BEAR CREEK & LITTLE BEAR CREEK-SAUVAGE FISH HABITAT RESTORATION PROJECT

GRANDE RONDE RIVER BASIN, OREGON

80% DESIGN DRAWINGS

PREPARED FOR:
GRANDE RONDE MODEL WATERSHED
401 J AVE
LA GRANDE, OR 97850

OREGON DEPARTMENT OF FISH AND WILDLIFE
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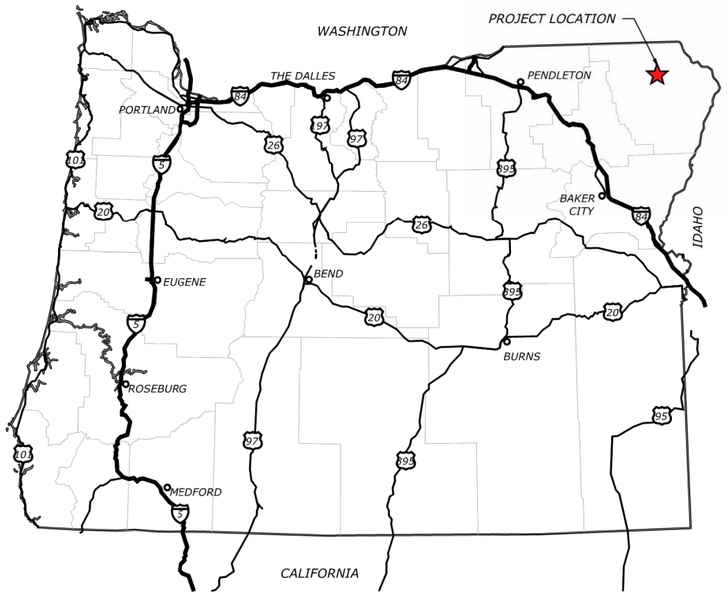

KEY MAP
Not to scale

VICINITY MAP
NOT TO SCALE

LOCATION:
LOCATED WITHIN SECTIONS 03, 10, 13, 14, & 15 OF TOWNSHIP 01S, RANGE 42E AND WITHIN SECTION 34 & 27 OF TOWNSHIP 01N, RANGE 42E WALLOWA COUNTY, OREGON

LOCATION MAP
NOT TO SCALE

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WORKING DRAFT FOR REVIEW AND REVISION

DATE: 10/15/2025
DESIGNED: JF, RR, ZS, MG
APPROVED: JF

DRAWING NAME
GENERALS
COVER SHEET

DRAWING NO.
G1
SHEET 1 OF 57

GOALS AND OBJECTIVES

GOALS

THIS PROJECT IS FOCUSED ON IMPROVING ECOLOGICAL FORM, FUNCTION, AND HYDROLOGICAL PROCESSES FOR NATIVE FISH AND WILDLIFE HABITAT ON BEAR CREEK. **THE CENTRAL GOAL OF THIS PROJECT IS TO IMPROVE SPAWNING AND REARING HABITAT FOR SPRING CHINOOK AND SUMMER STEELHEAD.** TO ACHIEVE THIS OUTCOME, PROJECT OBJECTIVES ARE BASED ON ESTABLISHED ECOLOGIC, GEOMORPHIC, AND HYDROLOGIC PROCESS-BASED MECHANISMS.

OBJECTIVES

- INCREASE THE DEPTH AND DURATION OF SEASONAL FLOODPLAIN CONNECTION TO DISSIPATE FLOOD ENERGY WHILE IMPROVING FLOOD WATER STORAGE, HYPORHEIC EXCHANGE, HIGH-FLOW JUVENILE REFUGIA, NUTRIENT EXCHANGE, AND RIPARIAN VEGETATION.
- INCREASE THE SPATIAL HETEROGENEITY AND COMPLEXITY OF HIGH-QUALITY HABITAT AND DISTRIBUTE STREAM FLOW AND ENERGY THROUGH A RANGE OF HYDROLOGIC CONDITIONS BY ADDING LARGE WOOD TO THE CHANNEL AND USING LARGE WOOD AND CHANNEL FILL TO DRIVE THE RECONNECTION OF SEASONAL SECONDARY CHANNELS.
- PROVIDE BEAVER HABITAT AND FOOD SOURCES WHERE POSSIBLE TO EXPAND THEIR AREA OF USE AND INFLUENCE.
- PROTECT INFRASTRUCTURE (ROADS, BRIDGES, STRUCTURES, AND OTHER CONSTRAINTS) WHILE MAXIMIZING FISH HABITAT UPLIFT THROUGHOUT THEIR PROJECT AREA.
- CREATE LATERAL STREAM CONNECTIVITY IN LARGE HISTORIC FLOODPLAIN ACREAGE THAT IS CURRENTLY INACTIVE BY REMOVING LEVEES, EXCAVATING CHANNELS AND PLACING PARTIAL CHANNEL FILL TO RAISE WATER SURFACE ELEVATIONS.

EXISTING CONDITIONS

GENERAL

THE EXISTING CONDITIONS OF THE PROJECT REACH EXHIBIT THE FOLLOWING CHARACTERISTICS:

- THE CHANNEL IS GENERALLY CHARACTERIZED BY LARGE COBBLE TO BOULDER SUBSTRATE, A RELATIVELY WIDE AND SHALLOW BANKFULL CHANNEL, WITH A POORLY DEFINED LOW FLOW CHANNEL.
- THE PRIMARY EXCEPTION TO THE ABOVE DESCRIPTION ARE REACHES WHERE THE CHANNEL HAS RECENTLY AVULSED THROUGH FORESTED FLOODPLAINS. THESE AVULSIONS HAVE CREATED DYNAMIC REACHES WITH THE MOST DIVERSE HABITAT WITHIN THE PROJECT REACH.
- THERE IS LIMITED LARGE WOOD HABITAT AVAILABLE WITHIN THE ACTIVE CHANNEL ASIDE FROM A NUMBER LOCALIZED LARGE JAMS WHICH ARE CHARACTERIZED BY KEY MEMBERS OF 3-FT OR MORE IN DIAMETER.
- THERE APPEARS TO BE RELATIVELY LITTLE COTTONWOOD AND NATIVE WILLOW RECRUITMENT
- THERE IS RELATIVELY LITTLE BEAVER ACTIVITY THROUGHOUT THE PROJECT AREA DUE TO A LACK OF LOW FLOW HABITAT AND A LACK OF YOUNG WILLOW AND COTTONWOOD.

SEE SHEETS C2 & C3 FOR PHOTOS OF EXISTING CONDITIONS.

PROPOSED TREATMENTS

PROPOSED TREATMENTS AIM TO UTILIZE NATURAL PROCESSES OBSERVED ON BEAR CREEK AND OTHER NEARBY STREAMS TO DRIVE CHANNEL DYNAMISM, GREATER FLOODPLAIN INUNDATION DURATIONS AND DEPTHS, AND ULTIMATELY MORE ABUNDANT AND HIGHER QUALITY HABITAT FOR SPAWNING AND REARING SPRING CHINOOK AND SUMMER STEELHEAD. MOST OF THE PROPOSED ACTIVITY FALLS INTO THE FOLLOWING CATEGORIES:

- LARGE WOOD ADDITION TO DRIVE CHANNEL DYNAMISM, CHANNEL SORTING, INCREASED FLOW DEPTHS, AND PROVIDE COVER HABITAT
- CHANNEL FILL TO ACTIVATE SEASONAL FLOODPLAIN FLOWPATHS
- CHANNEL EXCAVATION TO ACTIVATE SEASONAL FLOODPLAIN FLOWPATHS AND MIMIC CHANNEL AVULSIONS
- UTILIZE EXISTING SPRINGS TO CONSTRUCT BEAVER COMPLEXES

AN EXAMPLE OF LARGE WOOD PLACEMENT ON THE GRANDE RONDE RIVER IN OREGON WHICH IS SIMILAR TO THE LARGE WOOD PLACEMENT PROPOSED ON BEAR CREEK.

AN EXAMPLE OF AN EXISTING BANK JAM ON BEAR CREEK WHICH WILL BE EMULATED BY STRUCTURES PROPOSED IN THIS DESIGN.

AN EXISTING BEAVER DAM ON CHESNIMNUS CREEK IN OREGON. THIS EXAMPLE WILL BE EMULATED ON EXISTING SPRING CHANNELS WHICH FEED BEAR CREEK TO CREATE OFF- CHANNEL BEAVER HABITAT.

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GOALS AND OBJECTIVES

DRAWING NO.

G2

GENERAL NOTES AND REQUIREMENTS

1. GENERAL

A. PROJECT COORDINATE SYSTEM IS NAD83 OREGON STATE PLANE, NORTH ZONE, INTERNATIONAL FOOT. THE VERTICAL DATUM IS NAVD88.

B. THE OREGON STANDARD SPECIFICATIONS FOR CONSTRUCTION, VERSION 2024 SHALL APPLY UNLESS OTHERWISE NOTED IN THE PLANS OR PROJECT SPECIAL PROVISIONS.

C. TOPOGRAPHIC MAPPING WITHIN THE PROJECT AREA IS GENERATED FROM 2021 LIDAR DATA SUPPLEMENTED WITH TOPOGRAPHIC AND BATHYMETRIC DATA COLLECTED BY RIO ASE IN 2024. TOPOGRAPHIC MAPPING IS ASSUMED TO BE REPRESENTATIVE OF EXISTING CONDITIONS.

D. EXISTING UNDERGROUND UTILITY LOCATIONS HAVE NOT BEEN IDENTIFIED AND ARE NOT SHOWN ON THESE PLANS. CONTRACTOR IS RESPONSIBLE TO LOCATE UTILITIES PRIOR TO CONSTRUCTION AND SHALL PROTECT EXISTING UTILITIES DURING CONSTRUCTION.

2. DESCRIPTION OF WORK ELEMENTS

A. INSTALLATION OF NUMEROUS TYPES OF WOOD HABITAT STRUCTURES.

B. INSTALLATION OF CONSTRUCTED RIFFLES AND STRATEGIC FILLING OF EXISTING CHANNELS.

C. INSTALLATION OF TEMPORARY CONSTRUCTION ACCESS ROUTES, STAGING AREAS, AND STREAM CROSSINGS AND/OR BRIDGES.

D. REVEGETATION THROUGH PLANTING AND SEEDING OF NATIVE SPECIES WITHIN RIPARIAN, WETLAND, AND UPLAND ZONES.

3. PROJECT ROLES

A. THE ABOVE WORK IS TO BE PERFORMED FOR OREGON DEPARTMENT OF FISH AND WILDLIFE (ODFW), HEREAFTER REFERRED TO AS THE "SPONSOR". THE SPONSOR WILL APPOINT A PROJECT STAFF MEMBER, HEREAFTER REFERRED TO AS "CONTRACTING OFFICER", WHO WILL ADMINISTER THE CONSTRUCTION CONTRACT AND PAYMENTS, BE THE PRIMARY POINT OF CONTACT WITH THE CONTRACTOR, ENGINEER, AND REGULATORY AGENCIES, DISTRIBUTE INFORMATION TO STAKEHOLDERS, REVIEW AND COORDINATE DESIGN CHANGES, SUBMITTALS, AND REQUESTS FOR INFORMATION (RFI'S), PERFORM FIELD OVERSIGHT, INSPECTIONS, AND COORDINATE PRE-FINAL AND FINAL INSPECTIONS AND DEVELOP ASSOCIATED PUNCH LISTS.

B. RIO ASE, HEREAFTER REFERRED TO AS THE "ENGINEER," IS THE SPONSOR'S REPRESENTATIVE WHO HAS DESIGNED THE PROJECT. THE ENGINEER PROVIDES FIELD OVERSIGHT AND CLARIFICATION TO THE CONTRACTOR AND CONTRACTING OFFICER REGARDING THE INTENT OF THE DRAWINGS AND SPECIFICATIONS AND WHETHER THE PROPOSED OR COMPLETED WORK IS IN COMPLIANCE WITH THE DRAWINGS AND SPECIFICATIONS. THE ENGINEER WILL ALSO REVIEW DESIGN CHANGES, SUBMITTALS, RFI'S, PERFORM INSPECTIONS, AND PREPARE PRE-FINAL AND FINAL PUNCH LISTS.

C. THE LAND WHERE CONSTRUCTION WILL OCCUR IS PRIVATELY OWNED, THE OWNER IS HEREIN REFERRED TO AS THE "PROPERTY OWNER."

D. PERSONNEL FROM REGULATORY AGENCIES MAY ACCESS THE SITE TO PERFORM FIELD OVERSIGHT AND WILL COMPLY WITH THE CONTRACTOR'S SITE-SPECIFIC AND TASK-SPECIFIC HEALTH AND SAFETY REQUIREMENTS DURING SITE VISITS AND INSPECTIONS.

D. THE SPONSOR, ENGINEER, REGULATORY PERSONNEL, AND ANY PERSON(S) AUTHORIZED TO BE ONSITE WILL NOT DIRECT THE CONTRACTOR IN ANY WAY BUT MAY ADVISE THE CONTRACTING OFFICER REGARDING THE TECHNICAL REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS, AND WHETHER THE ONGOING WORK IS IN COMPLIANCE OR NOT. ONLY THE CONTRACTOR IS RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, PROCEDURES, AND SAFETY OF CONTRACTOR PERSONNEL. ALSO, ALL AUTHORIZED PERSONNEL TO BE ONSITE WILL COMPLY WITH THE CONTRACTOR'S SITE-SPECIFIC AND TASK-SPECIFIC HEALTH AND SAFETY REQUIREMENTS WHILE ONSITE.

4. GENERAL CONSTRUCTION SEQUENCE

A. MOBILIZE TO THE SITE, INSTALL EROSION & SEDIMENT CONTROL MEASURES IN ACCORDANCE WITH THE SWPPP (TO BE PREPARED, FILED, AND IMPLEMENTED BY THE CONTRACTOR), INSTALL TEMPORARY CONSTRUCTION ENTRANCES/EXITS, PERFORM CLEARING FOR TEMPORARY ACCESS ROUTES, PERFORM STAKING AND/OR LOCALIZATION OF SURVEY AND/OR MACHINE CONTROL.

B. WORK AREA ISOLATION (COFFERDAMS, PUMPING, AND WATER MANAGEMENT) AND FISH SALVAGE (TO BE COORDINATED BY THE SPONSOR AND COMPLETED BY OTHERS HAVING QUALIFIED EXPERIENCE).

C. CONSTRUCT HABITAT STRUCTURES WITHIN CHANNEL WHILE ISOLATED FROM BEAR CREEK.

D. FLOODPLAIN GRADING (MAY OCCUR OUTSIDE OF THE APPROVED IN-WATER WORK WINDOW).

E. RECLAMATION OF CONSTRUCTION ACCESS ROUTES AND STAGING AREAS TO PRE-EXISTING CONDITIONS.

F. PLANTING, SEEDING, FINAL INSPECTION, SITE CLEANUP, AND DEMOBILIZATION.

5. WORK SCHEDULE

A. THE CONTRACTOR SHALL COMPLETE ALL CONSTRUCTION INCLUDING CORRECTION AND ACCEPTANCE OF DEFECTIVE WORK AND DEMOBILIZATION PRIOR TO A DATE DETERMINED DURING A FUTURE DESIGN PHASE.

B. THE APPROVED IN-WATER WORK WINDOW FOR THIS PROJECT IS TO BE DETERMINED DURING A FUTURE DESIGN PHASE. ALL WORK REQUIRING EQUIPMENT TO OPERATE PARTLY OR WHOLLY BELOW THE ORDINARY HIGH WATER LIMITS SHALL BE COMPLETED DURING THE IN-WATER WORK WINDOW. WORK THAT IS OUTSIDE OF AND ORDINARY HIGH WATER LIMITS MAY BE COMPLETED PRIOR TO AND/OR AFTER THE IN-WATER WORK WINDOW IF APPROVED BY THE CONTRACTING OFFICER.

C. THE CONTRACTOR MAY NOT LEAVE THE WORK SITE OR SUSPEND ACTIVITY FOR MORE THAN FIVE (5) CONSECUTIVE DAYS AFTER MOBILIZING TO THE SITE AND PRIOR TO REACHING SUBSTANTIAL COMPLETION UNLESS OTHERWISE APPROVED BY THE CONTRACTING OFFICER.

USE OF SITE

1. CONTRACTORS USE OF PREMISES

A. PRIOR TO PERFORMING WORK, CONTRACTOR SHALL BECOME THOROUGHLY FAMILIAR WITH THE PROJECT SITE, SITE CONDITIONS, AND ALL PORTIONS OF WORK.

B. CONTRACTOR MUST COORDINATE ALL WORK AND ACCESS TO THE SITE WITH THE CONTRACTING OFFICER. THE CONTRACTING OFFICER WILL BE RESPONSIBLE FOR COORDINATION WITH THE SPONSOR.

C. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING PUBLIC SAFETY IN AND AROUND THE PROJECT SITE AND WILL PROVIDE ANY SAFETY PRECAUTIONS SUCH AS TEMPORARY FENCING OR OTHER METHODS AT THE CONTRACTOR'S DISCRETION WHERE DEEMED NECESSARY. THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS IN THE CONSTRUCTION PRACTICES FOR ALL EMPLOYEES DIRECTLY ENGAGED IN THE CONSTRUCTION OF THIS PROJECT.

D. THE CONTRACTOR IS RESPONSIBLE FOR THE SECURITY OF PROPERTY AT THE PROJECT SITE AND WILL PROVIDE REASONABLE PROTECTION TO PREVENT DAMAGE OR LOSS TO EQUIPMENT, MATERIALS, AND SUPPLIES INCORPORATED IN THE PROJECT AND TO THE SPONSOR.

E. THE CONTRACTOR SHALL ONLY ACCESS THE PROJECT SITE AS SHOWN ON DRAWINGS C9 TO C11. ALTERNATE ACCESS POINTS SHALL NOT BE USED, UNLESS AUTHORIZED BY THE CONTRACTING OFFICER.

F. THE CONTRACTOR SHALL ONLY USE DESIGNATED ACCESS ROUTES AND STREAM CROSSINGS SHOWN ON DRAWINGS C3 TO C11.

G. MOVEMENT OF CONSTRUCTION EQUIPMENT OVER PIPES, BRIDGES, UTILITIES, OR INFRASTRUCTURE DURING CONSTRUCTION SHALL BE AT THE CONTRACTOR'S RISK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE INCURRED AT NO COST OR OBLIGATION TO THE SPONSOR.

H. CONTRACTOR IS EXPECTED TO KEEP A NEAT AND TIDY CONSTRUCTION SITE, FREE OF ACCUMULATED WASTE MATERIALS AND TRASH.

I. CONTRACTOR SHALL TAKE ALL MEASURES NECESSARY TO MINIMIZE DAMAGE TO EXISTING VEGETATION DURING CONSTRUCTION ACTIVITIES.

J. THE CONTRACTOR SHALL ONLY REMOVE TREES AND SHRUBS THAT ARE ABSOLUTELY NECESSARY FOR THE EXECUTION OF THE WORK AND SHALL MAKE ALL EFFORTS TO MINIMIZE TREE AND SHRUB REMOVAL. CONTRACTOR SHALL OBTAIN PRIOR APPROVAL FROM CONTRACTING OFFICER TO REMOVE ANY TREE OR SHRUB FROM OUTSIDE DISTURBANCE LIMITS. ANY TREE OR SHRUB UNNECESSARILY REMOVED FROM THE WORK SITE SHALL BE REPLACED BY A NEW TREE OR SHRUB OF EQUAL OR GREATER VALUE AT THE SOLE EXPENSE OF THE CONTRACTOR AS APPROVED BY THE CONTRACTING OFFICER.

K. THE CONTRACTOR SHALL REMOVE ALL TEMPORARY EQUIPMENT AND FACILITIES UPON COMPLETION OF WORK UNDER THIS CONTRACT.

2. EQUIPMENT AND REFUELING

A. CONTRACTOR IS REQUIRED TO PRESSURE WASH AND REMOVE ALL DIRT, GREASE, OIL, FUEL, VEGETATION, AND WEED SEEDS BEFORE BRINGING EQUIPMENT ONTO THE SITE IN ACCORDANCE WITH THE SPECIFICATIONS.

B. COMPLETE VEHICLE AND EQUIPMENT STAGING, CLEANING, MAINTENANCE, REFUELING, AND FUEL STORAGE 150' AWAY FROM ANY NATURAL WATER BODY.

C. INSPECT ALL VEHICLES AND EQUIPMENT OPERATED WITHIN 150' OF ANY NATURAL WATER BODY DAILY FOR FLUID LEAKS BEFORE LEAVING STAGING AREAS. REPAIR ANY LEAKS DETECTED IN DESIGNATED TEMPORARY CONSTRUCTION STAGING AREAS BEFORE RESUMING OPERATION. DOCUMENT INSPECTIONS IN A RECORD TO BE MADE AVAILABLE FOR REVIEW ON REQUEST BY THE CONTRACTING OFFICER AND REGULATORY AGENCIES.

D. USE OF EQUIPMENT IN FLOWING WATER IS LIMITED BY APPLICABLE PERMITS. EQUIPMENT MUST BE THOROUGHLY CLEANED IN ACCORDANCE WITH THE SPECIFICATIONS BEFORE ENTERING THE WATER.

E. HYDRAULICS FLUIDS - ALL EQUIPMENT PERFORMING WORK IN ACTIVE STREAM CHANNELS, OR PERMANENT WATER BODIES DURING PROJECT CONSTRUCTION MUST USE HYDRAULIC OIL THAT MEETS OR EXCEEDS ENVIRONMENTALLY ACCEPTABLE LUBRICANTS BY THE U.S. EPA (2011); E.G., MINERAL OIL, POLYGLYCOL, VEGETABLE OIL, SYNTHETIC ESTER; MOBIL® BIODEGRADABLE HYDRAULIC OILS, TOTAL® HYDRAULIC FLUID, TERRESOLVE TECHNOLOGIES LTD.® BIOBASED BIODEGRADABLE LUBRICANTS, COUGAR LUBRICATION® 2XT BIO ENGINE OIL, SERIES 4300 SYNTHETIC BIO-DEGRADABLE HYDRAULIC OIL, 8060-2 SYNTHETIC BIO-DEGRADABLE GREASE NO. 2, ETC. OR MEET STRINGENT ACUTE AQUATIC TOXICITY (L-50), WHICH IS INHERENTLY BIODEGRADABLE. THIS DOES NOT INCLUDE TRUCKS, DOZERS, FRONT END LOADERS, ETC., THAT ARE OPERATED ON THE FLOOD PLAIN OR INVOLVED IN THE CONSTRUCTION OF NEW CHANNELS PRIOR TO ADDING WATER FLOW OR FILLING ABANDONED CHANNELS AFTER DE-WATERING. ALL PRODUCTS SHALL BE API CERTIFIED AND THE VENDOR SHALL FURNISH DOCUMENTATION OF THE CERTIFICATION UPON REQUEST. PRODUCTS MUST MEET MANUFACTURES PERFORMANCE AND WARRANTY REQUIREMENTS.

SPECIAL PROCEDURES

1. IN-STREAM WORK

A. PROPOSED EARTHWORK ACTIVITIES WILL OCCUR INSIDE AND OUTSIDE OF THE ORDINARY HIGH-WATER LIMITS. THE CONTRACTOR IS REQUIRED TO PERFORM THE WORK IN A MANNER THAT DOES NOT CAUSE TURBIDITY. EXCEEDANCES TO INCLUDE PROPER TURBIDITY CONTROLS SUCH AS INSTALLATION OF COFFERDAMS, PUMPING, OR OTHER FACILITIES APPROVED BY THE CONTRACTING OFFICER. SEE REQUIREMENTS FOR TURBIDITY CONTROLS (COFFERDAMS, PUMPING, DEWATERING) ON DRAWING G7 AND THE SPECIFICATIONS.

B. STREAMBANK VEGETATION SHALL BE PRESERVED AND PROTECTED TO THE EXTENT PRACTICAL. NO TREE OR SHRUB SHALL BE REMOVED UNLESS APPROVED BY THE CONTRACTING OFFICER. THE CONTRACTOR SHALL NOT DISTURB THE ROOTS OF WOODY VEGETATION IN THIS AREA DURING PROJECT EXCAVATIONS TO THE EXTENT PRACTICAL. SEE REQUIREMENTS FOR CLEARING IN THE SPECIFICATIONS.

2. TURBIDITY MONITORING (TO BE COMPLETED BY THE SPONSOR) AND PROTOCOLS

A. TURBIDITY MONITORING IS REQUIRED AND SHALL BE COMPLETED BY THE SPONSOR IN ACCORDANCE WITH THE PROTOCOLS ON DRAWING G7.

B. THE CONTRACTOR IS REQUIRED TO PERFORM THE WORK IN A MANNER THAT DOES NOT CAUSE TURBIDITY EXCEEDANCES. IF TURBIDITY EXCEEDANCES OCCUR, THE CONTRACTOR SHALL STOP WORK AT THE DIRECTION OF THE CONTRACTING OFFICER UNTIL FURTHER NOTICE. ANY DELAYS DUE TO TURBIDITY EXCEEDANCES CAUSED BY THE CONTRACTOR WILL BE AT THE CONTRACTOR'S SOLE EXPENSE.

TEMPORARY UTILITIES

1. TEMPORARY ELECTRIC

A. POWER IS NOT AVAILABLE AT THE SITE. IF TEMPORARY POWER IS NECESSARY TO OPERATE PUMPS, CONTRACTOR SHALL PROVIDE ALL GENERATORS, AND OTHER ELECTRICAL EQUIPMENT AND FACILITIES FOR OBTAINING AND DISTRIBUTING POWER ON THE SITE.

B. ALL GENERATORS SHALL BE PLACED OUTSIDE OF THE ORDINARY HIGH-WATER EXTENTS WITH APPROPRIATE SPILL PREVENTION AND CONTAINMENT MEASURES.

2. TEMPORARY WATER

A. POTABLE WATER IS NOT AVAILABLE TO THE CONTRACTOR AT THE SITE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING POTABLE WATER FOR ALL EMPLOYEES AT THE SITE.

3. TEMPORARY SANITATION FACILITIES

A. SPONSOR SHALL PROVIDE AND MAINTAIN TEMPORARY SANITATION FACILITIES (E.G., "PORT-A-POTTIES") FOR USE BY THE CONTRACTOR FOR THE DURATION OF THE CONSTRUCTION INCLUDING REVEGETATION ACTIVITIES.

4. TEMPORARY FIRST AID FACILITIES

A. CONTRACTOR SHALL PROVIDE FIRST AID EQUIPMENT AND SUPPLIES ONSITE FOR EMPLOYEES.

B. CONTRACTOR SHALL HAVE FULL TASK-SPECIFIC HEALTH AND SAFETY PLAN TO INCLUDE AN EMERGENCY ACTION PLAN THAT INSTRUCTS EMPLOYEES WHAT TO DO IN CASE OF A WORKPLACE INJURY OR EMERGENCY OR ADOPT SPONSOR'S HASP.

C. CONTRACTOR SHALL REVIEW THE PLAN WITH EACH EMPLOYEE AND HAVE THE PLAN AVAILABLE ONSITE AT ALL TIMES.

D. ANY PERSON AUTHORIZED TO BE ONSITE SHALL HAVE THE RIGHT TO STOP WORK AT ANY TIME IF THE WORK ENVIRONMENT IS DETERMINED TO BE UNSAFE.

5. TEMPORARY FIRE PROTECTION

A. THE CONTRACTOR SHALL CONDUCT OPERATIONS IN A MANNER THAT IS FIRE-SAFE FOR THE WORK AREA AND ADJACENT AREAS. PROPER FIRE EXTINGUISHERS SHALL BE INSTALLED ON ALL EQUIPMENT AND MAINTAINED BY THE CONTRACTOR. THE PREMISE SHALL BE MAINTAINED CLEAR OF RUBBISH, DEBRIS, OR OTHER MATERIAL CONSTITUTING A POTENTIAL FIRE HAZARD.

B. WHERE SIGNIFICANT OR CONTINUED NONCOMPLIANCE WITH FIRE SAFETY IS NOTED, THE CONTRACTING OFFICER RESERVES THE RIGHT TO STOP THE WORK AT NO EXTRA COST DUE TO EXTENSION OF TIME PENDING REMEDIAL ACTION. FURTHERMORE, THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ANY FINES OR PENALTIES RESULTING FROM FIRE.

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DRAWING NAME
GENERALS

GENERAL NOTES-1

DRAWING NO.
G3
SHEET 3 OF 57

WOOD STRUCTURES

1. WOOD MATERIALS

A. SEE SPECIFICATIONS FOR LOG, RACKING, AND SLASH MATERIAL REQUIREMENTS.

B. CONTRACTOR SHALL PROCURE ALL WOOD MATERIALS REQUIRED FOR THIS CONTRACT THROUGH LEGAL MEANS AND HAS SOLE RESPONSIBILITY TO SECURE ANY AND ALL NECESSARY PERMITS FOR HARVESTING WOOD MATERIALS.

SURVEYING

1. SURVEYING

A. THE CONTRACTOR SHALL PROVIDE ALL SURVEYING TASKS NECESSARY FOR CONSTRUCTION IN ACCORDANCE WITH SPECIFICATIONS. THIS INCLUDES, BUT IS NOT LIMITED TO, LOCATING EXISTING SURVEY CONTROL, ESTABLISHING ADDITIONAL HORIZONTAL AND VERTICAL CONTROL, PLACING GRADE STAKES, IDENTIFYING ALL MAJOR AND MINOR WORK COMPONENTS, PERIODICALLY VERIFYING LOCATIONS AND ELEVATIONS OF ALL CONSTRUCTION ITEMS, AND COMPLETING AN AS-BUILT SURVEY TO DOCUMENT FINAL AS-BUILT CONDITIONS.

B. PRIOR TO BEGINNING WORK, THE ENGINEER WILL PROVIDE ALL DRAWING FILES INCLUDING LINEWORK, SURFACES, AND ALIGNMENTS IN AUTOCAD CIVIL 3D VERSION 2024 FORMAT.

TEMPORARY ENVIRONMENTAL CONTROLS

1. REGULATORY REQUIREMENTS

A. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE WITH ALL FEDERAL, STATE, AND LOCAL LAWS AND REGULATIONS AND SHALL BE EXPECTED TO MAINTAIN COPIES OF ALL REGULATORY REQUIREMENTS ON SITE FOR INSPECTION AND REVIEW.

B. CONTRACTOR SHALL CONFORM TO MOST STRINGENT REQUIREMENT IN CASES OF CONFLICT BETWEEN SPECIFICATIONS AND REGULATORY REQUIREMENTS.

C. CONTRACTING OFFICER MAY STOP ANY CONSTRUCTION ACTIVITY IN VIOLATION OF FEDERAL, STATE, OR LOCAL LAWS AND THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ANY FINES OR EXPENSES RESULTING FROM WORK STOPPAGE.

D. THE CONTRACTOR SHALL PREPARE, FILE, IMPLEMENT, AND MAINTAIN A STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR THE PROJECT.

E. THE CONTRACTOR SHALL PREPARE A SPILL PREVENTION, CONTROL, AND COUNTERMEASURES (SPCC) PLAN FOR THIS PROJECT TO INCLUDE REQUIREMENTS TO PREVENT SPILLS THROUGHOUT CONSTRUCTION.

2. DUST CONTROL

A. CONTRACTOR SHALL PROVIDE ALL LABOR, EQUIPMENT, AND MATERIALS TO CONTROL DUST ON ALL ACCESS ROADS AND DISTURBED AREAS SEVERAL TIMES PER DAY TO PREVENT DUST NUISANCE OR DAMAGE TO PERSONS, PROPERTY, OR ACTIVITIES, INCLUDED BUT NOT LIMITED TO CROPS, CULTIVATED FIELDS, WILDLIFE HABITATS, RESIDENCES, AGRICULTURAL ACTIVITIES, RECREATIONAL ACTIVITIES, TRAFFIC, AND SIMILAR CONDITIONS.

B. CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR DAMAGES RESULTING FROM DUST ORIGINATING FROM CONTRACTOR OPERATIONS.

C. SEE REQUIREMENTS ON DRAWING G5.

3. AIR POLLUTION CONTROL

A. UTILIZE REASONABLY AVAILABLE METHODS AND DEVICES TO PREVENT, CONTROL, AND OTHERWISE MINIMIZE ATMOSPHERIC EMISSIONS OR DISCHARGES OF AIR CONTAMINANTS.

B. DO NOT OPERATE EQUIPMENT AND VEHICLES THAT SHOW EXCESSIVE EXHAUST GAS EMISSIONS UNTIL CORRECTIVE REPAIRS OR ADJUSTMENTS REDUCE SUCH EMISSIONS TO ACCEPTABLE LEVELS.

4. NOISE CONTROL

A. PROVIDE SPECIALTY MUFFLERS FOR CONTINUOUSLY RUNNING GENERATORS, PUMPS, AND OTHER STATIONARY EQUIPMENT.

5. WATER POLLUTION CONTROL

A. PERFORM CONSTRUCTION ACTIVITIES BY METHODS THAT WILL PREVENT ENTRANCE, OR ACCIDENTAL SPILLAGE, OF SOLID MATTER, CONTAMINANTS, DEBRIS, OR OTHER POLLUTANTS OR WASTES INTO STREAMS, FLOWING OR DRY WATERCOURSES, LAKES, WETLANDS, RESERVOIRS, OR UNDERGROUND WATER SOURCES. SUCH POLLUTANTS AND WASTES INCLUDE, BUT ARE NOT RESTRICTED TO REFUSE, GARBAGE, CEMENT, SANITARY WASTE, INDUSTRIAL WASTE, HAZARDOUS MATERIALS, RADIOACTIVE SUBSTANCES, OIL AND OTHER PETROLEUM PRODUCTS, AGGREGATE PROCESSING TAILINGS, MINERAL SALTS, AND THERMAL POLLUTION.

B. ABSORBENT PADS TO SOAK UP LEAKS AND A FUEL SPILL RESPONSE KIT (INCLUDING RAG PADS AND BOOMS) OF APPROPRIATE SIZE FOR THE EQUIPMENT USED SHALL BE ON SITE AT ALL TIMES AND READILY AVAILABLE THROUGHOUT THE CONSTRUCTION PERIOD.

FINAL SITE REVIEW

1. INSPECTIONS

A. ALL TESTS, INSPECTIONS, AND APPROVALS SHALL BE PERFORMED BY THE CONTRACTOR, CONTRACTING OFFICER, OR ENGINEER.

B. THE CONTRACTING OFFICER AND/OR ENGINEER WILL CONDUCT REGULAR INFORMAL INSPECTIONS THROUGHOUT CONSTRUCTION AND FORMAL PRE-FINAL AND FINAL INSPECTIONS TO INCLUDE DEVELOPMENT OF A PUNCH LIST OF ITEMS TO BE CORRECTED OR COMPLETED. PRIOR TO DEMOBILIZATION, THE CONTRACTOR SHALL REVIEW ALL CONSTRUCTION ELEMENTS AND/OR PUNCH LIST ITEMS WITH THE CONTRACTING OFFICER AND ENGINEER, WHO WILL GIVE APPROVAL OR PROVIDE A LIST OF FINAL ITEMS TO BE CORRECTED.

C. REGULATORY PERSONNEL MAY ALSO PARTICIPATE IN FORMAL PRE-FINAL AND FINAL INSPECTIONS.

D. CONTRACTOR SHALL NOTIFY THE CONTRACTING OFFICER AT LEAST 5 WORKING DAYS OF ADVANCED NOTICE FOR PRE-FINAL AND FINAL INSPECTIONS.

E. ALL PERSONNEL AUTHORIZED TO BE ONSITE WILL COMPLY WITH THE CONTRACTOR'S SITE-SPECIFIC AND TASK-SPECIFIC HEALTH AND SAFETY REQUIREMENTS WHILE ONSITE.

2. RECORD DOCUMENTS

A. CONTRACTOR SHALL SECURE FROM THE CONTRACTING OFFICER ONE COMPLETE SET OF CONTRACT DOCUMENTS FOR USE AS THE CONTRACTOR'S SET OF RECORD DOCUMENTS. CONTRACTOR SHALL IMMEDIATELY LABEL THE CONTRACT DOCUMENTS AS "RECORD DOCUMENTS-CONTRACTOR'S SET" AND USE THIS SET TO RECORD ALL CHANGES IN THE WORK AS THEY OCCUR ON A DAILY BASIS.

B. CONTRACTOR SHALL MAINTAIN THE RECORD DOCUMENTS WHICH SHALL BE PROTECTED FROM DETERIORATION AND FROM LOSS AND DAMAGE UNTIL COMPLETION OF THE WORK. IN THE EVENT OF LOSS OR DAMAGE, THE CONTRACTOR SHALL RE-SECURE THE DOCUMENTS OR RE-RECORD THE DATA AT THE CONTRACTORS OWN EXPENSE.

3. FINAL COMPLETION

A. COMPLETE THE FOLLOWING TASKS BEFORE REQUESTING INSPECTIONS FOR INDIVIDUAL WORK ELEMENTS OR FOR PRE-FINAL AND FINAL INSPECTIONS:

A.1. CLEAN THE PROJECT SITE AND GROUNDS IN AREAS DISTURBED BY CONSTRUCTION ACTIVITIES OF RUBBISH, WASTE MATERIALS, LITTER, AND FOREIGN SUBSTANCES. REMOVE ALL WASTE FROM THE PROPERTY, DO NOT BURN, BURY, OR OTHERWISE DISPOSE OF TRASH ON THE PROJECT SITE.

A.2. PREPARE ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES WITH PROPER EROSION CONTROL MEASURES SPECIFIED IN THE SWPPP.

A.3. LEFTOVER WOODY MATERIALS AND/OR OTHER NATIVE ORGANICS MAY BE BROKEN AND BROADCAST OVER THE RESTORED AREA AS APPROVED BY THE CONTRACTING OFFICER.

A.4. CONTRACTOR SHALL NOTIFY THE CONTRACTING OFFICER AT LEAST 5 WORKING DAYS OF ADVANCED NOTICE FOR PRE-FINAL AND FINAL INSPECTIONS.

B. FINAL COMPLETION IS CONTINGENT ON THE SUCCESSFUL COMPLETION AND APPROVAL OF:

B.1. PRE-FINAL AND FINAL INSPECTIONS

B.2. ACCEPTANCE OF RECORD DOCUMENTS AND AS-BUILT SURVEY

B.3. CLEANING OF THE SITE AND REMOVAL OF EQUIPMENT

B.4. PROPER RESTORATION/STABILIZATION OF ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES.

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BEAR CREEK
GRANDE RONDE RIVER BASIN, OREGON

WORKING DRAFT FOR REVIEW AND REVISION

DATE: 10/15/2025
DESIGNED: JF, RR, ZS, MG
APPROVED: JF

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GENERAL CONSERVATION MEASURES APPLICABLE TO ALL ACTIONS

THE ACTIVITIES COVERED UNDER THESE CONSERVATION MEASURES ARE INTENDED TO PROTECT AND RESTORE FISH AND WILDLIFE HABITAT WITH LONG-TERM BENEFITS TO ESA-LISTED SPECIES. THE FOLLOWING GENERAL CONSERVATION MEASURES WILL BE APPLIED TO ALL ACTIONS OF THIS PROJECT.

PROJECT DESIGN AND SITE PREPARATION.

1. STATE AND FEDERAL PERMITS.

A. ALL APPLICABLE REGULATORY PERMITS AND OFFICIAL PROJECT AUTHORIZATIONS WILL BE OBTAINED BEFORE PROJECT IMPLEMENTATION.

B. THESE PERMITS AND AUTHORIZATIONS INCLUDE, BUT ARE NOT LIMITED TO, NATIONAL ENVIRONMENTAL POLICY ACT, NATIONAL HISTORIC PRESERVATION ACT, THE APPROPRIATE STATE AGENCY REMOVAL AND FILL PERMIT, USACE CLEAN WATER ACT (CWA) 404 PERMITS, CWA SECTION 401 WATER QUALITY CERTIFICATIONS, AND FEMA NO-RISE ANALYSES.

2. TIMING OF IN-WATER WORK.

A. OREGON DEPARTMENT OF FISH AND WILDLIFE (ODFW) GUIDELINES FOR TIMING OF IN-WATER WORK WINDOWS (IWW) WILL BE FOLLOWED.

B. CHANGES TO ESTABLISHED WORK WINDOWS WILL BE APPROVED BY REGIONAL STATE AND FEDERAL BIOLOGISTS.

C. BULL TROUT. FOR AREAS WITH DESIGNATED IN-WATER WORK WINDOWS FOR BULL TROUT OR AREAS KNOWN TO HAVE BULL TROUT, PROJECT PROPONENTS WILL CONTACT THE APPROPRIATE USFWS FIELD OFFICE TO INSURE THAT ALL REASONABLE IMPLEMENTATION MEASURES ARE CONSIDERED AND AN APPROPRIATE IN-WATER WORK WINDOW IS BEING USED TO MINIMIZE PROJECT EFFECTS.

D. LAMPREY. WORKING IN STREAM OR RIVER CHANNELS THAT CONTAIN PACIFIC LAMPREY WILL BE AVOIDED FROM MARCH 1 TO JULY 1 FOR REACHES <5,000 FEET IN ELEVATION AND FROM MARCH 1 TO AUGUST 1 FOR REACHES >5,000 FEET. IF EITHER TIMEFRAME IS INCOMPATIBLE WITH OTHER OBJECTIVES, THE AREA WILL BE SURVEYED FOR NESTS AND LAMPREY PRESENCE, AND AVOIDED IF POSSIBLE. IF LAMPREYS ARE KNOWN TO EXIST, THE PROJECT SPONSOR WILL UTILIZE DEWATERING AND SALVAGE PROCEDURES (SEE FISH SALVAGE AND ELECTROFISHING SECTIONS) TO MINIMIZE ADVERSE EFFECTS.

E. THE IN-WATER WORK WINDOW WILL BE PROVIDED IN THE CONSTRUCTION PLANS.

3. CONTAMINANTS.

A. EXCAVATION OF MORE THAN 20 CUBIC YARDS WILL REQUIRE A SITE VISIT AND DOCUMENTED ASSESSMENT FOR POTENTIAL CONTAMINANT SOURCES. THE SITE ASSESSMENT WILL BE STORED WITH PROJECT FILES OR AS AN APPENDIX TO THE BASIS OF DESIGN REPORT.

B. THE SITE ASSESSMENT WILL SUMMARIZE:

1. THE SITE VISIT, CONDITION OF THE PROPERTY, AND IDENTIFICATION OF ANY AREAS USED FOR VARIOUS INDUSTRIAL PROCESSES;
2. AVAILABLE RECORDS, SUCH AS FORMER SITE USE, BUILDING PLANS, AND RECORDS OF ANY PRIOR CONTAMINATION EVENTS;
3. INTERVIEWS WITH KNOWLEDGEABLE PEOPLE, SUCH AS SITE OWNERS, OPERATORS, OCCUPANTS, NEIGHBORS, OR LOCAL GOVERNMENT OFFICIALS; AND
4. THE TYPE, QUANTITY, AND EXTENT OF ANY POTENTIAL CONTAMINATION SOURCES.

C. IF UNEXPECTED MATERIALS (SEE SPECIFICATIONS) ARE ENCOUNTERED DURING CONSTRUCTION, CONTRACTOR SHALL IMMEDIATELY STOP WORK, PREVENT FURTHER DISTURBANCE, NOTIFY THE CONTRACTING OFFICER, DEMARCATE THE AREA, AND REDIRECT WORK TO ANOTHER AREA UNTIL DIRECTION IS PROVIDED BY THE CONTRACTING OFFICER.

D. ANY PERSON AUTHORIZED TO BE ONSITE SHALL HAVE THE RIGHT TO STOP WORK AT ANY TIME IF THE WORK ENVIRONMENT IS DETERMINED TO BE UNSAFE.

4. SITE LAYOUT AND FLAGGING.

A. CONSTRUCTION AREAS TO BE CLEARLY FLAGGED PRIOR TO CONSTRUCTION (SEE SPECIFICATIONS).

B. AREAS TO BE FLAGGED WILL INCLUDE:

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.

5. TEMPORARY ACCESS ROADS AND PATHS.

A. 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.

B. VEHICLE USE AND HUMAN ACTIVITIES, INCLUDING WALKING, IN AREAS OCCUPIED BY TERRESTRIAL ESA-LISTED SPECIES WILL BE MINIMIZED.

C. 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.

D. 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).

E. 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.

F. HELICOPTER FLIGHT PATTERNS WILL BE ESTABLISHED IN ADVANCE AND LOCATED TO AVOID TERRESTRIAL ESA-LISTED SPECIES AND THEIR OCCUPIED HABITAT DURING SENSITIVE LIFE STAGES.

6. TEMPORARY STREAM CROSSINGS.

A. EXISTING STREAM CROSSINGS WILL BE PREFERENTIALLY USED WHENEVER REASONABLE, AND THE NUMBER OF TEMPORARY STREAM CROSSINGS WILL BE MINIMIZED.

B. TEMPORARY BRIDGES AND CULVERTS WILL BE INSTALLED TO ALLOW FOR EQUIPMENT AND VEHICLE CROSSING OVER PERENNIAL STREAMS DURING CONSTRUCTION. TREATED WOOD SHALL NOT BE USED ON TEMPORARY BRIDGE CROSSINGS OR IN LOCATIONS IN CONTACT WITH OR DIRECTLY OVER WATER.

C. FOR PROJECTS THAT REQUIRE EQUIPMENT AND VEHICLES TO CROSS IN THE WET:

1. THE LOCATION AND NUMBER OF ALL WET CROSSINGS SHALL BE APPROVED BY THE BPA EC LEAD AND DOCUMENTED IN THE CONSTRUCTION PLANS;
2. VEHICLES AND MACHINERY SHALL CROSS STREAMS AT RIGHT ANGLES TO THE MAIN CHANNEL WHENEVER POSSIBLE;
3. NO STREAM CROSSINGS WILL OCCUR 300 FEET UPSTREAM OR 100 FEET DOWNSTREAM OF AN EXISTING REDD OR SPAWNING FISH; AND
4. AFTER PROJECT COMPLETION, TEMPORARY STREAM CROSSINGS WILL BE OBLITERATED AND BANKS RESTORED.

7. STAGING, STORAGE, AND STOCKPILE AREAS.

A. 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. STAGING AREAS CLOSER THAN 150 FEET WILL BE APPROVED BY THE EC LEAD.

B. NATURAL MATERIALS USED FOR IMPLEMENTATION OF AQUATIC RESTORATION, SUCH AS LARGE WOOD, GRAVEL, AND BOULDERS, MAY BE STAGED WITHIN 150 FEET IF CLEARLY INDICATED IN THE PLANS THAT AREA IS FOR NATURAL MATERIALS ONLY.

C. 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.

D. ANY MATERIAL NOT USED IN RESTORATION, AND NOT NATIVE TO THE FLOODPLAIN, WILL BE DISPOSED OF OUTSIDE THE 100-YEAR FLOODPLAIN.

8. EQUIPMENT.

A. 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).

B. EQUIPMENT WILL BE STORED, FUELED, AND MAINTAINED IN AN CLEARLY IDENTIFIED STAGING AREA THAT MEETS STAGING AREA CONSERVATION MEASURES;

C. EQUIPMENT WILL BE REFUELED IN A VEHICLE STAGING AREA OR IN AN ISOLATED HARD ZONE, SUCH AS A PAVED PARKING LOT OR ADJACENT, ESTABLISHED ROAD (THIS MEASURE APPLIES ONLY TO GAS-POWERED EQUIPMENT WITH TANKS LARGER THAN 5 GALLONS);

D. BIODEGRADABLE LUBRICANTS AND FLUIDS WILL BE USED ON EQUIPMENT OPERATING IN AND ADJACENT TO THE STREAM CHANNEL AND LIVE WATER. SEE DRAWING G3 FOR SPECIFIC REQUIREMENTS.

E. EQUIPMENT WILL BE INSPECTED DAILY FOR FLUID LEAKS BEFORE LEAVING THE VEHICLE STAGING AREA FOR OPERATION WITHIN 150 FEET OF ANY NATURAL WATER BODY OR WETLAND; AND

F. EQUIPMENT WILL BE THOROUGHLY CLEANED BEFORE OPERATION BELOW ORDINARY HIGH WATER, AND AS OFTEN AS NECESSARY DURING OPERATION, TO REMAIN GREASE FREE.

9. EROSION CONTROL.

A. TEMPORARY EROSION CONTROL MEASURES INCLUDE:

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;
2. 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;
3. TEMPORARY EROSION CONTROL MEASURES MAY INCLUDE SEDGE MATS, FIBER WATTLES, SILT FENCES, JUTE MATTING, WOOD FIBER MULCH AND SOIL BINDER, OR GEOTEXTILES AND GEOSYNTHETIC FABRIC;
4. 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;
5. SEDIMENT WILL BE REMOVED FROM EROSION CONTROLS ONCE IT HAS REACHED 1/3 OF THE EXPOSED HEIGHT OF THE CONTROL; AND
6. ONCE THE SITE IS STABILIZED AFTER CONSTRUCTION, TEMPORARY EROSION CONTROL MEASURES WILL BE REMOVED.

B. EMERGENCY EROSION CONTROLS. THE FOLLOWING MATERIALS FOR EMERGENCY EROSION CONTROL WILL BE AVAILABLE AT THE WORK SITE:

1. A SUPPLY OF SEDIMENT CONTROL MATERIALS; AND
2. AN OIL-ABSORBING FLOATING BOOM WHENEVER SURFACE WATER IS PRESENT.

10. DUST ABATEMENT.

A. THE PROJECT SPONSOR WILL DETERMINE THE APPROPRIATE DUST CONTROL MEASURES BY CONSIDERING SOIL TYPE, EQUIPMENT USAGE, PREVAILING WIND DIRECTION, AND THE EFFECTS CAUSED BY OTHER EROSION AND SEDIMENT CONTROL MEASURES.

B. WORK WILL BE SEQUENCED AND SCHEDULED TO REDUCE EXPOSED BARE SOIL SUBJECT TO WIND EROSION.

C. 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 MIXED 50:50 WITH WATER.

D. 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).

E. SPILL CONTAINMENT EQUIPMENT WILL BE AVAILABLE DURING APPLICATION OF DUST ABATEMENT CHEMICALS.

F. PETROLEUM-BASED PRODUCTS WILL NOT BE USED FOR DUST ABATEMENT.

11. SPILL PREVENTION, CONTROL, AND COUNTER MEASURES.

A. SEE THE REGULATORY REQUIREMENTS SECTION ON SHEET G4.

B. A DESCRIPTION OF HAZARDOUS MATERIALS THAT WILL BE USED, INCLUDING INVENTORY, STORAGE, AND HANDLING PROCEDURES WILL BE AVAILABLE ON-SITE.

C. WRITTEN PROCEDURES FOR NOTIFYING ENVIRONMENTAL RESPONSE AGENCIES WILL BE POSTED AT THE WORK SITE.

D. 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.

E. WORKERS WILL BE TRAINED IN SPILL CONTAINMENT PROCEDURES AND WILL BE INFORMED OF THE LOCATION OF SPILL CONTAINMENT KITS.

F. 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.

G. PUMPS USED ADJACENT TO WATER SHALL USE SPILL CONTAINMENT SYSTEMS.

12. INVASIVE SPECIES CONTROL.

A. 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.

B. WATERCRAFT, WADERS, BOOTS, AND ANY OTHER GEAR TO BE USED IN OR NEAR WATER WILL BE INSPECTED FOR AQUATIC INVASIVE SPECIES.

C. WADING BOOTS WITH FELT SOLES ARE NOT TO BE USED DUE TO THEIR PROPENSITY FOR AIDING IN THE TRANSFER OF INVASIVE SPECIES UNLESS DECONTAMINATION PROCEDURES HAVE BEEN APPROVED BY THE EC LEAD.

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WORKING DRAFT FOR REVIEW AND REVISION

DATE: 10/15/2025
DESIGNED: JF, RR, ZS, MG
APPROVED: JF

DRAWING NAME

GENERALS

CONSERVATION-1

DRAWING NO.

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WORK AREA ISOLATION AND FISH SALVAGE.

1. WORK AREA ISOLATION.

A. 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 KNOWN SPAWNING HABITATS.

B. WORK AREA ISOLATION AND FISH SALVAGE ACTIVITIES WILL COMPLY WITH THE IN-WATER WORK WINDOW.

C. DESIGN PLANS WILL INCLUDE ALL ISOLATION ELEMENTS AND AREAS (COFFER DAMS, PUMPS, DISCHARGE AREAS, FISH SCREENS, FISH RELEASE AREAS, ETC.).

D. 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 STRESS AND DEATH OF SPECIES PRESENT.

2. FISH SALVAGE.

A. MONITORING AND RECORDING WILL TAKE PLACE FOR DURATION OF SALVAGE. THE SALVAGE REPORT WILL BE COMMUNICATED TO AGENCIES VIA THE PROJECT COMPLETION FORM (PCF).

B. SALVAGE ACTIVITIES SHOULD TAKE PLACE DURING CONDITIONS TO MINIMIZE STRESS TO FISH SPECIES, TYPICALLY PERIODS OF THE COOLEST AIR AND WATER TEMPERATURES WHICH OCCUR IN THE MORNING VERSUS LATE IN THE DAY.

C. SALVAGE OPERATIONS WILL FOLLOW THE ORDERING, METHODOLOGIES, AND CONSERVATION MEASURES SPECIFIED BELOW:

1. SLOWLY REDUCE WATER FROM THE WORK AREA TO ALLOW SOME FISH TO LEAVE VOLITIONALLY.
2. BLOCK NETS WILL BE INSTALLED AT UPSTREAM AND DOWNSTREAM LOCATIONS AND MAINTAINED IN A SECURED POSITION TO EXCLUDE FISH FROM ENTERING THE PROJECT AREA.
3. BLOCK NETS WILL BE SECURED TO THE STREAM CHANNEL BED AND BANKS UNTIL FISH CAPTURE AND TRANSPORT ACTIVITIES ARE COMPLETE. BLOCK NETS MAY BE LEFT IN PLACE FOR THE DURATION OF THE PROJECT TO EXCLUDE FISH AS LONG AS PASSAGE REQUIREMENTS ARE MET.
4. NETS WILL BE MONITORED HOURLY DURING IN-STREAM DISTURBANCE.
5. IF BLOCK NETS REMAIN IN PLACE MORE THAN ONE DAY, THE NETS WILL BE MONITORED AT LEAST DAILY TO ENSURE THEY ARE SECURED AND FREE OF ORGANIC ACCUMULATION. IF BULL TROUT ARE PRESENT, NETS ARE TO BE CHECKED EVERY 4 HOURS FOR FISH IMPINGEMENT.
6. CAPTURE FISH THROUGH SEINING AND RELOCATE TO STREAMS.
7. WHILE DEWATERING, ANY REMAINING FISH WILL BE COLLECTED BY HAND OR DIP NETS.
8. SEINES WITH A MESH SIZE TO ENSURE CAPTURE OF THE RESIDING ESA-LISTED FISH WILL BE USED.
9. MINNOW TRAPS WILL BE LEFT IN PLACE OVERNIGHT AND USED IN CONJUNCTION WITH SEINING.
10. ELECTROFISH TO CAPTURE AND RELOCATED FISH NOT CAUGHT DURING SEINING PER ELECTROFISH CONSERVATION MEASURES.
11. CONTINUE TO SLOWLY DEWATER STREAM REACH.
12. COLLECT ANY REMAINING FISH IN COLD-WATER BUCKETS AND RELOCATED TO THE STREAM.
13. LIMIT THE TIME FISH ARE IN A TRANSPORT BUCKET.
14. MINIMIZE PREDATION BY TRANSPORTING COMPARABLE SIZES IN BUCKETS.
15. BUCKET WATER TO BE CHANGED EVERY 15 MINUTES OR AERATED.
16. BUCKETS WILL BE KEPT IN SHADED AREAS OR COVERED.
17. DEAD FISH WILL NOT BE STORED IN TRANSPORT BUCKETS, BUT WILL BE LEFT ON THE STREAM BANK TO AVOID MORTALITY COUNTING ERRORS.

D. SALVAGE GUIDELINES FOR BULL TROUT, LAMPREY, MUSSELS, AND NATIVE FISH.

1. CONDUCT SITE SURVEY TO ESTIMATE SALVAGE NUMBERS.
2. PRE-SELECT SITE(S) FOR RELEASE AND/OR MUSSEL BED RELOCATION.
3. SALVAGE OF BULL TROUT WILL NOT TAKE PLACE WHEN WATER TEMPERATURES EXCEED 15 DEGREES CELSIUS.
4. IF DRAWDOWN LESS THAN 48 HOURS, SALVAGE OF LAMPREY AND MUSSELS MAY NOT BE NECESSARY IF TEMPERATURES SUPPORT SURVIVAL IN SEDIMENTS.
5. SALVAGE MUSSELS BY HAND, LOCATING BY SNORKELING OR WADING.
6. SALVAGE LAMPREY BY ELECTROFISHING (SEE ELECTROFISHING FOR LARVAL LAMPREY SETTINGS AND LARVAL LAMPREY DRY SHOCKING SETTINGS.
7. SALVAGE BONY FISH AFTER LAMPREY WITH NETS OR ELECTROFISHING (SEE ELECTROFISHING FOR APPROPRIATE SETTINGS).
8. REGULARLY INSPECT DEWATERED SITE SINCE LAMPREY LIKELY TO EMERGE AFTER DEWATERING AND MUSSELS MAY BECOME VISIBLE.
9. MUSSELS MAY BE TRANSFERRED IN COOLERS.
10. MUSSELS WILL BE PLACED INDIVIDUALLY TO ENSURE ABILITY TO BURROW INTO NEW HABITAT.

3. ELECTROFISHING.

A. INITIAL SITE SURVEY AND INITIAL SETTINGS.

1. IDENTIFY SPAWNING ADULTS AND ACTIVE REDDS TO AVOID.
2. RECORD WATER TEMPERATURE. ELECTROFISHING WILL NOT OCCUR WHEN WATER TEMPERATURES ARE ABOVE 18 DEGREES CELSIUS.
3. IF POSSIBLE, A BLOCK NET WILL BE PLACED DOWNSTREAM AND CHECKED REGULARLY TO CAPTURE STUNNED FISH THAT DRIFT DOWNSTREAM.
4. INITIAL SETTINGS WILL BE 100 VOLTS, PULSE WIDTH OF 500 MICRO SECONDS, AND PULSE RATE OF 30 HERTZ.
5. RECORDS FOR CONDUCTIVITY, WATER TEMPERATURE, AIR TEMPERATURE, ELECTROFISHING SETTINGS, ELECTROFISHER MODEL, ELECTROFISHER CALIBRATION, FISH CONDITIONS, FISH MORTALITIES, AND TOTAL CAPTURE RATES WILL BE INCLUDED IN THE SALVAGE LOG BOOK.

B. ELECTROFISHING TECHNIQUE.

1. SAMPLING WILL BEGIN USING STRAIGHT DC. POWER WILL REMAIN ON UNTIL THE FISH IS NETTED WHEN USING STRAIGHT DC. GRADUALLY INCREASE VOLTAGE WHILE REMAINING BELOW MAXIMUM LEVELS.
2. MAXIMUM VOLTAGE WILL BE 1100 VOLTS WHEN CONDUCTIVITY IS <100 MILLISECONDS, 800 VOLTS WHEN CONDUCTIVITY IS BETWEEN 100 AND 300 MILLISECONDS, AND 400 VOLTS WHEN CONDUCTIVITY IS >300 MILLISECONDS.
3. IF FISH CAPTURE IS NOT SUCCESSFUL USING STRAIGHT DC, THE ELECTROFISHER WILL BE SET TO INITIAL VOLTAGE FOR PDC. VOLTAGE, PULSE WIDTH, AND PULSE FREQUENCY WILL BE GRADUALLY INCREASED WITHIN MAXIMUM VALUES UNTIL CAPTURE IS SUCCESSFUL.
4. MAXIMUM PULSE WIDTH IS 5 MILLISECONDS. MAXIMUM PULSE RATE IS 70 HERTZ
5. ELECTROFISHING WILL NOT OCCUR IN ONE AREA FOR AN EXTENDED PERIOD.
6. THE ANODE WILL NOT INTENTIONALLY COME INTO CONTACT WITH FISH. THE ZONE FOR POTENTIAL INJURY OF 0.5 M FROM THE ANODE WILL BE AVOIDED.
7. SETTINGS WILL BE LOWERED IN SHALLOWER WATER SINCE VOLTAGE GRADIENTS LIKELY TO INCREASE.
8. ELECTROFISHING WILL NOT OCCUR IN TURBID WATER WHERE VISIBILITY IS POOR (I.E. UNABLE TO SEE THE BED OF THE STREAM).
9. OPERATIONS WILL IMMEDIATELY STOP IF MORTALITY OR OBVIOUS FISH INJURY IS OBSERVED. ELECTROFISHING SETTINGS WILL BE REEVALUATED.

C. SAMPLE PROCESSING.

1. FISH SHOULD BE SORTED BY SIZE TO AVOID PREDATION DURING SAMPLING.
2. SAMPLERS WILL REGULARLY CHECK CONDITIONS OF FISH HOLDING CONTAINERS, AIR PUMPS, WATER TRANSFERS, ETC.
3. FISH WILL BE OBSERVED FOR GENERAL CONDITIONS AND INJURIES
4. EACH FISH WILL BE COMPLETELY REVIVED BEFORE RELEASE. ESA-LISTED SPECIES WILL BE PRIORITIZED FOR SUCCESSFUL RELEASE.

D. BULL TROUT ELECTROFISHING.

1. ELECTROFISHING FOR BULL TROUT WILL ONLY OCCUR FROM MAY 1 TO JULY 31. NO ELECTROFISHING WILL OCCUR IN ANY BULL TROUT OCCUPIED HABITAT AFTER AUGUST 15. IN FMO HABITATS ELECTROFISHING MAY OCCUR ANY TIME.
2. ELECTROFISHING OF BULL TROUT WILL NOT OCCUR WHEN WATER TEMPERATURES EXCEED 15 DEGREES CELSIUS.

E. LARVAL LAMPREY ELECTROFISHING.

1. PERMISSION FROM EC LEAD WILL BE OBTAINED IF LARVAL LAMPREY ELECTROFISHER IS NOT ONE OF FOLLOWING PRE-APPROVED MODELS: ABP-2 "WISCONSIN", SMITH-ROOT LR-24, OR SMITH-ROOT APEX BACKPACK.
2. LARVAL LAMPREY SAMPLING WILL INCORPORATE 2-STAGE METHOD: "TICKLE" AND "STUN".
3. FIRST STAGE: USE 125 VOLT DC WITH A 25 PERCENT DUTY CYCLE APPLIED AT A SLOW RATE OF 3 PULSES PER SECOND. IF TEMPERATURES ARE BELOW 10 DEGREES CELSIUS, VOLTAGE MAY BE INCREASED GRADUALLY (NOT TO EXCEED 200 VOLTS). BURSTED PULSES (THREE SLOW AND ONE SKIPPED) RECOMMENDED TO INCREASE EMERGENCE.
4. SECOND STAGE (OPTIONAL FOR EXPERIENCED NETTERS): IMMEDIATELY AFTER LAMPREY EMERGE, USE A FAST PULSE SETTING OF 30 PULSES PER SECOND.
5. USE DIP NETS FOR VISIBLE LAMPREY. SIENES AND FINE MESH NET SWEEPS MAY BE USED IN POOR VISIBILITY.
6. SAMPLING WILL OCCUR SLOWLY (>60 SECONDS PER METER) STARTING AT UPSTREAM AND WORKING DOWNSTREAM.
7. MULTIPLE SWEEPS TO OCCUR WITH 15 MINUTES BETWEEN SWEEPS.
8. POST-DRAWDOWN "DRY-SHOCKING" WILL BE APPLIED IF LARVAL LAMPREY CONTINUE TO EMERGE. ANODES TO BE PLACED ONE METER APART TO SAMPLE ONE SQUARE METER AT A TIME FOR AT LEAST 60 SECONDS. FOR TEMPERATURES LESS THAN 10 DEGREES CELSIUS, MAXIMUM VOLTAGE MAY BE GRADUALLY INCREASED TO 400 VOLTS (DRY-SHOCKING ONLY).

4. DEWATERING.

A. DEWATERING WILL OCCUR AT A RATE SLOW ENOUGH TO ALLOW SPECIES TO NATURALLY MIGRATE OUT OF THE WORK AREA.

B. WHERE A GRAVITY FEED DIVERSION IS NOT POSSIBLE, A PUMP MAY BE USED. PUMPS WILL BE INSTALLED TO AVOID REPETIVE DEWATERING AND REWATERING.

C. WHEN FISH ARE PRESENT, PUMPS WILL BE SCREENED IN ACCORDANCE WITH NMFS FISH SCREEN CRITERIA. NMFS ENGINEERING REVIEW AND APPROVAL WILL BE OBTAINED FOR PUMPS EXCEEDING 3 CUBIC FEET PER SECOND.

D. DISSIPATION OF FLOW ENERGY AT THE BYPASS OUTFLOW WILL BE PROVIDED TO PREVENT DAMAGE TO THE STREAM CHANNEL AND RIPARIAN VEGETATION.

E. SEEPAGE WATER WILL BE PUMPED TO A TEMPORARY STORAGE AND TREATMENT SITE OF INTO UPLAND AREAS TO ALLOW WATER TO PERCOLATE THROUGH SOIL AND VEGETATION PRIOR TO REENTERING THE STREAM CHANNEL.

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GRANDE RONDE MODEL WATERSHED

OREGON Fish & Wildlife

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80% DESIGN DRAWINGS

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BEAR CREEK
GRANDE RONDE RIVER BASIN, OREGON

WORKING DRAFT FOR REVIEW AND REVISION

DATE: 10/15/2025
DESIGNED: JF, RR, ZS, MG
APPROVED: JF

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CONSTRUCTION AND POST CONSTRUCTION CONSERVATION MEASURES.

1. FISH PASSAGE.

A. FISH PASSAGE WILL BE PROVIDED FOR ADULT AND JUVENILE FISH LIKELY TO BE PRESENT DURING CONSTRUCTION UNLESS PASSAGE DID NOT EXIST BEFORE CONSTRUCTION, THE STREAM IS NATURALLY IMPASSABLE, OR PASSAGE WILL NEGATIVELY IMPACT ESA-LISTED SPECIES OR THEIR HABITAT.

2. CONSTRUCTION AND DISCHARGE WATER.

A. SURFACE WATER MAY BE DIVERTED TO MEET CONSTRUCTION NEEDS ONLY IF DEVELOPED SOURCES ARE UNAVAILABLE OR INADEQUATE.

B. DIVERSIONS WILL NOT EXCEED 10% OF THE AVAILABLE FLOW.

C. CONSTRUCTION DISCHARGE WATER WILL BE COLLECTED AND TREATED TO REMOVE DEBRIS, NUTRIENTS, SEDIMENT, PETROLEUM HYDROCARBONS, METALS, AND OTHER POLLUTANTS.

3. TIME AND EXTENT OF DISTURBANCE.

A. EARTHWORK REQUIRING IN-STREAM MECHANIZED EQUIPMENT (INCLUDING DRILLING, EXCAVATION, DREDGING, FILLING, AND COMPACTING) WILL BE COMPLETED AS QUICKLY AS POSSIBLE.

B. MECHANIZED EQUIPMENT WILL WORK FROM TOP OF BANK UNLESS WORK FROM ANOTHER LOCATION WILL RESULT IN LESS HABITAT DISTURBANCE (TURBIDITY, VEGETATION DISTURBANCE, ETC.).

4. CESSATION OF WORK.

A. PROJECT OPERATIONS WILL CEASE WHEN HIGH FLOW CONDITIONS MAY RESULT IN INUNDATION OF THE PROJECT AREA (FLOOD EFFORTS TO DECREASE DAMAGES TO NATURAL RESOURCES PERMITTED).

B. WATER QUALITY LEVELS EXCEEDED. SEE CWA SECTION 401 WATER QUALITY CERTIFICATION AND TURBIDITY MEASURES.

5. SITE RESTORATION.

A. DISTURBED AREAS, STREAM BANKS, SOILS, AND VEGETATION WILL BE CLEANED UP AND RESTORED TO IMPROVED OR PRE-PROJECT CONDITIONS.

B. PROJECT-RELATED WASTE WILL BE REMOVED.

C. TEMPORARY ACCESS ROADS AND STAGING WILL BE DECOMPACTED AND RESTORED. SOILS WILL BE LOOSENED IF NEEDED FOR REVEGETATION OR WATER INFILTRATION.

D. THE PROJECT SPONSOR WILL RETAIN THE RIGHT OF REASONABLE ACCESS TO THE SITE TO MONITOR AND MAINTAIN THE SITE OVER THE LIFE OF THE PROJECT.

6. REVEGETATION.

A. PLANTING AND SEEDING WILL OCCUR PRIOR TO OR AT THE BEGINNING OF THE FIRST GROWING SEASON AFTER CONSTRUCTION.

B. A MIX OF NATIVE SPECIES (INVASIVE SPECIES NOT ALLOWED) APPROPRIATE TO THE SITE WILL BE USED TO REESTABLISH VEGETATION, PROVIDE SHADE, AND REDUCE EROSION. REESTABLISHED VEGETATION SHOULD BE AT LEAST 70% OF PRE-PROJECT CONDITIONS WITHIN THREE YEARS.

C. VEGETATION SUCH AS WILLOWS, SEDGES, OR RUSH MATS WILL BE SALVAGED FROM DISTURBED OR ABANDONED AREAS TO BE REPLANTED.

D. SHORT-TERM STABILIZATION MEASURE MAY INCLUDE THE USE OF NON-NATIVE STERILE SEED MIX (WHEN NATIVE NOT AVAILABLE), WEED-FREE CERTIFIED STRAW, OR OTHER SIMILAR TECHNIQUES.

E. SURFACE FERTILIZER WILL NOT BE APPLIED WITHIN 50 FEET OF ANY STREAM, WATER BODY, OR WETLAND.

F. FENCING WILL BE INSTALLED AS NECESSARY TO PREVENT ACCESS TO REVEGETATED SITES BY LIVESTOCK OR UNAUTHORIZED PERSONS.

G. INVASIVE PLANTS WILL BE REMOVED OR CONTROLLED UNTIL NATIVE PLANT SPECIES ARE WELL ESTABLISHED (TYPICALLY THREE YEARS POST-CONSTRUCTION).

7. SITE ACCESS AND IMPLEMENTATION MONITORING.

A. THE PROJECT SPONSOR WILL PROVIDE CONSTRUCTION MONITORING DURING IMPLEMENTATION TO ENSURE ALL CONSERVATION MEASURES ARE ADEQUATELY FOLLOWED, EFFECTS TO LISTED SPECIES ARE NOT GREATER THAN PREDICTED, AND INCIDENTAL TAKE LIMITATIONS ARE NOT EXCEEDED.

8. CWA SECTION 401 WATER QUALITY CERTIFICATION.

A. THE PROJECT SPONSOR OR DESIGNATED REPRESENTATIVE WILL COMPLETE AND RECORD WATER QUALITY OBSERVATIONS (SEE TURBIDITY MONITORING) TO ENSURE IN-WATER WORK IS NOT DEGRADING WATER QUALITY.

B. DURING CONSTRUCTION, WATER QUALITY PROVISIONS PROVIDED BY THE OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY, WASHINGTON DEPARTMENT OF ECOLOGY, IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY WILL BE FOLLOWED.

9. STAGED REWATERING PLAN.

A. WHEN REINTRODUCING WATER TO DEWATERED AREAS AND NEWLY CONSTRUCTED CHANNELS, A STAGED REWATERING PLAN WILL BE APPLIED.

B. THE FOLLOWING WILL BE APPLIED TO ALL REWATERING EFFORTS. COMPLEX REWATERING EFFORTS MAY REQUIRE ADDITIONAL NOTES OR A DEDICATED SHEET IN THE CONSTRUCTION DETAILS.

1. TURBIDITY MONITORING PROTOCOL WILL BE APPLIED TO REWATERING EFFORTS.
2. PRE-WASH THE AREA BEFORE REWATERING. TURBID WASH WATER WILL BE DETAINED AND PUMPED TO THE FLOODPLAIN OR SEDIMENT CAPTURE AREAS RATHER THAN DISCHARGING TO FISH-BEARING STREAMS.
3. INSTALL SEINE NETS AT UPSTREAM END TO PREVENT FISH FROM MOVING DOWNSTREAM UNTIL 2/3 OF TOTAL FLOW IS RESTORED TO THE CHANNEL.
4. STARTING IN EARLY MORNING INTRODUCE 1/3 OF NEW CHANNEL FLOW OVER PERIOD OF 1-2 HOURS.
5. INTRODUCE SECOND THIRD OF FLOW OVER NEXT 1 TO 2 HOURS AND BEGIN FISH SALVAGE OF BYPASS CHANNEL IF FISH ARE PRESENT.
6. REMOVE UPSTREAM SEINE NETS ONCE 2/3 FLOW IN REWATERED CHANNEL AND DOWNSTREAM TURBIDITY IS WITHIN ACCEPTABLE RANGE (LESS THAN 40 NTU OR LESS THAN 10% BACKGROUND).
7. INTRODUCE FINAL THIRD OF FLOW ONCE FISH SALVAGE EFFORTS ARE COMPLETE AND DOWNSTREAM TURBIDITY VERIFIED TO BE WITHIN ACCEPTABLE RANGE.
8. INSTALL PLUG TO BLOCK FLOW INTO OLD CHANNEL OR BYPASS. REMOVE ANY REMAINING SEINE NETS.
9. IN LAMPREY SYSTEMS, PERFORM LAMPREY SALVAGE AND DRY SHOCKING MAY BE NECESSARY.

10. TURBIDITY MONITORING.

A. RECORD THE READING, LOCATION, AND TIME FOR THE BACKGROUND READING APPROXIMATELY 100 FEET UPSTREAM OF THE PROJECT AREA USING A RECENTLY CALIBRATED TURBIDIMETER OR VIA VISUAL OBSERVATION (SEE THE HIP HANDBOOK TURBIDITY MONITORING SECTION FOR A VISUAL OBSERVATION KEY).

B. RECORD THE TURBIDITY READING, LOCATION, AND TIME AT THE MEASUREMENT COMPLIANCE LOCATION POINT.

1. 50 FEET DOWNSTREAM FOR STREAMS LESS THAN 30 FEET WIDE.
2. 100 FEET DOWNSTREAM FOR STREAMS BETWEEN 30 AND 100 FEET WIDE.
3. 200 FEET DOWNSTREAM FOR STREAMS GREATER THAN 100 FEET WIDE.
4. 300 FEET FROM THE DISCHARGE POINT OR NONPOINT SOURCE FOR LOCATIONS SUBJECT TO TIDAL OR COASTAL SCOUR.

C. TURBIDITY SHALL BE MEASURED (BACKGROUND LOCATION AND COMPLIANCE POINTS) EVERY 4 HOURS WHILE WORK IS BEING IMPLEMENTED.

D. IF THERE IS A VISIBLE DIFFERENCE BETWEEN A COMPLIANCE POINT AND THE BACKGROUND, THE EXCEEDANCE WILL BE NOTED IN THE PROJECT TURBIDITY MONITORING LOG. ADJUSTMENTS OR CORRECTIVE MEASURES WILL BE TAKEN IN ORDER TO REDUCE TURBIDITY.

E. IF EXCEEDANCES OCCUR FOR MORE THAN TWO CONSECUTIVE MONITORING INTERVALS (AFTER 8 HOURS), THE ACTIVITY WILL STOP UNTIL THE TURBIDITY LEVEL RETURNS TO BACKGROUND.

F. IF TURBIDITY CONTROLS (COFFER DAMS, WADDLES, FENCING, ETC.) ARE DETERMINED INEFFECTIVE, CREWS WILL BE MOBILIZED TO MODIFY AS NECESSARY. OCCURRENCES WILL BE DOCUMENTED IN THE PROJECT TURBIDITY MONITORING LOG.

G. FINAL TURBIDITY READINGS, EXCEEDANCES, AND CONTROL FAILURES WILL BE SUBMITTED TO IDAHO DEQ, USFS, AND EPA AS PART OF A PROJECT COMPLETION REPORT.

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QUANTITIES

BID ITEM	ITEM DESCRIPTION	PHASE 1	PHASE 2	TOTAL (PHASE 1 & 2) QUANTITY	UNIT
	GENERAL				
1	MOBILIZATION/DEMOBILIZATION	1	1	2	LS
2	HELICOPTER MOBILIZATION/DEMOBILIZATION	1	0	1	LS
3	ENVIRONMENTAL CONTROLS (SWPPP, ESC, ETC.)	1	1	2	LS
4	SITE ACCESS (TEMP ACCESS ONLY)	1	1	2	LS
5	WORK AREA ISOLATION, CHANNEL DIVERSION, WATER MANAGEMENT	1	1	2	LS
6	CONSTRUCTION SURVEYING	1	1	2	LS
	SITE WORK				
7	EARTHWORK (ASSUMES NO EXPORT FROM SITE)	12,329	8453	20782	CY
8	CONSTRUCTED RIFFLE (SORTING, OVER EX, PLACEMENT)	3,534	2583	6117	CY
9	BRIDGE (ABUTMENTS, BRIDGE, ACQUISITION, INSTALLATION)	0	1	1	EA
10	WHOLE TREE (EQUIPMENT PLACED)	58	33	91	EA
11	WHOLE TREE (HELI STAGED/ EQUIP PLACED)	25	0	25	EA
12	WHOLE TREE (HELICOPTER PLACED)	38	0	38	EA
13	CHANNEL SPANNING JAM (EQUIPMENT PLACED)	3	3	6	EA
14	CHANNEL SPANNING JAM (HELI STAGED/ EQUIP PLACED)	4	0	4	EA
15	CHANNEL SPANNING JAM (HELICOPTER PLACED)	7	0	7	EA
16	DEFLECTOR JAM (EQUIPMENT PLACED)	7	2	9	EA
17	DEFLECTOR JAM (HELI STAGED/ EQUIP PLACED)	9	0	9	EA
18	DEFLECTOR JAM (HELICOPTER PLACED)	23	0	23	EA
19	MID-CHANNEL JAM (EQUIPMENT PLACED)	5	0	5	EA
20	MID-CHANNEL JAM (HELI STAGED/ EQUIP PLACED)	0	0	0	EA
21	MID-CHANNEL JAM (HELICOPTER PLACED)	0	0	0	EA
22	APEX JAM (EQUIPMENT PLACED)	1	0	1	EA
23	APEX JAM (HELI STAGED/ EQUIP PLACED)	0	0	0	EA
24	APEX JAM (HELICOPTER PLACED)	3	0	3	EA
25	COLLECTOR JAM (EQUIPMENT PLACED)	0	1	1	EA
26	COLLECTOR JAM (HELI STAGED/ EQUIP PLACED)	3	0	3	EA
27	FLOODPLAIN RELICT BEAVER DAM ANALOGUE (BDA)	971	102	1073	LF
28	SAWYER FELLED TREES BEAR CREEK	108	0	108	EA
29	SAWYER FELLED TREES LITTLE BEAR CREEK	408	0	408	EA
30	HELICOPTER WOOD TRANSPORT	60	0	60	HR
31	WOOD HARVEST AND STAGING FOR HELICOPTER	270	0	270	EA
	REVEGETATION				
32	SEEDING (SEEDING AND MULCH)	11.8	3.9	15.7	AC
33	PLANTING (LIVE STAKES INSTALL)	2,878	0	2878	EA

PHASE 1 WOOD MATERIAL QUANTITIES

MATERIAL TYPE	SIZE DBH (IN)	ROOTWAD	MIN. ROOTWAD DIA. (FT)	BRANCHES	EQUIPMENT SOURCED AND PLACED	HELICOPTER PLACED	HELICOPTER DELIVERED EQUIPMENT PLACED	TOTAL
TYPE 1	18" (MIN.)	YES	4.5	YES	124	174	96	394
TYPE 2	12" TO 16"	NO	NA	YES	516	0	0	516
RACKING BUNDLES	4" - 16"	OPTIONAL	NA	YES	38	33	16	87

PHASE 2 WOOD MATERIAL QUANTITIES

MATERIAL TYPE	SIZE DBH (IN)	ROOTWAD	MIN. ROOTWAD DIA. (FT)	BRANCHES	EQUIPMENT SOURCED AND PLACED	HELICOPTER PLACED	HELICOPTER DELIVERED EQUIPMENT PLACED	TOTAL
TYPE 1	18" (MIN.)	YES	4.5	YES	61	0	0	61
TYPE 2	12" TO 16"	NO	NA	YES	0	0	0	0
RACKING BUNDLES	4" - 16"	OPTIONAL	NA	YES	8	0	0	8

ABBREVIATIONS

AC	ACRE
BMP	BEST MANAGEMENT PRACTICES
BO	BIOLOGICAL OPINION
BPA	BONNEVILLE POWER ADMINISTRATION
CFS	CUBIC FEET PER SECOND
CO/C.O.	CONTRACTING OFFICER
C.O.R.	CONTRACTING OFFICER'S REPRESENTATIVE
CP	CONTROL POINT
CSRO	COLUMBIA-SNAKE SALMON RECOVERY OFFICE
CWA	CLEAN WATER ACT
CY	CUBIC YARDS
DBH	DIAMETER AT BREAST HEIGHT
DEQ	DEPARTMENT ENVIRONMENTAL QUALITY
DSL	DEPARTMENT OF STATE LANDS
EA	EACH
E.	EAST
EL	ELEVATION
EPA	ENVIRONMENTAL PROTECTION AGENCY
ESA	ENDANGERED SPECIES ACT
FCRPS	FEDERAL COLUMBIA RIVER POWER SYSTEM
F.G.	FINISHED GRADE
HIP	HABITAT IMPROVEMENT PROGRAM
HWY	HIGHWAY
I	INTERSTATE
IDFG	IDAHO FISH & GAME
LWM	LARGE WOODY MATERIAL
MC	MAIN CHANNEL
MW	MONITORING WELL
N.	NORTH
NAD	NORTH AMERICAN DATUM
NAVD	NORTH AMERICAN VERTICAL DATUM
NEPA	NATIONAL ENVIRONMENTAL POLICY ACT
NMFS	NATIONAL MARINE FISHERIES SERVICE
NPDES	NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM
OC	ON CENTER
O.G.	ORIGINAL GRADE
OHW	ORDINARY HIGH WATER
OR	OREGON
OSHA	OCCUPATIONAL SAFTEY AND HEALTH ADMINISTRATION
PH	PHONE
PLS	PURE LIVE SEED
PLS/AC	PURE LIVE SEED PER ACRE
PP	PLAN AND PROFILE
R	RANGE
S.	SOUTH
SC	SIDE CHANNEL
SEC.	SECTION
SHPO	STATE HISTORIC PRESERVATION OFFICE
STA	STATION
SWPPP	STORM WATER POLLUTION PREVENTION PLAN
SY	SQUARE YARDS
T	TOWNSHIP
TESC	TEMPORARY EROSION & SEDIMENT CONTROL
TOB	TOP OF BANK
TYP	TYPICAL
U.S.	UNITED STATES
USACE	UNITED STATES ARMY CORPS OF ENGINEERS
USBR	UNITED STATE BUREAU OF RECLAMATION
USFS	UNITED STATES FOREST SERVICE
USFWS	UNITED STATES FISH & WILDLIFE SERVICE
V	VOLTS
W.	WEST
WSE	WATER SURFACE ELEVATION
YR	YEAR

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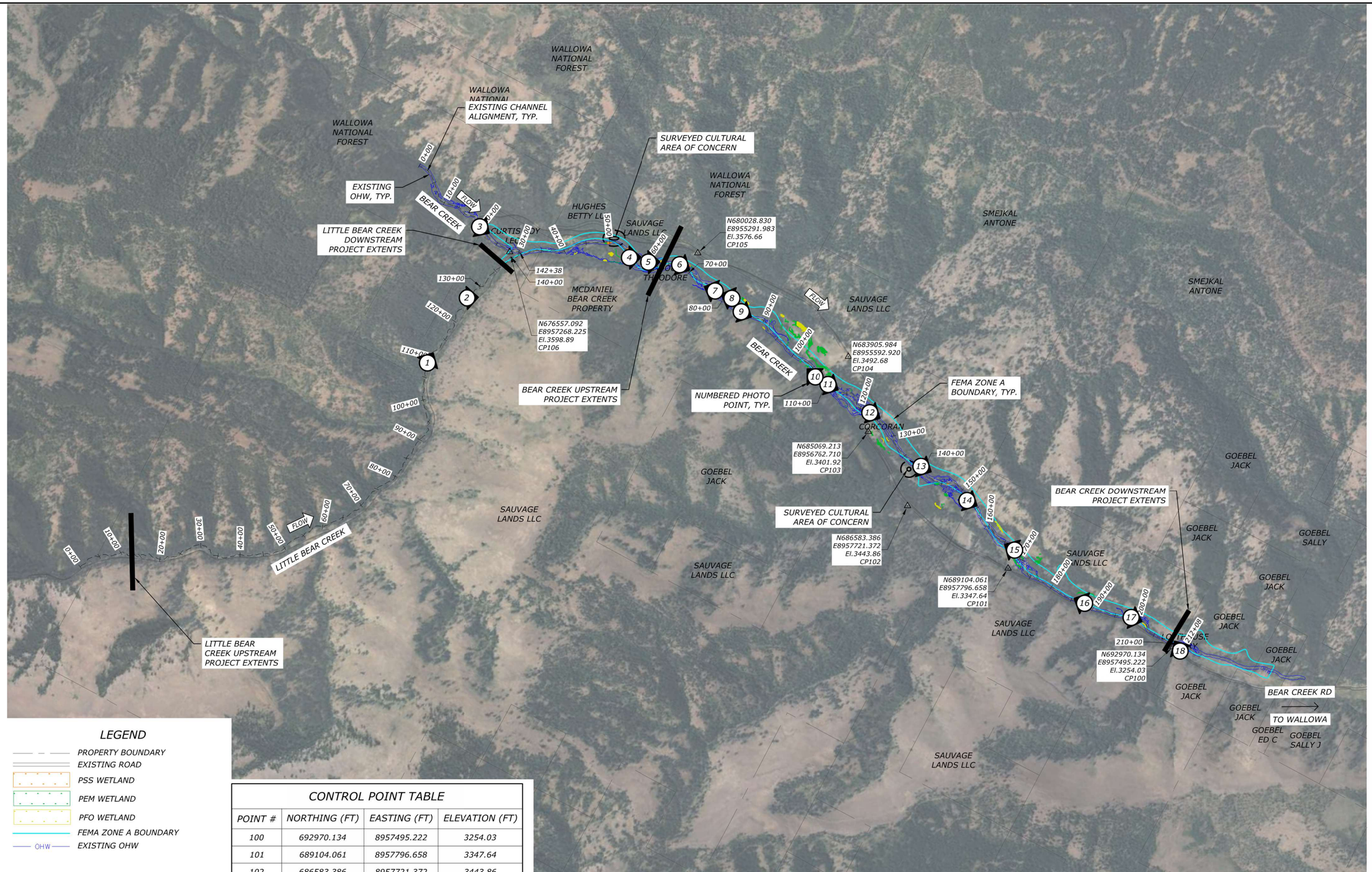

LEGEND

- PROPERTY BOUNDARY
- EXISTING ROAD
- PSS WETLAND
- PEM WETLAND
- PFO WETLAND
- FEMA ZONE A BOUNDARY
- OHW — EXISTING OHW

1000 0 1000 2000 3000

CONTROL POINT TABLE

POINT #	NORTHING (FT)	EASTING (FT)	ELEVATION (FT)
100	692970.134	8957495.222	3254.03
101	689104.061	8957796.658	3347.64
102	686583.386	8957721.372	3443.86
103	685069.213	8956762.710	3401.92
104	683905.984	8955592.920	3492.68
105	680028.830	8955291.983	3576.66
106	676557.092	8957268.225	3598.89

NOTES:

1. FEMA ZONE A BOUNDARY WAS DIGITIZED FROM THE NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP FOR WALLOWA COUTY OREGON AND INCORPORATED AREAS, PANEL 450 OF 875, MAP NUMBER 41063C0450 B, EFFECTIVE DATE: FEBRUARY 17, 1988.
2. ORDINARY HIGH WATER MARK WAS DEVELOPED FROM 2D MODELING PERFORMED BY RIO ASE AS PART OF THIS DESIGN EFFORT USING THE 1.25-YEAR RECURRANCE INTERVAL FLOW OF 930 CFS.

EXISTING CONDITIONS - OVERVIEW

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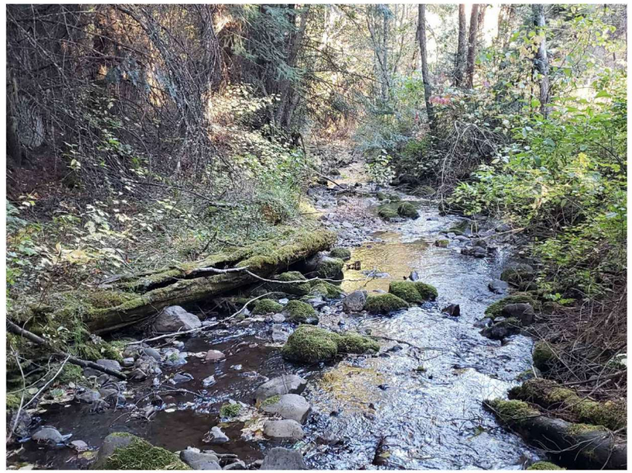

1. LOOKING DOWNSTREAM ON LITTLE BEAR CREEK. THERE IS NOT MUCH FLOODPLAIN AVAILABLE, INFREQUENT WOOD IN THE CHANNEL, LARGE STABLE BED SUBSTRATE, AND WELL VEGETATED BANKS.

2. LOOKING DOWNSTREAM ON LITTLE BEAR CREEK. GENERALLY NOT MUCH WOOD INTERACTING WITH FLOW.

3. EXAMPLE OF A JAM THAT HAS PERSISTED ON BEAR CREEK. LARGE KEY MEMBERS > 24" DBH APPEAR TO BE IMPORTANT TO GETTING JAMS TO PERSIST ON THIS HIGH ENERGY SYSTEM.

4. EXAMPLE OF RECENT AVULSION. LOTS OF HYDRAULIC DIVERSITY PRESENT RESULTING IN MATERIAL SORTING AND DIVERSE HABITAT. THIS IS A GREAT REFERENCE CONDITION TO TRY TO ACHIEVE WITH OUR RESTORATION.

5. EXAMPLE OF THE WOOD RECRUITMENT AND DIVERSITY CREATED FROM THE RECENT AVULSION.

6. LOOKING DOWNSTREAM ON BEAR CREEK. THIS IS A TYPICAL EXAMPLE OF A REACH LACKING HABITAT DIVERSITY. THE CHANNEL IS OVER-WIDE, THE BED MATERIAL IS LARGE AND ARMORED, THERE IS NO WOOD PRESENT, AND THE CHANNEL IS RELATIVELY STRAIGHT AND LACKING BEDFORMS.

7. EXAMPLE OF AN ESTABLISHED FLOODPLAIN FLOW PATH THAT IS CAPTURING THE MAJORITY OF LOW FLOW DUE TO AN EXTENSIVE JAM ON THE MAIN CHANNEL.

8. FLOODPLAIN FLOW PATH RETURNING TO THE MAIN CHANNEL VIA A HEADCUT.

9. LOOKING DOWNSTREAM, THIS IS AN EXAMPLE OF A REACH THAT IS LACKING IN HABITAT DIVERSITY. IT IS OVER-WIDE, HEAVILY ARMORED, LACKING IN WOOD AND BEDFORMS.

EXISTING CONDITIONS - PHOTOS - 1

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BEAR CREEK & LITTLE BEAR CREEK-SAUVAGE FISH HABITAT RESTORATION PROJECT

80% DESIGN DRAWINGS

GRANDE RONDE MODEL WATERSHED
BEAR CREEK
GRANDE RONDE RIVER BASIN, OREGON

WORKING DRAFT FOR REVIEW AND REVISION

DATE: 10/15/2025
DESIGNED: JF, RR, ZS, MG
APPROVED: JF

DRAWING NAME

EXISTING CONDITIONS

PHOTOS - 1

DRAWING NO.

C2

SHEET 10 OF 57

10. LOOKING UPSTREAM AT A BEDROCK POOL. THESE BEDROCK POOLS WERE SOME OF THE FEW POOL HABITAT FEATURES OBSERVED AND WOULD BENEFIT FROM COVER HABITAT.

11. AN EXAMPLE OF AN OVER-WIDE, STRAIGHT REACH LACKING BEDFORMS.

12. PHOTO LOOKING DOWNSTREAM AT THE EXISTING BRIDGE MIDWAY THROUGH THE PROJECT REACH.

13. AN EXAMPLE OF AN OVER-WIDE, STRAIGHT REACH, WITH VERY ARMORED BED MATERIAL, LACKING BEDFORMS AND HABITAT DIVERSITY.

14. AN EXAMPLE OF A MID-CHANNEL APEX JAM THAT CREATED EROSION ON RIVER RIGHT, AND DEPOSITION BEHIND IT. THIS IS A GOOD EXAMPLE OF A STRUCTURE TYPE WE INTEND TO EMULATE IN OUR DESIGN.

15. LOOKING UPSTREAM THIS AREA HAS A RELATIVELY ACCESSIBLE FLOODPLAIN, BUT THE CHANNEL IS OVER-WIDE.

16. AN EXAMPLE OF THE LARGE MATERIAL AND BEDROCK PRESENT WITHIN THE CHANNEL ALONG THE ROAD. THIS REACH IS LACKING IN HABITAT DIVERSITY.

17. PHOTO OF THE EXISTING BRIDGE AT THE DOWNSTREAM END OF THE PROJECT REACH.

18. PHOTO LOOKING UPSTREAM IS AN EXAMPLE OF BEDROCK IN THE CHANNEL ALONG THE ROAD AND SHOWS THE RIVER LEFT FLOODPLAIN AT THE DOWNSTREAM END OF THE PROJECT.

EXISTING CONDITIONS - PHOTOS - 2

Applied Science & Engineering

GRANDE RONDE MODEL WATERSHED

OREGON Fish & Wildlife

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