | 7.16         | 36.1          | 160.3         | 7.35          | 259            | 1,148          | 647    | 228                 | 101         |           |       |  |            |  |  |  |  |  |  |  |
| DF                  |   | 22       |       | 89        | 100       | .631           | 1.60        | 1.30         | 46.7          | 129.1         | 1.72          | 61             | 168            | 152    | 53                  | 15          |           |       |  |            |  |  |  |  |  |  |  |
| DF                  |   | 23       |       | 88        | 103       | 1.150          | 3.19        | 2.96         | 40.2          | 161.4         | 3.38          | 119            | 478            | 298    | 105                 | 42          |           |       |  |            |  |  |  |  |  |  |  |
| DF                  |   | 26       |       | 84        | 99        | .445           | 1.60        | .92          | 62.7          | 215.2         | 1.63          | 57             | 197            | 144    | 51                  | 17          |           |       |  |            |  |  |  |  |  |  |  |
| DF                  |   | 27       |       | 90        | 99        | .412           | 1.60        | .85          | 70.6          | 263.6         | 1.70          | 60             | 223            | 150    | 53                  | 20          |           |       |  |            |  |  |  |  |  |  |  |
| DF                  |   | 29       |       | 90        | 90        | .355           | 1.60        | .73          | 74.2          | 317.4         | 1.54          | 54             | 232            | 136    | 48                  | 20          |           |       |  |            |  |  |  |  |  |  |  |
| DF                  |   | 30       |       | 83        | 127       | .331           | 1.60        | 1.02         | 68.2          | 297.6         | 1.98          | 70             | 304            | 174    | 61                  | 27          |           |       |  |            |  |  |  |  |  |  |  |
| DF                  |   | 37       |       | 89        | 130       | .215           | 1.60        | .66          | 110.5         | 408.8         | 2.08          | 73             | 271            | 183    | 64                  | 24          |           |       |  |            |  |  |  |  |  |  |  |
| DF                  |   | Totals   |       | 89        | 89        | 118.256        | 126.17      | 194.18       | 20.0          | 81.4          | 110.52        | 3,878          | 15,802         | 9,726  | 3,413               | 1,391       |           |       |  |            |  |  |  |  |  |  |  |
| RA                  |   | 10       |       | 70        | 21        | 2.716          | 1.58        | 2.75         | 6.3           | 22.0          | .48           | 17             | 61             | 42     | 15                  | 5           |           |       |  |            |  |  |  |  |  |  |  |
| RA                  |   | 11       |       | 86        | 99        | 2.245          | 1.58        | 2.28         | 19.7          | 66.0          | 1.23          | 45             | 150            | 108    | 39                  | 13          |           |       |  |            |  |  |  |  |  |  |  |
| RA                  |   | 12       |       | 85        | 68        | 3.772          | 3.17        | 3.83         | 20.5          | 66.0          | 2.16          | 79             | 252            | 190    | 69                  | 22          |           |       |  |            |  |  |  |  |  |  |  |
| RA                  |   | 13       |       | 88        | 88        | 3.214          | 3.17        | 3.26         | 23.3          | 82.5          | 2.09          | 76             | 269            | 184    | 67                  | 24          |           |       |  |            |  |  |  |  |  |  |  |
| RA                  |   | 14       |       | 85        | 91        | 5.543          | 6.33        | 5.62         | 25.3          | 88.0          | 3.91          | 142            | 494            | 344    | 125                 | 44          |           |       |  |            |  |  |  |  |  |  |  |
| RA                  |   | 16       |       | 90        | 91        | 1.207          | 1.58        | 1.22         | 20.8          | 77.0          | .70           | 25             | 94             | 62     | 22                  | 8           |           |       |  |            |  |  |  |  |  |  |  |
| RA                  |   | 17       |       | 89        | 78        | 2.122          | 3.17        | 2.15         | 33.9          | 148.4         | 2.01          | 73             | 319            | 177    | 64                  | 28          |           |       |  |            |  |  |  |  |  |  |  |
| RA                  |   | 18       |       | 78        | 83        | 1.880          | 3.17        | 1.91         | 33.4          | 104.4         | 1.75          | 64             | 199            | 154    | 56                  | 18          |           |       |  |            |  |  |  |  |  |  |  |
| RA                  |   | 19       |       | 79        | 74        | 2.515          | 4.75        | 2.55         | 30.0          | 135.6         | 2.11          | 77             | 346            | 185    | 67                  | 30          |           |       |  |            |  |  |  |  |  |  |  |
| RA                  |   | Totals   |       | 83        | 77        | 25.213         | 28.49       | 25.57        | 23.4          | 85.4          | 16.44         | 598            | 2,185          | 1,446  | 526                 | 192         |           |       |  |            |  |  |  |  |  |  |  |
| WH                  |   | 11       |       | 86        | 94        | 2.241          | 1.60        | 4.61         | 9.1           | 39.5          | 1.35          | 42             | 182            | 118    | 37                  | 16          |           |       |  |            |  |  |  |  |  |  |  |
| WH                  |   | 23       |       | 90        | 113       | .560           | 1.60        | 1.73         | 41.1          | 203.1         | 2.28          | 71             | 351            | 200    | 63                  | 31          |           |       |  |            |  |  |  |  |  |  |  |
| WH                  |   | Totals   |       | 87        | 98        | 2.801          | 3.21        | 6.34         | 17.8          | 84.1          | 3.62          | 113            | 534            | 319    | 100                 | 47          |           |       |  |            |  |  |  |  |  |  |  |
| SS                  |   | 21       |       | 92        | 87        | .678           | 1.60        | .70          | 55.3          | 316.0         | 1.00          | 39             | 220            | 88     | 34                  | 19          |           |       |  |            |  |  |  |  |  |  |  |
| SS                  |   | Totals   |       | 92        | 87        | .678           | 1.60        | .70          | 55.3          | 316.0         | 1.00          | 39             | 220            | 88     | 34                  | 19          |           |       |  |            |  |  |  |  |  |  |  |
| Totals              |   |          |       | 88        | 87        | 146.948        | 159.47      | 226.80       | 20.4          | 82.6          | 131.59        | 4628           | 18,742         | 11,580 | 4,072               | 1,649       |           |       |  |            |  |  |  |  |  |  |  |



"STEWARDSHIP IN FORESTRY"

## Knot Berry

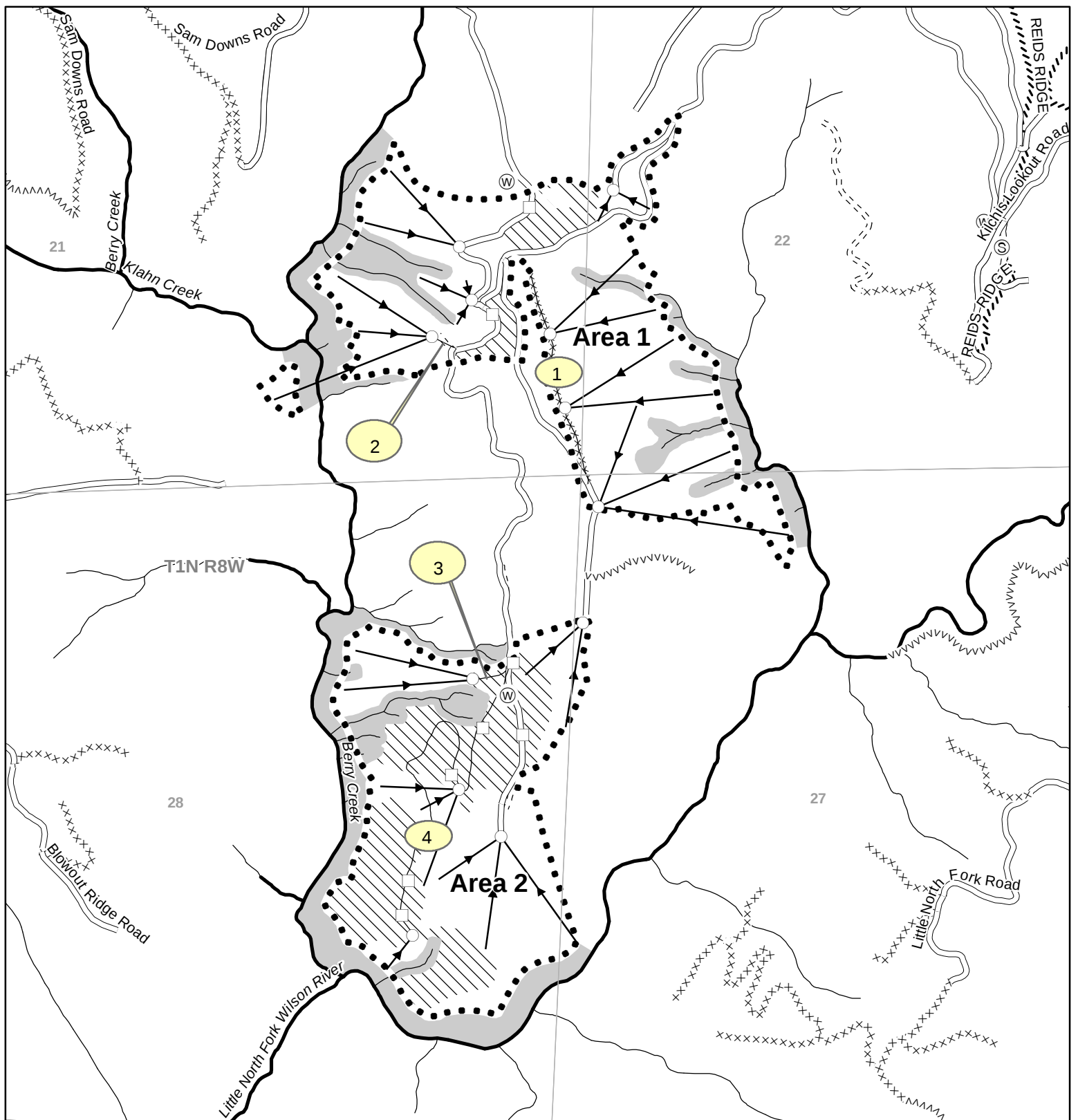
### Volume Summary

| Area 1-Modified Clearcut |             |             |        |             |
|--------------------------|-------------|-------------|--------|-------------|
| 90 acres                 |             |             |        |             |
| SPECIES                  | Cruised Net | Cruised Net | Hidden | Net Sale    |
|                          | MBF/ Acre   | MBF         | D&B    | MBF         |
| Douglas-fir              | 11.8        | 1063        | 1%     | 1052        |
| Western Hemlock          | 0.6         | 54          | 1%     | 53          |
| Sitka Spruce             | 0.2         | 18          | 1%     | 18          |
| Alder                    | 5.9         | 528         | 2%     | 517         |
| <b>TOTAL</b>             | <b>18.5</b> | <b>1663</b> |        | <b>1640</b> |

| Area 2-Modified Clearcut |             |             |        |             |
|--------------------------|-------------|-------------|--------|-------------|
| 88 acres                 |             |             |        |             |
| SPECIES                  | Cruised Net | Cruised Net | Hidden | Net Sale    |
|                          | MBF/ Acre   | MBF         | D&B    | MBF         |
| Douglas-fir              | 15.8        | 1391        | 1%     | 1377        |
| Western Hemlock          | 0.5         | 47          | 1%     | 47          |
| Sitka Spruce             | 0.2         | 19          | 1%     | 19          |
| Red Alder                | 2.2         | 192         | 2%     | 188         |
| <b>TOTAL</b>             | <b>18.7</b> | <b>1649</b> |        | <b>1631</b> |

| Area 3-Rock Pit |             |             |        |           |
|-----------------|-------------|-------------|--------|-----------|
| 2 acres         |             |             |        |           |
| SPECIES         | Cruised Net | Cruised Net | Hidden | Net Sale  |
|                 | MBF/ Acre   | MBF         | D&B    | MBF       |
| Douglas-fir     | 16.4        | 33          | 1%     | 32        |
| Red Alder       | 4.2         | 8           | 2%     | 8         |
| <b>TOTAL</b>    | <b>20.6</b> | <b>41</b>   |        | <b>40</b> |

| TOTAL SALE VOLUME |                   |  | 180            | acres |
|-------------------|-------------------|--|----------------|-------|
| SPECIES           | Cruised Net (MBF) |  | Net Sale (MBF) |       |
| Douglas-fir       | 2487              |  | 2461           |       |
| Western Hemlock   | 101               |  | 100            |       |
| Sitka Spruce      | 37                |  | 37             |       |
| Red Alder         | 728               |  | 713            |       |
| <b>TOTAL</b>      | <b>3353</b>       |  | <b>3311</b>    |       |



- |                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li> Rock source</li> <li> Stock pile</li> <li> Waste area</li> <li> Bridge</li> <li> Gate</li> <li> Survey corner</li> <li> Domestic water supply intake</li> <li> Truck turn-around</li> <li> Helicopter landing zone</li> <li> Cultural site</li> <li> Cable yarding</li> <li> Ground Landing</li> <li> Yarder Landing</li> </ul> | <ul style="list-style-type: none"> <li> Buffer</li> <li> Non-required thinning</li> <li> Cable yarding</li> <li> Ground yarding</li> <li> Helicopter yarding</li> <li> Downhill yarding</li> <li> Green tree retention area</li> <li> Restricted area</li> <li> Area boundary</li> <li> Sale boundary</li> <li> Ownership boundary</li> </ul> | <ul style="list-style-type: none"> <li> Fish stream</li> <li> Non-fish stream</li> <li> Unsurfaced road</li> <li> Surfaced road</li> <li> Paved road</li> <li> Abandoned road</li> <li> Swing road</li> <li> Non-project road</li> <li> Blocked road</li> <li> OHV trail</li> <li> Non-motorized trail</li> <li> Transmission line</li> <li> Railroad</li> </ul> |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## LOGGING PLAN

Timber Sale Contract No. 341-18-038

KNOT BERRY

Portions of Sections 16, 21, 22, 27, & 28,

T1N, R8W, W.M.,

Tillamook County, Oregon

1,000 0 1,000 Feet



Tillamook District GIS  
4/26/2017

This product is for informational use and may not have been prepared or suitable for legal, engineering, or surveying purposes.



| Area  | Type of Operation | Acres |     |
|-------|-------------------|-------|-----|
|       |                   | Gross | Net |
| 1     | Modified Clearcut | 128   | 90  |
| 2     | Modified Clearcut | 119   | 88  |
| 3     | Modified Clearcut | 2     | 2   |
| Total |                   | 249   | 180 |