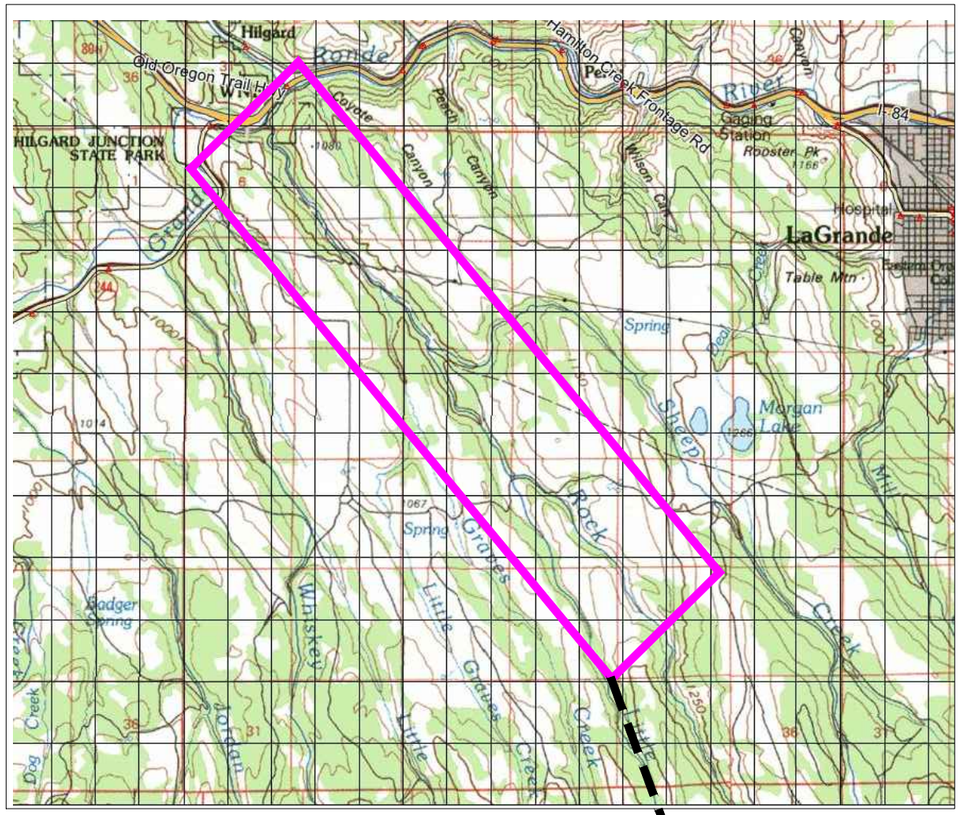
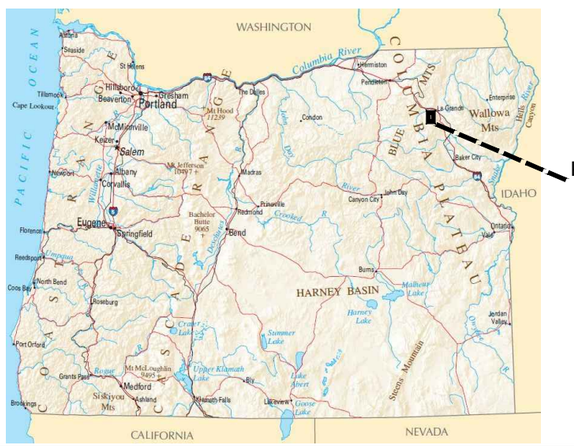
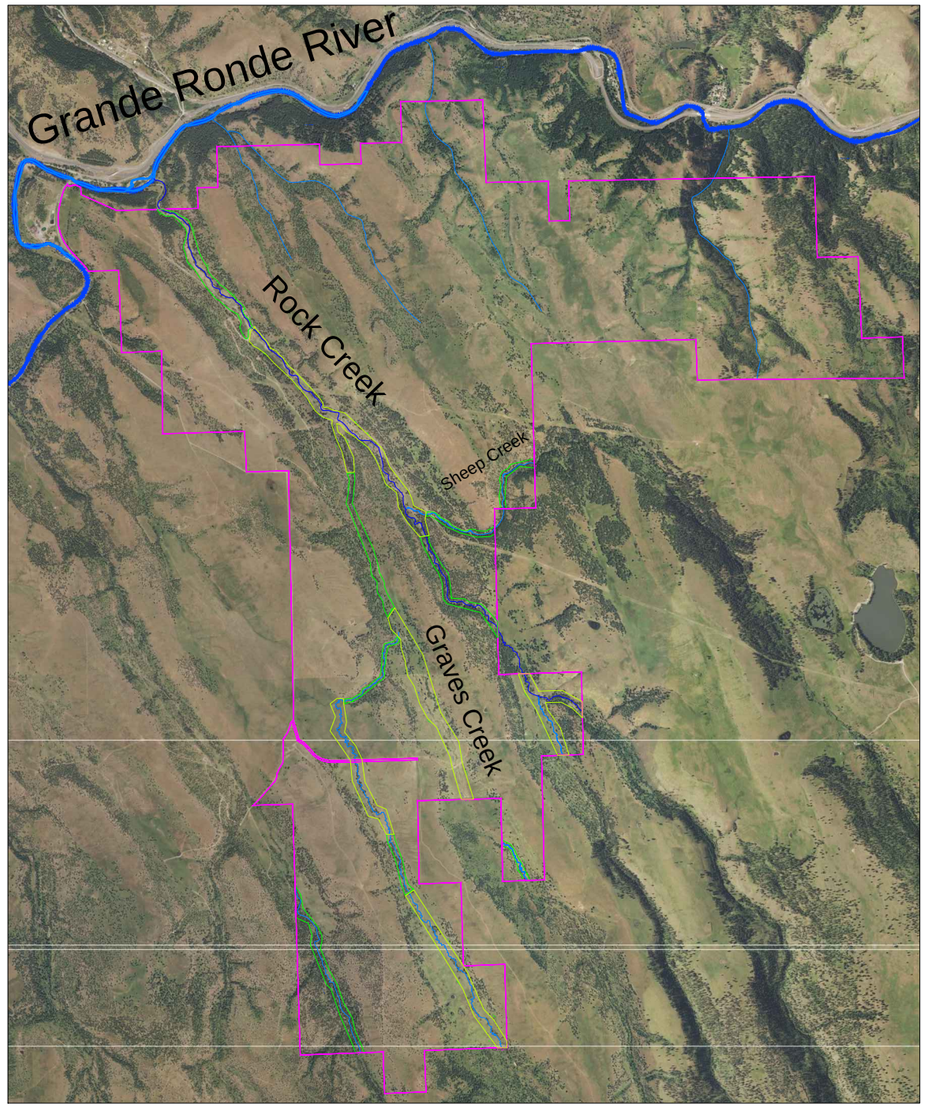
Rock Creek
Fish Habitat Enhancement Project





Upper Grande Ronde Subbasin
Rock Creek Phase 1
Summer 2014



Rock Creek Fish Habitat Enhancement Project
Graves Creek Restoration Plan
For The Girls, Ranch, LLC
Grande Ronde Subbasin, Union County, Oregon
Confederated Tribes of the Umatilla Indian Reservation

		Date
Designed	A. Childs	
Drawn	A. Childs	
Checked		
Approved		
Title	CTUIR Grande Ronde Fish Habitat Biologist	

File Name

Drawing No. 1

Sheet 1 of 16

HIP III GENERAL CONSERVATION MEASURES APPLICABLE TO ALL ACTIONS:
THE ACTIVITIES COVERED UNDER THIS CONSULTATION ARE INTENDED TO PROTECT AND RESTORE FISH AND WILDLIFE HABITAT WITH LONG-TERM BENEFITS TO ESA-LISTED SPECIES. HOWEVER, PROJECT CONSTRUCTION ACTIVITIES HAVE SHORT-TERM ADVERSE EFFECTS TO ESA-LISTED SPECIES AND THEIR CRITICAL HABITATS. TO MINIMIZE THESE SHORT-TERM ADVERSE EFFECTS AND MAKE THEM PREDICTABLE FOR PURPOSES OF PROGRAMMATIC ANALYSIS, BPA PROPOSES THE FOLLOWING GENERAL CONSERVATION MEASURES FOR USE AS APPLICABLE TO EACH PROJECT.

DOCUMENTATION: TO BE POSTED ONSITE BY THE CONTRACTOR IN A LOCATION VISIBLE TO THE PUBLIC.
1) NAME(S), PHONE NUMBER(S), AND ADDRESS(ES) OF THE PERSON(S) RESPONSIBLE FOR OVERSIGHT.
2) A DESCRIPTION OF HAZARDOUS MATERIALS THAT WILL BE USED, INCLUDING INVENTORY, STORAGE, AND HANDLING PROCEDURES.
3) PROCEDURES TO CONTAIN AND CONTROL A SPILL OF ANY HAZARDOUS MATERIAL GENERATED, USED OR STORED ON-SITE, INCLUDING NOTIFICATION OF PROPER AUTHORITIES.
4) A STANDING ORDER TO CEASE WORK IN THE EVENT OF HIGH FLOWS EXCEPT AS NECESSARY TO MINIMIZE RESOURCE DAMAGE (ABOVE THOSE ADDRESSED IN THE DESIGN AND IMPLEMENTATION PLANS) OR EXCEEDANCE OF TAKE OR WATER QUALITY LIMITATIONS.

INSPECTIONS AND MONITORING : PROJECT SPONSOR STAFF OR THEIR DESIGNATED REPRESENTATIVE WILL PROVIDE IMPLEMENTATION MONITORING TO ENSURE COMPLIANCE WITH THIS BIOLOGICAL OPINION, INCLUDING:
1) GENERAL CONSERVATION MEASURES AND PROJECT DESIGN CRITERIA ARE ADEQUATELY FOLLOWED; AND
2) EFFECTS TO ESA-LISTED SPECIES ARE NOT GREATER THAN PREDICTED AND TAKE LIMITATIONS ARE NOT EXCEEDED.

STATE AND FEDERAL PERMITS: ALL APPLICABLE REGULATORY PERMITS AND OFFICIAL PROJECT AUTHORIZATIONS WILL BE OBTAINED BEFORE PROJECT IMPLEMENTATION. THESE PERMITS AND AUTHORIZATIONS INCLUDE, BUT ARE NOT LIMITED TO, NATIONAL ENVIRONMENTAL POLICY ACT, NATIONAL HISTORIC PRESERVATION ACT, AND THE APPROPRIATE STATE AGENCY REMOVAL AND FILL PERMIT, ARMY CORPS OF ENGINEERS 404 PERMITS, AND ASSOCIATED 401 WATER QUALITY CERTIFICATIONS.

TIMING OF IN-WATER WORK: APPROPRIATE STATE (OREGON DEPARTMENT OF FISH AND WILDLIFE(ODFW), WASHINGTON DEPARTMENT OF FISH AND WILDLIFE (WDFW), OR IDAHO DEPARTMENT OF FISH AND GAME (IDFG), GUIDELINES FOR TIMING OF IN-WATER WORK WINDOWS (IWW) WILL BE FOLLOWED. THE NEED FOR ISOLATION AND DEWATERING WILL ALSO BE EVALUATED WHEN DETERMINING THE APPROPRIATE IWW FOR THE SPECIES AFFECTED. EXCEPTIONS TO ODFW, WDFW, OR IDFG, IN-WATER WORK WINDOWS WILL BE PROCESSED USING THE **VARIANCE** PROCEDURES DESCRIBED ON THIS SHEET:
- ODFW (OREGON DEPARTMENT OF FISH AND WILDLIFE) 2008. OREGON GUIDELINES FOR TIMING OF IN-WATER WORK TO PROTECT FISH AND WILDLIFE RESOURCES. AVAILABLE AT: HTTP://WWW.DFW.STATE.OR.US/LANDS/INWATER/OREGON_GUIDELINES_FOR_TIMING_OF_%20INWATER_WORK2008.PDF
- WDFW (WASHINGTON DEPARTMENT OF FISH AND WILDLIFE) 2010. TIMES WHEN SPAWNING OR INCUBATING SALMONIDS ARE LEAST LIKELY TO BE WITHIN WASHINGTON STATE FRESHWATERS. AVAILABLE AT: HTTP://WDFW.WA.GOV/LICENSING/HPA/FRESHWATER_INCUBATION_AVOIDANCE_TIMES_28MAY2010.PDF

SITE LAYOUT AND FLAGGING: PRIOR TO CONSTRUCTION, THE ACTION AREA WILL BE CLEARLY FLAGGED TO IDENTIFY THE FOLLOWING:
1) SENSITIVE RESOURCE AREAS, SUCH AS AREAS BELOW ORDINARY HIGH WATER, SPAWNING AREAS, SPRINGS, AND WETLANDS;
2) EQUIPMENT ENTRY AND EXIT POINTS;
3) ROAD AND STREAM CROSSING ALIGNMENTS;
4) STAGING, STORAGE, AND STOCKPILE AREAS; AND
5) NO-SPRAY AREAS AND BUFFERS.

TEMPORARY ACCESS ROADS AND PATHS:
1) EXISTING ACCESS ROADS AND PATHS WILL BE PREFERENTIALLY USED WHENEVER REASONABLE, AND THE NUMBER AND LENGTH OF TEMPORARY ACCESS ROADS AND PATHS THROUGH RIPARIAN AREAS AND FLOODPLAINS WILL BE MINIMIZED TO LESSEN SOIL DISTURBANCE AND COMPACTION, AND IMPACTS TO VEGETATION.
2) TEMPORARY ACCESS ROADS AND PATHS WILL NOT BE BUILT ON SLOPES WHERE GRADE, SOIL, OR OTHER FEATURES SUGGEST A LIKELIHOOD OF EXCESSIVE EROSION OR FAILURE. IF SLOPES ARE STEEPER THAN 30%, THEN THE ROAD WILL BE DESIGNED BY A CIVIL ENGINEER WITH EXPERIENCE IN STEEP ROAD DESIGN.
3) THE REMOVAL OF RIPARIAN VEGETATION DURING CONSTRUCTION OF TEMPORARY ACCESS ROADS WILL BE MINIMIZED. WHEN TEMPORARY VEGETATION REMOVAL IS REQUIRED, VEGETATION WILL BE CUT AT GROUND LEVEL (NOT GRUBBED).
4) AT PROJECT COMPLETION, ALL TEMPORARY ACCESS ROADS AND PATHS WILL BE OBLITERATED, AND THE SOIL WILL BE STABILIZED AND REVEGETATED. ROAD AND PATH OBLITERATION REFERS TO THE MOST COMPREHENSIVE DEGREE OF DECOMMISSIONING AND INVOLVES DECOMPACTING THE SURFACE AND DITCH, PULLING THE FILL MATERIAL ONTO THE RUNNING SURFACE, AND RESHAPING TO MATCH THE ORIGINAL CONTOUR.
5) TEMPORARY ROADS AND PATHS IN WET AREAS OR AREAS PRONE TO FLOODING WILL BE OBLITERATED BY THE END OF THE IN-WATER WORK WINDOW.

TEMPORARY STREAM CROSSINGS :
1) EXISTING STREAM CROSSINGS WILL BE PREFERENTIALLY USED WHENEVER REASONABLE, AND THE NUMBER OF TEMPORARY STREAM CROSSINGS WILL BE MINIMIZED.
2) TEMPORARY BRIDGES AND CULVERTS WILL BE INSTALLED TO ALLOW FOR EQUIPMENT AND VEHICLE CROSSING OVER PERENNIAL STREAMS DURING CONSTRUCTION.
3) VEHICLES AND MACHINERY WILL CROSS STREAMS AT RIGHT ANGLES TO THE MAIN CHANNEL WHEREVER POSSIBLE.
4) THE LOCATION OF THE TEMPORARY CROSSING WILL AVOID AREAS THAT MAY INCREASE THE RISK OF CHANNEL RE-ROUTING OR AVULSION.
5) POTENTIAL SPAWNING HABITAT (I.E., POOL TAILOUTS) AND POOLS WILL BE AVOIDED TO THE MAXIMUM EXTENT POSSIBLE.
6) NO STREAM CROSSINGS WILL OCCUR AT ACTIVE SPAWNING SITES, WHEN HOLDING ADULT LISTED FISH ARE PRESENT, OR WHEN EGGS OR ALEVINS ARE IN THE GRAVEL. THE APPROPRIATE STATE FISH AND WILDLIFE AGENCY WILL BE CONTACTED FOR SPECIFIC TIMING INFORMATION.
7) AFTER PROJECT COMPLETION, TEMPORARY STREAM CROSSINGS WILL BE OBLITERATED AND THE STREAM CHANNEL AND BANKS RESTORED.

STAGING, STORAGE, AND STOCKPILE AREAS:
1) STAGING AREAS (USED FOR CONSTRUCTION EQUIPMENT STORAGE, VEHICLE STORAGE, FUELING, SERVICING, AND HAZARDOUS MATERIAL STORAGE) WILL BE 150-FEET OR MORE FROM ANY NATURAL WATER BODY OR WETLAND, OR ON AN ADJACENT, ESTABLISHED ROAD AREA IN A LOCATION AND MANNER THAT WILL PRECLUDE EROSION INTO OR CONTAMINATION OF THE STREAM OR FLOODPLAIN.
2) NATURAL MATERIALS USED FOR IMPLEMENTATION OF AQUATIC RESTORATION, SUCH AS LARGE WOOD, GRAVEL, AND BOULDERS, MAY BE STAGED WITHIN THE 100-YEAR FLOODPLAIN.
3) ANY LARGE WOOD, TOPSOIL, AND NATIVE CHANNEL MATERIAL DISPLACED BY CONSTRUCTION WILL BE STOCKPILED FOR USE DURING SITE RESTORATION AT A SPECIFICALLY IDENTIFIED AND FLAGGED AREA.
4) ANY MATERIAL NOT USED IN RESTORATION, AND NOT NATIVE TO THE FLOODPLAIN, WILL BE REMOVED TO A LOCATION OUTSIDE OF THE 100-YEAR FLOODPLAIN FOR DISPOSAL.

EQUIPMENT:
1) MECHANIZED EQUIPMENT AND VEHICLES WILL BE SELECTED, OPERATED, AND MAINTAINED IN A MANNER THAT MINIMIZES ADVERSE EFFECTS ON THE ENVIRONMENT (E.G., MINIMALLY-SIZED, LOW PRESSURE TIRES; MINIMAL HARD-TURN PATHS FOR TRACKED VEHICLES; TEMPORARY MATS OR PLATES WITHIN WET AREAS OR ON SENSITIVE SOILS). GAS-POWERED EQUIPMENT WITH TANKS LARGER THAN 5 GALLONS WILL BE REFUELED IN A VEHICLE STAGING AREA PLACED 150-FEET OR MORE FROM A NATURAL WATERBODY OR WETLAND, OR IN AN ISOLATED HARD ZONE, SUCH AS A PAVED PARKING LOT OR ADJACENT, ESTABLISHED ROAD.
2) ALL VEHICLES AND OTHER MECHANIZED EQUIPMENT WILL BE:
   A) STORED, FUELED, AND MAINTAINED IN A VEHICLE STAGING AREA PLACED 150-FEET OR MORE FROM ANY NATURAL WATER BODY OR WETLAND OR ON AN ADJACENT, ESTABLISHED ROAD AREA;
   B) INSPECTED DAILY FOR FLUID LEAKS BEFORE LEAVING THE VEHICLE STAGING AREA FOR OPERATION WITHIN 150-FEET OF ANY NATURAL WATER BODY OR WETLAND; AND
   C) THOROUGHLY CLEANED BEFORE OPERATION BELOW ORDINARY HIGH WATER, AND AS OFTEN AS NECESSARY DURING OPERATION, TO REMAIN GREASE FREE.

EROSION CONTROL: EROSION CONTROL MEASURES WILL BE PREPARED AND CARRIED OUT, COMMENSURATE IN SCOPE WITH THE ACTION, THAT MAY INCLUDE THE FOLLOWING:
1) TEMPORARY EROSION CONTROLS WILL BE IN PLACE BEFORE ANY SIGNIFICANT ALTERATION OF THE ACTION SITE AND APPROPRIATELY INSTALLED DOWNSLOPE OF PROJECT ACTIVITY WITHIN THE RIPARIAN BUFFER AREA UNTIL SITE REHABILITATION IS COMPLETE.
   a) IF THERE IS A POTENTIAL FOR ERODED SEDIMENT TO ENTER THE STREAM, SEDIMENT BARRIERS WILL BE INSTALLED AND MAINTAINED FOR THE DURATION OF PROJECT IMPLEMENTATION.
   b) TEMPORARY EROSION CONTROL MEASURES MAY INCLUDE FIBER WATTLES, SILT FENCES, JUTE MATTING, WOOD FIBER MULCH AND SOIL BINDER, OR GEOTEXTILES AND GEOSYNTHETIC FABRIC.
   c) SOIL STABILIZATION UTILIZING WOOD FIBER MULCH AND TACKIFIER (HYDRO-APPLIED) MAY BE USED TO REDUCE EROSION OF BARE SOIL IF THE MATERIALS ARE NOXIOUS WEED FREE AND NONTOXIC TO AQUATIC AND TERRESTRIAL ANIMALS, SOIL MICROORGANISMS, AND VEGETATION.
   d) SEDIMENT WILL BE REMOVED FROM EROSION CONTROLS ONCE IT HAS REACHED 1/3 OF THE EXPOSED HEIGHT OF THE CONTROL.
   e) ONCE THE SITE IS STABILIZED AFTER CONSTRUCTION, TEMPORARY EROSION CONTROL MEASURES MUST BE REMOVED.
2) EMERGENCY EROSION CONTROLS WILL BE AVAILABLE AT THE WORK SITE AND INCLUDE THE FOLLOWING:
   a) A SUPPLY OF SEDIMENT CONTROL MATERIALS; AND
   b) AN OIL-ABSORBING FLOATING BOOM WHENEVER SURFACE WATER IS PRESENT.

DUST ABATEMENT: THE PROJECT SPONSOR WILL DETERMINE THE APPROPRIATE DUST CONTROL MEASURES (IF NECESSARY) BY CONSIDERING SOIL TYPE, EQUIPMENT USAGE, PREVAILING WIND DIRECTION, AND THE EFFECTS CAUSED BY OTHER EROSION AND SEDIMENT CONTROL MEASURES. IN ADDITION, THE FOLLOWING CRITERIA WILL BE FOLLOWED:
1) WORK WILL BE SEQUENCED AND SCHEDULED TO REDUCE EXPOSED BARE SOIL SUBJECT TO WIND EROSION.
2) DUST-ABATEMENT ADDITIVES AND STABILIZATION CHEMICALS (TYPICALLY MAGNESIUM CHLORIDE, CALCIUM CHLORIDE SALTS, OR LIGNINSULFONATE) WILL NOT BE APPLIED WITHIN 25-FEET OF WATER OR A STREAM CHANNEL AND WILL BE APPLIED SO AS TO MINIMIZE THE LIKELIHOOD THAT THEY WILL ENTER STREAMS. APPLICATIONS OF LIGNINSULFONATE WILL BE LIMITED TO A MAXIMUM RATE OF 0.5 GALLONS PER SQUARE YARD OF ROAD SURFACE, ASSUMING A 50:50 (LIGNINSULFONATE TO WATER) SOLUTION.
3) APPLICATION OF DUST ABATEMENT CHEMICALS WILL BE AVOIDED DURING OR JUST BEFORE WET WEATHER, AND AT STREAM CROSSINGS OR OTHER AREAS THAT COULD RESULT IN UNFILTERED DELIVERY OF THE DUST ABATEMENT MATERIALS TO A WATERBODY (TYPICALLY THESE WOULD BE AREAS WITHIN 25-FEET OF A WATERBODY OR STREAM CHANNEL; DISTANCES MAY BE GREATER WHERE VEGETATION IS SPARSE OR SLOPES ARE STEEP).
4) SPILL CONTAINMENT EQUIPMENT WILL BE AVAILABLE DURING APPLICATION OF DUST ABATEMENT CHEMICALS.
5) PETROLEUM-BASED PRODUCTS WILL NOT BE USED FOR DUST ABATEMENT.

SPILL PREVENTION, CONTROL, AND COUNTERMEASURES: THE USE OF MECHANIZED MACHINERY INCREASES THE RISK FOR ACCIDENTAL SPILLS OF FUEL, LUBRICANTS, HYDRAULIC FLUID, OR OTHER CONTAMINANTS INTO THE RIPARIAN ZONE OR DIRECTLY INTO THE WATER. ADDITIONALLY, UNCURED CONCRETE AND FORM MATERIALS ADJACENT TO THE ACTIVE STREAM CHANNEL MAY RESULT IN ACCIDENTAL DISCHARGE INTO THE WATER. THESE CONTAMINANTS CAN DEGRADE HABITAT, AND INJURE OR KILL AQUATIC FOOD ORGANISMS AND ESA-LISTED SPECIES. THE PROJECT SPONSOR WILL ADHERE TO THE FOLLOWING MEASURES:
1) A DESCRIPTION OF HAZARDOUS MATERIALS THAT WILL BE USED, INCLUDING INVENTORY, STORAGE, AND HANDLING PROCEDURES WILL BE AVAILABLE ON-SITE.
2) WRITTEN PROCEDURES FOR NOTIFYING ENVIRONMENTAL RESPONSE AGENCIES WILL BE POSTED AT THE WORK SITE.
3) SPILL CONTAINMENT KITS (INCLUDING INSTRUCTIONS FOR CLEANUP AND DISPOSAL) ADEQUATE FOR THE TYPES AND QUANTITY OF HAZARDOUS MATERIALS USED AT THE SITE WILL BE AVAILABLE AT THE WORK SITE.
4) WORKERS WILL BE TRAINED IN SPILL CONTAINMENT PROCEDURES AND WILL BE INFORMED OF THE LOCATION OF SPILL CONTAINMENT KITS.
5) ANY WASTE LIQUIDS GENERATED AT THE STAGING AREAS WILL BE TEMPORARILY STORED UNDER AN IMPERVIOUS COVER, SUCH AS A TARPAULIN, UNTIL THEY CAN BE PROPERLY TRANSPORTED TO AND DISPOSED OF AT A FACILITY THAT IS APPROVED FOR RECEIPT OF HAZARDOUS MATERIALS.

INVASIVE SPECIES CONTROL: THE FOLLOWING MEASURES WILL BE FOLLOWED TO AVOID INTRODUCTION OF INVASIVE PLANTS AND NOXIOUS WEEDS INTO PROJECT AREAS:
1) PRIOR TO ENTERING THE SITE, ALL VEHICLES AND EQUIPMENT WILL BE POWER WASHED, ALLOWED TO FULLY DRY, AND INSPECTED TO MAKE SURE NO PLANTS, SOIL, OR OTHER ORGANIC MATERIAL ADHERES TO THE SURFACE.
2) WATERCRAFT, WADERS, BOOTS, AND ANY OTHER GEAR TO BE USED IN OR NEAR WATER WILL BE INSPECTED FOR AQUATIC INVASIVE SPECIES.

WORK AREA ISOLATION & FISH SALVAGE: ANY WORK AREA WITHIN THE WETTED CHANNEL WILL BE ISOLATED FROM THE ACTIVE STREAM WHENEVER ESA-LISTED FISH ARE REASONABLY CERTAIN TO BE PRESENT, OR IF THE WORK AREA IS LESS THAN 300 FEET UPSTREAM FROM ACTIVE SPAWNING HABITATS.
1) WHEN WORK AREA ISOLATION IS REQUIRED, ENGINEERING DESIGN PLANS WILL INCLUDE ALL ISOLATION ELEMENTS, FISH RELEASE AREAS, AND, WHEN A PUMP IS USED TO DEWATER THE ISOLATION AREA AND FISH ARE PRESENT, A FISH SCREEN THAT MEETS NMFS'S FISH SCREEN CRITERIA (NMFS 2011C, OR MOST CURRENT).
2) WORK AREA ISOLATION AND FISH CAPTURE ACTIVITIES WILL OCCUR DURING PERIODS OF THE COOLEST AIR AND WATER TEMPERATURES POSSIBLE, NORMALLY EARLY IN THE MORNING VERSUS LATE IN THE DAY, AND DURING CONDITIONS APPROPRIATE TO MINIMIZE MORTALITY FOR THE SPECIES PRESENT.
3) SALVAGE OPERATIONS SHALL FOLLOW THE ORDERING, METHODOLOGIES, AND CONSERVATION MEASURES SPECIFIED BELOW IN STEPS 1 THROUGH 6. STEPS 1 AND 2 WILL BE IMPLEMENTED FOR ALL PROJECTS WHERE WORK AREA ISOLATION IS NECESSARY ACCORDING TO CONDITION 1(A) ABOVE. ELECTROFISHING (STEP 3) CAN BE IMPLEMENTED TO ENSURE ALL FISH HAVE BEEN REMOVED FOLLOWING STEPS 1 AND 2, OR WHEN OTHER MEANS OF FISH CAPTURE MAY NOT BE FEASIBLE OR EFFECTIVE. DEWATERING AND REWATERING (STEPS 4 AND 5) WILL BE IMPLEMENTED UNLESS WETTED IN-STREAM WORK IS DEEMED TO BE MINIMALLY HARMFUL TO FISH, AND IS BENEFICIAL TO OTHER AQUATIC SPECIES. DEWATERING WILL NOT BE CONDUCTED IN AREAS OCCUPIED BY LAMPREY, UNLESS LAMPREYS ARE SALVAGED USING GUIDANCE SET FORTH IN "USFWS BEST MANAGEMENT PRACTICES TO MINIMIZE ADVERSE EFFECTS TO PACIFIC LAMPREY".

<u>STEP 1: ISOLATE:</u>
(1) BLOCK NETS WILL BE INSTALLED AT UP AND DOWNSTREAM LOCATIONS AND MAINTAINED IN A SECURED POSITION TO EXCLUDE FISH FROM ENTERING THE PROJECT AREA.
(2) NETS WILL BE SECURED TO THE STREAM CHANNEL BED AND BANKS UNTIL FISH CAPTURE AND TRANSPORT ACTIVITIES ARE COMPLETE.
(3) IF BLOCK NETS OR TRAPS REMAIN IN PLACE MORE THAN ONE DAY, THE NETS AND TRAPS WILL BE MONITORED AT LEAST DAILY TO ENSURE THEY ARE SECURED TO THE BANKS AND FREE OF ORGANIC ACCUMULATION, AND TO MINIMIZE FISH PREDATION IN THE TRAP.
(4) NETS AND TRAPS WILL BE MONITORED HOURLY ANYTIME THERE IS INSTREAM DISTURBANCE.

<u>STEP 2: SALVAGE:</u> AS DESCRIBED BELOW, FISH TRAPPED WITHIN THE ISOLATED WORK AREA WILL BE CAPTURED TO MINIMIZE THE RISK OF INJURY, THEN RELEASED AT A SAFE SITE:
(1) FISH WILL BE COLLECTED BY HAND OR DIP NETS, AS THE AREA IS SLOWLY DEWATERED.
(2) SEINES WITH A MESH SIZE TO ENSURE ENTRAPMENT OF THE RESIDING ESA-LISTED FISH WILL BE USED.
(3) MINNOW TRAPS WILL BE LEFT IN PLACE OVERNIGHT AND USED IN CONJUNCTION WITH SEINING.
(4) IF BUCKETS ARE USED TO TRANSPORT FISH:
   (A) THE TIME FISH ARE IN A TRANSPORT BUCKET WILL BE LIMITED, AND WILL BE RELEASED AS QUICKLY AS POSSIBLE;
   (B) THE NUMBER OF FISH WITHIN A BUCKET WILL BE LIMITED BASED ON SIZE, AND FISH WILL BE OF RELATIVELY COMPARABLE SIZE TO MINIMIZE PREDATION;
   (C) AERATORS FOR BUCKETS WILL BE USED OR THE BUCKET WATER WILL BE FREQUENTLY CHANGED WITH COLD CLEAR WATER AT 15 MINUTE OR MORE FREQUENT INTERVALS.
   (D) BUCKETS WILL BE KEPT IN SHADED AREAS OR WILL BE COVERED BY A CANOPY IN EXPOSED AREAS.
   (E) DEAD FISH WILL NOT BE STORED IN TRANSPORT BUCKETS, BUT WILL BE LEFT ON THE STREAM BANK TO AVOID MORTALITY COUNTING ERRORS.
(5) AS RAPIDLY AS POSSIBLE (ESPECIALLY FOR TEMPERATURE-SENSITIVE BULL TROUT), FISH WILL BE RELEASED IN AN AREA THAT PROVIDES ADEQUATE COVER AND FLOW REFUGE. UPSTREAM RELEASE IS PREFERRED, BUT FISH RELEASED DOWNSTREAM WILL BE SUFFICIENTLY OUTSIDE OF THE INFLUENCE OF CONSTRUCTION.
(6) SALVAGE WILL BE SUPERVISED BY A QUALIFIED FISHERIES BIOLOGIST EXPERIENCED WITH WORK AREA ISOLATION AND COMPETENT TO ENSURE THE SAFE HANDLING OF ALL FISH.

<u>STEP 3: ELECTROFISHING:</u> ELECTROFISHING WILL BE USED ONLY AFTER OTHER SALVAGE METHODS HAVE BEEN EMPLOYED OR WHEN OTHER MEANS OF FISH CAPTURE MAY NOT BE FEASIBLE OR EFFECTIVE. IF ELECTROFISHING WILL BE USED TO CAPTURE FISH FOR SALVAGE, THE SALVAGE OPERATION WILL BE LED BY AN EXPERIENCED FISHERIES BIOLOGIST AND THE FOLLOWING GUIDELINES WILL BE FOLLOWED:
(1) THE NMFS' ELECTROFISHING GUIDELINES **4** WILL BE USED
(2) ONLY DIRECT CURRENT (DC) OR PULSED DIRECT CURRENT (PDC) WILL BE USED.
   (A) IF CONDUCTIVITY IS LESS THAN 100 MS, VOLTAGE RANGES FROM 900 TO 1100 V. WILL BE USED;
   (B) FOR CONDUCTIVITY RANGES BETWEEN 100 TO 300 MS, VOLTAGE RANGES WILL BE 500 TO 800 V.
   (C) FOR CONDUCTIVITY GREATER T HAN 300 MS, VOLTAGE WILL BE LESS THAN 400 V.
(3) ELECTROFISHING WILL BEGIN WITH A MINIMUM PULSE WIDTH AND RECOMMENDED VOLTAGE AND THEN GRADUALLY INCREASE TO THE POINT WHERE FISH ARE IMMOBILIZED.
(4) THE ANODE WILL NOT INTENTIONALLY CONTACT FISH WHILE THE CURRENT IS BEING EMITTED.
(5) IF MORTALITY OR OBVIOUS INJURY (DEFINED AS DARK BANDS ON THE BODY, SPINAL DEFORMATIONS, DE-SCALING OF 25% OR MORE OF BODY, AND TORPIDITY OR INABILITY TO MAINTAIN UPRIGHT ATTITUDE AFTER SUFFICIENT RECOVERY TIME) OCCURS DURING ELECTROFISHING, OPERATIONS WILL BE IMMEDIATELY DISCONTINUED, MACHINE SETTINGS,WATER TEMPERATURE AND CONDUCTIVITY CHECKED, AND PROCEDURES ADJUSTED OR POSTPONED TO REDUCE MORTALITY.

<u>STEP 4: DEWATER:</u> DEWATERING, WHEN NECESSARY, WILL BE CONDUCTED OVER A SUFFICIENT PERIOD OF TIME TO ALLOW SPECIES TO NATURALLY MIGRATE OUT OF THE WORK AREA.
(1) DIVERSION AROUND THE CONSTRUCTION SITE MAY BE ACCOMPLISHED WITH A COFFER DAM AND AN ASSOCIATED PUMP, A BY-PASS CULVERT OR PIPE, OR A LINED, NON-ERODIBLE DIVERSION DITCH.
(2) ALL PUMPS WILL HAVE FISH SCREENS TO AVOID JUVENILE FISH ENTRAINMENT, AND WILL BE OPERATED IN ACCORDANCE WITH CURRENT NMFS FISH SCREEN CRITERIA (NMFS 2011, OR MOST RECENT VERSION). IF THE PUMPING RATE EXCEEDS 3 CFS, A NMFS HYDRO DIVISION FISH PASSAGE REVIEW WILL BE NECESSARY.
(3) DISSIPATION OF FLOW ENERGY AT THE BYPASS OUTFLOW WILL BE PROVIDED TO PREVENT DAMAGE TO RIPARIAN VEGETATION OR STREAM CHANNEL.
(4) SAFE REENTRY OF FISH INTO THE STREAM CHANNEL WILL BE PROVIDED, PREFERABLY INTO POOL HABITAT WITH COVER, IF THE DIVERSION ALLOWS FOR DOWNSTREAM FISH PASSAGE.
(5) SEEPAGE WATER WILL BE PUMPED TO A TEMPORARY STORAGE AND TREATMENT SITE OR INTO UPLAND AREAS TO ALLOW WATER TO PERCOLATE THROUGH SOIL OR TO FILTER THROUGH VEGETATION PRIOR TO REENTERING THE STREAM CHANNEL.
(NMFS 2000 - HTTP://WWW.NWR.NOAA.GOV/ESA-SALMON- REGULATIONS-PERMITS/4D RULES/UPLOAD/ELECTRO2000.PDF)

<u>STEP 6: SALVAGE NOTICE:</u> ONCE SALVAGE OPERATIONS ARE COMPLETED, A SALVAGE REPORT WILL DOCUMENT PROCEDURES USED, ANY FISH INJURY OR MORTALITY (INCLUDING NUMBERS OF FISH AFFECTED), AND A DESCRIPTION OF THE CAUSES FOR MORTALITY, AS REQUIRED ON THE REPORTING FORM.

FISH PASSAGE: FISH PASSAGE WILL BE PROVIDED FOR ANY ADULT OR JUVENILE FISH LIKELY TO BE PRESENT IN THE ACTION AREA DURING CONSTRUCTION, UNLESS PASSAGE DID NOT EXIST BEFORE CONSTRUCTION OR THE STREAM IS NATURALLY IMPASSABLE AT THE TIME OF CONSTRUCTION. IF THE PROVISION OF TEMPORARY FISH PASSAGE DURING CONSTRUCTION WILL RESULT IN INCREASED NEGATIVE IMPACTS TO AQUATIC SPECIES OF INTEREST OR THEIR HABITAT, A VARIANCE CAN BE REQUESTED FROM THE NMFS BRANCH CHIEF AND THE USFWS FIELD OFFICE SUPERVISOR. PERTINENT INFORMATION, SUCH AS THE SPECIES AFFECTED, LENGTH OF STREAM REACH AFFECTED, PROPOSED TIME FOR THE PASSAGE BARRIER, AND ALTERNATIVES CONSIDERED, WILL BE INCLUDED IN THE VARIANCE REQUEST. AFTER CONSTRUCTION, ADULT AND JUVENILE PASSAGE THAT MEETS NMFS' FISH PASSAGE CRITERIA (NMFS 2011C) WILL BE PROVIDED FOR THE LIFE OF THE ACTION.

CONSTRUCTION AND DISCHARGE WATER:
1) SURFACE WATER MAY BE DIVERTED TO MEET CONSTRUCTION NEEDS, BUT ONLY IF DEVELOPED SOURCES ARE UNAVAILABLE OR INADEQUATE.
2) DIVERSIONS WILL NOT EXCEED 10% OF THE AVAILABLE FLOW.
3) ALL CONSTRUCTION DISCHARGE WATER WILL BE COLLECTED AND TREATED USING THE BEST AVAILABLE TECHNOLOGY APPLICABLE TO SITE CONDITIONS.
4) TREATMENTS TO REMOVE DEBRIS, NUTRIENTS, SEDIMENT, PETROLEUM HYDROCARBONS, METALS AND OTHER POLLUTANTS LIKELY TO BE PRESENT WILL BE PROVIDED.

MINIMIZE TIME AND EXTENT OF DISTURBANCE: EARTHWORK (INCLUDING DRILLING, EXCAVATION, DREDGING, FILLING AND COMPACTING) IN WHICH MECHANIZED EQUIPMENT IS IN STREAM CHANNELS, RIPARIAN AREAS, AND WETLANDS WILL BE COMPLETED AS QUICKLY AS POSSIBLE. MECHANIZED EQUIPMENT WILL BE USED IN STREAMS ONLY WHEN PROJECT SPECIALISTS BELIEVE THAT SUCH ACTIONS ARE THE ONLY REASONABLE ALTERNATIVE FOR IMPLEMENTATION, OR WOULD RESULT IN LESS SEDIMENT IN THE STREAM CHANNEL OR DAMAGE (SHORT- OR LONG-TERM) TO THE OVERALL AQUATIC AND RIPARIAN ECOSYSTEM RELATIVE TO OTHER ALTERNATIVES. TO THE EXTENT FEASIBLE, MECHANIZED EQUIPMENT WILL WORK FROM THE TOP OF THE BANK, UNLESS WORK FROM ANOTHER LOCATION WOULD RESULT IN LESS HABITAT DISTURBANCE.

CESSATION OF WORK: PROJECT OPERATIONS WILL CEASE UNDER THE FOLLOWING CONDITIONS:
1) HIGH FLOW CONDITIONS THAT MAY RESULT IN INUNDATION OF THE PROJECT AREA, EXCEPT FOR EFFORTS TO AVOID OR MINIMIZE RESOURCE DAMAGE;
2) WHEN ALLOWABLE WATER QUALITY IMPACTS, AS DEFINED BY THE 401 WATER QUALITY CERTIFICATION, HAVE BEEN EXCEEDED.

OBLITERATION: WHEN THE PROJECT IS COMPLETED, THE CONTRACTOR WILL OBLITERATE ALL TEMPORARY ACCESS ROADS, CROSSINGS, AND STAGING AREAS OBLITERATED, AND WILL STABILIZE THE SOILS STABILIZED AND REVEGETATE. WHEN NECESSARY, LOOSEN COMPACTED AREAS, SUCH AS ACCESS ROADS, STREAM CROSSINGS, STAGING, AND STOCKPILE AREAS TO ALLOW FOR REVEGETATION AND IMPROVED INFILTRATION.

SITE RESTORATION: WHEN CONSTRUCTION IS COMPLETE:
1) ALL STREAMBANKS, SOILS, AND VEGETATION WILL BE CLEANED UP AND RESTORED AS NECESSARY USING STOCKPILED LARGE WOOD, TOPSOIL, AND NATIVE CHANNEL MATERIAL.
2) ALL PROJECT RELATED WASTE WILL BE REMOVED.
3) ALL DISTURBED AREAS WILL BE REHABILITATED IN A MANNER THAT RESULTS IN SIMILAR OR IMPROVED CONDITIONS RELATIVE TO PRE-PROJECT CONDITIONS. THIS WILL BE ACHIEVED THROUGH REDISTRIBUTION OF STOCKPILED MATERIALS, SEEDING, AND/OR PLANTING WITH LOCAL NATIVE SEED MIXES OR PLANTS.

REVEGETATION: LONG-TERM SOIL STABILIZATION OF THE DISTURBED SITE WILL BE ACCOMPLISHED WITH RE-ESTABLISHMENT OF NATIVE VEGETATION USING THE FOLLOWING CRITERIA:
1) PLANTING AND SEEDING WILL OCCUR PRIOR TO OR AT THE BEGINNING OF THE FIRST GROWING SEASON AFTER CONSTRUCTION.
2) IN APPROPRIATE MIX OF SPECIES THAT WILL ACHIEVE ESTABLISHMENT, SHADE, AND EROSION CONTROL OBJECTIVES, PREFERABLY FORB, GRASS, SHRUB, OR TREE SPECIES NATIVE TO THE ROJECT AREA OR REGION AND APPROPRIATE TO THE SITE WILL BE USED.
3) VEGETATION, SUCH AS WILLOW, SEDGE AND RUSH MATS, WILL BE SALVAGED FROM DISTURBED OR ABANDONED FLOODPLAINS, STREAM CHANNELS, OR WETLANDS TO BE REPLANTED DURING SITE RESTORATION.
4) INVASIVE SPECIES WILL NOT BE USED.
5) SHORT-TERM STABILIZATION MEASURES MAY INCLUDE THE USE OF NON-NATIVE STERILE SEED MIX (WHEN NATIVE SEEDS ARE NOT AVAILABLE), WEED-FREE CERTIFIED STRAW, JUTE MATTING, AND OTHER SIMILAR TECHNIQUES.
6) SURFACE FERTILIZER WILL NOT BE APPLIED WITHIN 50-FEET OF ANY STREAM CHANNEL, WATERBODY, OR WETLAND.
7) FENCING WILL BE INSTALLED AS NECESSARY TO PREVENT ACCESS TO REVEGETATED SITES BY LIVESTOCK OR UNAUTHORIZED PERSONS.
8) RE-ESTABLISHMENT OF VEGETATION IN DISTURBED AREAS WILL ACHIEVE AT LEAST 70% OF PRE- PROJECT CONDITIONS WITHIN 3-YEARS.
9) INVASIVE PLANTS WILL BE REMOVED OR CONTROLLED UNTIL NATIVE PLANT SPECIES ARE WELL ESTABLISHED (TYPICALLY 3-YEARS POST-CONSTRUCTION).

SITE ACCESS: THE PROJECT SPONSOR WILL RETAIN THE RIGHT OF REASONABLE ACCESS TO THE SITE, SUCH THAT THE PROJECT SPONSOR CAN MONITOR THE SUCCESS OVER THE LIFE OF THE PROJECT.

VARIANCE REQUESTS: BECAUSE OF THE WIDE RANGE OF PROPOSED ACTIVITIES AND THE NATURAL VARIABILITY WITHIN AND BETWEEN STREAM SYSTEMS, BPA (ON BEHALF OF THE APPLICANT) MAY REQUIRE VARIATIONS FROM CRITERIA SPECIFIED HEREIN. NMFS WILL CONSIDER GRANTING VARIANCES, ESPECIALLY WHEN THERE IS A CLEAR CONSERVATION BENEFIT OR THERE ARE NO ADDITIONAL ADVERSE EFFECTS (ESPECIALLY INCIDENTAL TAKE) BEYOND THAT COVERED BY THE OPINION. MINOR VARIANCES CAN BE AUTHORIZED BY THE NMFS BRANCH CHIEF.

VARIANCE REQUESTS MAY BE SUBMITTED AND APPROVED BY EMAIL CORRESPONDENCE AND WILL INCLUDE:
1) NAME AND BRIEF DESCRIPTION OF PROJECT, LOCATION OF PROJECT AND 6TH FIELD HUC NUMBER.
2) DEFINE THE REQUESTED VARIANCE AND THE RELEVANT CRITERION BY PAGE NUMBER.
3) CURRENT ENVIRONMENTAL CONDITIONS (CURRENT FLOW AND WEATHER CONDITIONS).
4) BIOLOGICAL JUSTIFICATION AS TO WHY A VARIANCE IS NECESSARY AND A BRIEF RATIONALE WHY THE VARIANCE WILL EITHER PROVIDE A CONSERVATION BENEFIT OR, AT A MINIMUM, NOT CAUSE ADDITIONAL ADVERSE EFFECTS BEYOND THE SCOPE OF THE OPINION
5) INCLUDE AS ATTACHMENTS ANY NECESSARY APPROVALS BY STATE AGENCIES.

Date
Designed A. Childs
Drawn A. Childs
Checked
Approved
Title CTUIR Grande Ronde Fish Habitat Biologist

ROCK CREEK FISH HABITAT ENHANCEMENT PROJECT
Phase I Graves Creek
HIP III General Conservation & Implementation Measures

File Name

Drawing No. 1

Sheet 2 of 16

LEGEND

- ForTheGirls, LLC /516 Ranch Boundary
- Conservaton Easement/Fence
- Stream
- Channel Alignment
- Channel Construction
- Side Channel/Construction/Re-Activation
- Road Obliteration
- Levee Removal
- Habitat Complexity
  - Type I Large Wood
  - Type II Large Wood
  - Type III Large Wood
  - Habitat Boulders
- Floodplain Overflow Culvert

PLAN VIEW

0 100

Scale in feet

ROCK CREEK

Flow Direction

5000 TYPE 2 ELJ

5001 TYPE 2 ELJ

5002 HABITAT BOULDERS

5003 TYPE 1 ELJ

5004 TYPE 2 ELJ

5005 HABITAT BOULDERS

5006 TYPE 2 ELJ

5007 HABITAT BOULDERS

5008 HABITAT BOULDERS

2231 Habitat Boulders

2232 Type 2 ELJ

2233 Type 2 ELJ

2234 Type 2 ELJ

Tesaro

Northwest Pipeline

Riparian Fence

x section 10

x section 11

Phase 1 Habitat Enhancement, FY2014

Rock Creek Fish Habitat Enhancement Project

For The Girls, Ranch, LLC

Grande Ronde Subbasin, Union County, Oregon

Confederated Tribes of the Umatilla Indian Reservation

		Date
Designed	A. Childs	Jan 2014
Drawn	A. Childs	Jan 2014
Checked		Jan 2014
Approved		
Title	CTUIR Grande Ronde Fish Habitat Biologist	

File Name: *Rock Working.dwg*

Drawing No.: *1*

Sheet *3* of *16*

LEGEND

- ForTheGirls, LLC /516 Ranch Boundary
- Conservaton Easement/Fence
- Stream
- Channel Alignment
- Channel Construction
- Side Channel/Construction/Re-Activation
- Road Obliteration
- Levee Removal
- Habitat Complexity
  - Type I Large Wood
  - Type II Large Wood
  - Type III Large Wood
  - Habitat Boulders
- Floodplain Overflow Culvert

PLAN VIEW

0 100

Scale in feet

ROCK CREEK

Tesaro

Northwest Pipeline

Riparian Fence

Riparian Fence

x section 9

5022 TYPE 1 ELJ

5023 TYPE 2 ELJ

5021 HABIAT BOULDERS

5020 TYPE 2 ELJ

5018 TYPE 1 ELJ

5019 TYPE 1 ELJ

5017 TYPE 1 ELJ

5016 TYPE 2 ELJ

5015 TYPE 2 ELJ

5013 TYPE 1 ELJ

5014 TYPE 2 ELJ

5011 HABITAT BOULDERS

5012 HABITAT BOULDERS

5009 TYPE 1 ELJ

5010 TYPE 2 ELJ

100+00 99+00 98+00 97+00 96+00 95+00 94+00 93+00 92+00 91+00 90+00 89+00 88+00 87+00 86+00 85+00 84+00 83+00 82+

Phase 1 Habitat Enhancement, FY2014

Date

Designed A. Childs Jan 2014

Drawn A. Childs Jan 2014

Checked Jan 2014

Approved

Title CTUIR Grande Ronde Fish Habitat Biologist

Rock Creek Fish Habitat Enhancement Project

For The Girls, Ranch, LLC

Grande Ronde Subbasin, Union County, Oregon

Confederated Tribes of the Umatilla Indian Reservation

File Name *Rock Working.dwg*

Drawing No. *1*

Sheet *4* of *14*

LEGEND

- ForTheGirls, LLC /516 Ranch Boundary
- Conservaton Easement/Fence
- Stream
- Channel Alignment
- Channel Construction
- Side Channel/Construction/Re-Activation
- Road Obliteration
- Levee Removal
- Habitat Complexity
  - Type I Large Wood
  - Type II Large Wood
  - Type III Large Wood
  - Habitat Boulders
- Floodplain Overflow Culvert

PLAN VIEW

0 100

Scale in feet

5034 TYPE 1 ELJ
5039 TYPE 2 ELJ
5041 TYPE 2 ELJ
5035 TYPE 2 ELJ
5037 TYPE 1 ELJ
5038 TYPE 1 ELJ
5033 HABITAT BOULDERS
5030 TYPE 2 ELJ
5032 TYPE 2 ELJ
5026 TYPE 1 ELJ
5031 TYPE 1 ELJ
5028 TYPE 2 ELJ
5029 TYPE 1 ELJ
5027 TYPE 1 ELJ
5024 TYPE 2 ELJ
5025 TYPE 2 ELJ
5022 TYPE 1 ELJ
5023 TYPE 2 ELJ

x section 6
x section 7
x section 8

116+00 115+00 114+00 113+00 112+00 111+00 110+00 109+00 108+00 107+00 106+00 105+00 104+00 103+00 102+00 101+00 100+00 99+00

1+00 2+00 3+00 4+00

Levee Removal
Levee Removal
Levee Removal
Riparian Fence
Riparian Fence
ROCK CREEK
Fiber Optic
Williams Pipeline
Northwest Pipeline
Flow Direction

Phase 1 Habitat Enhancement, FY2014

		Date
Designed	A. Childs	Jan 2014
Drawn	A. Childs	Jan 2014
Checked		Jan 2014
Approved		
Title	CTUIR Grande Ronde Fish Habitat Biologist	

Rock Creek Fish Habitat Enhancement Project
For The Girls, Ranch, LLC
Grande Ronde Subbasin, Union County, Oregon
Confederated Tribes of the Umatilla Indian Reservation

File Name
Rock Working.dwg

Drawing No.
1

Sheet *5* of *16*

LEGEND

- ForTheGirls, LLC /516 Ranch Boundary
- Conservaton Easement/Fence
- Stream
- Channel Alignment
- Channel Construction
- Side Channel/Construction/Re-Activation
- Road Obliteration
- Levee Removal
- Habitat Complexity
  - Type I Large Wood
  - Type II Large Wood
  - Type III Large Wood
  - Habitat Boulders
- Floodplain Overflow Culvert

PLAN VIEW

0 100

Scale in feet

Riparian Fence
Northwest Pipeline
Side Channel Activation
ROCK CREEK
Levee
Riparian Fence
Riparian Fence
ROCK CREEK
Riparian Fence
William's Pipeline
Fiber Optic
Riparian Fence
Flow Direction
Section 5
Phase 1 Habitat Enhancement FY2014

5052 TYPE 2 ELJ
5050 TYPE 3 ELJ
5049 TYPE 3 ELJ
5051 TYPE 2 ELJ
5048 HABITAT BOULDERS
5047 HABITAT BOULDERS
5046 TYPE 3 ELJ
5045 TYPE 2 ELJ
5044 HABITAT BOULDERS
5043 HABITAT BOULDERS
5042 TYPE 2 ELJ
5036 TYPE 2 ELJ
5040 TYPE 2 ELJ
5039 TYPE 2 ELJ
5034 TYPE 1 ELJ

129+00 128+00 127+00 126+00 125+00 124+00 123+00 122+00 121+00 120+00 119+00 118+00 117+00 116+00 113+00
13+00 12+00 11+00 10+00 9+00 8+00 7+00 6+00

Designed A. Childs Jan 2014
Drawn A. Childs Jan 2014
Checked Jan 2014
Approved
Title CTUIR Grande Ronde Fish Habitat Biologist

Rock Creek Fish Habitat Enhancement Project
For The Girls, Ranch, LLC
Grande Ronde Subbasin, Union County, Oregon
Confederated Tribes of the Umatilla Indian Reservation

File Name
Rock Working.dwg

Drawing No.
1

Sheet *6* of *16*

LEGEND

- ForTheGirls, LLC /516 Ranch Boundary
- Conservaton Easement/Fence
- Stream
- Channel Alignment
- Channel Construction
- Side Channel/Construction/Re-Activation
- Road Obliteration
- Levee Removal
- Habitat Complexity
  - Type I Large Wood
  - Type II Large Wood
  - Type III Large Wood
  - Habitat Boulders
- Floodplain Overflow Culvert

PLAN VIEW

0 100

Scale in feet

5063 TYPE 1 ELJ

5062 TYPE 2 ELJ

5061 TYPE 1 ELJ

5060 TYPE 2 ELJ

5059 TYPE 1 ELJ

5058 TYPE 2 ELJ

5057 HABITAT BOULDERS

5056 HABITAT BOULDERS

5055 TYPE 2 ELJ

5054 TYPE 2 ELJ

5053 TYPE 2 ELJ

Northwest Pipeline

Flow Direction

x section

Levee Removal

Levee Removal

Levee Removal

ROCK CREEK

Fiber Optic

OHW

Phase 1 Habitat Enhancement, FY2014

Date	
Designed A. Childs	Jan 2014
Drawn A. Childs	Jan 2014
Checked	Jan 2014
Approved	
Title CTUIR Grande Ronde Fish Habitat Biologist	

Rock Creek Fish Habitat Enhancement Project

For The Girls, Ranch, LLC

Grande Ronde Subbasin, Union County, Oregon

Confederated Tribes of the Umatilla Indian Reservation

File Name *Rock Working.dwg*

Drawing No. *1*

Sheet *7* of *16*

LEGEND

- ForTheGirls, LLC /516 Ranch Boundary
- Conservaton Easement/Fence
- Stream
- Channel Alignment
- Channel Construction
- Side Channel/Construction/Re-Activation
- Road Obliteration
- Levee Removal
- Habitat Complexity
  - Type I Large Wood
  - Type II Large Wood
  - Type III Large Wood
  - Habitat Boulders
- Floodplain Overflow Culvert

PLAN VIEW

0 100

Scale in feet

Sheep Creek

ROCK CREEK

Northwest Pipeline

Flow Direction

Side Channel Activation

x section 3

5062 TYPE 2 ELJ
5063 TYPE 1 ELJ
5064 TYPE 1 ELJ
5065 TYPE 2 ELJ
5066 TYPE 2 ELJ
5067 TYPE 3 ELJ
5068 TYPE 3 ELJ
5069 TYPE 3 ELJ
5070 TYPE 3 ELJ
5071 TYPE 3 ELJ
5072 TYPE 3 ELJ
5073 TYPE 2 ELJ
5074 TYPE 2 ELJ
5075 TYPE 1 ELJ
5076 TYPE 2 ELJ
5077 TYPE 2 ELJ
5078 TYPE 2 ELJ
5079 TYPE 1 ELJ
5080 TYPE 1 ELJ
5081 TYPE 2 ELJ
5082 TYPE 2 ELJ
5083 TYPE 2 ELJ
5092 TYPE 1 ELJ
5093 TYPE 2 ELJ
5094 TYPE 2 ELJ
5095 TYPE 2 ELJ
5096 TYPE 1 ELJ
5097 TYPE 1 ELJ
5099 TYPE 1 ELJ
5100 TYPE 1 ELJ

145+00 146+00 147+00 148+00 149+00 150+00 151+00 152+00 153+00 154+00 155+00 156+00 157+00 158+00 159+00 160+00 161+00 162+00 164+ 165+00

OHW

3195 3190 3185 3180

Phase 1 Habitat Enhancement, FY2014

Date
Designed A. Childs Jan 2014
Drawn A. Childs Jan 2014
Checked Jan 2014
Approved
Title CTUIR Grande Ronde Fish Habitat Biologist

Rock Creek Fish Habitat Enhancement Project
For The Girls, Ranch, LLC
Grande Ronde Subbasin, Union County, Oregon
Confederated Tribes of the Umatilla Indian Reservation

File Name
Rock Working.dwg
Drawing No.
1
Sheet *8* of *16*

LEGEND

- ForTheGirls, LLC /516 Ranch Boundary
- Conservaton Easement/Fence
- Stream
- Channel Alignment
- Channel Construction
- Side Channel/Construction/Re-Activation
- Road Obliteration
- Levee Removal
- Habitat Complexity
  - Type I Large Wood
  - Type II Large Wood
  - Type III Large Wood
  - Habitat Boulders
- Floodplain Overflow Culvert

PLAN VIEW

0 100

Scale in feet

TYPE 2 ELJ

Sheep Creek

5086
TYPE 2 ELJ

Northwest Pipeline

5085
TYPE 2 ELJ

5084
TYPE 2 ELJ

Riparian Fence

5083
TYPE 2 ELJ

5103
TYPE 2 ELJ

Rock Creek

171+00

170+00

169+00

168+

TYPE 1

Phase 1 Habitat Enhancement, FY2014

Date

Designed A. Childs Jan 2014

Drawn A. Childs Jan 2014

Checked Jan 2014

Approved

Title CTUIR Grande Ronde Fish Habitat Biologist

Rock Creek Fish Habitat Enhancement Project

For The Girls, Ranch, LLC

Grande Ronde Subbasin, Union County, Oregon

Confederated Tribes of the Umatilla Indian Reservation

File Name *Rock Working.dwg*

Drawing No. *1*

Sheet *9* of *16*

LEGEND

- ForTheGirls, LLC /516 Ranch Boundary
- Conservaton Easement/Fence
- Stream
- Channel Alignment
- Channel Construction
- Side Channel/Construction/Re-Activation
- Road Obliteration
- Levee Removal
- Habitat Complexity
  - Type I Large Wood
  - Type II Large Wood
  - Type III Large Wood
  - Habitat Boulders
- Floodplain Overflow Culvert

PLAN VIEW

0 200

Scale in feet

For The Girls Ranch, LLC/516 Ranch Boundary

5091 TYPE 2 ELJ

5090 TYPE 2 ELJ

5089 TYPE 2 ELJ

5088 TYPE 2 ELJ

5087 TYPE 2 ELJ

5086 TYPE 2 ELJ

5109 TYPE 3 ELJ

5110 TYPE 2 ELJ

Tesaro

Sheep Creek

ROCK CREEK

Phase 1 Habitat Enhancement, FY2014

		Date
Designed	A. Childs	Jan 2014
Drawn	A. Childs	Jan 2014
Checked		Jan 2014
Approved		
Title	CTUIR Grande Ronde Fish Habitat Biologist	

Rock Creek Fish Habitat Enhancement Project

For The Girls, Ranch, LLC

Grande Ronde Subbasin, Union County, Oregon

Confederated Tribes of the Umatilla Indian Reservation

File Name: *Rock Working.dwg*

Drawing No.: *1*

Sheet *10* of *16*

LEGEND

- ForTheGirls, LLC /516 Ranch Boundary
- Conservaton Easement/Fence
- Stream
- Channel Alignment
- Channel Construction
- Side Channel/Construction/Re-Activation
- Road Obliteration
- Levee Removal
- Habitat Complexity
  - Type I Large Wood
  - Type II Large Wood
  - Type III Large Wood
  - Habitat Boulders
- Floodplain Overflow Culvert

PLAN VIEW

0 100

Scale in feet

Northwest Pipeline

Rock Creek

Sheep Creek

Riparian Fence

5106 TYPE 2 ELJ

5105 TYPE 2 ELJ

5104 TYPE 1 ELJ

5103 TYPE 2 ELJ

5102 TYPE 2 ELJ

5101 TYPE 2 ELJ

5100 TYPE 1 ELJ

5099 TYPE 1 ELJ

5098 TYPE 1 ELJ

5097 TYPE 1 ELJ

5096 TYPE 1 ELJ

5083 PE 2 ELJ

179+00 178+00 177+00 176+00 175+00 174+00 173+00 172+00 171+00 170+00 169+00 168+00 167+00 166+00 165+00 164+00 163+00 162+00 161+00

Phase 1 Habitat Enhancement, FY2014

Rock Creek Fish Habitat Enhancement Project

For The Girls, Ranch, LLC

Grande Ronde Subbasin, Union County, Oregon

Confederated Tribes of the Umatilla Indian Reservation

		Date
Designed	A. Childs	Jan 2014
Drawn	A. Childs	Jan 2014
Checked		Jan 2014
Approved		
Title	CTUIR Grande Ronde Fish Habitat Biologist	

File Name: *Rock Working.dwg*

Drawing No. *1*

Sheet *11* of *16*

LEGEND

- ForTheGirls, LLC /516 Ranch Boundary
- Conservaton Easement/Fence
- Stream
- Channel Alignment
- Channel Construction
- Side Channel/Construction/Re-Activation
- Road Obliteration
- Levee Removal
- Habitat Complexity
  - Type I Large Wood
  - Type II Large Wood
  - Type III Large Wood
  - Habitat Boulders
- Floodplain Overflow Culvert

PLAN VIEW

0 100

Scale in feet

ROCK CREEK

Riparian Fence

Riparian Fence

Flow Direction

Flow Direction

5116 TYPE 1 ELJ

5115 TYPE 1 ELJ

5114 TYPE 1 ELJ

5113 TYPE 2 ELJ

5112 TYPE 2 ELJ

5111 TYPE 2 ELJ

5110 TYPE 2 ELJ

5109 TYPE 3 ELJ

5108 TYPE 3 ELJ

5107 TYPE 3 ELJ

200+00 199+00 198+00 197+00 196+00 195+00 194+00 193+00 192+00 191+00 190+00 189+00 188+00 187+00 186+00 185+00 184+00 183+00 182+00 181+00 180+00

Phase 1 Habitat Enhancement, FY2014

Rock Creek Fish Habitat Enhancement Project

For The Girls, Ranch, LLC

Grande Ronde Subbasin, Union County, Oregon

Confederated Tribes of the Umatilla Indian Reservation

		Date
Designed	A. Childs	Jan 2014
Drawn	A. Childs	Jan 2014
Checked		Jan 2014
Approved		
Title	CTUIR Grande Ronde Fish Habitat Biologist	

File Name: *Rock Working.dwg*

Drawing No.: *1*

Sheet *12* of *16*

LEGEND

- ForTheGirls, LLC /516 Ranch Boundary
- Conservaton Easement/Fence
- Stream
- Channel Alignment
- Channel Construction
- Side Channel/Construction/Re-Activation
- Road Obliteration
- Levee Removal
- Habitat Complexity
  - Type I Large Wood
  - Type II Large Wood
  - Type III Large Wood
  - Habitat Boulders
- Floodplain Overflow Culvert

PLAN VIEW

0 100

Scale in feet

For The Girls Ranch, LLC/516 Ranch Boundary

ROCK CREEK

Riparian Fence

Flow Direction

5119 TYPE 1 ELJ

5118 TYPE 1 ELJ

5117 TYPE 2 ELJ

5116 TYPE 1 ELJ

5120 TYPE 1 ELJ

5121 TYPE 1 ELJ

5122 TYPE 1 ELJ

200+00 201+00 202+00 203+00 204+00 205+00 206+00 207+00 208+00 209+00 210+00 211+00 212+00 213+00 214+00 215+00

Phase 1 Habitat Enhancement, FY2014

Date

Designed A. Childs Jan 2014

Drawn A. Childs Jan 2014

Checked Jan 2014

Approved

Title CTUIR Grande Ronde Fish Habitat Biologist

Rock Creek Fish Habitat Enhancement Project

For The Girls, Ranch, LLC

Grande Ronde Subbasin, Union County, Oregon

Confederated Tribes of the Umatilla Indian Reservation

File Name *Rock Working.dwg*

Drawing No. *1*

Sheet *13* of *16*

LEGEND

- ForTheGirls, LLC /516 Ranch Boundary
- Conservaton Easement/Fence
- Stream
- Channel Alignment
- Channel Construction
- Side Channel/Construction/Re-Activation
- Road Obliteration
- Levee Removal
- Habitat Complexity
  - Type I Large Wood
  - Type II Large Wood
  - Type III Large Wood
  - Habitat Boulders
- Floodplain Overflow Culvert

PLAN VIEW

0 100

Scale in feet

254+00
253+00
252+00
251+00
250+00
249+00
248+00
247+00
246+00
245+00
244+00
243+00
242+00
241+00
240+00
239+00
238+00
237+00
236+00

5134 TYPE 1 ELJ
5133 TYPE 1 ELJ
5132 TYPE 2 ELJ
5130 TYPE 1 ELJ
5129 TYPE 1 ELJ
5128 TYPE 1 ELJ
5127 TYPE 2 ELJ
5126 TYPE 1 ELJ
5125 TYPE 2 ELJ
5124 TYPE 1 ELJ
5123 TYPE 1 ELJ

Rock Creek

Little Rock Creek

Riparian Fence

For The Girls Ranch, LLC/516 Ranch Boundary

Phase 1 Habitat Enhancement, FY2014

Date

Designed A. Childs Jan 2014

Drawn A. Childs Jan 2014

Checked Jan 2014

Approved

Title CTUIR Grande Ronde Fish Habitat Biologist

Rock Creek Fish Habitat Enhancement Project

For The Girls, Ranch, LLC

Grande Ronde Subbasin, Union County, Oregon

Confederated Tribes of the Umatilla Indian Reservation

File Name *Rock Working.dwg*

Drawing No. *1*

Sheet *14* of *16*

LEGEND

- ForTheGirls, LLC /516 Ranch Boundary
- Conservaton Easement/Fence
- Stream
- Channel Alignment
- Channel Construction
- Side Channel/Construction/Re-Activation
- Road Obliteration
- Levee Removal
- Habitat Complexity
  - Type I Large Wood
  - Type II Large Wood
  - Type III Large Wood
  - Habitat Boulders
- Floodplain Overflow Culvert

PLAN VIEW

0 100

Scale in feet

For The Girls Ranch, LLC/516 Ranch Boundary

264+34.83

264+00

263+00

262+00

261+00

260+00

259+00

258+00

257+00

256+00

255+00

254+00

253+00

252+00

251+00

250+00

249+00

248+00

247+00

5131 TYPE 1 ELJ

5130 TYPE 1 ELJ

5129 TYPE 1 ELJ

5128

5132 TYPE 2 ELJ

5133 TYPE 1 ELJ

5134 TYPE 1 ELJ

5135 TYPE 1 ELJ

5136 TYPE 1 ELJ

5137 TYPE 1 ELJ

5138 TYPE 2 ELJ

5139 TYPE 2 ELJ

Rock Creek

Little Rock Creek

For The Girls Ranch, LLC/516 Ranch Boundary

Phase 1 Habitat Enhancement, FY2014

Date

Designed A. Childs Jan 2014

Drawn A. Childs Jan 2014

Checked Jan 2014

Approved

Title CTUIR Grande Ronde Fish Habitat Biologist

Rock Creek Fish Habitat Enhancement Project

For The Girls, Ranch, LLC

Grande Ronde Subbasin, Union County, Oregon

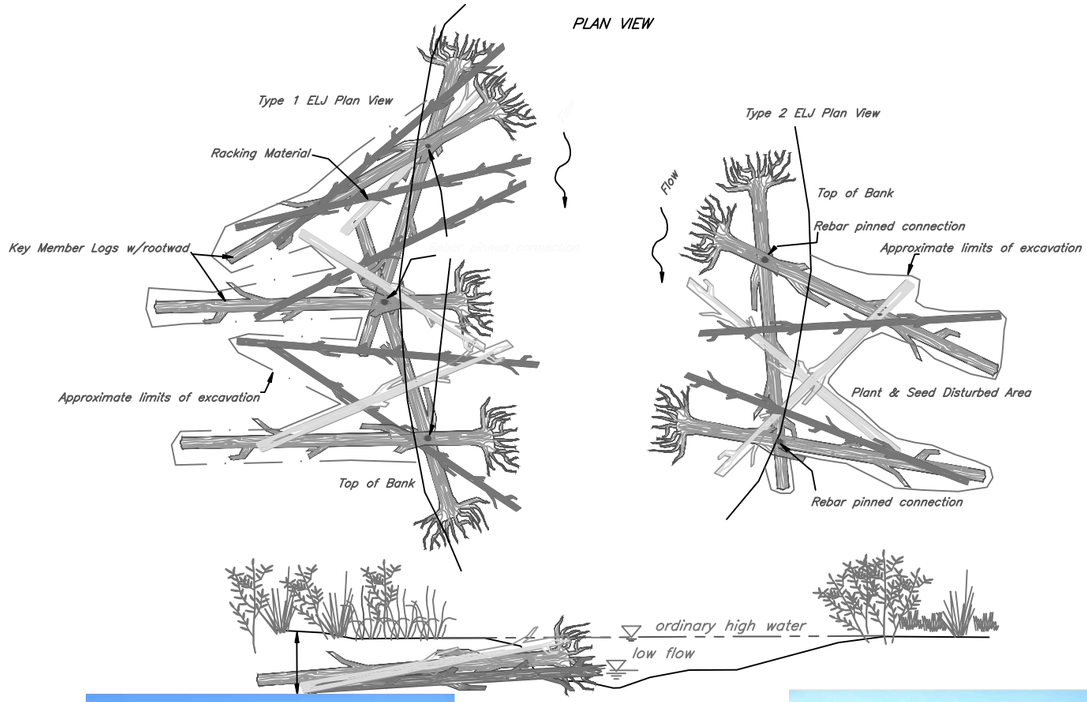
Confederated Tribes of the Umatilla Indian Reservation

File Name *Rock Working.dwg*

Drawing No. *1*

Sheet *15* of *16*

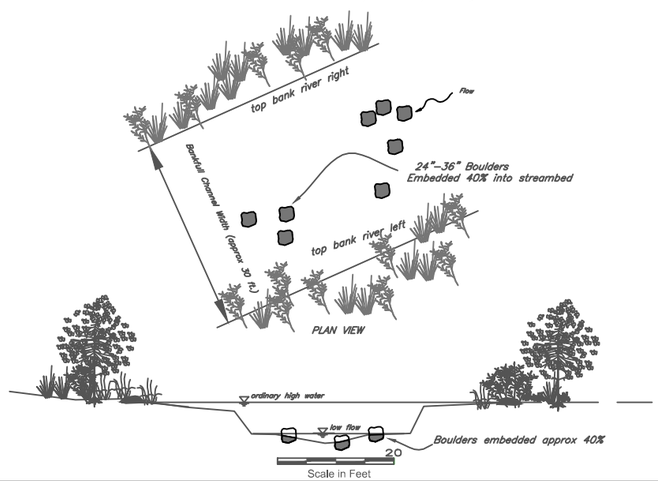
TYPE 1 & 2 ELJ
Habitat Complexity



TYPICAL POOL CROSS SECTION & ELJ
Station 101+20 @ Cross Section 8

0 20
Scale in Feet

Habitat Boulders/Complexity



Point Number	Northing	Easting	Raw Description
5000	613935.0031'	8789903.9630'	TYPE 2 ELJ
5001	613881.3013'	8790001.3370'	TYPE 2 ELJ
5002	613747.9618'	8790075.9350'	HABITAT BOULDERS
5003	613626.5362'	8790223.6640'	TYPE 1 ELJ
5004	613576.2324'	8790230.2660'	TYPE 2 ELJ
5005	613490.6319'	8790272.7460'	HABITAT BOULDERS
5006	613385.9173'	8790325.0770'	TYPE 2 ELJ
5007	613251.8932'	8790515.1200'	HABITAT BOULDERS
5008	613105.0906'	8790679.2400'	HABITAT BOULDERS
5009	613073.9568'	8790759.4480'	TYPE 1 ELJ
5010	613028.1394'	8790766.0940'	TYPE 2 ELJ
5011	612864.3744'	8790860.3750'	HABITAT BOULDERS
5012	612759.1266'	8790918.6770'	HABITAT BOULDERS
5013	612684.5677'	8791000.5010'	TYPE 1 ELJ
5014	612587.9017'	8790991.3060'	TYPE 2 ELJ
5015	612533.1291'	8791026.3940'	TYPE 2 ELJ
5016	612537.5710'	8791069.9480'	TYPE 2 ELJ
5017	612522.2903'	8791192.0080'	TYPE 1 ELJ
5018	612460.0143'	8791287.4020'	TYPE 1 ELJ
5019	612420.6085'	8791271.7910'	TYPE 1 ELJ
5020	612231.4620'	8791316.9450'	TYPE 2 ELJ
5021	612008.6833'	8791552.0780'	HABIAT BOULDERS
5022	611986.1706'	8791706.9070'	TYPE 1 ELJ
5023	611940.2096'	8791705.4580'	TYPE 2 ELJ
5024	611802.9394'	8791859.9170'	TYPE 2 ELJ
5025	611749.6212'	8791881.4850'	TYPE 2 ELJ
5026	611567.1625'	8792054.0350'	TYPE 1 ELJ
5027	611468.5543'	8792003.6480'	TYPE 1 ELJ
5028	611450.0321'	8792050.4030'	TYPE 2 ELJ
5029	611392.1405'	8792042.2240'	TYPE 1 ELJ
5030	611406.7924'	8792085.7140'	TYPE 2 ELJ
5031	611355.4370'	8792113.5240'	TYPE 1 ELJ
5032	611380.1810'	8792162.6000'	TYPE 2 ELJ
5033	611337.7288'	8792387.7830'	HABITAT BOULDERS
5034	611310.6238'	8792605.7940'	TYPE 1 ELJ
5035	611250.4794'	8792603.7230'	TYPE 2 ELJ
5036	611196.8745'	8792624.0880'	TYPE 2 ELJ
5037	611115.3695'	8792564.2600'	TYPE 1 ELJ
5038	611061.3368'	8792576.8130'	TYPE 1 ELJ
5039	611087.5303'	8792609.7260'	TYPE 2 ELJ
5040	611050.2914'	8792636.2570'	TYPE 2 ELJ
5041	611017.8070'	8792582.3570'	TYPE 2 ELJ
5042	610965.1333'	8792764.7550'	TYPE 2 ELJ
5043	610908.9660'	8792809.7130'	HABITAT BOULDERS
5044	610728.3646'	8792953.1960'	HABITAT BOULDERS
5045	610671.8715'	8793026.6360'	TYPE 2 ELJ
5046	610665.3030'	8793108.9460'	TYPE 3 ELJ
5047	610586.7887'	8793127.6630'	HABITAT BOULDERS
5048	610469.5538'	8793238.3720'	HABITAT BOULDERS
5049	610569.0833'	8793330.5520'	TYPE 3 ELJ
5050	610442.9644'	8793373.6680'	TYPE 3 ELJ
5051	610398.9515'	8793330.2660'	TYPE 2 ELJ
5052	610397.7519'	8793592.3050'	TYPE 2 ELJ
5053	610184.2182'	8793906.0730'	TYPE 2 ELJ
5054	610141.9134'	8793932.1950'	TYPE 2 ELJ
5055	610096.2997'	8793917.2370'	TYPE 2 ELJ
5056	609949.2674'	8793970.6490'	HABITAT BOULDERS
5057	609738.2554'	8794027.2130'	HABITAT BOULDERS
5058	609443.6286'	8794034.2960'	TYPE 2 ELJ
5059	609290.2739'	8794218.2190'	TYPE 1 ELJ
5060	609241.3526'	8794216.1980'	TYPE 2 ELJ
5061	609123.9900'	8794238.1970'	TYPE 1 ELJ
5062	609094.3561'	8794290.7020'	TYPE 2 ELJ
5063	609036.0787'	8794414.4360'	TYPE 1 ELJ
5064	608990.6103'	8794459.3307'	TYPE 1 ELJ
5065	608948.6286'	8794430.3400'	TYPE 2 ELJ
5066	608942.8233'	8794303.5060'	TYPE 3 ELJ
5067	608912.8488'	8794351.5250'	TYPE 3 ELJ
5068	608860.1914'	8794359.6550'	TYPE 3 ELJ
5069	608790.3377'	8794471.1840'	TYPE 3 ELJ
5070	608964.8923'	8794498.6410'	TYPE 3 ELJ

Point Number	Northing	Easting	Raw Description
5071	608886.3417'	8794596.5180'	TYPE 3 ELJ
5072	608796.4685'	8794639.5720'	TYPE 3 ELJ
5073	608801.4619'	8794527.4030'	TYPE 2 ELJ
5074	608725.7304'	8794640.7510'	TYPE 2 ELJ
5075	608582.6671'	8794721.1290'	TYPE 1 ELJ
5076	608537.3712'	8794692.8050'	TYPE 2 ELJ
5077	608431.6605'	8794696.3410'	TYPE 2 ELJ
5078	608355.2408'	8794696.4790'	TYPE 2 ELJ
5079	608191.5356'	8794786.9730'	TYPE 1 ELJ
5080	608139.5766'	8794801.5000'	TYPE 1 ELJ
5081	608109.9007'	8795039.1900'	TYPE 2 ELJ
5082	608108.4964'	8795213.5200'	TYPE 2 ELJ
5083	607966.0337'	8795398.7250'	TYPE 2 ELJ
5084	608041.3726'	8795678.7030'	TYPE 2 ELJ
5085	608022.1805'	8795752.2770'	TYPE 2 ELJ
5086	607798.1764'	8795963.8670'	TYPE 2 ELJ
5087	607513.4648'	8796498.7000'	TYPE 2 ELJ
5088	607443.3938'	8796847.6170'	TYPE 2 ELJ
5089	607458.3923'	8796905.0680'	TYPE 2 ELJ
5090	607386.6600'	8796953.3790'	TYPE 2 ELJ
5091	607402.8712'	8797604.7100'	TYPE 2 ELJ
5092	608034.8731'	8794771.2370'	TYPE 1 ELJ
5093	607976.2133'	8794854.1820'	TYPE 2 ELJ
5094	607905.8189'	8795000.8810'	TYPE 2 ELJ
5095	607868.0633'	8794997.5740'	TYPE 2 ELJ
5096	607874.6705'	8795068.4460'	TYPE 1 ELJ
5097	607773.9000'	8795124.4960'	TYPE 1 ELJ
5098	607653.2108'	8795109.3620'	TYPE 1 ELJ
5099	607723.8195'	8795202.5550'	TYPE 1 ELJ
5100	607709.6982'	8795296.1080'	TYPE 1 ELJ
5101	607648.9595'	8795285.5930'	TYPE 2 ELJ
5102	607604.7270'	8795301.4790'	TYPE 2 ELJ
5103	607356.8596'	8795430.6610'	TYPE 2 ELJ
5104	607076.6509'	8795483.4470'	TYPE 1 ELJ
5105	607026.1112'	8795545.6640'	TYPE 2 ELJ
5106	606527.8600'	8795733.8870'	TYPE 2 ELJ
5107	606394.9926'	8795734.4720'	TYPE 3 ELJ
5108	606375.3279'	8795829.2290'	TYPE 3 ELJ
5109	605975.9773'	8796070.2650'	TYPE 3 ELJ
5110	605991.3535'	8796018.7390'	TYPE 2 ELJ
5111	605718.0658'	8796117.3090'	TYPE 2 ELJ
5112	605370.2172'	8796124.4250'	TYPE 2 ELJ
5113	605307.5951'	8796154.0920'	TYPE 2 ELJ
5114	605142.6928'	8796252.8390'	TYPE 1 ELJ
5115	605163.5652'	8796622.2850'	TYPE 1 ELJ
5116	605037.7239'	8796753.4270'	TYPE 1 ELJ
5117	604959.7097'	8797067.2210'	TYPE 2 ELJ
5118	605029.7431'	8797126.6390'	TYPE 1 ELJ
5119	605027.9341'	8797198.0090'	TYPE 1 ELJ
5120	604699.2694'	8797481.2090'	TYPE 1 ELJ
5121	604575.3812'	8797474.4920'	TYPE 1 ELJ
5122	604423.9165'	8797709.4860'	TYPE 1 ELJ
5123	602763.2792'	8798655.7190'	TYPE 1 ELJ
5124	602512.8693'	8798802.0110'	TYPE 1 ELJ
5125	602460.2801'	8798795.7440'	TYPE 2 ELJ
5126	602215.9149'	8798791.3460'	TYPE 1 ELJ
5127	602197.3736'	8798859.5740'	TYPE 2 ELJ
5128	602086.4692'	8799094.9580'	TYPE 1 ELJ
5129	602019.9952'	8799385.7830'	TYPE 1 ELJ
5130	601951.0907'	8799414.6240'	TYPE 1 ELJ
5131	601837.3065'	8800250.7820'	TYPE 1 ELJ
5132	601651.7586'	8799243.0970'	TYPE 2 ELJ
5133	601274.0699'	8799432.4560'	TYPE 1 ELJ
5134	601260.4506'	8799536.9190'	TYPE 1 ELJ
5135	600967.4506'	8799585.3190'	TYPE 1 ELJ
5136	600804.4731'	8799733.0440'	TYPE 1 ELJ
5137	600746.3645'	8799685.9257'	TYPE 1 ELJ
5138	600420.3722'	8799869.2650'	TYPE 2 ELJ
5139	600343.8569'	8799841.6110'	TYPE 2 ELJ

Date

Designed A. Childs

Drawn A. Childs

Checked

Approved

Title CTUIR Grande Ronde Fish Habitat Biologist

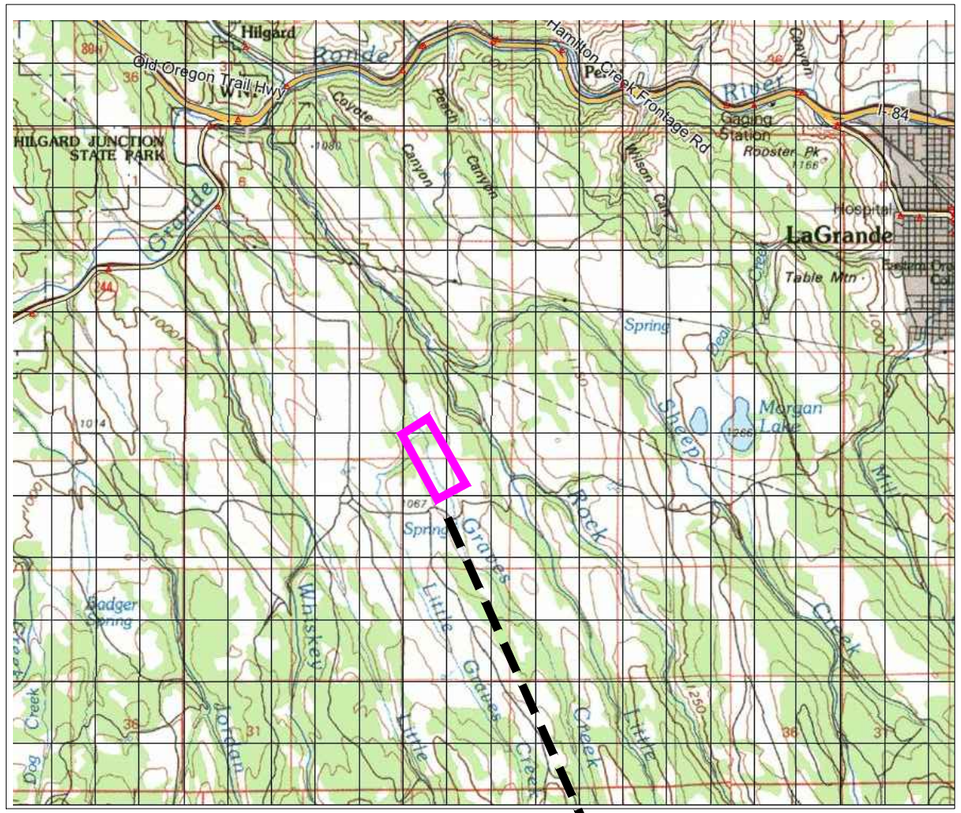
Rock Creek Fish Habitat Enhancement Project
Graves Creek Restoration Plan
For The Girls, Ranch, LLC
Grande Ronde Subbasin, Union County, Oregon
Confederated Tribes of the Umatilla Indian Reservation

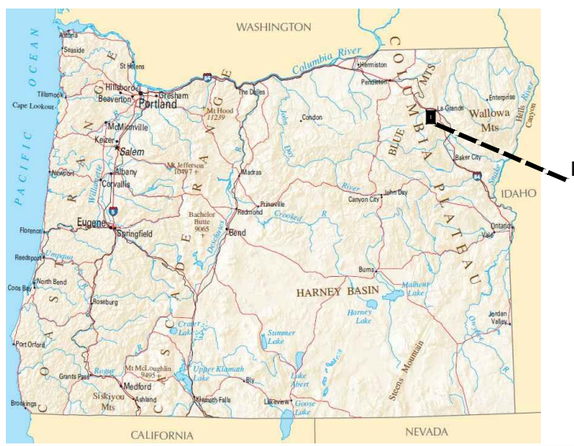
File Name

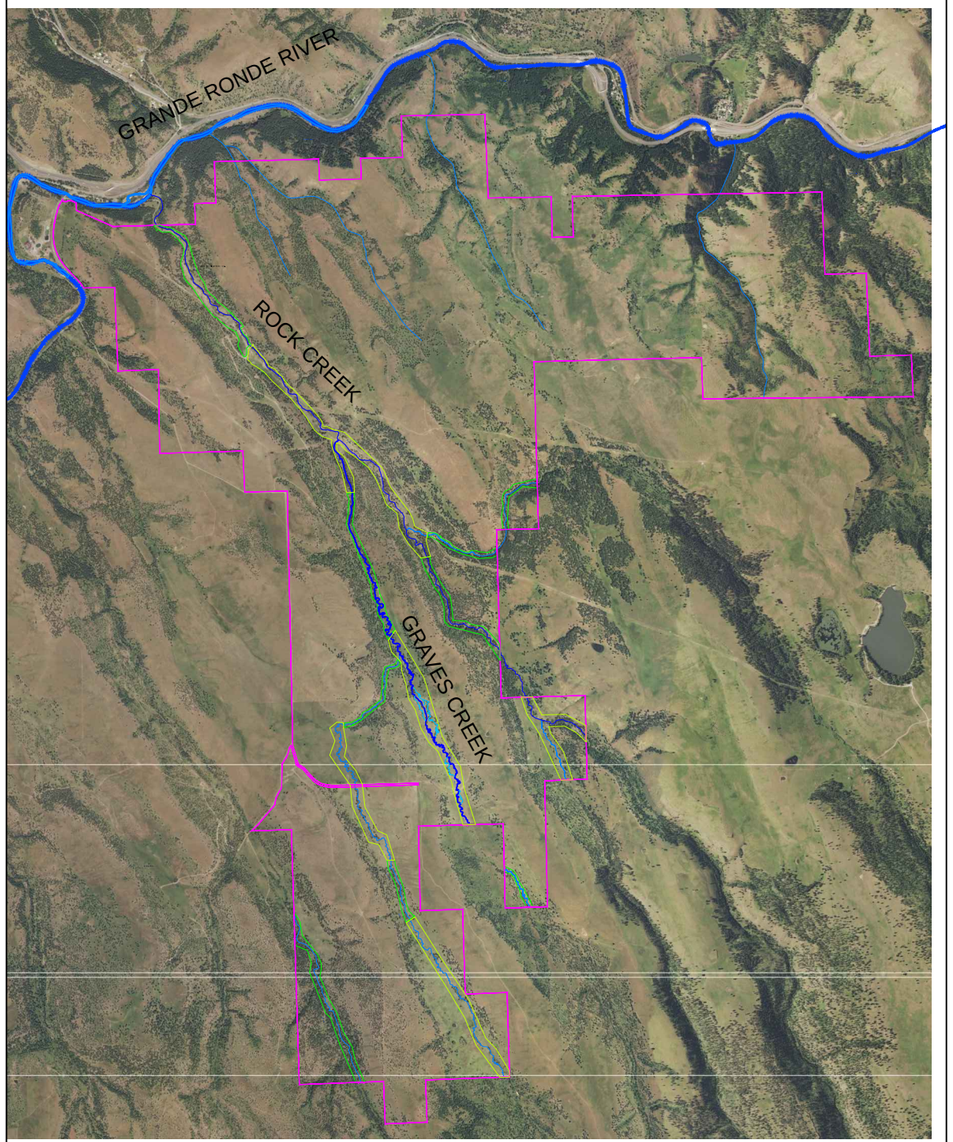
Drawing No. 1

Sheet 16 of 16

ROCK CREEK FISH HABITAT ENHANCEMENT PROJECT - Graves Creek Phase 2







Rock Creek Fish Habitat Enhancement Project
Graves Creek Restoration Plan
For The Girls, Ranch, LLC
Grande Ronde Subbasin, Union County, Oregon
Confederated Tribes of the Umatilla Indian Reservation

		Date
Designed	A. Childs	
Drawn	A. Childs	
Checked		
Approved		
Title	CTUIR Grande Ronde Fish Habitat Biologist	

File Name

Drawing No. 1

Sheet 1 of 4

HIP III GENERAL CONSERVATION MEASURES APPLICABLE TO ALL ACTIONS:
THE ACTIVITIES COVERED UNDER THIS CONSULTATION ARE INTENDED TO PROTECT AND RESTORE FISH AND WILDLIFE HABITAT WITH LONG-TERM BENEFITS TO ESA-LISTED SPECIES. HOWEVER, PROJECT CONSTRUCTION ACTIVITIES HAVE SHORT-TERM ADVERSE EFFECTS TO ESA-LISTED SPECIES AND THEIR CRITICAL HABITATS. TO MINIMIZE THESE SHORT-TERM ADVERSE EFFECTS AND MAKE THEM PREDICTABLE FOR PURPOSES OF PROGRAMMATIC ANALYSIS, BPA PROPOSES THE FOLLOWING GENERAL CONSERVATION MEASURES FOR USE AS APPLICABLE TO EACH PROJECT.

DOCUMENTATION: TO BE POSTED ONSITE BY THE CONTRACTOR IN A LOCATION VISIBLE TO THE PUBLIC.
1) NAME(S), PHONE NUMBER(S), AND ADDRESS(ES) OF THE PERSON(S) RESPONSIBLE FOR OVERSIGHT.
2) A DESCRIPTION OF HAZARDOUS MATERIALS THAT WILL BE USED, INCLUDING INVENTORY, STORAGE, AND HANDLING PROCEDURES.
3) PROCEDURES TO CONTAIN AND CONTROL A SPILL OF ANY HAZARDOUS MATERIAL GENERATED, USED OR STORED ON-SITE, INCLUDING NOTIFICATION OF PROPER AUTHORITIES.
4) A STANDING ORDER TO CEASE WORK IN THE EVENT OF HIGH FLOWS EXCEPT AS NECESSARY TO MINIMIZE RESOURCE DAMAGE (ABOVE THOSE ADDRESSED IN THE DESIGN AND IMPLEMENTATION PLANS) OR EXCEEDANCE OF TAKE OR WATER QUALITY LIMITATIONS.

INSPECTIONS AND MONITORING : PROJECT SPONSOR STAFF OR THEIR DESIGNATED REPRESENTATIVE WILL PROVIDE IMPLEMENTATION MONITORING TO ENSURE COMPLIANCE WITH THIS BIOLOGICAL OPINION, INCLUDING:
1) GENERAL CONSERVATION MEASURES AND PROJECT DESIGN CRITERIA ARE ADEQUATELY FOLLOWED; AND
2) EFFECTS TO ESA-LISTED SPECIES ARE NOT GREATER THAN PREDICTED AND TAKE LIMITATIONS ARE NOT EXCEEDED.

STATE AND FEDERAL PERMITS: ALL APPLICABLE REGULATORY PERMITS AND OFFICIAL PROJECT AUTHORIZATIONS WILL BE OBTAINED BEFORE PROJECT IMPLEMENTATION. THESE PERMITS AND AUTHORIZATIONS INCLUDE, BUT ARE NOT LIMITED TO, NATIONAL ENVIRONMENTAL POLICY ACT, NATIONAL HISTORIC PRESERVATION ACT, AND THE APPROPRIATE STATE AGENCY REMOVAL AND FILL PERMIT, ARMY CORPS OF ENGINEERS 404 PERMITS, AND ASSOCIATED 401 WATER QUALITY CERTIFICATIONS.

TIMING OF IN-WATER WORK: APPROPRIATE STATE (OREGON DEPARTMENT OF FISH AND WILDLIFE(ODFW), WASHINGTON DEPARTMENT OF FISH AND WILDLIFE (WDFW), OR IDAHO DEPARTMENT OF FISH AND GAME (IDFG), GUIDELINES FOR TIMING OF IN-WATER WORK WINDOWS (IWW) WILL BE FOLLOWED. THE NEED FOR ISOLATION AND DEWATERING WILL ALSO BE EVALUATED WHEN DETERMINING THE APPROPRIATE IWW FOR THE SPECIES AFFECTED. EXCEPTIONS TO ODFW, WDFW, OR IDFG, IN-WATER WORK WINDOWS WILL BE PROCESSED USING THE **VARIANCE** PROCEDURES DESCRIBED ON THIS SHEET:
- ODFW (OREGON DEPARTMENT OF FISH AND WILDLIFE) 2008. OREGON GUIDELINES FOR TIMING OF IN-WATER WORK TO PROTECT FISH AND WILDLIFE RESOURCES. AVAILABLE AT: HTTP://WWW.DFW.STATE.OR.US/LANDS/INWATER/OREGON_GUIDELINES_FOR_TIMING_OF_%20INWATER_WORK2008.PDF
- WDFW (WASHINGTON DEPARTMENT OF FISH AND WILDLIFE) 2010. TIMES WHEN SPAWNING OR INCUBATING SALMONIDS ARE LEAST LIKELY TO BE WITHIN WASHINGTON STATE FRESHWATERS. AVAILABLE AT: HTTP://WDFW.WA.GOV/LICENSING/HPA/FRESHWATER_INCUBATION_AVOIDANCE_TIMES_28MAY2010.PDF

SITE LAYOUT AND FLAGGING: PRIOR TO CONSTRUCTION, THE ACTION AREA WILL BE CLEARLY FLAGGED TO IDENTIFY THE FOLLOWING:
1) SENSITIVE RESOURCE AREAS, SUCH AS AREAS BELOW ORDINARY HIGH WATER, SPAWNING AREAS, SPRINGS, AND WETLANDS;
2) EQUIPMENT ENTRY AND EXIT POINTS;
3) ROAD AND STREAM CROSSING ALIGNMENTS;
4) STAGING, STORAGE, AND STOCKPILE AREAS; AND
5) NO-SPRAY AREAS AND BUFFERS.

TEMPORARY ACCESS ROADS AND PATHS:
1) EXISTING ACCESS ROADS AND PATHS WILL BE PREFERENTIALLY USED WHENEVER REASONABLE, AND THE NUMBER AND LENGTH OF TEMPORARY ACCESS ROADS AND PATHS THROUGH RIPARIAN AREAS AND FLOODPLAINS WILL BE MINIMIZED TO LESSEN SOIL DISTURBANCE AND COMPACTION, AND IMPACTS TO VEGETATION.
2) TEMPORARY ACCESS ROADS AND PATHS WILL NOT BE BUILT ON SLOPES WHERE GRADE, SOIL, OR OTHER FEATURES SUGGEST A LIKELIHOOD OF EXCESSIVE EROSION OR FAILURE. IF SLOPES ARE STEEPER THAN 30%, THEN THE ROAD WILL BE DESIGNED BY A CIVIL ENGINEER WITH EXPERIENCE IN STEEP ROAD DESIGN.
3) THE REMOVAL OF RIPARIAN VEGETATION DURING CONSTRUCTION OF TEMPORARY ACCESS ROADS WILL BE MINIMIZED. WHEN TEMPORARY VEGETATION REMOVAL IS REQUIRED, VEGETATION WILL BE CUT AT GROUND LEVEL (NOT GRUBBED).
4) AT PROJECT COMPLETION, ALL TEMPORARY ACCESS ROADS AND PATHS WILL BE OBLITERATED, AND THE SOIL WILL BE STABILIZED AND REVEGETATED. ROAD AND PATH OBLITERATION REFERS TO THE MOST COMPREHENSIVE DEGREE OF DECOMMISSIONING AND INVOLVES DECOMPACTING THE SURFACE AND DITCH, PULLING THE FILL MATERIAL ONTO THE RUNNING SURFACE, AND RESHAPING TO MATCH THE ORIGINAL CONTOUR.
5) TEMPORARY ROADS AND PATHS IN WET AREAS OR AREAS PRONE TO FLOODING WILL BE OBLITERATED BY THE END OF THE IN-WATER WORK WINDOW.

TEMPORARY STREAM CROSSINGS :
1) EXISTING STREAM CROSSINGS WILL BE PREFERENTIALLY USED WHENEVER REASONABLE, AND THE NUMBER OF TEMPORARY STREAM CROSSINGS WILL BE MINIMIZED.
2) TEMPORARY BRIDGES AND CULVERTS WILL BE INSTALLED TO ALLOW FOR EQUIPMENT AND VEHICLE CROSSING OVER PERENNIAL STREAMS DURING CONSTRUCTION.
3) VEHICLES AND MACHINERY WILL CROSS STREAMS AT RIGHT ANGLES TO THE MAIN CHANNEL WHEREVER POSSIBLE.
4) THE LOCATION OF THE TEMPORARY CROSSING WILL AVOID AREAS THAT MAY INCREASE THE RISK OF CHANNEL RE-ROUTING OR AVULSION.
5) POTENTIAL SPAWNING HABITAT (I.E., POOL TAILOUTS) AND POOLS WILL BE AVOIDED TO THE MAXIMUM EXTENT POSSIBLE.
6) NO STREAM CROSSINGS WILL OCCUR AT ACTIVE SPAWNING SITES, WHEN HOLDING ADULT LISTED FISH ARE PRESENT, OR WHEN EGGS OR ALEVINS ARE IN THE GRAVEL. THE APPROPRIATE STATE FISH AND WILDLIFE AGENCY WILL BE CONTACTED FOR SPECIFIC TIMING INFORMATION.
7) AFTER PROJECT COMPLETION, TEMPORARY STREAM CROSSINGS WILL BE OBLITERATED AND THE STREAM CHANNEL AND BANKS RESTORED.

STAGING, STORAGE, AND STOCKPILE AREAS:
1) STAGING AREAS (USED FOR CONSTRUCTION EQUIPMENT STORAGE, VEHICLE STORAGE, FUELING, SERVICING, AND HAZARDOUS MATERIAL STORAGE) WILL BE 150-FEET OR MORE FROM ANY NATURAL WATER BODY OR WETLAND, OR ON AN ADJACENT, ESTABLISHED ROAD AREA IN A LOCATION AND MANNER THAT WILL PRECLUDE EROSION INTO OR CONTAMINATION OF THE STREAM OR FLOODPLAIN.
2) NATURAL MATERIALS USED FOR IMPLEMENTATION OF AQUATIC RESTORATION, SUCH AS LARGE WOOD, GRAVEL, AND BOULDERS, MAY BE STAGED WITHIN THE 100-YEAR FLOODPLAIN.
3) ANY LARGE WOOD, TOPSOIL, AND NATIVE CHANNEL MATERIAL DISPLACED BY CONSTRUCTION WILL BE STOCKPILED FOR USE DURING SITE RESTORATION AT A SPECIFICALLY IDENTIFIED AND FLAGGED AREA.
4) ANY MATERIAL NOT USED IN RESTORATION, AND NOT NATIVE TO THE FLOODPLAIN, WILL BE REMOVED TO A LOCATION OUTSIDE OF THE 100-YEAR FLOODPLAIN FOR DISPOSAL.

EQUIPMENT:
1) MECHANIZED EQUIPMENT AND VEHICLES WILL BE SELECTED, OPERATED, AND MAINTAINED IN A MANNER THAT MINIMIZES ADVERSE EFFECTS ON THE ENVIRONMENT (E.G., MINIMALLY-SIZED, LOW PRESSURE TIRES; MINIMAL HARD-TURN PATHS FOR TRACKED VEHICLES; TEMPORARY MATS OR PLATES WITHIN WET AREAS OR ON SENSITIVE SOILS). GAS-POWERED EQUIPMENT WITH TANKS LARGER THAN 5 GALLONS WILL BE REFUELED IN A VEHICLE STAGING AREA PLACED 150-FEET OR MORE FROM A NATURAL WATERBODY OR WETLAND, OR IN AN ISOLATED HARD ZONE, SUCH AS A PAVED PARKING LOT OR ADJACENT, ESTABLISHED ROAD.
2) ALL VEHICLES AND OTHER MECHANIZED EQUIPMENT WILL BE:
   A) STORED, FUELED, AND MAINTAINED IN A VEHICLE STAGING AREA PLACED 150-FEET OR MORE FROM ANY NATURAL WATER BODY OR WETLAND OR ON AN ADJACENT, ESTABLISHED ROAD AREA;
   B) INSPECTED DAILY FOR FLUID LEAKS BEFORE LEAVING THE VEHICLE STAGING AREA FOR OPERATION WITHIN 150-FEET OF ANY NATURAL WATER BODY OR WETLAND; AND
   C) THOROUGHLY CLEANED BEFORE OPERATION BELOW ORDINARY HIGH WATER, AND AS OFTEN AS NECESSARY DURING OPERATION, TO REMAIN GREASE FREE.

EROSION CONTROL: EROSION CONTROL MEASURES WILL BE PREPARED AND CARRIED OUT, COMMENSURATE IN SCOPE WITH THE ACTION, THAT MAY INCLUDE THE FOLLOWING:
1) TEMPORARY EROSION CONTROLS WILL BE IN PLACE BEFORE ANY SIGNIFICANT ALTERATION OF THE ACTION SITE AND APPROPRIATELY INSTALLED DOWNSLOPE OF PROJECT ACTIVITY WITHIN THE RIPARIAN BUFFER AREA UNTIL SITE REHABILITATION IS COMPLETE.
   a) IF THERE IS A POTENTIAL FOR ERODED SEDIMENT TO ENTER THE STREAM, SEDIMENT BARRIERS WILL BE INSTALLED AND MAINTAINED FOR THE DURATION OF PROJECT IMPLEMENTATION.
   b) TEMPORARY EROSION CONTROL MEASURES MAY INCLUDE FIBER WATTLES, SILT FENCES, JUTE MATTING, WOOD FIBER MULCH AND SOIL BINDER, OR GEOTEXTILES AND GEOSYNTHETIC FABRIC.
   c) SOIL STABILIZATION UTILIZING WOOD FIBER MULCH AND TACKIFIER (HYDRO-APPLIED) MAY BE USED TO REDUCE EROSION OF BARE SOIL IF THE MATERIALS ARE NOXIOUS WEED FREE AND NONTOXIC TO AQUATIC AND TERRESTRIAL ANIMALS, SOIL MICROORGANISMS, AND VEGETATION.
   d) SEDIMENT WILL BE REMOVED FROM EROSION CONTROLS ONCE IT HAS REACHED 1/3 OF THE EXPOSED HEIGHT OF THE CONTROL.
   e) ONCE THE SITE IS STABILIZED AFTER CONSTRUCTION, TEMPORARY EROSION CONTROL MEASURES MUST BE REMOVED.
2) EMERGENCY EROSION CONTROLS WILL BE AVAILABLE AT THE WORK SITE AND INCLUDE THE FOLLOWING:
   a) A SUPPLY OF SEDIMENT CONTROL MATERIALS; AND
   b) AN OIL-ABSORBING FLOATING BOOM WHENEVER SURFACE WATER IS PRESENT.

DUST ABATEMENT: THE PROJECT SPONSOR WILL DETERMINE THE APPROPRIATE DUST CONTROL MEASURES (IF NECESSARY) BY CONSIDERING SOIL TYPE, EQUIPMENT USAGE, PREVAILING WIND DIRECTION, AND THE EFFECTS CAUSED BY OTHER EROSION AND SEDIMENT CONTROL MEASURES. IN ADDITION, THE FOLLOWING CRITERIA WILL BE FOLLOWED:
1) WORK WILL BE SEQUENCED AND SCHEDULED TO REDUCE EXPOSED BARE SOIL SUBJECT TO WIND EROSION.
2) DUST-ABATEMENT ADDITIVES AND STABILIZATION CHEMICALS (TYPICALLY MAGNESIUM CHLORIDE, CALCIUM CHLORIDE SALTS, OR LIGNINSULFONATE) WILL NOT BE APPLIED WITHIN 25-FEET OF WATER OR A STREAM CHANNEL AND WILL BE APPLIED SO AS TO MINIMIZE THE LIKELIHOOD THAT THEY WILL ENTER STREAMS. APPLICATIONS OF LIGNINSULFONATE WILL BE LIMITED TO A MAXIMUM RATE OF 0.5 GALLONS PER SQUARE YARD OF ROAD SURFACE, ASSUMING A 50:50 (LIGNINSULFONATE TO WATER) SOLUTION.
3) APPLICATION OF DUST ABATEMENT CHEMICALS WILL BE AVOIDED DURING OR JUST BEFORE WET WEATHER, AND AT STREAM CROSSINGS OR OTHER AREAS THAT COULD RESULT IN UNFILTERED DELIVERY OF THE DUST ABATEMENT MATERIALS TO A WATERBODY (TYPICALLY THESE WOULD BE AREAS WITHIN 25-FEET OF A WATERBODY OR STREAM CHANNEL; DISTANCES MAY BE GREATER WHERE VEGETATION IS SPARSE OR SLOPES ARE STEEP).
4) SPILL CONTAINMENT EQUIPMENT WILL BE AVAILABLE DURING APPLICATION OF DUST ABATEMENT CHEMICALS.
5) PETROLEUM-BASED PRODUCTS WILL NOT BE USED FOR DUST ABATEMENT.

SPILL PREVENTION, CONTROL, AND COUNTERMEASURES: THE USE OF MECHANIZED MACHINERY INCREASES THE RISK FOR ACCIDENTAL SPILLS OF FUEL, LUBRICANTS, HYDRAULIC FLUID, OR OTHER CONTAMINANTS INTO THE RIPARIAN ZONE OR DIRECTLY INTO THE WATER. ADDITIONALLY, UNCURED CONCRETE AND FORM MATERIALS ADJACENT TO THE ACTIVE STREAM CHANNEL MAY RESULT IN ACCIDENTAL DISCHARGE INTO THE WATER. THESE CONTAMINANTS CAN DEGRADE HABITAT, AND INJURE OR KILL AQUATIC FOOD ORGANISMS AND ESA-LISTED SPECIES. THE PROJECT SPONSOR WILL ADHERE TO THE FOLLOWING MEASURES:
1) A DESCRIPTION OF HAZARDOUS MATERIALS THAT WILL BE USED, INCLUDING INVENTORY, STORAGE, AND HANDLING PROCEDURES WILL BE AVAILABLE ON-SITE.
2) WRITTEN PROCEDURES FOR NOTIFYING ENVIRONMENTAL RESPONSE AGENCIES WILL BE POSTED AT THE WORK SITE.
3) SPILL CONTAINMENT KITS (INCLUDING INSTRUCTIONS FOR CLEANUP AND DISPOSAL) ADEQUATE FOR THE TYPES AND QUANTITY OF HAZARDOUS MATERIALS USED AT THE SITE WILL BE AVAILABLE AT THE WORK SITE.
4) WORKERS WILL BE TRAINED IN SPILL CONTAINMENT PROCEDURES AND WILL BE INFORMED OF THE LOCATION OF SPILL CONTAINMENT KITS.
5) ANY WASTE LIQUIDS GENERATED AT THE STAGING AREAS WILL BE TEMPORARILY STORED UNDER AN IMPERVIOUS COVER, SUCH AS A TARPAULIN, UNTIL THEY CAN BE PROPERLY TRANSPORTED TO AND DISPOSED OF AT A FACILITY THAT IS APPROVED FOR RECEIPT OF HAZARDOUS MATERIALS.

INVASIVE SPECIES CONTROL: THE FOLLOWING MEASURES WILL BE FOLLOWED TO AVOID INTRODUCTION OF INVASIVE PLANTS AND NOXIOUS WEEDS INTO PROJECT AREAS:
1) PRIOR TO ENTERING THE SITE, ALL VEHICLES AND EQUIPMENT WILL BE POWER WASHED, ALLOWED TO FULLY DRY, AND INSPECTED TO MAKE SURE NO PLANTS, SOIL, OR OTHER ORGANIC MATERIAL ADHERES TO THE SURFACE.
2) WATERCRAFT, WADERS, BOOTS, AND ANY OTHER GEAR TO BE USED IN OR NEAR WATER WILL BE INSPECTED FOR AQUATIC INVASIVE SPECIES.

WORK AREA ISOLATION & FISH SALVAGE: ANY WORK AREA WITHIN THE WETTED CHANNEL WILL BE ISOLATED FROM THE ACTIVE STREAM WHENEVER ESA-LISTED FISH ARE REASONABLY CERTAIN TO BE PRESENT, OR IF THE WORK AREA IS LESS THAN 300 FEET UPSTREAM FROM ACTIVE SPAWNING HABITATS.
1) WHEN WORK AREA ISOLATION IS REQUIRED, ENGINEERING DESIGN PLANS WILL INCLUDE ALL ISOLATION ELEMENTS, FISH RELEASE AREAS, AND, WHEN A PUMP IS USED TO DEWATER THE ISOLATION AREA AND FISH ARE PRESENT, A FISH SCREEN THAT MEETS NMFS'S FISH SCREEN CRITERIA (NMFS 2011C, OR MOST CURRENT).
2) WORK AREA ISOLATION AND FISH CAPTURE ACTIVITIES WILL OCCUR DURING PERIODS OF THE COOLEST AIR AND WATER TEMPERATURES POSSIBLE, NORMALLY EARLY IN THE MORNING VERSUS LATE IN THE DAY, AND DURING CONDITIONS APPROPRIATE TO MINIMIZE MORTALITY FOR THE SPECIES PRESENT.
3) SALVAGE OPERATIONS SHALL FOLLOW THE ORDERING, METHODOLOGIES, AND CONSERVATION MEASURES SPECIFIED BELOW IN STEPS 1 THROUGH 6. STEPS 1 AND 2 WILL BE IMPLEMENTED FOR ALL PROJECTS WHERE WORK AREA ISOLATION IS NECESSARY ACCORDING TO CONDITION 1(A) ABOVE. ELECTROFISHING (STEP 3) CAN BE IMPLEMENTED TO ENSURE ALL FISH HAVE BEEN REMOVED FOLLOWING STEPS 1 AND 2, OR WHEN OTHER MEANS OF FISH CAPTURE MAY NOT BE FEASIBLE OR EFFECTIVE. DEWATERING AND REWATERING (STEPS 4 AND 5) WILL BE IMPLEMENTED UNLESS WETTED IN-STREAM WORK IS DEEMED TO BE MINIMALLY HARMFUL TO FISH, AND IS BENEFICIAL TO OTHER AQUATIC SPECIES. DEWATERING WILL NOT BE CONDUCTED IN AREAS OCCUPIED BY LAMPREY, UNLESS LAMPREYS ARE SALVAGED USING GUIDANCE SET FORTH IN "USFWS BEST MANAGEMENT PRACTICES TO MINIMIZE ADVERSE EFFECTS TO PACIFIC LAMPREY".

STEP 1: ISOLATE:
(1) BLOCK NETS WILL BE INSTALLED AT UP AND DOWNSTREAM LOCATIONS AND MAINTAINED IN A SECURED POSITION TO EXCLUDE FISH FROM ENTERING THE PROJECT AREA.
(2) NETS WILL BE SECURED TO THE STREAM CHANNEL BED AND BANKS UNTIL FISH CAPTURE AND TRANSPORT ACTIVITIES ARE COMPLETE.
(3) IF BLOCK NETS OR TRAPS REMAIN IN PLACE MORE THAN ONE DAY, THE NETS AND TRAPS WILL BE MONITORED AT LEAST DAILY TO ENSURE THEY ARE SECURED TO THE BANKS AND FREE OF ORGANIC ACCUMULATION, AND TO MINIMIZE FISH PREDATION IN THE TRAP.
(4) NETS AND TRAPS WILL BE MONITORED HOURLY ANYTIME THERE IS INSTREAM DISTURBANCE.

STEP 2: SALVAGE: AS DESCRIBED BELOW, FISH TRAPPED WITHIN THE ISOLATED WORK AREA WILL BE CAPTURED TO MINIMIZE THE RISK OF INJURY, THEN RELEASED AT A SAFE SITE:
(1) FISH WILL BE COLLECTED BY HAND OR DIP NETS, AS THE AREA IS SLOWLY DEWATERED.
(2) SEINES WITH A MESH SIZE TO ENSURE ENTRAPMENT OF THE RESIDING ESA-LISTED FISH WILL BE USED.
(3) MINNOW TRAPS WILL BE LEFT IN PLACE OVERNIGHT AND USED IN CONJUNCTION WITH SEINING.
(4) IF BUCKETS ARE USED TO TRANSPORT FISH:
   (A) THE TIME FISH ARE IN A TRANSPORT BUCKET WILL BE LIMITED, AND WILL BE RELEASED AS QUICKLY AS POSSIBLE;
   (B) THE NUMBER OF FISH WITHIN A BUCKET WILL BE LIMITED BASED ON SIZE, AND FISH WILL BE OF RELATIVELY COMPARABLE SIZE TO MINIMIZE PREDATION;
   (C) AERATORS FOR BUCKETS WILL BE USED OR THE BUCKET WATER WILL BE FREQUENTLY CHANGED WITH COLD CLEAR WATER AT 15 MINUTE OR MORE FREQUENT INTERVALS.
   (D) BUCKETS WILL BE KEPT IN SHADED AREAS OR WILL BE COVERED BY A CANOPY IN EXPOSED AREAS.
   (E) DEAD FISH WILL NOT BE STORED IN TRANSPORT BUCKETS, BUT WILL BE LEFT ON THE STREAM BANK TO AVOID MORTALITY COUNTING ERRORS.
(5) AS RAPIDLY AS POSSIBLE (ESPECIALLY FOR TEMPERATURE-SENSITIVE BULL TROUT), FISH WILL BE RELEASED IN AN AREA THAT PROVIDES ADEQUATE COVER AND FLOW REFUGE. UPSTREAM RELEASE IS PREFERRED, BUT FISH RELEASED DOWNSTREAM WILL BE SUFFICIENTLY OUTSIDE OF THE INFLUENCE OF CONSTRUCTION.
(6) SALVAGE WILL BE SUPERVISED BY A QUALIFIED FISHERIES BIOLOGIST EXPERIENCED WITH WORK AREA ISOLATION AND COMPETENT TO ENSURE THE SAFE HANDLING OF ALL FISH.

STEP 3: ELECTROFISHING: ELECTROFISHING WILL BE USED ONLY AFTER OTHER SALVAGE METHODS HAVE BEEN EMPLOYED OR WHEN OTHER MEANS OF FISH CAPTURE MAY NOT BE FEASIBLE OR EFFECTIVE. IF ELECTROFISHING WILL BE USED TO CAPTURE FISH FOR SALVAGE, THE SALVAGE OPERATION WILL BE LED BY AN EXPERIENCED FISHERIES BIOLOGIST AND THE FOLLOWING GUIDELINES WILL BE FOLLOWED:
(1) THE NMFS' ELECTROFISHING GUIDELINES **4** WILL BE USED
(2) ONLY DIRECT CURRENT (DC) OR PULSED DIRECT CURRENT (PDC) WILL BE USED.
   (A) IF CONDUCTIVITY IS LESS THAN 100 MS, VOLTAGE RANGES FROM 900 TO 1100 V. WILL BE USED;
   (B) FOR CONDUCTIVITY RANGES BETWEEN 100 TO 300 MS, VOLTAGE RANGES WILL BE 500 TO 800 V.
   (C) FOR CONDUCTIVITY GREATER T HAN 300 MS, VOLTAGE WILL BE LESS THAN 400 V.
(3) ELECTROFISHING WILL BEGIN WITH A MINIMUM PULSE WIDTH AND RECOMMENDED VOLTAGE AND THEN GRADUALLY INCREASE TO THE POINT WHERE FISH ARE IMMOBILIZED.
(4) THE ANODE WILL NOT INTENTIONALLY CONTACT FISH WHILE THE CURRENT IS BEING EMITTED.
(5) IF MORTALITY OR OBVIOUS INJURY (DEFINED AS DARK BANDS ON THE BODY, SPINAL DEFORMATIONS, DE-SCALING OF 25% OR MORE OF BODY, AND TORPIDITY OR INABILITY TO MAINTAIN UPRIGHT ATTITUDE AFTER SUFFICIENT RECOVERY TIME) OCCURS DURING ELECTROFISHING, OPERATIONS WILL BE IMMEDIATELY DISCONTINUED, MACHINE SETTINGS,WATER TEMPERATURE AND CONDUCTIVITY CHECKED, AND PROCEDURES ADJUSTED OR POSTPONED TO REDUCE MORTALITY.

STEP 4: DEWATER: DEWATERING, WHEN NECESSARY, WILL BE CONDUCTED OVER A SUFFICIENT PERIOD OF TIME TO ALLOW SPECIES TO NATURALLY MIGRATE OUT OF THE WORK AREA.
(1) DIVERSION AROUND THE CONSTRUCTION SITE MAY BE ACCOMPLISHED WITH A COFFER DAM AND AN ASSOCIATED PUMP, A BY-PASS CULVERT OR PIPE, OR A LINED, NON-ERODIBLE DIVERSION DITCH.
(2) ALL PUMPS WILL HAVE FISH SCREENS TO AVOID JUVENILE FISH ENTRAINMENT, AND WILL BE OPERATED IN ACCORDANCE WITH CURRENT NMFS FISH SCREEN CRITERIA (NMFS 2011, OR MOST RECENT VERSION). IF THE PUMPING RATE EXCEEDS 3 CFS, A NMFS HYDRO DIVISION FISH PASSAGE REVIEW WILL BE NECESSARY.
(3) DISSIPATION OF FLOW ENERGY AT THE BYPASS OUTFLOW WILL BE PROVIDED TO PREVENT DAMAGE TO RIPARIAN VEGETATION OR STREAM CHANNEL.
(4) SAFE REENTRY OF FISH INTO THE STREAM CHANNEL WILL BE PROVIDED, PREFERABLY INTO POOL HABITAT WITH COVER, IF THE DIVERSION ALLOWS FOR DOWNSTREAM FISH PASSAGE.
(5) SEEPAGE WATER WILL BE PUMPED TO A TEMPORARY STORAGE AND TREATMENT SITE OR INTO UPLAND AREAS TO ALLOW WATER TO PERCOLATE THROUGH SOIL OR TO FILTER THROUGH VEGETATION PRIOR TO REENTERING THE STREAM CHANNEL. (NMFS 2000 - HTTP://WWW.NWR.NOAA.GOV/ESA-SALMON- REGULATIONS-PERMITS/4D RULES/UPLOAD/ELECTRO2000.PDF)

STEP 6: SALVAGE NOTICE: ONCE SALVAGE OPERATIONS ARE COMPLETED, A SALVAGE REPORT WILL DOCUMENT PROCEDURES USED, ANY FISH INJURY OR MORTALITY (INCLUDING NUMBERS OF FISH AFFECTED), AND A DESCRIPTION OF THE CAUSES FOR MORTALITY, AS REQUIRED ON THE REPORTING FORM.

FISH PASSAGE: FISH PASSAGE WILL BE PROVIDED FOR ANY ADULT OR JUVENILE FISH LIKELY TO BE PRESENT IN THE ACTION AREA DURING CONSTRUCTION, UNLESS PASSAGE DID NOT EXIST BEFORE CONSTRUCTION OR THE STREAM IS NATURALLY IMPASSABLE AT THE TIME OF CONSTRUCTION. IF THE PROVISION OF TEMPORARY FISH PASSAGE DURING CONSTRUCTION WILL RESULT IN INCREASED NEGATIVE IMPACTS TO AQUATIC SPECIES OF INTEREST OR THEIR HABITAT, A VARIANCE CAN BE REQUESTED FROM THE NMFS BRANCH CHIEF AND THE USFWS FIELD OFFICE SUPERVISOR. PERTINENT INFORMATION, SUCH AS THE SPECIES AFFECTED, LENGTH OF STREAM REACH AFFECTED, PROPOSED TIME FOR THE PASSAGE BARRIER, AND ALTERNATIVES CONSIDERED, WILL BE INCLUDED IN THE VARIANCE REQUEST. AFTER CONSTRUCTION, ADULT AND JUVENILE PASSAGE THAT MEETS NMFS' FISH PASSAGE CRITERIA (NMFS 2011C) WILL BE PROVIDED FOR THE LIFE OF THE ACTION.

CONSTRUCTION AND DISCHARGE WATER:
1) SURFACE WATER MAY BE DIVERTED TO MEET CONSTRUCTION NEEDS, BUT ONLY IF DEVELOPED SOURCES ARE UNAVAILABLE OR INADEQUATE.
2) DIVERSIONS WILL NOT EXCEED 10% OF THE AVAILABLE FLOW.
3) ALL CONSTRUCTION DISCHARGE WATER WILL BE COLLECTED AND TREATED USING THE BEST AVAILABLE TECHNOLOGY APPLICABLE TO SITE CONDITIONS.
4) TREATMENTS TO REMOVE DEBRIS, NUTRIENTS, SEDIMENT, PETROLEUM HYDROCARBONS, METALS AND OTHER POLLUTANTS LIKELY TO BE PRESENT WILL BE PROVIDED.

MINIMIZE TIME AND EXTENT OF DISTURBANCE: EARTHWORK (INCLUDING DRILLING, EXCAVATION, DREDGING, FILLING AND COMPACTING) IN WHICH MECHANIZED EQUIPMENT IS IN STREAM CHANNELS, RIPARIAN AREAS, AND WETLANDS WILL BE COMPLETED AS QUICKLY AS POSSIBLE. MECHANIZED EQUIPMENT WILL BE USED IN STREAMS ONLY WHEN PROJECT SPECIALISTS BELIEVE THAT SUCH ACTIONS ARE THE ONLY REASONABLE ALTERNATIVE FOR IMPLEMENTATION, OR WOULD RESULT IN LESS SEDIMENT IN THE STREAM CHANNEL OR DAMAGE (SHORT- OR LONG-TERM) TO THE OVERALL AQUATIC AND RIPARIAN ECOSYSTEM RELATIVE TO OTHER ALTERNATIVES. TO THE EXTENT FEASIBLE, MECHANIZED EQUIPMENT WILL WORK FROM THE TOP OF THE BANK, UNLESS WORK FROM ANOTHER LOCATION WOULD RESULT IN LESS HABITAT DISTURBANCE.

CESSATION OF WORK: PROJECT OPERATIONS WILL CEASE UNDER THE FOLLOWING CONDITIONS:
1) HIGH FLOW CONDITIONS THAT MAY RESULT IN INUNDATION OF THE PROJECT AREA, EXCEPT FOR EFFORTS TO AVOID OR MINIMIZE RESOURCE DAMAGE;
2) WHEN ALLOWABLE WATER QUALITY IMPACTS, AS DEFINED BY THE 401 WATER QUALITY CERTIFICATION, HAVE BEEN EXCEEDED.

OBLITERATION: WHEN THE PROJECT IS COMPLETED, THE CONTRACTOR WILL OBLITERATE ALL TEMPORARY ACCESS ROADS, CROSSINGS, AND STAGING AREAS OBLITERATED, AND WILL STABILIZE THE SOILS STABILIZED AND REVEGETATE. WHEN NECESSARY, LOOSEN COMPACTED AREAS, SUCH AS ACCESS ROADS, STREAM CROSSINGS, STAGING, AND STOCKPILE AREAS TO ALLOW FOR REVEGETATION AND IMPROVED INFILTRATION.

SITE RESTORATION: WHEN CONSTRUCTION IS COMPLETE:
1) ALL STREAMBANKS, SOILS, AND VEGETATION WILL BE CLEANED UP AND RESTORED AS NECESSARY USING STOCKPILED LARGE WOOD, TOPSOIL, AND NATIVE CHANNEL MATERIAL.
2) ALL PROJECT RELATED WASTE WILL BE REMOVED.
3) ALL DISTURBED AREAS WILL BE REHABILITATED IN A MANNER THAT RESULTS IN SIMILAR OR IMPROVED CONDITIONS RELATIVE TO PRE-PROJECT CONDITIONS. THIS WILL BE ACHIEVED THROUGH REDISTRIBUTION OF STOCKPILED MATERIALS, SEEDING, AND/OR PLANTING WITH LOCAL NATIVE SEED MIXES OR PLANTS.

REVEGETATION: LONG-TERM SOIL STABILIZATION OF THE DISTURBED SITE WILL BE ACCOMPLISHED WITH RE-ESTABLISHMENT OF NATIVE VEGETATION USING THE FOLLOWING CRITERIA:
1) PLANTING AND SEEDING WILL OCCUR PRIOR TO OR AT THE BEGINNING OF THE FIRST GROWING SEASON AFTER CONSTRUCTION.
2) IN APPROPRIATE MIX OF SPECIES THAT WILL ACHIEVE ESTABLISHMENT, SHADE, AND EROSION CONTROL OBJECTIVES, PREFERABLY FORB, GRASS, SHRUB, OR TREE SPECIES NATIVE TO THE ROJECT AREA OR REGION AND APPROPRIATE TO THE SITE WILL BE USED.
3) VEGETATION, SUCH AS WILLOW, SEDGE AND RUSH MATS, WILL BE SALVAGED FROM DISTURBED OR ABANDONED FLOODPLAINS, STREAM CHANNELS, OR WETLANDS TO BE REPLANTED DURING SITE RESTORATION.
4) INVASIVE SPECIES WILL NOT BE USED.
5) SHORT-TERM STABILIZATION MEASURES MAY INCLUDE THE USE OF NON-NATIVE STERILE SEED MIX (WHEN NATIVE SEEDS ARE NOT AVAILABLE), WEED-FREE CERTIFIED STRAW, JUTE MATTING, AND OTHER SIMILAR TECHNIQUES.
6) SURFACE FERTILIZER WILL NOT BE APPLIED WITHIN 50-FEET OF ANY STREAM CHANNEL, WATERBODY, OR WETLAND.
7) FENCING WILL BE INSTALLED AS NECESSARY TO PREVENT ACCESS TO REVEGETATED SITES BY LIVESTOCK OR UNAUTHORIZED PERSONS.
8) RE-ESTABLISHMENT OF VEGETATION IN DISTURBED AREAS WILL ACHIEVE AT LEAST 70% OF PRE- PROJECT CONDITIONS WITHIN 3-YEARS.
9) INVASIVE PLANTS WILL BE REMOVED OR CONTROLLED UNTIL NATIVE PLANT SPECIES ARE WELL ESTABLISHED (TYPICALLY 3-YEARS POST-CONSTRUCTION).

SITE ACCESS: THE PROJECT SPONSOR WILL RETAIN THE RIGHT OF REASONABLE ACCESS TO THE SITE, SUCH THAT THE PROJECT SPONSOR CAN MONITOR THE SUCCESS OVER THE LIFE OF THE PROJECT.

VARIANCE REQUESTS: BECAUSE OF THE WIDE RANGE OF PROPOSED ACTIVITIES AND THE NATURAL VARIABILITY WITHIN AND BETWEEN STREAM SYSTEMS, BPA (ON BEHALF OF THE APPLICANT) MAY REQUIRE VARIATIONS FROM CRITERIA SPECIFIED HEREIN. NMFS WILL CONSIDER GRANTING VARIANCES, ESPECIALLY WHEN THERE IS A CLEAR CONSERVATION BENEFIT OR THERE ARE NO ADDITIONAL ADVERSE EFFECTS (ESPECIALLY INCIDENTAL TAKE) BEYOND THAT COVERED BY THE OPINION. MINOR VARIANCES CAN BE AUTHORIZED BY THE NMFS BRANCH CHIEF.

VARIANCE REQUESTS MAY BE SUBMITTED AND APPROVED BY EMAIL CORRESPONDENCE AND WILL INCLUDE:
1) NAME AND BRIEF DESCRIPTION OF PROJECT, LOCATION OF PROJECT AND 6TH FIELD HUC NUMBER.
2) DEFINE THE REQUESTED VARIANCE AND THE RELEVANT CRITERION BY PAGE NUMBER.
3) CURRENT ENVIRONMENTAL CONDITIONS (CURRENT FLOW AND WEATHER CONDITIONS).
4) BIOLOGICAL JUSTIFICATION AS TO WHY A VARIANCE IS NECESSARY AND A BRIEF RATIONALE WHY THE VARIANCE WILL EITHER PROVIDE A CONSERVATION BENEFIT OR, AT A MINIMUM, NOT CAUSE ADDITIONAL ADVERSE EFFECTS BEYOND THE SCOPE OF THE OPINION
5) INCLUDE AS ATTACHMENTS ANY NECESSARY APPROVALS BY STATE AGENCIES.

Date

Designed A. Childs
Drawn A. Childs
Checked
Approved
Title CTUIR Grande Ronde Fish Habitat Biologist

ROCK CREEK FISH HABITAT ENHANCEMENT PROJECT
Phase I Graves Creek
HIP III General Conservation & Implementation Measures

File Name

Drawing No.
1

Sheet 2 of 4

LEGEND

- ForTheGirls, LLC /516 Ranch Boundary
- Conservaton Easement/Fence
- Stream
- Channel Alignment
- Side Channel/Construction/Re-Activation
- Earthen Plug
- Floodplain Pond
- Habitat Complexity
  - Type I Large Wood
  - Type II Large Wood
  - Type III Large Wood
  - Habitat Boulders

PLAN VIEW

0 200

Scale in feet

Flow Direction

Graves Creek

Earthen Plug #1

Earthen Plug #2

Earthen Plug #3

Earthen Plug #4

Floodplain Pond #2

Floodplain Pond #3

Re-Activated Historic Channel

124+00 125+00 126+00 127+00 128+00 129+00 130+00 131+00 132+00 133+00 134+00 135+00 136+00 137+00 138+00 139+00 140+00 141+00 142+00 143+00 144+00 145+00 146+00 147+00 148+00 149+00 150+00

Date

Designed A. Childs

Drawn A. Childs

Checked

Approved

Title CTUIR Grande Ronde Fish Habitat Biologist

Rock Creek Fish Habitat Enhancement Project

For The Girls, Ranch, LLC

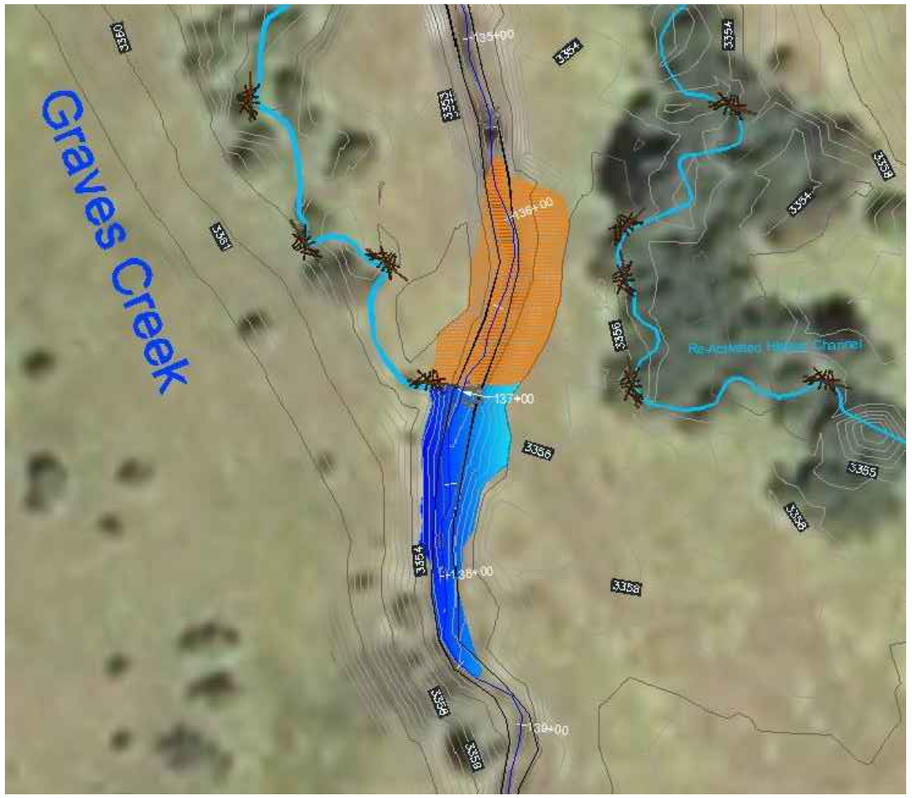
Grande Ronde Subbasin, Union County, Oregon

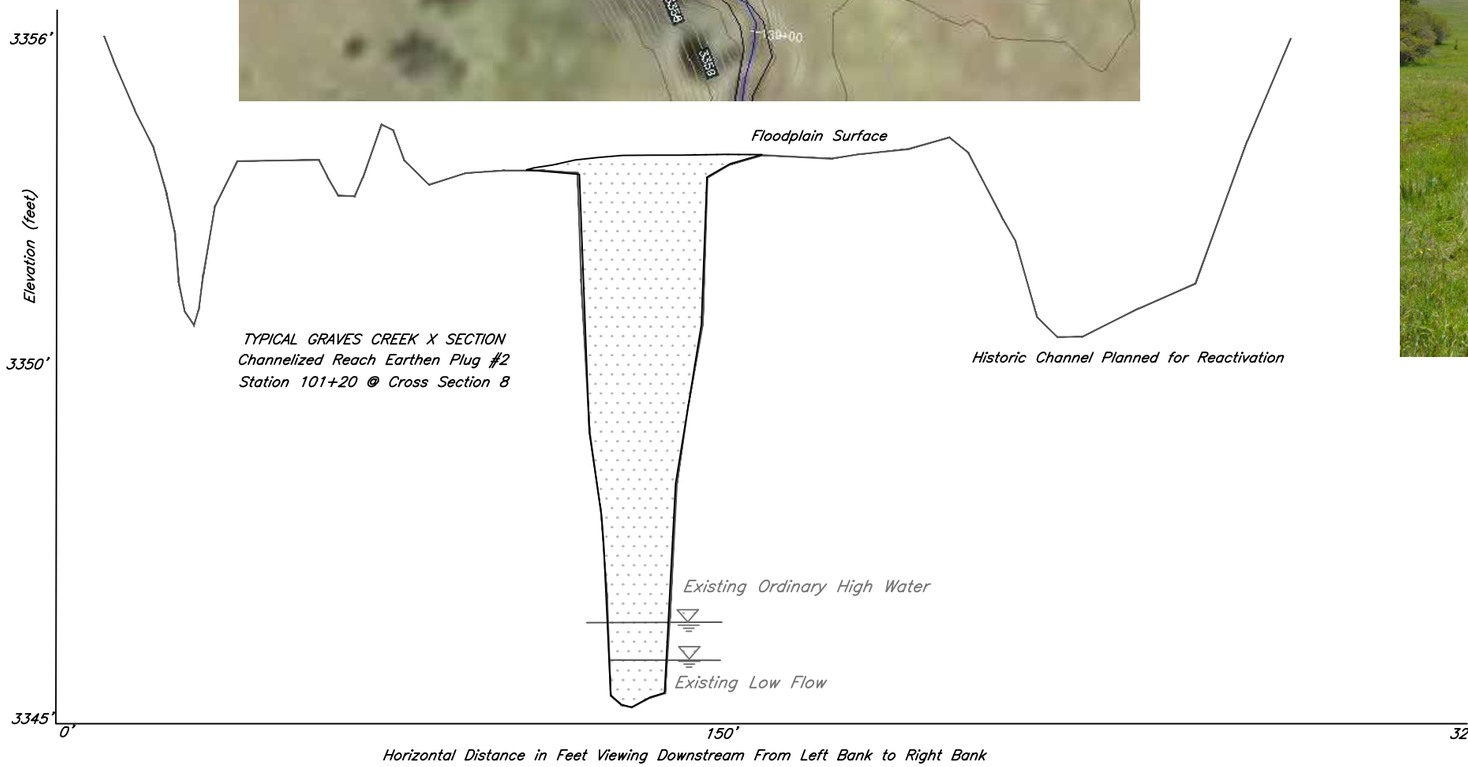
Confederated Tribes of the Umatilla Indian Reservation

File Name

Drawing No. 1

Sheet 3 of 4





Graves Creek Channelized Reach

Lower Graves Creek Channelized Reach and Historic Channel Alignment

Construction Notes:
1. Channel diversion into historic channel will be initiated first followed by construction of next downstream earthen plugs.
2. Construction at the diversion will include installing a temporary channel diversion consisting of alluvial fill from designated off-site source.
3. Compacted back-fill will be installed from an upstream to downstream manner in 12" lifts with sufficient moisture to accomplish compaction.
4. The upstream portion of each earthen plug will be constructed of available fine soil to create an impermeable face to minimize leakage.
5. Available remaining soil material will be sorted and used to grade the upper 12" plus of each compacted earthen plug to support vegetation establishment.
6. Final grade of compacted plugs will be blended into adjacent terraces and with gradual slopes along downstream segments of plug.

Rock Creek Fish Habitat Enhancement Project
Graves Creek Restoration Plan
For The Girls, Ranch, LLC
Grande Ronde Subbasin, Union County, Oregon
Confederated Tribes of the Umatilla Indian Reservation

Date
Designed A. Childs
Drawn A. Childs
Checked
Approved
Title CTUIR Grande Ronde Fish Habitat Biologist

File Name

Drawing No. 1

Sheet 4 of 4