SALMON RIVER RESTORATION COUNCIL

PLANS FOR CONSTRUCTION OF

RED BANK OFF-CHANNEL FISHERIES
AND RIPARIAN HABITAT DESIGN

MAY, 2017

90% Design

Prepared For:

- SALMON RIVER RESTORATION COUNCIL
- CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE,
  FISHERIES RESTORATION GRANTS PROGRAM (AGREEMENT No. P1310303)
- KLAMATH NATIONAL FOREST

LOCATION MAP

DIRECTIONS
- From Hwy 101 (Vicinity Milepost 225) east to Willow Creek Road
- 36 miles, left on Hwy 95
- 44 miles, right on Somers Bar Road
- 17 miles, left on Somers Bar Road
- 7 miles, Park / Rest Campground
1. At minimum, the Contractor shall employ the following Best Management Practices (BMPs) as applicable, as described in the current California Stormwater BMP Handbook for Construction (BMP Handbook) at www.casqa.org:

   - EC-1 Scheduling
   - NS-4 Temporary Stream Crossing
   - EC-2 Preservation of Existing Vegetation
   - NS-5 Clear Water Diversion
   - EC-6 Straw Mulch
   - NS-9 Vehicle Equipment and Fueling
   - EC-8 Wood Mulching
   - NS-10 Vehicle and Equipment Maintenance
   - EC-10 Velocity Dissipation Devices
   - SE-7 Street Sweeping and Vacuuming
   - WE-1 Wind Erosion Control
   - WM-2 Material Use
   - WE-3 Stockpile Management
   - WM-3 Spill Prevention and Control
   - WM-4 Spill Prevention and Control
   - WM-5 Solid Waste Management
   - WM-9 Sanitary/Septic Waste Management
   - WM-9 Sanitary/Septic Waste Management

2. Not all necessary erosion and sediment control BMPs are designated in the contract documents. The Contractor, as necessary, shall implement other BMPs as specified in the BMP Handbook dictated by site conditions or as directed by the Core Director. The Contractor shall be responsible for all fines and cleanup resulting from a stormwater pollution violation.

3. It is the responsibility of the Contractor to minimize erosion and prevent the transport of sediment to sensitive areas.

4. All erosion and sediment control measures shall be maintained in accordance with their respective BMP fact sheets until disturbed areas are stabilized.

5. Sufficient erosion control supplies shall be available on-site at all times to deal with areas susceptible to erosion during rain events. The Contractor must ensure that the construction site is prepared prior to the onset of any storm.

6. Contractor shall keep project areas generating dust well-watered during the term of the contract in accordance with WE-1.

7. The Contractor shall have spill containment materials located at the site with operators trained in spill control procedures.

8. The Contractor shall provide bear-proof receptacles for common solid waste at conveniently located on the job site and provide regular collection of wastes.

9. Covered and secured storage areas for potentially toxic materials shall be provided. All hazardous material containers shall be placed in secondary containment.

10. Vehicle and equipment maintenance shall be performed off-site whenever practical.

11. All sediment deposits on paved surfaces shall be swept at the end of each working day, as necessary or as directed by the Core Director. A stabilized construction entrance may be required to prevent sediment from being deposited on paved roads.

12. It will be the responsibility of the Contractor to fix any deficiencies indicated by the Core Director to prevent erosion and control sediment.

WATER MANAGEMENT NOTES

1. Contractor shall submit a Water Management Plan for approval by the Core Director prior to construction. The Plan shall include materials, methods, and approximate locations of water management devices, as well as a contingency plan for addressing unforeseen water management issues, such as storm events, groundwater flow, etc.

2. Water Management shall be performed in accordance with Water Pollution Control Specifications and as specified in the contract documents.

3. The need for a cleanwater diversion is not anticipated, though isolation and dewatering of the work area may be necessary.

4. Approximate locations of temporary fish exclusion measures are shown on the plans.

5. The Core Director will provide a qualified biologist for fish removal.

6. Contractor shall be prepared to implement isolation, and dewatering operations such that they occur in a timely manner and do not impact the work schedule.

7. Contractor shall be responsible for providing pumps and pipes with adequate capacity to maintain suitable dewatered working conditions within the work area.

8. Any gas powered pumps used on-site shall be placed on absorbent pads out of the stream channel.

9. All erosion and sediment control measures shall be used to isolate areas requiring dewatering. Additional control measures in isolated areas where dewatering is not required shall include turbidity curtains, filter fabric isolation, or other suitable methods.

10. The outlet of the dewatering pump shall be directed onto a flat area able to receive water and allow it to percolate into the soils such that it does not return to the work area. An approved Energy Dissipater Device shall be used to prevent surface erosion.
Notes:
1. Locations of habitat improvement features approximate. Final locations to be determined by COR in field.
2. For backwaters, see section and profiles sheet 13.
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Salmon River Restoration Council
MID SIDE CHANNEL PLAN

NOTES:
1. LOCATIONS OF HABITAT IMPROVEMENT FEATURES APPROXIMATE, FINAL
LOCATIONS TO BE DETERMINED BY COR IN FIELD.
2. FOR BACKWATERS, SEE SECTION AND PROFILES SHEET 13.
NOTES:

1. LOCATIONS OF HABITAT IMPROVEMENT FEATURES APPROXIMATE. FINAL LOCATIONS TO BE DETERMINED BY COR IN FIELD.

2. FOR BACKWATERS, SEE SECTION AND PROFILES SHEET 12.
PRELIMINARY

SECTION A

ROOT WAD COVER STRUCTURE

2.

SPECIFICATIONS FOR LOG STRUCTURES (INCLUDING BRUSH)

Materials

1. CO will provide all logs. Cutting of logs shall not be performed without permission of COR.
2. Logs shall meet the dimensions shown on the contract documents. Log diameter shall be the average (midpoint) diameter of the specified length log. Pile Logs shall have bark removed.
3. Log lengths shall not be accomplished by joining multiple logs, unless approved by owner.
4. Backfill material and rock shall be as specified on the design plans.
5. Salvaged brush shall be material stockpiled during Clearing and Grubbing Operations or provided by the CO.

Execution

1. Log structures shall be installed as specified on the Contract Documents and at the direction of the COR.
2. Excavate trench to the minimum depth for the entire structure.
3. Install logs to the line and grade specified. Tolerance for finished grade shall be ± 0.5 feet vertically and ± 1.0 feet horizontally.
4. Pile logs shall be driven or installed via excavation. If necessary, cut point on pile tip to facilitate installation. An augured pilot hole may be used to facilitate driving of Pile Logs. Pilot hole shall be at least 8 inches smaller than the Pile Log diameter to ensure adequate skin friction is obtained. After installation, cut top of pile to specified height.
5. Backfill and compact trench.

SECTION

3.

BRUSH BAFFLES

SPECIFICATIONS FOR BRUSH BAFFLES AND WILLOW SOCKETS

Materials

1. Live willow and cottonwood shall be salvaged from site or provided by the CO.
2. Material shall be relatively straight, a minimum of 6-inch in diameter, and the specified length.
3. Material shall be live and freshly cut. Materials not installed within 2 hours of cutting shall be covered and thoroughly sprayed with water once per hour until installation. Material shall not be stored more than 48 hours before installation.
4. Small woody material shall consist of salvaged woody material or material provided by CO. Material shall be less than 3-inches in diameter and of similar length as the live plant material.
5. Chipped wood shall be from salvaged wood on-site. Wood pieces a minimum of 6-inches in diameter and 1-foot long are acceptable substitutes for chipped wood.
6. Brush shall be as specified.

Execution

1. Materials shall be installed to the summer groundwater elevation, see planting plan under separate cover.
2. Create pilot holes or trenches the entire depth of the material installation.
3. Install material with leaf buds facing up using methods that minimize crushing or splitting.
4. Trim plant material such that material extends approximately 2-foot above ground level.
**PRELIMINARY**

**NOT FOR CONSTRUCTION**

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**ABUTMENT JAM**

**DETAIL SHEET 4**

**RED BANK OFF-CHANNEL FISHERIES AND RIPARIAN HABITAT DESIGN**

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**PRELIMINARY**

**NOT FOR CONSTRUCTION**

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**ABUTMENT JAM TABLE**

<table>
<thead>
<tr>
<th>JAN</th>
<th>STATION</th>
<th>APPROX EQ HEIGHT</th>
<th>ELEVATION TOP OF KEY Members</th>
<th>KEY Top Of Post</th>
<th>LENGTH OF JAN (DEPENDING ON END TO FLOW)</th>
</tr>
</thead>
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<tr>
<td>7</td>
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<td>11800.0</td>
<td>1711.0</td>
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<td>20 ft</td>
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<td>20 ft</td>
</tr>
<tr>
<td>9</td>
<td>13500</td>
<td>11800.0</td>
<td>1711.0</td>
<td>1730.0</td>
<td>15 ft</td>
</tr>
</tbody>
</table>

**NOTES:**

1. Specific number of key and packing member layers will vary with fines size and lift blocking elevation.
2. Trotters of dose shall be key members.
3. Packing members shall be in contact on top of key and packing layers to ensure stability.
4. Minimum line contact per thousand members within 3 ft of the channel centerline. Install a minimum of 3 Toe drains adjacent to each foot long plan area.
5. Each structure shall contain a total of 8 100 cft salmon steel slabs with 6 5 ksi impaled 2-3 ft diameter bolts on top of structure.

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**RS / ML**

**RS / NN**

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**Plan**

**Section**

**Elevation**

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BACKWATER PROFILES AND SECTIONS

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BACKWATER PROFILES

BACKWATER PONDS

PROFILES

BACKWATER TYPICAL CROSS SECTION