HARRIS CREEK FISH PASSAGE RESTORATION
SNOQUALMIE BASIN - 2015
NOTES:

1. BASIS OF COORDINATES SYSTEM: NORTH ZONE, N.A.D. 83/91, VERTICAL DATUM IS NAVD 88.


3. TOPOGRAPHIC SURVEY AND PLANNING AND UTILITY FEATURES BY KING COUNTY, APRIL 2013.

4. CHANNEL BED IN CROSS SECTIONS ARE BASED ON IN-WATER SURVEY BY KING COUNTY APRIL 2013.

5. PROPERTY LINES AND RIGHT-OF-WAY SHOWN ARE SOURCED FROM KING COUNTY ASSESSORS GIS DATABASE, AND ARE NOT INTENDED TO IMPLY A BOUNDARY SURVEY. SOME RECORDS OF SURVEY WORK WAS DONE IN ORDER TO BETTER PLACE THE ASSESSOR MAP LINES. THE RECORDS USED WERE: KC SP #385086, KC SP #479069, KC ROAD PAPERS FOR STOSSEL CREEK ROAD SURVEY 6/24/13, SURVEY OF SHORT PLAT 385086 RDS 8703189008 BOOK 654 PG 152. THE ASSESSOR'S RIGHT-OF-WAY PROPERTY LINES WERE MOVED SOUTHEASTERLY IN ORDER TO MATCH FIELD CONDITIONS, NAMELY A FOUND SURVEY LOT PIN SET PER RDS 8703189008 BOOK 654 PAGE 152, WHICH WAS HELD AS A CONTROLLING ELEMENT/ROTATION POINT.
ROUGHENED CHANNEL GRADATION

<table>
<thead>
<tr>
<th>Diameter greater than or equal to Feet</th>
<th>0.01</th>
<th>0.05</th>
<th>0.10</th>
<th>0.30</th>
<th>0.60</th>
<th>1.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.01</td>
<td>5.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.05</td>
<td>1.3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.10</td>
<td>0.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.30</td>
<td>0.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

STREAMBED SEDIMENT GRADATION

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Percent Passing</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.0</td>
<td>96-100</td>
</tr>
<tr>
<td>1.0</td>
<td>65-95</td>
</tr>
<tr>
<td>0.5</td>
<td>40-85</td>
</tr>
<tr>
<td>0.5</td>
<td>16-40</td>
</tr>
</tbody>
</table>

LOGS SCHEDULE

<table>
<thead>
<tr>
<th>DBH (INCHES)</th>
<th>Pieces</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-6</td>
<td>4</td>
</tr>
<tr>
<td>7-10</td>
<td>8</td>
</tr>
<tr>
<td>11-14</td>
<td>6</td>
</tr>
</tbody>
</table>

NOTES:
1. ROUGHENED CHANNEL BED SUBSTRATE TO BE PREPARED WITH 70" LARGE ROCK AND 30" FINE MATERIAL BEFORE INSTALLING.
2. CONSTRUCT THE LOW FLOW CHANNEL AND THEN INSTALL LOGS INTO BANK. ALL EXPOSED ENDS OF LOGS TO MAKE CONTACT WITH SOME PART OF THE LOW FLOW CHANNEL. A MINIMUM OF UPPER BANK. ADJUST ROCKS IN UPPER BANK SO AS TO PROVIDE MINIMUM 1-FOOT DEEP FOR 3-FOOT DIAMETER DEPRESSIONS TO HOLD WATERSHED FOR FUTURE PLANTING.
3. STORESDEE EXITING CHANNEL BEDROCK FOR REUSE WITH ROUGHENED CHANNEL ROCK MIX.
4. WHEN ROUGHENED CHANNEL IS COMPLETED, RE-DIRECT STREAM B OF CREEK WATER THROUGH CULVERT TO WATER NEW CHANNEL. UNTIL PONDING HAS OCCURRED THROUGHOUT ENTIRE CHANNEL WIDTH AND LENGTH FOR A MINIMUM OF 4 HOURS.
5. RUNOFF FROM PROJECT CHANNEL TO BE Dewatered IN A SPACE AS SHOWN ON PLANS AND PLANTED A MINIMUM OF 20-FT FROM THE END OF THE INFLATION OR PUMP INTO INFLATION BAGS.
6. FILL POCKETS WITH MOUNDS OF 2-WAY TOPSOIL (1/2 SAND, 1/2 COMPOST) NOT TO EXCEED 1-FOOT ABOVE GRADE AFTER PONDING WATER IS COMPLETED.
NOTES:
1. WHEN LOW FLOW CHANNEL IS COMPLETED INSTALL LOG CLUSTERS. EACH CLUSTER HAS 4 LOGS. BURY END 1/3RD OF LOG INTO BANK PROVIDING A MINIMUM COVER OF 5- FEET ABOVE THE END 1/3RD OF THE BURIED LOG. LOGS ARE NOT TO CROSS EACH OTHER OR CROSS OVER NEW CHANNEL CENTERLINE.

CROSS SECTION AT STA. 2+00
SCALE: 1" = 100 FEET

CROSS SECTION AT STA. 2+40
SCALE: 1" = 100 FEET

CALL 2 WORKING DAYS BEFORE YOU DIG
1-800-424-5555
(UNDERGROUND UTILITY LOCATIONS ARE APPROX.)

SHEETS 6 OF 11

HARRIS CREEK, FISH PASSAGE 2015
RESTORATION - SNOQUALMIE BASIN
ROUGHENED CHANNEL DETAILS

FIELD BOOK: 2012-13
DRAWN: 12/2012
CUTTING: M. R. BARTHEL
CHECKED: D. PENDERGRAST

PREPARED CHANGES: 1/2013
HELP: M. R. BARTHEL

APPROVED: M. R. BARTHEL, P.E.
PROJECT: CAROLYN BUTCHART, P.E.
DESIGN: CAROLYN BUTCHART, P.E.

SHEETS 6 OF 11

CROSS SECTION AT STA. 2+00
SCALE 1" = 100 FEET

CROSS SECTION AT STA. 2+40
SCALE: 1" = 100 FEET
NOTES:
1. APPROXIMATELY UPSTREAM 15-Feet OF NEW CHANNEL IS LOCATED IN A NARROW TRENCH AND THEREFORE ONLY THE LOW FLOW CHANNEL WILL BE CONSTRUCTED. EXISTING RIPRAP ON BANKS TO REMAIN AND SHALL BE INCORPORATED IN NEW CHANNEL.

CALL 2 WORKING DAYS BEFORE YOU DIG
1-800-424-5555
(UNDERGROUND UTILITIES LOCATIONS ARE APPROX.)
### Temporary Construction Access

- **Note:** A 20' wide road may be required where a truck washer is located.

- THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHT-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH 2" STONE, AS CONDITIONS DEMAND, AND REPAIR AND/OR CLEAN-OUT OF ANY STRUCTURES USED TO TRAP SEDIMENT. ALL MATERIALS SPILLED, DROPPED, WASHED OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY. PROVIDE FLAGGING FOR CONSTRUCTION VEHICLES ENTERING AND LEAVING SITE.

### Flow Bypass Detail

- **NOTES:**
  - **SAND BAG COFFER DAM**
  - **MIN. 12" ABOVE WATER SURFACE**
  - **SEALED AND WRAPPED IN 40 MIL. POLYEThYLENE SHEETING OR EQUIVALENT**

- **BYPASS PIPES**
  - **FLOW**
  - **ELEVATION W/Y**
  - **EXCLUSION FISH NET**

- **CALL 2 WORKING DAYS BEFORE YOU DIG** 1-800-424-5555 (UNDERGROUND UTILITIES LOCATIONS ARE APPROX.)

### Field Book
- **2012-8**
- **12/2012**
- **SURVEY ORGANIZATION:**
- **1/2013**

### Design
- **DESIGNED:**
- **CINDY YOUNG, PhD**
- **5/2015**

### Construction
- **PROJECT:**
- **BUTCHART, CAROLYN, P.E.**
- **5/2015**

### Approval
- **APPROVED:**
- **R. MARSHFIELD, P.E.**
- **5/2015**

### Materials
- **FIELD BOOK:**
- **1/2013**
- **SURVEY ORGANIZATION:**
- **1/2013**
- **DESIGNED:**
- **CINDY YOUNG, PhD**
- **5/2015**

### Contract
- **PROJECT NO.:**
- **1116789**
- **CONTRACT NO.:**
- **1116789**

---

**HARRIS CREEK FISH PASSAGE 2015 RESTORATION - SNOQUALMIE BASIN**

**TEBO DETAILS**
CONSTRUCTION NOTES:

1. OWNER TO INSTALL FISH EXCLUSION NET A MINIMUM OF 24-HOURS BEFORE IN-CHANNEL CONSTRUCTION BEGINS.
2. UPON OWNERS PERMISSION, DIVERT HARRIS CREEK FROM UPSTREAM OF CONSTRUCTION AREA AS SHOWN ON PLANS.
3. INSTALL TEMPORARY ENERGY DISSIPATION BMP TO DISCHARGE DIVERTED WATER.  THIS WORKING AREA IS GROUNDED, CONSTRUCTS A 6-FOOT WIDE BY 3-FOOT DEEP SWALE AT DOWNSWING END AS SHOWN ON PLANS.  AFTER ROUGHENED CHANNEL HAS BEEN CONSTRUCTED DIVERT 1/3 OF HARRIS CREEK FLOW THROUGH CLIFFS TO DOWNSWING AREA.
4. REBUILD SWALE AFTER CHANNEL HAS BEEN RE-INTACTED AND FINISHING HAS OCCURRED FOR THE PERIOD SPECIFIED.
5. CONTRACTOR TO REMOVE TEMPORARY ACCESS ROAD MATERIAL (I.E. QUARRY SPALLS) IF USED, BEFORE LEAVING SITE. PLACE 6-INCHES OF COMPOST ON ALL DISTURBED AREAS AND SCARIFY INTO NATIVE SOIL A MINIMUM OF 12 INCHES.
6. MAILBOXES TO REMAIN.
7. TEMPORARY RELOCATE MAILBOXES AND RESTORE AT END OF CONSTRUCTION.

CALL 2 WORKING DAYS BEFORE YOU DIG
1-800-424-5555
UNDERGROUND UTILITY LOCATIONS ARE APPROX.
### Harris Creek Fish Passage Restoration Planting Plan

<table>
<thead>
<tr>
<th>Common name</th>
<th>Scientific name</th>
<th>Condition</th>
<th>Quantity</th>
<th>Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>TREES</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cascara</td>
<td>Rhamnus purshiana</td>
<td>Potted</td>
<td>7</td>
<td>8' O.C.</td>
</tr>
<tr>
<td>Douglas fir</td>
<td>Pseudotsuga menziesii</td>
<td>Potted</td>
<td>8</td>
<td>8' O.C.</td>
</tr>
<tr>
<td>Douglas hawthorne</td>
<td>Crataegus douglasii</td>
<td>Potted</td>
<td>7</td>
<td>8' O.C.</td>
</tr>
<tr>
<td>Grand fir</td>
<td>Abies grandis</td>
<td>Potted</td>
<td>8</td>
<td>8' O.C.</td>
</tr>
<tr>
<td>Oregon ash</td>
<td>Fraxinus latifolia</td>
<td>Potted</td>
<td>7</td>
<td>8' O.C.</td>
</tr>
<tr>
<td>Pacific dogwood</td>
<td>Cornus nuttallii</td>
<td>Potted</td>
<td>5</td>
<td>8' O.C.</td>
</tr>
<tr>
<td>Western red cedar</td>
<td>Thuja plicata</td>
<td>Potted</td>
<td>8</td>
<td>8' O.C.</td>
</tr>
<tr>
<td>SHRUBS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oceanspray</td>
<td>Holodiscus discolor</td>
<td>Potted</td>
<td>20</td>
<td>6-8' O.C.</td>
</tr>
<tr>
<td>Red flowering currant</td>
<td>Ribes sanguineum</td>
<td>Potted</td>
<td>15</td>
<td>6-8' O.C.</td>
</tr>
<tr>
<td>Red twig dogwood</td>
<td>Cornus sericea</td>
<td>Potted or stake</td>
<td>125</td>
<td>2-5' O.C.</td>
</tr>
<tr>
<td>Serviceberry</td>
<td>Amelanchier alnifolia</td>
<td>Potted</td>
<td>20</td>
<td>4-5' O.C.</td>
</tr>
<tr>
<td>Snowberry</td>
<td>Symphoricarpos albus</td>
<td>Potted</td>
<td>30</td>
<td>3-4' O.C.</td>
</tr>
<tr>
<td>Tall Oregon Grape</td>
<td>Majonia aquifolium</td>
<td>Potted</td>
<td>10</td>
<td>3-4' O.C.</td>
</tr>
<tr>
<td>Thimbleberry</td>
<td>Rubus parviflorus</td>
<td>Potted</td>
<td>25</td>
<td>3-4' O.C.</td>
</tr>
<tr>
<td>Sitka willow</td>
<td>Salix discolorata</td>
<td>Potted</td>
<td>100</td>
<td>2'-3' O.C.</td>
</tr>
<tr>
<td>Vine maple</td>
<td>Acer circinatum</td>
<td>Potted</td>
<td>5</td>
<td>6-8' O.C.</td>
</tr>
<tr>
<td>GROUNDCOVER</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deer fern</td>
<td>Blechnum spicant</td>
<td>Potted</td>
<td>25</td>
<td>3' O.C.</td>
</tr>
<tr>
<td>Lady fern</td>
<td>Athrium filix-femina</td>
<td>Potted</td>
<td>35</td>
<td>3' O.C.</td>
</tr>
<tr>
<td>Salal</td>
<td>Gaultheria shallon</td>
<td>Potted</td>
<td>25</td>
<td>3' O.C.</td>
</tr>
<tr>
<td>Sword fern</td>
<td>Polystichum munitum</td>
<td>Potted</td>
<td>100</td>
<td>3' O.C.</td>
</tr>
</tbody>
</table>

**Total:** 600

---

### Planting Areas

**SNOQUALMIE - HARRIS CREEK 2015 FISH PASSAGE RESTORATION**

**PLANTING PLAN AND SCHEDULE**

**CALL 8 WORKING DAYS BEFORE YOU DO**

1-800-426-6556

---

**PLANNING & WORKING DAYS**

**BEFORE YOU DO**

**1-800-426-6556**

(Consulting engineer's notes and approvals)

**KING COUNTY**

**SNOQUALMIE - HARRIS CREEK 2015 FISH PASSAGE RESTORATION**
NOTES:

1. A single flagger may be used provided adequate visibility exists for approaching
   drivers in each direction. Otherwise a flagger at each approach would be
   appropriate.

2. Sign spacing may be adjusted to meet site conditions.

3. Channelizing devices can be relocated to the other side of the road so that
   traffic control is provided for both sides of the roadway.