REMOVE SELECTIVE PIECES OF EXISTING ARMOR ROCK ON BANK AND FLOOR/PAINT BETWEEN STATIONS 24 HD AND 29 HD TO BALANCE ADJACENT ENGINEERED LUG JARS. BANK WILL REMAIN ARMORED. STRUCTURE NOT TO BE COMPROMISED BY ROCK REMOVAL.

PLANT EXISTING EXPOSED ARMOR ROCK BETWEEN STATION 28 HD AND 30 HD WITH WILLOW STAKES.

EXISTING PUMP SITE NOT TO BE DISTURBED.

TUCANNON ROAD

TUCANNON PROJECT AREA 24

PROPOSED CONDITIONS (1 OF 3)
HABITAT GOALS AND OBJECTIVES:

1. Flow stagnation areas upstream and downstream of the structure to provide hydraulic refuge for juvenile salmonid and other fish species.

2. Void spaces in LWD to provide hydraulic refuge, cover, and structure for juvenile salmonids and other fish species.

3. Sediment deposits in lee of LWD to provide media for vegetation growth, further promoting bar development and a diverse riparian zone.

CONSTRUCTION NOTES:

1. Anchoring technique may vary according to site conditions. Mechanical soil anchors or bolters may be used in place of rootwad piles.

2. Placement can be secured together using a limited amount of synthetic fiber or steel wire rope strategically designed into the structure to limit visibility.

3. Rootwad top elevation is related to the anticipated typical ordinary high water surface elevation.

LOG SPECIFICATIONS

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>DBH (IN.)</th>
<th>MIN. LENGTH (FT)</th>
<th>ROOTWAD (3x DBH)</th>
<th>SPECIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rootwad Log</td>
<td>18</td>
<td>25</td>
<td>54</td>
<td>Ponderosa Pine/Douglas Fir</td>
</tr>
<tr>
<td>Buried Log Pile</td>
<td>18</td>
<td>15</td>
<td>54</td>
<td>Ponderosa Pine/Douglas Fir</td>
</tr>
<tr>
<td>Log Pole</td>
<td>18</td>
<td>12</td>
<td>None</td>
<td>Ponderosa Pine/Douglas Fir</td>
</tr>
</tbody>
</table>

Habitat Goals and Objectives:

1. Flow stagnation areas upstream and downstream of the structure to provide hydraulic refuge for juvenile salmonids and other fish species.

2. Void spaces in LWD to provide hydraulic refuge, cover, and structure for juvenile salmonids and other fish species.

3. Sediment deposits in lee of LWD to provide media for vegetation growth, further promoting bar development and a diverse riparian zone.

Construction Notes:

1. Anchoring technique may vary according to site conditions. Mechanical soil anchors or bolters may be used in place of rootwad piles.

2. Placement can be secured together using a limited amount of synthetic fiber or steel wire rope strategically designed into the structure to limit visibility.

3. Rootwad top elevation is related to the anticipated typical ordinary high water surface elevation.
HABITAT GOALS AND OBJECTIVES:
1. VOID SPACES IN LWD TO PROVIDE HYDRAULIC REFUGE, COVER AND STRUCTURE FOR JUVENILE SALMONIDS AND OTHER FISH SPECIES.
2. SORTED SEDIMENT DEPOSITS IN LEE OF FORESTED ISLAND TO PROVIDE CHANNEL SUBSTRATE FOR SELECTIVE SPAWNING BY SALMON AND OTHER FISH SPECIES.

CONSTRUCTION NOTES:
1. ANCHORING TECHNIQUE MAY VARY ACCORDING TO SITE CONDITIONS.
   FORESTED ISLAND LWD TO BE BALLASTED BY LARGE BOULDERS IN VOIDS AND ON TOP OF BOLES.
2. SCOUR POOL EXTENTS ARE TYPICAL AND MAY BE EXCAVATED AS PART OF CONSTRUCTION.
3. ROOTWAD TOP ELEVATION IS RELATED TO THE ANTICIPATED TYPICAL ORDINARY HIGH WATER LEVEL.
4. MISCELLANEOUS LWD MAY BE PLACED WITH AND AROUND THE MAIN STRUCTURE.
5. LOGS WILL BE FIELD PLACED BASED ON SITE CONDITIONS AT THE DISCRETION OF THE ENGINEER.
6. NUMBER AND SIZE OF LOGS IN LWD SUBJECT TO SITE CONDITIONS AND AVAILABILITY OF LOGS.

LOG SPECIFICATIONS

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>DBH (IN.)</th>
<th>LENGTH (FT.)</th>
<th>ROOTWAD (3x DBH)</th>
<th>SPECIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROOTWAD LOG</td>
<td>12</td>
<td>25</td>
<td>36</td>
<td>PONDEROSA PINE/DOUGLAS FIR</td>
</tr>
</tbody>
</table>

HABITAT GOALS AND OBJECTIVES:
1. VOID SPACES IN LWD TO PROVIDE HYDRAULIC REFUGE, COVER AND STRUCTURE FOR JUVENILE SALMONIDS AND OTHER FISH SPECIES.
2. SORTED SEDIMENT DEPOSITS IN LEE OF FORESTED ISLAND TO PROVIDE CHANNEL SUBSTRATE FOR SELECTIVE SPAWNING BY SALMON AND OTHER FISH SPECIES.

CONSTRUCTION NOTES:
1. ANCHORING TECHNIQUE MAY VARY ACCORDING TO SITE CONDITIONS.
   FORESTED ISLAND LWD TO BE BALLASTED BY LARGE BOULDERS IN VOIDS AND ON TOP OF BOLES.
2. SCOUR POOL EXTENTS ARE TYPICAL AND MAY BE EXCAVATED AS PART OF CONSTRUCTION.
3. ROOTWAD TOP ELEVATION IS RELATED TO THE ANTICIPATED TYPICAL ORDINARY HIGH WATER LEVEL.
4. MISCELLANEOUS LWD MAY BE PLACED WITH AND AROUND THE MAIN STRUCTURE.
5. LOGS WILL BE FIELD PLACED BASED ON SITE CONDITIONS AT THE DISCRETION OF THE ENGINEER.
6. NUMBER AND SIZE OF LOGS IN LWD SUBJECT TO SITE CONDITIONS AND AVAILABILITY OF LOGS.
1. Structure secured together using a limited amount of synthetic fiber or steel wire rope strategically designed into the structure.

2. Scour pool extents are typical and may be excavated as part of construction.

3. ELJ top elevation is typically determined based on the anticipated design flood water surface elevation.

4. Sorted sediment deposits provide channel substrate variation for selective spawning by salmon and other fish species.

Habitat Notes:
1. High flow refuge for juvenile salmon and other fish species provided by flow stagnation areas upstream and downstream of structure.

2. Void spaces in ELJ provide hydraulic refuge, cover, and structure for juvenile salmon and other fish species.

3. Pool areas provide holding habitat for adult salmon.

4. Sorted sediment deposits provide channel substrate variation for selective spawning by salmon and other fish species.

Construction Notes:
1. Structure secured together using a limited amount of synthetic fiber or steel wire rope strategically designed into the structure.

2. Scour pool extents are typical and may be excavated as part of construction.

3. ELJ top elevation is typically determined based on the anticipated design flood water surface elevation.

4. Sorted sediment deposits provide channel substrate variation for selective spawning by salmon and other fish species.
CONSTRUCTION NOTES:
1. STRUCTURE SECURED TOGETHER USING A LIMITED AMOUNT OF SYNTHETIC FIBER OR STEEL WIRE ROPE STRATEGICALLY DESIGNED INTO THE STRUCTURE. ARMOR ROCK SALVAGED ONSITE MAY ALSO BE USED AS BALLAST.
2. SCOUR POOL EXTENTS ARE TYPICAL AND MAY BE EXCAVATED AS PART OF CONSTRUCTION.
3. ELJ TOP ELEVATION IS TYPICALLY DETERMINED BASED ON THE ANTICIPATED DESIGN FLOOD WATER SURFACE ELEVATION.
4. STRUCTURE VOIDS AND AREA DOWNSTREAM BACKFILLED DURING CONSTRUCTION WITH NATIVE CHANNEL SEDIMENT AS SHOWN.

HABITAT NOTES:
1. HIGH FLOW REFUGE FOR JUVENILE SALMON AND OTHER FISH SPECIES PROVIDED BY FLOW STAGNATION AREAS UPSTREAM AND DOWNSTREAM OF STRUCTURE.
2. VOID SPACES IN ELJ PROVIDE HYDRAULIC REFUGE, COVER; AND STRUCTURE FOR JUVENILE SALMON AND OTHER FISH SPECIES.
3. POOL AREAS PROVIDE HOLDING HABITAT FOR ADULT SALMON.
4. SORTED SEDIMENT DEPOSITS PROVIDE CHANNEL SUBSTRATE VARIATION FOR SELECTIVE SPAWNING BY SALMON AND OTHER FISH SPECIES.

LOG SPECIFICATIONS

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>DBH (IN.)</th>
<th>MIN. LENGTH (FT.)</th>
<th>ROOTHOLD LOG  (in DBH)</th>
<th>SPECIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROOTWAD LOG</td>
<td>18</td>
<td>20</td>
<td>3x DBH</td>
<td>PONDEROSA PINE/DOUGLAS FIR</td>
</tr>
<tr>
<td>ROOTWAD LOG</td>
<td>18</td>
<td>20</td>
<td>3x DBH</td>
<td>PONDEROSA PINE/DOUGLAS FIR</td>
</tr>
<tr>
<td>ROOTWAD LOG</td>
<td>18</td>
<td>20</td>
<td>3x DBH</td>
<td>PONDEROSA PINE/DOUGLAS FIR</td>
</tr>
<tr>
<td>LOG POLE</td>
<td>18</td>
<td>20</td>
<td>3x DBH</td>
<td>PONDEROSA PINE/DOUGLAS FIR</td>
</tr>
</tbody>
</table>

NOT FOR CONSTRUCTION

DESIGNED BY: EBP, DJG
APPROVED BY: EBP, DJG
CHECKED BY: EBP, DJG
DRAWN BY: EBP, DJG
DATE: 08-06-2012
SCALE: ONE INCH AT FULL SIZE, IF NOT ONE INCH SCALE ACCORDINGLY
SHEET NO. 12 of 14

TUCANNON PROJECT AREA 24
CHANNEL GRADE ELJ

C-11
EXISTING LOW-LYING CHANNELS TO BE RE-CONNECTED

2-YEAR WATER SURFACE ELEVATION

MAIN CHANNEL

EXISTING LEVEE

GRADE LEVEE TO ADJACENT FLOODPLAIN ELEVATION

UPPER FLOODPLAIN TERRACE

EXISTING SITE CHANNEL

EXISTING GRADE

APPROX. WATER SURFACE ELEVATION

EXISTING LOW-LYING FLOODPLAIN ELEVATION

APPROX. WATER SURFACE ELEVATION

EXISTING GRADE

TUCANNON ROAD

EXISTING DISCONNECTED FLOODPLAIN

EXISTING GRADE

TYPICAL SECTION A-A' CHANNEL

NOT TO SCALE

TYPICAL SECTION C-C' CHANNEL

NOT TO SCALE
EXISTING ACCESS ROAD

EXISTING GRADE

GRADE LEVEL TO 2-YEAR FLOOD WSE

PLACE MULTIPLE UND
ON UPSTREAM END
OF LEVEE TO REMAIN
AS FORESTED ISLAND

EXISTING RIPARIAN
TREES TO BE
UN-DISTURBED

GRADE LEVEL TO 2-YEAR FLOOD WSE

INITIATE SPLIT FLOW
DEVELOPMENT BY EXCAVATING
TO LOW FLOW WSE, UPSTREAM
OF FORESTED ISLAND

PLACE MULTIPLE UND
ON UPSTREAM END
OF LEVEE TO REMAIN
AS FORESTED ISLAND

TYPICAL SECTION B-B' CHANNEL

NOT TO SCALE