



"STEWARDSHIP IN FORESTRY"

Timber Sale Appraisal  
Iron Maiden  
Sale 341-12-44

District: Astoria

Date: December 07, 2011

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**cost summary**

|                            | Conifer        | Hardwood          | Total          |
|----------------------------|----------------|-------------------|----------------|
| Gross Timber<br>Sale Value | \$2,746,399.70 | \$8,242.25        | \$2,754,641.95 |
|                            |                | Project Work:     | \$(424,228.00) |
|                            |                | Advertised Value: | \$2,330,413.95 |



# Timber Sale Appraisal Iron Maiden Sale 341-12-44

**District:** Astoria

**Date:** December 07, 2011

## timber description

**Location:** Portions of Section 30 T4N, R6W and portions of Sections 21, 22, 23, 24, and 25, T4N, R7W, W.M., Clatsop County, Oregon.

**Stand Stocking:** 80%

| SpecieName            | AvgDBH | Amortization (%) | Recovery (%) |
|-----------------------|--------|------------------|--------------|
| Douglas - Fir         | 20     | 0                | 97           |
| Western Hemlock / Fir | 18     | 0                | 96           |
| Sitka Spruce          | 18     | 0                | 96           |
| Alder (Red)           | 19     | 0                | 95           |

| Volume by Grade       | 2S    | 3S    | 4S  | Camprur | Total |
|-----------------------|-------|-------|-----|---------|-------|
| Douglas - Fir         | 4,509 | 1,593 | 286 | 0       | 6,388 |
| Western Hemlock / Fir | 2,325 | 639   | 336 | 0       | 3,300 |
| Sitka Spruce          | 15    | 3     | 0   | 0       | 18    |
| Alder (Red)           | 0     | 0     | 0   | 25      | 25    |
| Total                 | 6,849 | 2,235 | 622 | 25      | 9,731 |



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comments: Pond Values Used: 3rd Quarter Calendar Year 2011.

Expected Log Markets: Mist, OR; Clatskanie, OR; Tillamook, OR;  
Forest Grove, OR.

Western redcedar and Other Cedars Stumpage Price = Pond Value  
minus Logging Cost  
 $\$704.39/\text{MBF} = \$900/\text{MBF} - \$195.61/\text{MBF}$

SCALING COST ALLOWANCE = \$5.00/MBF

FUEL COST ALLOWANCE = \$4.00/Gallon

HAULING COST ALLOWANCE

Hauling costs equivalent to \$740 daily truck cost.

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

100% Branding and Painting:  $\$1/\text{MBF} \times 9,731 \text{ MBF} = \$9,731$

Log Loader Slash & Landing Piling (includes Move-In and Pile  
Materials): = \$12,765 (see attached appraisal)

Machine washing for noxious weed compliance = \$2,000

TOTAL Other Costs (with Profit & Risk to be added) = \$24,496

Other Costs (No Profit & Risk added):

Snag Creation:  $334 \text{ snags} \times \$40.00/\text{snag} = \$13,360$

TOTAL Other Costs (No Profit & Risk added) = \$13,360



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logging conditions

combination#: 1      Douglas - Fir      61.32%  
                         Western Hemlock / Fir      8.91%

yarding distance: Medium (800 ft)      downhill yarding: No  
logging system: Shovel      Process: Manual Felling/Delimbing  
tree size: Mature / Partial Cut (900 Bft/tree), 3-5 logs/MBF  
loads / day: 6.0      bd. ft / load: 4,500  
cost / mbf: \$92.76  
machines: Shovel Logger

combination#: 2      Douglas - Fir      21.28%  
                         Western Hemlock / Fir      50.10%  
                         Sitka Spruce      55.00%  
                         Alder (Red)      55.00%

yarding distance: Long (1,500 ft)      downhill yarding: No  
logging system: Cable: Large Tower >=70      Process: Stroke Delimber  
tree size: Mature / Partial Cut (900 Bft/tree), 3-5 logs/MBF  
loads / day: 7.0      bd. ft / load: 4,000  
cost / mbf: \$136.67  
machines: Log Loader (A)  
                 Stroke Delimber (A)  
                 Tower Yarder (Large)

combination#: 3      Douglas - Fir      17.41%  
                         Western Hemlock / Fir      40.99%  
                         Sitka Spruce      45.00%  
                         Alder (Red)      45.00%

yarding distance: Medium (800 ft)      downhill yarding: No  
logging system: Shovel      Process: Stroke Delimber  
tree size: Mature / Regen Cut (900 Bft/tree), 3-5 logs/MBF  
loads / day: 7.0      bd. ft / load: 4,000  
cost / mbf: \$51.37  
machines: Stroke Delimber (B)



"STEWARDSHIP IN FORESTRY"

# Timber Sale Appraisal Iron Maiden Sale 341-12-44

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## logging costs

|                    |              |                    |             |
|--------------------|--------------|--------------------|-------------|
| Operating Seasons: | 2.00         | Profit Risk:       | 14.00%      |
| Project Costs:     | \$424,228.00 | Other Costs (P/R): | \$24,496.00 |
| Slash Disposal:    | \$0.00       | Other Costs:       | \$13,360.00 |

### Miles of Road

Road Maintenance: \$2.92

| 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   | 2.0       | 4.5        |
| Western Hemlock / Fir | \$0.00   | 2.0       | 4.0        |
| Sitka Spruce          | \$0.00   | 2.0       | 4.0        |
| Alder (Red)           | \$0.00   | 2.0       | 3.0        |



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**logging costs breakdown**

| Logging                      | Road Maint | Fire Protect | Hauling  | Other P/R appl | Profit & Risk | Slash Disposal | Scaling | Other  | Total    |
|------------------------------|------------|--------------|----------|----------------|---------------|----------------|---------|--------|----------|
| <b>Douglas - Fir</b>         |            |              |          |                |               |                |         |        |          |
| \$94.90                      | \$3.01     | \$0.90       | \$74.28  | \$2.52         | \$24.59       | \$0.00         | \$5.00  | \$1.37 | \$206.57 |
| <b>Western Hemlock / Fir</b> |            |              |          |                |               |                |         |        |          |
| \$97.79                      | \$3.04     | \$0.90       | \$84.39  | \$2.52         | \$26.41       | \$0.00         | \$5.00  | \$1.37 | \$221.42 |
| <b>Sitka Spruce</b>          |            |              |          |                |               |                |         |        |          |
| \$98.28                      | \$3.04     | \$0.90       | \$84.39  | \$2.52         | \$26.48       | \$0.00         | \$5.00  | \$1.37 | \$221.98 |
| <b>Alder (Red)</b>           |            |              |          |                |               |                |         |        |          |
| \$98.28                      | \$3.07     | \$0.90       | \$113.60 | \$2.52         | \$30.57       | \$0.00         | \$5.00  | \$1.37 | \$255.31 |

| Specie                | Amortization | Pond Value | Stumpage | Amortized |
|-----------------------|--------------|------------|----------|-----------|
| Douglas - Fir         | \$0.00       | \$519.13   | \$312.56 | \$0.00    |
| Western Hemlock / Fir | \$0.00       | \$447.56   | \$226.14 | \$0.00    |
| Sitka Spruce          | \$0.00       | \$416.67   | \$194.69 | \$0.00    |
| Alder (Red)           | \$0.00       | \$585.00   | \$329.69 | \$0.00    |



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**summary**

**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         | 6,388 | \$312.56 | \$1,996,633.28 |
| Western Hemlock / Fir | 3,300 | \$226.14 | \$746,262.00   |
| Sitka Spruce          | 18    | \$194.69 | \$3,504.42     |
| Alder (Red)           | 25    | \$329.69 | \$8,242.25     |

**Gross Timber Sale Value**

Recovery: \$2,754,641.95

Prepared by: Jasen McCoy

Phone: 503-325-5451

**SLASH RECOMMENDATIONS:****Site Prep Appraisal**

**Sale**  
**Number:** 341-12-44  
**Sale Name:** Iron Maiden  
**Date:** 09/09/2011

| Vegetation Type/Zone | Vegetation Type/Zone Code | Production Rate (hr/ac) | Estimated Piles/Acre |
|----------------------|---------------------------|-------------------------|----------------------|
| Doug-fir             | A                         | 1.0                     | 3.0                  |
| Hemlock/Fir          | B                         | 1.5                     | 4.5                  |
| Hemlock/Spruce       | C                         | 2.0                     | 6.0                  |
| Hemlock              | D                         | 2.0                     | 6.0                  |
| Conifer/Hardwood     | E                         | 1.5                     | 3.0                  |

| Sale Area | Harvest Type | Veg Type/Zone | Ground Based Yarding Acres | Estimated Piling Hours/Area | Cost/Hour | Total Cost/Area |
|-----------|--------------|---------------|----------------------------|-----------------------------|-----------|-----------------|
| 2         | MC           | B             | 50                         | 75                          | \$110.00  | \$8,250.00      |
| 3         | MC           | B             | 8                          | 12                          | \$110.00  | \$1,320.00      |

**Sub Total = \$9,570.00**

| Sale Area | Number of Landings to be Piled | Cost/Landing Pile* | Total Cost/Area | Number of In-Unit Piles | Material Cost/Pile | Total Cost/Area |
|-----------|--------------------------------|--------------------|-----------------|-------------------------|--------------------|-----------------|
| 2         | 5                              | \$263.00           | \$1,315         | 225                     | \$5.00             | \$1,125.00      |
| 3         | 2                              | \$263.00           | \$526           | 36                      | \$5.00             | \$180.00        |

\*Cost includes separating firewood

**Sub Total = \$1,305.00**

| Move-In Allowance | Number of Move-In's | Total Move-In Allowance |
|-------------------|---------------------|-------------------------|
| \$945.00          | 2                   | \$1,890.00              |

**Sub Total = \$1,890.00**

**Grand Total = \$12,765.00**

# SUMMARY OF ALL PROJECT COSTS

SALE NAME: Iron Maiden

## NEW CONSTRUCTION:

| <u>Road segment</u> | <u>Length/Sta</u> | <u>Cost</u> |
|---------------------|-------------------|-------------|
| _____               | _____             | _____       |
| _____               | _____             | _____       |
| _____               | _____             | _____       |
| _____               | _____             | _____       |
| _____               | _____             | _____       |
| _____               | _____             | _____       |
| <b>TOTALS</b>       |                   |             |

## ROAD IMPROVEMENT:

| <u>Road segment</u>                         | <u>Length/Sta</u> | <u>Cost</u>        |
|---------------------------------------------|-------------------|--------------------|
| I1-I2, I3-I4, I5-I6, I6-I7, I8-I9, I10-I11, | 668+01            | \$80,862.00        |
| I12-I13                                     | 35+44             | \$6,338.00         |
| <b>TOTALS</b>                               |                   | <b>\$87,200.00</b> |

## SPECIAL PROJECTS:

| <u>Description</u>            | <u>Cost</u>         |
|-------------------------------|---------------------|
| Sterling Ranch Crushing       | \$99,835.00         |
| Buster Creek Crushing         | \$163,603.00        |
| Type F Culvert                | \$24,733.00         |
| Vacating                      | \$7,272.00          |
| Brushing                      | \$18,913.00         |
| Stream Enhancement            | \$15,328.00         |
| Project Work Road Maintenance | \$1,922.00          |
| <b>TOTAL</b>                  | <b>\$331,606.00</b> |

## MOVE IN:

| <u>Equipment</u>  | <u>Cost</u>       |
|-------------------|-------------------|
| C330              | \$1,220.00        |
| C315              | \$699.00          |
| 12 yd Dump Trucks | \$423.00          |
| 20 yd Dump Trucks | \$664.00          |
| Water Truck       | \$165.00          |
| Vibratory roller  | \$675.00          |
| Grader            | \$675.00          |
| Brush Cutter      | \$279.00          |
| Skidder           | \$622.00          |
| <b>TOTAL</b>      | <b>\$5,422.00</b> |

**GRAND TOTAL** **\$424,228.00**

Compiled By: d.mellison *FL*

Date: 10/06/11

**SUMMARY OF CONSTRUCTION COSTS**

SALE NAME: Iron Maiden

NEW CONSTRUCTION: \_\_\_\_\_

STATIONS \_\_\_\_\_

MILES \_\_\_\_\_

ROAD: \_\_\_\_\_

IMPROVEMENT: \_\_\_\_\_

668.01 STATIONS

12.65 MILES

POINTS: I1-I2 (305+51), I3-I4 (207+67), I5-I6 (38+02), I6-I7 (60+78), I8-I9 (25+62), I10-I11 (30+47)

**CLEARING & GRUBBING**

| Method                      | Acres/amount | x | Rate    | = | Cost     |
|-----------------------------|--------------|---|---------|---|----------|
| I3 - I4 (sta 142+96-147+22) | 0.47         | x | \$1,161 | = | \$545.67 |
|                             |              | x |         | = |          |
|                             |              | x |         | = |          |

**SUB TOTAL FOR CLEARING & GRUBBING**

**\$546**

**EXCAVATION**

|             | Material                                  | Cy/amount | x | Rate    | = | Cost       |
|-------------|-------------------------------------------|-----------|---|---------|---|------------|
| (I1 - I2)   | Construct Ditchouts (Grader) (Hrs)        | 2         | x | \$93.00 | = | \$186.00   |
|             | Clean Specified Catch basins (C315) (Hrs) | 0.5       | x | \$94.00 | = | \$47.00    |
|             | Construct Waste Area (C315) (Hrs)         | 0.5       | x | \$94.00 | = | \$47.00    |
| (I3 - I4)   | Clean Specified Catch basins (C315) (Hrs) | 0.5       | x | \$94.00 | = | \$47.00    |
|             | Construct Waste Areas (C315) (Hr          | 1         | x | \$94.00 | = | \$94.00    |
|             | Construct Sta 142+96 - 147+15             |           |   |         | = |            |
|             | Haul to sta 78+78                         | 408       | x | \$2.17  | = | \$885.36   |
|             | Haul to WA (126+60)                       | 1,190     | x | \$2.17  | = | \$2,582.30 |
|             | Drift to fills                            | 94        | x | \$1.60  | = | \$150.40   |
|             | Fill compaction                           | 94        | x | \$0.60  | = | \$56.40    |
| (I10 - I11) | Construct Waste Area (C315) (Hrs)         | 0.5       | x | \$94.00 | = | \$47.00    |
|             |                                           |           | x |         | = |            |
|             |                                           |           | x |         | = |            |

**SUB TOTAL FOR EXCAVATION**

**\$4,142**

**CULVERT MATERIALS AND INSTALLATION**

| Location        | Dia/type | Lineal ft. | Rate                          | Cost       | Location | Dia/type | Lineal ft. | Rate | Cost |
|-----------------|----------|------------|-------------------------------|------------|----------|----------|------------|------|------|
| (I1-I2) 9+23    | 18       | 40         | \$17.64                       | \$705.60   |          |          |            |      |      |
| (I1-I2) 113+97  | 18       | 40         | \$17.64                       | \$705.60   |          |          |            |      |      |
| (I1-I2) 171+11  | 18       | 40         | \$17.64                       | \$705.60   |          |          |            |      |      |
| (I1-I2) 176+91  | 18       | 40         | \$18.24                       | \$729.60   |          |          |            |      |      |
| (I1-I2) 220+80  | 24       | 48         | \$33.48                       | \$1,607.04 |          |          |            |      |      |
| (I3-I4) 29+31   | 18       | 32         | \$17.64                       | \$564.48   |          |          |            |      |      |
| (I3-I4) 52+50   | 18       | 40         | \$17.64                       | \$705.60   |          |          |            |      |      |
| (I3-I4) 78+33   | 18       | 40         | \$17.64                       | \$705.60   |          |          |            |      |      |
| (I3-I4) 78+78   | 108      | 67         | Cost shown in Type F install. |            |          |          |            |      |      |
| (I3-I4) 107+40  | 18       | 40         | \$17.64                       | \$705.60   |          |          |            |      |      |
| (I3-I4) 145+54  | 18       | 32         | \$17.64                       | \$564.48   |          |          |            |      |      |
| (I3-I4) 146+12  | 36       | 52         | \$47.28                       | \$2,458.56 |          |          |            |      |      |
| (I3-I4) 147+19  | 18       | 32         | \$17.64                       | \$564.48   |          |          |            |      |      |
| (I3-I4) 164+77  | 18       | 32         | \$17.64                       | \$564.48   |          |          |            |      |      |
| (I10-I11) 14+19 | 18       | 40         | \$17.64                       | \$705.60   |          |          |            |      |      |
|                 |          |            |                               |            |          |          |            |      |      |
|                 |          |            |                               |            |          |          |            |      |      |
|                 |          |            |                               |            |          |          |            |      |      |

Other/miscellaneous:

Culvert stakes & markers:

| Description                                          | Quantity | Rate    | Cost     |
|------------------------------------------------------|----------|---------|----------|
| (I1-I2) - 9, (I3-I4) - 6, (I6-I7) - 1, (I10-I11) - 1 | 18       | \$18.00 | \$324.00 |
|                                                      |          |         |          |
|                                                      |          |         |          |

**SUB TOTAL FOR CULVERT MATERIALS & INSTALLATION**

**\$12,316**

*Subtotal of Clearing, Exc., Culv.*

**\$17,004**



SALE NAME: Iron Maiden  
ROAD:  
POINTS: I12-I13

NEW CONSTRUCTION: \_\_\_\_\_ STATIONS  
IMPROVEMENT: 35.44 STATIONS

7 MILES

| Method                    | Qty/amount | x | Rate     | = | Cost     |
|---------------------------|------------|---|----------|---|----------|
| Turnout Construction C330 | 1          | x | \$144.00 | = | \$144.00 |
|                           |            | x |          | = |          |
|                           |            | x |          | = |          |

|       |
|-------|
| \$144 |
|-------|

[illegible]

|       |
|-------|
| \$648 |
|-------|

|                           | Description       | Quantity | Rate    | Cost    |
|---------------------------|-------------------|----------|---------|---------|
| Other/miscellaneous:      |                   |          |         |         |
| Culvert stakes & markers: | Carsonite Markers | 3        | \$18.00 | \$54.00 |

\$54

Subtotal of Clearing, Exc., Culv.

**\$846**

| SURFACING                  |  |  |  | Stations/<br>amount | x | Rate/<br>sta/amt | Cost     |
|----------------------------|--|--|--|---------------------|---|------------------|----------|
| Subgrade prep: Description |  |  |  |                     |   |                  |          |
| Grade, Shape and Ditch 16' |  |  |  | 35.44               | x | \$21.55          | \$763.73 |
| Subgrade Compaction        |  |  |  | 35.44               | x | \$17.52          | \$620.91 |

| ROAD SEGMENT I12 to I13      |                       |          |                              | POINT TO POINT     |     | Sta. to Sta.  |       | TOTAL<br>VOLUME<br>(CY) | Rate/<br>Sta./<br>amt. | Cost    |
|------------------------------|-----------------------|----------|------------------------------|--------------------|-----|---------------|-------|-------------------------|------------------------|---------|
| Application                  | Rock Size<br>and Type | Location | Depth of<br>Rock<br>(inches) | I12 to I13         |     | 0+00 to 35+44 |       |                         |                        |         |
|                              |                       |          |                              | Volume (CY)<br>per |     | Number<br>of  |       |                         |                        |         |
| Surface Rock                 | 11/2"-0" crushed      |          | 4                            | station            | 25  | stations      | 35.44 | 886                     | \$2.18                 | \$1,931 |
| Junctions                    | 11/2"-0" crushed      |          | 4                            | junction           | 12  | junctions     | 3     | 36                      | \$2.18                 | \$78    |
| Turnouts                     | 11/2"-0" crushed      |          | 4                            | turnout            | 11  | turnouts      | 5     | 55                      | \$2.18                 | \$120   |
| Curve Widening               | 11/2"-0" crushed      |          | 4                            | curve              | n/a | curves        | 4     | 44                      | \$2.18                 | \$96    |
| Turnouts                     | 4"-0" crushed         |          | 8                            | turnout            | 22  | turnouts      | 3     | 66                      | \$2.18                 | \$144   |
| Dissipator Rock              | 24"-6" riprap         |          |                              | dissipator         | 10  | dissipators   | 1     | 10                      | \$2.01                 | \$20    |
| Total Rock for Road Segment: |                       |          |                              | I12 to I13         |     |               |       | 1,097                   |                        | \$2,370 |

| ROAD SEGMENT 0               |                       |          |                              | POINT TO POINT     |  | Sta. to Sta. |  | TOTAL<br>VOLUME<br>(CY) | Rate/<br>Sta./<br>amt. | Cost |
|------------------------------|-----------------------|----------|------------------------------|--------------------|--|--------------|--|-------------------------|------------------------|------|
| Application                  | Rock Size<br>and Type | Location | Depth of<br>Rock<br>(inches) |                    |  |              |  |                         |                        |      |
|                              |                       |          |                              | Volume (CY)<br>per |  | Number<br>of |  |                         |                        |      |
| Subgrade Leveling            |                       |          | N/A                          |                    |  |              |  |                         |                        | \$0  |
| Traction Rock                |                       |          | N/A                          | station            |  | stations     |  | 0                       |                        | \$0  |
| Culvert Bedding/Backfill     |                       |          | N/A                          | culvert            |  | culverts     |  | 0                       |                        | \$0  |
| Turnouts                     |                       |          | N/A                          | TO                 |  | TO's         |  | 0                       |                        | \$0  |
| Trunmarounds                 |                       |          | N/A                          | TA                 |  | TA's         |  | 0                       |                        | \$0  |
| Junctions                    |                       |          | N/A                          | junction           |  | junctions    |  | 0                       |                        | \$0  |
| Total Rock for Road Segment: |                       |          |                              | 0                  |  |              |  | 0                       |                        | \$0  |

| ROAD SEGMENT 0               |                       |          |                              | POINT TO POINT     |  | Sta. to Sta. |  | TOTAL<br>VOLUME<br>(CY) | Rate/<br>Sta./<br>amt. | Cost |
|------------------------------|-----------------------|----------|------------------------------|--------------------|--|--------------|--|-------------------------|------------------------|------|
| Application                  | Rock Size<br>and Type | Location | Depth of<br>Rock<br>(inches) |                    |  |              |  |                         |                        |      |
|                              |                       |          |                              | Volume (CY)<br>per |  | Number<br>of |  |                         |                        |      |
| Base Rock                    |                       |          | 5                            | station            |  | stations     |  | 0                       |                        | \$0  |
| Junctions                    |                       |          | N/A                          | junction           |  | junctions    |  | 0                       |                        | \$0  |
| Culvert Bedding/Backfill     |                       |          | N/A                          | culvert            |  | culverts     |  | 0                       |                        | \$0  |
| Landings                     |                       |          | N/A                          | Landing            |  | Landings     |  | 0                       |                        | \$0  |
| Total Rock for Road Segment: |                       |          |                              | 0                  |  |              |  | 0                       |                        | \$0  |

|                         |  |  |  |                           |         |          |           |
|-------------------------|--|--|--|---------------------------|---------|----------|-----------|
| Processing:             |  |  |  | Description               | No.sta  | Rate/sta | Cost      |
|                         |  |  |  | Water, Process & Compact: | 35.44   | \$49.02  | \$1,737   |
|                         |  |  |  |                           |         |          |           |
|                         |  |  |  |                           |         |          |           |
|                         |  |  |  | 24"-6"                    | 6"-0"pr | 4"-0"    | 1 1/2"-0" |
|                         |  |  |  | 10                        |         | 66       | 1,021     |
|                         |  |  |  |                           |         |          | Total     |
|                         |  |  |  |                           |         |          | 1,097     |
| SUB TOTAL FOR SURFACING |  |  |  |                           |         |          | \$5,492   |

| SPECIAL PROJECTS               |  | Description | Cost |
|--------------------------------|--|-------------|------|
|                                |  |             |      |
|                                |  |             |      |
|                                |  |             |      |
| SUB TOTAL FOR SPECIAL PROJECTS |  |             | \$0  |

|             |  |                                     |         |
|-------------|--|-------------------------------------|---------|
|             |  | Subtotal of Surfacing & Spec. Proj. | \$5,492 |
|             |  | Subtotal of Clearing, Exc., Culv.   | \$846   |
| GRAND TOTAL |  |                                     | \$6,338 |

Compiled By: d.mellison

Date: 09/23/11

# CRUSHED ROCK COST

SALE NAME: Iron Maiden  
 PROJECT: Improvement Rocking  
 QUARRY: Sterling Ranch

MATERIAL: Crushed

DATE: 09/23/11  
 BY: d.mellison

| Segment     | Stations | Cubic Yards |           |            |         |          |        |          |       |
|-------------|----------|-------------|-----------|------------|---------|----------|--------|----------|-------|
|             |          | Base        | Run/Tract | Turnout/TA | Bedding | Junction | Curves | Leveling | Total |
| I1 - I2     | 115+57   | 33          | 3,352     | 225        | 88      | 270      | 292    | 132      | 4,392 |
| I1 - I2     | 133+62   | 44          | 75        |            | 143     |          |        |          | 262   |
| I1 - I2     | 56+32    |             | 1,408     | 132        |         | 40       | 250    | 77       | 1,907 |
| I3 - I4     | 207+67   | 133         | 118       |            | 490     |          |        | 385      | 1,126 |
| I5 - I6     | 38+02    |             |           |            |         |          |        | 99       | 99    |
| I6 - I7     | 60+78    |             | 413       |            |         |          |        | 165      | 578   |
| I8 - I9     | 25+62    |             | 195       |            |         |          |        |          | 195   |
| I10 - I11   | 30+47    |             | 35        |            | 44      |          |        | 66       | 145   |
|             |          |             |           |            |         |          |        |          |       |
|             |          |             |           |            |         |          |        |          |       |
|             |          |             |           |            |         |          |        |          |       |
|             |          |             |           |            |         |          |        |          |       |
| Grand Total |          | 210         | 5,596     | 357        | 765     | 310      | 542    | 924      | 8,704 |

| Road Segment                        |  | Stations | Cubic Yards | ONE WAY HAUL IN MILES |        |        |        |        |        | Total Haul |              |
|-------------------------------------|--|----------|-------------|-----------------------|--------|--------|--------|--------|--------|------------|--------------|
|                                     |  |          |             | 50 MPH                | 30 MPH | 25 MPH | 20 MPH | 15 MPH | 10 MPH | 5 MPH      |              |
| I1 - I2                             |  | 115+57   | 4,392       |                       |        |        | 1.33   | 0.15   | 0.15   | 0.15       | 1.78         |
| I1 - I2                             |  | 133+62   | 262         |                       |        |        | 1.35   | 0.15   | 0.15   | 0.15       | 1.80         |
| I1 - I2                             |  | 56+32    | 1,907       |                       |        | 0.50   | 1.07   | 0.15   | 0.15   | 0.15       | 2.02         |
| I3 - I4                             |  | 207+67   | 1,126       |                       |        |        | 2.21   | 0.15   | 0.15   | 0.15       | 2.66         |
| I5 - I6                             |  | 38+02    | 99          |                       |        |        | 0.19   | 0.05   | 0.05   | 0.05       | 0.34         |
| I6 - I7                             |  | 60+78    | 578         |                       |        |        | 0.62   | 0.10   | 0.10   | 0.10       | 0.92         |
| I8 - I9                             |  | 25+62    | 195         |                       |        |        | 1.96   | 0.40   | 0.15   | 0.15       | 2.66         |
| I10 - I11                           |  | 30+47    | 145         |                       |        |        | 1.70   | 0.15   | 0.15   | 0.15       | 2.15         |
|                                     |  |          |             |                       |        |        |        |        |        |            |              |
|                                     |  |          |             |                       |        |        |        |        |        |            |              |
|                                     |  |          |             |                       |        |        |        |        |        |            |              |
|                                     |  |          |             |                       |        |        |        |        |        |            |              |
|                                     |  |          |             |                       |        |        |        |        |        |            |              |
|                                     |  |          |             |                       |        |        |        |        |        |            |              |
| TOTAL                               |  |          | 8,704       |                       |        |        |        |        |        |            |              |
| STA./NO.                            |  | CU. YD.  |             |                       |        |        |        |        |        |            | AVERAGE HAUL |
| CUBIC YARD WEIGHTED HAUL            |  |          |             |                       |        | 0.11   | 1.35   | 0.15   | 0.15   | 0.15       | 1.90         |
| Average Round Trip Distance (miles) |  |          |             |                       |        |        |        |        |        | 3.80       |              |

## ROCK HAUL:

Truck type: D20 No. trucks: 4  
 Delay min.: 8 Efficiency: 85%

Ave haul: \$2.11 /cy  
 Load: \$0.28 /cy  
 Spread: \$0.45 /cy

Truck type: D12 No. trucks: 2  
 Delay min.: 6 Efficiency: 85%

Truck type: D10 No. trucks:   
 Delay min.: 5 Efficiency: 85%

Production: cy/day = 1,978

CRUSHED ROCK HAUL COSTS 8,704 cy @ \$2.84 /cy

# RIP RAP ROCK COST

SALE NAME: Iron Maiden  
 PROJECT:   
 QUARRY: Quartz Creek

MATERIAL: Rip Rap

DATE: 10/07/11  
 BY: d.mellison

|             |          | Cubic Yards |       |  |  |  |  |  |      |       |
|-------------|----------|-------------|-------|--|--|--|--|--|------|-------|
| Segment     | Stations | Dissapator  | Armor |  |  |  |  |  | Misc | Total |
| I1 to I2    | 115+57   | 20          |       |  |  |  |  |  |      | 20    |
| I1 to I2    | 133+62   | 30          |       |  |  |  |  |  |      | 30    |
| I3 to I4    | 207+67   | 60          | 200   |  |  |  |  |  |      | 260   |
| I10 to I11  | 30+47    | 10          |       |  |  |  |  |  |      | 10    |
|             |          |             |       |  |  |  |  |  |      |       |
|             |          |             |       |  |  |  |  |  |      |       |
|             |          |             |       |  |  |  |  |  |      |       |
|             |          |             |       |  |  |  |  |  |      |       |
|             |          |             |       |  |  |  |  |  |      |       |
|             |          |             |       |  |  |  |  |  |      |       |
|             |          |             |       |  |  |  |  |  |      |       |
|             |          |             |       |  |  |  |  |  |      |       |
| Grand Total |          | 120         | 200   |  |  |  |  |  |      | 320   |

| Road Segment                        | Stations | Cubic Yards | ONE WAY HAUL IN MILES |        |        |        |        |        |       | Total Haul           |
|-------------------------------------|----------|-------------|-----------------------|--------|--------|--------|--------|--------|-------|----------------------|
|                                     |          |             | 50 MPH                | 30 MPH | 25 MPH | 20 MPH | 15 MPH | 10 MPH | 5 MPH |                      |
| I1 to I2                            | 115+57   | 20          |                       |        |        | 2.21   | 0.15   | 0.15   | 0.15  | 2.66                 |
| I1 to I2                            | 133+62   | 30          |                       |        | 0.5    | 1.55   | 0.15   | 0.15   | 0.15  | 2.50                 |
| I3 to I4                            | 207+67   | 260         |                       |        |        | 1.75   | 0.15   | 0.15   | 0.15  | 2.20                 |
| I10 to I11                          | 30+47    | 10          |                       |        | 1      | 1.15   | 0.15   | 0.15   | 0.15  | 2.10                 |
|                                     |          |             |                       |        |        |        |        |        |       |                      |
|                                     |          |             |                       |        |        |        |        |        |       |                      |
|                                     |          |             |                       |        |        |        |        |        |       |                      |
|                                     |          |             |                       |        |        |        |        |        |       |                      |
|                                     |          |             |                       |        |        |        |        |        |       |                      |
|                                     |          |             |                       |        |        |        |        |        |       |                      |
|                                     |          |             |                       |        |        |        |        |        |       |                      |
|                                     |          |             |                       |        |        |        |        |        |       |                      |
| TOTAL                               |          | 320         |                       |        |        |        |        |        |       | AVERAGE HAUL<br>2.25 |
| STA./NO.                            |          | CU. YD.     |                       |        |        |        |        |        |       |                      |
| CUBIC YARD WEIGHTED HAUL            |          |             |                       |        | 0.06   | 1.74   | 0.15   | 0.15   | 0.15  |                      |
| Average Round Trip Distance (miles) |          |             |                       |        |        |        |        |        |       | 4.51                 |

## ROCK HAUL:

Truck type: D12 No. trucks: 3  
 Delay min.: 6 Efficiency: 85%

Truck type: D10 No. trucks:   
 Delay min.: 5 Efficiency: 85%

Ave haul: \$2.68 /cy  
 Load: \$0.84 /cy  
 Develop:  /cy

Production: cy/day = 654

RIP RAP ROCK HAUL COSTS 320 cy @ \$3.52 /cy

### PIT RUN ROCK COST

SALE NAME: Iron Maiden  
PROJECT: (I3-I4) (sta 142+96-147+22)  
QUARRY:

MATERIAL: Waste

DATE: 09/21/11  
BY: d.mellison

ROCK HAUL:

|             |     |             |     |
|-------------|-----|-------------|-----|
| Truck type: | D20 | No. trucks: |     |
| Delay min.: | 8   | Efficiency: | 85% |
|             |     |             |     |
| Truck type: | D12 | No. trucks: | 3   |
| Delay min.: | 6   | Efficiency: | 85% |

|            |          |     |
|------------|----------|-----|
| Ave haul:  | 1.306254 | /cy |
| Load:      | \$0.86   | /cy |
| Compaction |          | /cy |

Production: cy/day = 1,341

|                         |            |            |
|-------------------------|------------|------------|
| PIT RUN ROCK HAUL COSTS | 1,598 cy @ | \$2.17 /cy |
|-------------------------|------------|------------|

Loading:  $1598/1341 * 8 * \$144 / 1598 = \$0.86/\text{cy}$

## CRUSHED ROCK COST

|            |                 |
|------------|-----------------|
| SALE NAME: | Iron Maiden     |
| PROJECT:   | No. 1 (I12-I13) |
| QUARRY:    | Buster Creek    |

MATERIAL: Crushed

DATE: 09/21/11  
BY: d.mellison

ROCK HAUL:

Truck type: D20 No. trucks:             
 Delay min.: 8 Efficiency: 85%

|           |        |     |
|-----------|--------|-----|
| Ave haul: | \$1.00 | /cy |
| Load:     | \$0.45 | /cy |
| Spread:   | \$0.73 | /cy |

|             |            |             |            |
|-------------|------------|-------------|------------|
| Truck type: | <u>D12</u> | No. trucks: | <u>2</u>   |
| Delay min.: | <u>6</u>   | Efficiency: | <u>85%</u> |

Truck type: D10      No. trucks:             
 Delay min.: 5      Efficiency: 85%

Production: cy/day = 1,168

CRUSHED ROCK HAUL COSTS      1,087 cy @      \$2.18 /cy

## RIP RAP ROCK COST

|            |              |
|------------|--------------|
| SALE NAME: | Iron Maiden  |
| PROJECT:   | No. 1        |
| QUARRY:    | Buster Creek |

MATERIAL: Rip Rap

DATE: 09/21/11  
BY: d.mellison

ROCK HAUL:

|             |     |             |     |
|-------------|-----|-------------|-----|
| Truck type: | D12 | No. trucks: | 1   |
| Delay min.: | 6   | Efficiency: | 85% |
| Truck type: | D10 | No. trucks: | 1   |
| Delay min.: | 5   | Efficiency: | 85% |

|           |        |     |
|-----------|--------|-----|
| Ave haul: | \$1.00 | /cy |
| Load:     | \$1.01 | /cy |
| Develop:  |        | /cy |

Production: cy/day = 584

### RIP RAP ROCK HAUL COSTS

10 cy @ \$2.01 /cy

DATE: 10/07/2011  
BY: d.mellison

|                                     |      |
|-------------------------------------|------|
| Average Round Trip Distance (miles) | 2.98 |
|-------------------------------------|------|

|            |         |     |
|------------|---------|-----|
| Ave haul:  | 1.82018 | /cy |
| Load:      | \$0.84  | /cy |
| Compaction |         | /cy |

$$\text{Load} = \$144/\text{hr} * 8 \text{ hrs.} \div 1,370 \text{ cy/day} = \$0.84$$

# SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS

|                                             |                               |
|---------------------------------------------|-------------------------------|
| PROJECT NO. 2                               | Timber Sale Name: Iron Maiden |
| Quarry: Sterling Ridge                      | Swell:                        |
| Location: SE 1/4, SE 1/4, Sec. 22, T4N, R7W | Shrink: 16%                   |
| County: Clatsop                             |                               |
| By: J. Morey                                | Loading Hopper: Yes           |
| Date: 08/12/11                              |                               |

| ROCK SIZE                  | REJECT | GRADATION | STOCKPILE<br>CU. YDS. | TRUCK MEAS<br>CU. YDS. | TOTAL<br>CU. YDS. |
|----------------------------|--------|-----------|-----------------------|------------------------|-------------------|
| 3/4"-0"                    | 2%     | CR        |                       | 8,493                  | 8,493             |
| 1-1/2"-0"                  | 2%     | CR        | 2,000                 |                        | 2,320             |
| 4"-0"                      | 2%     | CR        |                       |                        |                   |
| 6"-0"                      |        | PR        |                       |                        |                   |
| 24"-6"                     |        | RR        |                       | 320                    | 320               |
| 36"-6"                     |        | RR        |                       |                        |                   |
| TOTAL CUBIC YARDS OF ROCK: |        |           | 2,000                 | 8,813                  | 11,133            |

## 1) MOBILIZATION & SET UP:

| EQUIPMENT          | QUANTITY | RATE    | COST    | EQUIPMENT              | QUANTITY | RATE    | COST    |
|--------------------|----------|---------|---------|------------------------|----------|---------|---------|
| Dump Trucks        | 4        | \$141   | \$564   | Off Highway Dump Truck |          | \$515   |         |
| Screening Plants   | 1        | \$515   | \$515   | Screening Plant        | 1        | \$515   | \$515   |
| D8 Cat             |          | \$1,220 |         | Loading Hopper         | 1        | \$515   | \$515   |
| D6 Cat             | 1        | \$675   | \$675   | Loader                 | 1        | \$699   | \$699   |
| Drill & Compressor | 1        | \$1,180 | \$1,180 |                        |          |         |         |
| Powder             | 1        | \$327   | \$327   | 3 Stage Crusher        | 1        | \$2,694 | \$2,694 |
| Dump Trucks        |          | \$141   |         |                        |          |         |         |
| Excavator          | 1        | \$1,220 | \$1,220 | Excavator              |          | \$1,220 |         |

SUB TOTAL FOR MOBILIZATION

\$8,905

| EQUIPMENT SET UP     | TIMES | RATE    | COST    |
|----------------------|-------|---------|---------|
| 3 Stage Crusher      | 1     | \$3,205 | \$3,205 |
| Screening Plants     | 1     | \$273   | \$273   |
| Loading Hopper       | 1     | \$273   | \$273   |
| Original Calibration | 1     | \$507   | \$507   |

SUB TOTAL FOR SET UP COSTS

\$4,258

TOTAL MOBILIZATION & SET UP COSTS

\$13,163

## 2) CLEARING & GRUBBING

| DESCRIPTION                                                       | QUANTITY | UNIT  | RATE    | COST  |
|-------------------------------------------------------------------|----------|-------|---------|-------|
| Scatter Clearing an Grubbing debris<br>at Rock Source and Crusher | 0.14     | acres | \$1,161 | \$163 |
|                                                                   |          |       |         |       |
|                                                                   |          |       |         |       |
|                                                                   |          |       |         |       |
|                                                                   |          |       |         |       |

TOTAL CLEARING & GRUBBING COSTS

\$163

### 3) EXCAVATION

| MATERIAL DESCRIPTION | QUANTITY | UNIT | RATE   | COST    |
|----------------------|----------|------|--------|---------|
| Overburden Removal   | 2,875    | bcy  | \$1.60 | \$4,600 |
|                      |          |      |        |         |
|                      |          |      |        |         |
|                      |          |      |        |         |

**TOTAL EXCAVATION COSTS** \$4,600

### 4) DEVELOP ROCK

| ROCK SUMMARY |         |      | METHOD | %                  | QUANTITY | RATE   | COST     |
|--------------|---------|------|--------|--------------------|----------|--------|----------|
| Type         | Cu. yd. | Vol. | Weight | Ripping            |          | \$1.75 |          |
| crushed      | 10,813  |      | 97%    | Drill & shoot      | 88%      | 9,987  | \$22,971 |
| pit run      | 0       |      | 0      | Oversize red       | 2%       | 216    | \$1,254  |
| rip rap      | 320     |      | 3%     | Other *            |          |        |          |
| Total        | 11,133  |      |        | * 10% already shot |          |        |          |
| reject       | 216     |      | 1.9%   |                    |          |        |          |

**TOTAL ROCK DEVELOPMENT COSTS** \$24,225

### 5) CALIBRATION & TESTING

| DESCRIPTION | NO. | \$/TEST  | COST    |
|-------------|-----|----------|---------|
| Calibrate   | 2   | \$507.00 | \$1,014 |
| Calibrate   |     |          |         |
| Test        | 5   | \$57.30  | \$287   |
| Test        |     |          |         |
|             |     |          |         |
|             |     |          |         |

**TOTAL CALIBRATION & TESTING COSTS** \$1,301

### 6) FEEDING & LOADING

| DESCRIPTION     | CU. YD.<br>QUANTITY | COST<br>CU. YD. | TOTAL<br>COST |
|-----------------|---------------------|-----------------|---------------|
| Dig & Feed Rock | 11,029              | \$0.82          | \$9,027       |
|                 |                     |                 |               |
|                 |                     |                 |               |

**TOTAL FEEDING & LOADING COSTS** \$9,027

### 7) ROCK CRUSHING

| ROCK<br>SIZE | ROCK<br>TYPE | CU. YD.<br>QUANTITY | CRUSHER<br>TYPE | HOURLY<br>PRODUCTION | RATE<br>CU. YD. | TOTAL<br>COST |
|--------------|--------------|---------------------|-----------------|----------------------|-----------------|---------------|
| 3/4"-0"      | crushed      | 8,493               | 3 stage w/s     | 115                  | \$3.38          | \$28,728      |
| 1-1/2"-0"    | crushed      | 2,320               | 3 stage w/s     | 120                  | \$3.24          | \$7,521       |
| 4"-0"        | crushed      |                     | 3 stage w/s     |                      |                 |               |
|              |              |                     |                 |                      |                 |               |
|              |              |                     |                 |                      |                 |               |

**TOTAL ROCK CRUSHING COSTS** \$36,249

## 8) STOCKPILING

### STOCKPILE SITE PREPARATION

| Equipment | Hours | Rate     | Total  |
|-----------|-------|----------|--------|
| Dozer     | 1     | \$105.00 | \$105  |
| Compactor |       | \$72.00  |        |
| Grader    | 1     | \$93.00  | \$93.0 |
| Excavator |       | \$138.00 |        |
|           |       |          |        |

| *Rock for Floor (CY) | \$/CY Haul | Total |
|----------------------|------------|-------|
|                      |            |       |

\* No rock hauled for the floor, comes from old pile at the site.  
\$198.00

SUB TOTAL \$198

| HAUL & STOCKPILE   |           |             |          |        |          |  |
|--------------------|-----------|-------------|----------|--------|----------|--|
| STOCKPILE LOCATION | SIZE      | # of TRUCKS | CU. YDS. | RATE   | COST     |  |
| 1. _____           |           |             |          |        |          |  |
| 2. Quartz          | 1-1/2"-0" | 4           | 2,320    | \$4.32 | \$10,033 |  |
| 3. _____           |           | 3           |          |        |          |  |
| 4. _____           |           |             |          |        |          |  |
| 5. _____           |           | 2           |          |        |          |  |
| 6. _____           |           |             |          |        |          |  |

SUB TOTAL \$10,033

**TOTAL STOCKPILING COSTS \$10,231**

## 9) MISCELLANEOUS COSTS

| DESCRIPTION                                                    |        |       | COST  |
|----------------------------------------------------------------|--------|-------|-------|
| Load, haul, the reject material to the waste area.             |        |       | \$355 |
| \$1.64 /CY                                                     | 216 CY |       |       |
| Spread reject (D6)                                             | 1      | \$105 | \$105 |
| Final Quarry Dev., Access Road Const., Waterbarring, Drainage, |        |       |       |
| C330 Excavator                                                 | 2      | \$144 | \$288 |
| Compact reject and hauled excavation                           |        |       |       |
| 214 CY                                                         | \$0.60 |       | \$128 |
|                                                                |        |       |       |

**TOTAL MISCELLANEOUS COSTS \$876**

**10) GRAND TOTAL: \$99,835**

\$/Cubic Yard \$9.23

### Footnotes:

|  |
|--|
|  |
|  |
|  |
|  |
|  |
|  |

# HAUL and STOCKPILE COST

SALE NAME: Iron Maiden  
 QUARRY: Sterling Ridge

ROCK TYPE: Crushed

| Location 1. 0 |            | ONE WAY HAUL IN MILES   |            |        |        |        |        |                      |             |        |     |
|---------------|------------|-------------------------|------------|--------|--------|--------|--------|----------------------|-------------|--------|-----|
|               |            | 50 MPH                  | 30 MPH     | 25 MPH | 20 MPH | 15 MPH | 10 MPH | 5 MPH                |             |        |     |
|               |            |                         |            |        |        |        |        | 0.10                 |             |        |     |
| Truck type:   | <u>D12</u> | No. trucks:             |            |        |        |        |        | Ave haul:            | #DIV/0!     | /cy    |     |
| Delay min.:   | <u>15</u>  | Efficiency:             | <u>75%</u> |        |        |        |        |                      | Load:       | \$0.00 | /cy |
| Truck type:   | <u>D12</u> | No. trucks:             |            |        |        |        |        | Stockpile:           | #N/A        | /cy    |     |
| Delay min.:   | <u>12</u>  | Efficiency:             | <u>75%</u> |        |        |        |        |                      |             |        |     |
| Truck type:   |            | No. trucks:             |            |        |        |        |        | Production: cy/day = | 0           |        |     |
| Delay min.:   | <u>10</u>  | Efficiency:             | <u>75%</u> |        |        |        |        |                      |             |        |     |
| Location 1. 0 |            | Haul and Stockpile Cost |            |        |        |        |        |                      | #DIV/0! /cy |        |     |

| Location 2. Quartz<br>1-1/2"-0" |            | ONE WAY HAUL IN MILES   |            |        |        |        |        |                      |            |        |     |
|---------------------------------|------------|-------------------------|------------|--------|--------|--------|--------|----------------------|------------|--------|-----|
|                                 |            | 50 MPH                  | 30 MPH     | 25 MPH | 20 MPH | 15 MPH | 10 MPH | 5 MPH                |            |        |     |
|                                 |            |                         |            | 0.60   | 1.26   | 0.15   | 0.15   | 0.15                 |            |        |     |
| Truck type:                     | <u>D20</u> | No. trucks:             |            |        |        |        |        | Ave haul:            | \$3.25     | /cy    |     |
| Delay min.:                     | <u>15</u>  | Efficiency:             | <u>75%</u> |        |        |        |        |                      | Load:      | \$0.00 | /cy |
| Truck type:                     | <u>D12</u> | No. trucks:             | <u>4</u>   |        |        |        |        |                      | Stockpile: | \$1.08 | /cy |
| Delay min.:                     | <u>12</u>  | Efficiency:             | <u>85%</u> |        |        |        |        |                      |            |        |     |
| Truck type:                     | <u>D10</u> | No. trucks:             |            |        |        |        |        | Production: cy/day = | 718        |        |     |
| Delay min.:                     | <u>10</u>  | Efficiency:             | <u>75%</u> |        |        |        |        |                      |            |        |     |
| Location 2. Quartz              |            | Haul and Stockpile Cost |            |        |        |        |        |                      | \$4.32 /cy |        |     |

| Location 3. 0 |            | ONE WAY HAUL IN MILES   |            |        |        |        |        |                      |            |        |     |
|---------------|------------|-------------------------|------------|--------|--------|--------|--------|----------------------|------------|--------|-----|
|               |            | 50 MPH                  | 30 MPH     | 25 MPH | 20 MPH | 15 MPH | 10 MPH | 5 MPH                |            |        |     |
|               |            |                         |            |        |        | 0.30   | 0.15   | 0.15                 |            |        |     |
| Truck type:   | <u>D20</u> | No. trucks:             |            |        |        |        |        | Ave haul:            | \$2.15     | /cy    |     |
| Delay min.:   | <u>15</u>  | Efficiency:             | <u>75%</u> |        |        |        |        |                      | Load:      | \$0.00 | /cy |
| Truck type:   | <u>D12</u> | No. trucks:             | <u>3</u>   |        |        |        |        |                      | Stockpile: | \$0.96 | /cy |
| Delay min.:   | <u>12</u>  | Efficiency:             | <u>85%</u> |        |        |        |        |                      |            |        |     |
| Truck type:   | <u>D10</u> | No. trucks:             |            |        |        |        |        | Production: cy/day = | 816        |        |     |
| Delay min.:   | <u>10</u>  | Efficiency:             | <u>75%</u> |        |        |        |        |                      |            |        |     |
| Location 3. 0 |            | Haul and Stockpile Cost |            |        |        |        |        |                      | \$3.10 /cy |        |     |

# HAUL and STOCKPILE COST

|                 |                       |        |        |        |        |             |                        |
|-----------------|-----------------------|--------|--------|--------|--------|-------------|------------------------|
| Location 4. 0   | ONE WAY HAUL IN MILES |        |        |        |        |             |                        |
|                 | 50 MPH                | 30 MPH | 25 MPH | 20 MPH | 15 MPH | 10 MPH      | 5 MPH                  |
|                 |                       |        |        | 1.00   | 1.00   |             |                        |
| Truck type: D20 | No. trucks:           |        |        |        |        |             | Ave haul: #DIV/0! /cy  |
| Delay min.: 15  | Efficiency: 75%       |        |        |        |        |             | Load: \$0.00 /cy       |
| Truck type: D12 | No. trucks:           |        |        |        |        |             | Stockpile: #N/A /cy    |
| Delay min.: 12  | Efficiency: 75%       |        |        |        |        |             |                        |
| Truck type: D10 | No. trucks:           |        |        |        |        |             | Production: cy/day = 0 |
| Delay min.: 10  | Efficiency: 75%       |        |        |        |        |             |                        |
| Location 4. 0   | Haul & Stockpile Cost |        |        |        |        | #DIV/0! /cy |                        |

|                 |                       |        |        |        |        |            |                            |
|-----------------|-----------------------|--------|--------|--------|--------|------------|----------------------------|
| Location 5. 0   | ONE WAY HAUL IN MILES |        |        |        |        |            |                            |
|                 | 50 MPH                | 30 MPH | 25 MPH | 20 MPH | 15 MPH | 10 MPH     | 5 MPH                      |
|                 |                       |        |        |        |        |            | 0.10                       |
| Truck type: D20 | No. trucks: 2         |        |        |        |        |            | Ave haul: \$1.43 /cy       |
| Delay min.: 15  | Efficiency: 75%       |        |        |        |        |            | Load: \$0.00 /cy           |
| Truck type: D12 | No. trucks:           |        |        |        |        |            | Stockpile: \$0.78 /cy      |
| Delay min.: 12  | Efficiency: 75%       |        |        |        |        |            |                            |
| Truck type: D10 | No. trucks:           |        |        |        |        |            | Production: cy/day = 1,054 |
| Delay min.: 10  | Efficiency: 75%       |        |        |        |        |            |                            |
| Location 5. 0   | Haul & Stockpile Cost |        |        |        |        | \$2.20 /cy |                            |

|                 |                       |        |        |        |        |             |                        |
|-----------------|-----------------------|--------|--------|--------|--------|-------------|------------------------|
| Location 6. 0   | ONE WAY HAUL IN MILES |        |        |        |        |             |                        |
|                 | 50 MPH                | 30 MPH | 25 MPH | 20 MPH | 15 MPH | 10 MPH      | 5 MPH                  |
|                 |                       |        |        | 1.00   | 1.00   |             |                        |
| Truck type: D20 | No. trucks:           |        |        |        |        |             | Ave haul: #DIV/0! /cy  |
| Delay min.: 15  | Efficiency: 75%       |        |        |        |        |             | Load: \$0.00 /cy       |
| Truck type: D12 | No. trucks:           |        |        |        |        |             | Stockpile: #N/A /cy    |
| Delay min.: 12  | Efficiency: 75%       |        |        |        |        |             |                        |
| Truck type: D10 | No. trucks:           |        |        |        |        |             | Production: cy/day = 0 |
| Delay min.: 10  | Efficiency: 75%       |        |        |        |        |             |                        |
| Location 6. 0   | Haul & Stockpile Cost |        |        |        |        | #DIV/0! /cy |                        |

**SUMMARY OF ROCK DEVELOPMENT AND CRUSHING COSTS**

PROJECT NO. 2 Timber Sale Name: Iron Maiden  
 Quarry: Buster Creek Swell:           
 Location: NW 1/4, Sec. 25, T5N, R7W Shrink: 16%  
 County: Clatsop  
 By: d.mellison Loading Hopper: No  
 Date: 09/20/11

| ROCK SIZE                         | REJECT | GRADATION | STOCKPILE<br>CU. YDS. | TRUCK MEAS<br>CU. YDS. | TOTAL<br>CU. YDS. |
|-----------------------------------|--------|-----------|-----------------------|------------------------|-------------------|
| 3/4"-0"                           |        | CR        |                       |                        |                   |
| 1-1/2"-0"                         | 7%     | CR        | 5,000                 | 1,021                  | 6,821             |
| 4"-0"                             | 5%     | CR        | 4,000                 | 66                     | 4,706             |
| 6"-0"                             |        | PR        |                       |                        |                   |
| 24"-6"                            |        | RR        |                       | 10                     | 10                |
| 36"                               |        | RR        |                       |                        |                   |
| <b>TOTAL CUBIC YARDS OF ROCK:</b> |        |           | <b>9,000</b>          | <b>1,097</b>           | <b>11,537</b>     |

**1) MOBILIZATION & SET UP:**

| EQUIPMENT          | QUANTITY | RATE    | COST    | EQUIPMENT              | QUANTITY | RATE    | COST    |
|--------------------|----------|---------|---------|------------------------|----------|---------|---------|
| Dump Trucks        | 4        | \$141   | \$564   | Off Highway Dump Truck | 1        | \$515   | \$515   |
| Screening Plants   | 1        | \$515   | \$515   | Screening Plant        | 1        | \$515   | \$515   |
| D8 Cat             |          | \$1,220 |         | Loading Hopper         |          | \$515   |         |
| D6 Cat             | 1        | \$675   | \$675   | Loader                 | 2        | \$699   | \$1,398 |
| Drill & Compressor | 1        | \$1,180 | \$1,180 |                        |          |         |         |
| Powder             | 1        | \$327   | \$327   | 3 Stage Crusher        | 1        | \$2,694 | \$2,694 |
| Dump Trucks        |          | \$141   |         |                        |          |         |         |
| Excavator          | 1        | \$1,220 | \$1,220 | Excavator              |          | \$1,220 |         |

SUB TOTAL FOR MOBILIZATION

\$9,604

| EQUIPMENT SET UP     | TIMES | RATE    | COST    |
|----------------------|-------|---------|---------|
| 3 Stage Crusher      | 1     | \$3,205 | \$3,205 |
| Screening Plants     | 1     | \$273   | \$273   |
| Loading Hopper       |       | \$273   | \$273   |
| Original Calibration | 1     | \$507   | \$507   |
|                      |       |         |         |
|                      |       |         |         |
|                      |       |         |         |

SUB TOTAL FOR SET UP COSTS

\$4,258

**TOTAL MOBILIZATION & SET UP COSTS****\$13,862****2) CLEARING & GRUBBING**

| DESCRIPTION                    | QUANTITY | UNIT  | RATE    | COST    |
|--------------------------------|----------|-------|---------|---------|
| Clearing - pile & burn on site | 0.480    | acres | \$2,345 | \$1,126 |
| Excavator tending fire (C330)  | 3        | hrs.  | \$144   | \$432   |
| Move in fire truck for burning | 1        | trk   | \$165   | \$165   |
|                                |          |       |         |         |
|                                |          |       |         |         |
|                                |          |       |         |         |
|                                |          |       |         |         |

**TOTAL CLEARING & GRUBBING COSTS****\$1,723**

### 3) EXCAVATION

| MATERIAL DESCRIPTION             | QUANTITY | UNIT | RATE     | COST    |
|----------------------------------|----------|------|----------|---------|
| Overburden from crusher site     | 1,763    | bcy  | \$2.66   | \$4,690 |
| Overburden from rock source site | 2,478    | bcy  | \$2.66   | \$6,591 |
| Waste area compaction            | 4,241    | bcy  | \$0.30   | \$1,272 |
| Spread waste material (D6)       | 4        | hrs  | \$106.00 | \$424   |
|                                  |          |      |          |         |
|                                  |          |      |          |         |
|                                  |          |      |          |         |

#### TOTAL EXCAVATION COSTS

\$12,977

### 4) DEVELOP ROCK

| ROCK SUMMARY |              |        | METHOD        | %    | QUANTITY | RATE   | COST     |
|--------------|--------------|--------|---------------|------|----------|--------|----------|
| Type         | Cu. yd. Vol. | Weight | Ripping       |      |          | \$2.20 |          |
| crushed      | 11,527       | 100%   | Drill & shoot | 100% | 12,250   | \$2.30 | \$28,174 |
| pit run      | 0            | 0      | Oversize red  | 5%   | 576      | \$5.80 | \$3,343  |
| rip rap      | 10           | 0%     | Other         |      |          |        |          |
| Total        | 11,537       |        |               |      |          |        |          |
| reject       | 713          | 6.2%   |               |      |          |        |          |

#### TOTAL ROCK DEVELOPMENT COSTS

\$31,517

### 5) CALIBRATION & TESTING

| DESCRIPTION | NO. | \$/TEST | COST  |
|-------------|-----|---------|-------|
| Calibrate   | 1   | \$507   | \$507 |
| Calibrate   |     |         |       |
| Test        | 5   | \$57.30 | \$287 |
| Test        |     |         |       |
|             |     |         |       |
|             |     |         |       |

#### TOTAL CALIBRATION & TESTING COSTS

\$794

### 6) FEEDING & LOADING

| DESCRIPTION                    | CU. YD. QUANTITY | COST CU. YD. | TOTAL COST |
|--------------------------------|------------------|--------------|------------|
| Feed the crusher hopper        | 12,240           | \$0.71       | \$8,732    |
| Load/Haul shot rock to crusher |                  |              |            |
| Off Highway & C330 (Hrs)       | 40               | \$237        | \$9,480    |

#### TOTAL FEEDING & LOADING COSTS

\$18,212

### 7) ROCK CRUSHING

| ROCK SIZE | ROCK TYPE | CU. YD. QUANTITY | CRUSHER TYPE | HOURLY PRODUCTION | RATE CU. YD. | TOTAL COST |
|-----------|-----------|------------------|--------------|-------------------|--------------|------------|
| 3/4"-0"   | crushed   |                  | 3 stage w/s  |                   |              |            |
| 1-1/2"-0" | crushed   | 6,821            | 3 stage w/s  | 125               | \$3.11       | \$21,227   |
| 4"-0"     | crushed   | 4,706            | 3 stage w/s  | 145               | \$2.68       | \$12,625   |
|           |           |                  |              |                   |              |            |
|           |           |                  |              |                   |              |            |
|           |           |                  |              |                   |              |            |

#### TOTAL ROCK CRUSHING COSTS

\$33,852

## 8) STOCKPILING

### STOCKPILE SITE PREPARATION

| Equipment | Hours | Rate     | Total    |
|-----------|-------|----------|----------|
| Dozer     | 2     | \$105.00 | \$210.00 |
| Compactor |       | \$72.00  |          |
| Grader    | 2     | \$93.00  | \$186.00 |
| Excavator |       | \$138.00 |          |
|           |       |          |          |

| Rock for Floor (CY) | \$/CY Haul | Total |
|---------------------|------------|-------|
|                     |            |       |

\$396.00

SUB TOTAL

\$396

### HAUL & STOCKPILE

| STOCKPILE LOCATION | SIZE      | # of TRUCKS | CU. YDS. | RATE   | COST     |
|--------------------|-----------|-------------|----------|--------|----------|
| 1. _____           |           | 2           |          |        |          |
| 2. Buster Creek    | 1-1/2"-0" | 4           | 5,800    | \$4.29 | \$24,866 |
| 3. Buster Creek    | 4"-0"     | 4           | 4,640    | \$4.61 | \$21,389 |
| 4. _____           |           |             |          |        |          |
| 5. _____           |           | 2           |          |        |          |
| 6. _____           |           |             |          |        |          |

SUB TOTAL

\$46,255

### TOTAL STOCKPILING COSTS

\$46,651

## 9) MISCELLANEOUS COSTS

| DESCRIPTION                                             |           |        |       | COST    |
|---------------------------------------------------------|-----------|--------|-------|---------|
| Load, and Haul the reject material to the waste area.   |           |        |       | \$1,896 |
| \$2.66 /CY                                              | 713 CY    |        |       |         |
| Spread reject (D6)                                      | \$106 /Hr | 2      |       | \$212   |
| Compact reject                                          | 622 CY    | \$0.30 |       | \$187   |
| Waterbar and block roads                                |           |        |       |         |
| D6                                                      | \$106 /Hr | 4      |       | \$424   |
| Build access road between crushing site and rock source |           |        |       |         |
| C330                                                    | \$144 /Hr | 1      |       | \$144   |
| Waste Areas Prep(C330)                                  | \$144 /Hr | 4      |       | \$576   |
| Hand seed Waste Areas                                   | (Acres)   | 0.3    | \$540 | \$162   |
| Mulch Waste Areas                                       | (Bales)   | 30     | \$10  | \$300   |
|                                                         | (Labor)   | 3      | \$38  | \$114   |

### TOTAL MISCELLANEOUS COSTS

\$4,015

## 10) GRAND TOTAL:

\$163,603

\$/Cubic Yard

\$14.19

### Footnotes:

|  |
|--|
|  |
|  |
|  |
|  |
|  |
|  |

## HAUL and STOCKPILE COST

SALE NAME: Iron Maiden  
 QUARRY: Buster Creek      ROCK TYPE: Crushed

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                              |                                |        |        |                   |        |       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|--------------------------------|--------|--------|-------------------|--------|-------|
| <b>Location 1. 0</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>ONE WAY HAUL IN MILES</b> |                                |        |        |                   |        |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 50 MPH                       | 30 MPH                         | 25 MPH | 20 MPH | 15 MPH            | 10 MPH | 5 MPH |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                              |                                |        |        |                   |        | 0.10  |
| <div style="display: flex; justify-content: space-between;"> <div>           Truck type: <u>D12</u>    No. trucks: <u>2</u><br/>           Delay min.: <u>15</u>    Efficiency: <u>75%</u> </div> <div>           Ave haul:    \$1.85    /cy<br/>           Load:      \$0.72    /cy<br/>           Stockpile:   \$1.25    /cy         </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div>           Truck type: <u>D12</u>    No. trucks: <u>      </u><br/>           Delay min.: <u>12</u>    Efficiency: <u>75%</u> </div> <div>           Production: cy/day =      632         </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div>           Truck type: <u>      </u>    No. trucks: <u>      </u><br/>           Delay min.: <u>10</u>    Efficiency: <u>75%</u> </div> <div></div> </div> |                              |                                |        |        |                   |        |       |
| <b>Location 1. 0</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                              | <b>Haul and Stockpile Cost</b> |        |        | <b>\$3.82 /cy</b> |        |       |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                              |                                |        |        |                   |        |       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|--------------------------------|--------|--------|-------------------|--------|-------|
| <b>Location 2. Buster Creek</b><br><b>1-1/2"-0"</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>ONE WAY HAUL IN MILES</b> |                                |        |        |                   |        |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 50 MPH                       | 30 MPH                         | 25 MPH | 20 MPH | 15 MPH            | 10 MPH | 5 MPH |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                              |                                | 0.40   | 1.15   | 0.10              | 0.10   | 0.10  |
| <div style="display: flex; justify-content: space-between;"> <div>           Truck type: <u>D20</u>    No. trucks: <u>      </u><br/>           Delay min.: <u>15</u>    Efficiency: <u>75%</u> </div> <div>           Ave haul:    \$2.79    /cy<br/>           Load:      \$0.54    /cy<br/>           Stockpile:   \$0.96    /cy         </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div>           Truck type: <u>D12</u>    No. trucks: <u>4</u><br/>           Delay min.: <u>12</u>    Efficiency: <u>85%</u> </div> <div>           Production: cy/day =      836         </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div>           Truck type: <u>D10</u>    No. trucks: <u>      </u><br/>           Delay min.: <u>10</u>    Efficiency: <u>75%</u> </div> <div></div> </div> |                              |                                |        |        |                   |        |       |
| <b>Location 2. Buster Creek</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                              | <b>Haul and Stockpile Cost</b> |        |        | <b>\$4.29 /cy</b> |        |       |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                              |                                |        |        |                   |        |       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|--------------------------------|--------|--------|-------------------|--------|-------|
| <b>Location 3. Buster Creek</b><br><b>4"-0"</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>ONE WAY HAUL IN MILES</b> |                                |        |        |                   |        |       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 50 MPH                       | 30 MPH                         | 25 MPH | 20 MPH | 15 MPH            | 10 MPH | 5 MPH |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                              |                                | 0.40   | 1.35   | 0.10              | 0.10   | 0.10  |
| <div style="display: flex; justify-content: space-between;"> <div>           Truck type: <u>D20</u>    No. trucks: <u>      </u><br/>           Delay min.: <u>15</u>    Efficiency: <u>75%</u> </div> <div>           Ave haul:    \$2.94    /cy<br/>           Load:      \$0.60    /cy<br/>           Stockpile:   \$1.08    /cy         </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div>           Truck type: <u>D12</u>    No. trucks: <u>4</u><br/>           Delay min.: <u>12</u>    Efficiency: <u>85%</u> </div> <div>           Production: cy/day =      795         </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div>           Truck type: <u>D10</u>    No. trucks: <u>      </u><br/>           Delay min.: <u>10</u>    Efficiency: <u>75%</u> </div> <div></div> </div> |                              |                                |        |        |                   |        |       |
| <b>Location 3. Buster Creek</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                              | <b>Haul and Stockpile Cost</b> |        |        | <b>\$4.61 /cy</b> |        |       |

# HAUL and STOCKPILE COST

| Location 4. 0 |     | ONE WAY HAUL IN MILES |        |        |        |                      |             |       |
|---------------|-----|-----------------------|--------|--------|--------|----------------------|-------------|-------|
|               |     | 50 MPH                | 30 MPH | 25 MPH | 20 MPH | 15 MPH               | 10 MPH      | 5 MPH |
|               |     |                       |        |        | 1.00   | 1.00                 |             |       |
| Truck type:   | D20 | No. trucks:           |        |        |        | Ave haul:            | #DIV/0!     | /cy   |
| Delay min.:   | 15  | Efficiency:           | 75%    |        |        | Load:                | #N/A        | /cy   |
| Truck type:   | D12 | No. trucks:           |        |        |        | Stockpile:           | #N/A        | /cy   |
| Delay min.:   | 12  | Efficiency:           | 75%    |        |        |                      |             |       |
| Truck type:   | D10 | No. trucks:           |        |        |        | Production: cy/day = | 0           |       |
| Delay min.:   | 10  | Efficiency:           | 75%    |        |        |                      |             |       |
| Location 4. 0 |     | Haul & Stockpile Cost |        |        |        |                      | #DIV/0! /cy |       |

| Location 5. 0 |     | ONE WAY HAUL IN MILES |        |        |        |                      |            |       |
|---------------|-----|-----------------------|--------|--------|--------|----------------------|------------|-------|
|               |     | 50 MPH                | 30 MPH | 25 MPH | 20 MPH | 15 MPH               | 10 MPH     | 5 MPH |
|               |     |                       |        |        |        |                      |            | 0.10  |
| Truck type:   | D20 | No. trucks:           | 2      |        |        | Ave haul:            | \$1.43     | /cy   |
| Delay min.:   | 15  | Efficiency:           | 75%    |        |        | Load:                | \$0.48     | /cy   |
| Truck type:   | D12 | No. trucks:           |        |        |        | Stockpile:           | \$0.78     | /cy   |
| Delay min.:   | 12  | Efficiency:           | 75%    |        |        |                      |            |       |
| Truck type:   | D10 | No. trucks:           |        |        |        | Production: cy/day = | 1,054      |       |
| Delay min.:   | 10  | Efficiency:           | 75%    |        |        |                      |            |       |
| Location 5. 0 |     | Haul & Stockpile Cost |        |        |        |                      | \$2.68 /cy |       |

| Location 6. 0 |     | ONE WAY HAUL IN MILES |        |        |        |                      |             |       |
|---------------|-----|-----------------------|--------|--------|--------|----------------------|-------------|-------|
|               |     | 50 MPH                | 30 MPH | 25 MPH | 20 MPH | 15 MPH               | 10 MPH      | 5 MPH |
|               |     |                       |        |        | 1.00   | 1.00                 |             |       |
| Truck type:   | D20 | No. trucks:           |        |        |        | Ave haul:            | #DIV/0!     | /cy   |
| Delay min.:   | 15  | Efficiency:           | 75%    |        |        | Load:                | #N/A        | /cy   |
| Truck type:   | D12 | No. trucks:           |        |        |        | Stockpile:           | #N/A        | /cy   |
| Delay min.:   | 12  | Efficiency:           | 75%    |        |        |                      |             |       |
| Truck type:   | D10 | No. trucks:           |        |        |        | Production: cy/day = | 0           |       |
| Delay min.:   | 10  | Efficiency:           | 75%    |        |        |                      |             |       |
| Location 6. 0 |     | Haul & Stockpile Cost |        |        |        |                      | #DIV/0! /cy |       |

**Iron Maiden Type F (Round Pipe)**

Sale Name: Iron Maiden

Date:

09/02/11

| Construction Phase                      | QTY<br>BCY | Equipment Hours |            |                |            |            |              |             |              |             |  | Labor          |  | Culvert |        | Erosion Control |         | Total<br>\$     |
|-----------------------------------------|------------|-----------------|------------|----------------|------------|------------|--------------|-------------|--------------|-------------|--|----------------|--|---------|--------|-----------------|---------|-----------------|
|                                         |            | C330            | D-7        | Dmp Tr         | Gdr 14G    | Cat 966    | Roller       | Buggy       | Pump         | Tamper      |  |                |  | Ft      | \$/ft. | Acres           | \$/Acre |                 |
| Unload and move cmp to site             |            | 4               |            |                |            |            |              |             |              |             |  |                |  |         |        |                 |         |                 |
| Fill and Culvert removal/disposal       | 568        | 14              |            | 14             |            |            |              |             |              |             |  |                |  |         |        |                 |         |                 |
| De-watering (w/pump) (24hrs/day)        |            |                 |            |                |            |            |              |             | 32           |             |  | 40             |  |         |        |                 |         |                 |
| Build culvert bed (crushed rock) **     | 30         |                 |            |                |            |            |              |             |              |             |  | 4              |  |         |        |                 |         |                 |
| Place culvert \ tamp flanks (c.rock) ** | 130        | 2               |            |                |            |            |              |             |              | 2           |  | 4              |  |         |        |                 |         |                 |
| Backfill culvert w / crushed rock **    |            |                 |            |                |            |            |              |             |              |             |  |                |  |         |        |                 |         |                 |
| Remaining Backfill Placement*           | 408        | 7               |            |                |            |            |              |             |              |             |  |                |  |         |        |                 |         |                 |
| Fill Compaction                         |            |                 |            |                |            |            | 8            |             |              |             |  |                |  |         |        |                 |         |                 |
| Seed culvert w/onsite cobble            |            | 3               |            |                |            |            |              | 6           |              |             |  | 6              |  |         |        |                 |         |                 |
| Develop Waste Area                      |            | 4               |            |                |            |            |              |             |              |             |  |                |  |         |        |                 |         |                 |
| Compact/Shape Waste Area                |            | 3               |            |                |            |            |              |             |              |             |  |                |  |         |        |                 |         |                 |
| Embedded Riprap (Dissipator)            |            | 1               |            | 1              |            |            |              |             |              |             |  |                |  |         |        |                 |         |                 |
| Develop and Place Riprap/Fill Armor     | 121        | 8               |            |                |            |            |              |             |              |             |  |                |  |         |        |                 |         |                 |
| Total Hours                             |            | 46              | 0          | 15             | 0          | 0          | 8            | 6           | 32           | 6           |  | 54             |  |         |        |                 |         |                 |
| Equipment Rates:                        |            | \$144           | \$94       | \$73           | \$84       | \$77       | \$72         | \$10        | \$9          | \$9         |  | \$38           |  |         |        |                 |         |                 |
| <b>Sub total Hourly rates:</b>          |            | <b>\$6,624</b>  | <b>\$0</b> | <b>\$1,095</b> | <b>\$0</b> | <b>\$0</b> | <b>\$576</b> | <b>\$60</b> | <b>\$288</b> | <b>\$54</b> |  | <b>\$2,052</b> |  |         |        |                 |         | <b>\$10,749</b> |
| 108" Aluminized Steel Culvert (10 ga)   |            |                 |            |                |            |            |              |             |              |             |  |                |  | 67      | \$187  |                 |         | \$12,523        |
| Bands                                   |            |                 |            |                |            |            |              |             |              |             |  |                |  | 3       | \$202  |                 |         | \$605           |
| Step Beveling (both ends)               |            |                 |            |                |            |            |              |             |              |             |  |                |  |         |        |                 |         | \$0             |
| Freight to Astoria Area                 |            |                 |            |                |            |            |              |             |              |             |  |                |  |         |        |                 |         | \$700           |
| <b>Sub total Culvert Material Cost:</b> |            |                 |            |                |            |            |              |             |              |             |  |                |  |         |        |                 |         | <b>\$13,828</b> |
| <b>Sub total Seeding and Mulching:</b>  |            |                 |            |                |            |            |              |             |              |             |  |                |  |         |        |                 |         |                 |
| Project site & Waste area               |            |                 |            |                |            |            |              |             |              |             |  |                |  |         |        | 0.100           | \$1,558 | \$156           |

**Total Installation Cost:**

**\$24,733**

**Notes:**

- 1) Does not include crushed rock road base and surface course, and grader time.
- 2) \* Remaining backfill material source is from Road Improvement segment I3 to I4 (sta. 142+96 - 147+22)
- 3) Old culvert is to be disposed of off of STATE lands
- 4) Mobilization costs are in the "Move-In" portion of SUMMARY OF ALL PROJECT COSTS
- 5) \*\* Crushed rock source is Sterling Ranch Quarry Crushing
- 6) Riprap comes from the Sterling Ranch Quarry

| Iron Maiden Timber Sale              |         |         |         |         |         |         |       |       |         |  |
|--------------------------------------|---------|---------|---------|---------|---------|---------|-------|-------|---------|--|
| Vacating Costs (Segment V1 to V2)    |         |         |         |         |         |         |       |       |         |  |
| Work Description                     | Station | C.Y.s   | C330    | D24 trk | D10 trk | C315    | Labor | Bales | H. Seed |  |
| Begin vacating / block road          | 0+00    |         | 1       |         |         |         |       |       |         |  |
| Remove fill                          |         | 737     |         |         |         | 4       |       |       |         |  |
| Remove Culvert                       |         |         | 0.5     |         |         |         | 0.5   |       |         |  |
| End Fill Removal                     | 0+61    |         |         |         |         |         |       |       |         |  |
| Block Road                           |         |         | 1       |         |         |         |       |       |         |  |
| Mobilization                         |         |         | 1       | 1       |         |         |       |       |         |  |
| Compact/Shape Waste Area             |         |         | 4       |         |         |         |       |       |         |  |
| Spread Fill at Waste Area            |         |         | 2       |         |         |         |       |       |         |  |
| Hand grass seeding                   |         |         |         |         |         |         |       |       | 0.2     |  |
| Hand Mulching                        |         |         |         |         |         |         | 3     | 30    |         |  |
| Miscellaneous Labor                  |         |         |         |         |         |         | 3.5   |       |         |  |
| Culvert Disposal                     |         |         | 0.5     |         | 3       |         |       |       |         |  |
| Develop Waste Area                   |         |         | 1       |         |         |         |       |       |         |  |
| Remove old culvert                   |         |         | 1       |         |         |         | 1     |       |         |  |
| <b>Total Quantity (Mobilization)</b> |         |         | 1       | 1       |         | 1       |       |       |         |  |
| <b>Total Quantity Miscellaneous</b>  |         |         |         |         |         |         |       | 30    | 0.2     |  |
| <b>Total Quantity (Hours)</b>        |         |         | 11.5    |         | 3       |         | 8     |       |         |  |
| <b>Total Cubic yards</b>             |         | 737     |         |         |         |         |       |       |         |  |
| <b>Equipment Rates</b>               |         |         | \$144   | \$119   | \$73    | \$94    |       |       |         |  |
| <b>Cubic yard rates</b>              |         | \$2.33  |         |         |         |         |       |       |         |  |
| <b>Mobilization Rates</b>            |         |         | \$1,220 | \$672   |         | \$699   |       |       |         |  |
| <b>Miscellaneous Rates</b>           |         |         |         |         |         |         | \$38  | \$10  | \$545   |  |
| <b>Mobilization Total</b>            |         |         | \$1,220 | \$672   |         |         |       |       |         |  |
| <b>Hours Total</b>                   |         |         | \$1,656 |         |         |         | \$304 |       |         |  |
| <b>Total Dollars</b>                 |         | \$1,717 | \$2,876 | \$672   | \$219   | \$1,075 | \$304 | \$300 | \$109   |  |

Total Vacating Cost

**\$7,272**

**\$1,208**

## PIT RUN ROCK COST

SALE NAME: Iron Maiden  
PROJECT: No. 4 (Vacating)  
QUARRY:

MATERIAL: Waste

DATE: 09/21/11  
BY: d.mellison

ROCK HAUL:

|             |     |             |     |
|-------------|-----|-------------|-----|
| Truck type: | D20 | No. trucks: | 1   |
| Delay min.: | 8   | Efficiency: | 85% |
| Truck type: | D12 | No. trucks: | 1   |
| Delay min.: | 6   | Efficiency: | 85% |

|            |          |     |
|------------|----------|-----|
| Ave haul:  | 0.917882 | /cy |
| Load:      | \$1.41   | /cy |
| Compaction |          | /cy |

Production: cy/day = 819

### PIT RUN ROCK HAUL COSTS

737 cy @ \$2.33 /cy

$$* (737/819 * 8 \text{ hrs} * \$144/\text{hr} / 737 \text{ bcy} = \$1.41)$$

**IRON MAIDEN TIMBER SALE  
BRUSHING COSTS**

09/30/11

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| ROAD<br>SEGMENT | SEGMENT NAME          | SEGMENT<br>LENGTH | COST     |
|-----------------|-----------------------|-------------------|----------|
| I1 - I2         | QUARTZ CREEK          | 5.792             | \$6,371  |
| I3 - I4         | STERLING RANCH        | 3.911             | \$1,956  |
| I5 - I6         | STERLING TIE          | 0.757             | \$379    |
| I7 - I8         | STERLING RIDGE        | 2.431             | \$2,066  |
| I7 - I6         | STERLING RIDGE TIE RD | 1.156             | \$983    |
| I8 - I9         |                       | 0.485             | \$364    |
| I10 - I11       |                       | 0.577             | \$490    |
| B1              | QUARTZ CK QUARRY ROAD | 0.153             | \$115    |
| B2              |                       | 0.12              | \$102    |
| B3              |                       | 1.459             | \$1,605  |
| B4              |                       | 0.92              | \$1,012  |
| B5              |                       | 0.103             | \$113    |
| B6              |                       | 0.031             | \$26     |
| B7              |                       | 0.162             | \$138    |
| B8              |                       | 0.06              | \$45     |
| B9              |                       | 0.173             | \$234    |
| B10             |                       | 0.022             | \$24     |
| B11             |                       | 0.065             | \$55     |
| B12             |                       | 0.218             | \$207    |
| B13             |                       | 0.505             | \$429    |
| B14             |                       | 0.425             | \$468    |
| B15             |                       | 0.045             | \$23     |
| B16             |                       | 0.028             | \$38     |
| B17             |                       | 0.218             | \$185    |
| B18             |                       | 0.101             | \$51     |
| B19             |                       | 0.152             | \$114    |
| B20             |                       | 0.22              | \$187    |
| B21             |                       | 0.122             | \$134    |
| B22             |                       | 0.222             | \$189    |
| B23             |                       | 0.924             | \$693    |
| B24             |                       | 0.233             | \$117    |
|                 |                       | 21.79             | \$18,913 |

**Road Maintenance after completion of Projects**

**Sale:** Iron Maiden  
**Date:** 17-Oct-11  
**By:** J. McCoy FL

| Type                                            | Equipment/Rationale      |  | Hours | Rate | Cost    |
|-------------------------------------------------|--------------------------|--|-------|------|---------|
| Final Haul<br>Road<br>Maintenance<br>Haul Route | Grader 14G               |  | 6     | \$93 | \$558   |
|                                                 | Dump Truck 12CY (X3)     |  | 4     | \$73 | \$292   |
|                                                 | FE Loader C966           |  | 4     | \$77 | \$308   |
|                                                 | Vibratory Roller         |  | 6     | \$72 | \$432   |
|                                                 | Water Truck 2,500 gallon |  | 4     | \$83 | \$332   |
| <b>Total</b>                                    |                          |  |       |      | \$1,922 |

| Production Rates |           |                 |      |
|------------------|-----------|-----------------|------|
|                  | Miles/day | Distance(miles) | Days |
| Grader           | 1.5       | 1.1             | 0.7  |
| Vibratory Roller | 1.5       | 1.1             | 0.7  |

# Road Maintenance Cost Summary

Sale: Iron Maiden  
 Date: 06-Oct-11  
 By: Jasen McCoy FL

MBF: 9,731  
 \$\$/MBF: \$2.92

| Type                                   | Equipment/Rationale                                                                                          | Move-in<br>Rate                           | Times | Hours | Rate | Cost     | Production Rates  |           |                 |      |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------|-------------------------------------------|-------|-------|------|----------|-------------------|-----------|-----------------|------|
| Progressive<br>Operations<br>1st Entry | Grader 14G<br>Dump Truck 10CY x 2<br>FE Loader C966                                                          | \$675<br>\$282<br>\$675                   | 1     | 16    | \$90 | \$2,115  | Production Rates  | Miles/day | Distance(miles) | Days |
|                                        |                                                                                                              |                                           | 2     | 8     | \$73 | \$1,450  | Grader            | 2.5       | 5.0             | 2.0  |
|                                        |                                                                                                              |                                           | 1     | 8     | \$74 | \$1,267  |                   |           |                 |      |
| Progressive<br>Operations<br>2nd Entry | Grader 14G<br>Dump Truck 10CY x 2<br>FE Loader C966                                                          | \$675<br>\$282<br>\$675                   | 1     | 16    | \$90 | \$2,115  | Production Rates  | Miles/day | Distance(miles) | Days |
|                                        |                                                                                                              |                                           | 2     | 8     | \$73 | \$1,450  | Grader            | 2.5       | 4.0             | 1.6  |
|                                        |                                                                                                              |                                           | 1     | 8     | \$74 | \$1,267  |                   |           |                 |      |
| Final Road<br>Maintenance              | Grader 14G<br>Dump Truck 10CY x 3<br>FE Loader C966<br>Vibratory Roller<br>Water Truck 2,500 gallon<br>Labor | \$675<br>\$423<br>\$675<br>\$675<br>\$165 | 1     | 64    | \$90 | \$6,435  | Production Rates  | Miles/day | Distance(miles) | Days |
|                                        |                                                                                                              |                                           | 3     | 8     | \$73 | \$2,175  | Grader            | 1.5       | 12.0            | 8.0  |
|                                        |                                                                                                              |                                           | 1     | 8     | \$74 | \$1,267  | Vibratory Roller* | 1.5       | 12.0            | 8.0  |
|                                        |                                                                                                              |                                           | 1     | 64    | \$72 | \$5,283  |                   |           |                 |      |
|                                        |                                                                                                              |                                           | 1     | 40    | \$78 | \$3,285  |                   |           |                 |      |
|                                        |                                                                                                              |                                           | 1     | 8     | \$37 | \$296    |                   |           |                 |      |
|                                        |                                                                                                              |                                           |       |       |      |          |                   |           |                 |      |
| Total                                  |                                                                                                              |                                           |       |       |      | \$28,405 |                   |           |                 |      |

\*Final Road Maintenance Only

# Iron Maiden TIMBER CRUISE REPORT FY 2012

**1. Sale Area Location:** Areas 1, 2, and 3 are located in portions of Section 30, T4N, R6W and Sections 21, 22, 23, 24, and 25, T4N, R7W, W.M., Clatsop County, Oregon.

**2. Fund Distribution:** BOF 100%  
Tax Code 8-01

**3. Sale Acreage by Area:**

| Area          | Treatment         | Gross Acres | Existing R/W | Non-Thinnable | Stream Buffer | Net Acres  | Survey Method |
|---------------|-------------------|-------------|--------------|---------------|---------------|------------|---------------|
| 1             | Partial Cut       | 400         | 24           | 7             | 35            | 334        | GIS           |
| 2             | Modified Clearcut | 107         | 6            | N/A           | 1             | 100        | GIS           |
| 3             | Modified Clearcut | 88          | 4            | N/A           | 3             | 81         | GIS           |
| <b>TOTALS</b> |                   | <b>595</b>  | <b>34</b>    | <b>7</b>      | <b>39</b>     | <b>515</b> |               |

**4. Cruisers and Cruise Dates:** Area 1 was cruised by Jasen McCoy, Jenny Johnson, Bryce Rodgers, and Kevin Berry, August 17, 2011. Areas 2 and 3 were cruised by Jasen McCoy, Jenny Johnson, Bryce Rodgers, Jay Morey, and Kevin Berry, September 29, 2011.

**5. Cruise Method and Computation:**

Area 1 is an "auto-mark" thinning unit (SDI 35), and was variable plot cruised using a 40 BAF. These plots are located on a 4 chain by 12 chain grid, with every third plot measured and graded. A total of 66 plots were sampled, with 25 measured and graded plots, and 41 count plots. Cedar and Alder are reserve species, and were recorded as "leave" trees. The "biggest and best" trees were recorded as "leave" trees to meet a target residual basal area of 170 ft<sup>2</sup>/acre. Hardwoods do not count towards the residual basal area.

Areas 2 and 3 are modified clearcut units and were variable plot cruised using a 40 BAF. These plots are located on a 3 chain by 11 chain grid, with every third plot measured and graded. A total of 53 plots were sampled, with 24 measured and graded plots, and 29 count plots. Cedar is a reserve species, and was recorded as "leave" trees.

All cruisers used Corvallis MicroTechnology (CMT) and/or Allegro data collectors, and were downloaded to the Atterbury Super A.C.E. program in District for computing. See the attached Cruise Design for more details on the cruise method. The cruise calculations were processed in the Astoria district office.

| AREA    | CRUISE        | TRACT   | TYPE | ACRES |
|---------|---------------|---------|------|-------|
| 1       | T4NR7W SEC 23 | AREA1   | TAKE | 334   |
| 2 and 3 | T4NR7W SEC 21 | AREAS23 | TAKE | 181   |

## 6. Timber Description:

Area 1 is an "auto-mark" thinning unit, approximately 70 years old, consisting of Douglas-fir stands mixed with hemlock and true fir. This stand will be thinned to a SDI of 35 (170 Sq.Ft.BA), removing approximately 50 trees per acre and 12.6 MBF/acre. The average Douglas-fir tree size to be harvested is 19 inches DBH, with an average height of 78 feet to a merchantable top (6 inch d.i.b., or 40% of the diameter at 16 ft.). The average hemlock tree size to be harvested is 13 inches DBH and 75 feet to a merchantable top. The average true fir size is 25 inches DBH and 85 feet to a merchantable top. The average volume per acre to be harvested (net) is 12.6 MBF.

Areas 2 and 3 are modified clearcut units, approximately 65 years-old, containing a mix of western hemlock and Douglas-fir with scattered true fir, alder, and spruce. The average hemlock tree size to be harvested is 17 inches DBH, with an average height of 54 feet to a merchantable top (inch d.i.b., or 40% of the diameter at 16 ft.). The average Douglas-fir tree size is 22 inches DBH and 75 feet to a merchantable top. The average true fir size is 25 inches DBH and 85 feet to a merchantable top. The average volume per acre to be harvested (net) is 30.5 MBF.

## 7. Statistical Analysis and Stand Summary: (See "Statistics" - Type Reports, attached)

Statistics for Stand B.F. volumes

| Area       | Estimated CV | Target SE% | Actual CV | Actual SE% |
|------------|--------------|------------|-----------|------------|
| 1 (PC)     | 50%          | 7%         | 26.2%     | 3.2%       |
| 2 & 3 (MC) | 50%          | 10%        | 46.2%     | 6.3%       |

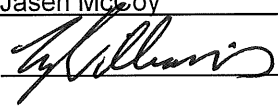
## 8. Volumes by Species and Log Grade: (See "Species, Sort, Grade - Type and Project Reports, attached, of individual sale areas and combined areas and two cruise types).

Volumes by Species and Grade for All Sale Areas: (MBF) Volumes do not include "in-growth."

| Species          | DBH | Net Vol.     | 2 Saw        | 3Saw         | 4 Saw      | CampRun   | % D & B | % Sale |
|------------------|-----|--------------|--------------|--------------|------------|-----------|---------|--------|
| Douglas-fir      | 20" | 6,388        | 4,509        | 1,593        | 286        | 0         | 5.7%    | 66%    |
| Hemlock/true fir | 18" | 3,300        | 2,325        | 639          | 336        | 0         | 9%      | 34%    |
| Spruce           | 18" | 18           | 15           | 3            | 0          | 0         | <1%     | <1%    |
| Alder            | 19" | 25           | 0            | 0            | 0          | 25        | <1%     | <1%    |
| <b>TOTALS</b>    |     | <b>9,731</b> | <b>6,849</b> | <b>2,235</b> | <b>622</b> | <b>25</b> |         |        |

## 9. Approvals:

Prepared by: Jasen McCoy Date: October 6, 2011

Unit Forester Approval:  Date: 10/11/11

## 10. Attachments:

Cruise Designs and Maps - 7 pages  
Volume Reports - 3 pages  
Statistics Reports - 8 pages  
Log Stock Tables - 3 pages  
Stand Table Summary - 4 page

**CRUISE DESIGN  
ASTORIA DISTRICT**

**Sale Name:** Iron Maiden **Area(s)** 1

**Harvest Type:** (PC)

**Approx. Cruise Acres:** 334 **Estimated CV%** 50 Net BF/Acre **SE% Objective** 7 Net BF

**Planned Sale Volume:** 4,342 MBF **Estimated Sale Area Value/Acre:** \$3,250/Ac  
(area 1) (13 MBF/Ac.)

- A. Cruise Goals:** (a) Grade minimum 100 conifer;  
(b) Sample 67 cruise plots ( 23 grade/ 44count); (c) Other goals X Determine  
"automark" thinning standards; X Determine log grades for sale value;  
X Determine snag and leave tree species and sizes.

**B. Cruise Design:**

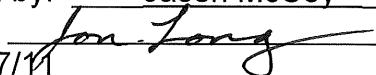
- 1. Plot Cruises:** BAF 40 (Full point) Half point) (circle one)  
Cruise Line Direction(s) 45° (NE:SW)  
Cruise Line Spacing 12 (chains)  
Cruise Plot Spacing 4 (chains)  
Count/Grade Ratio 2:1

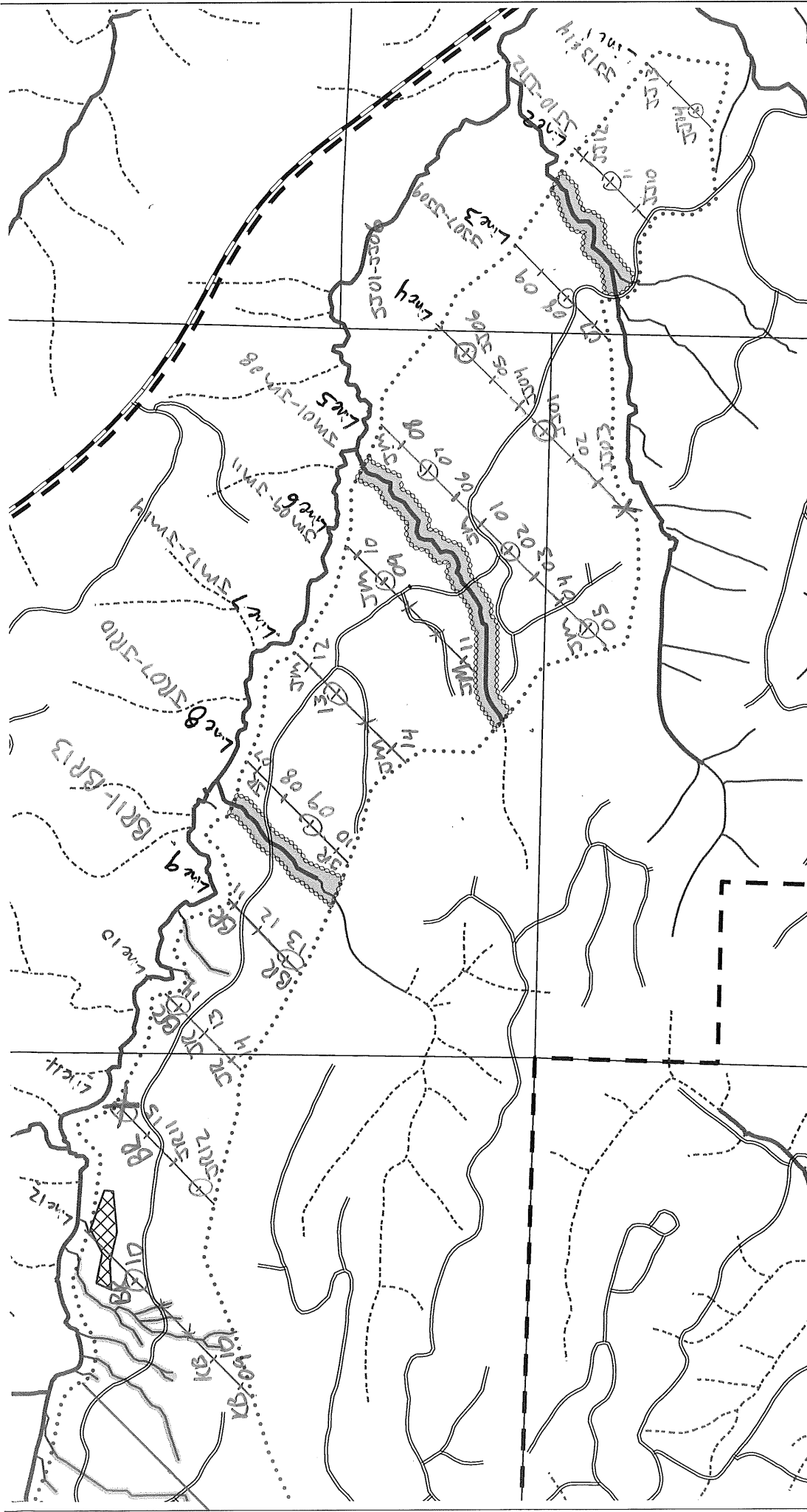
The BA target is 170 sq. ft. Cruiser will select 4-5 leave trees per plot. (Leave 5 leave trees every fourth plot) Mark Leave trees with an "L" using yellow paint on graded plots only. Cruise all take and leave trees. Take plots as shown on map. Conifer greater than 31" dbh and less than 13" dbh, and all cedar are leave trees and count towards the leave tree basal area. Alder is also a reserve species, but will not count towards the leave tree BA. Grade alder as Camp Run (30 net BF minimum). Record all snags as SN and estimate diameter and total height.

**C. Tree Measurements:**

- 1. Diameter:** Minimum DBH to cruise is 8" for conifers and 10" for hardwoods.  
Record dbh to nearest  $\frac{1}{2}$ " for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.
- 2. Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.
- 3. Top Cruise Diameter (TCD):** Minimum top outside bark is 7" for conifers and 7" for hardwoods or 40 % of dob at 16' form point. Generally, use 7" outside bark for trees < 18" dbh and 40% of dob @ FP for trees > 18" dbh.
- 4. Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors are a Standard 87.

5. **Tree Segments:** Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch. segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree.
6. **Species, Sort, and Grade Codes:**
- A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)
- B. Sort: Use code "1" (Domestic).
- C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; 0 = Cull
7. **Deductions:** Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.
8. **Standard Field Procedures:** Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at inter-visible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.
9. **Cruising Equipment:** Relaskop, Rangefinder, Logger's Tape (with dbh on back) Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.
10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

Cruise Design by: Jasen McCoy  
Approved by:   
Date: 9/27/11



# Legend

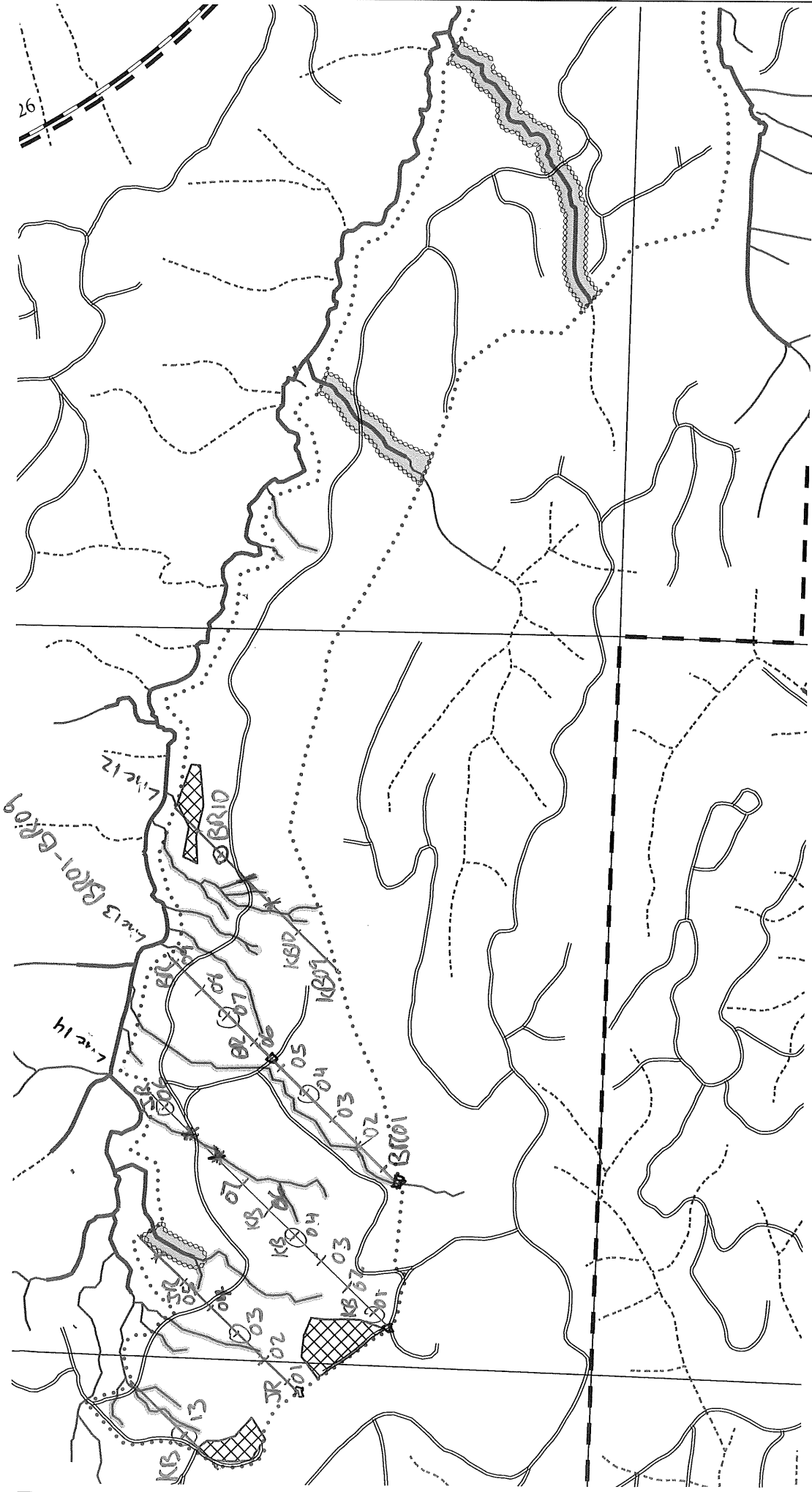
- Paved Road
- Rocked Road
- Fish
- Nonfish
- Unknown
- Timber Sale Boundary
- Posted Buffer
- Non Posted Buffer
- Non Thinnable
- Ownership Boundary



## Iron Maiden Cruise Map

12 x 4 2:1 scale

Portions of Section 30 T4N,  
R6W and Portions of Sections 21,  
22, 23, 24 and 25, T4N, R7W, W.M.,  
Clatsop County, Oregon



# Legend

- Paved Road
- Rocked Road
- Fish
- Nonfish
- Unknown
- Timber Sale Boundary
- Posted Buffer
- Non Posted Buffer
- Non Thinnable
- Ownership Boundary



## Iron Maiden Cruise Map

Portions of Section 30 T4N,  
R6W and Portions of Sections 21,  
22, 23, 24 and 25, T4N, R7W, W.M.,  
Clatsop County, Oregon

Area 1 (PC) - 393 Acres  
Area 2 (MC) - 100 Acres  
Area 3 (MC) - 81 Acres  
Total (PC) - 393 Acres  
Total (MC) - 181 Acres  
Total Sale Acres = 516

**CRUISE DESIGN  
ASTORIA DISTRICT**

**Sale Name:** Iron Maiden **Area(s)** 2 & 3

**Harvest Type:** (MC)

**Approx. Cruise Acres:** 181 **Estimated CV%** 50 Net BF **SE% Objective** 10 Net BF

**Planned Sale Volume:** 5,268 **Estimated Sale Area Value/Acre:** \$9,000/Ac  
(30 MBF/Ac.)

**A. Cruise Goals:** (a) Grade minimum 100 conifer:  
(b) Sample 57 cruise plots ( 19 grade/ 38 count); (c) Other goals    Determine  
"automark" thinning stand ards;   X   Determine log grades for sale value;   X    
Determine snag and leave tree species and sizes.

**B. Cruise Design:**

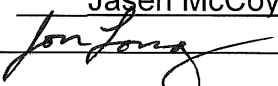
- 1. Plot Cruises:** BAF 40 (Full point; Half point) (circle one)  
Cruise Line Direction(s) N-S  
Cruise Line Spacing 11 (chains)  
Cruise Plot Spacing 3 (chains)  
Count/Grade Ratio 2:1

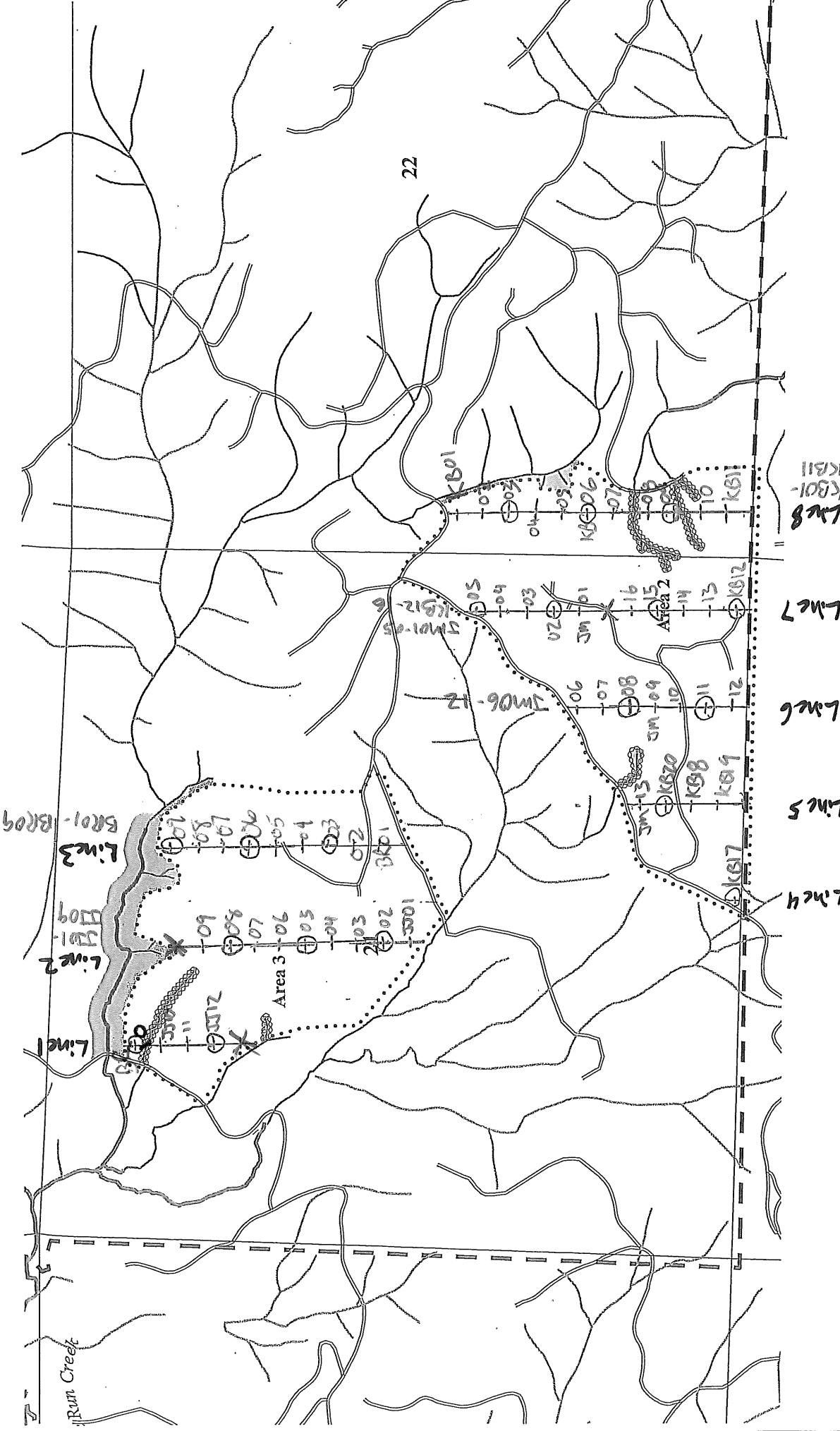
Cedar and marked wildlife trees are leave trees and are recorded as such. Record snags (SN) as cull and estimate heights and diameters. Grade ALL alder as camprun-sawlogs (30 net BF minimum). Do not take plots in a buffer.

**C. Tree Measurements:**

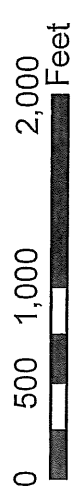
- 1. Diameter:** Minimum DBH to cruise is 8" for conifers and 10" for hardwoods.  
Record dbh to nearest ½" for trees < 16", to nearest 1" for trees 16-24", and to nearest 2" for trees > 24". If tree diameters are estimated (only estimate on variable plot cruises), then record to closest estimate.
- 2. Bole Length:** Record bole length to nearest foot at TCD. For trees greater than 100 feet in merchantable height, estimating to the nearest 5 feet is acceptable.
- 3. Top Cruise Diameter (TCD):** Minimum top outside bark is 7" for conifers and 7" for hardwoods or 40 % of dob at 16' form point. Generally, use 7" outside bark for trees < 18" dbh and 40% of dob @ FP for trees > 18" dbh.
- 4. Form Factors:** (1) Measure or estimate a 16' form factor for every conifer tree measured/graded; OR (2) Measure a minimum of 20 form factors for each major conifer species on the cruise area, and use these to calculate average FF for the species on the cruise. Hardwood form factors are a Standard 87.

5. **Tree Segments:** Record log segments in "standard" log lengths in general use, such as 32' and 40' lengths, whenever possible. Do not record odd segments just to maximize grade. Cull segments can be any length. For conifers, minimum merchantable segment length is 12'; for hardwoods, it's 8'. Maximum segment length is 40'. One foot of trim is assumed for each merch. segment. Do not use "double dash" (--) feature on the data recorder except for the top segment of the tree.
6. **Species, Sort, and Grade Codes:**
- A. Species: Record as D (Douglas-fir); H (Western hemlock); S (Sitka Spruce); C (Western red cedar); NF (Noble fir); SF (Silver fir); A (Red alder); M (Bigleaf maple). For "leave trees" in partial cuts, or for marked "wildlife trees," add an "L" to the species code (such as DL, HL, CL, etc.)
- B. Sort: Use code "1" (Domestic).
- C. Grade: A = 1 Peeler; B = 2 Peeler; C = 3 Peeler; D = Special Mill; 2 = 2 Sawmill; 3 = 3 Sawmill; 4 = 4 Sawmill; 0 = Cull
7. **Deductions:** Estimate visible defect or damage as a "length deduction" (most often), or as a "diameter deduction," as applicable. Estimate hidden defect and breakage (usually some breakage is encountered in trees > 100 feet in height) on a "per tree" basis. Steep and broken topography generally results in higher breakage percentages than gentler topography, and hemlock generally breaks more than D-fir and spruce.
8. **Standard Field Procedures:** Plot Type Cruises: Mark cruise line beginning and end points with blue/yellow flagging. Write plot identification numbers and line direction on the ribbon. At each plot, tie yellow flagging above eye level near plot center and another yellow flagging around a sturdy wooden stake marking plot center. On each yellow flagging, write the plot identification number. Between plots, along the cruise line, tie blue flagging at inter-visible points, not to exceed 100' apart. On "measure/grade" plots write the tree number and/or tree diameter on at least the first measured tree (clockwise from the line direction) in yellow paint. All trees on the plot may be marked this way, if the cruiser chooses.
9. **Cruising Equipment:** Relaskop, Rangefinder, Logger's Tape (with dbh on back) Biltmore Stick, Compass, Cruise Cards in Tatum OR Data Recorder, Cruise Design, Cruise Map, Yellow Flagging, Blue Flagging, Yellow Paint.
10. **Attachments:** A. Cruise Map (showing cruise unit boundaries, roads, streams, approx. acres/unit, cruise lines and plot locations, legal description and section lines, BAF or plot size, measure/count plot ratio, north arrow, and scale.

Cruise Design by: Jasen McCoy  
Approved by:   
Date: 8/12/11



- Legend
- Fish
  - Nonfish
  - Unknown
  - Paved Road
  - Rocked Road
  - ... Timber Sale Boundary
  - Ownership Boundary
  - Posted Stream Buffer



Area 1 (PC) - 332 Acres  
 Area 2 (MC) - 100 Acres  
 Area 3 (MC) - 81 Acres  
 Total (PC) - 332 Acres  
 Total (MC) - 181 Acres  
 Total Sale Acres = 513

# Cruise Map Iron Maiden

Portions of Section 30 T4N,  
 R6W and Portions of Sections 21,  
 22, 23, 24 and 25, T4N, R7W, W.M.,  
 Clatsop County, Oregon

| TC                                                                        |                  | PSPCSTGR         |                  | Species, Sort Grade - Board Foot Volumes (Project) |        |                  |                                  |      |       |     |            |       |       |                 |             |          |           |                      |       |  |
|---------------------------------------------------------------------------|------------------|------------------|------------------|----------------------------------------------------|--------|------------------|----------------------------------|------|-------|-----|------------|-------|-------|-----------------|-------------|----------|-----------|----------------------|-------|--|
| <div>TT4N RR7W S21 TyTAK181.00</div> <div>TT4N RR7W S23 TyTAK334.00</div> |                  |                  |                  | Project: MAIDEN                                    |        |                  |                                  |      |       |     |            |       |       | Page 1          |             |          |           |                      |       |  |
|                                                                           |                  |                  |                  | Acres 515.00                                       |        |                  |                                  |      |       |     |            |       |       | Date 10/27/2011 |             |          |           |                      |       |  |
|                                                                           |                  |                  |                  |                                                    |        |                  |                                  |      |       |     |            |       |       | Time 10:01:12AM |             |          |           |                      |       |  |
| Spp                                                                       | So Gr<br>T rt ad | %<br>Net<br>BdFt | Bd. Ft. per Acre |                                                    |        | Total<br>Net MBF | Percent of Net Board Foot Volume |      |       |     |            |       |       |                 | Average Log |          |           | Logs<br>Per<br>/Acre |       |  |
|                                                                           |                  |                  | Def%             | Gross                                              | Net    |                  | Log Scale Dia.                   |      |       |     | Log Length |       |       |                 | Ln<br>Ft    | Bd<br>Ft | CF/<br>Lf |                      |       |  |
|                                                                           |                  |                  |                  |                                                    |        |                  | 4-5                              | 6-11 | 12-16 | 17+ | 12-20      | 21-30 | 31-35 | 36-99           |             |          |           |                      |       |  |
| D                                                                         | DOCU             |                  | 100.0            | 519                                                |        |                  |                                  |      |       |     |            |       |       |                 |             | 10       |           | 0.00                 | 5.3   |  |
| D                                                                         | DO2S             | 70               | 2.1              | 8,940                                              | 8,755  | 4,509            |                                  | 3    | 52    | 44  | 2          |       | 10    | 88              |             | 38       | 329       | 1.98                 | 26.6  |  |
| D                                                                         | DO3S             | 25               | 1.2              | 3,132                                              | 3,093  | 1,593            |                                  | 96   | 4     |     | 0          | 4     | 43    | 53              |             | 35       | 104       | 0.85                 | 29.8  |  |
| D                                                                         | DO4S             | 5                |                  | 555                                                | 555    | 286              |                                  | 5    | 95    |     | 65         | 18    | 7     | 10              |             | 20       | 27        | 0.48                 | 20.3  |  |
| D Totals                                                                  |                  | 66               | 5.7              | 13,146                                             | 12,403 | 6,388            |                                  | 0    | 31    | 38  | 31         | 4     | 2     | 18              | 76          | 31       | 151       | 1.23                 | 82.1  |  |
| H                                                                         | DOCU             |                  | 100.0            | 307                                                |        |                  |                                  |      |       |     |            |       |       |                 |             | 18       |           | 0.00                 | 3.6   |  |
| H                                                                         | DO2S             | 63               | .7               | 2,987                                              | 2,968  | 1,528            |                                  | 13   | 63    | 24  |            |       | 10    | 90              |             | 39       | 288       | 1.76                 | 10.3  |  |
| H                                                                         | DO3S             | 23               | 4.7              | 1,094                                              | 1,042  | 537              |                                  | 100  |       |     | 4          | 12    | 27    | 56              |             | 32       | 68        | 0.72                 | 15.3  |  |
| H                                                                         | DO4S             | 14               | 11.9             | 722                                                | 636    | 327              |                                  | 100  |       |     | 28         | 9     | 14    | 49              |             | 27       | 40        | 0.61                 | 15.8  |  |
| H Totals                                                                  |                  | 25               | 9.1              | 5,110                                              | 4,645  | 2,392            |                                  | 44   | 40    | 16  | 5          | 4     | 14    | 77              |             | 31       | 103       | 0.96                 | 45.0  |  |
| A                                                                         | DOCR             | 100              |                  | 48                                                 | 48     | 25               |                                  | 38   | 62    |     |            |       |       | 100             |             | 40       | 61        | 1.02                 | .8    |  |
| A Totals                                                                  |                  | 0                |                  | 48                                                 | 48     | 25               |                                  | 38   | 62    |     |            |       |       | 100             |             | 40       | 61        | 1.02                 | .8    |  |
| NF                                                                        | DOCU             |                  | 100.0            | 140                                                |        |                  |                                  |      |       |     |            |       |       |                 |             | 10       |           | 0.00                 | .5    |  |
| NF                                                                        | DO2S             | 87               | 1.9              | 1,578                                              | 1,547  | 797              |                                  | 4    | 26    | 71  |            |       | 2     | 98              |             | 40       | 448       | 2.43                 | 3.5   |  |
| NF                                                                        | DO3S             | 11               |                  | 198                                                | 198    | 102              |                                  | 75   | 25    |     | 6          | 16    | 5     | 73              |             | 33       | 109       | 1.02                 | 1.8   |  |
| NF                                                                        | DO4S             | 2                |                  | 18                                                 | 18     | 9                |                                  | 100  |       |     | 54         | 46    |       |                 |             | 16       | 29        | 0.54                 | .6    |  |
| NF Totals                                                                 |                  | 9                | 8.8              | 1,934                                              | 1,763  | 908              |                                  | 13   | 25    | 62  | 1          | 2     | 2     | 94              |             | 33       | 278       | 1.89                 | 6.3   |  |
| S                                                                         | DO2S             | 83               |                  | 30                                                 | 30     | 15               |                                  | 100  |       |     |            |       |       | 100             |             | 40       | 200       | 1.40                 | .2    |  |
| S                                                                         | DO3S             | 17               |                  | 6                                                  | 6      | 3                |                                  | 100  |       |     |            |       | 100   |                 |             | 30       | 40        | 0.53                 | .2    |  |
| S Totals                                                                  |                  | 0                |                  | 36                                                 | 36     | 19               |                                  | 17   | 83    |     |            | 17    |       | 83              |             | 35       | 120       | 1.03                 | .3    |  |
| Totals                                                                    |                  |                  | 6.8              | 20,273                                             | 18,895 | 9,731            |                                  | 0    | 32    | 37  | 30         | 4     | 2     | 16              | 78          | 31       | 141       | 1.17                 | 134.5 |  |

| T TSPCSTGR             |     | Species, Sort Grade - Board Foot Volumes (Type) |             |                  |        |        |                  |                               |       |      |                |     |       |       | Page 1              |             |     |    |                      |      |       |
|------------------------|-----|-------------------------------------------------|-------------|------------------|--------|--------|------------------|-------------------------------|-------|------|----------------|-----|-------|-------|---------------------|-------------|-----|----|----------------------|------|-------|
| Project: MAIDEN        |     |                                                 |             |                  |        |        |                  |                               |       |      |                |     |       |       | Date                | 10/6/2011   |     |    |                      |      |       |
|                        |     |                                                 |             |                  |        |        |                  |                               |       |      |                |     |       |       | Time                | 8:40:03AM   |     |    |                      |      |       |
| TT4N RR7W S23 TTAKE    |     |                                                 |             |                  |        |        |                  |                               |       |      |                |     |       |       | TT4N RR7W S23 TTAKE |             |     |    |                      |      |       |
| Twp                    | Rge | Sec                                             | Tract       | Type             | Acres  | Plots  | Sample Trees     | CuFt                          | BdFt  |      |                |     |       |       |                     |             |     |    |                      |      |       |
| T4N                    | R7W | 23                                              | AREA1       | TAKE             | 334.00 | 66     | 43               | 1                             | W     |      |                |     |       |       |                     |             |     |    |                      |      |       |
| S So Gr<br>Spp T rt ad |     |                                                 | %           | Bd. Ft. per Acre |        |        | Total<br>Net MBF | Percent Net Board Foot Volume |       |      |                |     |       |       |                     | Average Log |     |    | Logs<br>Per<br>/Acre |      |       |
|                        |     |                                                 | Net<br>BdFt |                  |        |        |                  | Def%                          | Gross | Net  | Log Scale Dia. |     |       |       | Log Length          |             |     |    |                      | Ln   | Bd    |
|                        |     |                                                 |             |                  |        |        |                  |                               | 4-5   | 6-11 | 12-16          | 17+ | 12-20 | 21-30 | 31-35               | 36-99       | Ft  | Ft |                      | Lf   |       |
| D                      | DO  | CU                                              |             | 00.0             | 695    |        |                  |                               |       |      |                |     |       | 11    |                     | 0.00        | 6.9 |    |                      |      |       |
| D                      | DO  | 2S                                              | 62          | 2.1              | 7,507  | 7,351  | 2,455            |                               |       | 4    | 64             | 32  |       | 3     |                     | 15          | 81  | 37 | 280                  | 1.75 | 26.3  |
| D                      | DO  | 3S                                              | 32          | 1.2              | 3,745  | 3,700  | 1,236            |                               |       | 95   | 5              |     |       |       | 3                   | 44          | 53  | 35 | 108                  | 0.86 | 34.1  |
| D                      | DO  | 4S                                              | 6           |                  | 675    | 675    | 226              |                               |       | 6    | 94             |     |       | 58    | 21                  | 9           | 12  | 21 | 27                   | 0.46 | 24.9  |
| D Totals               |     |                                                 | 93          | 7.1              | 12,622 | 11,727 | 3,917            |                               |       | 0    | 38             | 42  | 20    | 5     | 2                   | 24          | 69  | 30 | 127                  | 1.08 | 92.2  |
| H                      | DO  | CU                                              |             | 00.0             | 81     |        |                  |                               |       |      |                |     |       |       |                     |             |     | 24 |                      | 0.00 | 2.7   |
| H                      | DO  | 4S                                              | 100         |                  | 468    | 468    | 156              |                               |       | 100  |                |     |       | 20    |                     |             | 80  | 33 | 50                   | 0.61 | 9.4   |
| H Totals               |     |                                                 | 4           | 14.7             | 549    | 468    | 156              |                               |       | 100  |                |     |       | 20    |                     |             | 80  | 31 | 39                   | 0.50 | 12.1  |
| NF                     | DO  | 2S                                              | 100         |                  | 412    | 412    | 138              |                               |       | 21   |                | 79  |       |       |                     |             | 100 | 40 | 290                  | 1.80 | 1.4   |
| NF Totals              |     |                                                 | 3           |                  | 412    | 412    | 138              |                               |       | 21   |                | 79  |       |       |                     |             | 100 | 40 | 290                  | 1.80 | 1.4   |
| Type Totals            |     |                                                 |             | 7.2              | 13,583 | 12,608 | 4,211            |                               |       | 0    | 40             | 39  | 21    | 6     | 2                   | 22          | 70  | 30 | 119                  | 1.02 | 105.7 |

| T                         |     | Species, Sort Grade - Board Foot Volumes (Type) |                  |                                    |        |        |                  |                               |      |                     |    | Page       |     | 1         |    |             |      |           |                      |       |
|---------------------------|-----|-------------------------------------------------|------------------|------------------------------------|--------|--------|------------------|-------------------------------|------|---------------------|----|------------|-----|-----------|----|-------------|------|-----------|----------------------|-------|
| TSPCSTGR                  |     | Project: MAIDEN                                 |                  |                                    |        |        |                  |                               |      |                     |    | Date       |     | 10/6/2011 |    |             |      |           |                      |       |
|                           |     |                                                 |                  |                                    |        |        |                  |                               |      |                     |    | Time       |     | 8:40:16AM |    |             |      |           |                      |       |
| TT4N RR7W S21 TTAKE       |     |                                                 |                  |                                    |        |        |                  |                               |      | TT4N RR7W S21 TTAKE |    |            |     |           |    |             |      |           |                      |       |
| Twp                       | Rge | Sec                                             | Tract            | Type                               | Acres  | Plots  | Sample Trees     | CuFt                          | BdFt |                     |    |            |     |           |    |             |      |           |                      |       |
| T4N                       | R7W | 21                                              | AREAS23          | TAKE                               | 181.00 | 53     | 100              | 1                             | W    |                     |    |            |     |           |    |             |      |           |                      |       |
| S So Gr<br>T rt ad<br>Spp |     |                                                 | %<br>Net<br>BdFt | Bd. Ft. per Acre<br>Def% Gross Net |        |        | Total<br>Net MBF | Percent Net Board Foot Volume |      |                     |    |            |     |           |    | Average Log |      |           | Logs<br>Per<br>/Acre |       |
|                           |     |                                                 |                  |                                    |        |        |                  | Log Scale Dia.                |      |                     |    | Log Length |     |           |    | Ln          | Bd   | CF/<br>Lf |                      |       |
|                           |     |                                                 |                  |                                    |        |        |                  |                               |      |                     |    |            |     |           |    |             |      |           |                      |       |
| H DO CU                   |     |                                                 |                  | 00.0                               | 724    |        |                  |                               |      |                     |    |            |     |           | 11 |             | 0.00 |           | 5.2                  |       |
| H DO 2S                   |     |                                                 | 68               | .7                                 | 8,500  | 8,444  | 1,528            | 13                            | 63   | 24                  |    |            | 10  | 90        | 39 | 288         | 1.76 |           | 29.3                 |       |
| H DO 3S                   |     |                                                 | 24               | 4.7                                | 3,112  | 2,966  | 537              | 100                           |      |                     | 4  | 12         | 27  | 56        | 32 | 68          | 0.72 |           | 43.5                 |       |
| H DO 4S                   |     |                                                 | 8                | 20.6                               | 1,189  | 944    | 171              | 100                           |      |                     | 36 | 18         | 26  | 20        | 23 | 34          | 0.62 |           | 27.8                 |       |
| H Totals                  |     |                                                 | 41               | 8.7                                | 13,525 | 12,353 | 2,236            | 40                            | 43   | 17                  | 4  | 4          | 15  | 77        | 30 | 117         | 1.05 |           | 105.7                |       |
| D DO CU                   |     |                                                 |                  | 00.0                               | 194    |        |                  |                               |      |                     |    |            |     |           | 5  |             | 0.00 |           | 2.3                  |       |
| D DO 2S                   |     |                                                 | 83               | 2.1                                | 11,586 | 11,344 | 2,053            | 2                             | 38   | 60                  |    |            | 3   | 97        | 39 | 416         | 2.37 |           | 27.3                 |       |
| D DO 3S                   |     |                                                 | 14               | 1.4                                | 2,001  | 1,974  | 357              | 100                           |      |                     | 1  | 6          | 42  | 52        | 34 | 90          | 0.84 |           | 21.9                 |       |
| D DO 4S                   |     |                                                 | 3                |                                    | 332    | 332    | 60               | 100                           |      |                     | 92 | 8          |     |           | 16 | 28          | 0.59 |           | 11.9                 |       |
| D Totals                  |     |                                                 | 45               | 3.3                                | 14,113 | 13,651 | 2,471            | 19                            | 31   | 50                  | 2  | 1          | 9   | 88        | 32 | 215         | 1.62 |           | 63.4                 |       |
| NF DO CU                  |     |                                                 |                  | 00.0                               | 399    |        |                  |                               |      |                     |    |            |     |           | 10 |             | 0.00 |           | 1.3                  |       |
| NF DO 2S                  |     |                                                 | 85               | 2.3                                | 3,728  | 3,642  | 659              |                               | 31   | 69                  |    |            | 2   | 98        | 40 | 506         | 2.66 |           | 7.2                  |       |
| NF DO 3S                  |     |                                                 | 13               |                                    | 562    | 562    | 102              | 75                            | 25   |                     | 6  | 16         | 5   | 73        | 33 | 109         | 1.02 |           | 5.2                  |       |
| NF DO 4S                  |     |                                                 | 2                |                                    | 51     | 51     | 9                | 100                           |      |                     | 54 | 46         |     |           | 16 | 29          | 0.54 |           | 1.8                  |       |
| NF Totals                 |     |                                                 | 14               | 10.2                               | 4,741  | 4,255  | 770              | 11                            | 30   | 59                  | 1  | 3          | 2   | 93        | 32 | 276         | 1.90 |           | 15.4                 |       |
| A DO CR                   |     |                                                 | 100              |                                    | 136    | 136    | 25               | 38                            | 62   |                     |    |            | 100 |           | 40 | 61          | 1.02 |           | 2.2                  |       |
| A Totals                  |     |                                                 | 0                |                                    | 136    | 136    | 25               | 38                            | 62   |                     |    |            | 100 |           | 40 | 61          | 1.02 |           | 2.2                  |       |
| S DO 2S                   |     |                                                 | 83               |                                    | 85     | 85     | 15               |                               | 100  |                     |    |            | 100 |           | 40 | 200         | 1.40 |           | .4                   |       |
| S DO 3S                   |     |                                                 | 17               |                                    | 17     | 17     | 3                | 100                           |      |                     |    | 100        |     |           | 30 | 40          | 0.53 |           | .4                   |       |
| S Totals                  |     |                                                 | 0                |                                    | 102    | 102    | 19               | 17                            | 83   |                     |    | 17         |     | 83        | 35 | 120         | 1.03 |           | .9                   |       |
| Type Totals               |     |                                                 |                  |                                    | 6.5    | 32,617 | 30,497           | 5,520                         | 0    | 27                  | 36 | 37         | 3   | 3         | 10 | 84          | 31   | 163       | 1.32                 | 187.6 |

| TC PSTATS                                                        |      |       | PROJECT STATISTICS |                   |                   |                             |               |                            |              | PAGE           | 1            |
|------------------------------------------------------------------|------|-------|--------------------|-------------------|-------------------|-----------------------------|---------------|----------------------------|--------------|----------------|--------------|
|                                                                  |      |       | PROJECT            |                   | MAIDEN            |                             |               |                            |              | DATE           | 10/6/2011    |
| TWP                                                              | RGE  | SC    | TRACT              | TYPE              |                   | ACRES                       |               | PLOTS                      | TREES        | CuFt           | BdFt         |
| T4N                                                              | R7   | 23    | AREA1              | 00PC              |                   | 334.00                      |               | 66                         | 431          | 1              | W            |
|                                                                  |      |       | PLOTS              | TREES             | TREES<br>PER PLOT | ESTIMATED<br>TOTAL<br>TREES |               | PERCENT<br>SAMPLE<br>TREES |              |                |              |
| TOTAL                                                            |      |       | 66                 | 431               | 6.5               |                             |               |                            |              |                |              |
| CRUISE                                                           |      |       | 25                 | 143               | 5.7               | 37,174                      |               | .4                         |              |                |              |
| DBH COUNT                                                        |      |       |                    |                   |                   |                             |               |                            |              |                |              |
| REFOREST                                                         |      |       |                    |                   |                   |                             |               |                            |              |                |              |
| COUNT                                                            |      |       | 41                 | 265               | 6.5               |                             |               |                            |              |                |              |
| BLANKS                                                           |      |       |                    |                   |                   |                             |               |                            |              |                |              |
| 100 %                                                            |      |       |                    |                   |                   |                             |               |                            |              |                |              |
| STAND SUMMARY                                                    |      |       |                    |                   |                   |                             |               |                            |              |                |              |
| SAMPLE<br>TREES                                                  |      |       | TREES<br>/ACRE     | AVG<br>DBH        | BOLE<br>LEN       | REL<br>DEN                  | BASAL<br>AREA | GROSS<br>BF/AC             | NET<br>BF/AC | GROSS<br>CF/AC | NET<br>CF/AC |
| DOUGLEAV                                                         |      |       | 66                 | 37.9              | 24.9              | 91                          | 127.9         | 24,568                     | 23,772       | 5,743          | 5,655        |
| DOUG FIR                                                         |      |       | 38                 | 36.9              | 19.0              | 77                          | 72.7          | 12,531                     | 11,648       | 3,094          | 2,954        |
| HEMLEAV                                                          |      |       | 15                 | 15.5              | 15.2              | 41                          | 19.4          | 2,832                      | 2,534        | 698            | 651          |
| NFIRLEAV                                                         |      |       | 10                 | 4.3               | 28.8              | 101                         | 4             | 19.4                       | 4,814        | 4,550          | 971          |
| WHEMLOCK                                                         |      |       | 4                  | 12.1              | 13.2              | 31                          |               | 11.5                       | 549          | 468            | 225          |
| SNAG                                                             |      |       | 9                  | 4.0               | 19.1              | 39                          |               | 7.9                        |              |                |              |
| NOB FIR                                                          |      |       | 1                  | .7                | 25.0              | 85                          | 1             | 2.4                        | 412          | 412            | 102          |
| TOTAL                                                            |      |       | 143                | 111.3             | 20.7              | 71                          |               | 261.2                      | 45,707       | 43,384         | 10,833       |
| CONFIDENCE LIMITS OF THE SAMPLE                                  |      |       |                    |                   |                   |                             |               |                            |              |                |              |
| 68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR |      |       |                    |                   |                   |                             |               |                            |              |                |              |
| CL                                                               | 68.1 | COEFF |                    | SAMPLE TREES - BF |                   |                             |               | # OF TREES REQ.            |              | INF. POP.      |              |
| SD:                                                              | 1.0  | VAR.% | S.E.%              | LOW               | AVG               | HIGH                        |               | 5                          | 10           | 15             |              |
| DOUGLEAV                                                         |      | 39.9  | 4.9                | 679               | 714               | 749                         |               |                            |              |                |              |
| DOUG FIR                                                         |      | 55.3  | 9.0                | 372               | 408               | 445                         |               |                            |              |                |              |
| HEMLEAV                                                          |      | 71.9  | 19.2               | 295               | 365               | 435                         |               |                            |              |                |              |
| NFIRLEAV                                                         |      | 43.2  | 14.4               | 1,059             | 1,237             | 1,415                       |               |                            |              |                |              |
| WHEMLOCK                                                         |      | 76.6  | 43.8               | 21                | 38                | 54                          |               |                            |              |                |              |
| SNAG                                                             |      |       |                    |                   |                   |                             |               |                            |              |                |              |
| NOB FIR                                                          |      |       |                    |                   |                   |                             |               |                            |              |                |              |
| TOTAL                                                            |      | 67.3  | 5.7                | 547               | 580               | 613                         |               | 181                        | 45           | 20             |              |
| CL                                                               | 68.1 | COEFF |                    | TREES/ACRE        |                   |                             |               | # OF PLOTS REQ.            |              | INF. POP.      |              |
| SD:                                                              | 1.0  | VAR.% | S.E.%              | LOW               | AVG               | HIGH                        |               | 5                          | 10           | 15             |              |
| DOUGLEAV                                                         |      | 42.3  | 5.2                | 36                | 38                | 40                          |               |                            |              |                |              |
| DOUG FIR                                                         |      | 80.2  | 9.9                | 33                | 37                | 41                          |               |                            |              |                |              |
| HEMLEAV                                                          |      | 208.0 | 25.6               | 12                | 15                | 19                          |               |                            |              |                |              |
| NFIRLEAV                                                         |      | 141.8 | 17.4               | 4                 | 4                 | 5                           |               |                            |              |                |              |
| WHEMLOCK                                                         |      | 338.4 | 41.6               | 7                 | 12                | 17                          |               |                            |              |                |              |
| SNAG                                                             |      | 392.7 | 48.3               | 2                 | 4                 | 6                           |               |                            |              |                |              |
| NOB FIR                                                          |      | 491.1 | 60.4               | 0                 | 1                 | 1                           |               |                            |              |                |              |
| TOTAL                                                            |      | 67.0  | 8.2                | 102               | 111               | 120                         |               | 179                        | 45           | 20             |              |
| CL                                                               | 68.1 | COEFF |                    | BASAL AREA/ACRE   |                   |                             |               | # OF PLOTS REQ.            |              | INF. POP.      |              |
| SD:                                                              | 1.0  | VAR.% | S.E.%              | LOW               | AVG               | HIGH                        |               | 5                          | 10           | 15             |              |
| DOUGLEAV                                                         |      | 36.1  | 4.4                | 122               | 128               | 134                         |               |                            |              |                |              |
| DOUG FIR                                                         |      | 73.4  | 9.0                | 66                | 73                | 79                          |               |                            |              |                |              |
| HEMLEAV                                                          |      | 178.1 | 21.9               | 15                | 19                | 24                          |               |                            |              |                |              |
| NFIRLEAV                                                         |      | 141.2 | 17.4               | 16                | 19                | 23                          |               |                            |              |                |              |
| WHEMLOCK                                                         |      | 338.0 | 41.6               | 7                 | 12                | 16                          |               |                            |              |                |              |
| SNAG                                                             |      | 323.8 | 39.8               | 5                 | 8                 | 11                          |               |                            |              |                |              |
| NOB FIR                                                          |      | 491.1 | 60.4               | 1                 | 2                 | 4                           |               |                            |              |                |              |
| TOTAL                                                            |      | 24.2  | 3.0                | 253               | 261               | 269                         |               | 23                         | 6            | 3              |              |
| CL                                                               | 68.1 | COEFF |                    | NET BF/ACRE       |                   |                             |               | # OF PLOTS REQ.            |              | INF. POP.      |              |
| SD:                                                              | 1.0  | VAR.% | S.E.%              | LOW               | AVG               | HIGH                        |               | 5                          | 10           | 15             |              |

# PROJECT STATISTICS

PROJECT MAIDEN

| TWP      | RGE | SC | TRACT | TYPE | ACRES  | PLOTS  | TREES  | CuFt | BdFt |   |
|----------|-----|----|-------|------|--------|--------|--------|------|------|---|
| T4N      | R7  | 23 | AREA1 | 00PC | 334.00 | 66     | 431    | 1    | W    |   |
|          |     |    |       |      |        |        |        |      |      |   |
| DOUGLEAV |     |    | 36.3  | 4.5  | 22,711 | 23,772 | 24,834 |      |      |   |
| DOUG FIR |     |    | 75.6  | 9.3  | 10,565 | 11,648 | 12,731 |      |      |   |
| HEMLEAV  |     |    | 189.9 | 23.4 | 1,942  | 2,534  | 3,126  |      |      |   |
| NFIRLEAV |     |    | 145.6 | 17.9 | 3,735  | 4,550  | 5,364  |      |      |   |
| WHEMLOCK |     |    | 351.1 | 43.2 | 266    | 468    | 671    |      |      |   |
| SNAG     |     |    |       |      |        |        |        |      |      |   |
| NOB FIR  |     |    | 491.1 | 60.4 | 163    | 412    | 662    |      |      |   |
| TOTAL    |     |    | 26.2  | 3.2  | 41,986 | 43,384 | 44,783 | 27   | 7    | 3 |

|                                                                  |     |        |       |                   |           |                |       |                 |        |           |       |
|------------------------------------------------------------------|-----|--------|-------|-------------------|-----------|----------------|-------|-----------------|--------|-----------|-------|
| TC TSTATS                                                        |     |        |       | STATISTICS        |           |                |       | PAGE 1          |        |           |       |
|                                                                  |     |        |       | PROJECT MAIDEN    |           | DATE 10/6/2011 |       |                 |        |           |       |
| TWP                                                              | RGE | SECT   | TRACT | TYPE              | ACRES     | PLOTS          | TREES | CuFt            | BdFt   |           |       |
| T4N                                                              | R7W | 23     | AREA1 | TAKE              | 334.00    | 66             | 143   | 1               | W      |           |       |
|                                                                  |     |        |       |                   |           |                |       |                 |        |           |       |
|                                                                  |     |        |       | TREES             | ESTIMATED | PERCENT        |       |                 |        |           |       |
|                                                                  |     |        |       | PER PLOT          | TOTAL     | SAMPLE         |       |                 |        |           |       |
|                                                                  |     |        |       |                   | TREES     | TREES          |       |                 |        |           |       |
| TOTAL                                                            |     | 66     | 143   | 2.2               |           |                |       |                 |        |           |       |
| CRUISE                                                           |     | 19     | 43    | 2.3               | 16,597    |                | .3    |                 |        |           |       |
| DBH COUNT                                                        |     |        |       |                   |           |                |       |                 |        |           |       |
| REFOREST                                                         |     |        |       |                   |           |                |       |                 |        |           |       |
| COUNT                                                            |     | 33     | 99    | 3.0               |           |                |       |                 |        |           |       |
| BLANKS                                                           |     | 14     |       |                   |           |                |       |                 |        |           |       |
| 100 %                                                            |     |        |       |                   |           |                |       |                 |        |           |       |
| STAND SUMMARY                                                    |     |        |       |                   |           |                |       |                 |        |           |       |
|                                                                  |     | SAMPLE | TREES | AVG               | BOLE      | REL            | BASAL | GROSS           | NET    | GROSS     | NET   |
|                                                                  |     | TREES  | /ACRE | DBH               | LEN       | DEN            | AREA  | BF/AC           | BF/AC  | CF/AC     | CF/AC |
| DOUG FIR                                                         |     | 38     | 36.9  | 19.0              | 78        |                | 72.7  | 12,622          | 11,727 | 3,113     | 2,974 |
| WHEMLOCK                                                         |     | 4      | 12.1  | 13.2              | 31        |                | 11.5  | 549             | 468    | 225       | 187   |
| NOB FIR                                                          |     | 1      | .7    | 25.0              | 85        | 1              | 2.4   | 412             | 412    | 102       | 102   |
| TOTAL                                                            |     | 43     | 49.7  | 17.9              | 66        |                | 86.7  | 13,583          | 12,608 | 3,440     | 3,264 |
| CONFIDENCE LIMITS OF THE SAMPLE                                  |     |        |       |                   |           |                |       |                 |        |           |       |
| 68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR |     |        |       |                   |           |                |       |                 |        |           |       |
| CL: 68.1 %                                                       |     | COEFF  |       | SAMPLE TREES - BF |           |                |       | # OF TREES REQ. |        | INF. POP. |       |
| SD: 1.0                                                          |     | VAR.%  | S.E.% | LOW               | AVG       | HIGH           |       | 5               | 10     | 15        |       |
| DOUG FIR                                                         |     | 54.3   | 8.8   | 374               | 410       | 446            |       |                 |        |           |       |
| WHEMLOCK                                                         |     | 76.6   | 43.8  | 21                | 38        | 54             |       |                 |        |           |       |
| NOB FIR                                                          |     |        |       |                   |           |                |       |                 |        |           |       |
| TOTAL                                                            |     | 62.7   | 9.6   | 343               | 379       | 416            |       | 157             | 39     | 17        |       |
| CL: 68.1 %                                                       |     | COEFF  |       | TREES/ACRE        |           |                |       | # OF PLOTS REQ. |        | INF. POP. |       |
| SD: 1.0                                                          |     | VAR.%  | S.E.% | LOW               | AVG       | HIGH           |       | 5               | 10     | 15        |       |
| DOUG FIR                                                         |     | 80.2   | 9.9   | 33                | 37        | 41             |       |                 |        |           |       |
| WHEMLOCK                                                         |     | 338.4  | 41.6  | 7                 | 12        | 17             |       |                 |        |           |       |
| NOB FIR                                                          |     | 491.1  | 60.4  | 0                 | 1         | 1              |       |                 |        |           |       |
| TOTAL                                                            |     | 105.6  | 13.0  | 43                | 50        | 56             |       | 445             | 111    | 49        |       |
| CL: 68.1 %                                                       |     | COEFF  |       | BASAL AREA/ACRE   |           |                |       | # OF PLOTS REQ. |        | INF. POP. |       |
| SD: 1.0                                                          |     | VAR.%  | S.E.% | LOW               | AVG       | HIGH           |       | 5               | 10     | 15        |       |
| DOUG FIR                                                         |     | 73.4   | 9.0   | 66                | 73        | 79             |       |                 |        |           |       |
| WHEMLOCK                                                         |     | 338.0  | 41.6  | 7                 | 12        | 16             |       |                 |        |           |       |
| NOB FIR                                                          |     | 491.1  | 60.4  | 1                 | 2         | 4              |       |                 |        |           |       |
| TOTAL                                                            |     | 77.5   | 9.5   | 78                | 87        | 95             |       | 240             | 60     | 27        |       |
| CL: 68.1 %                                                       |     | COEFF  |       | NET BF/ACRE       |           |                |       | # OF PLOTS REQ. |        | INF. POP. |       |
| SD: 1.0                                                          |     | VAR.%  | S.E.% | LOW               | AVG       | HIGH           |       | 5               | 10     | 15        |       |
| DOUG FIR                                                         |     | 75.5   | 9.3   | 10,638            | 11,727    | 12,816         |       |                 |        |           |       |
| WHEMLOCK                                                         |     | 351.1  | 43.2  | 266               | 468       | 671            |       |                 |        |           |       |
| NOB FIR                                                          |     | 491.1  | 60.4  | 163               | 412       | 662            |       |                 |        |           |       |
| TOTAL                                                            |     | 72.3   | 8.9   | 11,487            | 12,608    | 13,729         |       | 209             | 52     | 23        |       |

|                                                                  |     |       |                   |            |           |         |                 |        |            |       |  |
|------------------------------------------------------------------|-----|-------|-------------------|------------|-----------|---------|-----------------|--------|------------|-------|--|
| TC TSTATS                                                        |     |       |                   | STATISTICS |           |         |                 | PAGE   | 1          |       |  |
|                                                                  |     |       |                   | PROJECT    |           | MAIDEN  |                 | DATE   | 10/27/2011 |       |  |
| TWP                                                              | RGE | SECT  | TRACT             | TYPE       | ACRES     | PLOTS   | TREES           | CuFt   | BdFt       |       |  |
| T4N                                                              | R7W | 23    | AREA1             | LEAV       | 334.00    | 66      | 291             | 1      | W          |       |  |
|                                                                  |     |       |                   | TREES      | ESTIMATED | PERCENT |                 |        |            |       |  |
|                                                                  |     |       |                   | PER PLOT   | TOTAL     | SAMPLE  |                 |        |            |       |  |
|                                                                  |     |       |                   |            | TREES     | TREES   |                 |        |            |       |  |
| TOTAL                                                            |     | 66    | 291               | 4.4        |           |         |                 |        |            |       |  |
| CRUISE                                                           |     | 24    | 100               | 4.2        | 20,577    |         |                 | .5     |            |       |  |
| DBH COUNT                                                        |     |       |                   |            |           |         |                 |        |            |       |  |
| REFOREST                                                         |     |       |                   |            |           |         |                 |        |            |       |  |
| COUNT                                                            |     | 42    | 183               | 4.4        |           |         |                 |        |            |       |  |
| BLANKS                                                           |     |       |                   |            |           |         |                 |        |            |       |  |
| 100 %                                                            |     |       |                   |            |           |         |                 |        |            |       |  |
| STAND SUMMARY                                                    |     |       |                   |            |           |         |                 |        |            |       |  |
| SAMPLE                                                           |     | TREES | AVG               | BOLE       | REL       | BASAL   | GROSS           | NET    | GROSS      | NET   |  |
| TREES                                                            |     | /ACRE | DBH               | LEN        | DEN       | AREA    | BF/AC           | BF/AC  | CF/AC      | CF/AC |  |
| DOUGLEAV                                                         |     | 66    | 37.9              | 24.9       | 91        | 127.9   | 24,568          | 23,772 | 5,743      | 5,655 |  |
| HEMLEAV                                                          |     | 15    | 15.5              | 15.2       | 41        | 19.4    | 2,783           | 2,485  | 692        | 645   |  |
| NFIRLEAV                                                         |     | 10    | 4.3               | 28.8       | 101       | 4 19.4  | 4,814           | 4,550  | 971        | 971   |  |
| SNAG                                                             |     | 9     | 4.0               | 19.1       | 39        | 7.9     |                 |        |            |       |  |
| TOTAL                                                            |     | 100   | 61.6              | 22.8       | 76        | 174.5   | 32,165          | 30,806 | 7,406      | 7,270 |  |
| CONFIDENCE LIMITS OF THE SAMPLE                                  |     |       |                   |            |           |         |                 |        |            |       |  |
| 68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR |     |       |                   |            |           |         |                 |        |            |       |  |
| CL: 68.1 %                                                       |     | COEFF | SAMPLE TREES - BF |            |           |         | # OF TREES REQ. |        | INF. POP.  |       |  |
| SD: 1.0                                                          |     | VAR.% | S.E.%             | LOW        | AVG       | HIGH    | 5               | 10     | 15         |       |  |
| DOUGLEAV                                                         |     | 39.9  | 4.9               | 679        | 714       | 749     |                 |        |            |       |  |
| HEMLEAV                                                          |     | 73.1  | 19.5              | 292        | 363       | 433     |                 |        |            |       |  |
| NFIRLEAV                                                         |     | 43.2  | 14.4              | 1,059      | 1,237     | 1,415   |                 |        |            |       |  |
| SNAG                                                             |     |       |                   |            |           |         |                 |        |            |       |  |
| TOTAL                                                            |     | 61.5  | 6.2               | 628        | 670       | 711     | 151             | 38     | 17         |       |  |
| CL: 68.1 %                                                       |     | COEFF | TREES/ACRE        |            |           |         | # OF PLOTS REQ. |        | INF. POP.  |       |  |
| SD: 1.0                                                          |     | VAR.% | S.E.%             | LOW        | AVG       | HIGH    | 5               | 10     | 15         |       |  |
| DOUGLEAV                                                         |     | 42.3  | 5.2               | 36         | 38        | 40      |                 |        |            |       |  |
| HEMLEAV                                                          |     | 208.0 | 25.6              | 12         | 15        | 19      |                 |        |            |       |  |
| NFIRLEAV                                                         |     | 141.8 | 17.4              | 4          | 4         | 5       |                 |        |            |       |  |
| SNAG                                                             |     | 392.7 | 48.3              | 2          | 4         | 6       |                 |        |            |       |  |
| TOTAL                                                            |     | 60.4  | 7.4               | 57         | 62        | 66      | 146             | 36     | 16         |       |  |
| CL: 68.1 %                                                       |     | COEFF | BASAL AREA/ACRE   |            |           |         | # OF PLOTS REQ. |        | INF. POP.  |       |  |
| SD: 1.0                                                          |     | VAR.% | S.E.%             | LOW        | AVG       | HIGH    | 5               | 10     | 15         |       |  |
| DOUGLEAV                                                         |     | 36.1  | 4.4               | 122        | 128       | 134     |                 |        |            |       |  |
| HEMLEAV                                                          |     | 178.1 | 21.9              | 15         | 19        | 24      |                 |        |            |       |  |
| NFIRLEAV                                                         |     | 141.2 | 17.4              | 16         | 19        | 23      |                 |        |            |       |  |
| SNAG                                                             |     | 323.8 | 39.8              | 5          | 8         | 11      |                 |        |            |       |  |
| TOTAL                                                            |     |       |                   | 175        | 175       | 175     |                 |        |            |       |  |
| CL: 68.1 %                                                       |     | COEFF | NET BF/ACRE       |            |           |         | # OF PLOTS REQ. |        | INF. POP.  |       |  |
| SD: 1.0                                                          |     | VAR.% | S.E.%             | LOW        | AVG       | HIGH    | 5               | 10     | 15         |       |  |
| DOUGLEAV                                                         |     | 36.3  | 4.5               | 22,711     | 23,772    | 24,834  |                 |        |            |       |  |
| HEMLEAV                                                          |     | 192.3 | 23.6              | 1,897      | 2,485     | 3,072   |                 |        |            |       |  |
| NFIRLEAV                                                         |     | 145.6 | 17.9              | 3,735      | 4,550     | 5,364   |                 |        |            |       |  |
| SNAG                                                             |     |       |                   |            |           |         |                 |        |            |       |  |
| TOTAL                                                            |     | 17.6  | 2.2               | 30,138     | 30,806    | 31,475  | 12              | 3      | 1          |       |  |

| TC PSTATS                                                        |      |       | PROJECT STATISTICS |                   |                   |                             |            |                            |                 | PAGE         | 1              |              |
|------------------------------------------------------------------|------|-------|--------------------|-------------------|-------------------|-----------------------------|------------|----------------------------|-----------------|--------------|----------------|--------------|
|                                                                  |      |       | PROJECT            |                   | MAIDEN            |                             |            | DATE                       |                 | 10/6/2011    |                |              |
| TWP                                                              | RGE  | SC    | TRACT              | TYPE              |                   | ACRES                       |            | PLOTS                      | TREES           | CuFt         | BdFt           |              |
| T4N                                                              | R7   | 21    | AREAS23            | 00CC              |                   | 181.00                      |            | 53                         | 270             | 1            | W              |              |
|                                                                  |      |       | PLOTS              | TREES             | TREES<br>PER PLOT | ESTIMATED<br>TOTAL<br>TREES |            | PERCENT<br>SAMPLE<br>TREES |                 |              |                |              |
| TOTAL                                                            |      |       | 53                 | 270               | 5.1               |                             |            |                            |                 |              |                |              |
| CRUISE                                                           |      |       | 24                 | 102               | 4.3               | 19,136                      |            | .5                         |                 |              |                |              |
| DBH COUNT                                                        |      |       |                    |                   |                   |                             |            |                            |                 |              |                |              |
| REFOREST                                                         |      |       |                    |                   |                   |                             |            |                            |                 |              |                |              |
| COUNT                                                            |      |       | 28                 | 149               | 5.3               |                             |            |                            |                 |              |                |              |
| BLANKS                                                           |      |       | 1                  |                   |                   |                             |            |                            |                 |              |                |              |
| 100 %                                                            |      |       |                    |                   |                   |                             |            |                            |                 |              |                |              |
| STAND SUMMARY                                                    |      |       |                    |                   |                   |                             |            |                            |                 |              |                |              |
|                                                                  |      |       | SAMPLE<br>TREES    | TREES<br>/ACRE    | AVG<br>DBH        | BOLE<br>LEN                 | REL<br>DEN | BASAL<br>AREA              | GROSS<br>BF/AC  | NET<br>BF/AC | GROSS<br>CF/AC | NET<br>CF/AC |
| WHEMLOCK                                                         |      |       | 39                 | 62.6              | 16.5              | 54                          |            | 93.6                       | 13,525          | 12,353       | 3,539          | 3,395        |
| DOUG FIR                                                         |      |       | 40                 | 28.3              | 22.1              | 75                          |            | 75.8                       | 14,113          | 13,651       | 3,310          | 3,277        |
| NOB FIR                                                          |      |       | 13                 | 6.2               | 25.4              | 85                          | 5          | 21.9                       | 4,741           | 4,255        | 1,008          | 947          |
| SNAG                                                             |      |       | 6                  | 5.7               | 17.1              | 53                          |            | 9.1                        |                 |              |                |              |
| R ALDER                                                          |      |       | 2                  | 2.2               | 19.3              | 41                          |            | 4.5                        | 136             | 136          | 90             | 90           |
| DOUGLEAV                                                         |      |       | 1                  | .2                | 28.0              | 82                          |            | .8                         | 145             | 134          | 32             | 28           |
| S SPRUCE                                                         |      |       | 1                  | .4                | 18.0              | 72                          |            | .8                         | 102             | 102          | 31             | 31           |
| TOTAL                                                            |      |       | 102                | 105.7             | 18.9              | 61                          |            | 206.4                      | 32,762          | 30,631       | 8,011          | 7,767        |
| CONFIDENCE LIMITS OF THE SAMPLE                                  |      |       |                    |                   |                   |                             |            |                            |                 |              |                |              |
| 68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR |      |       |                    |                   |                   |                             |            |                            |                 |              |                |              |
| CL                                                               | 68.1 | COEFF |                    | SAMPLE TREES - BF |                   |                             |            |                            | # OF TREES REQ. |              | INF. POP.      |              |
| SD:                                                              | 1.0  | VAR.% | S.E.%              | LOW               | AVG               | HIGH                        |            |                            | 5               | 10           | 15             |              |
| WHEMLOCK                                                         |      | 74.8  | 12.0               | 282               | 320               | 359                         |            |                            |                 |              |                |              |
| DOUG FIR                                                         |      | 56.0  | 8.8                | 613               | 673               | 733                         |            |                            |                 |              |                |              |
| NOB FIR                                                          |      | 53.5  | 15.4               | 741               | 876               | 1,011                       |            |                            |                 |              |                |              |
| SNAG                                                             |      |       |                    |                   |                   |                             |            |                            |                 |              |                |              |
| R ALDER                                                          |      | 54.4  | 50.9               | 32                | 65                | 98                          |            |                            |                 |              |                |              |
| DOUGLEAV                                                         |      |       |                    |                   |                   |                             |            |                            |                 |              |                |              |
| S SPRUCE                                                         |      |       |                    |                   |                   |                             |            |                            |                 |              |                |              |
| TOTAL                                                            |      | 79.8  | 7.9                | 469               | 509               | 549                         |            |                            | 254             | 64           | 28             |              |
| CL                                                               | 68.1 | COEFF |                    | TREES/ACRE        |                   |                             |            |                            | # OF PLOTS REQ. |              | INF. POP.      |              |
| SD:                                                              | 1.0  | VAR.% | S.E.%              | LOW               | AVG               | HIGH                        |            |                            | 5               | 10           | 15             |              |
| WHEMLOCK                                                         |      | 78.4  | 10.8               | 56                | 63                | 69                          |            |                            |                 |              |                |              |
| DOUG FIR                                                         |      | 144.4 | 19.8               | 23                | 28                | 34                          |            |                            |                 |              |                |              |
| NOB FIR                                                          |      | 194.7 | 26.7               | 5                 | 6                 | 8                           |            |                            |                 |              |                |              |
| SNAG                                                             |      | 208.2 | 28.6               | 4                 | 6                 | 7                           |            |                            |                 |              |                |              |
| R ALDER                                                          |      | 510.5 | 70.1               | 1                 | 2                 | 4                           |            |                            |                 |              |                |              |
| DOUGLEAV                                                         |      | 728.0 | 99.9               | 0                 | 0                 | 0                           |            |                            |                 |              |                |              |
| S SPRUCE                                                         |      | 728.0 | 99.9               | 0                 | 0                 | 1                           |            |                            |                 |              |                |              |
| TOTAL                                                            |      | 47.2  | 6.5                | 99                | 106               | 113                         |            |                            | 89              | 22           | 10             |              |
| CL                                                               | 68.1 | COEFF |                    | BASAL AREA/ACRE   |                   |                             |            |                            | # OF PLOTS REQ. |              | INF. POP.      |              |
| SD:                                                              | 1.0  | VAR.% | S.E.%              | LOW               | AVG               | HIGH                        |            |                            | 5               | 10           | 15             |              |
| WHEMLOCK                                                         |      | 78.6  | 10.8               | 83                | 94                | 104                         |            |                            |                 |              |                |              |
| DOUG FIR                                                         |      | 132.9 | 18.2               | 62                | 76                | 90                          |            |                            |                 |              |                |              |
| NOB FIR                                                          |      | 188.2 | 25.8               | 16                | 22                | 28                          |            |                            |                 |              |                |              |
| SNAG                                                             |      | 205.7 | 28.2               | 6                 | 9                 | 12                          |            |                            |                 |              |                |              |
| R ALDER                                                          |      | 509.8 | 70.0               | 1                 | 5                 | 8                           |            |                            |                 |              |                |              |
| DOUGLEAV                                                         |      | 728.0 | 99.9               | 0                 | 1                 | 2                           |            |                            |                 |              |                |              |
| S SPRUCE                                                         |      | 728.0 | 99.9               | 0                 | 1                 | 2                           |            |                            |                 |              |                |              |
| TOTAL                                                            |      | 39.1  | 5.4                | 195               | 206               | 217                         |            |                            | 61              | 15           | 7              |              |
| CL                                                               | 68.1 | COEFF |                    | NET BF/ACRE       |                   |                             |            |                            | # OF PLOTS REQ. |              | INF. POP.      |              |
| SD:                                                              | 1.0  | VAR.% | S.E.%              | LOW               | AVG               | HIGH                        |            |                            | 5               | 10           | 15             |              |

# PROJECT STATISTICS

## PROJECT MAIDEN

| TWP      | RGE | SC | TRACT   | TYPE | ACRES  | PLOTS  | TREES  | CuFt | BdFt |   |
|----------|-----|----|---------|------|--------|--------|--------|------|------|---|
| T4N      | R7  | 21 | AREAS23 | 00CC | 181.00 | 53     | 270    | 1    | W    |   |
| WHEMLOCK |     |    | 80.3    | 11.0 | 10,993 | 12,353 | 13,714 |      |      |   |
| DOUG FIR |     |    | 137.0   | 18.8 | 11,084 | 13,651 | 16,217 |      |      |   |
| NOB FIR  |     |    | 196.7   | 27.0 | 3,106  | 4,255  | 5,403  |      |      |   |
| SNAG     |     |    |         |      |        |        |        |      |      |   |
| R ALDER  |     |    | 511.6   | 70.2 | 41     | 136    | 231    |      |      |   |
| DOUGLEAV |     |    | 728.0   | 99.9 | 0      | 134    | 268    |      |      |   |
| S SPRUCE |     |    | 728.0   | 99.9 | 0      | 102    | 205    |      |      |   |
| TOTAL    |     |    | 46.2    | 6.3  | 28,690 | 30,631 | 32,573 | 85   | 21   | 9 |

|                                                                  |                 |                   |            |                   |                             |                            |                 |              |                |              |
|------------------------------------------------------------------|-----------------|-------------------|------------|-------------------|-----------------------------|----------------------------|-----------------|--------------|----------------|--------------|
| TC TSTATS                                                        |                 |                   |            | STATISTICS        |                             |                            |                 | PAGE         | 1              |              |
|                                                                  |                 |                   |            | PROJECT           | MAIDEN                      | DATE 10/6/2011             |                 |              |                |              |
| TWP                                                              | RGE             | SECT              | TRACT      | TYPE              | ACRES                       | PLOTS                      | TREES           | CuFt         | BdFt           |              |
| T4N                                                              | R7W             | 21                | AREAS23    | TAKE              | 181.00                      | 53                         | 256             | 1            | W              |              |
|                                                                  |                 |                   |            |                   |                             |                            |                 |              |                |              |
|                                                                  |                 | PLOTS             | TREES      | TREES<br>PER PLOT | ESTIMATED<br>TOTAL<br>TREES | PERCENT<br>SAMPLE<br>TREES |                 |              |                |              |
| TOTAL                                                            |                 | 53                | 256        | 4.8               |                             |                            |                 |              |                |              |
| CRUISE                                                           |                 | 22                | 95         | 4.3               | 18,076                      | .5                         |                 |              |                |              |
| DBH COUNT                                                        |                 |                   |            |                   |                             |                            |                 |              |                |              |
| REFOREST                                                         |                 |                   |            |                   |                             |                            |                 |              |                |              |
| COUNT                                                            |                 | 30                | 153        | 5.1               |                             |                            |                 |              |                |              |
| BLANKS                                                           |                 | 1                 |            |                   |                             |                            |                 |              |                |              |
| 100 %                                                            |                 |                   |            |                   |                             |                            |                 |              |                |              |
| STAND SUMMARY                                                    |                 |                   |            |                   |                             |                            |                 |              |                |              |
|                                                                  | SAMPLE<br>TREES | TREES<br>/ACRE    | AVG<br>DBH | BOLE<br>LEN       | REL<br>DEN                  | BASAL<br>AREA              | GROSS<br>BF/AC  | NET<br>BF/AC | GROSS<br>CF/AC | NET<br>CF/AC |
| WHEMLOCK                                                         | 39              | 62.6              | 16.5       | 54                |                             | 93.6                       | 13,525          | 12,353       | 3,539          | 3,395        |
| DOUG FIR                                                         | 40              | 28.3              | 22.1       | 75                |                             | 75.8                       | 14,113          | 13,651       | 3,310          | 3,277        |
| NOB FIR                                                          | 13              | 6.2               | 25.4       | 85                | 5                           | 21.9                       | 4,741           | 4,255        | 1,008          | 947          |
| R ALDER                                                          | 2               | 2.2               | 19.3       | 41                |                             | 4.5                        | 136             | 136          | 90             | 90           |
| S SPRUCE                                                         | 1               | .4                | 18.0       | 72                |                             | .8                         | 102             | 102          | 31             | 31           |
| TOTAL                                                            | 95              | 99.9              | 19.0       | 61                |                             | 196.5                      | 32,617          | 30,497       | 7,979          | 7,740        |
| CONFIDENCE LIMITS OF THE SAMPLE                                  |                 |                   |            |                   |                             |                            |                 |              |                |              |
| 68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR |                 |                   |            |                   |                             |                            |                 |              |                |              |
| CL: 68.1 %                                                       | COEFF           | SAMPLE TREES - BF |            |                   |                             |                            | # OF TREES REQ. |              | INF. POP.      |              |
| SD: 1.0                                                          | VAR.%           | S.E.%             | LOW        | AVG               | HIGH                        |                            | 5               | 10           | 15             |              |
| WHEMLOCK                                                         | 74.8            | 12.0              | 282        | 320               | 359                         |                            |                 |              |                |              |
| DOUG FIR                                                         | 56.0            | 8.8               | 613        | 673               | 733                         |                            |                 |              |                |              |
| NOB FIR                                                          | 53.5            | 15.4              | 741        | 876               | 1,011                       |                            |                 |              |                |              |
| R ALDER                                                          | 54.4            | 50.9              | 32         | 65                | 98                          |                            |                 |              |                |              |
| S SPRUCE                                                         |                 |                   |            |                   |                             |                            |                 |              |                |              |
| TOTAL                                                            | 74.1            | 7.6               | 498        | 539               | 580                         |                            | 219             | 55           | 24             |              |
| CL: 68.1 %                                                       | COEFF           | TREES/ACRE        |            |                   |                             |                            | # OF PLOTS REQ. |              | INF. POP.      |              |
| SD: 1.0                                                          | VAR.%           | S.E.%             | LOW        | AVG               | HIGH                        |                            | 5               | 10           | 15             |              |
| WHEMLOCK                                                         | 78.4            | 10.8              | 56         | 63                | 69                          |                            |                 |              |                |              |
| DOUG FIR                                                         | 144.4           | 19.8              | 23         | 28                | 34                          |                            |                 |              |                |              |
| NOB FIR                                                          | 194.7           | 26.7              | 5          | 6                 | 8                           |                            |                 |              |                |              |
| R ALDER                                                          | 510.5           | 70.1              | 1          | 2                 | 4                           |                            |                 |              |                |              |
| S SPRUCE                                                         | 728.0           | 99.9              | 0          | 0                 | 1                           |                            |                 |              |                |              |
| TOTAL                                                            | 48.7            | 6.7               | 93         | 100               | 107                         |                            | 95              | 24           | 11             |              |
| CL: 68.1 %                                                       | COEFF           | BASAL AREA/ACRE   |            |                   |                             |                            | # OF PLOTS REQ. |              | INF. POP.      |              |
| SD: 1.0                                                          | VAR.%           | S.E.%             | LOW        | AVG               | HIGH                        |                            | 5               | 10           | 15             |              |
| WHEMLOCK                                                         | 78.6            | 10.8              | 83         | 94                | 104                         |                            |                 |              |                |              |
| DOUG FIR                                                         | 132.9           | 18.2              | 62         | 76                | 90                          |                            |                 |              |                |              |
| NOB FIR                                                          | 188.2           | 25.8              | 16         | 22                | 28                          |                            |                 |              |                |              |
| R ALDER                                                          | 509.8           | 70.0              | 1          | 5                 | 8                           |                            |                 |              |                |              |
| S SPRUCE                                                         | 728.0           | 99.9              | 0          | 1                 | 2                           |                            |                 |              |                |              |
| TOTAL                                                            | 41.9            | 5.8               | 185        | 197               | 208                         |                            | 70              | 18           | 8              |              |
| CL: 68.1 %                                                       | COEFF           | NET BF/ACRE       |            |                   |                             |                            | # OF PLOTS REQ. |              | INF. POP.      |              |
| SD: 1.0                                                          | VAR.%           | S.E.%             | LOW        | AVG               | HIGH                        |                            | 5               | 10           | 15             |              |
| WHEMLOCK                                                         | 80.3            | 11.0              | 10,993     | 12,353            | 13,714                      |                            |                 |              |                |              |
| DOUG FIR                                                         | 137.0           | 18.8              | 11,084     | 13,651            | 16,217                      |                            |                 |              |                |              |
| NOB FIR                                                          | 196.7           | 27.0              | 3,106      | 4,255             | 5,403                       |                            |                 |              |                |              |
| R ALDER                                                          | 511.6           | 70.2              | 41         | 136               | 231                         |                            |                 |              |                |              |
| S SPRUCE                                                         | 728.0           | 99.9              | 0          | 102               | 205                         |                            |                 |              |                |              |
| TOTAL                                                            | 46.7            | 6.4               | 28,544     | 30,497            | 32,450                      |                            | 87              | 22           | 10             |              |

| TC PSTATS                                                        |      |       | PROJECT STATISTICS |                   |                   |                             |               |                            | PAGE 1         |                |              |
|------------------------------------------------------------------|------|-------|--------------------|-------------------|-------------------|-----------------------------|---------------|----------------------------|----------------|----------------|--------------|
|                                                                  |      |       | PROJECT            |                   |                   | MAIDEN                      |               |                            | DATE 10/6/2011 |                |              |
| TWP                                                              | RGE  | SC    | TRACT              | TYPE              |                   | ACRES                       |               | PLOTS                      | TREES          | CuFt           | BdFt         |
| T4N                                                              | R7   | 21    | AREAS23            | TAKE              |                   | 515.00                      |               | 119                        | 399            | 1              | W            |
| T4N                                                              | R7W  | 23    | AREA1              | TAKE              |                   |                             |               |                            |                |                |              |
|                                                                  |      |       | PLOTS              | TREES             | TREES<br>PER PLOT | ESTIMATED<br>TOTAL<br>TREES |               | PERCENT<br>SAMPLE<br>TREES |                |                |              |
| TOTAL                                                            |      |       | 119                | 399               | 3.4               |                             |               |                            |                |                |              |
| CRUISE                                                           |      |       | 41                 | 138               | 3.4               | 34,673                      |               | .4                         |                |                |              |
| DBH COUNT                                                        |      |       |                    |                   |                   |                             |               |                            |                |                |              |
| REFOREST                                                         |      |       |                    |                   |                   |                             |               |                            |                |                |              |
| COUNT                                                            |      |       | 63                 | 252               | 4.0               |                             |               |                            |                |                |              |
| BLANKS                                                           |      |       | 15                 |                   |                   |                             |               |                            |                |                |              |
| 100 %                                                            |      |       |                    |                   |                   |                             |               |                            |                |                |              |
| STAND SUMMARY                                                    |      |       |                    |                   |                   |                             |               |                            |                |                |              |
| SAMPLE<br>TREES                                                  |      |       | TREES<br>/ACRE     | AVG<br>DBH        | BOLE<br>LEN       | REL<br>DEN                  | BASAL<br>AREA | GROSS<br>BF/AC             | NET<br>BF/AC   | GROSS<br>CF/AC | NET<br>CF/AC |
| DOUG FIR                                                         |      |       | 78                 | 33.9              | 20.0              | 77                          | 73.8          | 13,146                     | 12,403         | 3,182          | 3,081        |
| WHEMLOCK                                                         |      |       | 43                 | 29.8              | 15.7              | 48                          | 40.4          | 5,110                      | 4,645          | 1,390          | 1,315        |
| NOB FIR                                                          |      |       | 14                 | 2.7               | 25.3              | 85                          | 2 9.3         | 1,934                      | 1,763          | 421            | 399          |
| R ALDER                                                          |      |       | 2                  | .8                | 19.3              | 41                          | 1.6           | 48                         | 48             | 32             | 32           |
| S SPRUCE                                                         |      |       | 1                  | .2                | 18.0              | 72                          | .3            | 36                         | 36             | 11             | 11           |
| TOTAL                                                            |      |       | 138                | 67.3              | 18.5              | 64                          | 125.3         | 20,273                     | 18,895         | 5,035          | 4,837        |
| CONFIDENCE LIMITS OF THE SAMPLE                                  |      |       |                    |                   |                   |                             |               |                            |                |                |              |
| 68.1 TIMES OUT OF 100 THE VOLUME WILL BE WITHIN THE SAMPLE ERROR |      |       |                    |                   |                   |                             |               |                            |                |                |              |
| CL                                                               | 68.1 | COEFF |                    | SAMPLE TREES - BF |                   |                             |               | # OF TREES REQ.            |                | INF. POP.      |              |
| SD:                                                              | 1.0  | VAR.% | S.E.%              | LOW               | AVG               | HIGH                        | 5 10          |                            | 15             |                |              |
| DOUG FIR                                                         |      |       | 61.8               | 7.0               | 507               | 545                         | 583           |                            |                |                |              |
| WHEMLOCK                                                         |      |       | 82.5               | 12.6              | 257               | 294                         | 331           |                            |                |                |              |
| NOB FIR                                                          |      |       | 53.5               | 14.8              | 728               | 855                         | 982           |                            |                |                |              |
| R ALDER                                                          |      |       | 54.4               | 50.9              | 32                | 65                          | 98            |                            |                |                |              |
| S SPRUCE                                                         |      |       |                    |                   |                   |                             |               |                            |                |                |              |
| TOTAL                                                            |      |       | 74.3               | 6.3               | 458               | 489                         | 520           | 221                        | 55             | 25             |              |
| CL                                                               | 68.1 | COEFF |                    | TREES/ACRE        |                   |                             |               | # OF PLOTS REQ.            |                | INF. POP.      |              |
| SD:                                                              | 1.0  | VAR.% | S.E.%              | LOW               | AVG               | HIGH                        | 5 10          |                            | 15             |                |              |
| DOUG FIR                                                         |      |       | 103.4              | 9.5               | 31                | 34                          | 37            |                            |                |                |              |
| WHEMLOCK                                                         |      |       | 158.2              | 14.5              | 26                | 30                          | 34            |                            |                |                |              |
| NOB FIR                                                          |      |       | 276.5              | 25.3              | 2                 | 3                           | 3             |                            |                |                |              |
| R ALDER                                                          |      |       | 769.1              | 70.4              | 0                 | 1                           | 1             |                            |                |                |              |
| S SPRUCE                                                         |      |       | 1090.9             | 99.9              | 0                 | 0                           | 0             |                            |                |                |              |
| TOTAL                                                            |      |       | 79.0               | 7.2               | 62                | 67                          | 72            | 249                        | 62             | 28             |              |
| CL                                                               | 68.1 | COEFF |                    | BASAL AREA/ACRE   |                   |                             |               | # OF PLOTS REQ.            |                | INF. POP.      |              |
| SD:                                                              | 1.0  | VAR.% | S.E.%              | LOW               | AVG               | HIGH                        | 5 10          |                            | 15             |                |              |
| DOUG FIR                                                         |      |       | 96.7               | 8.9               | 67                | 74                          | 80            |                            |                |                |              |
| WHEMLOCK                                                         |      |       | 147.3              | 13.5              | 35                | 40                          | 46            |                            |                |                |              |
| NOB FIR                                                          |      |       | 269.7              | 24.7              | 7                 | 9                           | 12            |                            |                |                |              |
| R ALDER                                                          |      |       | 768.1              | 70.3              | 0                 | 2                           | 3             |                            |                |                |              |
| S SPRUCE                                                         |      |       | 1090.9             | 99.9              | 0                 | 0                           | 1             |                            |                |                |              |
| TOTAL                                                            |      |       | 61.7               | 5.7               | 118               | 125                         | 132           | 152                        | 38             | 17             |              |
| CL                                                               | 68.1 | COEFF |                    | NET BF/ACRE       |                   |                             |               | # OF PLOTS REQ.            |                | INF. POP.      |              |
| SD:                                                              | 1.0  | VAR.% | S.E.%              | LOW               | AVG               | HIGH                        | 5 10          |                            | 15             |                |              |
| DOUG FIR                                                         |      |       | 101.1              | 9.3               | 11,255            | 12,403                      | 13,551        |                            |                |                |              |
| WHEMLOCK                                                         |      |       | 152.4              | 14.0              | 3,997             | 4,645                       | 5,294         |                            |                |                |              |
| NOB FIR                                                          |      |       | 280.0              | 25.6              | 1,311             | 1,763                       | 2,215         |                            |                |                |              |
| R ALDER                                                          |      |       | 770.7              | 70.6              | 14                | 48                          | 82            |                            |                |                |              |
| S SPRUCE                                                         |      |       | 1090.9             | 99.9              | 0                 | 36                          | 72            |                            |                |                |              |
| TOTAL                                                            |      |       | 62.6               | 5.7               | 17,812            | 18,895                      | 19,978        | 156                        | 39             | 17             |              |



| TC PLOGSTVB                                              |                |                  |              | Log Stock Table - MBF |            |          |                                          |                |     |     |       |       |       |       |       |       |       |     |  |  |  |  |  |  |
|----------------------------------------------------------|----------------|------------------|--------------|-----------------------|------------|----------|------------------------------------------|----------------|-----|-----|-------|-------|-------|-------|-------|-------|-------|-----|--|--|--|--|--|--|
| TT4N RR7W S21 TyTAK 181.00<br>TT4N RR7W S23 TyTAK 334.00 |                |                  |              | Project: MAIDEN       |            |          |                                          | Page 2         |     |     |       |       |       |       |       |       |       |     |  |  |  |  |  |  |
|                                                          |                |                  |              | Acres 515.00          |            |          |                                          | Date 10/6/2011 |     |     |       |       |       |       |       |       |       |     |  |  |  |  |  |  |
|                                                          |                |                  |              | Time 8:44:00AM        |            |          |                                          |                |     |     |       |       |       |       |       |       |       |     |  |  |  |  |  |  |
| S<br>T<br>Spp                                            | So<br>Gr<br>rt | Log<br>de<br>Len | Gross<br>MBF | Def<br>%              | 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+ |  |  |  |  |  |  |
| H                                                        | DO             | 2S               | 32           | 151                   | 1.8        | 148      | 6.2                                      |                |     |     |       | 23    | 63    | 62    |       |       |       |     |  |  |  |  |  |  |
| H                                                        | DO             | 2S               | 40           | 1,388                 |            | 1,380    | 57.7                                     |                |     |     | 16    | 155   | 242   | 416   | 412   | 138   |       |     |  |  |  |  |  |  |
| H                                                        | DO             | 3S               | 18           | 24                    |            | 24       | 1.0                                      |                |     | 24  |       |       |       |       |       |       |       |     |  |  |  |  |  |  |
| H                                                        | DO             | 3S               | 22           | 18                    |            | 18       | .8                                       |                |     | 18  |       |       |       |       |       |       |       |     |  |  |  |  |  |  |
| H                                                        | DO             | 3S               | 24           | 24                    | 33.3       | 16       | .7                                       |                |     | 16  |       |       |       |       |       |       |       |     |  |  |  |  |  |  |
| H                                                        | DO             | 3S               | 30           | 29                    |            | 29       | 1.2                                      |                |     | 29  |       |       |       |       |       |       |       |     |  |  |  |  |  |  |
| H                                                        | DO             | 3S               | 32           | 146                   |            | 146      | 6.1                                      |                |     | 72  | 10    | 65    |       |       |       |       |       |     |  |  |  |  |  |  |
| H                                                        | DO             | 3S               | 36           | 31                    |            | 31       | 1.3                                      |                |     | 31  |       |       |       |       |       |       |       |     |  |  |  |  |  |  |
| H                                                        | DO             | 3S               | 37           | 13                    |            | 13       | .5                                       |                |     | 13  |       |       |       |       |       |       |       |     |  |  |  |  |  |  |
| H                                                        | DO             | 3S               | 40           | 277                   | 6.7        | 259      | 10.8                                     |                |     |     | 147   | 112   |       |       |       |       |       |     |  |  |  |  |  |  |
| H                                                        | DO             | 4S               | 12           | 3                     |            | 3        | .1                                       |                |     |     | 3     |       |       |       |       |       |       |     |  |  |  |  |  |  |
| H                                                        | DO             | 4S               | 14           | 14                    |            | 14       | .6                                       |                |     | 10  | 3     |       |       |       |       |       |       |     |  |  |  |  |  |  |
| H                                                        | DO             | 4S               | 15           | 16                    |            | 16       | .7                                       |                |     | 16  |       |       |       |       |       |       |       |     |  |  |  |  |  |  |
| H                                                        | DO             | 4S               | 16           | 10                    |            | 10       | .4                                       |                |     | 6   | 4     |       |       |       |       |       |       |     |  |  |  |  |  |  |
| H                                                        | DO             | 4S               | 19           | 31                    |            | 31       | 1.3                                      |                |     | 31  |       |       |       |       |       |       |       |     |  |  |  |  |  |  |
| H                                                        | DO             | 4S               | 20           | 20                    |            | 20       | .8                                       |                |     | 20  |       |       |       |       |       |       |       |     |  |  |  |  |  |  |
| H                                                        | DO             | 4S               | 24           | 9                     |            | 9        | .4                                       |                |     | 9   |       |       |       |       |       |       |       |     |  |  |  |  |  |  |
| H                                                        | DO             | 4S               | 28           | 7                     |            | 7        | .3                                       |                |     | 7   |       |       |       |       |       |       |       |     |  |  |  |  |  |  |
| H                                                        | DO             | 4S               | 30           | 19                    | 25.0       | 14       | .6                                       |                |     | 14  |       |       |       |       |       |       |       |     |  |  |  |  |  |  |
| H                                                        | DO             | 4S               | 32           | 44                    | 21.4       | 34       | 1.4                                      |                |     |     |       | 34    |       |       |       |       |       |     |  |  |  |  |  |  |
| H                                                        | DO             | 4S               | 33           | 14                    | 20.0       | 11       | .5                                       |                |     | 11  |       |       |       |       |       |       |       |     |  |  |  |  |  |  |
| H                                                        | DO             | 4S               | 36           | 28                    |            | 28       | 1.2                                      |                |     | 28  |       |       |       |       |       |       |       |     |  |  |  |  |  |  |
| H                                                        | DO             | 4S               | 40           | 158                   | 17.4       | 131      | 5.5                                      |                |     | 125 | 6     |       |       |       |       |       |       |     |  |  |  |  |  |  |
| H                                                        | Totals         |                  |              | 2,631                 | 9.1        | 2,392    | 24.6                                     |                |     | 481 | 189   | 389   | 306   | 478   | 412   | 138   |       |     |  |  |  |  |  |  |
| A                                                        | DO             | CR               | 40           | 25                    |            | 25       | 100.0                                    |                | 9   |     | 15    |       |       |       |       |       |       |     |  |  |  |  |  |  |
| A                                                        | Totals         |                  |              | 25                    |            | 25       | .3                                       |                | 9   |     | 15    |       |       |       |       |       |       |     |  |  |  |  |  |  |
| NF                                                       | DO             | CU               | 6            | 12                    | 100.0      |          |                                          |                |     |     |       |       |       |       |       |       |       |     |  |  |  |  |  |  |
| NF                                                       | DO             | CU               | 10           | 19                    | 100.0      |          |                                          |                |     |     |       |       |       |       |       |       |       |     |  |  |  |  |  |  |
| NF                                                       | DO             | CU               | 12           | 41                    | 100.0      |          |                                          |                |     |     |       |       |       |       |       |       |       |     |  |  |  |  |  |  |
| NF                                                       | DO             | 2S               | 32           | 14                    |            | 14       | 1.5                                      |                |     |     |       | 14    |       |       |       |       |       |     |  |  |  |  |  |  |
| NF                                                       | DO             | 2S               | 40           | 799                   | 2.0        | 783      | 86.3                                     |                |     |     | 29    |       | 31    | 70    | 315   | 240   | 99    |     |  |  |  |  |  |  |
| NF                                                       | DO             | 3S               | 14           | 2                     |            | 2        | .2                                       |                |     |     | 2     |       |       |       |       |       |       |     |  |  |  |  |  |  |
| NF                                                       | DO             | 3S               | 18           | 4                     |            | 4        | .5                                       |                |     |     |       | 4     |       |       |       |       |       |     |  |  |  |  |  |  |
| NF                                                       | DO             | 3S               | 26           | 11                    |            | 11       | 1.2                                      |                |     |     |       | 11    |       |       |       |       |       |     |  |  |  |  |  |  |
| NF                                                       | DO             | 3S               | 27           | 5                     |            | 5        | .6                                       |                |     |     |       | 5     |       |       |       |       |       |     |  |  |  |  |  |  |

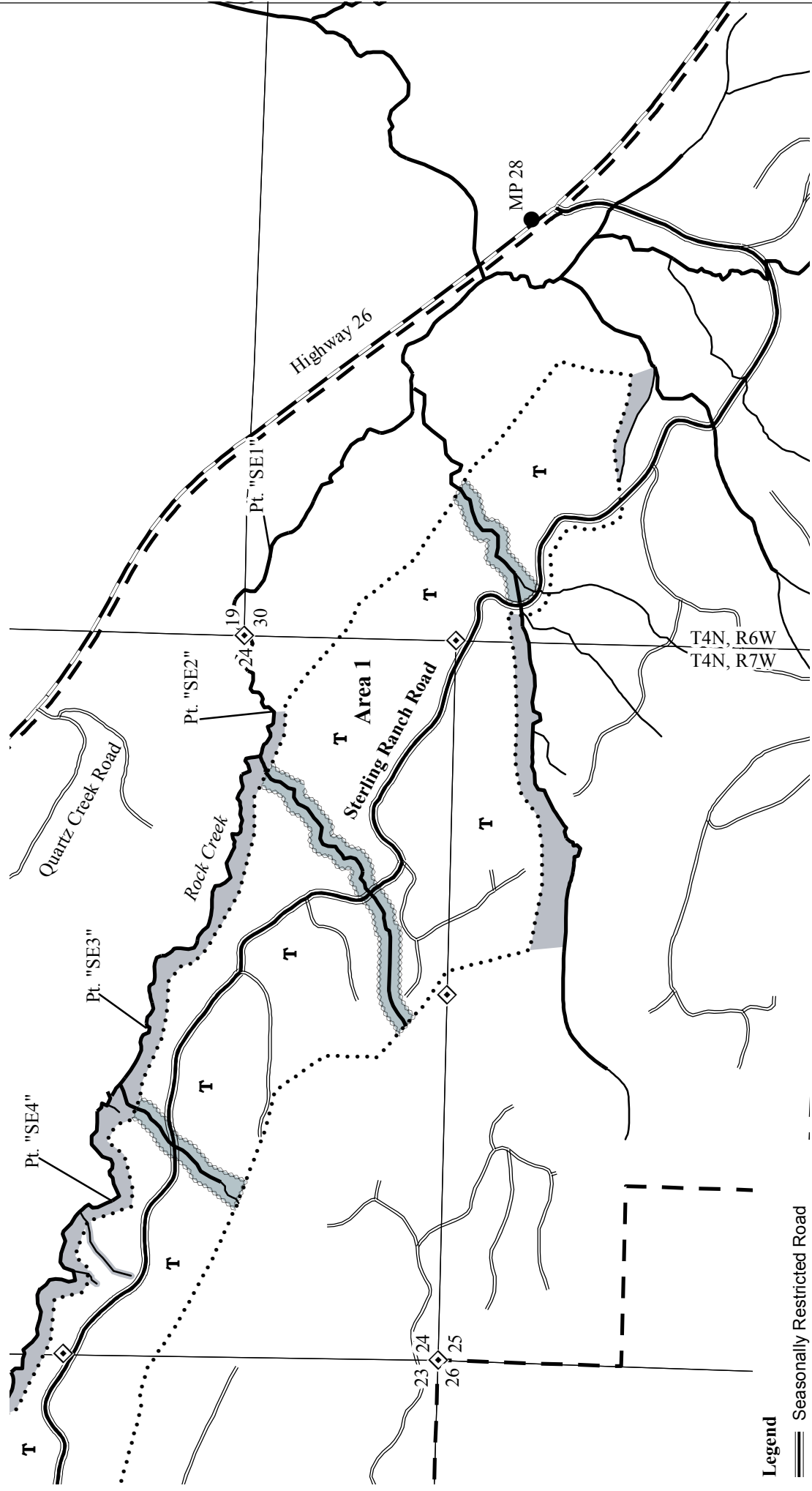
| TC PLOGSTVB                |   | Log Stock Table - MBF |          |            |              |          |            |          |                                          |     |     |     |       |       |       |                |       |       |       |     |
|----------------------------|---|-----------------------|----------|------------|--------------|----------|------------|----------|------------------------------------------|-----|-----|-----|-------|-------|-------|----------------|-------|-------|-------|-----|
| TT4N RR7W S21 TyTAK 181.00 |   | Project: MAIDEN       |          |            |              |          |            |          |                                          |     |     |     |       |       |       | Page 3         |       |       |       |     |
| TT4N RR7W S23 TyTAK 334.00 |   | Acres 515.00          |          |            |              |          |            |          |                                          |     |     |     |       |       |       | Date 10/6/2011 |       |       |       |     |
|                            |   |                       |          |            |              |          |            |          |                                          |     |     |     |       |       |       | Time 8:44:00AM |       |       |       |     |
| S<br>Spp                   | T | So<br>rt              | Gr<br>de | Log<br>Len | Gross<br>MBF | Def<br>% | 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+ |
| NF                         |   | DO                    | 3S       | 31         | 5            |          | 5          | .5       |                                          |     |     | 5   |       |       |       |                |       |       |       |     |
| NF                         |   | DO                    | 3S       | 38         | 9            |          | 9          | 1.0      |                                          |     | 9   |     |       |       |       |                |       |       |       |     |
| NF                         |   | DO                    | 3S       | 40         | 65           |          | 65         | 7.2      |                                          |     |     | 39  |       |       | 26    |                |       |       |       |     |
| NF                         |   | DO                    | 4S       | 14         | 5            |          | 5          | .5       |                                          |     | 5   |     |       |       |       |                |       |       |       |     |
| NF                         |   | DO                    | 4S       | 24         | 4            |          | 4          | .5       |                                          |     |     | 4   |       |       |       |                |       |       |       |     |
| NF                         |   | Totals                |          |            | 996          | 8.8      | 908        | 9.3      |                                          |     | 14  | 79  | 21    | 45    | 96    | 315            | 240   | 99    |       |     |
| S                          |   | DO                    | 2S       | 40         | 15           |          | 15         | 83.3     |                                          |     |     |     |       | 15    |       |                |       |       |       |     |
| S                          |   | DO                    | 3S       | 30         | 3            |          | 3          | 16.7     |                                          |     | 3   |     |       |       |       |                |       |       |       |     |
| S                          |   | Totals                |          |            | 19           |          | 19         | .2       |                                          |     | 3   |     |       | 15    |       |                |       |       |       |     |
| Total                      |   | All Species           |          |            | 10,441       | 6.8      | 9,731      | 100.0    |                                          |     | 23  | 963 | 709   | 1468  | 1388  | 1422           | 2476  | 1130  | 152   |     |

| TC TSTNDSUM         |        | Stand Table Summary |        |                  |                |             |              |               |               |                    |                |                |        |        |
|---------------------|--------|---------------------|--------|------------------|----------------|-------------|--------------|---------------|---------------|--------------------|----------------|----------------|--------|--------|
| Project MAIDEN      |        |                     |        |                  |                |             |              |               |               |                    |                |                |        |        |
| TT4N RR7W S23 TLEAV |        |                     |        |                  |                |             |              |               |               | TT4N RR7W S23 TLEA |                |                |        |        |
| Twp                 | Rge    | Sec                 | Tract  | Type             |                |             |              | Acres         | Plots         | Sample Trees       | Page:          | 1              |        |        |
| T4N                 | R7W    | 23                  | AREA1  | LEAV             |                |             |              | 334.00        | 66            | 100                | Date:          | 10/06/20       |        |        |
|                     |        |                     |        |                  |                |             |              |               |               |                    | Time:          | 8:44:40AM      |        |        |
| S<br>Spc            | T      | Sample              |        | Av               | Trees/<br>Acre | BA/<br>Acre | Logs<br>Acre | Average Log   |               | Tons/<br>Acre      | Net            | Net            | Totals |        |
|                     |        | DBH                 | Trees  | FF Ht<br>16' Tot |                |             |              | Net<br>Cu.Ft. | Net<br>Bd.Ft. |                    | Cu.Ft.<br>Acre | Bd.Ft.<br>Acre |        |        |
| DL                  |        | 14                  | 1      | 85 22            | 1.812          | 1.94        | 1.81         | 11.0          | 20.0          |                    | 20             | 36             | 67     | 12     |
| DL                  |        | 18                  | 3      | 87 113           | 3.289          | 5.81        | 7.68         | 32.0          | 115.7         |                    | 246            | 888            | 820    | 297    |
| DL                  |        | 19                  | 1      | 88 116           | .984           | 1.94        | 2.95         | 30.0          | 110.0         |                    | 89             | 325            | 296    | 108    |
| DL                  |        | 20                  | 1      | 88 116           | .888           | 1.94        | 2.66         | 31.7          | 116.7         |                    | 84             | 311            | 282    | 104    |
| DL                  |        | 21                  | 1      | 89 117           | .806           | 1.94        | 2.42         | 36.3          | 146.7         |                    | 88             | 354            | 293    | 118    |
| DL                  |        | 22                  | 4      | 87 125           | 2.936          | 7.75        | 8.81         | 41.5          | 172.5         |                    | 366            | 1,519          | 1,221  | 507    |
| DL                  |        | 23                  | 5      | 87 126           | 3.358          | 9.69        | 10.07        | 47.1          | 196.7         |                    | 475            | 1,981          | 1,586  | 662    |
| DL                  |        | 24                  | 8      | 87 118           | 4.934          | 15.50       | 14.19        | 49.2          | 201.3         |                    | 698            | 2,856          | 2,332  | 954    |
| DL                  |        | 25                  | 6      | 85 126           | 3.410          | 11.63       | 9.66         | 56.2          | 235.9         |                    | 543            | 2,279          | 1,813  | 761    |
| DL                  |        | 26                  | 4      | 85 132           | 2.102          | 7.75        | 6.31         | 59.5          | 252.5         |                    | 375            | 1,592          | 1,253  | 532    |
| DL                  |        | 27                  | 8      | 85 125           | 3.898          | 15.50       | 10.72        | 67.3          | 273.6         |                    | 721            | 2,934          | 2,409  | 980    |
| DL                  |        | 28                  | 8      | 87 118           | 3.625          | 15.50       | 9.52         | 70.6          | 306.2         |                    | 672            | 2,914          | 2,243  | 973    |
| DL                  |        | 29                  | 3      | 87 103           | 1.267          | 5.81        | 2.96         | 70.9          | 287.1         |                    | 210            | 849            | 700    | 284    |
| DL                  |        | 30                  | 4      | 88 116           | 1.579          | 7.75        | 3.95         | 88.4          | 404.0         |                    | 349            | 1,595          | 1,165  | 533    |
| DL                  |        | 31                  | 2      | 85 134           | .739           | 3.88        | 2.22         | 72.8          | 356.7         |                    | 162            | 791            | 540    | 264    |
| DL                  |        | 32                  | 2      | 86 128           | .694           | 3.88        | 2.08         | 88.5          | 413.3         |                    | 184            | 860            | 615    | 287    |
| DL                  |        | 33                  | 3      | 87 103           | .979           | 5.81        | 2.28         | 99.7          | 451.4         |                    | 228            | 1,031          | 761    | 344    |
| DL                  |        | 34                  | 1      | 89 74            | .307           | 1.94        | .61          | 95.0          | 390.0         |                    | 58             | 240            | 195    | 80     |
| DL                  |        | 35                  | 1      | 86 121           | .290           | 1.94        | .87          | 102.0         | 480.0         |                    | 89             | 418            | 296    | 139    |
| DL                  | Totals | 66                  | 86     | 116              | 37.898         | 127.88      | 101.76       | 55.6          | 233.6         |                    | 5,655          | 23,772         | 18,886 | 7,940  |
| NFL                 | 20     | 1                   | 92 111 | .889             | 1.94           | 2.67        | 33.0         | 143.3         |               | 88                 | 382            |                | 294    | 128    |
| NFL                 | 24     | 1                   | 89 103 | .617             | 1.94           | 1.23        | 64.5         | 245.0         |               | 80                 | 302            |                | 266    | 101    |
| NFL                 | 29     | 1                   | 89 116 | .423             | 1.94           | 1.27        | 71.7         | 323.3         |               | 91                 | 410            |                | 304    | 137    |
| NFL                 | 30     | 1                   | 86 143 | .395             | 1.94           | 1.19        | 86.0         | 360.0         |               | 102                | 427            |                | 340    | 143    |
| NFL                 | 31     | 1                   | 93 141 | .370             | 1.94           | 1.11        | 104.0        | 556.7         |               | 115                | 618            |                | 386    | 206    |
| NFL                 | 32     | 1                   | 91 121 | .347             | 1.94           | 1.04        | 91.0         | 476.7         |               | 95                 | 497            |                | 317    | 166    |
| NFL                 | 33     | 2                   | 86 148 | .653             | 3.88           | 1.96        | 108.3        | 440.0         |               | 212                | 862            |                | 709    | 288    |
| NFL                 | 34     | 1                   | 89 103 | .308             | 1.94           | .92         | 89.0         | 476.7         |               | 82                 | 440            |                | 274    | 147    |
| NFL                 | 36     | 1                   | 93 135 | .274             | 1.94           | .82         | 129.0        | 743.3         |               | 106                | 612            |                | 355    | 204    |
| NFL                 | Totals | 10                  | 90     | 123              | 4.276          | 19.39       | 12.21        | 79.5          | 372.6         |                    | 971            | 4,550          | 3,244  | 1,520  |
| HL                  | 8      | 1                   | 86 20  | 3.704            | 1.29           | 3.70        | 5.0          | 20.0          |               | 19                 | 74             |                | 62     | 25     |
| HL                  | 10     | 1                   | 85 27  | 2.371            | 1.29           | 2.37        | 8.0          | 20.0          |               | 19                 | 47             |                | 63     | 16     |
| HL                  | 11     | 1                   | 84 65  | 1.959            | 1.29           | 1.96        | 18.0         | 60.0          |               | 35                 | 118            |                | 118    | 39     |
| HL                  | 12     | 2                   | 88 44  | 3.292            | 2.59           | 3.29        | 15.5         | 40.0          |               | 51                 | 132            |                | 170    | 44     |
| HL                  | 20     | 1                   | 90 94  | .593             | 1.29           | 1.19        | 46.5         | 165.0         |               | 55                 | 196            |                | 184    | 65     |
| HL                  | 21     | 2                   | 86 116 | 1.075            | 2.59           | 3.23        | 39.3         | 163.3         |               | 127                | 527            |                | 424    | 176    |
| HL                  | 23     | 1                   | 89 120 | .448             | 1.29           | .45         | 96.0         | 460.0         |               | 43                 | 206            |                | 144    | 69     |
| HL                  | 25     | 1                   | 88 132 | .379             | 1.29           | 1.14        | 62.3         | 260.0         |               | 71                 | 296            |                | 237    | 99     |
| HL                  | 26     | 3                   | 87 88  | 1.052            | 3.88           | 1.75        | 75.2         | 290.0         |               | 132                | 508            |                | 440    | 170    |
| HL                  | 28     | 2                   | 87 106 | .605             | 2.59           | 1.21        | 77.0         | 315.0         |               | 93                 | 381            |                | 311    | 127    |
| HL                  | Totals | 15                  | 86     | 55               | 15.478         | 19.39       | 20.29        | 31.8          | 122.5         |                    | 645            | 2,485          | 2,153  | 830    |
| SN                  | 8      | 1                   | 89 41  | 2.508            | .88            |             |              |               |               |                    |                |                |        |        |
| SN                  | 19     | 1                   | 88 17  | .445             | .88            |             |              |               |               |                    |                |                |        |        |
| SN                  | 23     | 2                   | 89 122 | .607             | 1.75           |             |              |               |               |                    |                |                |        |        |
| SN                  | 45     | 5                   | 89 12  | .396             | 4.38           |             |              |               |               |                    |                |                |        |        |
| SN                  | Totals | 9                   | 89     | 48               | 3.956          | 7.88        |              |               |               |                    |                |                |        |        |
| Totals              |        | 100                 | 87     | 97               | 61.608         | 174.55      | 134.26       | 54.2          | 229.5         |                    | 7270           | 30,806         | 24,283 | 10,289 |

| TC TSTNDSUM        |     |        |       | Stand Table Summary |          |                |             |              |               |               |               |                       |                       |        |        |       |
|--------------------|-----|--------|-------|---------------------|----------|----------------|-------------|--------------|---------------|---------------|---------------|-----------------------|-----------------------|--------|--------|-------|
| Project MAIDEN     |     |        |       |                     |          |                |             |              |               |               |               |                       |                       |        |        |       |
| TT4N RR7W S23 TTAK |     |        |       |                     |          |                |             |              |               |               |               | TT4N RR7W S23 TTAK    |                       |        |        |       |
| Twp                | Rge | Sec    | Tract | Type                |          |                | Acres       |              | Plots         | Sample Trees  |               | Page: 1               |                       |        |        |       |
| T4N                | R7W | 23     | AREA1 | TAKE                |          |                | 334.00      |              | 66            | 43            |               | Date: 10/06/20        |                       |        |        |       |
| Time: 8:46:14AM    |     |        |       |                     |          |                |             |              |               |               |               |                       |                       |        |        |       |
| S<br>Spc           | T   | Sample |       | FF                  | Av<br>Ht | Trees/<br>Acre | BA/<br>Acre | Logs<br>Acre | Average Log   |               | Tons/<br>Acre | Net<br>Cu.Ft.<br>Acre | Net<br>Bd.Ft.<br>Acre | Totals |        |       |
|                    |     | DBH    | Trees | 16'                 | Tot      |                |             |              | Net<br>Cu.Ft. | Net<br>Bd.Ft. |               |                       |                       | Tons   | Cunits | MBF   |
| D                  |     | 10     | 1     | 85                  | 28       | 3.509          | 1.91        | 3.51         | 8.0           | 20.0          |               | 28                    | 70                    |        | 94     | 23    |
| D                  |     | 13     | 1     | 86                  | 23       | 2.076          | 1.91        | 2.08         | 10.0          | 20.0          |               | 21                    | 42                    |        | 69     | 14    |
| D                  |     | 15     | 1     | 88                  | 105      | 1.560          | 1.91        | 3.12         | 25.0          | 100.0         |               | 78                    | 312                   |        | 260    | 104   |
| D                  |     | 16     | 2     | 89                  | 97       | 2.741          | 3.83        | 5.48         | 26.0          | 97.5          |               | 143                   | 535                   |        | 476    | 179   |
| D                  |     | 17     | 4     | 86                  | 100      | 4.857          | 7.66        | 10.93        | 27.4          | 98.9          |               | 300                   | 1,081                 |        | 1,002  | 361   |
| D                  |     | 18     | 5     | 86                  | 116      | 5.415          | 9.57        | 14.08        | 28.3          | 102.3         |               | 399                   | 1,440                 |        | 1,331  | 481   |
| D                  |     | 19     | 3     | 85                  | 111      | 2.916          | 5.74        | 6.80         | 30.3          | 110.0         |               | 206                   | 748                   |        | 688    | 250   |
| D                  |     | 20     | 3     | 87                  | 120      | 2.632          | 5.74        | 7.90         | 33.3          | 131.1         |               | 263                   | 1,035                 |        | 879    | 346   |
| D                  |     | 21     | 3     | 88                  | 111      | 2.387          | 5.74        | 6.37         | 38.0          | 147.5         |               | 242                   | 939                   |        | 808    | 314   |
| D                  |     | 22     | 3     | 87                  | 123      | 2.175          | 5.74        | 6.53         | 39.0          | 166.7         |               | 254                   | 1,088                 |        | 850    | 363   |
| D                  |     | 23     | 3     | 88                  | 135      | 1.990          | 5.74        | 5.97         | 50.4          | 217.8         |               | 301                   | 1,300                 |        | 1,006  | 434   |
| D                  |     | 24     | 1     | 89                  | 125      | .609           | 1.91        | 1.83         | 43.3          | 190.0         |               | 79                    | 347                   |        | 265    | 116   |
| D                  |     | 25     | 4     | 88                  | 123      | 2.246          | 7.66        | 6.18         | 54.7          | 238.2         |               | 338                   | 1,471                 |        | 1,129  | 491   |
| D                  |     | 26     | 1     | 86                  | 129      | .519           | 1.91        | 1.56         | 59.7          | 223.3         |               | 93                    | 348                   |        | 310    | 116   |
| D                  |     | 28     | 2     | 86                  | 131      | .895           | 3.83        | 2.24         | 68.2          | 286.0         |               | 153                   | 640                   |        | 510    | 214   |
| D                  |     | 30     | 1     | 85                  | 107      | .390           | 1.91        | .78          | 98.5          | 425.0         |               | 77                    | 331                   |        | 257    | 111   |
| D                  |     | Totals | 38    | 87                  | 100      | 36.917         | 72.73       | 85.33        | 34.9          | 137.4         |               | 2,974                 | 11,727                |        | 9,934  | 3,917 |
| H                  |     | 13     | 3     | 85                  | 45       | 9.370          | 8.64        | 9.37         | 20.0          | 50.0          |               | 187                   | 468                   |        | 626    | 156   |
| H                  |     | 14     | 1     | 83                  | 27       | 2.693          | 2.88        |              |               |               |               |                       |                       |        |        |       |
| H                  |     | Totals | 4     | 85                  | 41       | 12.062         | 11.52       | 9.37         | 20.0          | 50.0          |               | 187                   | 468                   |        | 626    | 156   |
| NF                 |     | 25     | 1     | 89                  | 103      | .711           | 2.42        | 1.42         | 72.0          | 290.0         |               | 102                   | 412                   |        | 342    | 138   |
| NF                 |     | Totals | 1     | 89                  | 103      | .711           | 2.42        | 1.42         | 72.0          | 290.0         |               | 102                   | 412                   |        | 342    | 138   |
| Totals             |     |        | 43    | 86                  | 86       | 49.691         | 86.67       | 96.12        | 34.0          | 131.2         |               | 3264                  | 12,608                |        | 10,902 | 4,211 |

| TC TSTNDSUM        |     | Stand Table Summary |         |                  |                |             |              |               |               |                    |                |                |             |       |
|--------------------|-----|---------------------|---------|------------------|----------------|-------------|--------------|---------------|---------------|--------------------|----------------|----------------|-------------|-------|
|                    |     | Project MAIDEN      |         |                  |                |             |              |               |               |                    |                |                |             |       |
| TT4N RR7W S21 TTAK |     |                     |         |                  |                |             |              |               |               | TT4N RR7W S21 TTAK |                |                |             |       |
| Twp                | Rge | Sec                 | Tract   | Type             |                |             |              | Acres         | Plots         | Sample Trees       | Page:          | 1              |             |       |
| T4N                | R7W | 21                  | AREAS23 | TAKE             |                |             |              | 181.00        | 53            | 100                | Date:          | 10/06/20       |             |       |
|                    |     |                     |         |                  |                |             |              |               |               |                    | Time:          | 8:46:41AM      |             |       |
| 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 Ht<br>16' Tot |                |             |              | Net<br>Cu.Ft. | Net<br>Bd.Ft. |                    | Cu.Ft.<br>Acre | Bd.Ft.<br>Acre |             |       |
| D                  |     | 10                  | 1       | 83 66            | 3.321          | 1.81        | 3.32         | 14.0          | 50.0          |                    | 46             | 166            | 84          | 30    |
| D                  |     | 11                  | 1       | 83 59            | 2.745          | 1.81        | 2.74         | 14.0          | 50.0          |                    | 38             | 137            | 70          | 25    |
| D                  |     | 14                  | 1       | 83 76            | 1.694          | 1.81        | 3.39         | 16.5          | 55.0          |                    | 56             | 186            | 101         | 34    |
| D                  |     | 17                  | 1       | 88 78            | 1.149          | 1.81        | 2.30         | 25.5          | 85.0          |                    | 59             | 195            | 106         | 35    |
| D                  |     | 19                  | 1       | 82 105           | .920           | 1.81        | 1.84         | 41.0          | 125.0         |                    | 75             | 230            | 137         | 42    |
| D                  |     | 20                  | 1       | 88 112           | .830           | 1.81        | 1.66         | 49.0          | 175.0         |                    | 81             | 291            | 147         | 53    |
| D                  |     | 21                  | 1       | 82 105           | .753           | 1.81        | 1.51         | 46.0          | 160.0         |                    | 69             | 241            | 125         | 44    |
| D                  |     | 22                  | 2       | 87 116           | 1.614          | 4.26        | 4.84         | 43.8          | 197.2         |                    | 212            | 955            | 383         | 173   |
| D                  |     | 23                  | 6       | 86 101           | 3.767          | 10.87       | 9.42         | 43.7          | 160.0         |                    | 412            | 1,507          | 745         | 273   |
| D                  |     | 24                  | 3       | 86 112           | 2.084          | 6.55        | 4.74         | 68.1          | 308.8         |                    | 323            | 1,465          | 585         | 265   |
| D                  |     | 25                  | 2       | 84 115           | 1.063          | 3.62        | 2.66         | 54.0          | 208.0         |                    | 143            | 553            | 260         | 100   |
| D                  |     | 26                  | 3       | 84 110           | 1.603          | 5.91        | 4.32         | 65.1          | 280.8         |                    | 281            | 1,212          | 508         | 219   |
| D                  |     | 27                  | 2       | 86 120           | .911           | 3.62        | 2.28         | 71.2          | 280.0         |                    | 162            | 638            | 294         | 115   |
| D                  |     | 28                  | 2       | 88 104           | .847           | 3.62        | 1.69         | 83.3          | 332.5         |                    | 141            | 563            | 255         | 102   |
| D                  |     | 29                  | 7       | 87 120           | 3.007          | 13.79       | 8.63         | 75.9          | 334.0         |                    | 654            | 2,881          | 1,184       | 521   |
| D                  |     | 30                  | 3       | 89 124           | 1.107          | 5.43        | 2.95         | 88.9          | 417.5         |                    | 262            | 1,232          | 475         | 223   |
| D                  |     | 31                  | 1       | 89 116           | .346           | 1.81        | 1.04         | 78.7          | 346.7         |                    | 82             | 359            | 148         | 65    |
| D                  |     | 34                  | 2       | 86 132           | .575           | 3.62        | 1.72         | 103.7         | 486.7         |                    | 179            | 839            | 323         | 152   |
| D                  |     | Totals              | 40      | 85 98            | 28.335         | 75.79       | 61.05        | 53.7          | 223.6         |                    | 3,277          | 13,651         | 5,931       | 2,471 |
| H                  |     | 10                  | 4       | 84 38            | 17.598         | 9.60        | 17.60        | 9.5           | 30.0          |                    | 167            | 528            | 303         | 96    |
| H                  |     | 11                  | 1       | 86 28            | 3.636          | 2.40        | 3.64         | 10.0          | 30.0          |                    | 36             | 109            | 66          | 20    |
| H                  |     | 13                  | 2       | 84 83            | 5.207          | 4.80        | 7.81         | 22.0          | 60.0          |                    | 172            | 469            | 311         | 85    |
| H                  |     | 15                  | 2       | 89 54            | 3.911          | 4.80        | 3.91         | 27.0          | 75.0          |                    | 106            | 293            | 191         | 53    |
| H                  |     | 16                  | 3       | 89 85            | 5.156          | 7.20        | 10.31        | 25.3          | 90.0          |                    | 261            | 928            | 473         | 168   |
| H                  |     | 17                  | 4       | 88 79            | 6.089          | 9.60        | 10.66        | 31.4          | 94.3          |                    | 335            | 1,005          | 606         | 182   |
| H                  |     | 18                  | 1       | 88 97            | 1.358          | 2.40        | 2.72         | 38.0          | 130.0         |                    | 103            | 353            | 187         | 64    |
| H                  |     | 19                  | 4       | 91 88            | 4.875          | 9.60        | 9.75         | 38.8          | 145.0         |                    | 378            | 1,414          | 684         | 256   |
| H                  |     | 20                  | 2       | 88 108           | 2.200          | 4.80        | 5.50         | 41.8          | 160.0         |                    | 230            | 880            | 416         | 159   |
| H                  |     | 21                  | 4       | 87 102           | 3.991          | 9.60        | 8.98         | 46.3          | 178.9         |                    | 416            | 1,606          | 753         | 291   |
| H                  |     | 22                  | 3       | 90 99            | 2.727          | 7.20        | 6.36         | 49.7          | 201.4         |                    | 316            | 1,282          | 573         | 232   |
| H                  |     | 24                  | 4       | 86 105           | 3.055          | 9.60        | 7.64         | 48.4          | 182.0         |                    | 370            | 1,390          | 669         | 252   |
| H                  |     | 25                  | 1       | 89 99            | .704           | 2.40        | 1.41         | 73.0          | 275.0         |                    | 103            | 387            | 186         | 70    |
| H                  |     | 27                  | 1       | 88 104           | .604           | 2.40        | 1.21         | 90.0          | 375.0         |                    | 109            | 453            | 197         | 82    |
| H                  |     | 28                  | 1       | 88 99            | .561           | 2.40        | 1.12         | 96.0          | 410.0         |                    | 108            | 460            | 195         | 83    |
| H                  |     | 30                  | 2       | 87 110           | .978           | 4.80        | 1.96         | 95.0          | 407.5         |                    | 186            | 797            | 336         | 144   |
| H                  |     | Totals              | 39      | 87 71            | 62.649         | 93.58       | 100.56       | 33.8          | 122.8         |                    | 3,395          | 12,353         | 6,145       | 2,236 |
| NF                 |     | 15                  | 1       | 88 75            | 1.372          | 1.68        | 2.74         | 19.5          | 70.0          |                    | 54             | 192            | 97          | 35    |
| NF                 |     | 21                  | 1       | 89 97            | .700           | 1.68        | 1.40         | 49.5          | 180.0         |                    | 69             | 252            | 125         | 46    |
| NF                 |     | 23                  | 1       | 89 103           | .584           | 1.68        | 1.17         | 62.0          | 245.0         |                    | 72             | 286            | 131         | 52    |
| NF                 |     | 25                  | 1       | 93 122           | .494           | 1.68        | .99          | 84.5          | 415.0         |                    | 83             | 410            | 151         | 74    |
| NF                 |     | 26                  | 1       | 88 88            | .457           | 1.68        | .91          | 69.0          | 260.0         |                    | 63             | 237            | 114         | 43    |
| NF                 |     | 28                  | 2       | 85 102           | .787           | 3.37        | 1.97         | 60.4          | 268.0         |                    | 119            | 528            | 215         | 95    |
| NF                 |     | 30                  | 2       | 88 135           | .686           | 3.37        | 2.06         | 89.7          | 440.0         |                    | 185            | 905            | 334         | 164   |
| NF                 |     | 31                  | 1       | 87 115           | .321           | 1.68        | .64          | 102.5         | 430.0         |                    | 66             | 276            | 119         | 50    |
| NF                 |     | 32                  | 1       | 88 138           | .301           | 1.68        | .90          | 81.7          | 426.7         |                    | 74             | 386            | 134         | 70    |
| NF                 |     | 34                  | 2       | 91 129           | .534           | 3.37        | 1.34         | 121.2         | 586.0         |                    | 162            | 782            | 293         | 142   |
| NF                 |     | Totals              | 13      | 88 104           | 6.236          | 21.89       | 14.12        | 67.0          | 301.3         |                    | 947            | 4,255          | 1,713       | 770   |
| A                  |     | 18                  | 1       | 87 46            | 1.281          | 2.26        | 1.28         | 33.0          | 40.0          |                    | 42             | 51             | 77          | 9     |
| A                  |     | 21                  | 1       | 86 49            | .941           | 2.26        | .94          | 51.0          | 90.0          |                    | 48             | 85             | 87          | 15    |

|                    |     |        |         |                     |                                   |        |        |                          |                                       |              |      |                    |                                    |          |  |
|--------------------|-----|--------|---------|---------------------|-----------------------------------|--------|--------|--------------------------|---------------------------------------|--------------|------|--------------------|------------------------------------|----------|--|
| TC TSTNDSUM        |     |        |         | Stand Table Summary |                                   |        |        |                          |                                       |              |      |                    |                                    |          |  |
|                    |     |        |         | Project             |                                   | MAIDEN |        |                          |                                       |              |      |                    |                                    |          |  |
| TT4N RR7W S21 TTAK |     |        |         |                     |                                   |        |        |                          |                                       |              |      | TT4N RR7W S21 TTAK |                                    |          |  |
| Twp                | Rge | Sec    | Tract   | Type                |                                   |        | Acres  |                          | Plots                                 | Sample Trees |      |                    | Page:                              | 2        |  |
| T4N                | R7W | 21     | AREAS23 | TAKE                |                                   |        | 181.00 |                          | 53                                    | 100          |      |                    | Date:                              | 10/06/20 |  |
|                    |     |        |         |                     |                                   |        |        |                          |                                       |              |      | Time:              | 8:46:41AM                          |          |  |
| S<br>Spc           | T   | Sample |         | Av                  | Trees/ BA/ Logs<br>Acre Acre Acre |        |        | Average Log              |                                       | Net          |      | Net                | T o t a l s<br><br>Tons Cunits MBF |          |  |
|                    |     | DBH    | Trees   | FF Ht<br>16' Tot    |                                   |        |        | Net Net<br>Cu.Ft. Bd.Ft. | Tons/ Cu.Ft. Bd.Ft.<br>Acre Acre Acre |              |      |                    |                                    |          |  |
| A                  |     | Totals | 2       | 87                  | 47                                | 2.223  | 4.53   | 2.22                     | 40.6                                  | 61.2         | 90   | 136                | 163                                | 25       |  |
| S                  |     | 18     | 1       | 85                  | 90                                | .427   | .75    | .85                      | 36.0                                  | 120.0        | 31   | 102                | 56                                 | 19       |  |
| S                  |     | Totals | 1       | 85                  | 90                                | .427   | .75    | .85                      | 36.0                                  | 120.0        | 31   | 102                | 56                                 | 19       |  |
| Totals             |     |        | 95      | 86                  | 80                                | 99.869 | 196.55 | 178.80                   | 43.3                                  | 170.6        | 7740 | 30,497             | 14,009                             | 5,520    |  |



**Legend**

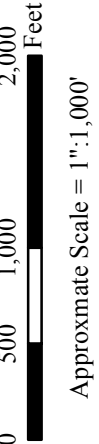
- Seasonally Restricted Road
- Paved Road
- Existing Surfaced Road
- Type F Stream
- Type N Stream
- Timber Sale Boundary
- Posted Stream Buffer
- Non Posted Stream Buffer
- Ownership Boundary
- Known Land Survey Corner
- Yarding Area - Tractor

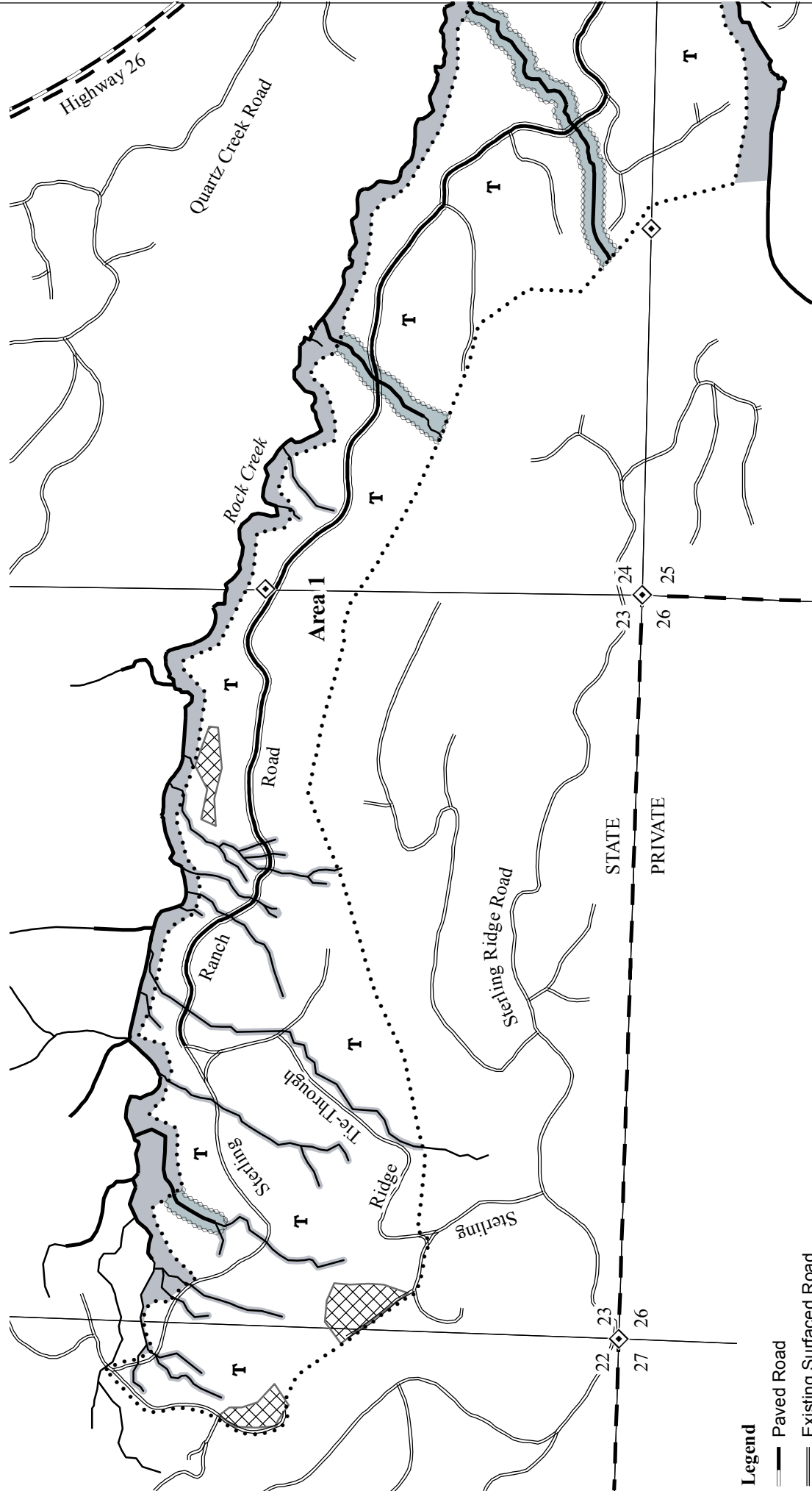


Approximate Net Acreage:  
Area 1 (PC) - 334 Acres  
Area 2 (MC) - 100 Acres  
Area 3 (MC) - 81 Acres  
Total Sale - 515 Acres

**Logging Plan**

OF TIMBER SALE CONTRACT NO. 341-12-44  
IRON MAIDEN  
PORTIONS OF SECTION 30 T4N,  
R6W AND PORTIONS OF SECTIONS 21,  
22, 23, 24 AND 25, T4N, R7W, W.M.,  
CLATSOP COUNTY, OR





**Legend**

- Paved Road
- Existing Surfaced Road
- Seasonally Restricted Road
- Type F Stream
- Type N Stream
- Timber Sale Boundary
- Posted Stream Buffer
- Non Posted Stream Buffer
- Non Thinnable Area
- Ownership Boundary
- Known Land Survey Corner
- Yarding Area - Tractor

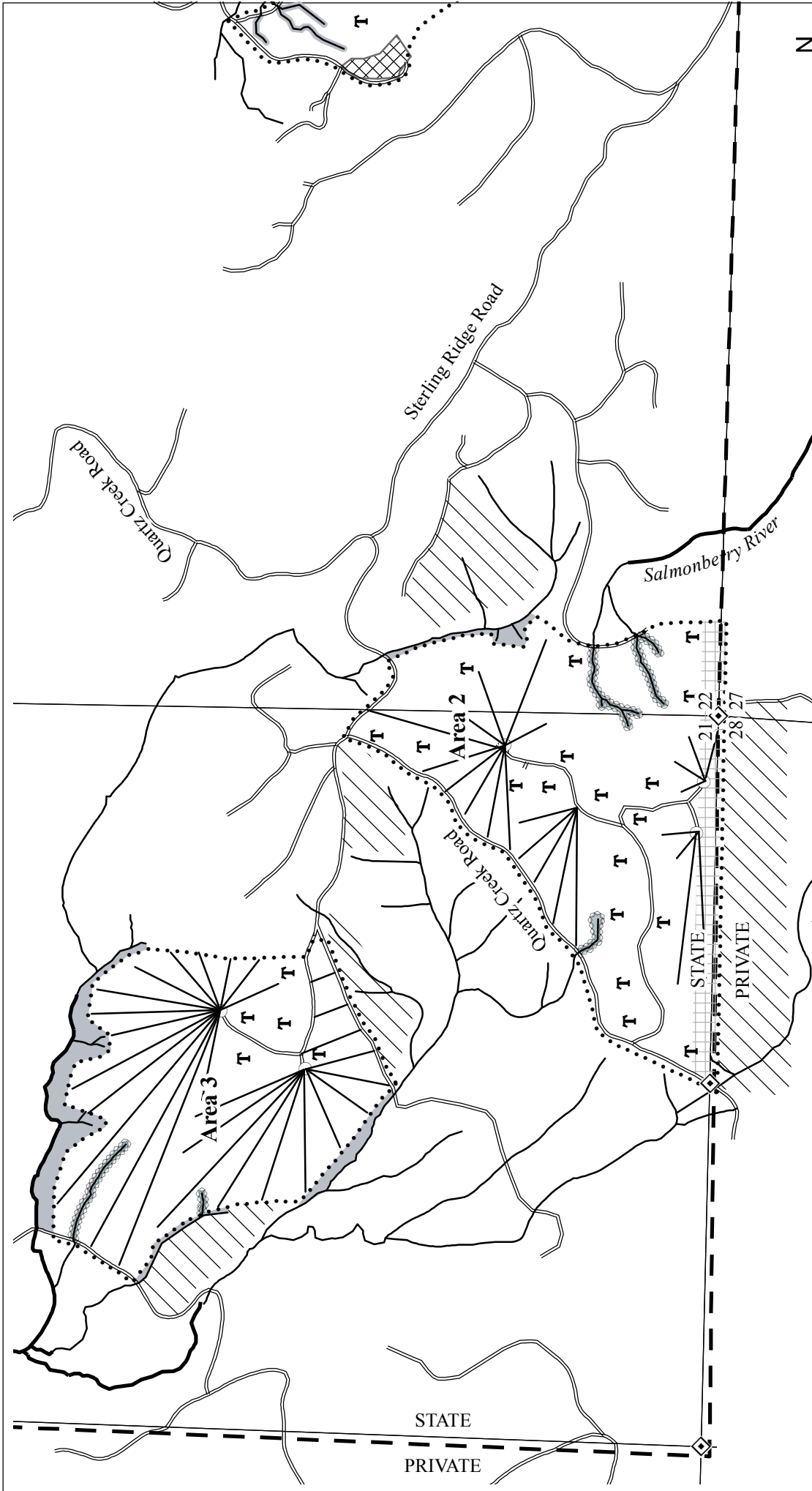
Approximate Net Acreage:  
Area 1 (PC) - 334 Acres  
Area 2 (MC) - 100 Acres  
Area 3 (MC) - 81 Acres  
Total Sale - 515 Acres



Approximate Scale = 1"=1,000'

**Exhibit "A"**

OF TIMBER SALE CONTRACT NO. 341-12-44  
IRON MAIDEN  
PORTIONS OF SECTION 30 T4N,  
R6W AND PORTIONS OF SECTIONS 21,  
22, 23, 24 AND 25, T4N, R7W, W.M.,  
CLATSOP COUNTY, OR



**Legend**

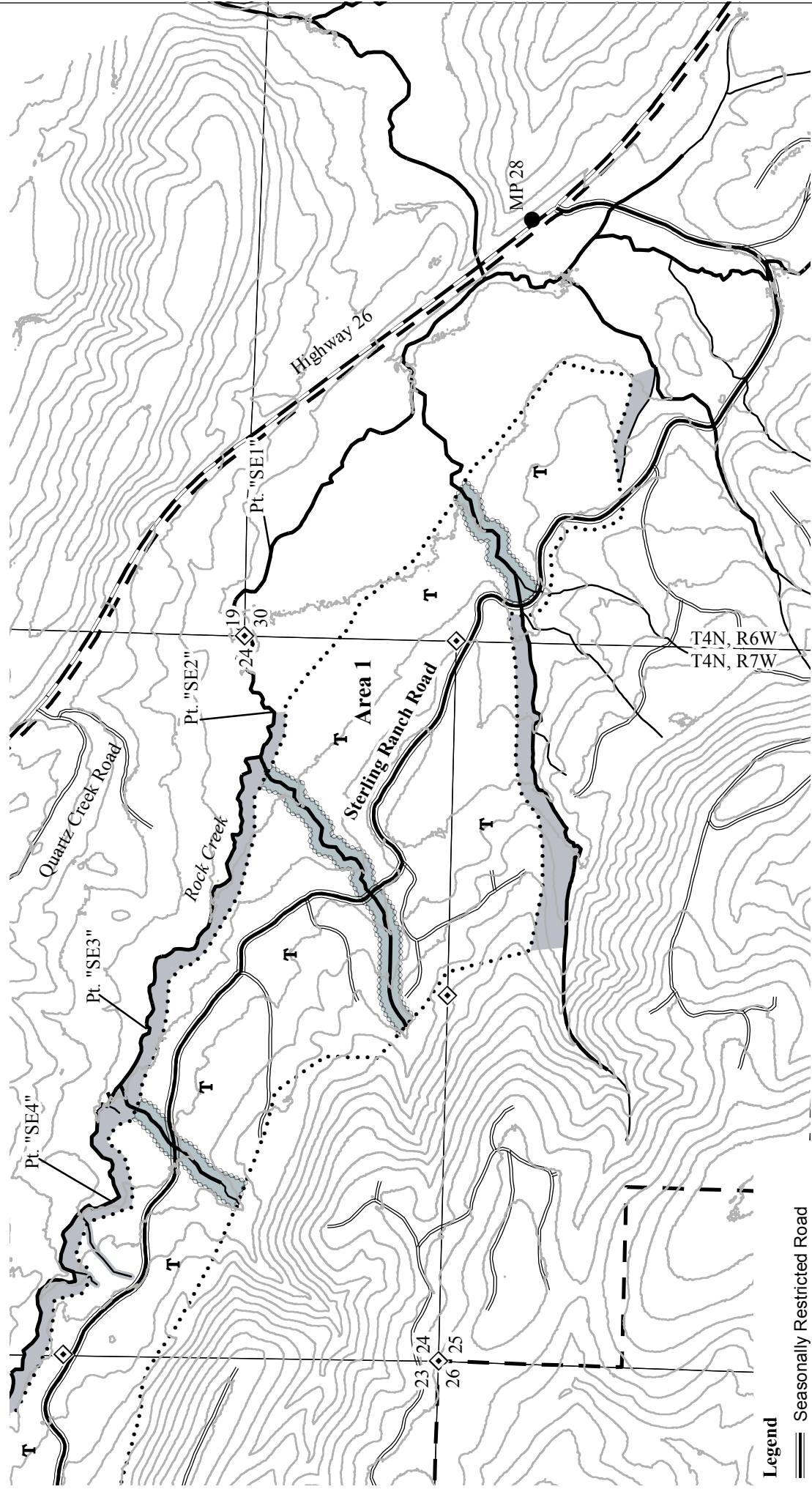
- Paved Road
- Existing Surfaced Road
- Type F Stream
- Type N Stream
- Timber Sale Boundary
- Controlled Felling Area
- Reforestation Area
- Posted Stream Buffer
- Non Posted Stream Buffer
- Non Thinnable Area
- Ownership Boundary
- Known Land Survey Corner
- Existing Landing
- Yarding Area - Tractor
- Yarding Area - Cable

Approximate Net Acreage:  
Area 1 (PC) - 334 Acres  
Area 2 (MC) - 100 Acres  
Area 3 (MC) - 81 Acres  
Total Sale - 515 Acres

0 500 1,000 2,000 Feet  
Approximate Scale = 1":1,000'

**Exhibit "A"**

OF TIMBER SALE CONTRACT NO. 341-12-44  
IRON MAIDEN  
PORTIONS OF SECTION 30 T4N,  
R6W AND PORTIONS OF SECTIONS 21,  
22, 23, 24 and 25, T4N, R7W, W.M.,  
CLATSOP COUNTY, OR



**Legend**

- Seasonally Restricted Road
- Paved Road
- Existing Surfaced Road
- Type F Stream
- Type N Stream
- Timber Sale Boundary
- Posted Stream Buffer
- Non Posted Stream Buffer
- Ownership Boundary
- Known Land Survey Corner
- Yarding Area - Tractor

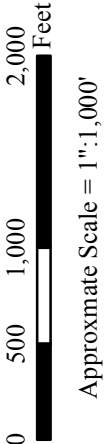


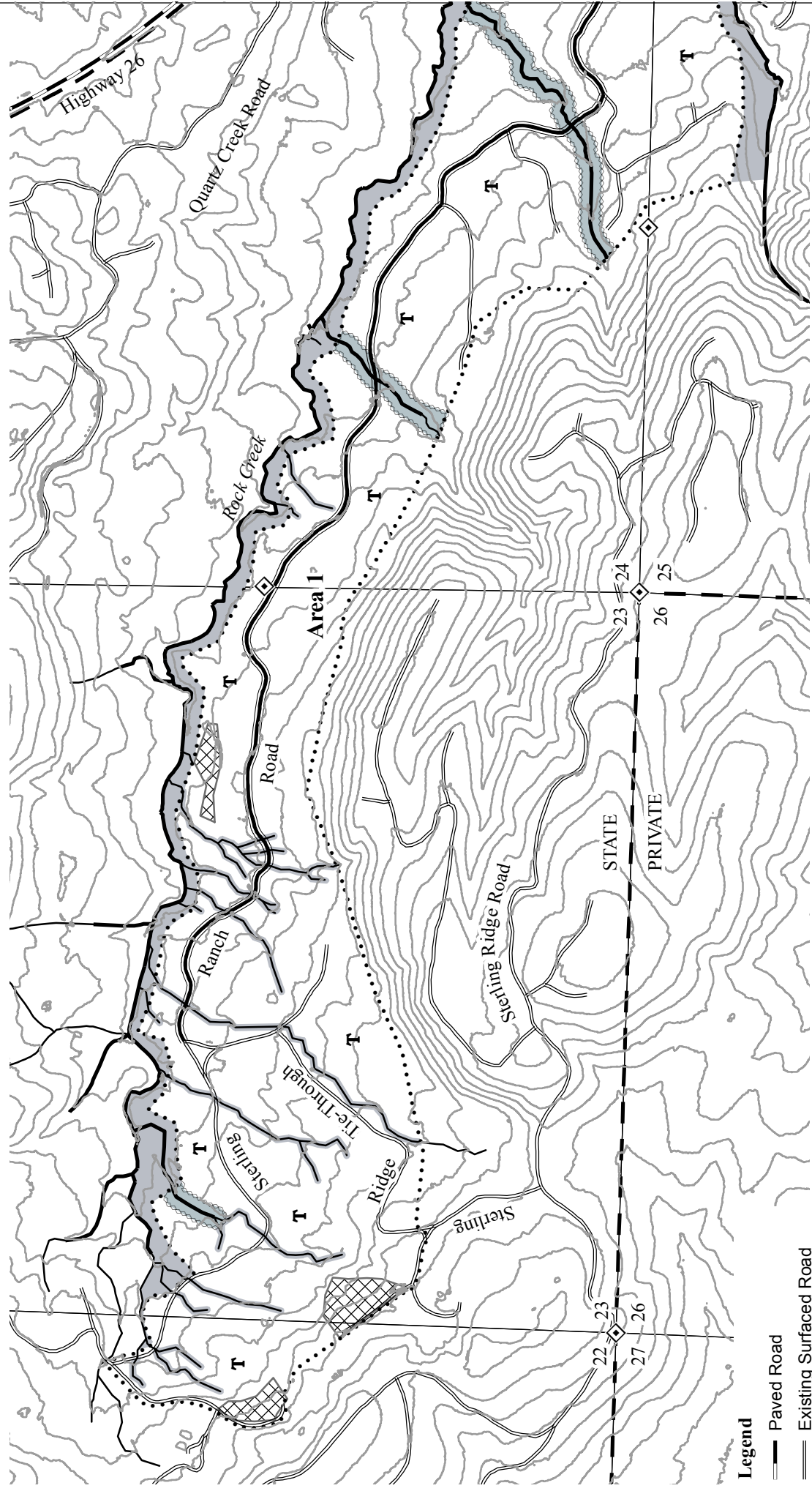
Approximate Net Acreage:

|             |             |
|-------------|-------------|
| Area 1 (PC) | - 334 Acres |
| Area 2 (MC) | - 100 Acres |
| Area 3 (MC) | - 81 Acres  |
| Total Sale  | - 515 Acres |

**Logging Plan**

OF TIMBER SALE CONTRACT NO. 341-12-44  
IRON MAIDEN  
PORTIONS OF SECTION 30 T4N,  
R6W AND PORTIONS OF SECTIONS 21,  
22, 23, 24 AND 25, T4N, R7W, W.M.,  
CLATSOP COUNTY, OR





**Legend**

- Paved Road
- Existing Surfaced Road
- Seasonally Restricted Road
- Type F Stream
- Type N Stream
- Timber Sale Boundary
- Posted Stream Buffer
- Non Posted Stream Buffer
- Non Thinnable Area
- Ownership Boundary
- Known Land Survey Corner
- Yarding Area - Tractor

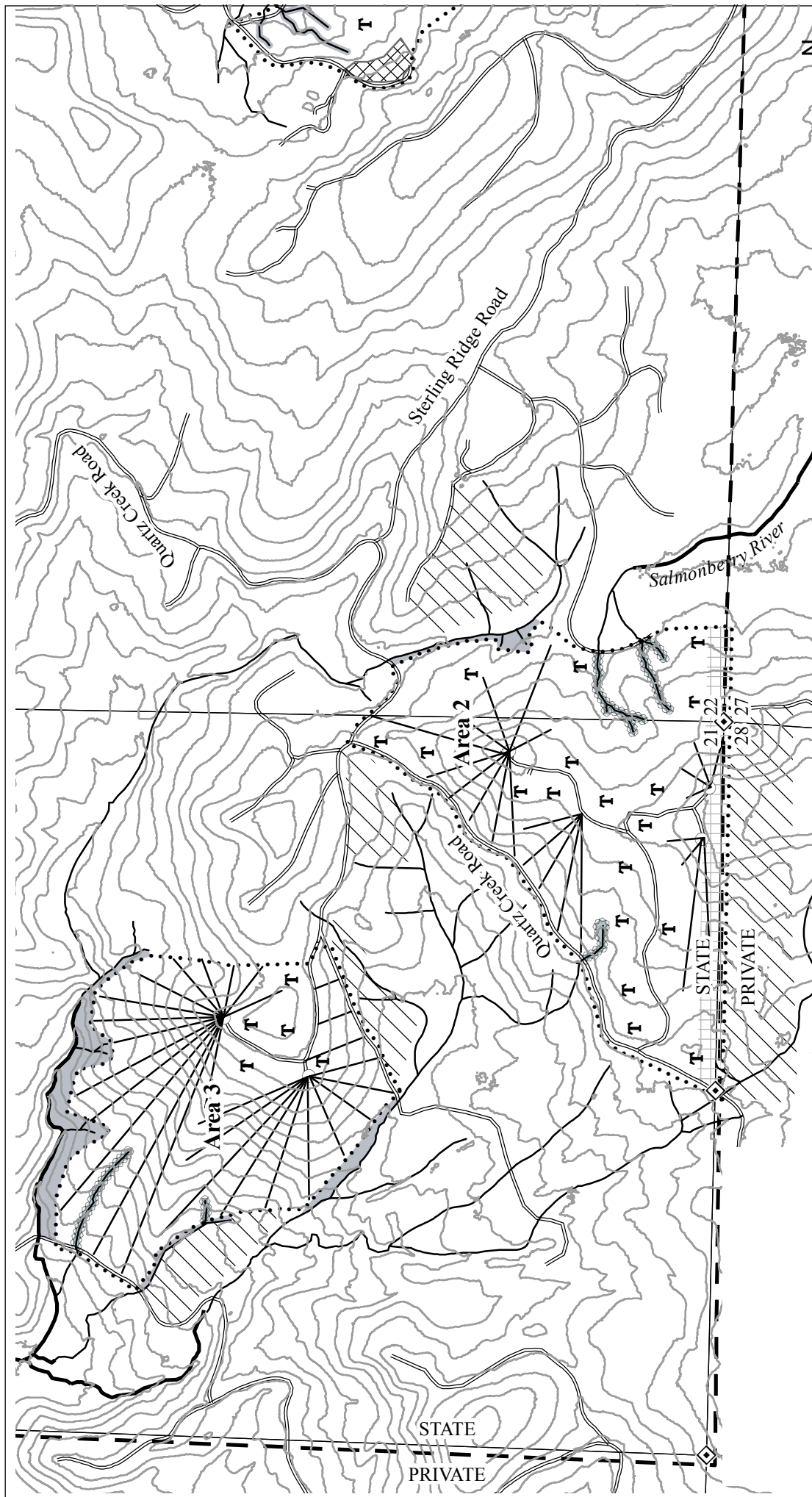
Approximate Net Acreage:  
Area 1 (PC) - 334 Acres  
Area 2 (MC) - 100 Acres  
Area 3 (MC) - 81 Acres  
Total Sale - 515 Acres



Approximate Scale = 1"=1,000'

**Exhibit "A"**

OF TIMBER SALE CONTRACT NO. 341-12-44  
IRON MAIDEN  
PORTIONS OF SECTION 30 T4N,  
R6W AND PORTIONS OF SECTIONS 21,  
22, 23, 24 AND 25, T4N, R7W, W.M.,  
CLATSOP COUNTY, OR

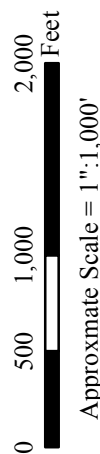


# Legend

- Paved Road
- Existing Surfaced Road
- Type F Stream
- Type N Stream
- lidar07\_40ft
- ... Timber Sale Boundary
- Controlled Felling Area
- Reforestation Area
- Posted Stream Buffer
- Non Posted Stream Buffer
- Non Thinnable Area
- Ownership Boundary
- Known Land Survey Corner
- Existing Landing
- Yarding Area - Tractor
- Yarding Area - Cable

## Approximate Net Acreage:

- Area 1 (PC) - 334 Acres
- Area 2 (MC) - 100 Acres
- Area 3 (MC) - 81 Acres
- Total Sale - 515 Acres



## Exhibit "A"

OF TIMBER SALE CONTRACT NO. 341-12-44  
IRON MAIDEN  
PORTIONS OF SECTION 30 T4N,  
R6W AND PORTIONS OF SECTIONS 21,  
22, 23, 24 and 25, T4N, R7W, W.M.,  
CLATSOP COUNTY, OR