

REACH 1

T19S-R6W-28SW

REACH 1

Valley and Channel Summary

Valley Characteristics (Percent Reach Length)

| <u>Narrow Valley Floor</u> |   | <u>Broad Valley Floor</u> |     |
|----------------------------|---|---------------------------|-----|
| Steep V-shape              | 0 | Constraining Terraces     | 100 |
| Moderate V-shape           | 0 | Multiple Terraces         | 0   |
| Open V-shape               | 0 | Wide Floodplain           | 0   |

Valley Width Index avg: 7.0 range: 2.1-10.0

Channel Morphology (Percent Reach Length)

| <u>Constrained</u> |     | <u>Unconstrained</u> |   |
|--------------------|-----|----------------------|---|
| Hillslope          | 0   | Single Channel       | 0 |
| Bedrock            | 0   | Multiple Channel     | 0 |
| Terrace            | 0   | Braided Channel      | 0 |
| Alt. Terrace/Hill  | 100 |                      |   |
| Landuse            | 0   |                      |   |

Channel Characteristics

| <u>Type</u> | <u>Length(m)</u> | <u>Area (m2)</u> | <u>Dry Units</u> |
|-------------|------------------|------------------|------------------|
| Primary     | 476              | 1,721            | 0                |
| Secondary   | 0                | 0                | 0                |

Channel Dimensions (m)

| <u>Wetted</u> |      | <u>Active</u> |      | <u>Floodprone</u> | <u>First Terrace</u> |
|---------------|------|---------------|------|-------------------|----------------------|
| Width         | 3.3  | Width         | 7.5  | 10.7              | 10.4                 |
| Depth         | 0.33 | Height        | 0.6  | 1.2               | 1.5                  |
|               |      | W:D ratio     | 12.9 | Entrenchment      | 1.5                  |

Stream Flow Type: LF Water Temp: 15.0-15.0°C  
Avg. Unit Gradient: 1.1% Habitat Units/100m: 5.0

Riparian, Bank, and Wood Summary

|                      | <u>Primary</u> | <u>Secondary</u> |
|----------------------|----------------|------------------|
| Land Use:            | ST             | TH               |
| Riparian Vegetation: | D30            | S                |

Bank Condition and Shade

| <u>Bank Status</u> | <u>Percent Reach Length</u> | <u>Shade (% of 180)</u> |
|--------------------|-----------------------------|-------------------------|
| Actively Eroding   | 5%                          | Reach avg: 96%          |
| Undercut Banks     | 14%                         | Range: 83- 97           |

Large Woody Debris

|                          | <u>Total</u> | <u>Total/100m</u> |
|--------------------------|--------------|-------------------|
| All pieces (≥3m x 0.15m) | 75           | 15.8              |
| Volume (m <sup>3</sup> ) | 37           | 7.8               |
| Key pieces (≥10m x 0.6m) | 0            | 0.0               |

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HABITAT DETAIL

| Habitat Type       | Number<br>Units | Total<br>Length<br>(m) | Avg<br>Width<br>(m) | Avg<br>Depth<br>(m) | Total<br>Area<br>(m <sup>2</sup> ) | Large<br>Boulders<br>(#>0.5m) | Substrate<br>Percent Wetted Area |           |           |           |          |           |
|--------------------|-----------------|------------------------|---------------------|---------------------|------------------------------------|-------------------------------|----------------------------------|-----------|-----------|-----------|----------|-----------|
|                    |                 |                        |                     |                     |                                    |                               | S/O                              | Snd       | Grvl      | Cbbl      | Bldr     | Bdrk      |
| GLIDE              | 1               | 14                     | 4.0                 | 0.10                | 56                                 | 5                             | 0                                | 5         | 0         | 0         | 20       | 75        |
| POOL-LATERAL SCOUR | 13              | 308                    | 3.7                 | 0.55                | 1,232                              | 11                            | 2                                | 19        | 41        | 13        | 2        | 23        |
| RAPID/BEDROCK      | 1               | 14                     | 2.2                 | 0.10                | 30                                 | 0                             | 0                                | 10        | 5         | 0         | 0        | 85        |
| RIFFLE             | 6               | 123                    | 2.6                 | 0.08                | 354                                | 6                             | 0                                | 14        | 46        | 19        | 3        | 17        |
| STEP/COBBLE        | 3               | 17                     | 3.1                 | 0.04                | 50                                 | 1                             | 0                                | 17        | 63        | 20        | 1        | 0         |
| <b>Total:</b>      | <b>24</b>       | <b>476</b>             | <b>3.3</b>          | <b>0.33</b>         | <b>1,721</b>                       | <b>23</b>                     | <b>Avg: 1</b>                    | <b>17</b> | <b>42</b> | <b>15</b> | <b>3</b> | <b>23</b> |

HABITAT SUMMARY

| Habitat Group     | No.<br>Units | Total<br>Length<br>(m) | Avg<br>Width<br>(m) | Avg<br>Depth<br>(m) | Wetted Area<br>(m <sup>2</sup> ) | Percent | Large Boulders<br>Number | #/100m <sup>2</sup> |
|-------------------|--------------|------------------------|---------------------|---------------------|----------------------------------|---------|--------------------------|---------------------|
| Dammed & BW Pools | 0            | 0                      | -                   | -                   | 0                                | 0.00    | 0                        | 0.0                 |
| Scour Pools       | 13           | 308                    | 3.7                 | 0.55                | 1,232                            | 71.58   | 11                       | 0.9                 |
| Glides            | 1            | 14                     | 4.0                 | 0.10                | 56                               | 3.25    | 5                        | 8.9                 |
| Riffles           | 6            | 123                    | 2.6                 | 0.08                | 354                              | 20.55   | 6                        | 1.7                 |
| Rapids            | 1            | 14                     | 2.2                 | 0.10                | 30                               | 1.74    | 0                        | 0.0                 |
| Cascades          | 0            | 0                      | -                   | -                   | 0                                | 0.00    | 0                        | 0.0                 |
| Step/Falls        | 3            | 17                     | 3.1                 | 0.04                | 50                               | 2.88    | 1                        | 2.0                 |
| Dry               | 0            | 0                      | -                   | -                   | 0                                | 0.00    | 0                        | 0.0                 |

POOL SUMMARY

|                                       |              |             |
|---------------------------------------|--------------|-------------|
| All Pools                             | <u>Total</u> | <u>#/Km</u> |
|                                       | 13           | 27.3        |
| Pools ≥1m deep:                       | 0            | 0.0         |
| Complex pools (LWD pieces ≥3):        | 7            | 14.7        |
| Pool Frequency (channel widths/pool): | 4.9          |             |
| Residual pool depth (avg)             | 0.50m        |             |

STREAM SUMMARY

DOGWOOD CREEK (PRE SUM 99)

| Number<br>Units | Total<br>Length<br>(m) | Avg<br>Width<br>(m) | Avg<br>Depth<br>(m) | Total<br>Area<br>(m <sup>2</sup> ) | Substrate<br>Percent Wetted Area |      |      |      |      |      | Total<br>Large<br>Boulder |
|-----------------|------------------------|---------------------|---------------------|------------------------------------|----------------------------------|------|------|------|------|------|---------------------------|
|                 |                        |                     |                     |                                    | S/O                              | Sand | Grvl | Cbbl | Bldr | Bdrk |                           |
| 24              | 476                    | 3.3                 | 0.33                | 1,721                              | 1                                | 17   | 42   | 15   | 3    | 23   | 23                        |

| Habitat Group   | Wetted Area       |         |
|-----------------|-------------------|---------|
|                 | (m <sup>2</sup> ) | Percent |
| Scour Pool      | 1,232             | 71.6    |
| Backwater Pools | 0                 | 0.0     |
| Glide           | 56                | 3.3     |
| Riffle          | 354               | 20.5    |
| Rapid           | 30                | 1.7     |
| Cascade         | 0                 | 0.0     |
| Step            | 50                | 2.9     |
| Dry             | 0                 | 0.0     |

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REACH 1

RIPARIAN ZONE VEGETATION SUMMARY

REACH 1

Summary of Riparian Zone (0-30m) (3 transects)

|                                 |       |
|---------------------------------|-------|
| Total hardwoods/1000 ft         | 1,199 |
| Total conifers/1000 ft          | 203   |
| Total conifers >20" dbh/1000 ft | 0     |
| Total conifers >35" dbh/1000 ft | 0     |

Average number of trees in a 5-meter wide band

| Diameter<br>class (cm)  | Zone 1<br>0-10 meters |          | Zone 2<br>10-20 meters |          | Zone 3<br>20-30 meters |          | Zones 1-3<br>0-30 meters |          |
|-------------------------|-----------------------|----------|------------------------|----------|------------------------|----------|--------------------------|----------|
|                         | Conifer               | Hardwood | Conifer                | Hardwood | Conifer                | Hardwood | Conifer                  | Hardwood |
| 3-15cm                  | 0.0                   | 3.3      | 1.0                    | 3.7      | 0.0                    | 6.7      | 1.0                      | 13.7     |
| 15-30cm                 | 0.3                   | 2.0      | 0.7                    | 0.0      | 0.0                    | 0.7      | 1.0                      | 2.7      |
| 30-50cm                 | 0.3                   | 2.0      | 0.3                    | 0.3      | 0.7                    | 0.3      | 1.3                      | 2.7      |
| 50-90cm                 | 0.0                   | 0.0      | 0.0                    | 0.7      | 0.0                    | 0.0      | 0.0                      | 0.7      |
| >90cm                   | 0.0                   | 0.0      | 0.0                    | 0.0      | 0.0                    | 0.0      | 0.0                      | 0.0      |
| Total/100m <sup>2</sup> | 0.7                   | 7.3      | 2.0                    | 4.7      | 0.7                    | 7.7      | 1.1                      | 6.6      |

Canopy closure and ground cover

|                  | Zone 1<br>0-10 meters |  | Zone 2<br>10-20 meters |  | Zone 3<br>20-30 meters |  |
|------------------|-----------------------|--|------------------------|--|------------------------|--|
|                  | (%)                   |  | (%)                    |  | (%)                    |  |
| Canopy closure   | 89                    |  | 63                     |  | 52                     |  |
| Shrub cover      | 48                    |  | 41                     |  | 53                     |  |
| Grass/forb cover | 40                    |  | 47                     |  | 44                     |  |

Predominant landform in each zone

|                   | Zone 1<br>0-10 meters |    | Zone 2<br>10-20 meters |    | Zone 3<br>20-30 meters |    |
|-------------------|-----------------------|----|------------------------|----|------------------------|----|
|                   | Hillslope             | 33 |                        | 33 |                        | 33 |
| High terrace      | 67                    |    | 67                     |    | 67                     |    |
| Low terrace       | 0                     |    | 0                      |    | 0                      |    |
| Floodplain        | 0                     |    | 0                      |    | 0                      |    |
| Wetland/meadow    | 0                     |    | 0                      |    | 0                      |    |
| Stream channel    | 0                     |    | 0                      |    | 0                      |    |
| Roadbed/Railroad  | 0                     |    | 0                      |    | 0                      |    |
| Riprap            | 0                     |    | 0                      |    | 0                      |    |
| Surface slope (%) | 24                    |    | 15                     |    | 18                     |    |

Summary of Riparian Zone (0-30m) for all reaches ( 3 transects)

Summary of riparian zone (0-100ft) extrapolated to 1,000 feet along stream

|                                 |       |
|---------------------------------|-------|
| Total hardwoods/1000 ft         | 1,199 |
| Total conifers/1000 ft          | 203   |
| Total conifers >20" dbh/1000 ft | 0     |

Average number of trees in a 5-meter wide band

| <u>Diameter</u><br><u>class (cm)</u> | <u>Zones 1-3</u> |                 |
|--------------------------------------|------------------|-----------------|
|                                      | <u>Conifer</u>   | <u>Hardwood</u> |
| 3-15cm                               | 1.0              | 13.7            |
| 15-30cm                              | 1.0              | 2.7             |
| 30-50cm                              | 1.3              | 2.7             |
| 50-90cm                              | 0.0              | 0.7             |
| >90cm                                | 0.0              | 0.0             |

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RIPARIAN ZONE VEGETATION

Reach 1

Reach 1

VEGETATION DETAIL

| Unit | Side | Zone | Surface | Slope | Cover (percent) |       |       |          | Diameter class (cm) |       |       |       |     | Notes               |
|------|------|------|---------|-------|-----------------|-------|-------|----------|---------------------|-------|-------|-------|-----|---------------------|
|      |      |      |         |       | Canopy          | Shrub | Grass |          | 3-15                | 15-30 | 30-50 | 50-90 | >90 |                     |
| 7    | LF   | 1    | HS      | 38.0  | 90              | 60    | 20    | Conifer  | 0                   | 1     | 1     | 0     | 0   |                     |
|      |      |      |         |       |                 |       |       | Hardwood | 0                   | 0     | 1     | 0     | 0   | CEDAR, ALDER        |
| 7    | LF   | 2    | HS      | 5.0   | 10              | 50    | 50    | Conifer  | 0                   | 0     | 1     | 0     | 0   |                     |
|      |      |      |         |       |                 |       |       | Hardwood | 0                   | 0     | 0     | 0     | 0   | DOUGLAS FIR         |
| 7    | LF   | 3    | HS      | 10.0  | 0               | 70    | 30    | Conifer  | 0                   | 0     | 0     | 0     | 0   |                     |
|      |      |      |         |       |                 |       |       | Hardwood | 5                   | 0     | 0     | 0     | 0   | ALDER               |
| 7    | RT   | 1    | HT      | 15.0  | 85              | 60    | 20    | Conifer  | 0                   | 0     | 0     | 0     | 0   |                     |
|      |      |      |         |       |                 |       |       | Hardwood | 1                   | 0     | 0     | 0     | 0   |                     |
| 7    | RT   | 2    | HT      | 0.0   | 90              | 40    | 30    | Conifer  | 0                   | 1     | 0     | 0     | 0   |                     |
|      |      |      |         |       |                 |       |       | Hardwood | 5                   | 0     | 0     | 0     | 0   | CEDAR, VINE MAPLE   |
| 7    | RT   | 3    | HT      | 5.0   | 80              | 70    | 20    | Conifer  | 0                   | 0     | 0     | 0     | 0   |                     |
|      |      |      |         |       |                 |       |       | Hardwood | 4                   | 0     | 0     | 0     | 0   | VINE MAPLE          |
| 14   | LF   | 1    | HT      | 5.0   | 85              | 65    | 35    | Conifer  | 0                   | 0     | 0     | 0     | 0   |                     |
|      |      |      |         |       |                 |       |       | Hardwood | 0                   | 1     | 1     | 0     | 0   | ALDER, MAPLE        |
| 14   | LF   | 2    | HT      | 0.0   | 90              | 10    | 75    | Conifer  | 3                   | 1     | 0     | 0     | 0   |                     |
|      |      |      |         |       |                 |       |       | Hardwood | 5                   | 0     | 0     | 0     | 0   |                     |
| 14   | LF   | 3    | HT      | 5.0   | 50              | 30    | 70    | Conifer  | 0                   | 0     | 1     | 0     | 0   |                     |
|      |      |      |         |       |                 |       |       | Hardwood | 10                  | 0     | 0     | 0     | 0   | 1M DIAM CEDAR STUMP |
| 14   | RT   | 1    | HS      | 80.0  | 90              | 0     | 70    | Conifer  | 0                   | 0     | 0     | 0     | 0   |                     |
|      |      |      |         |       |                 |       |       | Hardwood | 0                   | 2     | 0     | 0     | 0   | MAPLE               |
| 14   | RT   | 2    | HS      | 80.0  | 85              | 10    | 60    | Conifer  | 0                   | 0     | 0     | 0     | 0   |                     |
|      |      |      |         |       |                 |       |       | Hardwood | 1                   | 0     | 1     | 0     | 0   | ALDER               |
| 14   | RT   | 3    | HS      | 80.0  | 85              | 30    | 60    | Conifer  | 0                   | 0     | 1     | 0     | 0   |                     |
|      |      |      |         |       |                 |       |       | Hardwood | 1                   | 0     | 0     | 0     | 0   |                     |
| 22   | LF   | 1    | HT      | 0.0   | 90              | 95    | 5     | Conifer  | 0                   | 0     | 0     | 0     | 0   |                     |
|      |      |      |         |       |                 |       |       | Hardwood | 4                   | 3     | 0     | 0     | 0   |                     |
| 22   | LF   | 2    | HT      | 0.0   | 5               | 85    | 15    | Conifer  | 0                   | 0     | 0     | 0     | 0   |                     |
|      |      |      |         |       |                 |       |       | Hardwood | 0                   | 0     | 0     | 0     | 0   |                     |
| 22   | LF   | 3    | HT      | 0.0   | 0               | 85    | 15    | Conifer  | 0                   | 0     | 0     | 0     | 0   |                     |
|      |      |      |         |       |                 |       |       | Hardwood | 0                   | 0     | 0     | 0     | 0   |                     |
| 22   | RT   | 1    | HT      | 7.0   | 95              | 10    | 90    | Conifer  | 0                   | 0     | 0     | 0     | 0   |                     |
|      |      |      |         |       |                 |       |       | Hardwood | 5                   | 0     | 4     | 0     | 0   | ALDER               |
| 22   | RT   | 2    | HT      | 5.0   | 95              | 50    | 50    | Conifer  | 0                   | 0     | 0     | 0     | 0   |                     |
|      |      |      |         |       |                 |       |       | Hardwood | 0                   | 0     | 0     | 2     | 0   |                     |
| 22   | RT   | 3    | HT      | 5.0   | 95              | 30    | 70    | Conifer  | 0                   | 0     | 0     | 0     | 0   |                     |
|      |      |      |         |       |                 |       |       | Hardwood | 0                   | 2     | 1     | 0     | 0   | MAPLE, ALDER        |

REACH 1

T40S-R21E-S8NE

REACH 1

Valley and Channel Summary

Valley Characteristics (Percent Reach Length)

| <u>Narrow Valley Floor</u> |     | <u>Broad Valley Floor</u> |   |
|----------------------------|-----|---------------------------|---|
| Steep V-shape              | 0   | Constraining Terraces     | 0 |
| Moderate V-shape           | 100 | Multiple Terraces         | 0 |
| Open V-shape               | 0   | Wide Floodplain           | 0 |

Valley Width Index avg: 1.3 range: 1.0-1.5

Channel Morphology (Percent Reach Length)

| <u>Constrained</u> |     | <u>Unconstrained</u> |   |
|--------------------|-----|----------------------|---|
| Hillslope          | 100 | Single Channel       | 0 |
| Bedrock            | 0   | Multiple Channel     | 0 |
| Terrace            | 0   | Braided Channel      | 0 |
| Alt. Terrace/Hill  | 0   |                      |   |
| Landuse            | 0   |                      |   |

Channel Characteristics

| <u>Type</u> | <u>Length(m)</u> | <u>Area (m2)</u> | <u>Dry Units</u> |
|-------------|------------------|------------------|------------------|
| Primary     | 316              | 1,012            | 0                |
| Secondary   | 20               | 20               | 0                |

Channel Dimensions (m)

| <u>Wetted</u> |      | <u>Active</u> |     | <u>Floodprone</u> | <u>First Terrace</u> |
|---------------|------|---------------|-----|-------------------|----------------------|
| Width         | 3.0  | Width         | 4.8 | 6.0               | 7.5                  |
| Depth         | 0.19 | Height        | 0.5 | 0.8               | 1.0                  |
|               |      | W:D ratio     | 9.9 | Entrenchment      | 1.2                  |

Stream Flow Type: MF Water Temp: 11.5-11.5°C  
 Avg. Unit Gradient: 2.9% Habitat Units/100m: 8.3

Riparian, Bank, and Wood Summary

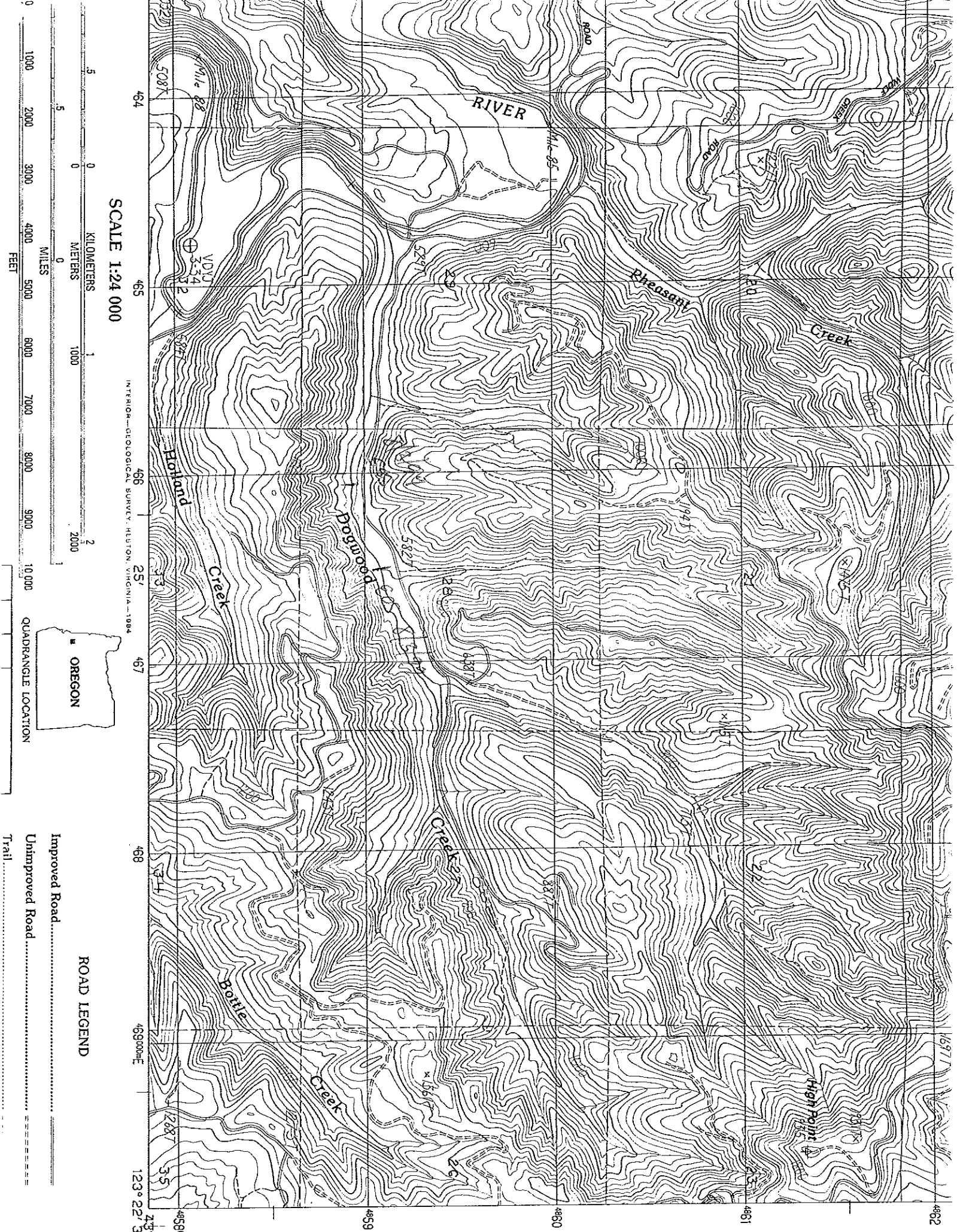
|                      | <u>Primary</u> | <u>Secondary</u> |
|----------------------|----------------|------------------|
| Land Use:            | ST             | LT               |
| Riparian Vegetation: | C15            | S                |

Bank Condition and Shade

| <u>Bank Status</u> | <u>Percent Reach Length</u> | <u>Shade (% of 180)</u> |
|--------------------|-----------------------------|-------------------------|
| Actively Eroding   | 25%                         | Reach avg: 62%          |
| Undercut Banks     | 24%                         | Range: 39- 83           |

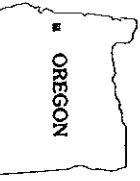
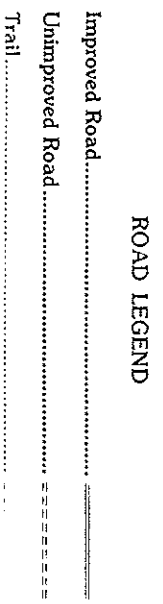
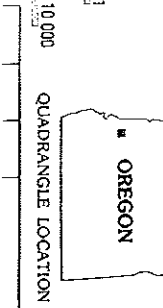
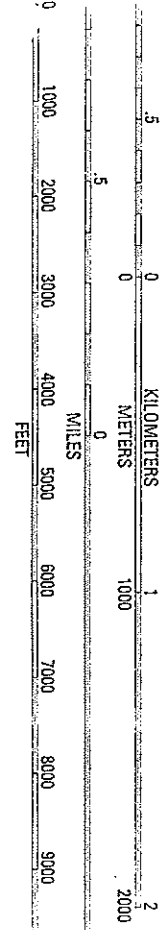
Large Woody Debris

|                                       | <u>Total</u> | <u>Total/100m</u> |
|---------------------------------------|--------------|-------------------|
| All pieces ( $\geq 3m \times 0.15m$ ) | 10           | 3.2               |
| Volume (m <sup>3</sup> )              | 32           | 10.2              |
| Key pieces ( $\geq 10m \times 0.6m$ ) | 4            | 1.3               |



SCALE 1:24 000

INTERIOR GEOLOGICAL SURVEY, HEISTON, VIRGINIA - 1984



Improved Road.....

Unimproved Road.....

Trail.....