Appendix 7.1

Final (100%) Levee Removal and Channel Restoration Project Plan Sheets and Specifications

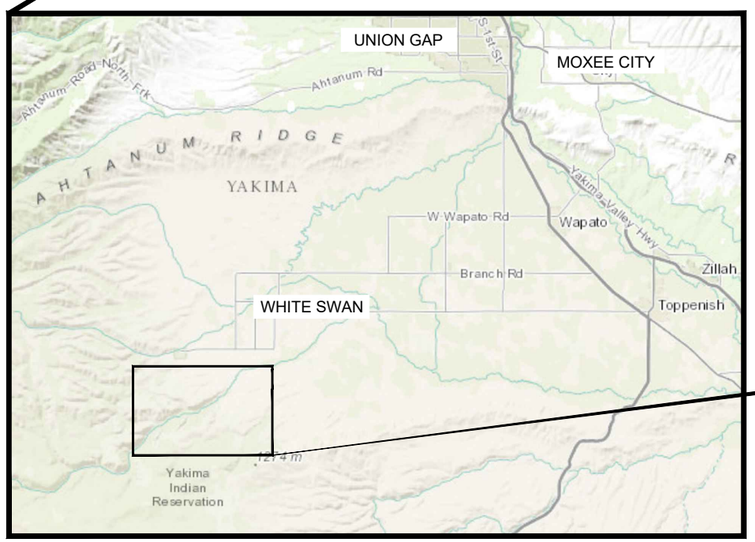
May 2025

TOPPENISH CREEK THREE-WAY LEVEE REMOVAL & RESTORATION PHASE II

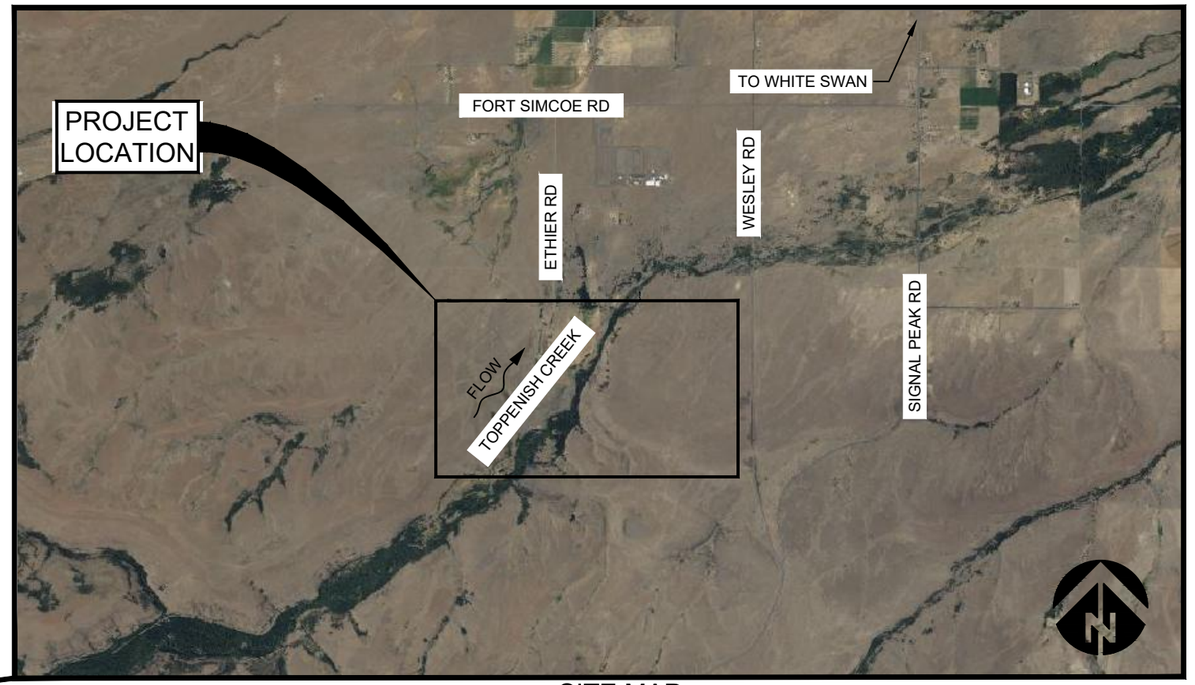
FINAL DESIGN PHASE

MAY, 2025

LOCATION MAP
STATE OF WASHINGTON



VICINITY MAP
SCALE: 1" = 8 miles



SITE MAP
SCALE: 1" = 5,000'

IN-WATER WORK IS PERMITTED
JULY 1- OCTOBER 31

COORDINATES:
LATITUDE 46°19'11.97" N
LONGITUDE 120°46'38.12" W

SECTIONS 24, 35-36, TOWNSHIP 10N, RANGE 16E

WATERBODY: TOPPENISH CREEK
TRIBUTARY OF: YAKIMA RIVER

SHEET LIST

TO THE BEST OF MY PROFESSIONAL KNOWLEDGE, JUDGMENT AND BELIEF, THIS DESIGN MEETS NRCS STANDARDS

DANIEL S. MILLER
STATE OF WASHINGTON
34208
REGISTERED PROFESSIONAL ENGINEER

EXPIRES: 11/23/2025

NO.	BY	DATE	REVISION DESCRIPTION

BB	PL, DM, JB, JB, NS	PL, JB, MB
DRAWN	DESIGNED	CHECKED
PL, DM, EA	05/09/2025	23-02-21
APPROVED	DATE	PROJECT

CONFEDERATED TRIBES AND BANDS OF THE YAKAMA NATION
TOPPENISH THREE WAY LEVEE REMOVAL PHASE 2
WHITE SWAN, WA

inter·fluve
501 Portway Avenue, Suite 101
Hood River, OR 97031
541.386.9003
www.interfluve.com

COVER, LOCATION, AND SHEET LIST

SHEET
1 OF 34

NRCS CONSERVATION MEASURES: ADAPTED FROM BPA'S HIP GENERAL CONSERVATION MEASURES

THE ACTIVITIES COVERED UNDER THE HIP ARE INTENDED TO PROTECT AND RESTORE FISH AND WILDLIFE HABITAT WITH LONG-TERM BENEFITS TO ESA-LISTED SPECIES. THE FOLLOWING GENERAL CONSERVATION MEASURES (DEVELOPED IN COORDINATION WITH USFWS AND NMFS) WILL BE APPLIED TO ALL ACTIONS OF THIS PROJECT.

PROJECT DESIGN AND SITE PREPARATION.

1. TRIBAL 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 REMOVAL AND FILL PERMIT, USACE CLEAN WATER ACT (CWA) 404 PERMITS, AND CWA SECTION 401 WATER QUALITY CERTIFICATIONS.

2. TIMING OF IN-WATER WORK.

A. APPROPRIATE FEDERAL (NOAA) AND YAKAMA NATION FISHERIES GUIDELINES FOR TIMING OF IN-WATER WORK WINDOWS (IWW) WILL BE FOLLOWED.

B. CHANGES TO ESTABLISHED WORK WINDOWS WILL BE APPROVED BY REGIONAL NOAA BIOLOGISTS AND BPA'S EC LEAD.

C. 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.

D. 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.

4. SITE LAYOUT AND FLAGGING.

A. CONSTRUCTION AREAS TO BE CLEARLY FLAGGED BY YRWP OR THEIR REPRESENTATIVE PRIOR TO CONSTRUCTION.

B. AREAS TO BE FLAGGED WILL INCLUDE:

1. SENSITIVE RESOURCE AREAS;
2. EQUIPMENT ENTRY AND EXIT POINTS;
3. ROAD AND STREAM CROSSING ALIGNMENTS;
4. STAGING, STORAGE, AND STOCKPILE AREAS; AND

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. TEMPORARY ACCESS ROADS WILL BE LIMITED TO THE ALIGNMENTS IDENTIFIED IN THE PLAN OR IF APPROVED ON SITE BY YRWP.

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.

6. TEMPORARY STREAM CROSSINGS.

A. EXISTING STREAM CROSSINGS OR BEDROCK WILL BE PREFERENTIALLY USED WHENEVER REASONABLE, AND THE NUMBER OF TEMPORARY STREAM CROSSINGS WILL BE MINIMIZED AND ALLOWED ONLY IN LOCATIONS IDENTIFIED BY YRWP.

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 A 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.

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.

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.

NO.	BY	DATE	REVISION DESCRIPTION

BPA	BPA	BPA
DRAWN	DESIGNED	CHECKED
APPROVED	05/09/2025 DATE	23-02-21 PROJECT

CONFEDERATED TRIBES AND BANDS OF THE YAKAMA NATION
TOPPENISH THREE WAY LEVEE REMOVAL PHASE 2
WHITE SWAN, WA

inter·fluve
501 Portway Avenue, Suite 101
Hood River, OR 97031
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CONSERVATION MEASURES (1 OF 3)

SHEET
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PROJECT DESIGN AND SITE PREPARATION (CONTINUED).

11. SPILL PREVENTION, CONTROL, AND COUNTER MEASURES.

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

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

C. 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.

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

E. 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.

F. 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.

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, METHODS, 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 SHALL BE SORTED BY SIZE TO AVOID PREDATION DURING CONTAINMENT.

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).

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DRAWN	DESIGNED	CHECKED
APPROVED	05/09/2025 DATE	23-02-21 PROJECT

CONFEDERATED TRIBES AND BANDS OF THE YAKAMA NATION
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WHITE SWAN, WA

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CONSERVATION MEASURES (2 OF 3)

SHEET
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WORK AREA ISOLATION AND FISH SALVAGE (CONTINUED).

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.

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.

B. FISH PASSAGE ALTERNATIVES WILL BE APPROVED BY THE BPA EC LEAD UNDER ADVISEMENT BY THE NMFS HABITAT BIOLOGIST.

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. RIPARIAN 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, WATE 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.

B. THE PROJECT SPONSOR OR DESIGNATED REPRESENTATIVE WILL SUBMIT THE PROJECT COMPLETION FORM (PCF) WITHIN 30 DAYS OF PROJECT COMPLETION.

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.

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, LAMPREY SALVAGE AND DRY SHOCKING MAY BE NECESSARY.

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 COMPLETION FORM (PCF). 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. THE BPA EC LEAD WILL BE NOTIFIED OF ALL EXCEEDANCES AND CORRECTIVE ACTIONS AT PROJECT COMPLETION.

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 COMPLETION FORM (PCF).

G. FINAL TURBIDITY READINGS, EXCEEDANCES, AND CONTROL FAILURES WILL BE SUBMITTED TO THE BPA EC LEAD USING THE PROJECT COMPLETION FORM (PCF).

NO.	BY	DATE	REVISION DESCRIPTION

BPA DRAWN	BPA DESIGNED	BPA CHECKED
APPROVED	05/09/2025 DATE	23-02-21 PROJECT

CONFEDERATED TRIBES AND BANDS OF THE YAKAMA NATION
TOPPENISH THREE WAY LEVEE REMOVAL PHASE 2
WHITE SWAN, WA

inter·fluve
501 Portway Avenue, Suite 101
Hood River, OR 97031
541.386.9003
www.interfluve.com

CONSERVATION MEASURES (3 OF 3)

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THE CONTRACTOR SHALL ATTEND A PRE-BID SITE MEETING.

THE CONTRACTOR SHALL ATTEND A PRE-CONSTRUCTION MEETING WITH THE CONTRACTING AGENT (YAKAMA RESERVATION WATERSHED PROJECT (YRWP)) AND YRWP'S REPRESENTATIVE PRIOR TO BEGINNING CONSTRUCTION.

ALL WORK SHALL CONFORM TO THE CURRENT EDITIONS OF STANDARD PLANS AND SPECIFICATIONS OF THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT), AND LOCAL STANDARDS UNLESS INDICATED OTHERWISE BY THE CONTRACT DOCUMENTS. IN CASE OF A CONFLICT BETWEEN THE REGULATORY STANDARDS OR SPECIFICATIONS, THE MORE STRINGENT SHALL PREVAIL.

IN CASE OF DISCREPANCY, BETWEEN NOTES, LOCAL REGULATIONS, OR OTHER CONTRACT DOCUMENTATION, CONTRACTOR SHALL OBTAIN CLARIFICATION/DIRECTION FROM CONTRACTING AGENT (YRWP).

EXISTING DATA

TOPOGRAPHIC SURVEY COLLECTED BY INTER-FLUVE, INC. USING RTK GPS AND A TOTAL STATION ON JUNE 20-22,2023 AND NOVEMBER 8-9, 2023. SURVEY DATA IS REFERENCED TO NAD83 WASHINGTON STATE PLANE, SOUTH ZONE, US FEET, NAVD 88.

LIDAR DATA SOLICITED BY WASHINGTON DEPARTMENT OF NATURAL RESOURCES AS PART OF THE YAKIMA BASIN DATA SET. DATA ACQUIRED BY QUANTUM SPATIAL IN NOVEMBER 2017 & MAY 2018.

HYDRAULIC MODELING BY INTER-FLUVE USING USACE HEC-RAS (6.4.1). MODEL VALIDATED USING SURVEYED WATER SURFACE ELEVATIONS AND FIELD OBSERVATIONS.

WATERS OF THE U.S.

THE ORDINARY HIGH WATER (OHW) LINES DISPLAYED IN THE DESIGN PACKAGE ARE BASED UPON ANALYSIS, MODELING AND BEST PROFESSIONAL JUDGEMENT.

WETLAND DELINEATION WAS COMPLETED IN 2024 BY INTER-FLUVE.

SOILS

TOPPENISH CREEK ALLUVIUM: COBBLE, GRAVEL, SAND, AND SILT.

UTILITIES

THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR HAVING UTILITIES LOCATED PRIOR TO CONSTRUCTION ACTIVITIES.

INFORMATION FOR UTILITY LOCATION CAN BE FOUND AT:

``CALL811.COM/911-IN-YOUR-STATE/MAP/STATE/WASHINGTON

THE CONTRACTOR SHALL IMMEDIATELY CONTACT THE AFFECTED UTILITY SERVICE TO REPORT ANY DAMAGED OR DESTROYED UTILITIES. THE CONTRACTOR SHALL PROVIDE EQUIPMENT OR LABOR TO AID THE AFFECTED UTILITY SERVICE IN REPAIRING DAMAGED OR DESTROYED UTILITIES AT NO COST TO YRWP.

IN-WATER WORK PERIODS

WORK SHALL OCCUR DURING THE PERMITTED IN-WATER WORK PERIOD AS STATED IN THE APPLICABLE PERMITS.

FISH RESCUE

ALL FISH RESCUE EFFORTS SHALL BE SUPERVISED BY A QUALIFIED YAKAMA NATION FISHERIES/AQUATIC BIOLOGIST EXPERIENCED WITH THE COLLECTION AND HANDLING OF SALMONID FISHES FROM CONSTRUCTION SITES.

ALL FISH TRAPPED IN RESIDUAL POOLS WITHIN THE PROJECT AREA SHALL BE CAREFULLY COLLECTED BY SEINE AND/OR DIP NETS AND PLACED IN CLEAN TRANSFER CONTAINERS WITH ADEQUATE VOLUME OF WATER AND HELD WITHIN NO LONGER THAN 10 MINUTES.

CAPTURED FISHES SHALL BE IMMEDIATELY RELEASED INTO THE RIVER.

CONTRACTOR WILL PROVIDE AGREED UPON ADVANCE NOTICE TO YRWP PRIOR TO FISH RESCUE. CONTRACTOR IS RESPONSIBLE FOR ISOLATING THE CONSTRUCTION LOCATION FROM THE STREAM.

CULTURAL RESOURCES

CULTURAL RESOURCE MONITORING TO BE PROVIDED BY YRWP DURING GROUND DISTURBING ACTIVITIES. THE CONTRACTOR SHALL ACCOMMODATE THE MONITORING PERSONNEL AND COMPLY WITH THEIR DIRECTION RELATIVE TO INTERACTIONS WITH POTENTIAL CULTURAL RESOURCES.

IF YOUR WORK BRINGS YOU INTO CONTACT WITH ANY OF THE FOLLOWING CULTURAL RESOURCES:

- NATIVE AMERICAN CULTURAL ARTIFACTS (EXAMPLE: FLAKES, ARROWHEADS, STONE TOOLS, BONE TOOLS, POTTERY, HEARTH FEATURES, ETC)
- HISTORIC ERA ARTIFACTS (EXAMPLE: BUILDING FOUNDATIONS, HOMESTEADS, MINING CAMPS, ETC)
- HUMAN SKELETAL REMAINS AND BONE FRAGMENTS

YOU MUST IMMEDIATELY DISCONTINUE ALL GROUND-DISTURBING ACTIVITY. DO NOT TOUCH OR MOVE THE OBJECTS AND MAINTAIN THE CONFIDENTIALITY OF THE SITE. FOLLOW THE PROCEDURES LISTED IN THE TRIBES INADVERTENT DISCOVERY PROCEDURE. THEN AWAIT FURTHER DIRECTION FROM THE TRIBE'S CULTURAL RESOURCES STAFF.

TREE SALVAGE

ALL SAPLING AND TREES TO BE REMOVED SHALL BE APPROVED AND CLEARLY MARKED BY YRWP'S OR THEIR CONTRACTED REPRESENTATIVE.

ALL REMOVED NATIVE VEGETATION SHALL BE INCORPORATED INTO LOG STRUCTURES AS DIRECTED BY YRWP OR THEIR CONTRACTED REPRESENTATIVE. IF EXCESS VEGETATION MATERIAL NEEDS DISPOSAL OUTSIDE OF CHANNEL WORK, IT SHALL BE DISTRIBUTED IN DESIGNATED AREAS ON THE FLOODPLAIN OR ON THE FLOODPLAIN AS DIRECTED BY YRWP'S REPRESENTATIVE.

ALL TREES REMOVED WITHIN CLEARING LIMITS SHALL BE REMOVED WHOLE WITH ROOTS INTACT AND UTILIZED IN THE SIDE CHANNEL CONSTRUCTION OR IN MAINSTEM WORK AS DIRECTED BY CONTRACTING AGENT'S REPRESENTATIVE.

REMOVE SOIL FROM ROOTS OF SALVAGED TREES BEFORE PLACEMENT IN THE WATERWAY.

LIVE TREES

ALL TREES NOT MARKED FOR REMOVAL SHALL BE PRESERVED AND UNDISTURBED. CONSTRUCTION ACTIVITY SHALL NOT DEBARK OR DAMAGE LIVE TREES.

KEEP OUT OF DRIP LINE OF ALL PRESERVED EXISTING TREES.

PLANTINGS

PLANT INSTALLATION SHALL BE SCHEDULED FOR BEST SURVIVAL RATE. YRWP WILL COORDINATE PLANTING SCHEDULE WITH THE CONTRACTOR.

CONTRACTOR IS RESPONSIBLE FOR PROPER HANDLING, STORAGE, WATERING, AND INSTALLATION.

CONTRACTOR'S PLANS

CONTRACTOR SHALL PREPARE AND SUBMIT FOR APPROVAL BY THE YRWP PRIOR TO COMMENCING WORK THE FOLLOWING PLANS:

- ACCESS, TRAFFIC CONTROL AND TEMPORARY STREAM CROSSING PLAN
- CONSTRUCTION SEQUENCING PLAN
- STREAM DIVERSION AND SITE DEWATERING PLAN
- EROSION, SEDIMENT AND DUST CONTROL PLAN
- EARTHWORKS EXCAVATION, PLACEMENT, SALVAGE & REUSE, AND DISPOSAL PLAN
- FENCE INSTALLATION SHOP DRAWINGS

CONSTRUCTION ACCESS

THE CONTRACTOR IS SOLELY RESPONSIBLE FOR OBTAINING ANY REQUIRED TRAFFIC CONTROL OR ACCESS PERMITS, AND PROVIDING REQUIRED TRAFFIC CONTROL MEASURES INCLUDING, BUT NOT LIMITED TO, SIGNAGE AND FLAGGERS.

ALL EQUIPMENT, MATERIALS AND PERSONNEL SHALL REMAIN WITHIN THE LIMITS OF DISTURBANCE.

THE CONTRACTOR SHALL KEEP THE WORK AREAS IN A NEAT AND CLEAN CONDITION FREE OF DEBRIS AND LITTER FOR THE DURATION OF THE PROJECT.

TEMPORARY ACCESS ROUTES IN AREAS PRONE TO INUNDATION DURING THE IN-WATER WORK WINDOW SHALL BE DECOMMISSIONED BEFORE THE END OF THE IN-WATER WORK WINDOW.

CONSTRUCTION STAKING

YRWP OR DESIGNATED REPRESENTATIVE WILL INSTALL FLAGGING TO DELINEATE EQUIPMENT ENTRY AND EXIT POINTS, STAGING AND STOCKPILE AREAS, APPROXIMATE LOG STRUCTURE LOCATIONS, AND PROJECT LIMITS. YRWP'S REPRESENTATIVE WILL INSTALL ELEVATION CONTROL POINTS. THE CONTRACTOR SHALL BE RESPONSIBLE, AT OWN EXPENSE, FOR STAKING AND REPLACING DAMAGED OR MISSING STAKES.

YRWP AND YRWP'S REPRESENTATIVE WILL MARK LIMITS OF DISTURBANCE PRIOR TO MOBILIZATION OF EQUIPMENT OR MATERIALS ONTO THE SITE.

SOME FIELD ADJUSTMENTS TO THE LINES AND GRADES ARE TO BE EXPECTED. LOCATION, ALIGNMENT, AND ELEVATION OF LOGS AND LOGS WITH ROOTWADS ARE SUBJECT TO ADJUSTMENT BASED ON FIELD CONDITIONS, AND MATERIAL SIZE PER DIRECTION FROM YWRP'S REPRESENTATIVE.

ANY PROPERTY MONUMENTS DISTURBED OR DESTROYED SHALL BE REPLACED BY A WASHINGTON STATE PROFESSIONAL LICENSED SURVEYOR AT CONTRACTOR'S EXPENSE.

ABBREVIATIONS

APPROX	APPROXIMATE
CY	CUBIC YARDS
°	DEGREES
DIA or Ø	DIAMETER
DBH	DIAMETER AT BREAST HEIGHT
EA	EACH
EL or ELEV	ELEVATION
ESC	EROSION AND SEDIMENT CONTROL
EXIST	EXISTING
FT or '	FEET
FTR	FULLY THREADED ROD
HORIZ	HORIZONTAL
IN or "	INCH
INV	INVERT
LWM	LARGE WOODY MATERIAL
MAX	MAXIMUM
MIN	MINIMUM
MSF	THOUSAND SQUARE FEET
OHW	ORDINARY HIGH WATER
%	PERCENT
RMx	RIVER MILE x
STA	STATION
SY	SQUARE YARDS
TBD	TO BE DETERMINED
TYP	TYPICAL
VERT	VERTICAL
WSE	WATER SURFACE ELEVATION
YR	YEAR

DANIEL S. MILLER
STATE OF WASHINGTON
34208
REGISTERED
PROFESSIONAL ENGINEER

EXPIRES: 11/23/2025

NO.	BY	DATE	REVISION DESCRIPTION

BB DRAWN | PL, DM, JB, JB, NS DESIGNED | PL, JB, MB CHECKED
PL, DM, EA APPROVED | 05/09/2025 DATE | 23-02-21 PROJECT

CONFEDERATED TRIBES AND BANDS OF THE YAKAMA NATION
TOPPENISH THREE WAY LEVEE REMOVAL PHASE 2
WHITE SWAN, WA

inter·fluve
501 Portway Avenue, Suite 101
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GENERAL NOTES AND ABBREVIATIONS

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EROSION CONTROL

CONTRACTOR SHALL BE SOLELY RESPONSIBLE AT OWN EXPENSE FOR PROVIDING AND MAINTAINING ALL NECESSARY EROSION CONTROL FACILITIES TO COMPLY WITH APPLICABLE EROSION CONTROL REGULATIONS AND TO MAINTAIN CLEAN ACCESS ROUTES.

EROSION/SEDIMENTATION CONTROL (ESC) PLAN

THE EROSION AND SEDIMENT CONTROL (ESC) PLAN PROVIDED IS FOR INFORMATIONAL PURPOSES ONLY, THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR PROVIDING EROSION CONTROL MEASURES TO COMPLY WITH APPLICABLE REGULATIONS.

THE RECOMMENDATIONS FOR AN ESC PLAN INCLUDED HEREIN WILL PROVIDE GUIDELINES FOR THE CONTRACTOR TO DEVELOP AND IMPLEMENT AN ESC PLAN. THE CONTRACTOR'S ESC PLAN SHALL BE SUBMITTED TO THE OWNER PRIOR TO MOBILIZATION.

A. THE ESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE ESC FACILITIES SHALL BE UPGRADED AS NEEDED AT NO ADDITIONAL COST FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT-LADEN WATER DO NOT LEAVE THE SITE.

B. THE IMPLEMENTATION OF AN ESC PLAN AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC FACILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED AND VEGETATION/LANDSCAPING IS ESTABLISHED.

C. THE ESC FACILITIES ARE TO BE CONSTRUCTED PRIOR TO CLEARING AND GRADING ACTIVITIES, AND IN SUCH A MANNER AS TO ENSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT ENTER THE DRAINAGE SYSTEM.

D. THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE CLEARLY FLAGGED IN THE FIELD PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE FLAGGED CLEARING LIMITS SHALL BE PERMITTED. THE FLAGGING SHALL BE MAINTAINED BY THE CONTRACTOR FOR THE DURATION OF CONSTRUCTION.

E. THE ESC FACILITIES SHALL BE INSPECTED DAILY BY THE CONTRACTOR AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING.

F. THE ESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN THE 24 HOURS FOLLOWING A STORM EVENT.

G. STABILIZED CONSTRUCTION ENTRANCES AND ADDITIONAL MEASURES MAY BE REQUIRED AND SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT AT CONTRACTOR'S EXPENSE.

STABILIZE SOILS AND PROTECT SLOPES

FROM MAY 1 THROUGH SEPTEMBER 30, ALL EXPOSED SOILS SHALL BE PROTECTED FROM EROSION BY MULCHING, PLASTIC SHEETING, HYDROSEED COVERING, OR OTHER APPROVED MEASURES WITHIN THREE DAYS OF GRADING. FROM OCTOBER 1 THROUGH APRIL 30, ALL EXPOSED SOILS MUST BE PROTECTED WITHIN 2 DAYS OF GRADING. SOILS SHALL BE STABILIZED BEFORE A WORK SHUTDOWN, HOLIDAY OR WEEKEND IF NEEDED BASED ON THE WEATHER FORECAST. SOIL STOCKPILES MUST BE STABILIZED AND PROTECTED WITH SEDIMENT TRAPPING MEASURES. MULCH AS SOON AS PRACTICAL ALL DISTURBED AREAS NOT INDICATED IN THE CONTRACT DOCUMENTS FOR OTHER PERMANENT STABILIZATION MEASURES. HAY, STRAW, AND MULCH USED ON SITE MUST BE 99.9% WEED-FREE.

DESIGN, CONSTRUCT, AND PHASE CUT AND FILL SLOPES IN A MANNER THAT WILL MINIMIZE EROSION. REDUCE SLOPE VELOCITIES ON DISTURBED SLOPES BY PROVIDING TEMPORARY BARRIERS. STORMWATER FROM OFF SITE SHOULD BE HANDLED SEPARATELY FROM STORMWATER GENERATED ON SITE.

AFTER FINAL SITE STABILIZATION

ALL TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY BMPS ARE NO LONGER NEEDED. TRAPPED SEDIMENT SHALL BE REMOVED FROM THE SITE OR INCORPORATED INTO FINISHED GRADING. DISTURBED SOIL AREAS RESULTING FROM REMOVAL SHALL BE PERMANENTLY STABILIZED.

INVASIVE SPECIES CONTROL

THE FOLLOWING MEASURES WILL BE FOLLOWED TO AVOID INTRODUCTION OF INVASIVE PLANTS AND NOXIOUS WEEDS INTO PROJECT AREAS:

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.

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

WADING BOOTS WITH FELT SOLES ARE NOT TO BE USED DUE TO THEIR PROPENSITY FOR AIDING IN THE TRANSFER OF INVASIVE SPECIES.

DUST CONTROL

THE CONTRACTOR SHALL CONTROL DUST FOR THE DURATION OF THE PROJECT. CONTROL MEASURES SHALL BE IN ACCORDANCE WITH APPLICABLE REGULATIONS, AND MAY INCLUDE WATERING, MULCH, AND SLOWER VEHICLE SPEEDS.

CONSTRUCTION DEWATERING

CONTRACTOR SHALL PERFORM CONSTRUCTION DEWATERING IN SUCH A MANNER AS TO AVOID THE RELEASE OF TURBID OR SEDIMENT-LADEN WATER IN ORDER TO PREVENT CONTAMINATION OR INCREASE TURBIDITY OF SURFACE WATERS. EXCAVATION OF DEWATERING SUMPS BEYOND LIMITS SHOWN SHALL BE AT NO ADDITIONAL COST. SEDIMENT LADEN WATER MAY BE PUMPED TO AN UPLAND DISCHARGE LOCATION AND ALLOWED TO SHEET FLOW THROUGH EXISTING VEGETATION BEFORE INFILTRATING INTO THE GROUND. IF THIS METHOD IS NOT SUFFICIENT TO PREVENT RETURN OF TURBID WATER TO SURFACE WATERS OR SENSITIVE FLOODPLAIN AREAS, A 'DIRT-BAG' OR SEDIMENT RETENTION STRUCTURE MAY BE REQUIRED AS NECESSARY TO COMPLY WITH LAWS AND PERMIT REQUIREMENTS AT NO ADDITIONAL COST.

CONTRACTOR SHALL PROVIDE, OPERATE, AND MAINTAIN NUMBER AND SIZE OF PUMPS AS NECESSARY TO ACHIEVE DEWATERING NEEDS. AT A MINIMUM, CONTRACTOR SHALL PROVIDE A 6" DRI-PRIME DIESEL POWERED PUMP AND A PORTABLE 2" PUMP. ADDITIONAL PUMPS AND OF DIFFERENT CAPACITIES MAY BE REQUIRED AT CONTRACTOR'S EXPENSE.

YRWP, OR REPRESENTATIVE SHALL APPROVE DEWATERING DISCHARGE LOCATION PRIOR TO IMPLEMENTATION.

SPILL PREVENTION, CONTROL, AND COUNTER MEASURES

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. THE CONTRACTOR SHALL ADHERE TO THE FOLLOWING MEASURES:

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

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

SPILL CONTAINMENT KITS (INCLUDING INSTRUCTIONS FOR CLEANUP AND DISPOSAL) ADEQUATE FOR THE TYPES AND QUANTITY OF HAZARDOUS MATERIALS USED AT THE SITE SHALL BE AVAILABLE AT THE WORK SITE.

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

ANY WASTE LIQUIDS GENERATED AT THE STAGING AREAS SHALL 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.

VEGETABLE BASED HYDRAULIC FLUIDS (BIODEGRADABLE OIL) SHALL BE USED IN ANY VEHICLE THAT WILL BE OPERATED NEAR THE WATER.

INSPECTION AND MAINTENANCE

ALL ESC FACILITIES SHALL BE INSPECTED, MAINTAINED, AND REPAIRED AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. ALL ESC FACILITIES SHALL BE INSPECTED DAILY AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCHES OF RAIN PER 24 HOUR PERIOD AND AFTER EVENTS EXCEEDING 2 HOURS DURATION.

CONTRACTOR'S ESC RECORD

WEEKLY REPORTS SUMMARIZING THE SCOPE OF INSPECTIONS, THE PERSONNEL CONDUCTING THE INSPECTION, THE DATE(S) OF THE INSPECTION, MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE CONTRACTOR'S EROSION AND SEDIMENT CONTROL PLAN, AND ACTIONS TAKEN AS A RESULT OF THESE INSPECTIONS SHALL BE PREPARED AND RETAINED ON SITE BY THE CONTRACTOR. IN ADDITION, A RECORD OF THE FOLLOWING DATES SHALL BE INCLUDED IN THE REPORTS:

1. WHEN MAJOR GRADING ACTIVITIES OCCUR,
2. DATES OF RAINFALL EVENTS EITHER EXCEEDING 2 HOURS DURATION OR MORE THAN 0.5 INCHES/24 HOURS,
3. WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON SITE, OR ON A PORTION OF THE SITE,
4. WHEN STABILIZATION MEASURES ARE INITIATED FOR PORTIONS OF THE SITE.

ESC RECORDS SHALL BE MADE AVAILABLE TO THE OWNER AND OWNER'S REPRESENTATIVE ON REQUEST AND SHALL BE PROVIDED FOR REVIEW AND APPROVAL PRIOR TO APPLICATION FOR PAYMENT.

Cut/Fill volumes within OHW		
Earthwork Areas	Cut (cy)	Fill (cy)
A-C volumes within OHW	107	7,113
D-E volumes within OHW	247	1,366

NOTE:

VOLUME IS IN PLACE MEASURE. EXPANSION OF EXCAVATED MATERIAL AND CONTRACTION OF PLACED MATERIAL IS NOT INCLUDED. MEASUREMENT BY WEIGHT OR TRUCK COUNT SHALL REQUIRE OWNER'S PRIOR WRITTEN APPROVAL.

CY = CUBIC YARDS

EA = EACH

MSF = 1,000 SQUARE FEET

DANIEL S. MILLER
STATE OF WASHINGTON
34208
REGISTERED
PROFESSIONAL ENGINEER

EXPIRES: 11/23/2025

Description	Units	Quantity within Work Area							Item Subtotal
		A	B	C	D	E	F	G	
Earthworks:									
cut	(cy)	11,610	12,086	31,200	18,395	26,480	671	906	101,348
fill	(cy)	4,565	2,391	1,997	468	116	70,493	0	80,030
Haul to Pom Pom	(cy)	NA	NA	30,000	NA	NA	NA	NA	30,000
Large wood structures:									
Type 1 Channel Spanning LW Structure	(ea)		3			4		1	8
Type 2 Channel Spanning LW Structure	(ea)	1		2	2			5	10
Type 1 Bank Buried LW Structure	(ea)	5	1	7	6	1		6	26
Type 2 Bank Buried LW Structure	(ea)	9	6	5	2	12			34
Side Channel Inlet LW Structure	(ea)	2	1	1	1	1			6
Apex Jam	(ea)	2	0	2					4
Floodplain treatments:									
Floodplain Roughness Piles & Slash	(acre)	0.9	0.0	0.7					2
Floodplain Roughness Willow Trenches	(lf)	813.6	601.2	1,620.0	868.0	796.0			4,699
Floodplain Roughness Horizontal Logs with Piles & Slash	(lf)	288.0	475.0	600.0	175.0	708.0			2,246
Vegetation:									
Overbank seed and live plants	(acre)	2.3	1.2	2.9	1.6	1.9			10.0
Transitional / Upland Seed and Live Plants	(acre)	0.2	0.0				3.8	1.5	5.5
Transitional/Upland Seed Only	(acre)	0.4				2.2			2.5
Willow Bank Installation	(lf)	791.0	476.0	1,278.0	540.0	138.0			3,223

NO.	BY	DATE	REVISION DESCRIPTION

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PL, DM, EA APPROVED | 05/09/2025 DATE | 23-02-21 PROJECT

CONFEDERATED TRIBES AND BANDS OF THE YAKAMA NATION
TOPPENISH THREE WAY LEVEE REMOVAL PHASE 2
WHITE SWAN, WA

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EROSION & SEDIMENT CONTROL

SHEET
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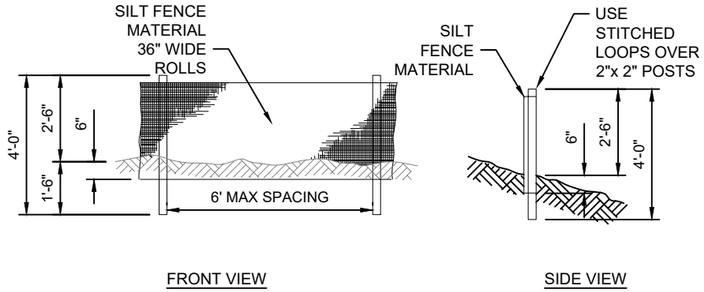
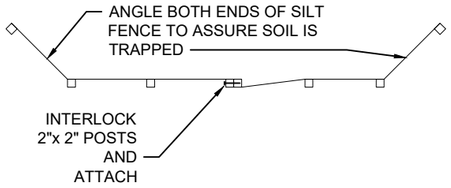


FRONT VIEW

SIDE VIEW



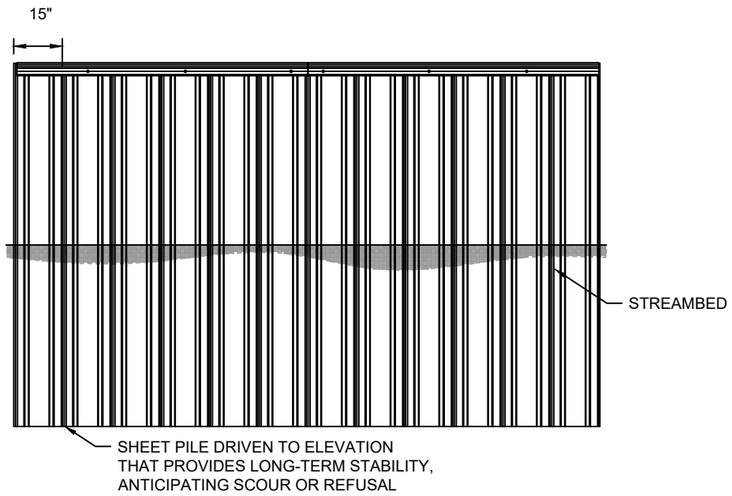
TOP VIEW

1/7 TYPICAL SILT FENCE DETAIL

NOT TO SCALE

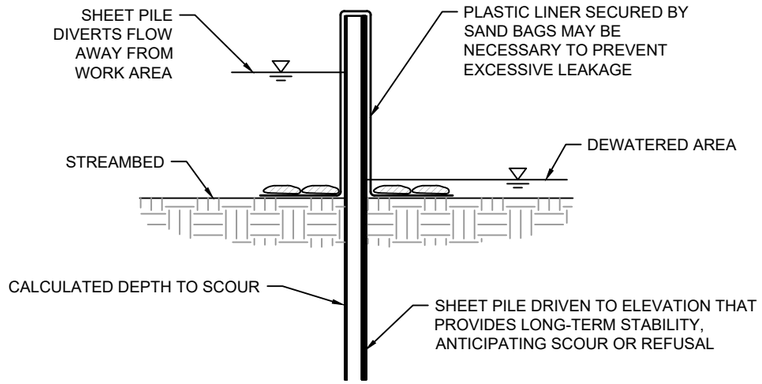
SILT FENCES:

1. THE SILT FENCE SHALL BE PURCHASED IN A CONTINUOUS ROLL CUT TO THE LENGTH OF THE BARRIER TO AVOID USE OF JOINTS. WHEN JOINTS ARE NECESSARY, SILT FENCE SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST, WITH A MINIMUM 6 INCH OVERLAP, AND BOTH ENDS SECURELY FASTENED TO THE POST. ALTERNATIVELY, OVERLAP AND INTERLOCK TWO POSTS WITH ATTACHED FABRIC AS REQUIRED TO MEET APPLICABLE REGULATIONS.
2. THE SILT FENCE IS TO BE INSTALLED AT LOCATIONS SHOWN ON THE PLAN ALONG THE DOWNHILL PERIMETER OF CONSTRUCTION AREAS. THE FENCE POSTS SHALL BE SPACED A MAXIMUM OF 6 FEET APART AND DRIVEN SECURELY INTO THE GROUND A MINIMUM OF 24 INCHES.
3. THE SILT FENCE SHALL HAVE A MINIMUM VERTICAL BURIAL OF 6 INCHES. ALL EXCAVATED MATERIAL FROM SILT FENCE INSTALLATION SHALL BE BACK-FILLED AND COMPACTED ALONG THE ENTIRE DISTURBED AREA.
4. STANDARD OR HEAVY DUTY SILT FENCE SHALL HAVE MANUFACTURED STITCHED LOOPS FOR 2 INCHES X 2 INCHES POST INSTALLATION.
5. SILT FENCES SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFUL PURPOSE, BUT NOT BEFORE THE UPSLOPE AREA HAS BEEN PERMANENTLY PROTECTED AND STABILIZED, OR AS DIRECTED BY OWNER'S REPRESENTATIVE.



ELEVATION

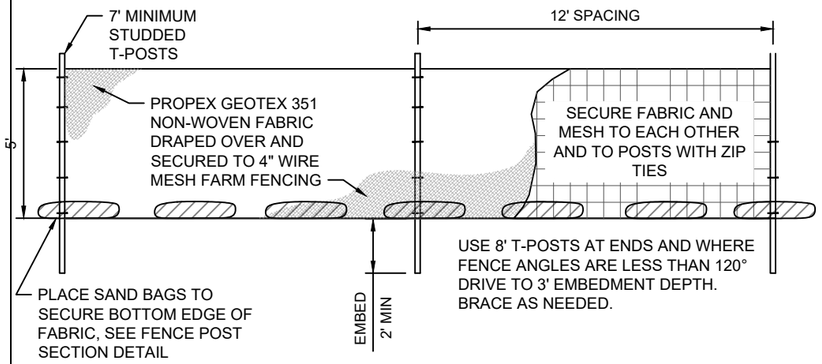
NOTE:
INDIVIDUAL SHEET WEIGHT
45 LBS PER LINEAR FOOT



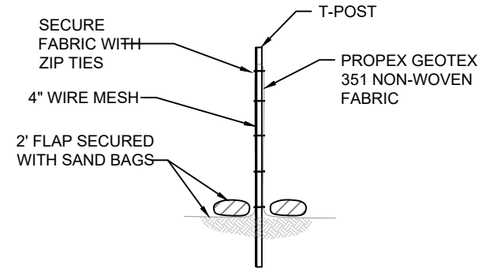
SECTION

2/7 TYPICAL DETAIL - TEMPORARY SHEET PILE COFFERDAM

NOT TO SCALE



ELEVATION



SECTION

3/7 TURBIDITY CURTAIN DETAILS

NOT TO SCALE

EXPIRES: 11/23/2025

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PL, DM, EA	05/09/2025	23-02-21
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EROSION & SEDIMENT CONTROL

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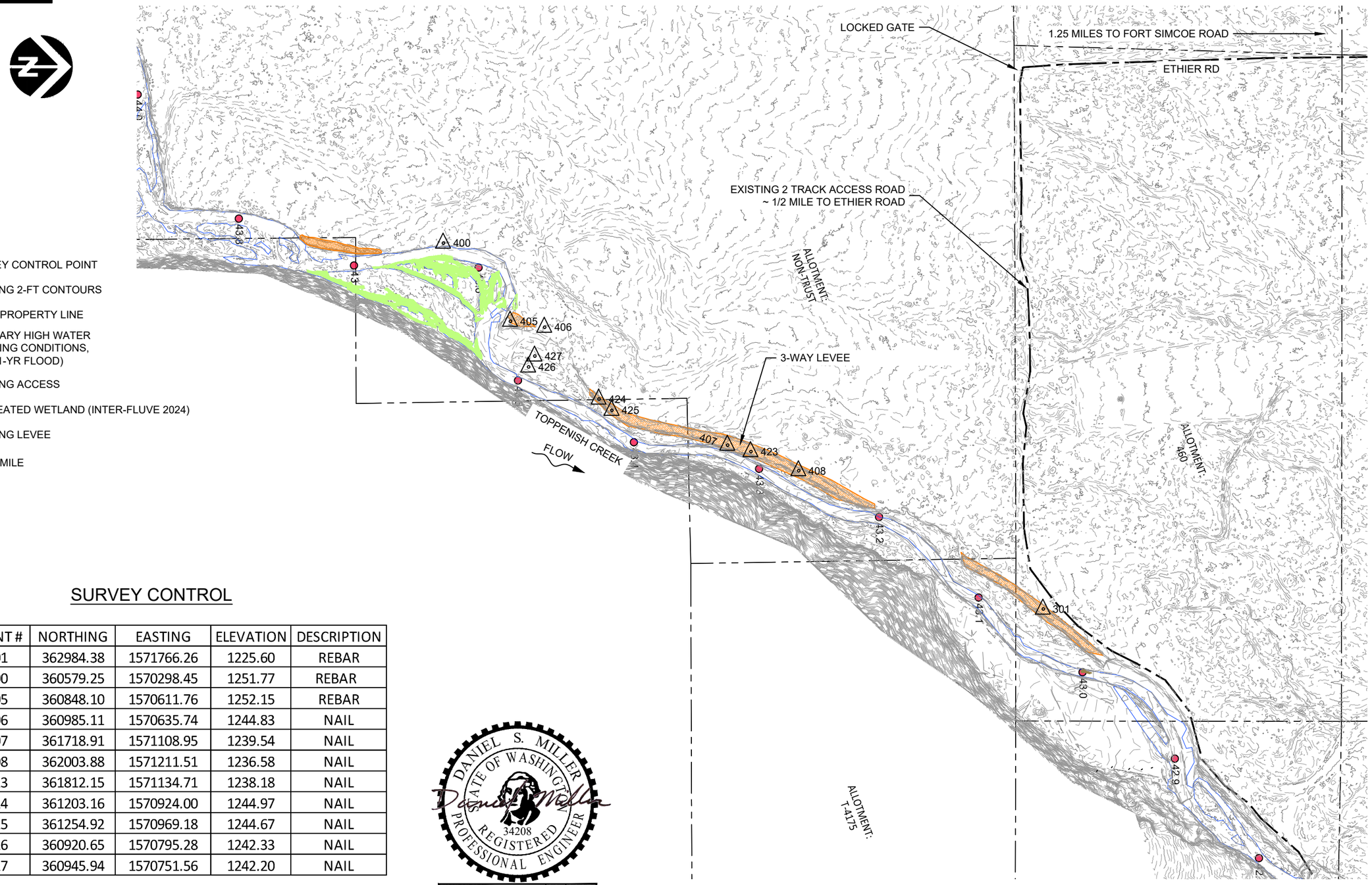
0 400 800

SCALE IN FEET



LEGEND

- 100 — SURVEY CONTROL POINT
- EXISTING 2-FT CONTOURS
- APPX. PROPERTY LINE
- OHW — ORDINARY HIGH WATER (EXISTING CONDITIONS, APPX 1-YR FLOOD)
- EXISTING ACCESS
- DELINEATED WETLAND (INTER-FLUVE 2024)
- EXISTING LEVEE
- 42.0 — RIVER MILE

SURVEY CONTROL

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
301	362984.38	1571766.26	1225.60	REBAR
400	360579.25	1570298.45	1251.77	REBAR
405	360848.10	1570611.76	1252.15	REBAR
406	360985.11	1570635.74	1244.83	NAIL
407	361718.91	1571108.95	1239.54	NAIL
408	362003.88	1571211.51	1236.58	NAIL
423	361812.15	1571134.71	1238.18	NAIL
424	361203.16	1570924.00	1244.97	NAIL
425	361254.92	1570969.18	1244.67	NAIL
426	360920.65	1570795.28	1242.33	NAIL
427	360945.94	1570751.56	1242.20	NAIL

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PROFESSIONAL ENGINEER

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EXISTING CONDTIONS & SURVEY CONTROL

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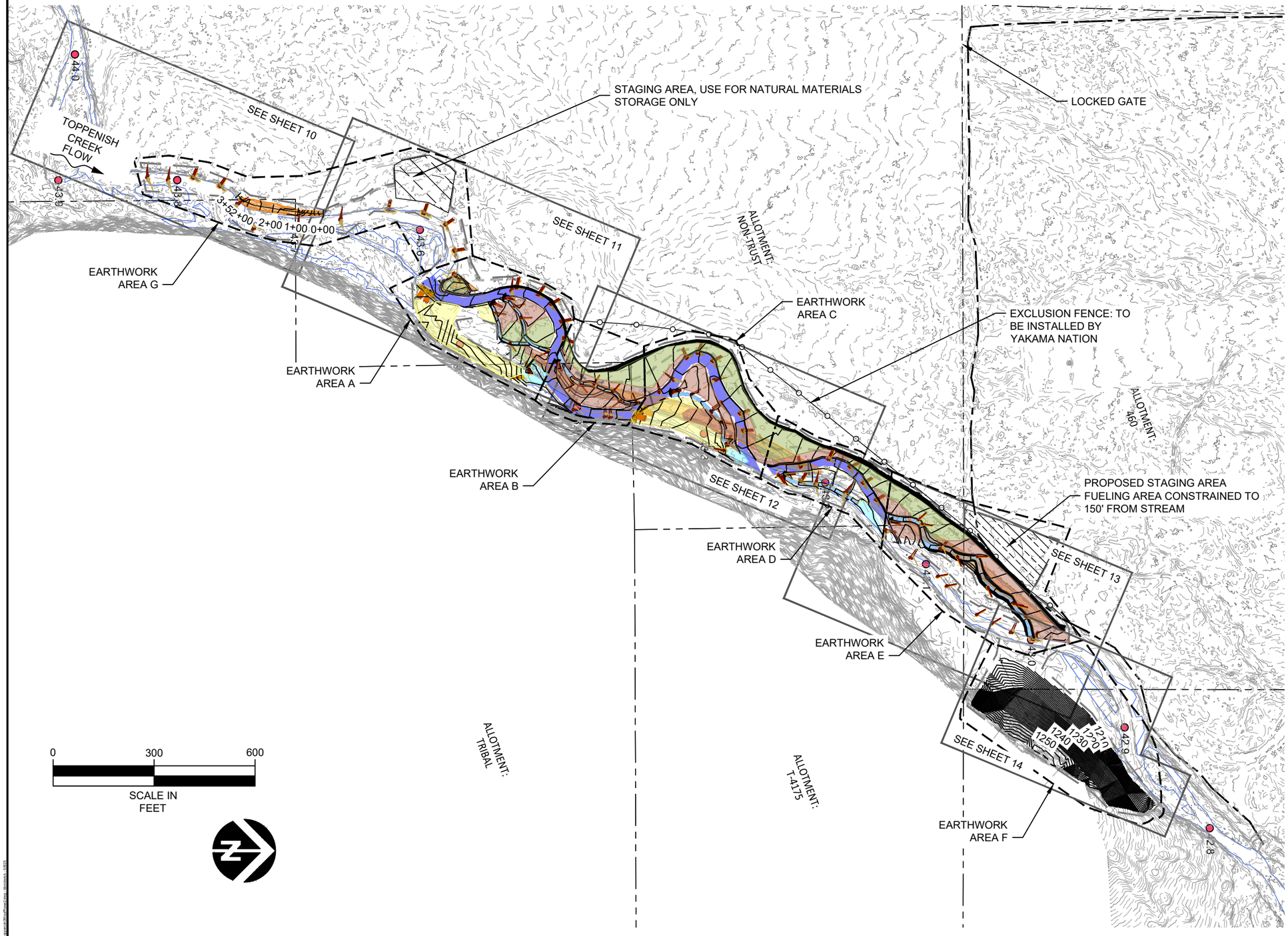

LEGEND

- PROPERTY LINE
- 42.0 — RIVER MILE
- EXISTING ACCESS
- PROPOSED TEMPORARY ACCESS
- 600+00 — PROPOSED CHANNEL ALIGNMENT
- EXISTING 2 FT CONTOURS
- PROPOSED 1 FT CONTOURS
- OHW OHW — ORDINARY HIGH WATER
- LIMITS OF DISTURBANCE
- EXCLUSION FENCE
- REMEANDERED MAINSTEM
- PROPOSED HIGH-FLOW SIDE CHANNEL
- PROPOSED LEVEE REMOVAL AREA
- WILLOW TRENCH ROUGHNESS SEE DETAIL 1/24
- HORIZONTAL LOG ROUGHNESS SEE DETAIL 1/25
- PILES AND SLASH ROUGHNESS SEE DETAIL 2/25
- PARTIAL CHANNEL FILL AREA
- PROPOSED ALCOVE
- PROPOSED STAGING AREA

0 300 600

SCALE IN FEET

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STATE OF WASHINGTON
34208
REGISTERED PROFESSIONAL ENGINEER

EXPIRES: 11/23/2025

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PL, DM, EA (APPROVED)	05/09/2025 (DATE)	23-02-21 (PROJECT)

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PROPOSED CONDITIONS & SHEET INDEX

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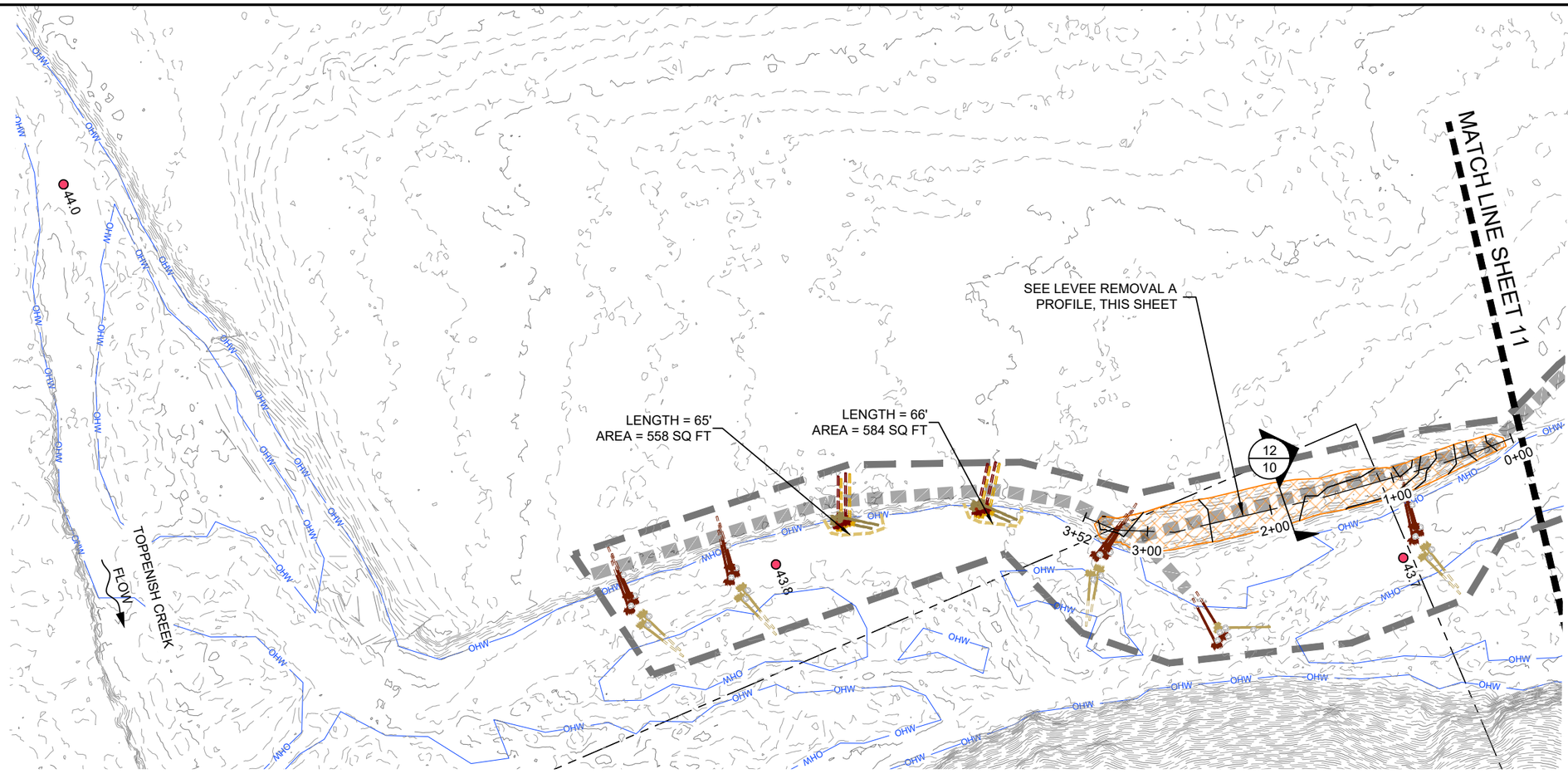
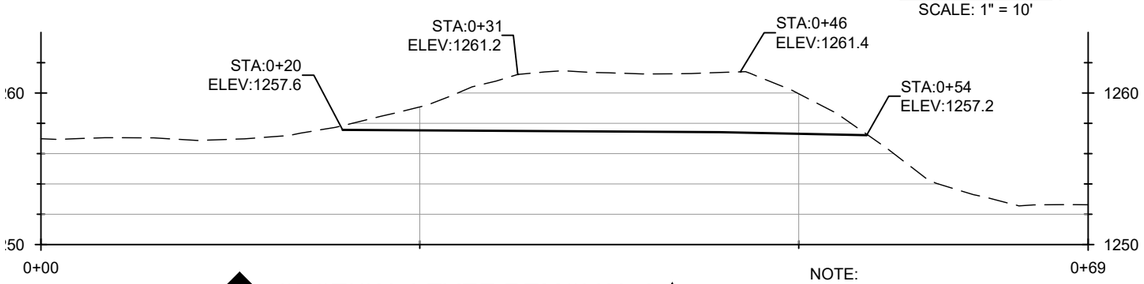


LEGEND

- PROPERTY LINE
- 42.0 — RIVER MILE
- 600+00 — PROPOSED CHANNEL ALIGNMENT
- EXISTING 2 FT CONTOURS
- PROPOSED 1 FT CONTOURS
- OHW OHW — EXISTING ORDINARY HIGH WATER
- LIMITS OF DISTURBANCE
- PROPOSED ACCESS
- PROPOSED LEVEE REMOVAL AREA
- COFFERDAM
- TYPE 1 CHANNEL SPANNING WOOD STRUCTURE, SEE DETAIL 1/22
- TYPE 2 CHANNEL SPANNING WOOD STRUCTURE, SEE DETAIL 2/22
- TYPE 1 BANK BURIED WOOD STRUCTURE, SEE DETAIL 1/21
- TYPE 2 BANK BURIED WOOD STRUCTURE, SEE DETAIL 2/21
- APEX STRUCTURE/CHANNEL PLUG, SEE DETAIL 1/23
- SIDE CHANNEL INLET STRUCTURE, SEE DETAIL 2/20

0 100 200
SCALE IN FEET

1x VERTICAL EXAGGERATION
SCALE: 1" = 10'

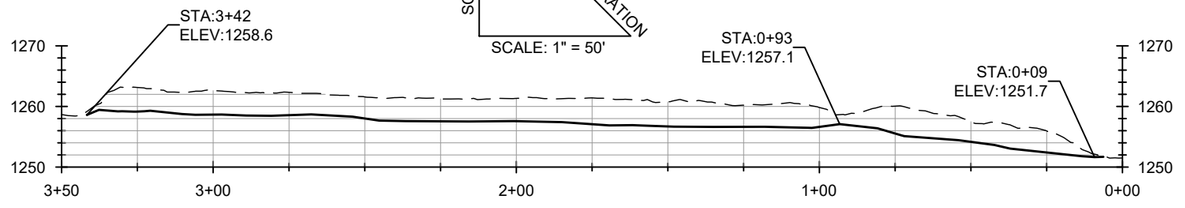


12/10 SECTION- LEVEE REMOVAL A

NOTE:

1.REMOVE LEVEE TO TIE INTO EXISTING WEST-SIDE FLOODPLAIN GRADE

2x VERTICAL EXAGGERATION
SCALE: 1" =25'
SCALE: 1" = 50'



LEVEE REMOVAL A PROFILE

DANIEL S. MILLER
STATE OF WASHINGTON
34208
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PROPOSED CONDITIONS (1 OF 5)

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DANIEL S. MILLER
STATE OF WASHINGTON
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REGISTERED
PROFESSIONAL ENGINEER

EXPIRES: 11/23/2025

USE FOR NATURAL MATERIALS STORAGE ONLY

LENGTH = 55'
AREA = 386 SQ FT

LENGTH = 65'
AREA = 540 SQ FT

LENGTH = 73'
AREA = 761 SQ FT

TEMPORARY BRIDGE. SEE SUGGESTED SEQUENCE NOTE

SEE LEVEE REMOVAL B PROFILE, SHEET 16

HIGH FLOW SIDE CHANNEL 2 SEE PROFILE SHEET 15

SUGGESTED SEQUENCE:
1. CONSTRUCT NEW MAIN STEM, SIDE CHANNEL AND INSET FLOODPLAIN
2. INSTALL TEMPORARY CROSSING
3. INSTALL COFFER DAM, PLUG AND FILL EXISTING CHANNEL

TOPPENISH CREEK FLOW

LENGTH = 78'
AREA = 765 SQ FT

LENGTH = 78'
AREA = 765 SQ FT

LENGTH = 141'
AREA = 2921 SQ FT

ROUGHENED HIGH-FLOW

HIGH FLOW SIDE CHANNEL 1 SEE PROFILE SHEET 15

FILL AREA SEE DETAIL 1/20

N:361044.98
E:1570667.32

N:361273.99
E:1570882.68

N:360996.13
E:1570682.23

N:361154.93
E:1570847.48

N:361234.89
E:1570875.45

LENGTH = 72'
AREA = 491 SQ FT

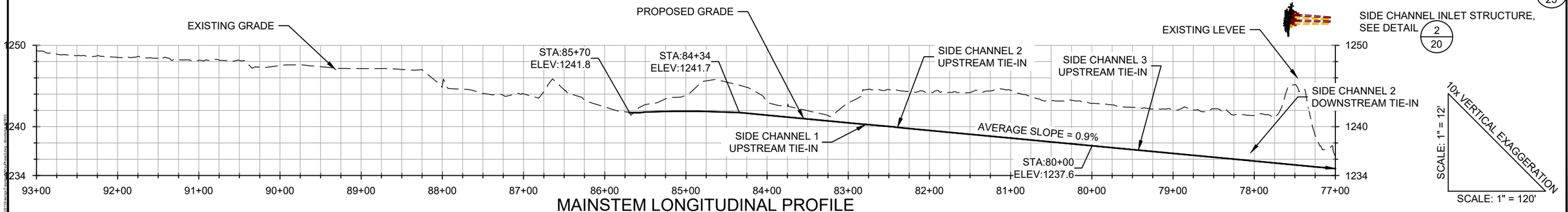
MATCH LINE SHEET 10

MATCH LINE SHEET 12

0 100 200
SCALE IN FEET

LEGEND

- PROPERTY LINE
- 42.0 RIVER MILE
- 600+00 PROPOSED CHANNEL ALIGNMENT
- EXISTING 2 FT CONTOURS
- PROPOSED 1 FT CONTOURS
- OHW OHW EXISTING ORDINARY HIGH WATER
- LIMITS OF DISTURBANCE
- PROPOSED ACCESS
- REMEANDERED MAINSTEM
- PROPOSED HIGH-FLOW SIDE CHANNEL
- PROPOSED LEVEE REMOVAL AREA
- WILLOW TRENCH ROUGHNESS SEE DETAIL 1/24
- HORIZONTAL LOG ROUGHNESS SEE DETAIL 1/25
- PILES AND SLASH ROUGHNESS SEE DETAIL 2/25
- PARTIAL CHANNEL FILL AREA
- PROPOSED ALCOVE
- PROPOSED STAGING AREA
- TEMPORARY BRIDGE
- COFFERDAM
- TYPE 1 CHANNEL SPANNING WOOD STRUCTURE, SEE DETAIL 1/22
- TYPE 2 CHANNEL SPANNING WOOD STRUCTURE, SEE DETAIL 2/22
- TYPE 1 BANK BURIED WOOD STRUCTURE, SEE DETAIL 1/21
- TYPE 2 BANK BURIED WOOD STRUCTURE, SEE DETAIL 2/21
- APEX STRUCTURE/CHANNEL PLUG, SEE DETAIL 1/23
- SIDE CHANNEL INLET STRUCTURE, SEE DETAIL 2/20



MAINSTEM LONGITUDINAL PROFILE

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PROPOSED CONDITIONS (2 OF 5)

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DANIEL S. MILLER
STATE OF WASHINGTON
34208
REGISTERED PROFESSIONAL ENGINEER

EXPIRES: 11/23/2025

SUGGESTED SEQUENCE:
1. CONSTRUCT NEW MAIN STEM, SIDE CHANNEL AND INSET FLOODPLAIN
2. INSTALL TEMPORARY CROSSING
3. INSTALL COFFER DAM, PLUG AND FILL EXISTING CHANNEL

MATCH LINE SHEET 11

MATCH LINE SHEET 13

HIGH FLOW SIDE CHANNEL 4
SEE PROFILE SHEET 15

HIGH FLOW SIDE CHANNEL 3
SEE PROFILE SHEET 15

TEMPORARY BRIDGE.
SEE SUGGESTED
SEQUENCE NOTE

TEMPORARY BRIDGE.
SEE SUGGESTED
SEQUENCE NOTE

N:361612.37
E:1571077.57

N:361687.19
E:1571050.83

N:361919.57
E:1571222.75

N:362136.37
E:1571350.83

TOPPENISH CREEK
FLOW

FILL AREA
SEE DETAIL 1/20

LENGTH = 64'
AREA = 527 SQ FT

LENGTH = 70'
AREA = 531 SQ FT

LENGTH = 82'
AREA = 508 SQ FT

HIGH FLOW SIDE CHANNEL 5
SEE PROFILE SHEET 16

MAINSTEM CHANNEL

BED MATERIAL PARTIAL FILL TO BE COMPOSED OF ALLUVIAL MATERIAL (GRAVEL-COBBLE) SOURCES FROM ON-SITE EXCAVATION

SCALE: 1" =10'
10x VERTICAL EXAGGERATION

SCALE: 1" = 100'

0 100 200
SCALE IN FEET

LEGEND

- PROPERTY LINE
- 42.0 RIVER MILE
- 600+00 PROPOSED CHANNEL ALIGNMENT
- EXISTING 2 FT CONTOURS
- PROPOSED 1 FT CONTOURS
- OHW EXISTING ORDINARY HIGH WATER
- LIMITS OF DISTURBANCE
- PROPOSED ACCESS
- REMEANDERED MAINSTEM
- PROPOSED HIGH-FLOW SIDE CHANNEL
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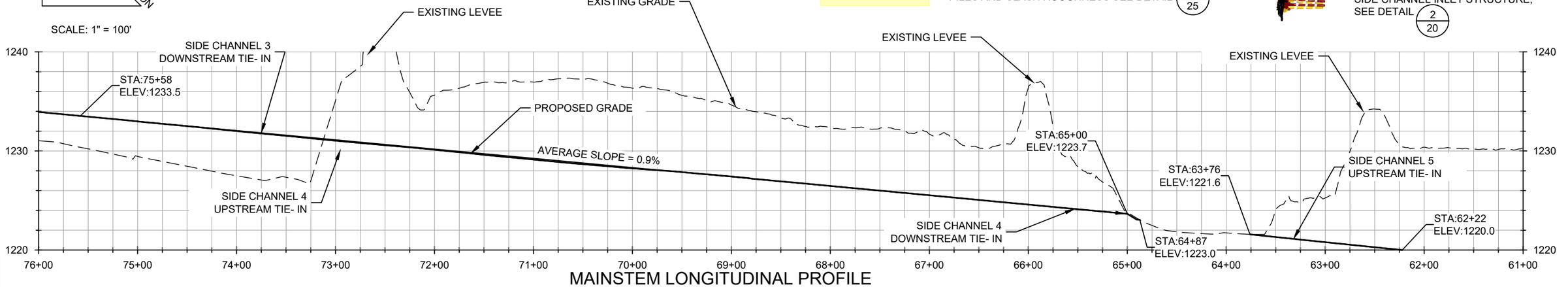
- PILES AND SLASH ROUGHNESS SEE DETAIL 2/25



MAINSTEM LONGITUDINAL PROFILE

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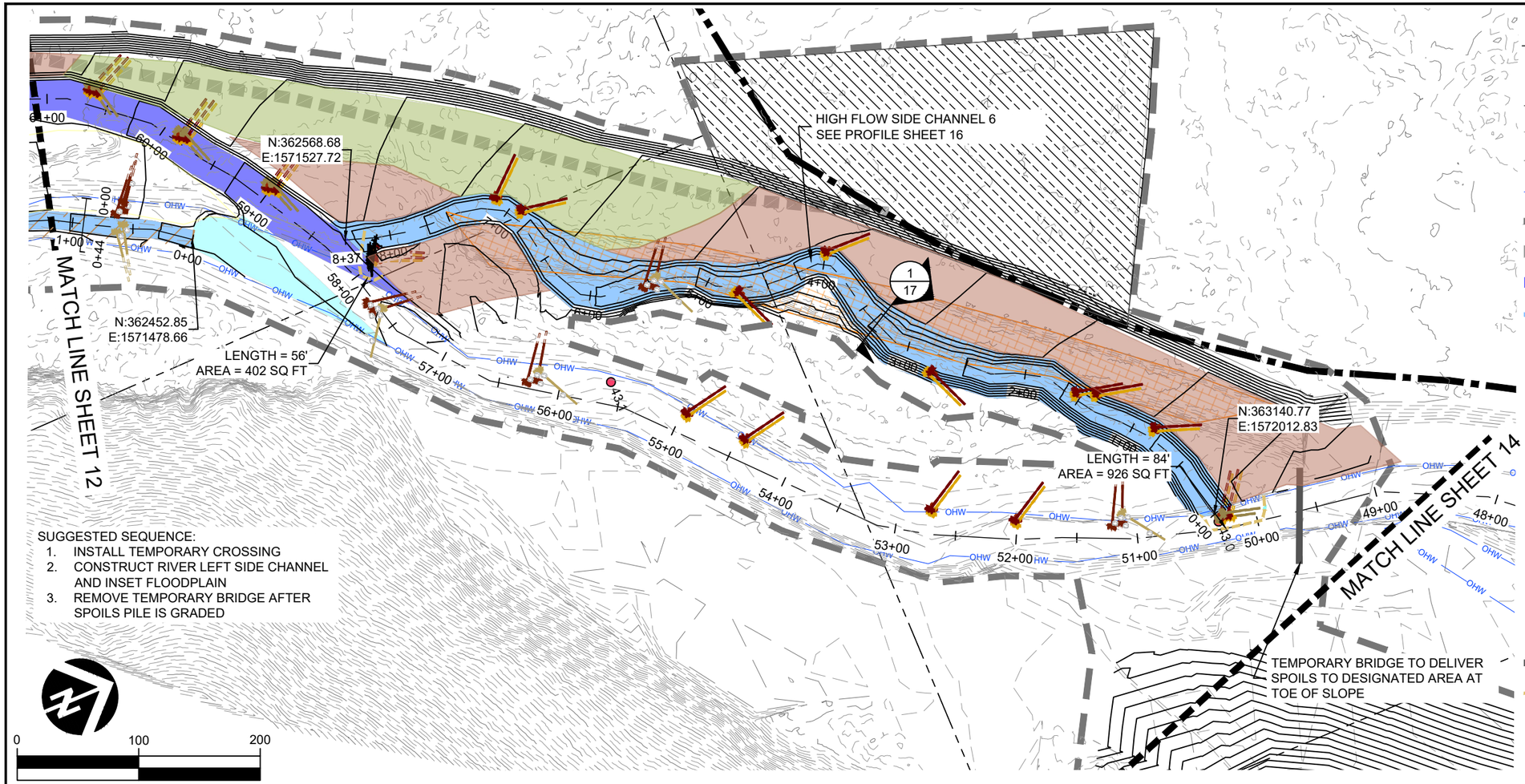
PROPOSED CONDITIONS (3 OF 5)

SHEET 12 OF 34



LEGEND

- PROPERTY LINE
- 42.0 — RIVER MILE
- 600+00 — PROPOSED CHANNEL ALIGNMENT
- EXISTING 2 FT CONTOURS
- PROPOSED 1 FT CONTOURS
- OHW OHW — EXISTING ORDINARY HIGH WATER
- LIMITS OF DISTURBANCE
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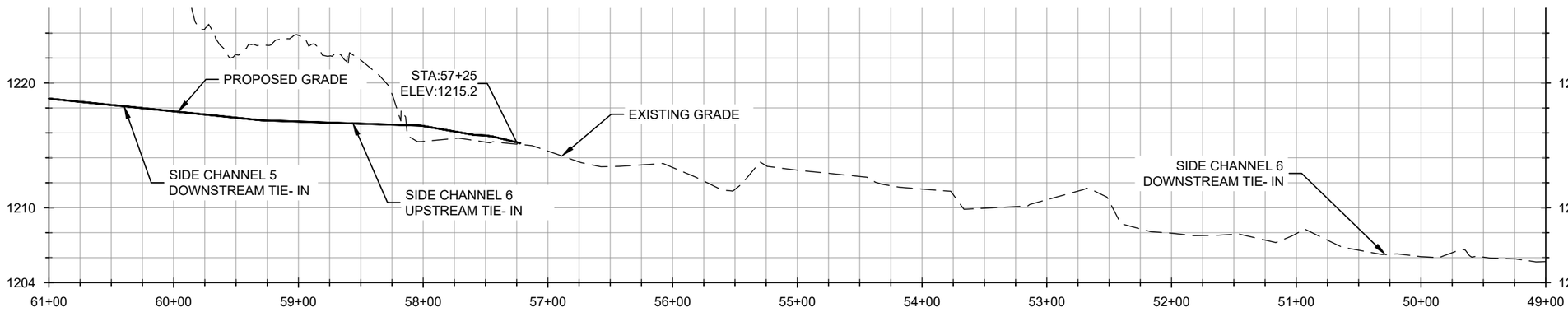
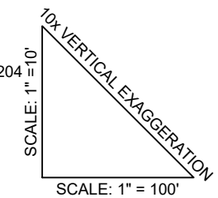
- TYPE 2 BANK BURIED WOOD STRUCTURE, SEE DETAIL 2/21
- APEX STRUCTURE/CHANNEL PLUG, SEE DETAIL 1/23
- SIDE CHANNEL INLET STRUCTURE, SEE DETAIL 2/20



MAINSTEM LONGITUDINAL PROFILE



DANIEL S. MILLER
STATE OF WASHINGTON
34208
REGISTERED
PROFESSIONAL ENGINEER

EXPIRES: 11/23/2025

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PL, DM, EA (APPROVED)	05/09/2025 (DATE)	23-02-21 (PROJECT)

CONFEDERATED TRIBES AND BANDS OF THE YAKAMA NATION
TOPPENISH THREE WAY LEVEE REMOVAL PHASE 2
WHITE SWAN, WA

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PROPOSED CONDTIONS (4 OF 5)

SHEET 13 OF 34

LENGTH = 84'
AREA = 926 SQ FT

TEMPORARY BRIDGE TO DELIVER SPOILS TO DESIGNATED AREA AT TOE OF SLOPE

MATCH LINE SHEET 13

N:363029.56
E:1572084.67

GRADE TO BLEND TO EXISTING GROUND. PROVIDE MICROTOPOGRAPHY FOR SITE VARIABILITY

N:363377.10
E:1572320.23

N:362906.35
E:1572274.77

N:363635.23
E:1572671.71

N:363446.18
E:1572676.48

SPOILS DISPOSAL

-10.9:1
-4.8:1
-4.4:1
-3.5:1
-3.1:1

0+00
49+00
48+00
47+00
46+00
45+00
44+00
43+00
42+00
41+00
51+00
50+00

1210
1220
1230
1240
1250

OHW

LEGEND

- PROPERTY LINE
- 42.0 RIVER MILE
- 600+00 PROPOSED CHANNEL ALIGNMENT
- EXISTING 2 FT CONTOURS
- PROPOSED 1 FT CONTOURS
- OHW OHW EXISTING ORDINARY HIGH WATER
- LIMITS OF DISTURBANCE
- PROPOSED ACCESS
- PROPOSED HIGH-FLOW SIDE CHANNEL
- TEMPORARY BRIDGE
- HORIZONTAL LOG ROUGHNESS SEE DETAIL 1/25
- TYPE 1 CHANNEL SPANNING WOOD STRUCTURE, SEE DETAIL 1/22
- TYPE 1 BANK BURIED WOOD STRUCTURE, SEE DETAIL 1/21
- TYPE 2 BANK BURIED WOOD STRUCTURE, SEE DETAIL 2/21

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0 60 120
SCALE IN FEET

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PL, DM, EA APPROVED	05/09/2025 DATE	23-02-21 PROJECT

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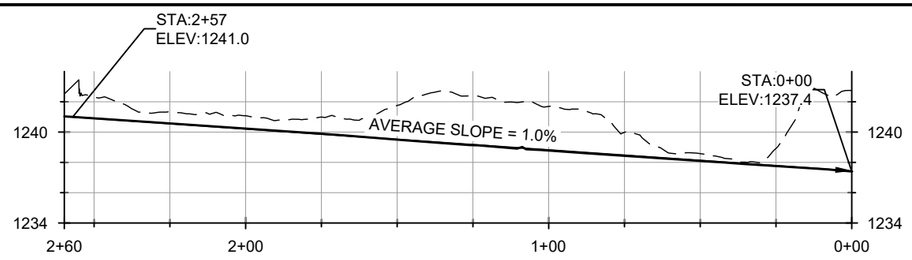
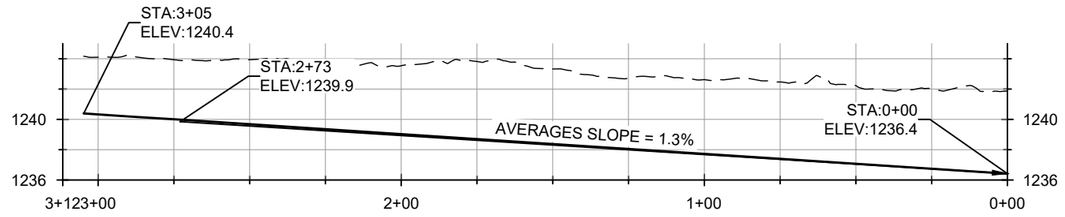
PROPOSED CONDITIONS (5 OF 5)

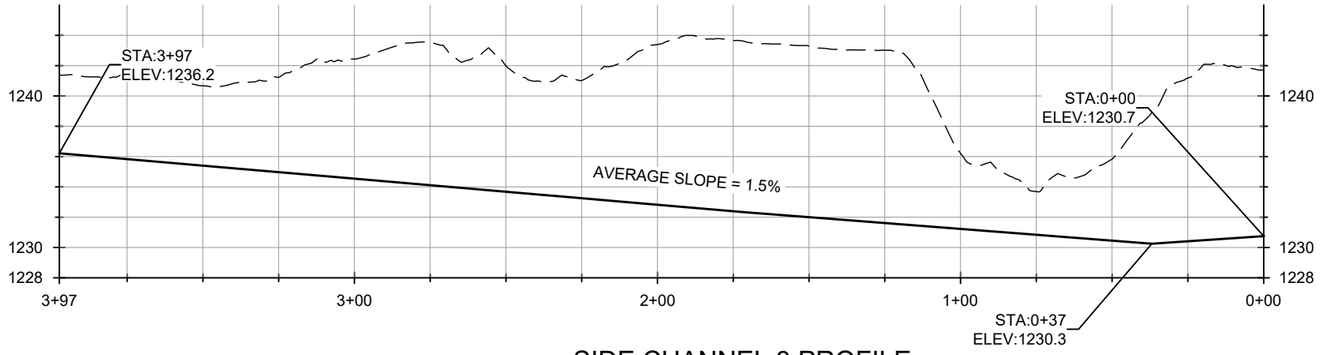
SHEET
14 OF 34



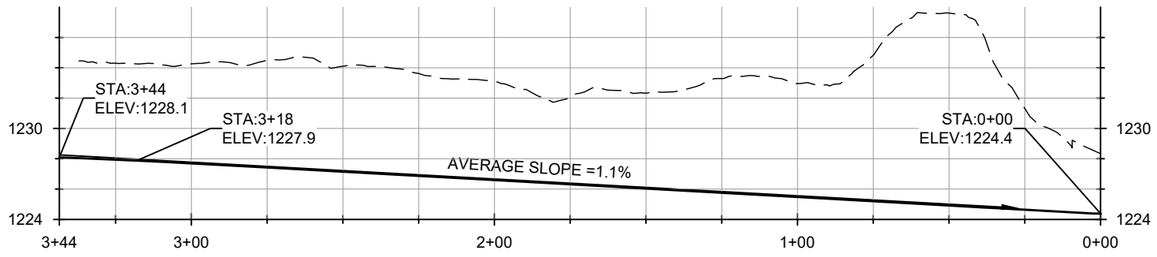
SIDE CHANNEL 1 PROFILE



SIDE CHANNEL 2 PROFILE

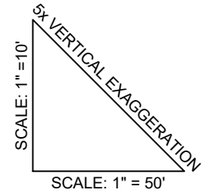


SIDE CHANNEL 3 PROFILE



SIDE CHANNEL 4 PROFILE

NOTE: END OF SIDE CHANNEL ALIGNMENTS REPRESENT TIE-IN TO PROPOSED MAIN STEM



LEGEND

EXISTING GRADE

PROPOSED GRADE

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STATE OF WASHINGTON
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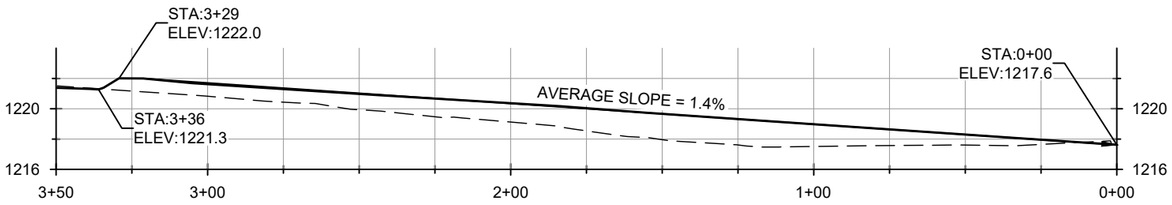
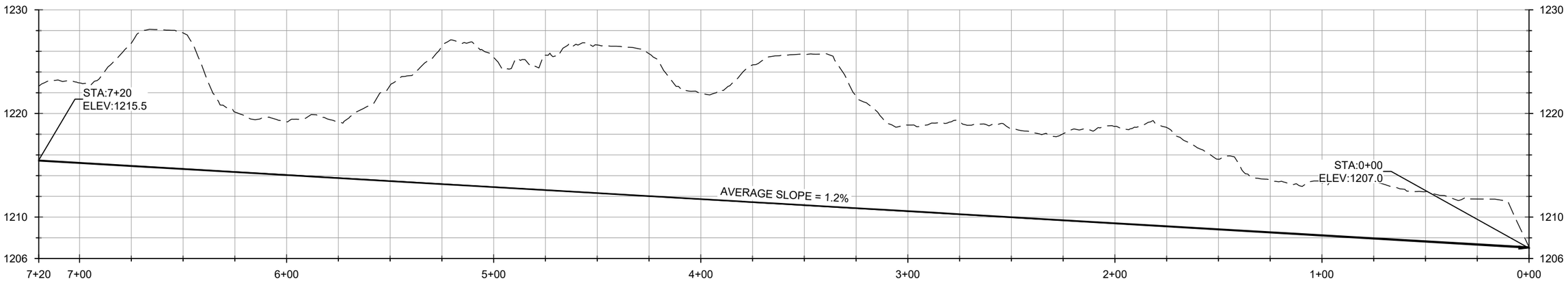
PROPOSED HIGH FLOW SIDE CHANNEL 1-4 PROFILES

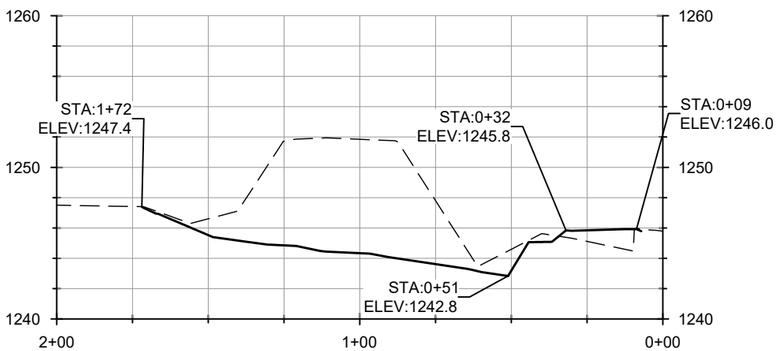
SHEET 15 OF 34



SIDE CHANNEL 5 PROFILE

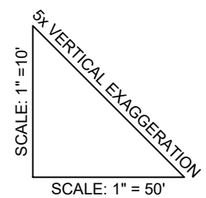


SIDE CHANNEL 6 PROFILE



LEVEE REMOVAL B PROFILE

NOTE: END OF SIDE CHANNEL ALIGNMENTS REPRESENT TIE-IN TO PROPOSED MAIN STEM



LEGEND

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PROPOSED GRADE

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PL, DM, EA	05/09/2025	23-02-21

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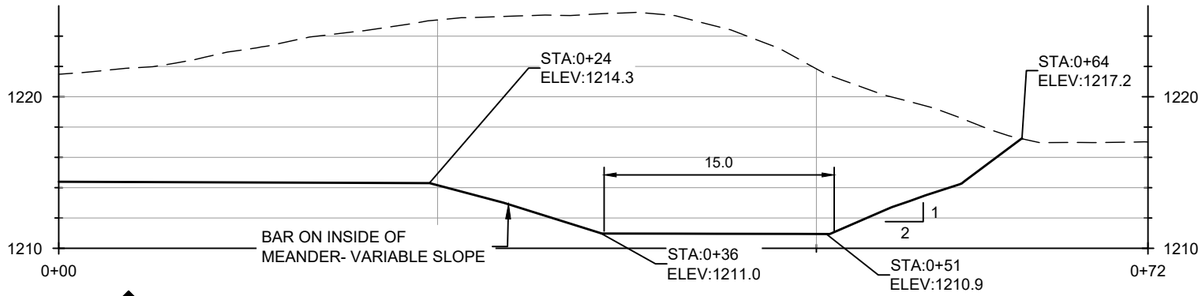
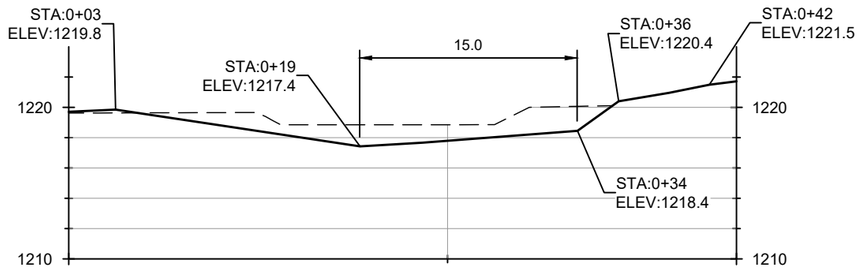
PROPOSED HIGH FLOW SIDE CHANNEL 5-6 & LEVEE REMOVAL B PROFILES

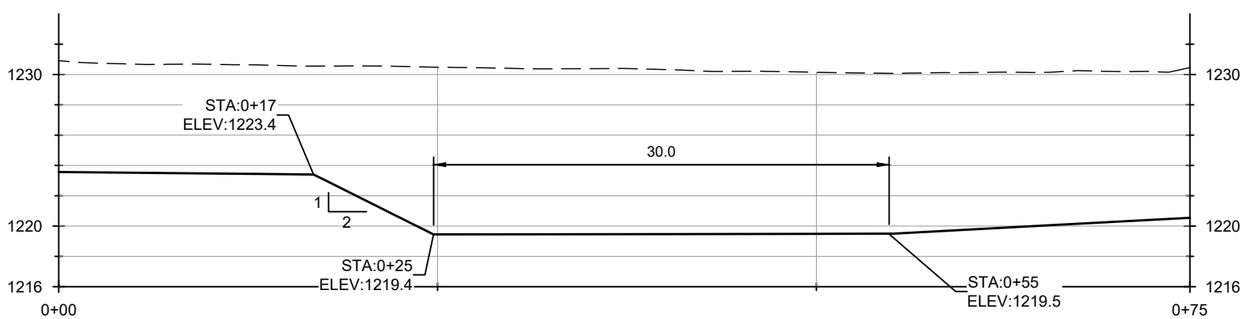
SHEET
16 OF 34



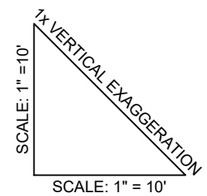
1/13 SECTION - HIGH FLOW SIDE CHANNEL 6



2/12 SECTION - HIGH FLOW SIDE CHANNEL 5



3/12 SECTION - MAINSTEM STA 62+75



LEGEND

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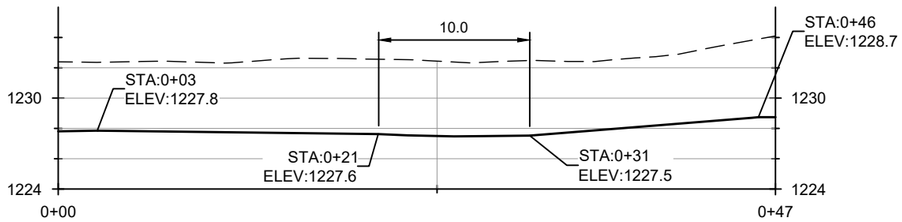
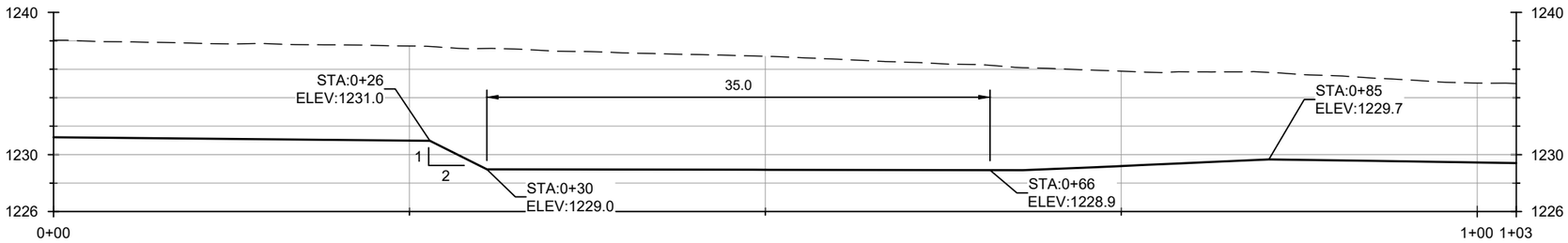
GRADING SECTIONS (1 OF 3)

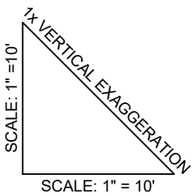
SHEET
17 OF 34

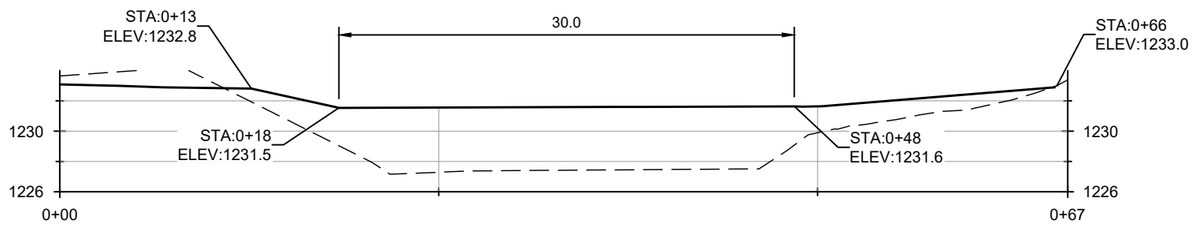


4/12 SECTION - HIGH FLOW SIDE CHANNEL 4



5/12 SECTION - MAINSTEM STA 71+89





6/12 SECTION - MAINSTEM STA 74+61

LEGEND

EXISTING GRADE

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GRADING SECTIONS (2 OF 3)

SHEET
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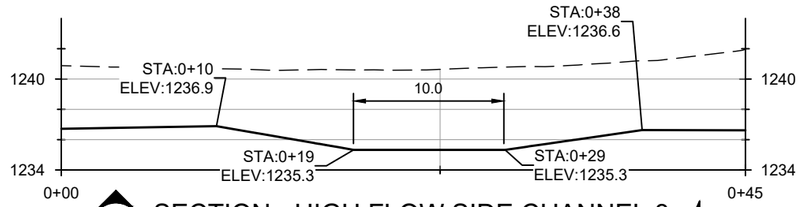
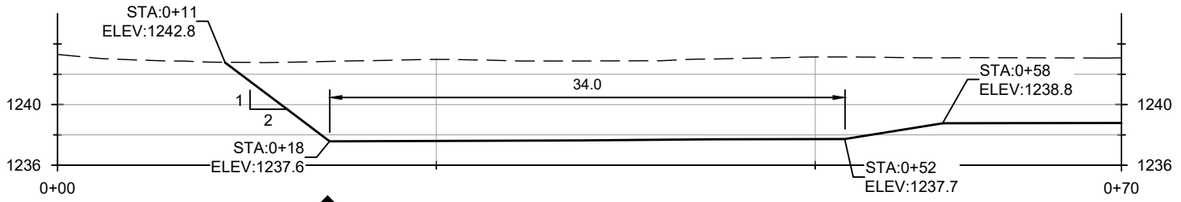
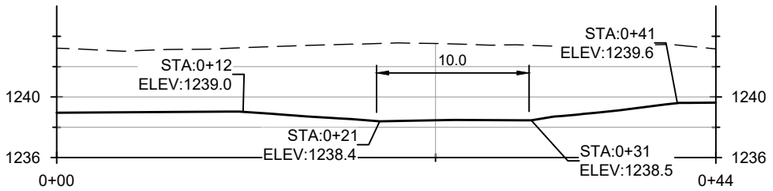


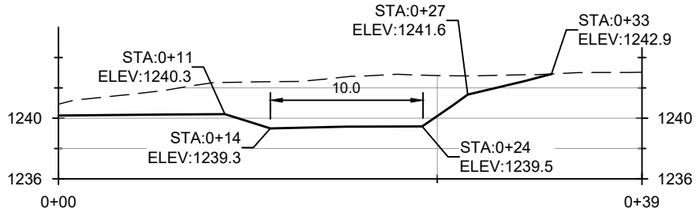
7/12 SECTION - HIGH FLOW SIDE CHANNEL 3



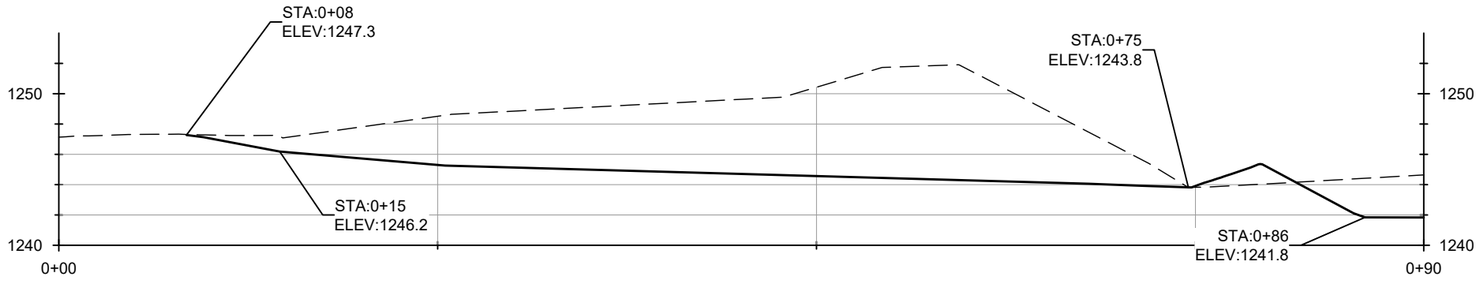
8/11 SECTION - MAINSTEM STA 81+03



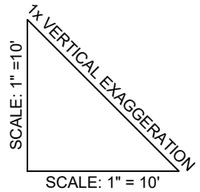
9/11 SECTION - HIGH FLOW SIDE CHANNEL 2



10/11 SECTION - HIGH FLOW SIDE CHANNEL 1



11/11 SECTION - LEVEE REMOVAL



LEGEND

EXISTING GRADE

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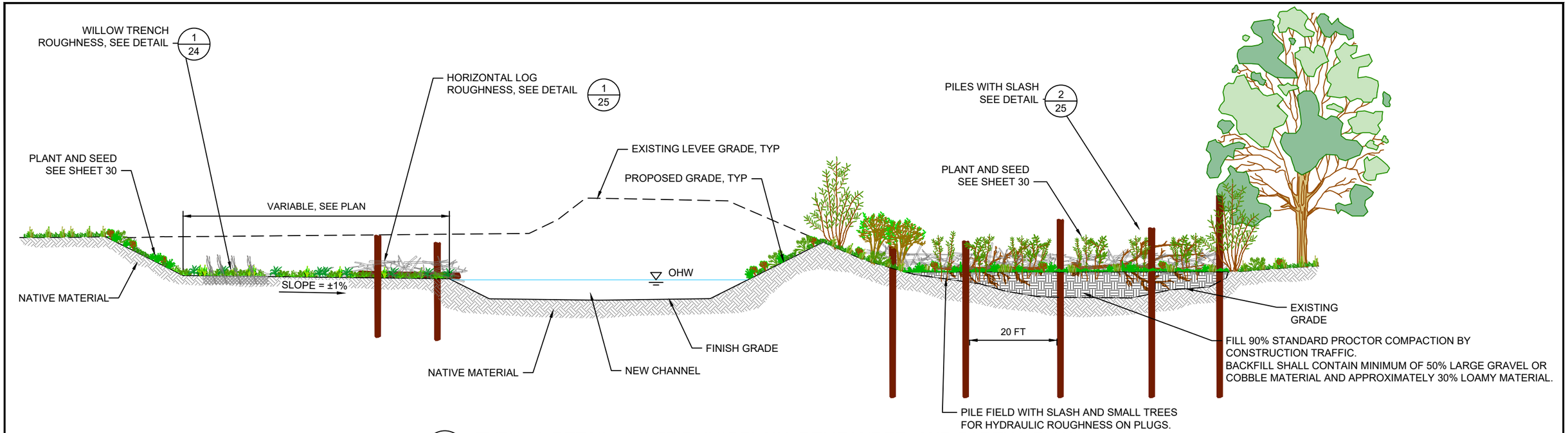
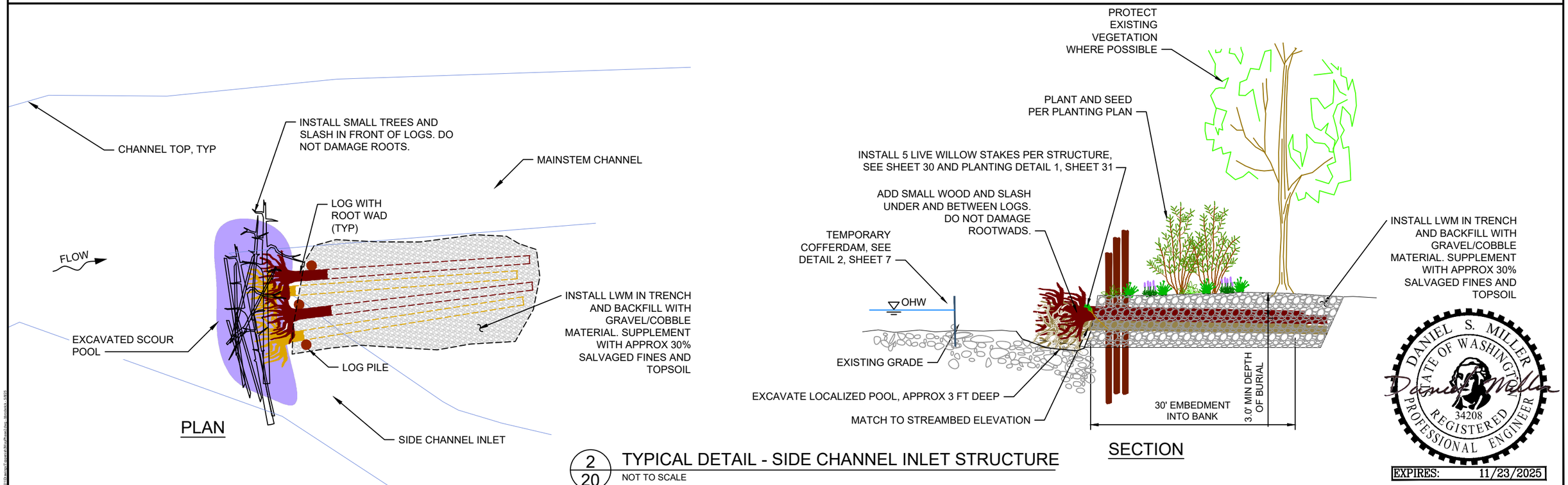
GRADING SECTIONS (3 OF 3)

SHEET
19 OF 34



1/20 TYPICAL DETAIL - INSET FLOODPLAIN, REMEANDER, AND PARTIAL PLUG

NOT TO SCALE



2/20 TYPICAL DETAIL - SIDE CHANNEL INLET STRUCTURE

NOT TO SCALE

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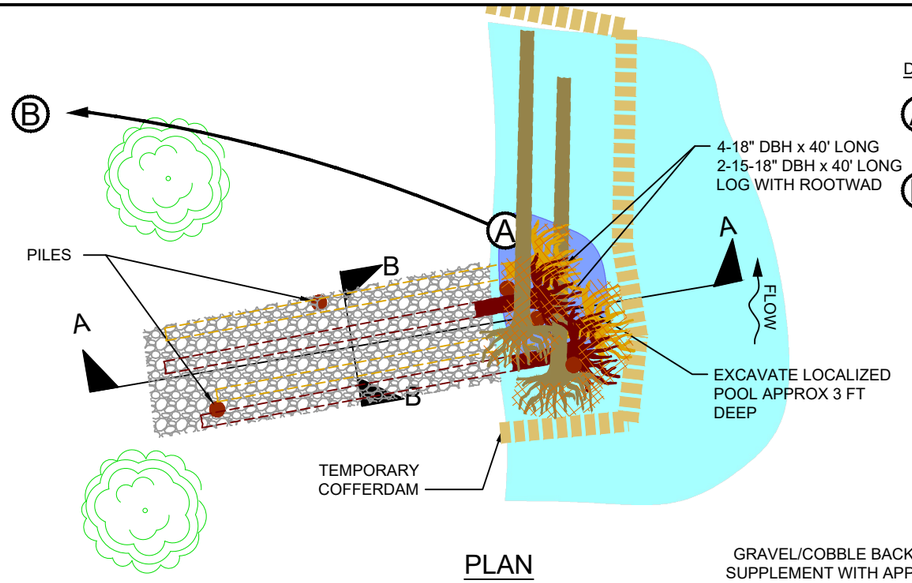
TYPICAL DETAILS CHANNEL REMEANDER-PARTIAL PLUG

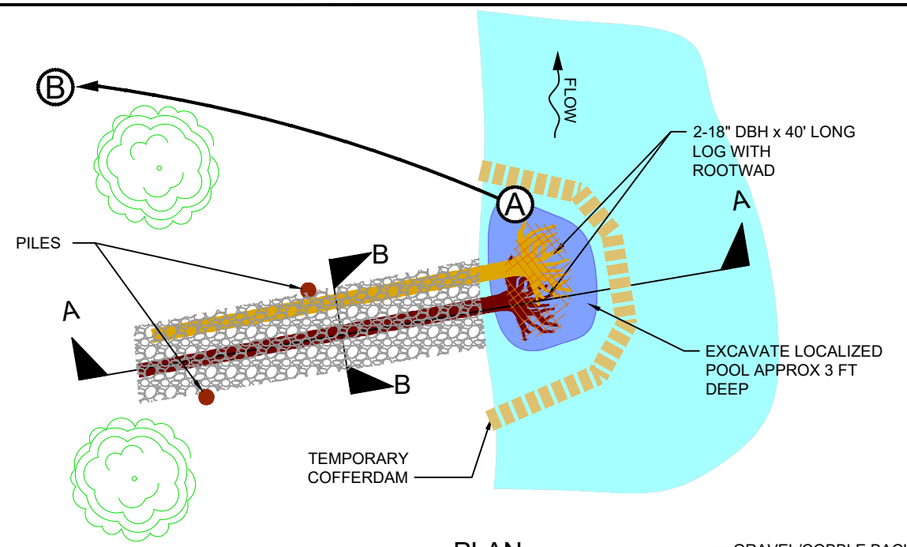
SHEET 20 OF 34



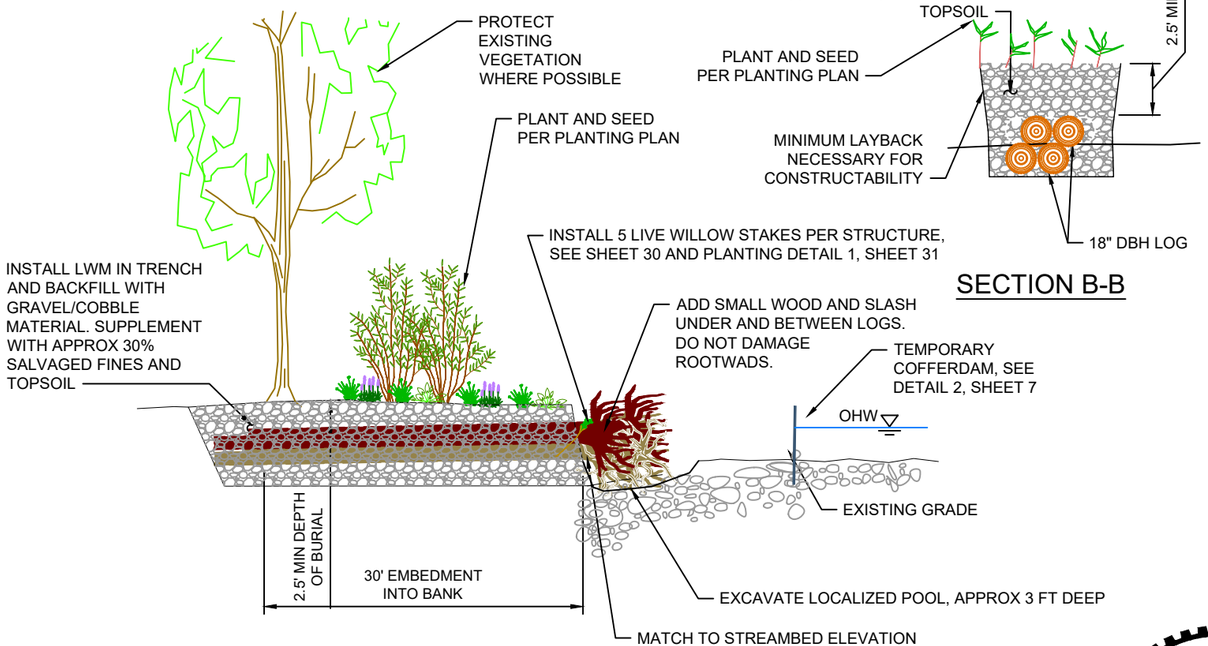
DEWATERING NOTES:

(A) CONSTRUCTION DEWATERING SUMP. CONTRACTOR SHALL PROVIDE PUMP TO DRAW DOWN WATER LEVEL SUFFICIENTLY FOR PLACEMENT OF LWM, AND CONTAIN TURBID WATER.

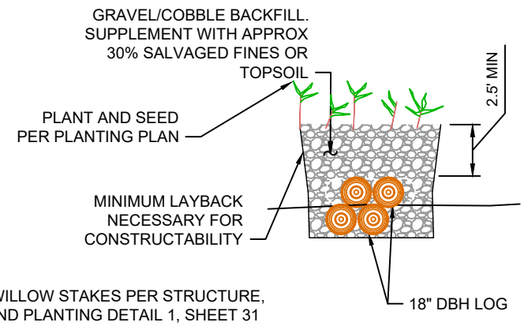
(B) CONSTRUCTION DEWATERING DISCHARGE LOCATION. CONTROL DISCHARGE TO PREVENT EROSION AND RETURN OF TURBID WATER TO SURFACE WATERS.



PLAN



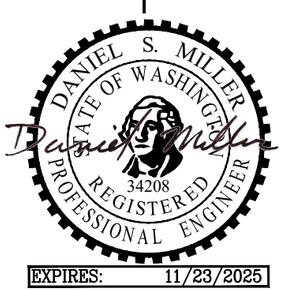
SECTION A-A



SECTION B-B

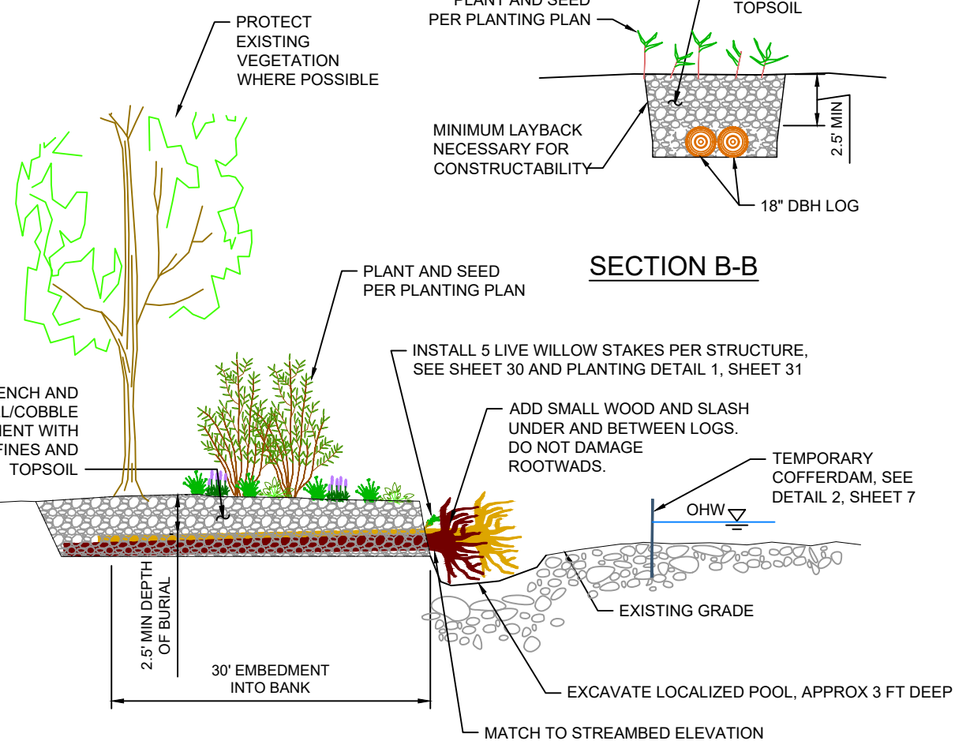
1/21 TYPICAL DETAIL -TYPE 1 BANK BURIED WOOD STRUCTURE

NOT TO SCALE

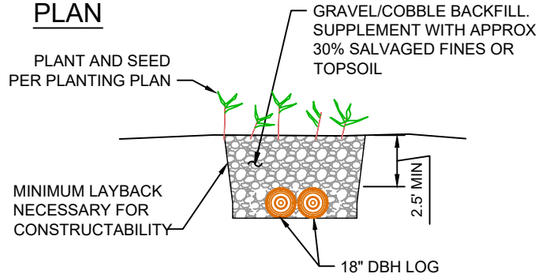


EXPIRES: 11/23/2025

PLAN



PLAN



SECTION B-B

SECTION A-A

2/21 TYPICAL DETAIL -TYPE 2 BANK BURIED WOOD STRUCTURE

NOT TO SCALE

NO.	BY	DATE	REVISION DESCRIPTION

BB DRAWN | PL, DM, JB, JB, NS DESIGNED | PL, JB, MB CHECKED

PL, DM, EA APPROVED | 05/09/2025 DATE | 23-02-21 PROJECT

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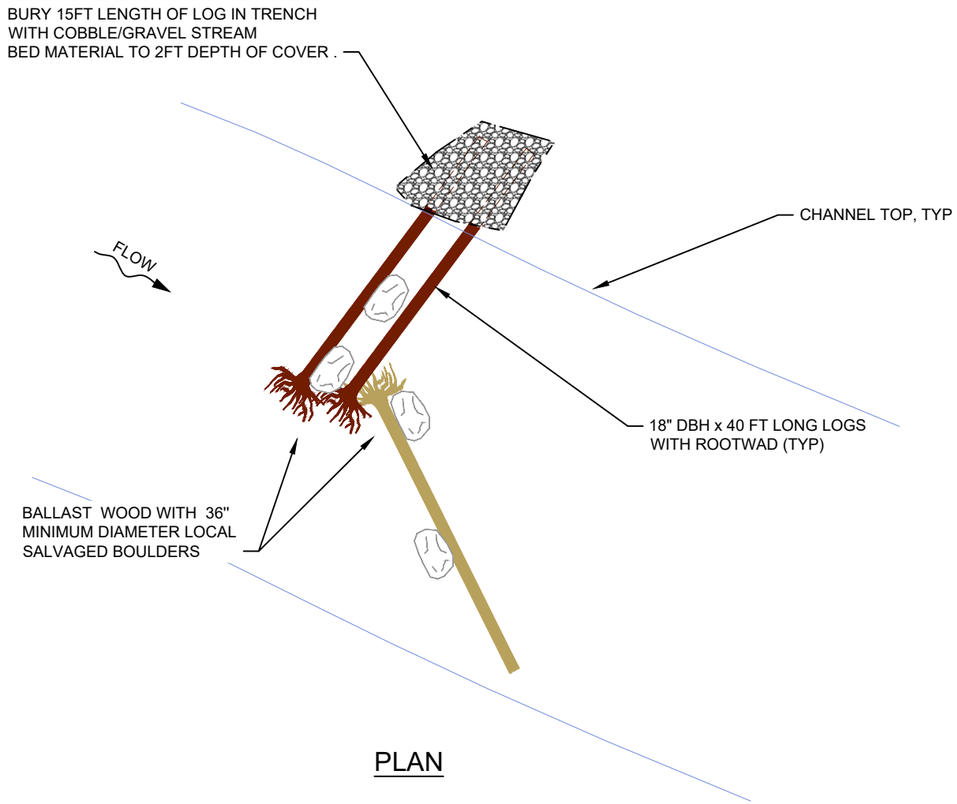
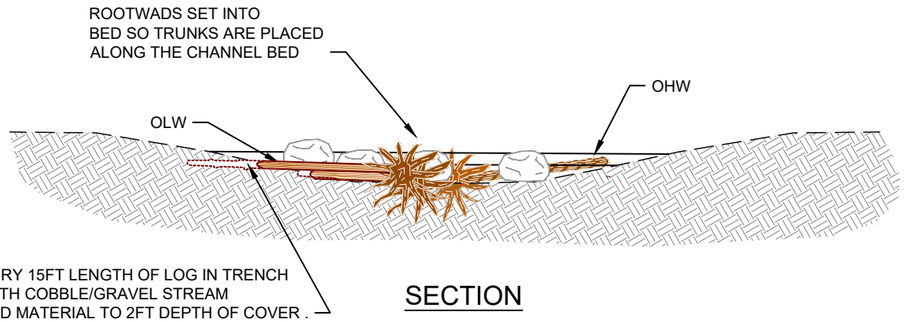
LARGE WOOD TYPICAL DETAILS-
BANK BURIED WOOD

SHEET
21 OF 34



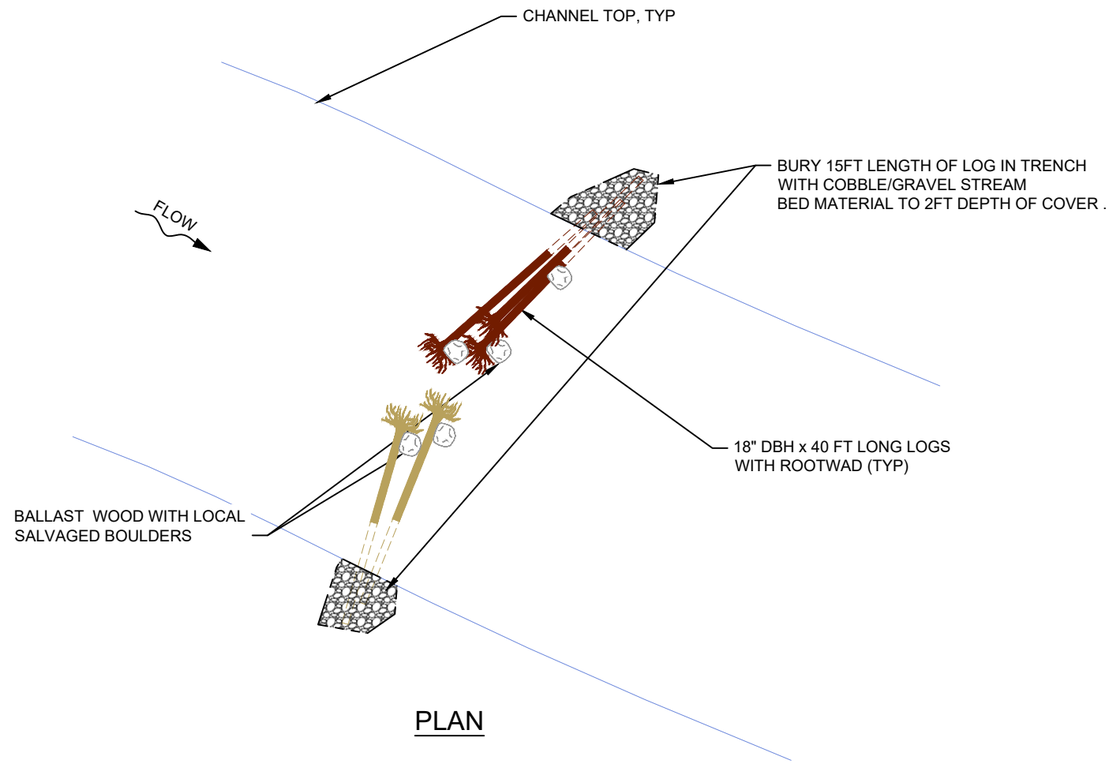
PLAN



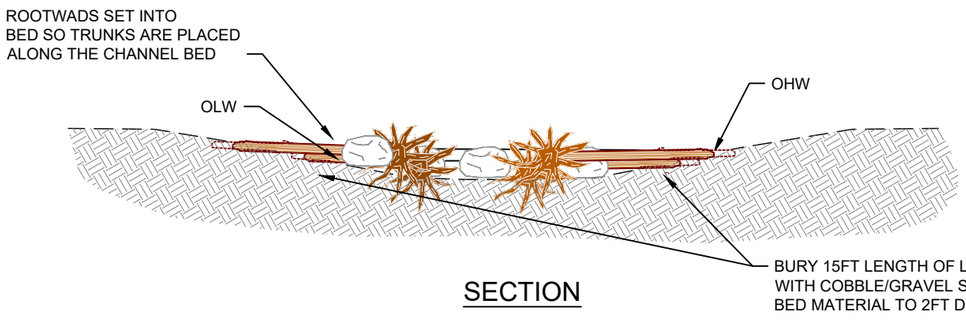
SECTION

1/22 TYPICAL DETAIL - TYPE 1 CHANNEL SPANNING LARGE WOOD STRUCTURE

NOT TO SCALE



PLAN



SECTION

2/22 TYPICAL DETAIL - TYPE 2 CHANNEL SPANNING LARGE WOOD STRUCTURE

NOT TO SCALE

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STATE OF WASHINGTON
34208
REGISTERED
PROFESSIONAL ENGINEER

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LARGE WOOD TYPICAL DETAILS-
CHANNEL SPANNING

SHEET
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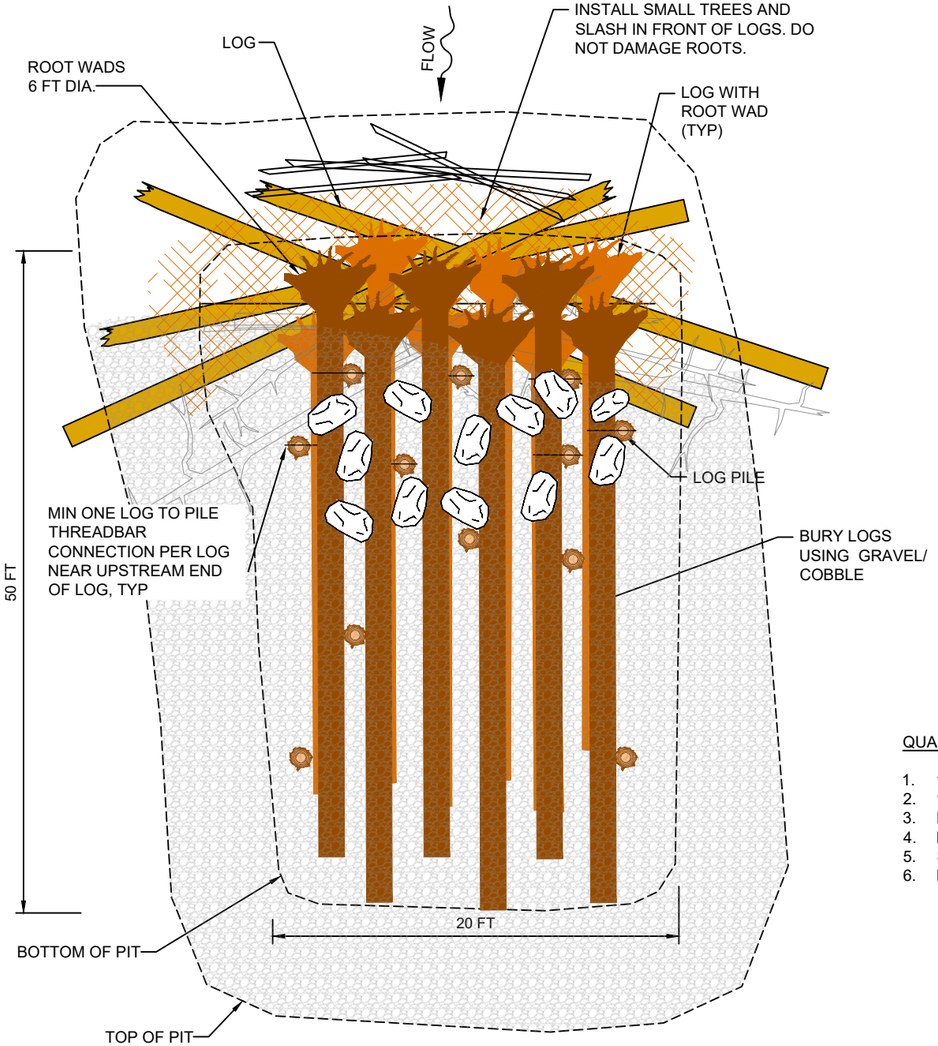
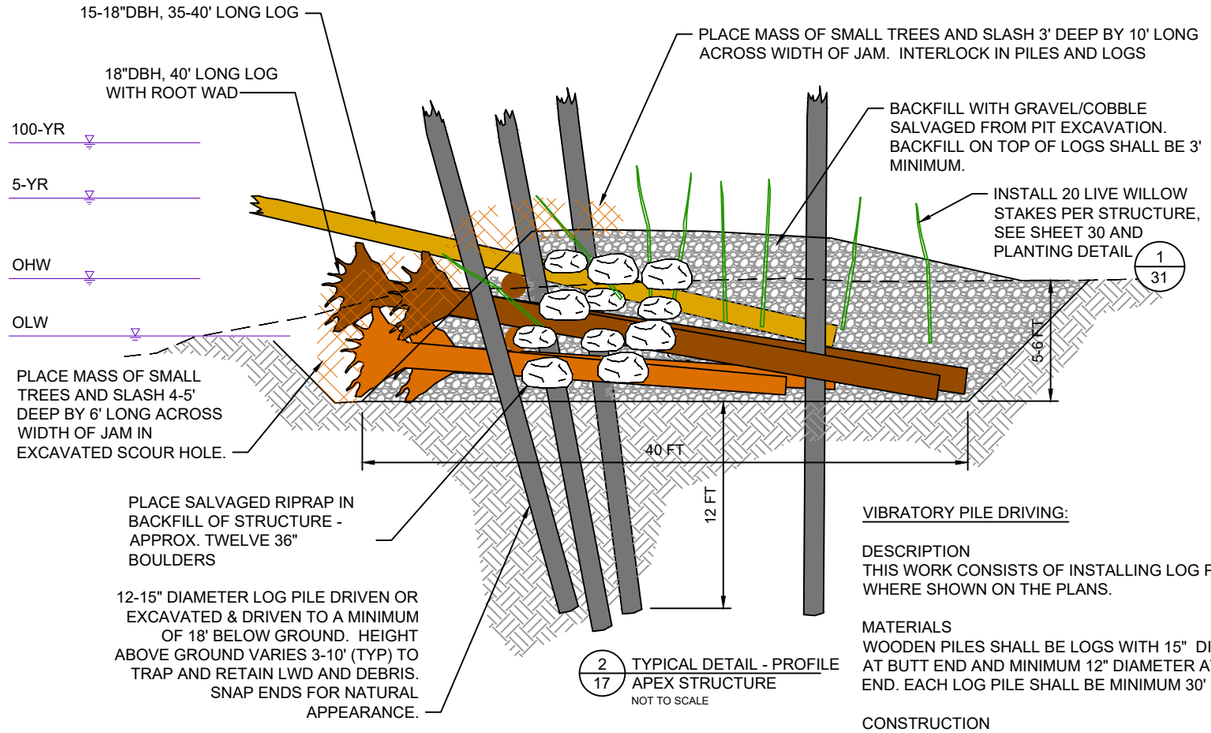


1 / 17 TYPICAL DETAIL - PLAN
APEX STRUCTURE
NOT TO SCALE



2 / 17 TYPICAL DETAIL - PROFILE
APEX STRUCTURE
NOT TO SCALE

QUANTITIES ESTIMATE:

1.	18"DBH X 40' LONG CONIFER LOG WITH ROOTWAD	12 EACH
2.	12-15" DIAMETER X 30' LOG PILE	12 EACH
3.	EXCAVATION (BELOW OHW)	APPROX 200 CY
4.	FILL (BELOW OHW, SALVAGED EXCAVATION MATERIAL)	APPROX 200 CY
5.	SMALL WOODY DEBRIS/SLASH	APPROX 20 CY MODERATELY COMPACTED
6.	BOULDERS	12

VIBRATORY PILE DRIVING:

DESCRIPTION
THIS WORK CONSISTS OF INSTALLING LOG PILES WHERE SHOWN ON THE PLANS.

MATERIALS
WOODEN PILES SHALL BE LOGS WITH 15" DIAMETER AT BUTT END AND MINIMUM 12" DIAMETER AT SCALED END. EACH LOG PILE SHALL BE MINIMUM 30' LONG.

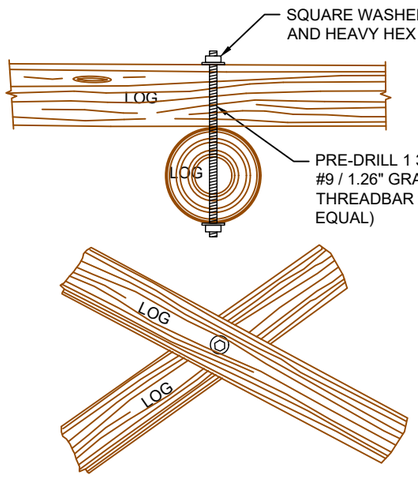
CONSTRUCTION
FINAL POSITIONING OF LOG PILES SHALL BE IN THE APPROXIMATE LOCATIONS SHOWN ON THE PLANS. EACH PILE SHALL BE INSTALLED TO A DEPTH EXCEEDING 15' BELOW BOTTOM OF PIT. VARY LENGTHS EXTENDING ABOVE FINISHED GRADE FROM 3FT TO 6FT. TOP ENDS SHALL BE SNAPPED BEFORE INSTALLATION OR ROUGHENED TO REMOVE CUT END.

SEQUENCE:

1. INSTALL COFFERDAM, IF REQUIRED.
2. EXCAVATE PIT WORKING FROM ONE SIDE A MINIMAL WIDTH NECESSARY TO INSTALL PILES AND FIRST TIER OF LOGS. PROCEED ACROSS PIT USING EXCAVATED MATERIAL AS BACKFILL ON PLACED LOGS PARTIALLY BURYING LOGS TO PREVENT FLOATATION.
3. INSTALL ADDITIONAL LAYERS OF LOGS AND BACKFILL EACH LAYER. PLACE COTTONWOOD POLES WHILE BACKFILLING. PUMP AS NEEDED.
4. DO NOT FILL IN FRONT OF STRUCTURE. APPLY SURPLUS FILL TO TOP OF STRUCTURE.
5. INSTALL SMALL TREES AND SLASH IN ROOTWAD MATRIX. DO NOT DAMAGE ROOTWADS.
6. REMOVE COFFERDAM.

NOTES:

1. SPECIFIC ORIENTATION OF LOGS AND BALLAST MATERIALS MAY VARY FROM TYPICAL DRAWINGS DEPENDING ON SITE CONDITIONS & SIZE/SHAPE OF MATERIAL DELIVERED OR SALVAGED AT SITE.
2. LOGS SHALL BE BALLASTED TO RESIST BUOYANCY BY PARTIAL BURIAL AND BRACING TO WOODEN PILES.
3. BOLT HORIZONTAL LOGS TO LOG PILES PER DETAIL.



3 / 17 TYPICAL LOG-LOG CONNECTIONS
NOT TO SCALE

BOLTED CONNECTION NOTES:

1. BOLTS SHALL BE MINIMUM 1 1/4" GRADE 75 THREADBAR, #9 DYWIDAG OR EQUAL. WASHERS SHALL BE SQUARE PLATE, 3/8" x 4" x 4" MIN. NUTS SHALL BE HEAVY HEX. ALL HARDWARE SHALL BE HOT-DIP GALVANIZED.
2. DRILL 1 3/8" HOLE THROUGH LOGS.
3. INSERT THREADBAR.
4. INSTALL PLATE WASHERS AND NUTS. SECURE NUTS BY CHISELING THREADS.
5. FILE OR GRIND OFF SHARP EDGES.
6. EACH MAINSTEM STRUCTURE SHALL HAVE AT LEAST 6 THREADBAR CONNECTIONS.

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LARGE WOOD TYPICAL DETAILS-
APEX STRUCTURE

SHEET
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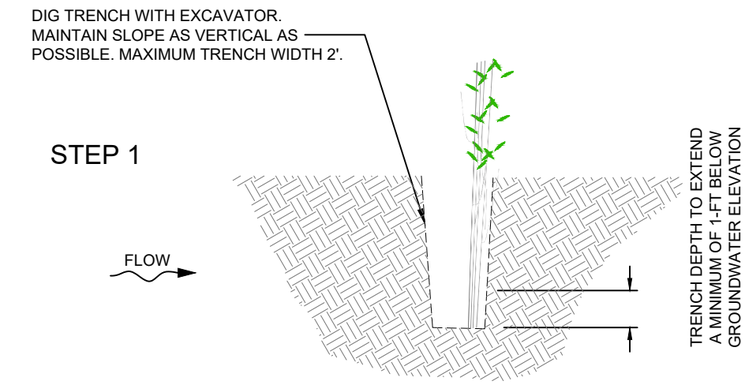

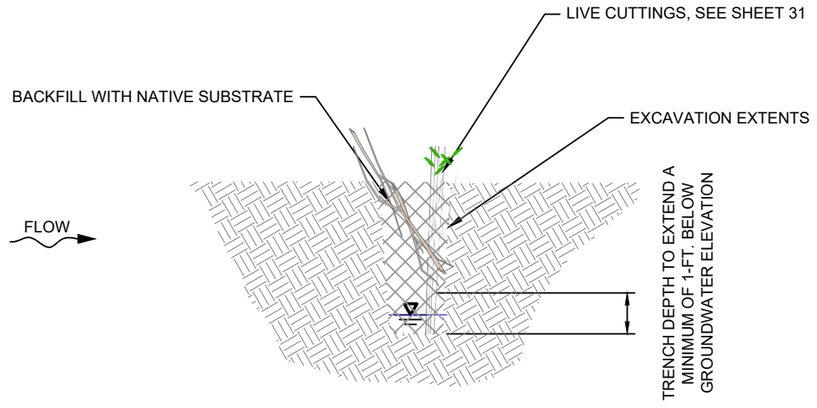

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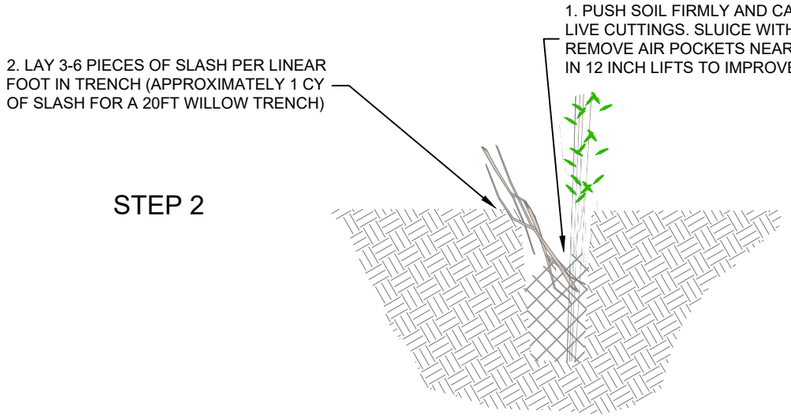
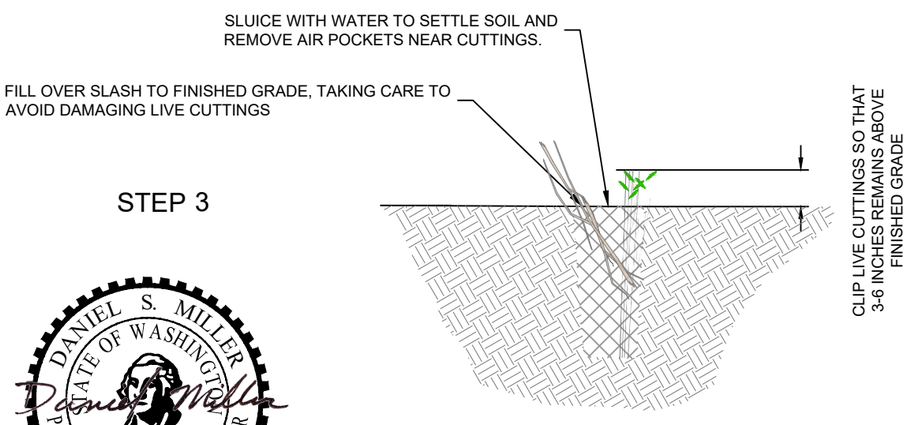


NOTES:
1. ALL LIVE CUTTINGS TO BE CUT TO A POINT IMMEDIATELY PRIOR TO INSTALLATION
2. EXCAVATE TRENCH TO 1 FT BELOW WATER TABLE DEPTH. PUMP WATER INTO TRENCH. INSTALL LIVE CUTTINGS WITH CUT ENDS IN TOE OF TRENCH.
3. COMPACT BACKFILL IN 12 INCH LIFTS TO IMPROVE CUTTING TO BACKFILL MATERIAL CONTACT.
4. PUMP WATER IN O THE TRENCH WHILE BACKFILLING UNTIL WATER VISIBLE "BUBBLES" ON SURFACE
5. TAMP IN MATERIAL AT GROUND AROUND LIVE CUTTING.
6. MAINTAIN TRENCH EXCAVATION AS CLOSE TO VERTICAL AS THE SOIL WILL ALLOW TO MINIMIZE OVERALL DISTURBANCE FOOTPRINT.

COMPLETED TRENCH



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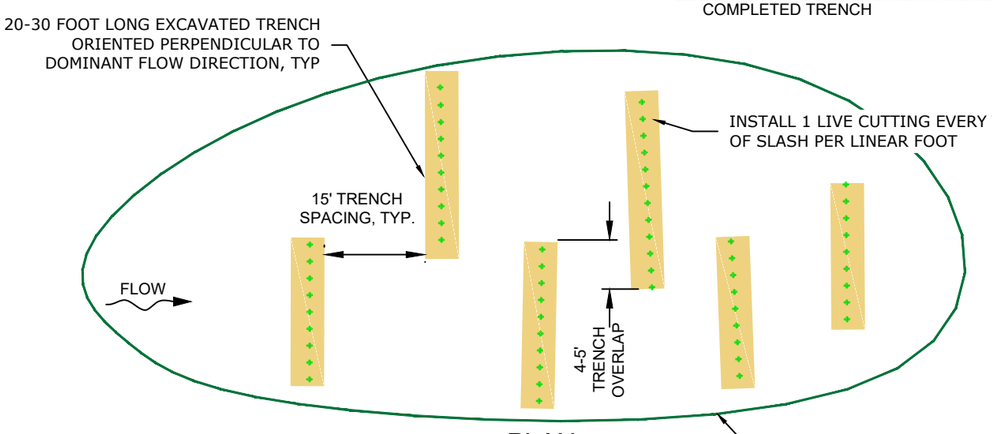

PLAN
NOT TO SCALE

1/24 WILLOW TRENCH TYPICAL DETAIL
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TYPICAL DETAILS- FLOODPLAIN ROUGHNESS (1 OF 2)

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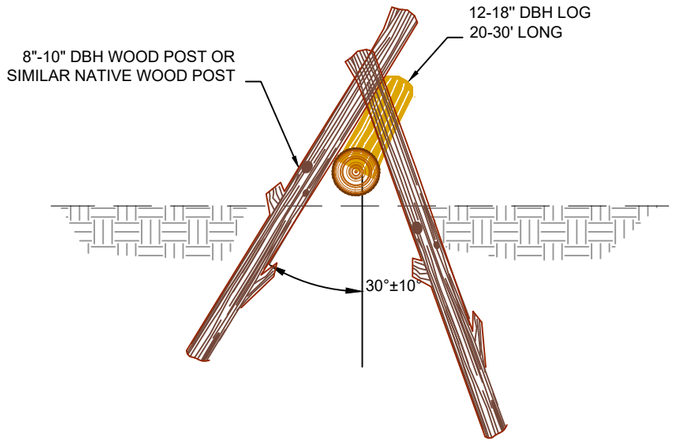

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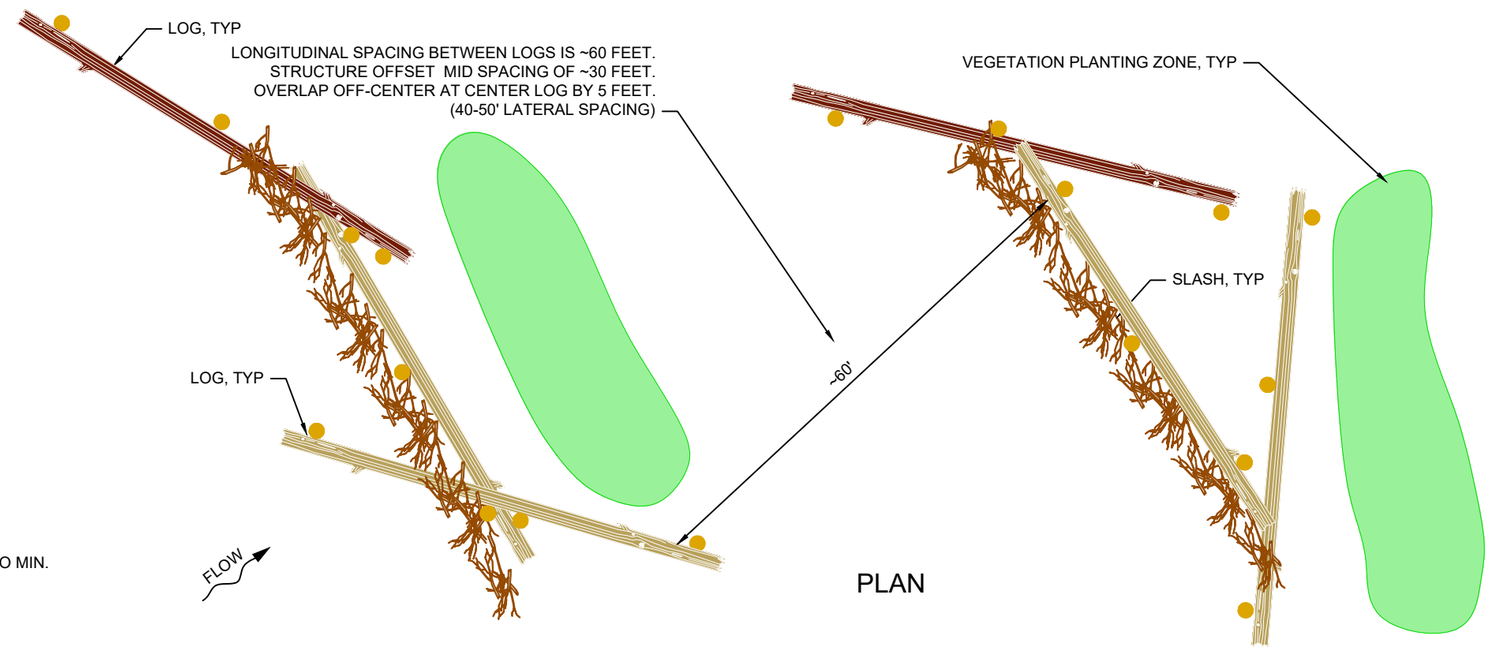
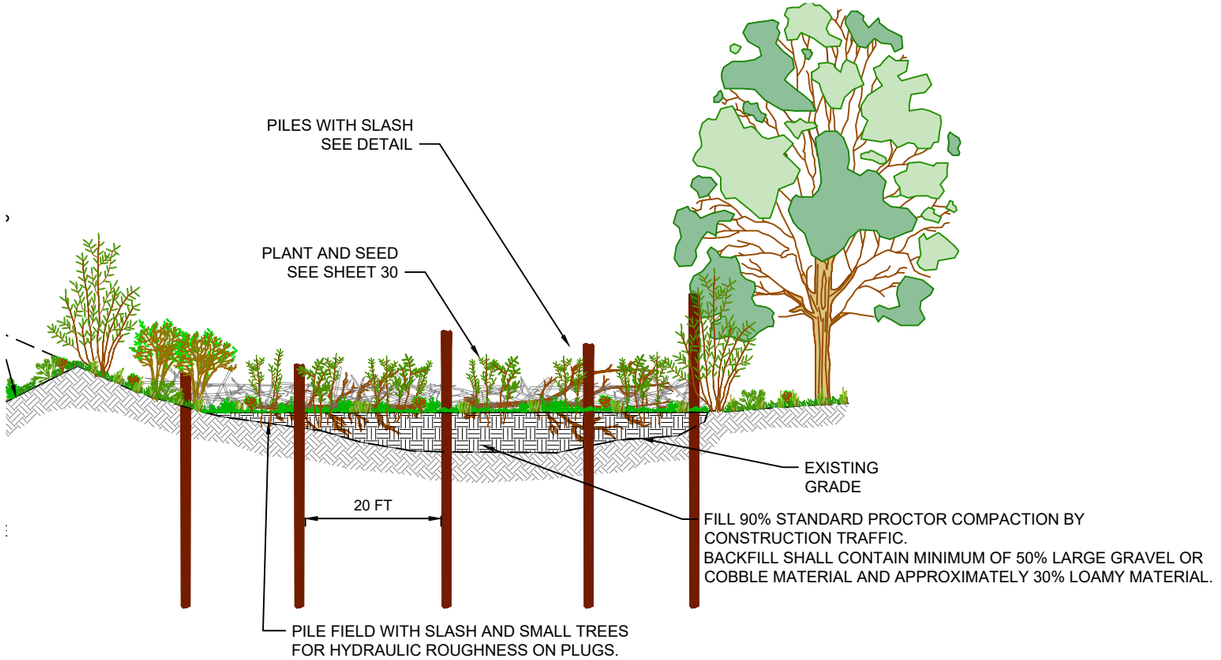


PLAN

MACHINE PLACED ANGLED PILE NOTES:

1. ANGLED PILES TO BE MECHANICALLY DRIVEN WITH VIBRATORY PILE DRIVER INTO UNDISTURBED EARTH TO MIN. 6' DEPTH OR UNTIL REFUSAL AS DIRECTED BY C.O. INSTALLATION BY EXCAVATION ONLY THROUGH PRIOR APPROVAL OF YRWP.
2. AFTER FINISH GRADE HAS BEEN ESTABLISHED, CUT ANGLED PILE SO THAT NO MORE THAN 3 FT. OF PILE EXTENDS ABOVE TOP OF LOG, PER YRWP MAR CUT ENDS OF ANGLED PILE FOR "NATURAL" APPEARANCE.
3. ANGLED PILES SHALL HAVE MINIMUM LENGTH OF 10'.
4. DRIVE PILES AT THE ANGLE SHOWN WHERE ACCESS BY EXCAVATOR AND/OR SUBSTRATE ALLOWS TO PREVENT LOGS FROM FLOATING.

1/25 HORIZONTAL LOG WITH ANGLED VERTICAL LOG BALLAST TYPICAL DETAIL
NOT TO SCALE



2/25 PILES WITH SLASH TYPICAL DETAIL
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TYPICAL DETAILS- FLOODPLAIN ROUGHNESS (2 OF 2)

SHEET
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LOG PILES

ALL LOG PILES SHALL BE INSTALLED USING VIBRATORY PILE DRIVING EQUIPMENT. INSTALLATION BY HAMMERING OR VIBRATORY PLATE COMPACTOR SHALL NOT BE ALLOWED.

IF SITE CONDITIONS DO NOT PERMIT VIBRATORY DRIVING AS DETERMINED BY YRWP, INSTALLATION BY EXCAVATION MAY BE PERMITTED WITH WRITTEN AUTHORIZATION BY YRWP

ACCEPTABLE MINIMUM VIBRATORY PILE DRIVING EQUIPMENT SHALL INCLUDE: HMC MOVAX SONIC SIDE GRIP VIBRATORY PILE DRIVER - MODEL SP80, GRIZZLY MG90, OR EQUIVALENT.

LOG PILES SHALL BE A MAXIMUM OF 16" DIAMETER AT BREAST HEIGHT, WITH NO BARK.

RIGGING

RIGGING FOR LOG PILE TESTING SHALL CONFORM TO THE TENSION SCALE MANUFACTURER'S RECOMMENDATIONS.

CHOKERS, CABLES AND AND SHACKLES SHALL HAVE MINIMUM WORKING LOAD RATING OF 12 TONS. FITTINGS SHALL BE SIZED ACCORDINGLY

TESTING

TESTING OF LOG PILES SHALL BE PERFORMED IN THE PRESENCE OF THE ENGINEER.

EACH LOG PILE TEST SHALL HAVE UPWARD LOAD GRADUALLY INCREASED AND AS CLOSELY ALIGNED TO AXIS OF LOG PILE AS POSSIBLE. RECORD THE LOG PILE DIAMETER, EMBEDMENT DEPTH AND MAXIMUM FORCE REQUIRED TO MOVE THE LOG PILE. UP TO A TOTAL OF THREE LOADINGS MAY BE REQUIRED AT EACH EMBEDMENT DEPTH.

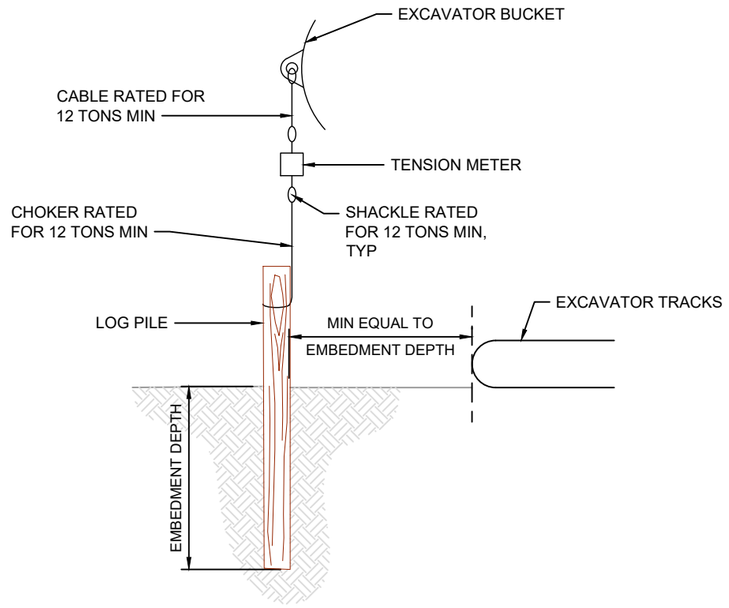
PROOF TESTS SHALL BE MADE AT UP TO FOUR EMBEDMENT DEPTHS TO BE DETERMINED IN THE FIELD. AS A GUIDELINE TEST EMBEDMENT DEPTHS MAY INCLUDE 6', 8', 10', AND 12'.

EXCAVATOR CONDUCTING PULL OUT LOADING SHALL BE POSITIONED NO CLOSER THAN EMBEDMENT DEPTH OF LOG PILE IF POSSIBLE. IF A CLOSER POSITIONING IS REQUIRED, EXCAVATOR SHALL BE NO CLOSER THAN THAT REQUIRED TO GENERATE DESIRED LOADING WITH DISTANCE FROM LOG PILE NOTED IN THE TEST RECORD.

PULL OUT RESISTANCE READING SHALL BE COMPARED AGAINST EXCAVATOR MAX LIFT OFFSET TABLE.

2 LOG PILES PER LOG JAM AND 5% OF LOG PILES IN PILE FIELDS SHALL BE PROOF TESTED. IF RESULTS VARY MORE THAN 50% THEN IT SHOULD BE ANTICIPATED THAT UP TO 25% OF THE PRODUCTION LOG PILES SHALL BE PROOF TESTED.

CONSTRUCTED DRIVEN LOG PILE EMBEDMENT DEPTH SPECIFIED IN THE PLANS MAY BE REDUCED OR INCREASED, PENDING PULL OUT TEST RESULTS, AT NO ADDITIONAL COST.



1/26 LOG PILE PULLOUT TESTING
NOT TO SCALE

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LOG PILE TEST

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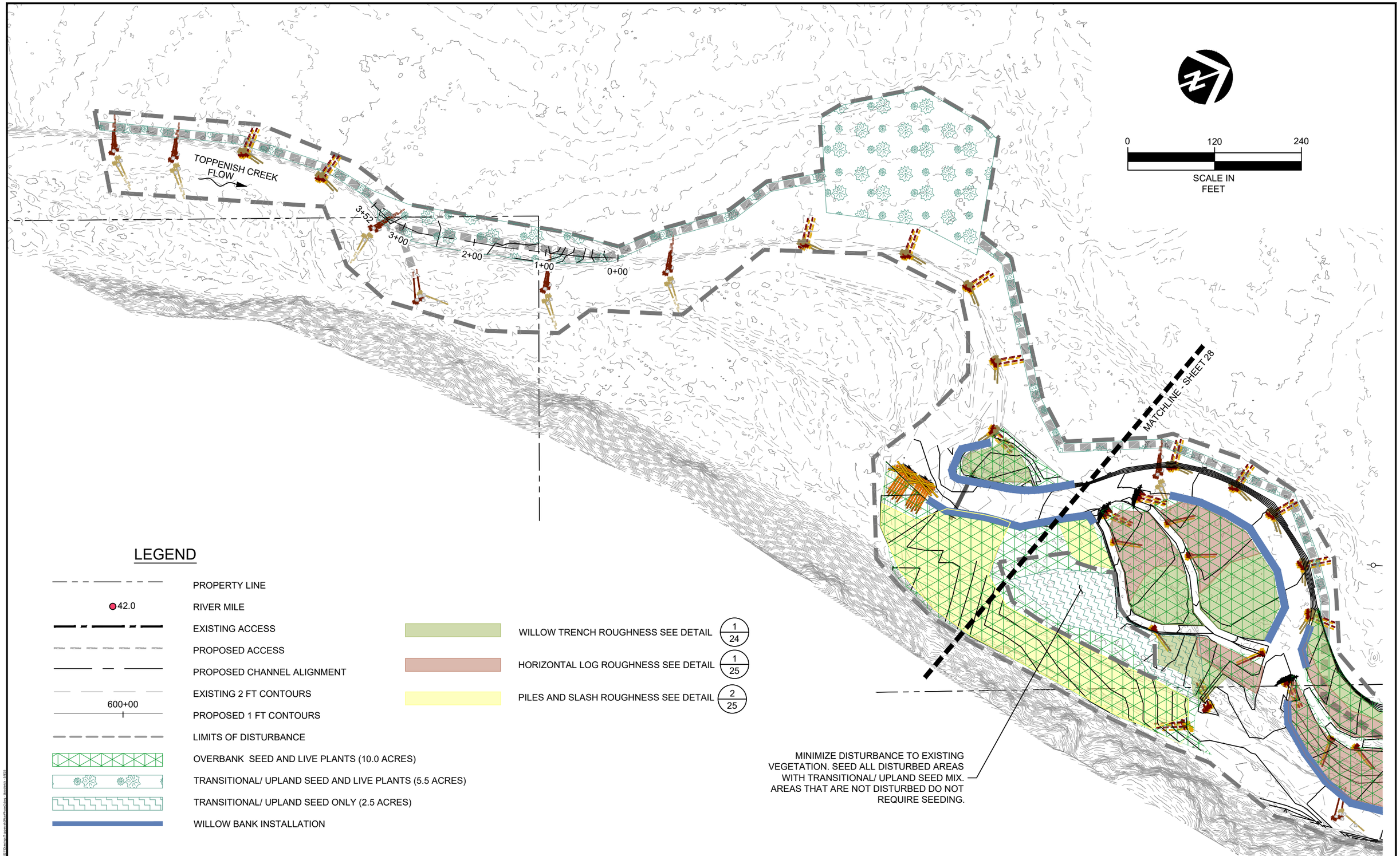

LEGEND

- PROPERTY LINE
- 42.0 — RIVER MILE
- EXISTING ACCESS
- PROPOSED ACCESS
- PROPOSED CHANNEL ALIGNMENT
- EXISTING 2 FT CONTOURS
- 600+00 — PROPOSED 1 FT CONTOURS
- LIMITS OF DISTURBANCE
- OVERBANK SEED AND LIVE PLANTS (10.0 ACRES)
- TRANSITIONAL/ UPLAND SEED AND LIVE PLANTS (5.5 ACRES)
- TRANSITIONAL/ UPLAND SEED ONLY (2.5 ACRES)
- WILLOW BANK INSTALLATION
- WILLOW TRENCH ROUGHNESS SEE DETAIL 1/24
- HORIZONTAL LOG ROUGHNESS SEE DETAIL 1/25
- PILES AND SLASH ROUGHNESS SEE DETAIL 2/25

MINIMIZE DISTURBANCE TO EXISTING VEGETATION. SEED ALL DISTURBED AREAS WITH TRANSITIONAL/ UPLAND SEED MIX. AREAS THAT ARE NOT DISTURBED DO NOT REQUIRE SEEDING.

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REVEGETATION PLAN (1 OF 3)

SHEET
27 OF 34

MATCHLINE - SHEET 27

MATCHLINE - SHEET 29

TOPPENISH CREEK FLOW

0 120 240

SCALE IN FEET

MINIMIZE DISTURBANCE TO EXISTING VEGETATION. SEED ALL DISTURBED AREAS WITH TRANSITIONAL/ UPLAND SEED MIX. AREAS THAT ARE NOT DISTURBED DO NOT REQUIRE SEEDING.

LEGEND

- PROPERTY LINE
- 42.0 — RIVER MILE
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REVEGETATION PLAN (2 OF 3)

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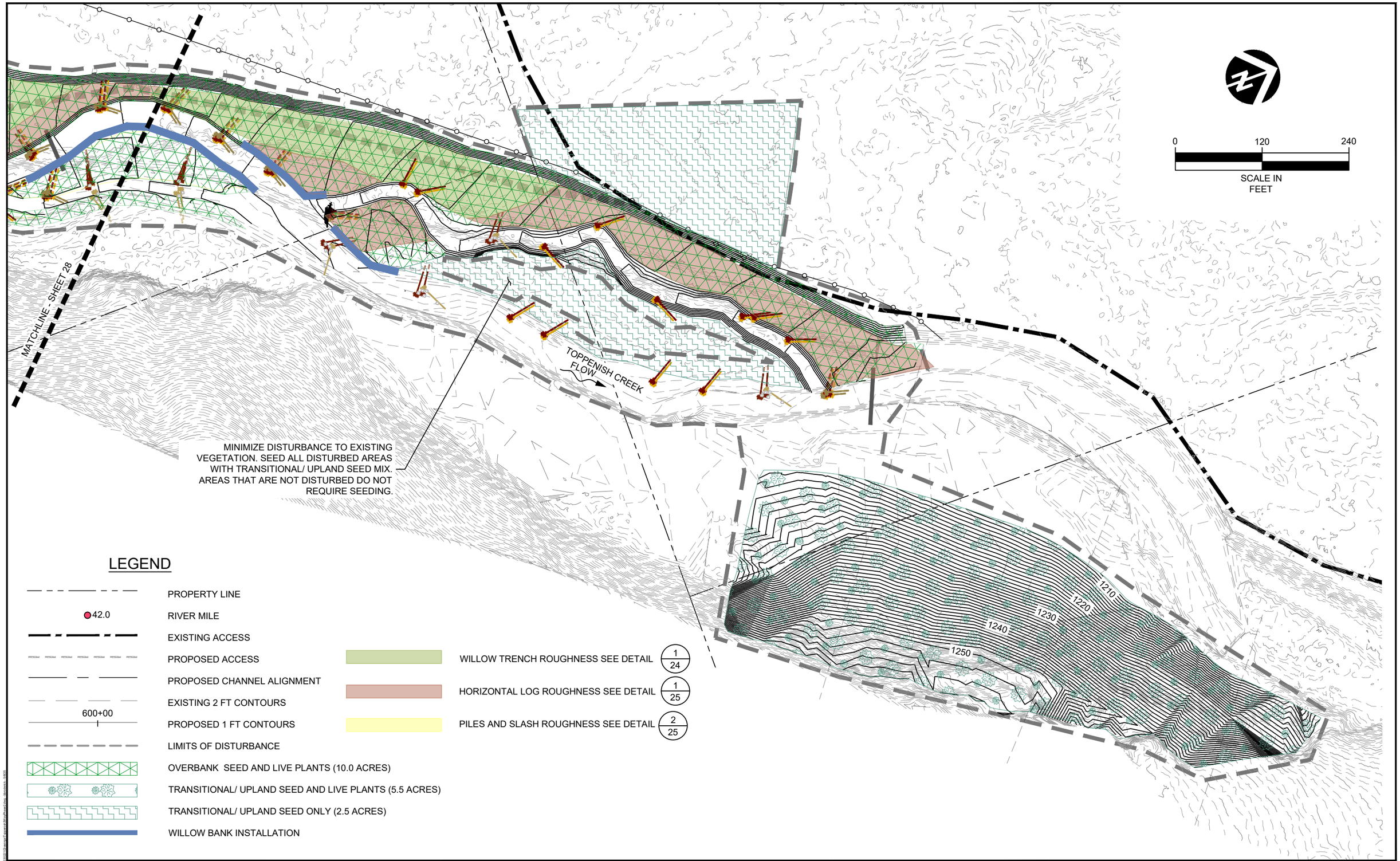

LEGEND

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REVEGETATION PLAN (3 OF 3)

SHEET
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SEED AND PLANT LISTS

Overbank Seeding		
Botanical Name	**Common Name**	**% Composition By Weight**
Hordeum brachyantherum	meadow barley	60%
Scirpus microcarpus	panicled bulrush	10%
Elymus glaucus	blue wildrye	10%
Leymus cinereus	basin wildrye	10%
Juncus balticus	baltic rush	5%
Eleocharis palustris	spike sedge	5%
Carex stipata	awl-fruited sedge	5%

NOTES:
1. ALL AREAS IMPACTED BY CONSTRUCTION SHALL BE SEEDED AND STRAWED WITHIN 3 DAYS OF WORK AREA COMPLETION. AREA OF THE OVERBANK REVEGETATION ZONE IS 10.0 ACRES.
2. BROADCAST SEED AT A RATE OF 30 LBS PER ACRE. A TOTAL OF 300 LBS OF SEED WILL BE REQUIRED.
3. SEED MIX TO BE APPLIED WITH 50:50 RICE HULLS (BY VOLUME) TO FACILITATE EVEN DISTRIBUTION.
4. STRAW MULCH ITO BE APPLIED AT A RATE OF 2 TONS/ ACRE. LEAVE APPROXIMATELY 25% OF THE GROUND SURFACE VISIBLE THROUGH THE MULCH OVER ALL DISTURBED AREAS.
5. STRAW MULCH IS CONSIDERED INCIDENTAL TO SEEDING.

Transitional/ Upland Seeding		
Botanical name	**Common Name**	**% Composition By Weight**
Hordeum brachyantherum	meadow barley	15%
Elymus glaucus	blue wildrye	15%
Leymus cinereus	basin wildrye	35%
Achillea millefolium	yarrow	1%
Lomatium papilioniferum	desert parsley	2%
Eriophyllum lanatum	woolly sunflower	2%
Lupinus rivularis	River lupine	5%
Pseudoroegneria spicata	bluebunch wheatgrass	25%

NOTES:
1. ALL AREAS IMPACTED BY CONSTRUCTION SHALL BE SEEDED AND STRAWED WITHIN 3 DAYS OF WORK AREA COMPLETION. AREA OF THE TRANSITIONAL/ UPLAND REVEGETATION ZONE IS 8.0 ACRES.
2. BROADCAST SEED AT A RATE OF 30 LBS PER ACRE. A TOTAL OF 240 LBS OF SEED WILL BE REQUIRED.
3. SEED MIX TO BE APPLIED WITH 50:50 RICE HULLS (BY VOLUME) TO FACILITATE EVEN DISTRIBUTION.
4. STRAW MULCH ITO BE APPLIED AT A RATE OF 2 TONS/ ACRE. LEAVE APPROXIMATELY 25% OF THE GROUND SURFACE VISIBLE THROUGH THE MULCH OVER ALL DISTURBED AREAS.
5. STRAW MULCH IS CONSIDERED INCIDENTAL TO SEEDING.

Live Staking (roughness treatments, large wood structures, willow banks)					
Botanical name	**Common name**	**Type**	**Size**	**Spacing**	**Quantity**
Salix exigua	Coyote willow	Live stake	3/4" - 1-1/2" dia, 5-8 ft long	See treatment detail	1850
Salix geyeriana	Geyer's willow	Live stake	3/4" - 1-1/2" dia, 5-8 ft long	See treatment detail	1850
Salix lasiandra	Pacific willow	Live stake	3/4" - 1-1/2" dia, 5-8 ft long	See treatment detail	1850

NOTES:
1. A TOTAL QUANTITY OF 5,500 LIVE WILLOW STAKES WILL BE REQUIRED. THE FRACTION OF THIS TOTAL OF EACH SPECIES MAY VARY, +/- 15%.
2. LIVE WILLOW STAKES OF EACH SPECIES MUST BE SOURCED FROM MULTIPLE LOCATIONS TO INCREASE GENETIC DIVERSITY OF INSTALLED MATERIAL.

Overbank Live Plants					
Botanical name	**Common Name**	**Type**	**Size**	**Spacing**	**Quantity**
Rosa woodsii	Woods' rose	Tubeling	10 in3	6 ft o.c.	3025
Ribes aureum	golden currant	Tubeling	10 in3	6 ft o.c.	3025
Alnus rhombifolia	white alder	Tubeling	10 in3	6 ft o.c.	3025
Philadelphus lewisii	Lewis' mock orange	Tubeling	10 in3	6 ft o.c.	3025

NOTES:
1. PLANTING AREAS OVERLAP WITH ROUGHNESS TREATMENTS. LOCALIZED ADJUSTMENTS TO THE NEAREST APPROPRIATE LOCATION MAY BE MADE TO OPTIMIZE PLANTING CONDITIONS SUCH AS AVOIDING PLANTING ON LOGS, OTHER PLANTS, COMPACTED SLASH OR ROCK OUTCROPS.

Transitional/ Upland Live Plants					
Botanical name	**Common Name**	**Type**	**Size**	**Spacing**	**Quantity**
Artemesia tridentata	big sagebrush	Tubeling	10 in3	10 ft o.c.	1200
Chrysothamnus viscidiflorus	green rabbit-brush	Tubeling	10 in3	10 ft o.c.	1200

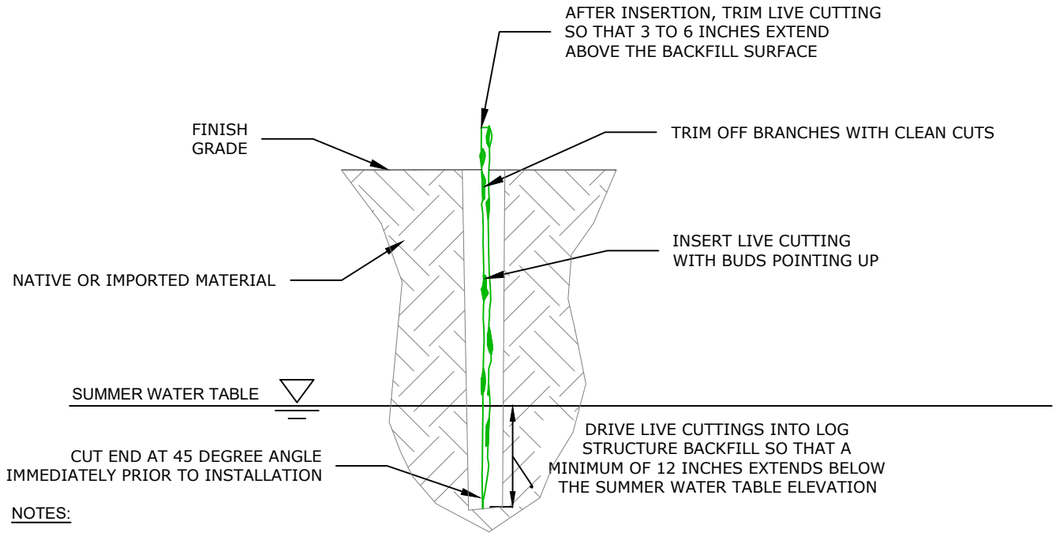
NO.	BY	DATE	REVISION DESCRIPTION

BB	PL, DM, JB, JB, NS	PL, JB, MB
DRAWN	DESIGNED	CHECKED
PL, DM, EA	05/09/2025	23-02-21
APPROVED	DATE	PROJECT

CONFEDERATED TRIBES AND BANDS OF THE YAKAMA NATION
TOPPENISH THREE WAY LEVEE REMOVAL PHASE 2
WHITE SWAN, WA

inter·fluve
501 Portway Avenue, Suite 101
Hood River, OR 97031
541.386.9003
www.interfluve.com

SEED AND PLANT LISTS



NOTES:

1. CONFIRM SUBSTRATE CONTAINS MIN. 20% FINES, IF NOT SELECTIVE SORT EXCAVATED MATERIAL SO THAT 20% FINES IS MIXED INTO HOLE.
2. DEVELOP PILOT HOLE TO 1 FT BELOW WATER TABLE DEPTH. LIVE CUTTINGS SHALL NOT BE USED TO DEVELOP PILOT HOLE. PUMP WATER INTO HOLE. INSTALL LIVE CUTTINGS WITH CUT ENDS DOWN. INSERTION SHALL NOT SPLIT THE STAKE, BURISE OR STRIP BARK, OR OTHERWISE DAMAGE THE LIVE CUTTING.
3. CONTINUE TO PUMP WATER INTO HOLE AND COMPACT SOIL BACKFILL IN LIFTS TO IMPROVE STEM TO SOIL CONTACT.
4. WATER IN FINISHED CUTTING UNTIL WATER VISIBLY "BUBBLES" ON SURFACE.
5. TAMP IN MATERIALAT GROUND SURFACE AROUND LIVE STAKE.

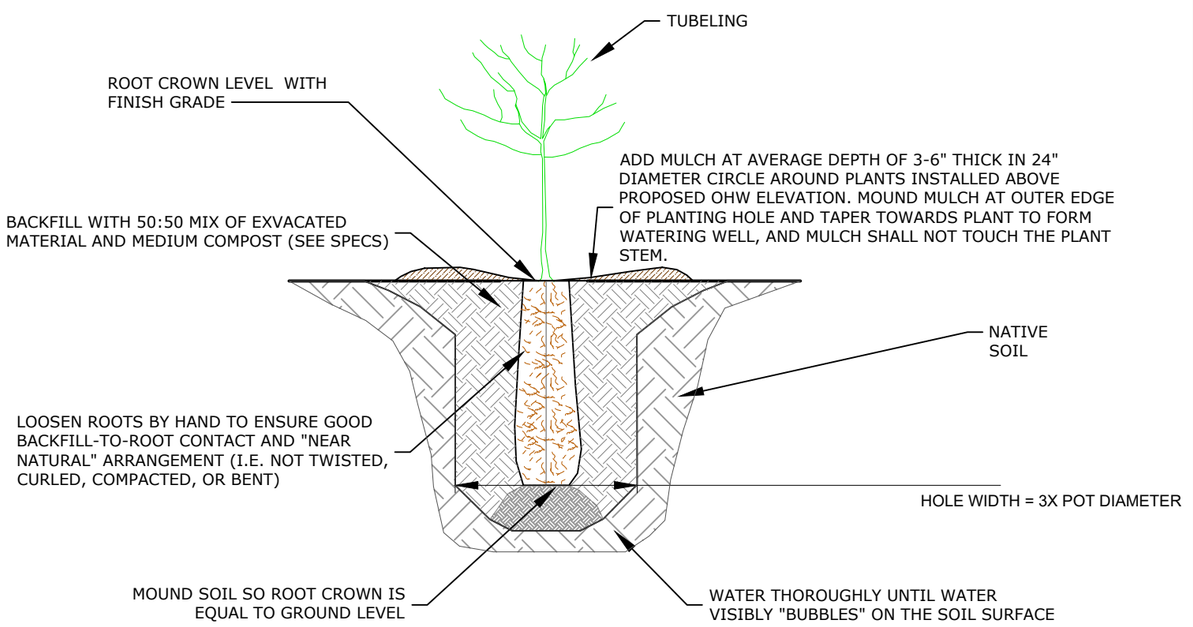
1/31 TYPICAL DETAIL- LIVE STAKE
NOT TO SCALE

PHOTO 1: WILLOW BANK INSTALLATION

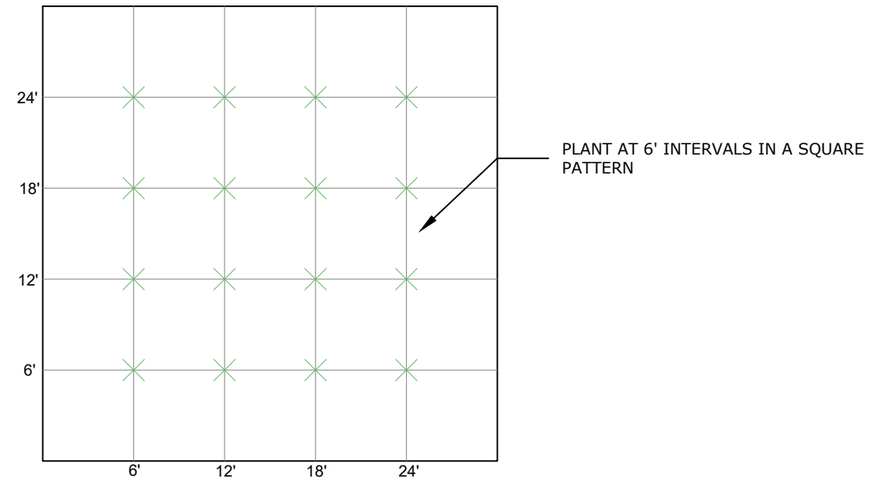
PHOTO 2: COMPLETED WILLOW BANK

NOTES. 1: EVERY 12 FEET PLANT 10 WILLOWS IN 3 FEET WIDE CLUMPS (WITH 9 FEET OF SPACING BETWEEN THE 3 FEET CLUMPS). SEE SHEET 30 FOR SPECIES INFORMATION.
2: EXCAVATE PLANTING TROUGH AT APPROXIMATE OHW BANK ELEVATION WITH EXCAVATOR OR EQUIVALENT TO A DEPTH THAT GROUNDWATER IS VISIBLE (AT LEAST 6" DEPTH OF GROUNDWATER).
3. PLACE WILLOWS SUCH THAT THE BOTTOM OF THE STAKE IS IN THE WATER AND THE TOP IS AT THE ESTIMATED OHW.
4. TRIM STAKES ACCORDING TO THE LIVE STAKE TYPICAL DETAIL 1/31

3/31 WILLOW BANK INSTALLATION



2/31 TYPICAL DETAIL- TUBELING
NOT TO SCALE



4/31 TYPICAL DETAIL- PLANTING GRID
NOT TO SCALE

NO.	BY	DATE	REVISION DESCRIPTION

BB	PL, DM, JB, JB, NS	PL, JB. MB
DRAWN	DESIGNED	CHECKED
PL, DM, EA	05/09/2025	23-02-21
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TYPICAL DETAILS- REVEGETATION

SHEET
31 OF 34

INTRODUCTION

THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION'S STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION 2024 (WSDOT STANDARD SPECIFICATIONS) SHALL APPLY UNLESS OTHERWISE NOTED IN THE FOLLOWING PROVISIONS. IN CASE OF A CONFLICT BETWEEN THE REGULATORY STANDARDS OR SPECIFICATIONS, THE MORE STRINGENT WILL GOVERN. THE "CONTRACTING AGENCY" OR "OWNER" SHALL BE THE CONFEDERATED TRIBES AND BANDS OF THE YAKAMA NATION. ADDITIONAL SPECIFICATIONS IN THE FOLLOWING CONTRACT SECTIONS ARE INCLUDED FOR ITEMS NOT COVERED BY THE WSDOT STANDARD SPECIFICATIONS.

SECTIONS 1-02, 1-03, AND 1-08 (EXCEPT 1-08.6, 1-08.7, 1-08.8) OF THE STANDARD SPECIFICATIONS DO NOT APPLY.

THE IN-WATER WORK WINDOW FOR THIS PROJECT IS JULY 1 - OCTOBER 31. WORK MAY OCCUR OUTSIDE OF WATER BEFORE OR AFTER THE IN-WATER WORK WINDOW.

USGS RECORDS FLOWS ALONG TOPPENISH CREEK NEAR FORT SIMCOE, WA- GAGE NUMBER: 12506000.

THIS PROJECT WAS DESIGNED IN ACCORDANCE WITH THE BPA HABITAT IMPROVEMENT PROGRAM (HIP). HIP GENERAL CONSERVATION MEASURES (CMS) ARE INCLUDED ON SHEETS 2-4 OF THE PLANS. SITE SPECIFIC DIRECTION IS ADDED TO THE FOLLOWING PROVISIONS. ANY VARIANCES FROM HIP CMS WILL BE REQUESTED BY OWNER. IN A CASE OF A CONFLICT BETWEEN THE REGULATORY STANDARDS OR SPECIFICATIONS, LOCAL REGULATIONS, OR OTHER CONTRACT DOCUMENTATION, THE MORE STRINGENT WILL GOVERN, UNLESS SPECIFIED IN WRITING BY THE OWNER.

IF WORK ENCOUNTERS ANY OF THE FOLLOWING CULTURAL RESOURCES:

- NATIVE AMERICAN CULTURAL ARTIFACTS (EXAMPLE: FLAKES, ARROWHEADS, STONE TOOLS, BONE TOOLS, POTTERY, ETC.)
- HISTORIC ERA ARTIFACTS (EXAMPLE: BUILDING FOUNDATIONS, HOMESTEADS, SHIPWRECKS, MINING CAMPS, ETC.)
- HUMAN SKELETAL REMAINS OR BONE FRAGMENTS

IMMEDIATELY DISCONTINUE ALL GROUND-DISTURBING ACTIVITY. DO NOT TOUCH OR MOVE THE OBJECTS AND MAINTAIN THE CONFIDENTIALITY OF THE SITE. FOLLOW THE PROCEDURES LISTED IN THE BPA INADVERTENT DISCOVERY PROCEDURE AND AWAIT FURTHER DIRECTION FROM BPA'S CULTURAL RESOURCES STAFF.

ITEM 001 - MOBILIZATION

THIS ITEM SHALL CONSIST OF PREPARATION WORK AND OPERATIONS PERFORMED BY THE CONTRACTOR IN ACCORDANCE WITH YAKIMA COUNTY AND YAKAMA RESERVATION ROAD REQUIREMENTS, THE PROVISIONS OF SECTION 1-09.7 OF THE WSDOT STANDARD SPECIFICATIONS, AND AS AMENDED BY THESE SPECIAL PROVISIONS.

CONSTRUCTION REQUIREMENTS

1. PRIOR TO ENTERING THE SITE, ALL EQUIPMENT SHALL BE POWER WASHED, BECOME FULLY DRY, AND INSPECTED TO MAKE SURE NO PLANTS, SOIL, OR OTHER ORGANIC MATERIAL ADHERES TO THE SURFACE. IF EQUIPMENT LEAVES THE SITE AND RETURNS, IT SHALL BE REWASHED AND INSPECTED PRIOR TO ACCESSING THE SITE.
2. TEMPORARY SITE ACCESS SHALL BE ALONG ACCESS ROUTES AND STAGING AREAS SHOWN IN THE PLANS. THESE ARE APPROXIMATE. ACTUAL DISTURBANCE LIMITS WILL BE STAKED AND FLAGGED IN THE FIELD BY THE OWNER. DESIGNATED DISTURBANCE LIMITS SHALL BE STRICTLY ADHERED TO AND NO LARGE TREES WILL BE IMPACTED WITHOUT PERMISSION FROM THE OWNER.
3. DESIGNATED RIVER CROSSINGS ARE SHOWN IN THE PLANS. A TEMPORARY BRIDGE AS SPECIFIED IN ITEM 007 TEMPORARY ACCESS BRIDGE SHALL BE USED TO CROSS FLOWING CHANNELS. A TEMPORARY RIVER WET CROSSINGS IS SHOWN ON THE PLANS. NO RIVER CROSSING SHALL BE MADE PRIOR TO APPROVAL BY OWNER.
4. PRIOR TO DEMOBILIZATION, RUTTING AND DISTURBED GROUND SHALL BE RIPPED TO 18INCHES DEEP TO DECOMPACT SOILS IF DIRECTED BY OWNER, AND GRADED SMOOTH TO BLEND WITH EXISTING TOPOGRAPHY. ACCESS ROUTES, AND STOCKPILE AND STAGING AREAS SHALL BE RETURNED TO ORIGINAL OR BETTER CONDITION. ANY REMOVED OR DAMAGED FENCES SHALL BE REPAIRED OR REPLACED TO PRE-PROJECT CONDITION OR BETTER.
5. EXISTING ROADS SHALL BE RESTORED TO PRE-PROJECT OR BETTER CONDITION AS DIRECTED BY OWNER.
6. BEFORE THE RELEASE OF FINAL RETAINAGE TO THE CONTRACTOR, THE CONTRACTOR WILL PARTICIPATE IN A WALK-THROUGH WITH THE OWNER AND USFS STAFF TO EVALUATE THE RESTORED AREAS.
7. ALL HEAVY EQUIPMENT OPERATING ON PAVEMENT SHALL USE RUBBER MATS OR SIMILAR TO AVOID IMPACTS TO PAVED SURFACE.
8. ROAD ASPHALT REPAIR/REPLACEMENT WORK SHALL CONFORM TO COUNTY OR STATE SPECIFICATIONS BASED ON JURISDICTION OF ROAD IF MORE STRINGENT THAN SPECIFICATIONS HEREIN.
9. MATERIALS EXCAVATED FOR DISPOSAL SHALL BE HAULED AND PLACED OUTSIDE OF THE FEMA DELINEATED FLOODPLAIN IN A LEGAL DISPOSAL AREA AND IN COMPLIANCE WITH ANY APPLICABLE REGULATIONS WITH ANY NECESSARY PERMITS OBTAINED BY THE CONTRACTOR.
10. CONTRACTOR SHALL REPAIR/REPLACE CRUSHED GRAVEL ROAD BASE PER WSDOT STANDARD SPECIFICATION 9-03.9(3) CRUSHED SURFACING BASE COURSE. FINISHED GRADE SHALL BE SLOPED PER COUNTY CRITERIA TO PROVIDE POSITIVE DRAINAGE OFF ROAD SURFACE.

MEASUREMENT AND PAYMENT

MOBILIZATION SHALL BE MEASURED AND PAID FOR BY LUMP SUM. PARTIAL PAYMENTS WILL BE MADE IN ACCORDANCE WITH SECTION 1-09.9 OF THE STANDARD SPECIFICATIONS. WITHHOLDING OF PARTIAL PAYMENT WILL OCCUR IF LIMITS OF DISTURBANCE ARE NOT ADHERED TO. PAYMENT SHALL BE CONSIDERED FULL COMPENSATION FOR ALL EQUIPMENT, LABOR, TOOLS, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK AS SPECIFIED.

ITEM 002- TRAFFIC CONTROL

TEMPORARY TRAFFIC CONTROL REQUIREMENTS SHALL INCLUDE BARRICADES AND CONSTRUCTION SIGNAGE AT THE ENTRANCE TO THE PROJECT SITE AND ANY OTHER MEASURES PER STANDARD SPECIFICATIONS SECTION 1-10 AND LOCAL REGULATIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN APPLICABLE COUNTY PERMITS.

MEASUREMENT AND PAYMENT

TRAFFIC CONTROL SHALL BE MEASURED AND PAID FOR BY LUMP SUM. PARTIAL PAYMENTS WILL BE MADE IN ACCORDANCE WITH SECTION 1-09.9 OF THE STANDARD SPECIFICATIONS. PAYMENT SHALL BE CONSIDERED FULL COMPENSATION ACQUIRING RIGHT-OF-WAY PERMIT, AS WELL AS ALL EQUIPMENT, LABOR, TOOLS, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK AS SPECIFIED.

DANIEL S. MILLER
STATE OF WASHINGTON
34208
REGISTERED
PROFESSIONAL ENGINEER

EXPIRES: 11/23/2025

ITEM 003- TESC, SPCC PLAN AND IMPLEMENTATION

THIS WORK SHALL PROVIDE FOR PREPARATION, IMPLEMENTATION, AND REMOVAL OF A TEMPORARY EROSION SEDIMENT CONTROL (TESC) PLAN AND FOR THE PREPARATION AND IMPLEMENTATION OF A SPILL PREVENTION CONTROL AND COUNTERMEASURE (SPCC) PLAN IN ACCORDANCE WITH SECTION 1-07.15 OF THE STANDARD SPECIFICATIONS, AND AS AMENDED BY THESE SPECIAL PROVISIONS.

1. THE CONTRACTOR SHALL SUBMIT A TESC FOR THE PROJECT TO THE OWNER FOR APPROVAL. THE TESC MUST SATISFY THE REQUIREMENTS OF THE WASHINGTON DEPARTMENT OF ECOLOGY NPDES STORMWATER GENERAL PERMIT FOR CONSTRUCTION ACTIVITY AND ALL OTHER APPLICABLE PERMITS. THE CONTRACTOR SHALL USE MEASURES OF THEIR OWN DESIGN TO ENSURE SATISFACTORY PERFORMANCE AND THAT THE EROSION CONTROL REQUIREMENTS OF ALL APPLICABLE PERMITS ARE MET. THE CONTRACTOR SHALL BE NAMED AS THE PERMIT HOLDER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING, INSPECTING AND FILING REPORTS, MAINTAINING, REPLACING, AND REMOVING TESC AND SPCC MEASURES. THE PLAN SHALL INCLUDE THE NAME, ADDRESS AND 24-HOUR CONTACT NUMBER OF THE PERSON RESPONSIBLE FOR EROSION PREVENTION AND SEDIMENT CONTROL MEASURES.
2. A SPILL CONTAINMENT KIT SHALL BE ON SITE AND CREWS SHALL BE TRAINED IN ITS USE.
3. BIODEGRADABLE HYDRAULIC FLUID SHALL BE INSTALLED INTO EACH PIECE OF HEAVY MACHINERY WORKING WITHIN 50 FEET OF THE RIVER AND SIDE CHANNELS.
4. CONTRACTOR WILL BE REQUIRED TO APPLY FOR AN INDUSTRIAL FIRE PROTECTION LEVEL (IFPL) 3 WAIVER IN THE EVENT THAT DEPARTMENT OF NATURAL RESOURCES DECLARES THE IFPL LEVEL HAS BEEN INCREASED TO LEVEL 3. REGARDLESS OF IFPL LEVELS, A FIRE CONTAINMENT KIT INCLUDING SHOVELS AND FIRE EXTINGUISHERS WILL BE KEPT WHERE ANY CONSTRUCTION ACTIVITIES ARE TAKING PLACE AND AT THE REFUELING LOCATION.

INSPECTION AND MAINTENANCE

THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE AT OWN EXPENSE FOR PROVIDING AND MAINTAINING ALL NECESSARY EROSION CONTROL FACILITIES TO COMPLY WITH APPLICABLE EROSION CONTROL REGULATIONS AND TO MAINTAIN CLEAN ACCESS ROUTES.

ALL TESC FACILITIES SHALL BE INSPECTED, MAINTAINED, AND REPAIRED AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. ALL TESC FACILITIES SHALL BE INSPECTED DAILY AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN 0.5 INCHES OF RAIN PER 24 HOUR PERIOD AND AFTER EVENTS EXCEEDING 2 HOURS DURATION.

CONTRACTOR'S MEETINGS AND TESC RECORDS

THE CONTRACTOR SHALL MEET WITH THE OWNER AND OWNER'S REPRESENTATIVE AT THE BEGINNING OF EACH WORK WEEK TO DISCUSS: WORK COMPLETED DURING THE PRIOR WEEK, WORK ANTICIPATED IN THE NEXT WEEK, CONSTRUCTION SCHEDULE, WORK SITE ORGANIZATION, ACCESS ROUTES, CONSTRUCTION TECHNIQUES, LANDOWNER CONSIDERATIONS, BIOLOGICAL OBJECTIVES, LOGISTICS AND OTHER TOPICS PERTINENT TO IMPLEMENTATION OF THE PROJECT.

THE CONTRACTOR SHALL SUBMIT WEEKLY REPORTS TO THE OWNER. REPORTS SHALL INCLUDE: SCOPE OF INSPECTIONS, THE PERSONNEL CONDUCTING THE INSPECTION, THE DATE(S) OF THE INSPECTION, MAJOR OBSERVATIONS RELATING TO THE IMPLEMENTATION OF THE CONTRACTOR'S EROSION AND SEDIMENT CONTROL PLAN, AND ACTIONS TAKEN AS A RESULT OF THE INSPECTIONS SHALL BE PREPARED AND RETAINED ON SITE BY THE CONTRACTOR. IN ADDITION, A RECORD OF THE FOLLOWING EVENTS SHALL BE INCLUDED IN THE REPORTS:

1. WHEN MAJOR GRADING ACTIVITIES OCCUR,
2. DATES OF RAINFALL EVENTS EITHER EXCEEDING 2 HOURS DURATION OR MORE THAN 0.5 INCHES/24 HOURS,
3. WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON SITE, OR ON A PORTION OF THE SITE,
4. WHEN STABILIZATION MEASURES ARE INITIATED FOR PORTIONS OF THE SITE.

TESC RECORDS SHALL BE MADE AVAILABLE TO THE OWNER AND THE OWNER'S REPRESENTATIVE ON THE REQUEST AND SHALL BE PROVIDED FOR REVIEW AND APPROVAL PRIOR TO APPLICATION FOR PAYMENT.

MEASUREMENT AND PAYMENT

"TESC, SPCC PLAN AND IMPLEMENTATION," INCLUDING THE ABOVE AMENDMENTS TO THE ITEM WILL BE MEASURED AND PAID FOR BY LUMP SUM. PAYMENT SHALL BE CONSIDERED FULL COMPENSATION FOR ALL EQUIPMENT, LABOR, TOOLS, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK AS SPECIFIED.

ITEM 004 - CLEARING AND GRUBBING

THIS ITEM CONSISTS OF CLEARING AND GRUBBING FOR CONSTRUCTION AS SHOWN IN THE PLANS INCLUDING THOSE AREAS REQUIRED FOR TEMPORARY ACCESS ROUTES AND IN ACCORDANCE WITH SECTION 2-01 OF THE STANDARD SPECIFICATIONS, AND AS AMENDED BY THESE SPECIAL PROVISIONS.

1. CLEARING AND GRUBBING SHALL BE LIMITED TO APPROVED ACCESS ROUTES, ALCOVE EXCAVATION AND LWM STRUCTURE AREAS AS SHOWN IN THE PLANS. LIMITS OF DISTURBANCE EXTENTS MAY BE ADJUSTED BY THE OWNER TO REDUCE DAMAGE TO THE ENVIRONMENT. THE FINAL AREAS WILL BE FLAGGED IN THE FIELD BY THE OWNER PRIOR TO CLEARING AND GRUBBING WORK. CLEARING AND GRUBBING SHALL NOT OCCUR OUTSIDE OF THE DESIGNATED LIMITS.
2. BRUSH, SHRUBS AND TREES SHALL BE CLEARED BY CUTTING AT GROUND LEVEL. GRUBBING SHALL ONLY OCCUR TO VEGETATION SPECIFIED BY OWNER.
3. INCLUDED IN THIS ITEM ARE TREES VARYING IN SIZE IDENTIFIED BY THE OWNER FOR REMOVAL AND SALVAGE. TREE SPECIES INCLUDE CONIFEROUS AND DECIDUOUS. REMOVED TREES SHALL BE SALVAGED FOR INSTALLATION AS LARGE WOODY MATERIAL DURING CONSTRUCTION OF THE SIDE CHANNEL AND LOG STRUCTURES. FOR CONIFEROUS TREES, THE CONTRACTOR SHALL EXCAVATE TO LOOSEN SOIL AROUND EACH ROOTWAD AND THEN PUSH OVER TREES IN ORDER TO SALVAGE LOGS WITH INTACT ATTACHED ROOTS. DECIDUOUS TREES MAY BE CUT AT THE STUMP WITH ROOTS LEFT UNGRUBBED. SALVAGED TREES SHALL BE TEMPORARILY STOCKPILED WITHIN PROJECT LIMITS OF DISTURBANCE.
4. TREES AND SHRUBS SMALLER THAN 12" DBH THAT ARE REMOVED DURING CLEARING AND GRUBBING SHALL BE SALVAGED AND USED AS SLASH DURING INSTALLATION OF LWM . UNUSED EXCESS SLASH MAY REMAIN ON SITE AND SHALL BE EVENLY DISTRIBUTED ON DISTURBED AREAS.
5. VEGETATION PROTECTION AND RESTORATION PER SECTION 1-07.16(2) SHALL BE INCIDENTAL TO CLEARING AND GRUBBING.

MEASUREMENT AND PAYMENT

REMOVAL AND SALVAGE OF TREES AND SHRUBS SHALL BE CONSIDERED INCIDENTAL TO CLEARING AND GRUBBING.

INSTALLATION OF THE SALVAGED TREES IS DESCRIBED UNDER LOG STRUCTURES AND ALCOVE CHANNEL EXCAVATION AND HAUL AND SHALL BE INCIDENTAL TO THOSE ITEMS. NO ADDITIONAL COMPENSATION WILL BE ALLOWED.

MEASUREMENT AND PAYMENT FOR CLEARING AND GRUBBING SHALL BE BY THE LUMP SUM CONTRACT PRICE FOR "CLEARING AND GRUBBING". PAYMENT SHALL BE CONSIDERED FULL COMPENSATION FOR ALL EQUIPMENT, LABOR, TOOLS, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK AS SPECIFIED.

NO.	BY	DATE	REVISION DESCRIPTION

BB DRAWN | PL, DM, JB, JB, NS DESIGNED | PL, JB. MB CHECKED
PL, DM, EA APPROVED | 05/09/2025 DATE | 23-02-21 PROJECT

CONFEDERATED TRIBES AND BANDS OF THE YAKAMA NATION
TOPPENISH THREE WAY LEVEE REMOVAL PHASE 2
WHITE SWAN, WA

inter·fluve
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SPECIFICATIONS (1 OF 3)

SHEET
32 OF 34

ITEM 005 - COFFERDAM AND DIVERSION

THIS ITEM CONSISTS OF PROVIDING AND INSTALLING, MAINTAINING, AND REMOVING MEASURES TO BYPASS THE SURFACE WATERS OF THE STREAM AROUND IN-CHANNEL WORK AREAS, AND TO PREVENT TURBIDITY FROM ENTERING THE RIVER. COFFERDAM LOCATIONS ARE SHOWN ON THE PLANS.

COFFERDAM CONSTRUCTED OF SHEET PILE SHOWN IN THE PLANS IS ONE ACCEPTABLE METHOD. THE CONTRACTOR MAY USE THIS METHOD OR PROPOSE A DIFFERENT METHOD THAT PROVIDES EQUAL OR BETTER ISOLATION OF THE WORK AREA FROM THE FLOW AND CONTAINMENT OF TURBIDITY. IF A DIFFERENT METHOD IS PROPOSED, CONTRACTOR SHALL SUBMIT DRAWINGS SHOWING DETAILS OF PROPOSED METHODS FOR PROVIDING TEMPORARY ISOLATION OF SURFACE WATER DURING CONSTRUCTION ACTIVITIES. REVIEW AND APPROVAL OF THE COFFERDAM PLAN SHALL NOT RELIEVE THE CONTRACTOR FROM FULL RESPONSIBILITY FOR THE ADEQUACY OF COFFERDAM WORK IF THE PROPOSED PLAN IS NOT SUCCESSFUL AT PROPERLY ISOLATING THE WORK AREA. SHEET PILE INSTALLED BY VIBRATORY DRIVER IS A PRE-APPROVED COFFERDAM METHOD. DRIVING SHEET PILE BY IMPACT HAMMER IS NOT ACCEPTABLE.

COFFERDAMS SHALL BE SUITABLY OFFSET FROM WORK AREA SO AS TO NOT INTERFERE WITH LOG PLACEMENT OR LIMIT POOL EXCAVATION.

THE WORK INCLUDES COORDINATING WITH THE OWNER FOR FISH SALVAGE AND RELOCATION ACTIVITIES. EXCAVATION FILL. OR LOG PLACEMENT SHALL NOT OCCUR UNTIL THE OWNER COMPLETES FISH SALVAGE. THE CONTRACTOR SHALL PROVIDE MINIMUM 2 DAYS ADVANCE NOTICE TO THE OWNER BEFORE EACH COFFERDAM INSTALLATION DATE. THE CONTRACTOR SHALL PROVIDE OWNER ACCESS TO COFFERDAMS AND SUPPORTING STAFF FOR OWNER'S DEFISHING. THE CONTRACTOR IS ADVISED THAT FISH RESCUE MAY TAKE APPROXIMATELY 4 HOURS PER COFFERDAM.

MATERIALS

THE CONTRACTOR SHALL PROVIDE ALL REQUIRED MATERIALS FOR THE PROJECT.

SANDBAGS SHALL BE FILLED WITH PEA GRAVEL OR STREAM GRAVEL. USING SAND WILL NOT BE ALLOWED.

CONSTRUCTION REQUIREMENTS

THE CONTRACTOR SHALL ISOLATE THE WORK AREA FROM THE RIVER BY INSTALLING COFFERDAM PER THE PLANS. NO TURBIDITY FROM CONSTRUCTION ACTIVITIES SHALL ENTER THE RIVER. COFFERDAMS SHOWN IN THE PLANS ARE A SUGGESTED METHOD. IF CONTRACTOR ELECTS TO USE ALTERNATE METHOD(S) FOR TEMPORARY COFFERDAMS, CONTRACTOR SHALL PROVIDE TO THE OWNER A COFFERDAM/DIVERSION PLAN FOR REVIEW PRIOR TO IMPLEMENTATION.

MEASUREMENT AND PAYMENT

"COFFERDAM AND DIVERSION," INCLUDING THE ABOVE AMENDMENTS TO THE ITEM, WILL BE MEASURED BY LUMP SUM. PAYMENT SHALL BE CONSIDERED FULL COMPENSATION FOR ALL EQUIPMENT, LABOR, TOOLS, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK AS SPECIFIED FOR THE ENTIRETY OF THE PROJECT. PAYMENT WILL BE MADE IN ACCORDANCE WITH SECTION 1-04.1 FOR THE FOLLOWING BID ITEMS: "COFFERDAM" PER LUMP SUM.

EXPIRES: 11/23/2025

ITEM 006 - PUMPING

THIS ITEM INCLUDES DEWATERING AND CONTROLLING TURBIDITY WITHIN CONSTRUCTION AREAS ISOLATED FROM THE RIVER BY COFFERDAMS. THE WORK CONSISTS OF FURNISHING, MONITORING, OPERATING, MAINTAINING, AND REMOVING PUMPS, COORDINATING WITH THE OWNER FOR FISH SALVAGE RELOCATION ACTIVITIES, AND INSTALLATION OF CONTROL OF WATER BMPS.

MATERIALS

CONTRACTOR SHALL PROVIDE SUFFICIENT SIZE AND NUMBERS OF PUMPS TO DEWATER COFFERDAMS AND CONTROL TURBIDITY FOR THE PROJECT AND ENCOUNTERED FLOWS AND GROUNDWATER CONDITIONS. CONTRACTOR SHALL PROVIDE A MINIMUM OF ONE 6" TRASH PUMP WITH PUMPING CAPACITY GREATER THAN 600 GPM, ASSUMING 12 FEET OF VERTICAL LIFT AND 300 FEET OF DISCHARGE HOSE. ADDITIONAL PUMPS SHALL BE PROVIDED BY CONTRACTOR AS NEEDED AT NO ADDITIONAL COST

1. EACH WATER INTAKE SHALL HAVE A FISH SCREEN INSTALLED, OPERATED AND MAINTAINED ACCORDING TO NMFS' FISH SCREEN CRITERIA (NMFS 1997; NMFS 2008). NO PUMPING CAN OCCUR UNTIL FISH SCREEN HAS BEEN APPROVED BY OWNER PRIOR TO INSTALLATION.
2. PUMPS SHALL BE PLACED WITHIN A CONTAINER TO CONTAIN FUEL OR OIL SPILLS. OIL ABSORBENT DIAPERS SHALL BE STORED AT EACH PUMP.
3. THE CONTRACTOR SHALL PROVIDE ENVIRONMENTAL PROTECTION MEASURES SUCH AS STRAW BALES, PERFORATED PIPE FOR DISCHARGE FLOW DISTRIBUTORS, GEOTEXTILES, FILTER BAGS, OR OTHER MEANS OF CONTROLLING DISCHARGE WATER AND TURBIDITY. NO TURBIDITY SHALL BE ALLOWED TO ENTER THE RIVER OR WETLANDS.
4. TO HELP PREVENT TURBIDITY FROM LEAKING THROUGH COFFERDAMS, THE CONTRACTOR SHALL OPERATE 6" TRASH PUMP TO LOWER THE WATER SURFACE WITHIN THE ISOLATED AREA AND DISCHARGE TO AN INFILTRATION AREA.

ENVIRONMENTAL PROTECTION MEASURES

a. IF OBSERVED OR MEASURED TURBIDITY DOWNSTREAM OF COFFERDAM OR PUMP DISCHARGE IS MORE THAN 10% ABOVE THE UPSTREAM BACKGROUND VISUAL OBSERVATION OR MEASUREMENT - OR EXCEEDS APPLICABLE PERMITS AND REGULATIONS - THE ACTIVITY MUST BE MODIFIED TO REDUCE TURBIDITY. CONTINUE TO MONITOR EVERY 2 HOURS AS LONG AS INSTREAM ACTIVITY CONTINUES.

b. IF EXCEEDANCES OCCUR FOR MORE THAN TWO CONSECUTIVE MONITORING INTERVALS (AFTER 4 HOURS), THE ACTIVITY MUST STOP UNTIL THE TURBIDITY LEVEL RETURNS TO BACKGROUND, AND THE EC LEAD MUST BE NOTIFIED WITHIN 48 HOURS.

c. IF AT ANY TIME, MONITORING, INSPECTIONS, OR OBSERVATIONS/SAMPLES SHOW THAT THE TURBIDITY CONTROLS ARE INEFFECTIVE, IMMEDIATELY STOP WORK AND MOBILIZE WORK CREWS TO REPAIR, REPLACE, OR REINFORCE CONTROLS AS NECESSARY. ADDITIONAL AND ALTERNATIVE METHODS, SUCH AS PUMPING INTO STILLING BASINS OR FILTRATION GEOTEXTILE FABRIC SHALL BE REQUIRED AT THE CONTRACTOR'S EXPENSE.

MEASUREMENT AND PAYMENT

"PUMPING," INCLUDING THE ABOVE AMENDMENTS TO THE ITEM WILL BE MEASURED BY LUMP SUM. PAYMENT SHALL BE CONSIDERED FULL COMPENSATION FOR ALL EQUIPMENT, LABOR, TOOLS, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK AS SPECIFIED FOR THE ENTIRETY OF THE PROJECT. PAYMENT WILL BE MADE IN

ACCORDANCE WITH SECTION 1-04.1 FOR THE FOLLOWING BID ITEMS: "PUMPING" PER LUMP SUM.

ITEM 007 - TEMPORARY ACCESS BRIDGE

TEMPORARY BRIDGES SHALL BE REQUIRED TO CROSS FLOW CHANNELS AT LOCATION SHOWN IN THE PLANS. CONTRACTOR SHALL SUBMIT AN ACCESS PLAN INCLUDING DRAWINGS SHOWING DETAILS OF PROPOSED METHODS FOR PROVIDING ACCESS FOR EQUIPMENT, INCLUDING LOADED HAUL TRUCKS, TO THE SITES. REVIEW AND APPROVAL OF THE PLAN SHALL NOT RELIEVE THE CONTRACTOR FROM FULL RESPONSIBILITY FOR THE ADEQUACY AND SAFETY OF THE CROSSING.

TEMPORARY BRIDGE SHALL SPAN FLOWING WATER WITHOUT CREATING A BACKWATER CONDITION AND PROVIDE A MINIMUM OF 1.0-FT OF FREEBOARD FROM LOW CHORD TO MAXIMUM WATER SURFACE ELEVATION FOR DURATION OF BRIDGE INSTALLATION. ABUTMENTS SHALL BE PROVIDED AS NECESSARY FOR THE BRIDGE SYSTEM AND SHALL NOT ENCROACH ON SIDE CHANNEL FLOW. APPROACH RAMPS TO THE BRIDGE SHALL BE CLEAN ALLUVIAL MATERIAL. COFFERDAM AND BRIDGE SHALL BE REMOVED AT PROJECT COMPLETION.

THE TEMPORARY BRIDGE SHALL BE REMOVED BEFORE THE END OF THE IN-WATER WORK WINDOW.

MEASUREMENT AND PAYMENT

"TEMPORARY ACCESS BRIDGE" WILL BE MEASURED AND PAID FOR BY ONE LUMP SUM FOR ALL TEMPORARY BRIDGE INSTALLATIONS. INSTALLATION OF THE TEMPORARY BRIDGE, REMOVAL, MAINTENANCE, AND ASSOCIATED ITEMS SUCH AS ABUTMENTS, FOOTINGS, RAMPS, AND SEDIMENT AND WATER CONTROLS SHALL BE INCLUDED IN THIS ITEM.

ITEMS 008 EARTHWORKS

EARTHWORKS SHALL CONSIST OF EXCAVATING, LOADING AND HAULING SPOILS TO SPECIFIED ON-SITE DISPOSAL AREA AND OFF-SITE DISPOSAL AREA AT POM POM ROAD AND GRADING TO BLEND TO EXISTING CONTOURS. SPECIFIC LOCATION AND GRADING SHALL BE AS INDICATED IN PLANS.

1. OWNER'S REPRESENTATIVE WILL FLAG IN THE FIELD THE ALIGNMENT OF SIDE CHANNELS FOR EXCAVATION. CONTRACTOR SHALL PROVIDE SURVEY EQUIPMENT AND CONDUCT STAKEOUT AND SURVEY TO DETERMINE ELEVATIONS. EXISTING ELEVATION CONTROL POINTS ARE LOCATED NEARBY.
2. PORTIONS OF WORK MAY BE IN WATER. THE CONTRACTOR IS ADVISED THAT GROUNDWATER MAY BE ENCOUNTERED THROUGHOUT EXCAVATION AREAS. PUMPING AND TESC SHALL BE IMPLEMENTED AS NECESSARY.
3. THIS ITEM INCLUDES HAULING OF MATERIAL EXCAVATED TO DESIGNATED DISPOSAL AREAS. EXCAVATED MATERIAL MAY BE REQUIRED AS SALVAGED BACKFILL IN STRUCTURES.
4. THIS ITEM INCLUDES DETAIL GRADING TO SHAPE THE CHANNEL AS SHOWN IN THE PLANS, SCOUR POOLS SHALL BE OVER-EXCAVATED INTO THE STREAM BED AS DESIGNATED IN THE PLANS AND DETAILS.
5. NO WORK SHALL OCCUR OUTSIDE OF THE LIMITS OF DISTURBANCE SHOWN IN THE PLANS UNLESS AUTHORIZED BY THE OWNER.

MEASUREMENT AND PAYMENT

EARTHWORKS WILL BE MEASURED BY CUBIC YARDS OF EXCAVATION AND PLACEMENT. MEASUREMENTS SHALL BE IN PLACE QUANTITY BY COMPARISON OF PRE-PROJECT (EXISTING) TOPOGRAPHY, SUBGRADE AND DESIGN (FINISHED GRADE) TOPOGRAPHY.

MEASUREMENT AND PAYMENT.

EXCAVATION, HAUL, DISPOSAL, GRADING OF DISPOSED SPOILS, FORMING OF CHANNEL FEATURES; PLACEMENT OF SALVAGED SLASH; AND EXCAVATION OF SCOUR POOLS FOR LARGE WOOD STRUCTURES SHALL BE INCIDENTAL TO THIS ITEM. NO ADDITIONAL COMPENSATION WILL BE MADE FOR EXCAVATED MATERIAL THAT IS OVER EXCAVATED OR STOCKPILED, RE-EXCAVATED, AND MOVED AGAIN.

PAYMENT SHALL BE CONSIDERED FULL COMPENSATION FOR ALL EQUIPMENT, LABOR, TOOLS, MATERIALS, AND INCIDENTALS NECESSARY TO COMPLETE THIS WORK AS SPECIFIED.

ITEMS 009-014 - LOG STRUCTURES

"LOG STRUCTURES" INCLUDES ALL WORK ASSOCIATED WITH HAULING, HANDLING AND INSTALLATION OF LWM, SALVAGED TREES AND SLASH. THIS ITEM INCLUDES EXCAVATION AND BACKFILL TO PARTIALLY BURY LWM, AND HAUL AND DISPOSAL OF SURPLUS EXCAVATED MATERIAL. COFFERDAM AND PUMPING ARE REQUIRED AT DESIGNATED "LOG STRUCTURES" SHOWN IN THE PLANS. "LOG STRUCTURES" INCLUDES:

- ITEM 009 - TYPE 1 CHANNEL SPANNING STRUCTURE
- ITEM 010 - TYPE 2 CHANNEL SPANNING STRUCTURE
- ITEM 011 - TYPE 1 BANK BURIED STRUCTURE
- ITEM 012 - TYPE 2 BANK BURIED STRUCTURE
- ITEM 013 - APEX/ CHANNEL PLUG STRUCTURE
- ITEM 014- SIDE CHANNEL INLET LW STRUCTURE

MATERIALS

LOG STRUCTURES SHALL BE CONSTRUCTED OF LARGE WOODY MATERIAL (LWM), EXCAVATION AND BACKFILL, SLASH, SALVAGED TREE TOPS AND - IF DIRECTED BY OWNER, OPTIONAL ADDITIVE ITEMS: ITEM 017 - JAM BALLAST BOULDERS AND/OR ITEM 018 - IMPORTED BOULDER BACKFILL.

LWM INCLUDES: LOGS WITH ROOTWADS, LOGS WITHOUT ROOTWADS, AND PILES.

LWM IS SUPPLIED BY THE OWNER AND IS DECKED ON SITE.

THE CONTRACTOR SHALL LOAD AND HAUL LWM FROM THE OWNER'S STOCKPILE. QUANTITIES TO BE MOVED TO EACH SITE ARE SHOWN IN THE PLANS.

OWNER SUPPLIED LWM WILL HAVE THE FOLLOWING CHARACTERISTICS:

1. LOGS WITHOUT ROOTWADS: 20-30' LONG AND 12"-18" DBH
2. LOGS WITH ROOTWADS: 30' LONG AND 15" DBH.
3. LOGS WITH ROOTWADS: 40' LONG AND 18" DBH.
4. LOGS WITHOUT ROOTWADS: 40' LONG AND 18" DBH.
5. PILES: 30' LONG AND 16" DIAMETER IN MIDDLE OF LOG
6. PILES: 10' LONG AND 8"-10" DIAMETER IN MIDDLE OF LOG

SLASH: INCLUDES SHRUBS, TREES <6" DBH AND TREE TOPS REMOVED FROM ACCESS ROUTES AND EXCAVATION AREAS.

CONSTRUCTION REQUIREMENTS

LOCATIONS FOR PLACEMENT AND DETAILS OF CONSTRUCTION FOR EACH STRUCTURE TYPE ARE SHOWN IN THE PLANS. FINAL LOCATION AND INSTALLATION WILL DEPEND UPON THE SIZE, SHAPE AND QUANTITY OF MATERIAL DELIVERED OR SALVAGED. INSTALLATION OF LWM SHALL BE UNDERSTOOD TO REQUIRE A "FIT IN THE FIELD" APPROACH AS DIRECTED BY THE OWNER. LWM SHALL BE STABILIZED BY BURIAL AS SHOWN IN THE PLANS.

NO.	BY	DATE	REVISION DESCRIPTION

BB DRAWN | PL, DM, JB, JB, NS DESIGNED | PL, JB. MB CHECKED
PL, DM, EA APPROVED | 05/09/2025 DATE | 23-02-21 PROJECT

CONFEDERATED TRIBES AND BANDS OF THE YAKAMA NATION
TOPPENISH THREE WAY LEVEE REMOVAL PHASE 2
WHITE SWAN, WA

inter·fluve
501 Portway Avenue, Suite 101
Hood River, OR 97031
541.386.9003
www.interfluve.com

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PILES: CONSTRUCTION OF PILES SHALL INCLUDE ON-SITE MOVEMENT AND INSTALLATION OF PILES TO DESIGNATED SITES SHOWN IN THE PLANS. PILES SHALL BE PER THE APPROXIMATE NUMBERS AND QUANTITIES INDICATED ON THE PLANS. SPECIFIC LOCATIONS SHALL BE DETERMINED IN THE FIELD AND DIRECTED BY THE OWNER. THE REQUIRED EMBEDMENT DEPTH IS INDICATED ON THE PLANS. EACH PILE SHALL HAVE A "BROKEN TOP" BY STUMP-GRINDING OR MAKING MULTIPLE PLUNGE CUTS WITH CHAIN SAW TO PROVIDE A ROUGHENED OR RAGGED END. PILES SHALL BE OF VARYING HEIGHTS EXTENDING FROM 2 TO 5 FEET ABOVE FINISHED GRADE. ONE BOLT SHALL BE INSTALLED IN EACH PILE CONNECTING TO TOP LOG AS DETAILED IN THE PLANS.

PILES SHALL BE INSTALLED BY VIBRATORY PILE DRIVER MEETING OR EXCEEDING THE FOLLOWING CHARACTERISTICS:

a. MINIMUM OF 800 KN (80 TONS) OF CENTRIFUGAL FORCE.

b. SIDE GRIP WITH MINIMUM 16" SPACE BETWEEN ENDS OF JAWS SO THAT 16" DIAMETER LOG WILL FIT INTO THE JAWS WITHOUT NEEDING TO SLIDE THE GRIP OVER THE END AND DOWN THE LOG.

c. PRE-APPROVED PILE DRIVERS INCLUDE: MOVAX SP-80, GRIZZLY MG90, OR EQUIVALENT.

TESTING: AT EACH LOG STRUCTURE SITE, A MINIMUM OF ONE PILE SHALL BE TESTED FOR PULLOUT RESISTANCE. EACH TEST WILL REQUIRE UP TO FOUR INDIVIDUAL PULLS, EACH AT A DEEPER DEPTH. SEE DETAILS IN PLANS. THE CONTRACTOR SHALL PROVIDE THE TENSION LINK, METER, AND ASSOCIATED HARDWARE (RATED 12 TON).

SLASH: SLASH SHALL BE INCORPORATED INTO LOG STRUCTURES AS SHOWN IN THE PLANS AND DIRECTED BY THE OWNER. INTERMINGLE, STACK, AND RACK SLASH MATERIAL TO THE INSTALLED LWM AND PILE TO EMULATE NATURAL ACCUMULATIONS OF WOOD MATERIAL.

SALVAGED TREE: ANY TREES CLEARED FOR ACCESS OR ALREADY DOWNED TREES IMMEDIATELY ADJACENT TO CONSTRUCTION SITE AND REQUIRING MOVEMENT FOR SITE ACCESS MAY BE INCORPORATED, AS DIRECTED BY THE OWNER. SALVAGED TREE TOPS MAY BE USED AS SLASH.

EARTHWORK: WHERE PARTIAL BURIAL OF LWM IS REQUIRED, EXCAVATE TO SUBGRADE AND STOCKPILE MATERIAL WITHIN THE DESIGNATED DISTURBANCE AREA. SORT MATERIALS BY GENERAL SIZES, SEPARATING PILES FOR COARSE AND FINE MATERIAL. BACKFILL THE LWM AS EACH LAYER IS INSTALLED. USE COARSE FILL ALONG EXTERIOR OF FILL ZONE AND ALONG WATERWARD EDGE, AND FINER MATERIALS WITHIN INTERIOR OF FILL ZONE. SILT AND SAND SHALL NOT BE USED FOR BACKFILL AND SHALL BE HAULED FROM THE SITE; CONTRACTOR SHALL SALVAGE OR IMPORT GRAVEL/COBBLE ALLUVIUM FOR BACKFILL AT NO ADDITIONAL COST. WHERE POOL EXCAVATION IS INCLUDED, EXCAVATED MATERIAL SHALL BE SALVAGED AND PLACED AS BACKFILL IN LWM STRUCTURE. BACKFILL ALONG WATERWARD EDGE SHALL BE LAYERED WITH SLASH WITH LIFTS NO THICKER THAN 18INCHES AND BUCKET COMPACTED. SLASH SHALL EXTEND 10FT MINIMUM INTO FILL. BACKFILL THE LOGS AS EACH LAYER IS INSTALLED.

WILLOW PLANTINGS SHALL BE INSTALLED IN LARGE WOOD STRUCTURES AND AS SHOWN ON PLANS AND DETAILS.

MEASUREMENT AND PAYMENT

MEASUREMENT AND PAYMENT SHALL BE MADE PER EACH STRUCTURE FOR:

- ITEM 009 - TYPE 1 CHANNEL SPANNING STRUCTURE
- ITEM 010 - TYPE 2 CHANNEL SPANNING STRUCTURE
- ITEM 011 - TYPE 1 BANK BURIED STRUCTURE
- ITEM 012 - TYPE 2 BANK BURIED STRUCTURE
- ITEM 013 - APEX/ CHANNEL PLUG STRUCTURE
- ITEM 014- SIDE CHANNEL INLET LW STRUCTURE

THE CONTRACT PRICE SHALL BE FULL COMPENSATION FOR ALL COSTS INCURRED FOR EQUIPMENT, MATERIALS AND LABOR FOR HANDLING, LOADING AND HAULING LWM FROM STOCKPILE AREAS, EXCAVATING TO SUBGRADE, SELECTIVE HANDLING OF EXCAVATED MATERIALS AND BACKFILL, SALVAGE OR IMPORT OF SUITABLE BACKFILL MATERIAL, INSTALLING AND SECURING LWM, PILES, SLASH AND SALVAGED TREE TOPS AS OUTLINED IN THE PLANS. EARTHWORK, HAUL AND DISPOSAL OF SPOILS. INSTALLING SLASH AND SALVAGED TREES SHALL BE INCIDENTAL.

WILLOW PLANTINGS INCLUDED IN LARGE WOOD STRUCTURES SHALL BE INCIDENTAL TO LARGE WOOD STRUCTURES. STORAGE, WATERING, EXCAVATION, INSTALLATION AND BACKFILL AND ANY OTHER WORK NECESSARY TO INSTALL LIVE WILLOWS SHALL BE INCIDENTAL.

ITEM 015 FLOODPLAIN ROUGHNESS – WILLOW TRENCH

SHALL INCLUDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR CARE, INSTALLATION AND MAINTENANCE OF FLOODPLAIN ROUGHNESS – WILLOW TRENCH AS SHOWN IN THE PLANS.

MEASUREMENT AND PAYMENT

MEASUREMENT AND PAYMENT FOR FLOODPLAIN ROUGHNESS – WILLOW TRENCH SHALL BE PER LINEAL FOOT OF COMPLETED INSTALLATION.

ITEM 016 FLOODPLAIN ROUGHNESS – HORIZONTAL LOG

SHALL INCLUDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR CARE, INSTALLATION AND MAINTENANCE OF FLOODPLAIN ROUGHNESS – HORIZONTAL LOG AS SHOWN IN THE PLANS.

MEASUREMENT AND PAYMENT

MEASUREMENT AND PAYMENT FOR FLOODPLAIN ROUGHNESS – HORIZONTAL LOG SHALL BE PER LINEAL FOOT OF COMPLETED INSTALLATION.

ITEM 017 FLOODPLAIN ROUGHNESS – PILES AND SLASH

SHALL INCLUDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR CARE, INSTALLATION AND MAINTENANCE OF FLOODPLAIN ROUGHNESS – PILES AND SLASH AS SHOWN IN THE PLANS.

MEASUREMENT AND PAYMENT

MEASUREMENT AND PAYMENT FOR FLOODPLAIN ROUGHNESS – PILES AND SLASH SHALL BE PER ACRE OF COMPLETED INSTALLATION.

ITEM 018 OVERBANK SEED AND LIVE PLANTS

SHALL INCLUDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR CARE, INSTALLATION AND MAINTENANCE OF OVERBANK SEED AND LIVE PLANTS AS SHOWN IN THE PLANS.

MEASUREMENT AND PAYMENT

MEASUREMENT AND PAYMENT FOR OVERBANK SEED AND LIVE PLANTS SHALL BE PER ACRE OF COMPLETED INSTALLATION.

ITEM 019 TRANSITIONAL / UPLAND SEED AND LIVE PLANTS

SHALL INCLUDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR CARE, INSTALLATION AND MAINTENANCE OF TRANSITIONAL / UPLAND SEED AND LIVE PLANTS AS SHOWN IN THE PLANS.

MEASUREMENT AND PAYMENT

MEASUREMENT AND PAYMENT FOR TRANSITIONAL / UPLAND SEED AND LIVE PLANTS SHALL BE PER ACRE OF COMPLETED INSTALLATION.

ITEM 020 TRANSITIONAL / UPLAND SEED ONLY

SHALL INCLUDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR CARE, INSTALLATION AND MAINTENANCE OF TRANSITIONAL / UPLAND SEED ONLY AS SHOWN IN THE PLANS.

MEASUREMENT AND PAYMENT

MEASUREMENT AND PAYMENT FOR TRANSITIONAL / UPLAND SEED ONLY SHALL BE PER ACRE OF COMPLETED INSTALLATION.

ITEM 021 WILLOW BANK INSTALLATION

SHALL INCLUDE ALL LABOR, MATERIALS AND EQUIPMENT NECESSARY FOR CARE, INSTALLATION AND MAINTENANCE OF WILLOW BANK INSTALLATION AS SHOWN IN THE PLANS.

MEASUREMENT AND PAYMENT

MEASUREMENT AND PAYMENT FOR WILLOW BANK INSTALLATION SHALL BE PER ACRE OF COMPLETED INSTALLATION.

OPTIONAL ADDITIVE ALTERNATE ITEMS

FOLLOWING ARE OPTIONAL ADDITIVE ALTERNATE ITEMS. OWNER SHALL DETERMINE IF ITEMS ARE REQUIRED, QUANTITIES AND LOCATIONS FOR PLACEMENTS. OWNER SHALL PROVIDE WRITTEN AUTHORIZATION TO IMPLEMENT THESE ITEMS PRIOR TO PROCUREMENT, TRANSPORT, HANDLING OR INSTALLATION.

ITEM 022 - JAM BALLAST BOULDERS

OWNER SHALL DETERMINE IF ADDITIONAL JAM BALLAST BOULDERS (BOULDERS) ARE REQUIRED. CONTRACTOR SHALL PROCURE AND IMPORT, HAUL AND PLACE BOULDERS. UNLESS NOTED HEREIN, BOULDERS SHALL MEET WSDOT STANDARD SPECIFICATION 9-13.1. BOULDERS SHALL BE MINIMUM 4FT EQUIVALENT DIAMETER WITH SPECIFIC GRAVITY OF 2.65 OR GREATER AND SHALL WEIGH NO LESS THAN 5,500 POUNDS DRY WEIGHT PER EACH. BOULDERS SHALL BE ROUNDED TO SUBANGULAR.

MEASUREMENT AND PAYMENT

JAM BALLAST BOULDERS SHALL BE MEASURED AND PAID FOR PER EACH BOULDER. PAYMENT WILL BE FULL COMPENSATION FOR ALL COSTS INCURRED FOR SALVAGE OR IMPORT OF BOULDERS, HAULING, STOCKPILING AND PLACING.

ITEM 023 - IMPORTED BOULDER BACKFILL

OWNER SHALL DETERMINE IF IMPORTED BOULDER BACKFILL IS REQUIRED FOR BACKFILL ON BANK BURIED LARGE WOOD STRUCTURES. THIS MATERIAL IS COMPRISED OF COBBLE TO MEDIUM SIZED BOULDERS. SOURCE IS TO BE DETERMINED. CONTRACTOR SHALL HAUL AND PLACE IMPORTED BOULDER BACKFILL BANK BURIED LARGE WOOD STRUCTURES AS DIRECTED BY ENGINEER.

MEASUREMENT AND PAYMENT

IMPORTED BOULDER BACKFILL SHALL BE MEASURED AND PAID FOR PER CUBIC YARD PLACED. PAYMENT WILL BE FULL COMPENSATION FOR ALL COSTS INCURRED FOR IMPORTED BOULDER BACKFILL, HAULING, STOCKPILING AND PLACING

DANIEL S. MILLER
STATE OF WASHINGTON
34208
REGISTERED
PROFESSIONAL ENGINEER

EXPIRES: 11/23/2025

NO.	BY	DATE	REVISION DESCRIPTION

BB DRAWN | PL, DM, JB, JB, NS DESIGNED | PL, JB. MB CHECKED
PL, DM, EA APPROVED | 05/09/2025 DATE | 23-02-21 PROJECT

CONFEDERATED TRIBES AND BANDS OF THE YAKAMA NATION
TOPPENISH THREE WAY LEVEE REMOVAL PHASE 2
WHITE SWAN, WA

inter·fluve
501 Portway Avenue, Suite 101
Hood River, OR 97031
541.386.9003
www.interfluve.com

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Appendix 7.5

Revegetation Specifications

May 2025

SPECIFICATION
TOPPENISH CREEK THREE-WAY LEVEE REMOVAL AND RESTORATION – PHASE II

DIVISION 8
MISCELLANEOUS CONSTRUCTION

8-01 Erosion Control and Water Pollution Control

8-02 Roadside Restoration

8-02.3 Construction Requirements

8-02.3(2) Work Plans

Section 8-02.3(2) is revised to read:
(******)

Three Work Plan submittals under this section:

1. Restoration Work Plan: This plan is required when trees or native vegetation will be removed. The Contractor shall submit a Type 3 Working Drawing within 15 calendar days prior to any earth disturbing activities.
2. Weed Control Plan: The Contractor shall submit for approval the Weed Control Plan as a Type 3 Working Drawing. The plan shall be submitted at the same time as the Revegetation Work Plan. The plan will require approval prior to beginning the following additional activities: selective clearing, surface preparation, application of chemical herbicides, or any weed control activities.
3. Plant Establishment Plan: This plan is required prior to completion of Initial Planting. See 8-02.3(2)C Plant Establishment Plan.

8-02.3(2)A Roadside Work Plan

Section 8-02.3(2)A is revised to read:
(******)

8-02.3(2)A Revegetation Work Plan

The Revegetation Work Plan shall define the expected impacts to the project area and restoration resulting from Work necessary to meet all Contract requirements. The Contractor shall define how the restoration Work included in the Contract will be phased and coordinated with project Work such as earthwork, staging, access, erosion and water pollution control, irrigation, etc. The Revegetation Work Plan shall include the following:

1. Means and methods for vegetation protection (in accordance with Section 1-07.16(2)).
2. Locations outside of clearing limits where vegetation shall be removed to provide access routes or other needs to accomplish the Work.
3. Plans for removal, preservation and stockpile of topsoil or other native materials, if outside of clearing and grubbing limits and within the project limits.
4. Plan for propagation and procurement of plants, ground preparation for planting, and installation of plants.

5. Means and methods to limit soil compaction where seeding and planting are to occur, such as steel plates, hog fuel access roads, wood mats for sensitive areas (including removal) and decompaction for unavoidable impacts.
6. Plan and timing to incorporate or remove erosion control items.

8-02.3(2)B Weed and Pest Control Plan

Section 8-02.3(2)B is revised to read:

(******)

8-02.3(2)B Weed Control Plan

The Weed Control Plan shall describe all weed control needs for the project.

The plan for control of weeds on the Contract in accordance with Section 8-02.3(3) shall include the following:

1. Names of plan preparer and herbicide operators, including contact information. The Contractor shall provide the Engineer evidence that all operators are licensed with appropriate endorsements, and that any herbicide used is registered for use by the Washington State Department of Agriculture.
2. Means and methods of weed control approved by Owner, including mechanical and/or chemical. The Contractor shall provide a site plan indicating where the noted methods of weed control will be implemented.
3. Schedule and timing for weed control including re-entry times for herbicide application by herbicide type, if any.
4. Proposed herbicide use, if approved by Owner, in accordance with Section 8-02.3(3)A: name, application rate, and Safety Data Sheets of all proposed herbicides. The Contractor shall provide a copy of the current product label for each herbicide to be used.
5. Plan to ensure worker safety until herbicide re-entry periods are met.
6. Site management and control protocol for all anticipated pests including herbivory (browse and girdling), fungal and insect infestations, and all applicable aquatic invasive species per RCW 77.135.010. Document equipment cleaning and/or sterilization protocols in accordance with Section 1-05.9, including provisions to prevent the spread of listed species.

8-02.3(2)C Plant Establishment Plan

Prior to installation of plants the Contractor shall submit a Plant Establishment Plan for the Owner's approval. Plan shall describe how 8-02.3(13) Plant Establishment and 8-02.3(14) Plant Replacement will be addressed.

8-02.3(3) Weed and Pest Control

Section 8-02.3(3), including Section B, is revised to read:

(******)

8-02.3(3) Weed Control

The Contractor shall control weed species within the project area during construction using integrated management principles consisting of mechanical, biological, and/or chemical controls that are outlined in the Weed Control Plan or as designated by the Owner. Controlling weeds consists of killing and removing weeds by methods approved by Owner

8-02.3(3)B Restoration Area Weed Control

Seeding and planting area weed control consists of controlling weeds in seeded and planted areas shown on the Plans. This Work is included in the bid items for seeding and planting.

All seeding and planting areas shall be prepared so that they are weed and unnatural debris free at the time of planting and until completion of the project. The planting areas shall include the entire ground surface, regardless of cover, areas around plants, and those areas shown on the Plans.

Within seeding and planting areas, all noxious weed species are unwanted and shall be controlled unless specifically allowed by the Owner to remain.

All applications of post-emergent herbicides shall be made while green and growing tissue is present. Residual herbicides shall not be used where rhizomatous species or perennial species are indicated.

Should unwanted vegetation reach the flowering and seed stage in violation of these Specifications, the Contractor shall physically remove and bag the seed heads prior to seed dispersion. All physically removed vegetation and seed heads shall be disposed of off-site at no cost to the Owner.

8-02.3(4) Topsoil

Sections 8-02.3(4)B and C are omitted.

8-02.3(5) Restoration Seeding and Planting Area Preparation

8-02.3(5)A Seeding Area Preparation

Section 8-02.3(5)A. is revised to read:
(******)

The Contractor shall prepare restoration seeding areas as follows:

1. Remove all unnatural debris from areas to be seeded. Dispose of removed materials offsite.
2. Prepare restoration seeding area to a weed free and bare condition.
3. Bring area to the specified finished grade.
4. Seed and mulch within two days of preparation.

8-02.3(5)C Planting Area Preparation

Section 8-02.3(5)C is revised to read:
(******)

Any areas impacted by construction activities, including staging and temporary access routes designated for planting with the exception of the riparian vegetation management areas shall be uniformly and wholly decompacted to a depth of 12 inches, leaving no holes or mounds over 12 inches in depth or height.

Contractor shall rip slopes longitudinally across the slope (i.e. perpendicular to slope) to promote capture of runoff and minimize erosion.

Upon completion of the ripping, only low ground pressure seeding equipment shall be allowed to enter the decompacted areas unless otherwise approved by Owner's Representative. Low ground pressure (LGP) seeding equipment shall have a maximum ground pressure of 6 pounds per square inch.

Temporary access roads that were cleared of woody vegetation but not grubbed shall not be ripped/decompacted unless the Owner's Representative determines that flush cut vegetation has been so severely impacted that the areas will require decompaction and replanting.

8-02.3(6) Mulch and Amendments

Sections 8-02.3(6)A and B are omitted.

8-02.3(7) Layout of Planting, Lawn and Seeding Areas

Section 8-02.3(7) is revised to read:
(******)

8-02.3(7) Layout of Planting and Seeding Areas

The Contractor shall lay out and prepare planting and lawn areas and receive the Engineer's acceptance of layout and preparation prior to any installation activities. See details and notes on the Plans for planting layout schematic.

8-02.3(8) Planting

8-02.3(8)A Dates and Conditions for Planting

Section 8-02.3(8)A paragraph 7 is revised to read:
(******)

After delivery and prior to installation, tubelings shall be closely monitored for sufficient root moisture and shall be protected from sun, wind and extreme temperatures. Stored tubelings shall be watered and misted several times a day when necessary to maintain proper root moisture and to reduce transpiration in sunny and windy locations.

The Contractor shall minimize foot traffic and soil disturbance during installation of the tubelings.

Install the tubelings so the stem base is at or slightly above finish grade. Plant tubelings fully into planting soil, not into mulch. Install tubelings to their full depth without bending the tubeling. Tubelings demonstrating "J-roots" shall not be acceptable. Backfill planting holes and tamp the soil around each tubeling in-place so that it is firmly seated in the soil, with no air pockets. Following backfilling, tubelings shall be watered thoroughly until bubbles are observed at the ground surface.

Section 8-02.3(8)A. is supplemented with the following:
(******)

Live stakes for use on the floodplain and as live cuttings shall be harvested during dormancy, which shall tentatively range from October 1 through November 15 unless otherwise approved by Owner's representative.

At the time of live stake harvest, no leaf buds shall have initiated growth beyond one-quarter inch and the cambium layer shall be moist, green, and healthy. Materials shall be maintained in a continuously cool, covered, and moist state prior to use and be in good condition when installed.

Expected dates for Contractor-performed planting shall be identified in the Project Schedule described in section 1-08.3(2)A. Notification shall be provided to Owner 5 days prior to planting work.

Live cuttings shall be installed no earlier than October 1 unless approved by the Engineer.

8-02.3(8)B Plant Installation

Section 8-02.3(8)B is revised as follows:
(******)
The Contractor must coordinate live cutting delivery and storage to ensure that cuttings do not desiccate (dry out) before planting. No more cuttings than can be planted within 24 hours after removal from storage shall be delivered to an installation location. Live cuttings that are not used in a day shall be wrapped in wet burlap sacks and stored in a location with an air temperature between 37 ºF and 65 ºF until the next planting day or returned to storage.

The Contractor shall deliver live stakes and poles to the project site in tagged bundles of 5 to 25 cuttings. Live cuttings shall be bundled into groups, each with a mixture of diameter ranges and an equal number of male and female cuttings. Label individual bundles with an aluminum tag. Tags on each bundle will clearly indicate the species, date and location of collection, the date soaking began.

Cuttings shall be properly stored. If cold storage is necessary, the collected and soaked cuttings shall be stored for no more than an additional 10 days at 37 ºF to 41 ºF until planting. After the cuttings have been removed from cold storage, they shall be soaked for no more than another 5 days to complete soaking and ensure hydration before and after storage.

The Contractor shall maintain a list of species, and quantities of collected live cuttings at the end of each collection day. The Contractor shall provide the Engineer with an on-site plant material inventory within 24 hours of a request. The Engineer may also request an inspection of the collection, storage, and live cutting inventory 24 hours in advance of the inspection. The request shall include the quantities of plant species and date of scheduled installation.

If air temperatures are above 80 degrees during installation, sprinklers that continuously mist the Live Cutting Work area are required during installation to reduce ambient air temperatures and reduce heat stress on Live Cuttings.

The last paragraph of 8-02.3(8)B is revised to read:
(******)

When installing plants, the Contractor shall dig planting holes three times the diameter of the container or root ball size as described in the Plans. Any glazed surface of the planting hole shall be roughened prior to planting.

8-02.3(9) Seeding, Fertilizing, and Mulching

8-02.3(9)A Dates for Application of Seed

Section 8-02.3(9)A is revised as follows:
(******)

Unless otherwise allowed by the Engineer, the Contractor shall apply seed for restoration between October 1 and November 15.

All disturbed or finished graded ground surfaces shall be prepared and seeded during the first available seeding window. When environmental conditions are not conducive to satisfactory results, the Engineer may suspend the seeding Work until such time that the desired results are likely to be obtained. If seeding is suspended, temporary erosion control methods according to Section 8-01 shall be used to protect the bare soil until seeding conditions improve.

8-02.3(9)B Seeding and Fertilizing

Section 8-02.3(9)B is revised as follows:
(******)

The Contractor shall prepare the seeding area in accordance with Section 8-02.3(5)A and apply seed at the rate and mix specified on the Plans. The Contractor shall notify the Engineer within 5 days in advance of any seeding operation and shall not begin the Work until areas prepared or designated for seeding have been accepted. Following the Engineer's acceptance, seeding of the accepted ground surfaces shall begin immediately.

Seeding shall not be done during windy weather or when the ground is frozen, or excessively wet.

Seed shall be applied using a hand-held seed spreader at a rate of 30 pounds per acre as described in the Plans.

8-02.3(9)D Inspection

Section 8-02.3(9)D is revised as follows:
(******)

Seeded areas will be observed by the Engineer upon completion of seeding. The Work in any area will not be measured for payment until a uniform distribution of the materials is accomplished at the specified rate. Areas that have not received a uniform application of seed at the specified rate, as determined by the Engineer, shall be re-seeded prior to payment for seeding within a designated area.

8-02.3(11) Mulch

Section 8-02.3(11) is revised as follows:
(******)

Sections 8-02.3(11)A shall be omitted.

8-02.3(12) Inspection and Completion of Initial Planting

Omit the following from 8-02.3(12)3.:
(******)

…including but not limited to, full operation of the irrigation system.

8-02.3(13) Plant Establishment

Omit the following from 8-02.3(13):
(******)

Subsequent year plant establishment periods shall begin immediately at the completion of the preceding year's plant establishment period. Each subsequent plant establishment period shall be one full calendar year in duration.

During the plant establishment period(s) after the first-year plant establishment, the Work necessary for the continued healthy and vigorous growth of all plants material shall be performed as directed by the Engineer.

Payment for water used to water plants during the subsequent year(s) of plant establishment will be paid under the plant establishment item.

Section 8-02.3(13) is supplemented with the following:
(******)

80 percent survival is required during the warranty period of one year from the date of acceptance of final project completion at no additional cost to the Owner. Inspection of Live Cutting survival for warranty shall be in August during the warranty period.

8-02.3(14) Plant Replacement

Section 8-02.3(14) is supplemented with the following:
(******)

Replacement of Live Cuttings shall be done vertically when plant replacement is required. The Live Cuttings shall be installed into a drive bar pilot hole or another approved method to not damage the Live Cutting.

8-02.4 Measurement

Section 8-02.4 is revised as follows:

(******)

No separate measurement will be made for PSIPE __ (Plant Selection Including Plant Establishment).

No separate measurement shall be made for Project Area Weed Control. Work shall be considered incidental to related planting areas.

“Overbank Seed and Live Plant Areas” will be measured by the acre using plan area measurement or through the use of design data.

“Transitional/ Upland Seed and Live Plant Areas” will be measured by the acre using plan area measurement or through the use of design data.

“Transitional/ Upland Seed Only Areas” will be measured by the acre using plan area measurement or through the use of design data.

8-02.5 Payment

Section 8-02.5 is supplemented with the following:

(******)

No separate payment shall be made for Project Area Weed Control. The cost of performing the work as described herein, shall be included in the related planting areas.

(A) Payment will be made for “Overbank Seed and Live Plant Areas” per acre.

(B) Payment will be made for “Transitional/ Upland Seed and Live Plant Areas” per acre.

(C) Payment will be made for “Transitional/ Upland Seed Only Areas” per acre.

The Bid Item price shall be full compensation for all costs incurred to complete the Work as shown on the Plans and described in the Specifications.

PSIPE __ (Plant Selection Including Plant Establishment) is incidental to all live plants and seeding areas provided.

No payment shall be made for items specified under 8-02.5 which are not included on the Bid Form.

DIVISION 9
MATERIALS

9-14 Erosion Control and Roadside Planting

9-14.3 Seed

Section 9-14.3 is revised to read:
(******)

Seed mixes and seeding zones for the seed mixes are delineated on plans.

1. Contractor shall purchase seed in the quantity and at the percentages provided in the seed mix tables.
2. Contractor shall source the seed from within the appropriate genetic zones of the Columbia Plateau and Pleistocene Lake Basins ecoregions as defined by the US Environmental Protection Agency (EPA). The seed certification class shall be Certified (blue tag) in accordance with WAC 16-302 and meet the following requirements:

Prohibited Weed	0 percent max.
Noxious Weed	0 percent max.
Other Weed	0.2 percent max.
Other Crop	0.4 percent max.

3. Prior to seed purchase, the Contractor shall submit a list of suppliers and their seed sources (Submittal) and identify any difficulties in obtaining species or quantities.
4. Owner's Representative shall review submittal and approve or provide comments in order to assist the Contractor with securing appropriate seed.
5. Contractor shall provide the seed labels that include the germination rate and purity. Based on the certified testing results required by 9-14.2 of the Standard Specifications, the actual pounds of each grass species applied shall be adjusted so as to provide the specified pounds of PLS per species per acre. Seeds shall be certified "Weed Free," indicating there are no noxious or nuisance weeds in the seed.
6. Contractor shall not make any substitutions without the approval of the Owner's Representative.
7. If substitutions are required, and substituted species have substantially lower cost than the originally contract specified species; the cost for the seed shall be reduced accordingly.
8. Contractor shall be responsible for ordering, storing and delivering seed to the project site and storing site in a cool, dry location, out of direct sunlight on an as needed basis.
9. Any seed that is damaged due to herbivory or moisture prior to being spread will be rejected and will be the responsibility of the Contractor to procure replacement seed at no additional cost to the Owner.

9-14.5 Mulch and Amendments
9-14.5(3) Bark or Wood Chip Mulch

Section 9-14.5(3) is supplemented with the following:
(******)

All bark or wood chip mulch shall be Certified Weed-Free per North American Invasive Species Management Association (NAISMA) standards or the Washington Weed Free Hay and Mulch program (WWHAM).

9-14.7 Plant Materials

9-14.7(1) Description

Section 9-14.7(1) paragraph 4 is revised to read:
(******)

Cuttings are live plant material without a previously developed root system. Source plants for cuttings shall be healthy and either dormant or in vigorous seasonal growth when cuttings are taken. All cuts shall be made with a sharp instrument producing a clean cut and no adjacent bark damage. Cuttings may be collected. If cuttings are collected, the requirement to be nursery grown or held in nursery conditions does not apply. Written permission shall be obtained from property owners and provided to the Engineer before cuttings are collected. The Contractor shall collect cuttings in accordance with applicable sensitive area ordinances. Collection sites shall be located within the Toppenish Creek Watershed and within +/- 500 foot elevation band from the project site unless otherwise approved by Owner.

Cuttings shall meet the following requirements:

Section 9-14.7(1)2. and 3. are revised to read:
(******)

2. Live Stake cuttings shall have a basal end diameter between ¾ inch and 1½ inches. The top end shall have straight top cut immediately above a bud. The basal rooting end shall be cut at an approximate 45-degree angle at time of harvest. Live stakes are cut from one- to two-year-old wood. Live stake cuttings shall be cut and installed with the bark intact with no branches, stems, or leaves attached.

Section 9-14.7(1) is supplemented with the following:
(******)

1. Live cuttings sourced from plants during the growing season shall be harvested no less than 7 days and no more than 14 days prior to installation. Live cuttings shall be continuously and completely submerged 6 inches under fresh water from within 1 hour of harvest to within 1 hour of installation.
2. Live cuttings sourced from plants during the dormant season shall be harvested no more than 300 days prior to installation. See *8-02.3(8)A* for additional requirements for the storage of dormant season harvested live cuttings.
3. Live cuttings shall have the lower basal rooting end recut cut to an approximate 45-degree angle no more than 1 hour prior to installation. The fresh cut prior to installation shall be 1 to 2 inches up from the original 45-degree cut made at time of harvest.

9-14.7(2) Quality

Section 9-14.7(2) paragraph 3 is revised to read:
(******)

All plant material, except live cuttings, shall be purchased from a nursery licensed to sell plants in their state or province.

Section 9-14.7(2) is supplemented with the following:
(******)

No less than 15 days prior to the first delivery of Live Cuttings to the project site, the Contractor shall submit source, type, size, count, and species information for all Plants and Live Cuttings required for the project for approval by the Engineer.

Live cutting plant material shall be inspected upon delivery to the project site by the Engineer.

The Contractor may request that the Engineer inspect plant materials at least three business days in advance of delivery.