**LIVE TREES**

- All trees not marked for removal will be left standing.

**FISH SALVAGE AND EXCLUSION PLANNING**

- Fish salvage will include assistance from WDFW and Condit Tribe staff.

**CONSTRUCTION ACCESS**

- AllHD and TREES to be transplanted or removed shall be clearly marked and approved by the owner and owner’s representative.

**Erosion Control**

- Contractor shall be solely responsible at own expense for eroding and maintaining necessary erosion control facilities to comply with any applied erosion control regulations and to maintain clean access routes.

**Construction Staking**

- Owner’s representative will provide staking, grade stakes, and elevation control points. Some field adjustments to the lines and grades are to be expected.

**CONSTRUCTION MATERIALS**

- Contractor shall allow for expansion of excavated material and compaction of placed material at no additional cost.

**BID QUANTITIES**

<table>
<thead>
<tr>
<th>BID ITEMS</th>
<th>Unit</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normalization</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excavation Plan and Implementation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Surfacing Water Division</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaporative Dewatering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evacuation Materials</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Removal of All Equipment and Piping Following Dewatering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Removal of All Equipment and Piping Following Initial Drawdown</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evacuation of Evaporative Dewatering, Including Sump Pumps, Sump Pump Supplies, Head Pump, Piping, Sprayers and Sprayer Platforms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dam Material Handling and Disposal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vegetation Establishment Plan</td>
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**FISH SALVAGE IN-WATER WORK PERIODS**

- Work shall occur during the permitted time frame.

**EXISTING DATA**

- Provided as supplemental information.

**DESTROYED UTILITIES**

- Located prior to construction activities.

**INVESTIGATIONS**

- If additional data is required at no additional cost.

**IN-WATER WORK PERIODS**

- In water work shall occur during the permitted time frame.

**GENERAL NOTES**

- The contractor shall attend a mandatory pre-bid site meeting.

**WDFW IN-WATER WORK PERIODS**

- Work shall occur during the permitted time frame.

**EXISTING DAM INFORMATION**


**HORIZONTAL DATUM**

- NAD83 Washington State Planes.

**DESIGN PLANS**


**INFORMATION**

- See geodesign report provided as supplemental information.

**HISTORICAL PHOTOS**

- Provided as supplemental information.

**SOILS**

- Construction, see historical photos provided as supplemental information.

**CONSTRUCTION, SEE HISTORICAL PHOTOS PROVIDED AS SUPPLEMENTAL INFORMATION. SEE GEODESIGN REPORT PROVIDED AS SUPPLEMENTAL INFORMATION.**

**LIVE TREES**

- All trees not marked for removal will be left standing.

**CONSTRUCTION ACTIVITY**

- Shall not be disturbed.

**CONTRACTOR**

- The contractor shall submit the following plans, including their means and methods of performance for their test plans’ owners review and approval.

**LIVE TREES**

- All trees not marked for removal will be left standing.

**DESTROYED UTILITIES**

- Located prior to construction activities.

**INVESTIGATIONS**

- If additional data is required at no additional cost.

**IN-WATER WORK PERIODS**

- In water work shall occur during the permitted time frame.

**EXISTING DATA**

- Provided as supplemental information.

**DESTROYED UTILITIES**

- Located prior to construction activities.

**INVESTIGATIONS**

- If additional data is required at no additional cost.

**IN-WATER WORK PERIODS**

- In water work shall occur during the permitted time frame.
EROSION/SEDIMENTATION CONTROL (ESC) PLAN

The Erosion and Sediment Control (ESC) Plan is provided 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 a guideline for the contractor to develop and implement an ESC plan.

A. 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.

B. 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 flags shall be maintained by the contractor for the duration of the construction period.

C. ESC facilities as approximately shown on this plan 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 surface waters, the drainage system, or violate applicable water standards.

D. 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.

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 prepared and installed at no additional cost to ensure all access roads are kept clean at NO additional cost.

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 requiring additional stabilization measures. Pay shall be made in accordance with section 1-07.5 of the standard specifications.

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. When major rainfall events exceed 2 hours duration more than 0.5 inches.
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.
5. When Erosion and Sediment Control (ESC) records are made available to the owner and owner’s representative on request for review and approval prior to application for payment.

ITEM 001 - TESC, SPCC PLAN AND IMPLEMENTATION

DESCRIPTION

This work shall be performed for the 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 the provisions of Section 1-07.07 of the Washington Department of Transportation Standard Specifications (STP-I-07.07). Temporary site access control is required for all areas along roadway alignments shown in the plans. Minor deviations from the alignments shown in the plans shall be approved by the owner prior to use. In some cases, access controls shall be established to protect original condition of area.

MEASUREMENT AND PAYMENT

Payment shall be made at the lump sum contract price for the preparation and installation of TESC plans and SPCC plans in accordance with the provisions of Section 1-09.9 of the STP-I-07.07 specifications. Payment shall be considered full compensation for all equipment, labor, tools, and materials furnished hereunder. No additional payments will be made as defined in Section 1-09.9 of the STP-I-07.07 specifications. Payments shall be made at the time the work is completed.

ITEM 003 - CLEARING AND GRUBBING

DESCRIPTION

The clearing and grubbing shall be measured per acre.

PAYMENT

“Clearing and grubbing” will be measured PER ACRE.

ABBREVIATIONS

i.e., INCHES

MIN MAX

FUTURE

% INC.

YR

1. TYPICAL

HORIZONTAL

VERTICAL

PERFORMANCE CRITERIA

1. TYPICAL

HORIZONTAL

VERTICAL

PERFORMANCE CRITERIA
ITEM 004 - REMOVAL OF STRUCTURES AND OBSTRUCTIONS

DESCRIPTION

This item consists of removing the KWONEESUM DAM and its appurtenances, including spillway:

1. COMMON BORROW INCLUDING HAUL, and "DAM AND SPILLWAY CLOSURE" shall be considered incidental to this item.
2. DAM REMOVAL AS SHOWN ON THESE DRAWINGS.
3. REQUIREMENTS OF SECTION 8-02.3(2)B.
4. REMOVE AND DISPOSE, OFF SITE, OF ALL DEMOLISHED REINFORCED CONCRETE MATERIALS.

MEASUREMENT

"REMOVAL OF DAM AND SPILLWAY," APPROXIMATELY 20,000 CY (IN PLACE) INCLUDING (1,000 CY (IN PLACE) OF REINFORCED CONCRETE WILL BE MEASURED BY LUMP SUM.

ITEM 005 ROADWAY EXCAVATION AND EMBANKMENT

DESCRIPTION

This item consists of excavating, loading, hauling, placing, and compaction, or other placement of the material in accordance with Section 2-03 of the Standard Specifications, and as amended by these special provisions.

1. PORTIONS OF WORK WILL BE IN WATER. THE CONTRACTOR IS ADVISED THAT WATER WILL BE ENCOUNTERED THROUGHOUT EXCAVATION AREA.
2. ITEM 3 INCLUDES DETAIL GRADING TO SHAPE OF EXCAVATION AS SHOWN IN THESE DRAWINGS.
3. THE FOLLOWING PROVISION IN SECTION 2-03.3(3) "ROCK EXCAVATION - WHEN THE ROCK BEHIND THE WALL ELEVATION IS LESS THAN THE SUBGRADE ELEVATION, IT SHALL BE EXCAVATED THE FULL WIDTH OF THE ROADWAY TO AT LEAST 6 INCHES BELOW, THEN BACKFILLED WITH ROCK FRAGMENTS, GRAVEL, OR OTHER FILL MATERIAL NOT MORE THAN 4 IN CHARMERS.
4. SHALL BE REMOVED.
5. ADD THE FOLLOWING PROVISIONS TO SECTION 2-03.3(4), "ACCESS ROADS IN THE FOOTPRINT OF THE EXISTING RESERVOIR SHALL BE CONSIDERED EMBANKMENTS.
6. THE PAY QUANTITIES FOR PLANT MATERIALS WILL BE DETERMINED BY APPROVAL OF THE ENGINEER, AND USED AS SILL LOGS, ROOT WADS, SLASH OR OTHER CLASSIFICATION USED IN THESE DRAWINGS. NO SEPARATE MEASUREMENT WILL BE MADE FOR HOW LARGE SLAVED TREES WILL BE USED.

ITEM 006 SMALL SALVAGED TREES

DESCRIPTION

This item consists of removing trees 10 to 20 DBH, including roadways, trails, and other disturbed areas. "SALVAGED TREES" WILL BE MEASURED BY EACH TREE. THIS ITEM CONSISTS OF FURNISHING AND PLACING PERMANENT SEED IN ACCORDANCE WITH SECTION 8-02.3(2)B.

PAYMENT

NATIVE SEED MIX" PER ACRE ACTUALLY PLACED AT THE CUMULATIVE, SEEDING" WILL BE MEASURED PER ACRE.

ITEM 007 LARGE SALVAGED TREES

DESCRIPTION

This item consists of removing trees 20 DBH and over, including roadways, trails, and other disturbed areas. "LARGE SALVAGED TREES" WILL BE Measured BY EACH TREE. LARGE SALVAGED TREES WILL BE Measured BY EACH TREE.

PAYMENT

APPROVED BY THE ENGINEER, AND USED AS SILL LOGS, ROOT WADS, SLASH OR OTHER CLASSIFICATION USED IN THESE DRAWINGS. NO SEPARATE MEASUREMENT WILL BE MADE FOR HOW LARGE SLAVED TREES WILL BE USED.

ITEM 008 IMPORTED LOGS

DESCRIPTION

This item consists of providing and placing loose or re-used 14 CY. LOGS USED FOR FLOATING INTAKES AND REUSED AS LARGE WOOD SHALL ONLY BE PAID FOR ONCE.

PAYMENT

IMPORTED "LOGS" WILL BE MEASURED BY EACH LOG.

ITEM 009 OWNER PROVIDED LARGE WOOD

DESCRIPTION

This item consists of installing loose or re-used large wood provided by the owner. LARGE WOOD SHALL BE PAID FOR ON EACH BASIS. LARGE WOOD PROVIDED LARGE WOOD WILL BE PAID FOR ON EACH BASIS.

PAYMENT

OWNER PROVIDED LARGE WOOD WILL BE PAID FOR ON EACH BASIS.

ITEM 010 SEEDING

DESCRIPTION

This item consists of furnishing and placing permanent seed in accordance with Section 8-02.3(2)B of the standard specifications, and as amended by these special provisions. Any temporary seeding will be included in item 009.1. "NATIVE SEED MIX" PER ACRE ACTUALLY PLACED AT THE CUMULATIVE, SEED "WILL BE MEASURED PER ACRE.

MEASUREMENT

"SEEDING" WILL BE MEASURED PER ACRE.

PAYMENT

NATIVE SEED MIX" PER ACRE ACTUALLY PLACED AT THE CUMULATIVE, SEED "WILL BE MEASURED PER ACRE.

ITEM 011 PLANTING

DESCRIPTION

This item consists of furnishing and planting cuttings, live seedlings or other plant material in accordance with Section 8-02.3(2)B of the standard specifications, and as amended by these special provisions. Any temporary seeding will be included in item 009.1. "NATIVE SEED MIX" PER ACRE ACTUALLY PLACED AT THE CUMULATIVE, SEED "WILL BE MEASURED PER ACRE.

MEASUREMENT

"SEEDING" WILL BE MEASURED PER ACRE.
TEMPORARY ACCESS ROADS (OFF ROAD)

NOT TO SCALE

NATIVE MATERIAL
CLEAR AND GRUB APPROX. 12-15 FT. (TRACKED VEHICLES AND SKIDDERS ONLY)

NOTE: THESE ACCESS ROADS ARE INTENDED FOR TRACKED VEHICLES AND SKIDDERS. ADD GRAVEL FROM DAM CONSTRUCTION SPOILS AS NEEDED IF SOFT SPOTS DEVELOP.

TYPICAL SECTION - PROPOSED TEMPORARY ACCESS ROADS (OFF ROAD)

TYPICAL SECTION - PROPOSED TEMPORARY ACCESS ROADS (VEHICLES)

LEGEND

EXISTING RIVER PATHWAYS
EXISTING RESERVOIR
EXISTING DAM AND SPILLWAY
EXISTING FOREST ROAD
PROPOSED TEMPORARY ACCESS ROADS (VEHICLES)
PROPOSED TEMPORARY ACCESS ROADS (OFF ROAD)
PROJECT BOUNDARY AREA
LIMITS OF DISTURBANCE

NOTE: ADD GRAVEL FROM DAM CONSTRUCTION SPOILS IF SOFT SPOTS DEVELOP.
CONTRACTOR SHALL DAM EXISTING SPRING WITH SANDBAGS AND GRAVITY FLOW SPRINGS WATER TO DOWNSTREAM OF WILDBOY CREEK CONFLUENCE WITH TEXAS CREEK. SPRINGWATER SHALL BE CONVEYED IN A 6-INCH DIA. CORRUGATED POLYETHELENE PIPE. PROVIDE 100 FEET LENGTHS TO MINIMIZE JOINTS AND PROVIDE WATERTIGHT COUPLERS. REMOVE PIPING AND SANDBAG DAM FOLLOWING CONSTRUCTION OF LARGE WOOD STRUCTURES IN WILDBOY CREEK SEE CONSTRUCTION SEQUENCE FOR TIMING.
NOTES:
LIDAR WAS ACCESSED VIA WDNR LIDAR PORTAL. LIDAR IS 2M RESOLUTION AND HAS LIMITATIONS DUE TO QUALITY AND AGE OF DATA SET.

HORIZONTAL DATUM: NAWS BUNGALOW, STATE PLANE, SOUTH ZONE, US FOOT
VERTICAL DATUM: NAVD88
CONSTRUCTION SEQUENCE

1. CLEAR AND GRUB DAM CONSTRUCTION SPOILS PILE. EXCAVATE AND SORT DAM CONSTRUCTION SPOILS PILE INTO BOLDOVERS, COBBLE, GRAVEL, AND SOIL. STEP 1 IN THIS SEQUENCE WILL BE PERFORMED UNDER A SEPARATE CONTRACT PRIOR TO THE DAM REMOVAL CONTRACT. SEPARATE PILES OF BOLDOVERS, COBBLE, GRAVEL, AND SOIL WILL BE LOCATED IN THE STAGING AREAS, ACCESS ROADS, INCLUDING ACCESS TO TEXAS CREEK, DISCHARGE LOCATIONS, AND WILDBOY CREEK ACCESS LOCATIONS.

2. CLEAR AND GRUB STAGING AREAS, ACCESS ROADS, INCLUDING ACCESS TO TEXAS CREEK, DISCHARGE LOCATIONS, AND WILDBOY CREEK ACCESS LOCATIONS AS REFERENCED IN STEP 1 OF THIS SEQUENCE. THE EXISTING SPRING TO THE CONFLUENCE WITH TEXAS CREEK AND ALL COLLECTED FISH AND AMPHIBIANS WILL BE SPECIATED AND STORED IN DISPOSAL AREAS WHICH USE ACCESS ROADS FOR CONTAINMENT.

3. PLACE BLIND FLANGES AND GASKETS ON ENDS OF WELDED JOINT HI-PE PIPING TO FLOAT DIVERSION PIPING CLOSE TO TRIBUTARY DIVERSION DAM LOCATIONS AT FULL RESERVOIR LEVEL. DRAIN WELDED JOINT PIPING OUT OF THE WATER, WITH BLOCK AND TACLES AND OTHER EQUIPMENT TO UPSTREAM END OF DIVERSION DAM LOCATIONS IN TRIBUTARIES IDENTIFIED ON THE DRAWING. INSTALL TRIBUTARY DIVERSION PIPING FROM TRIBUTARY DIVERSION LOCATIONS TO TEXAS CREEK.

4. INSTALL TRIBUTARY DIVERSION DAMS AND PERFORM FISH EXCLUSION UPSTREAM OF DIVERSION DAMS, PLACE SCREENED PUMP INTAKES, PUMPS, GENERATORS, AND SPILL CONTAINMENT MEASURES. PLACE PUMPED OUTLET DRAINAGE CONTROL MEASURES IN TEXAS CREEK PRIOR TO INITIATING PUMPED DIVERSION CASING.

5. AN EXPERIENCED BIOLOGIST WILL LEAD A TEAM THAT BEGINS CLEARING FISH 3-5 DAYS PRIOR TO DIVERTING TRIBUTARY FLOWS. THE CONTRACTOR EXPLODS TIGERS TO HAVE MULTIPLE ELECTRIC FISHING CREWS AND VOLUNTEERS TO CLEAR THE 0.25 MILE REACH DOWNSTREAM OF THE DAM. ALL COLLECTED FISH AND AMPHIBIANS WILL BE SPECIATED AND ENUMERATED. AN INITIAL FISH RESCUE PASS WILL BE PERFORMED IN THE 0.25 MILE LONG REACH DOWNSTREAM OF THE DAM TO THE EXISTING SPRING LOCATED NEAR THE LEFT BANK OR WILDBOY CREEK. FISH CLEANSING WILL OCCUR IN DEFINED SECTIONS/SUB REACHES BY USING SEINES AS Block NETS.

6. DIVERT TRIBUTORY FLOWS EARLY IN THE MORNING TO CONCENTRATE REMAINING FISH IN RESIDUAL POOLS IN THE 0.25 MILE REACH DOWNSTREAM OF THE DAM. SIMULTANEOUSLY, BEGIN THE SECOND ROUND OF FISH CLEANSING AS THE 0.25 MILE REACH DOWNSTREAM OF THE DAM BEGINS TO Dewater. THE CONTRACTOR SHALL ASSIST BY PUSHING DOWN EACH RESIDUAL POOL WITH A NMFS APPROVED SCREENED INTAKE WHILE FISH ARE ENUMERATED. AN ADDITIONAL 2-4 DAYS TO FULLY CLEAR FISH FROM THE 0.25 REACH DOWNSTREAM OF THE DAM.

7. IF FISH ARE CLEARED FROM THE 0.25 MILE REACH DOWNSTREAM OF THE DAM, BEGIN CLEARING FISH FROM THE 0.25 MILE REACH FROM THE EXISTING SPRING TO THE CONFLUENCE WITH TEXAS CREEK. THE FIRST PASS OF FISH CLEANSING WILL OCCUR IN THIS REACH WHILE THE SPRING IS STILL FLOWING TO THE CONFLUENCE WITH TEXAS CREEK. FISH CLEANSING WILL OCCUR IN DEFINED SECTIONS/SUB REACHES BY USING SEINES AS Block NETS. THE CONTRACTOR EXPLODS TIGERS TO HAVE MULTIPLE ELECTRIC FISHING CREWS AND VOLUNTEERS TO CLEAR THE 0.25 MILE REACH DOWNSTREAM OF THE DAM. ALL COLLECTED FISH AND AMPHIBIANS WILL BE SPECIATED AND ENUMERATED. THE SECOND PASS OF FISH CLEANSING IS EXPECTED TO TAKE AN ADDITIONAL 2-4 DAYS TO FULLY CLEAR FISH FROM THE 0.25 MILE REACH DOWNSTREAM OF THE DAM.

8. IF FISH CLEANSING IS COMPLETED FROM THE 0.25 MILE REACH DOWNSTREAM OF THE DAM, BEGIN CLEARING FISH IN THE 0.25 MILE REACH FROM THE EXISTING SPRING TO THE CONFLUENCE WITH TEXAS CREEK. THE CONTRACTOR SHALL ASSIST IN PUMPING DOWN EACH RESIDUAL POOL WITH A NMFS APPROVED SCREENED INTAKE WHILE FISH ARE ENUMERATED. AN ADDITIONAL 2-4 DAYS TO FULLY CLEAR FISH FROM THE 0.25 MILE REACH DOWNSTREAM OF THE DAM.

9. INSTALL A SANDBAG DAM TO FORM A SPRING COLLECTION POOL DOWNSTREAM OF THE SPRING AND INSTALL A GRAVITY PIPELINE ALONG THE BANK OF WILDBOY CREEK TO CONVEY WATER TO DOWNSTREAM OF THE CONFLUENCE WITH TEXAS CREEK. Dewater THE WATER TO EACH REACH FROM THE EXISTING SPRING TO THE CONFLUENCE WITH TEXAS CREEK AND PERFORM A SECOND PASS OF FISH CLEANSING. THE CONTRACTOR SHALL ASSIST IN PUMPING DOWN EACH RESIDUAL POOL WITH A NMFS APPROVED SCREENED INTAKE WHILE FISH ARE ENUMERATED. AN ADDITIONAL 2-4 DAYS TO FULLY CLEAR FISH FROM THE 0.25 MILE REACH DOWNSTREAM OF THE DAM.

10. COMMENCE CLEAR WATER DIVERSION PUMPING, AND FLOATING INTAKE PUMPING WITH THE CONTRACTOR SHALL MONITOR SPRAY Locations OF THE DWATERING FIELD AND THROTTLE DOWN PUMPS TO AVOID SURFACE BRIGHT. THE CLEAR WATER PUMP WILL PUMP WATER FROM DEEPER PORTIONS OF THE RESERVOIR OVER THE DAM, WHILE ASSURING THE CLEARWATER PUMP INTAKES ARE SUFFICIENTLY ABOVE THE SILT CURTAIN. LOCATED AT THE BOTTOM OF THE RESERVOIR TO AVOID MOBILIZING THOSE SEDIMENTS. FLOATING INTAKE PUMPS WILL OPERATE AT A SLIGHTLY HIGHER CUMULATIVE FLOW RATE THAN THE CLEAR WATER PUMP TO AVOID TURBID FIELD WATERS PUMPED FROM THE FLOATING INTAKES WILL BE CONVEYED TO A SLIGHTLY HIGHER FLOW RATE THAN THE CLEAR WATER PUMP TO AVOID TURBID FIELD WATERS.

11. MONITOR TURBIDITY PLUMES IN THE RESERVOIR AND ADJUST LINES SECURING TURBIDITY CURTAIN AND FLOATING INTAKES AS RESERVOIR LEVELS DECREASE. ADJUST LOCATIONS OF TURBIDITY CURTAIN AND FLOATING INTAKES AS NECESSARY TO AVOID DISTURBING RESERVOIR SEDIMENTS. CONTINUE TO MONITOR TURBIDITY PLUMES DURING INITIAL DRAINAGE. INITIAL DRAINAGE MAY REQUIRE UP TO 10 FEET OF WATER TO SIGNIFICANTLY REDUCE EVAPORATIVE DEWATERING DURATION. TEN FEET OF DRAINAGE CAN BE ACHIEVED IN TEN DAYS (12-HOUR) OPERATION DURING DRY WEATHER CONDITIONS IF DIVERSION DAMS AND PIPING ARE PROPERLY SEALED. NO MAJOR SPRINGS ARE LOCATED WITHIN THE RESERVOIR, AND THE CONTRACTOR AVOIDS STIRRING UP BOTTOM SEDIMENTS.

12. PARTIALLY DEMOLISH CONCRETE DAM FACE AND CREATE A LEVEL PLATFORM AT THE CONFLUENCE WITH TEXAS CREEK AND THE DAM. THE EXISTING SPRING TO THE CONFLUENCE WITH TEXAS CREEK AND ALL COLLECTED FISH AND AMPHIBIANS WILL BE SPECIATED AND ENUMERATED. THE SECOND PASS OF FISH CLEANSING IS EXPECTED TO TAKE AN ADDITIONAL 2-4 DAYS TO FULLY CLEAR FISH FROM THE 0.25 MILE REACH DOWNSTREAM OF THE DAM.

13. AFTER CLEARWATER PUMPING HAS CEASED, REMOVE THE SILT CURTAIN AND REMOVE FISH CLEARANCE WITHIN THE FLOWING INTAKES. ALL COLLECTED FISH AND AMPHIBIANS WILL BE SPECIATED AND ENUMERATED. THE FISH CLEANSING IS EXPECTED TO TAKE AN ADDITIONAL 2-4 DAYS TO FULLY CLEAR FISH FROM THE 0.25 MILE REACH TO THE CONFLUENCE WITH TEXAS CREEK.

14. INSTALL DEWATERING COFFERDAM 1 UPSTREAM OF DAM AND PUMP CLEARWATER PUMPING FROM THE DAM FACE TO REDUCE SURFACE HEAD AS NECESSARY AS RESERVOIR LEVELS DESCEND. CONTINUE TO MONITOR TURBIDITY PLUMES IN THE RESERVOIR DURING INITIAL DRAINAGE. CEASE CLEARWATER PUMPING BEFORE TURBIDITY PLUMES ENTER THE CLEARWATER PUMP INTAKES.

15. AFTER CLEARWATER PUMPING HAS CEASED, REMOVE THE SILT CURTAIN AND PERFORM FISH RESCUE WITHIN THE RESERVOIR. FLOATING INTAKES SHALL REMAIN IN THE RESERVOIR DURING FISH RESCUE. REMOVE CLEARWATER PUMP. CONTRACTOR SHALL CLEAR SOFT SOILS FROM THE DWATERING SHORELINE FOR BOAT TRAILER ACCESS AND ASSIST FISH IN TUNNELING AND RETRIEVING ELECTROFISHING BOAT.

16. THE CONTRACTOR SHALL RELocate FLOATING INTAKES TO DEEPER PORTIONS OF THE RESERVOIR AND CONTINUE TO PUMP TO THE DWATERING FIELD AS LONG AS FLOATING INTAKES ARE 2- FEET, MINIMUM, ABOVE FINE SEDIMENTS LOCATED AT THE BOTTOM OF THE RESERVOIR.

17. LARGE WOOD STRUCTURES IN WILDBOY CREEK (SHEETS 57-71) DOWNSTREAM OF KWONEUDEMUM DAM MAY BE CONSTRUCTED CONCURRENTLY WITH STEPS 14 THROUGH 23 OF THIS SEQUENCE. NOTING THAT ROCK SALVAGED FROM DAM MAY BE INSTALLED AFTER LARGE WOOD AND SLASH HAVE BEEN INSTALLED IN THE LARGE WOOD STRUCTURES.

18. DAM DEMOLITION CAN COMMENCE FROM THE TOP DOWN AS LONG AS 10 FEET OF FREEBOARD IS MAINTAINED. REMOVE REMAINING Dam, AND SLASH SALVAGED FROM THE拆除. CONSTRUCT WILDBOY CREEK Channels WITHIN FORMER DAM FOOTPRINT.

19. AFTER CLEARWATER PUMPING HAS CEASED, REMOVE THE Silt CURTAIN AND PERFORM FISH RESCUE WITHIN THE RESERVOIR. REMOVE CLEARWATER PUMP. CONTRACTOR SHALL CLEAR SOFT SOILS FROM THE DWATERING SHORELINE FOR BOAT TRAILER ACCESS AND ASSIST FISH IN TUNNELING AND RETRIEVING ELECTROFISHING BOAT.

20. THE CONTRACTOR SHALL RELocate FLOATING INTAKES TO DEEPER PORTIONS OF THE RESERVOIR AND CONTINUE TO PUMP TO THE DWATERING FIELD AS LONG AS FLOATING INTAKES ARE 2- FEET, MINIMUM, ABOVE FINE SEDIMENTS LOCATED AT THE BOTTOM OF THE RESERVOIR.

21. LARGE WOOD STRUCTURES IN WILDBOY CREEK (SHEETS 57-71) DOWNSTREAM OF KWONEUDEMUM DAM MAY BE CONSTRUCTED CONCURRENTLY WITH STEPS 14 THROUGH 23 OF THIS SEQUENCE. NOTING THAT ROCK SALVAGED FROM DAM MAY BE INSTALLED AFTER LARGE WOOD AND SLASH HAVE BEEN INSTALLED IN THE LARGE WOOD STRUCTURES.

22. DAM DEMOLITION CAN COMMENCE FROM THE TOP DOWN AS LONG AS 10 FEET OF FREEBOARD IS MAINTAINED. REMOVE REMAINING Dam, AND SLASH SALVAGED FROM THE拆除. CONSTRUCT WILDBOY CREEK Channels WITHIN FORMER DAM FOOTPRINT.

23. PLACE SEEDING AND MULCH IN DISTURBED AREAS.

24. PERFORM FINAL SITE STABILIZATION.
RESERVOIR OPERATIONS ESCP PROVIDED BY EXISTING DAM.

High head pumps shall be Pioneer Pump, PP66S12, or Hydra-Tech, HT74DJV power unit, or approved equal. Hydra-Tech 6 in. submersible trash pump, S6TC, or approved equal. Each sump shall be powered by booster pump for each high head pumps to overcome friction losses as reservoir levels descend.

Connect ends of floating intakes with 1/2 wire rope until silt curtain is removed. Following removal of silt curtain, reef end of floating intake 2 toward ogee crest anchor point and reef floating intake 1 toward dam face anchor point. Continue to pump from floating intakes to dewaterring field until floating intakes are 2 feet from bottom slurry. Reef ends of floating intakes to narrow drawdown.

Securing floating intake to existing shoreline trees, adjust tension as necessary while water surface descends.

Provide sump pumps as booster pump for each high head pumps to overcome friction losses as reservoir levels descend.

Secure floating intake 10 to 20 ft. spaced outside of silt curtain.

Secure to wire rope 4 ft. o.c. with heavy duty (175 lb.) zip ties.

Secure to wire rope 4 ft. o.c. with heavy duty (175 lb.) zip ties.

Temporary breach floating intake to allow for wdfw electro fishing boat ingress and egress.

Two high head pumps shall be Pioneer Pump, PP66S12, or approved equal.

Pump clear water from deep water side of the silt curtain to the spillway apron. Partially demolish concrete apron and excavate a level surface part way down the dam. Move the clearwater pump down the dam face to reduce suction head as reservoir levels descend.

Notes:
- Submersible (sump) pumps shall be attached to each 6 in. dia. SDR 11 welded joint HDPE conveyor pipe as booster pumps to overcome friction losses as reservoir levels descend. Sump pumps shall be Hydra-Tech 6 in. submersible trash pump. See or approved equal. Each sump shall be powered by Hydra-Tech. HT74DJV power unit, or approved equal. High head pumps shall be Pioneer Pump, PP66S12, or approved equal.
- Reservoir operations ESCP provided by existing dam.
PUMP CLEAR WATER FROM DEEP WATER SIDE OF THE SILT CURTAIN TO THE SPILLWAY APRON. PARTIALLY DEMO CONCRETE APRON AND EXCAVATE A LEVEL SURFACE PART WAY DOWN THE DAM. MOVE THE CLEARWATER PUMP DOWN THE DAM FACE TO REDUCE SUCTION HEAD AS RESERVOIR LEVELS DECREASE.

ANCHOR SILT TURBIDITY CURTAIN AND FLOATING INTAKES TO OPPOSITE BANK. RELEASE TENSION AS RESERVOIR LEVELS DECREASE.

FLOATING INTAKE 10 to 20 FT SPACING OUTSIDE OF SILT CURTAIN.

EXISTING RESERVOIR PATHWAYS
EXISTING GRADE
EXISTING DAM AND SPILLWAY
EXISTING FOREST ROADS
PROPOSED TEMPORARY ACCESS ROADS (VEHICLES)
PROPOSED TEMPORARY ACCESS ROADS (OFF ROAD)
PROJECT BOUNDARY AREA
LIMITS OF DISTURBANCE
STAGING AND STOCKPILE
WATER TURBIDITY MONITORS
12 IN. HDPE WELDED JOINT SDR-17 DIVERSION PIPE
6-INCH CONVEYANCE PIPE
SILT TURBIDITY CURTAIN
DIVERSION DAM
10 FT DRAW DOWN
FINE SEDIMENT AREA AFTER INITIAL DRAW DOWN
SPRAY INFILTRATION AREA

NOTE: "DEWATERING FIELD" INCLUDES THE AREAS WHERE WATER FROM FLOATING INTAKES WILL BE SPRAYED FOR LAND APPLICATION.
TYPICAL DETAILS: PUMPED DIVERSION OUTLET EROSION CONTROL MEASURES

- Install 20-mil Visqueen up slopes above flow and secure with sandbags.
- Install precast concrete blocks, Ultrablock or approved equal, wrapped with 20-mil Visqueen.
- Install sandbags on top of precast concrete weir to create low point and direct flow.
- Secure pipe outlet with precast concrete blocks, Ultrablock or approved equal.
- 20 mil Visqueen sheeting at upstream end of outlet erosion control measures. Key into stream bed if bedrock is not present.
- ALL EXTERIOR SURFACES OF FRAME TO BE COVERED WITH SOLID SHEETS OF PLYWOOD
- Screen to meet NMFS criteria

TYPICAL PLAN - CLEAR WATER PUMP INTAKE SCREEN

- Install 20-mil Visqueen up slopes above flow and secure with sandbags.
- Install precast concrete blocks, Ultrablock or approved equal, wrapped with 20-mil Visqueen.
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- ALL EXTERIOR SURFACES OF FRAME TO BE COVERED WITH SOLID SHEETS OF PLYWOOD
- Screen to meet NMFS criteria

TYPICAL SECTION - CLEAR WATER PUMP INTAKE SCREEN

- Screen to meet NMFS criteria
- Cut opening in plywood for pipe
- Clear water pump shall be Baker Corp, 8 in. BRBBL, GDL115AT, or approved equal, typ.
- Weight as necessary to avoid flotation
- Install air release valves in high points in pipeline
- Existing dam face
1. **TYPICAL DETAIL - ANCHOR POINT**
   - Connect sling to wire rope thimble 4/14 with a load appropriate rope with trucker hitch or block and tackle that allows for controlled lengthening of line as reservoir levels descend.
   - Install 1/2 in. x 6 in. Crosby S-276 forged rivet eye bolt. Adhere with HILTI HITRE 500 epoxy.
   - Drill 1 in. dia. hole into existing concrete.

2. **TYPICAL DETAIL - 1/2 IN. DIA. WIRE ROPE END OVERLAP CONNECTION**
   - Wrap load rated nylon sling around existing tree. Sling eyes. Fix line to floating intake or turbidity curtain, run through block, fix and adjust, as necessary.

3. **TYPICAL DETAIL - FLOATING INTAKE RETENTION LINE**
   - Connect load rated rope. Adjust retention lines as reservoir levels descend.
   - Secure wire rope to turbidity curtain/floating intake.

4. **TYPICAL DETAIL - PIPE RESTRAINING SLING TO EXISTING TREE**
   - Connect sling to wire rope thimble 4/14 with a load appropriate rope with trucker hitch or block and tackle that allows for controlled lengthening of line as reservoir levels descend.
   - 6-in. wide, load appropriate sling. Attach with shackle to wire rope thimble.

5. **TYPICAL DETAIL - WIRE ROPE THIMBLE**
   - Install 1/2 in. x 6 in. Crosby S-276 forged rivet eye bolt. Adhere with HILTI HITRE 500 epoxy.
   - Drill 1 in. dia. hole into existing concrete.

6. **TYPICAL SECTION - TREE CONNECTION**
   - Connect load rated rope. Adjust retention lines as reservoir levels descend.
   - Secure wire rope to turbidity curtain/floating intake.

7. **TYPICAL DETAIL - PIPE RESTRAINING SLING TO EXISTING TREE**
   - Connect load rated rope. Adjust retention lines as reservoir levels descend.
   - Secure wire rope to turbidity curtain/floating intake.

---

**PRELIMINARY DESIGN**

KWONEESUM DAM REMOVAL DESIGN

COWITZ INDIAN TRIBE

KWONEESUM DAM - DEWATERING TYPICAL DETAILS
TYPICAL DETAIL - TYPE 2 TURBIDITY CURTAIN ELEVATION VIEW

NOT TO SCALE

REEFING LINES TYP. ABOUT 6 FT. APART. ADJUST REEFING LINES, AS NECESSARY TO MAINTAIN 2 FEET MINIMUM SPACE BETWEEN THE BOTTOM OF THE CURTAIN AND FINE SEDIMENTS AT THE BOTTOM OF THE RESERVOIR. TYP. ALTERNATIVELY, CONTRACTOR MAY ADJUST LOCATION OF CURTAIN TO DEEPER WATER TO MAINTAIN MINIMUM DISTANCE BETWEEN BOTTOM OF THE CURTAIN AND FINE SEDIMENTS AT THE BOTTOM OF THE RESERVOIR.

ANCHOR POINTS TYP. 50 FT. O.C.
CONNECT LINES TO SECURE LOCATION OF SILT CURTAIN TO ANCHOR POINTS

12 IN. FLOTATION

NOTE:
INSTALL PER MANUFACTURERS RECOMMENDATIONS

5/16 IN. COATED CABLE DUAL TENSION CABLE BELOW FLOTATION (FRONT AND BACK)

END GROMMETS LACED TOGETHER WITH 120 LB TEST WIRE TIES

BOTTOM BALLAST CHAIN

CHAIN TENSIONED THROUGH 5.5 STRESS PLATES VIA HOOK AND RING CONNECTION

REEFING LINES PASS THROUGH GROMMETS AND CHAIN

CURTAIN MEMBRANE 22 OZ PVC

PRELIMINARY DESIGN
REMOVAL DESIGN
KWONEESUM DAM
VANCOUVER, WA, 98665
7700 26TH AVE
COWLITZ INDIAN TRIBE
KWONEESUM RESERVOIR AND DAM - DEWATERING TYPICAL DETAILS
1. Relocate land application sprayers, platforms, and piping to evaporative dewatering sprayer locations.

2. Place sump pumps for evaporative dewatering. Place hope pipes from sump pumps to high head pumps, and from high head pumps to sprayer platforms. Repurpose high head pumps for evaporative dewatering operations.

3. Begin evaporative spraying operations following fish rescue within the reservoir. Note, any rain events that overtop tributary diversions will require evaporative spray operations to cease and will require additional fish rescue prior to restarting pumps.

4. Evaporative dewatering operations are anticipated for a duration of 10 to 14 days, weather dependent, as long as initial drawdown is over 10 feet. Lower initial drawdown levels will significantly reduce the duration of evaporative dewatering operations as long as the tributary diversions are not overtopped.

Legend:

- Ordinary high water (OHW)
- Existing river pathways
- Existing dam and spillway
- Existing forest roads
- Proposed temporary access roads (vehicles)
- Proposed temporary access roads (off road)
- Staging and stockpile
- High head pumps to sprayers
- Sprays evaporating area
- Water turbidity monitors
- Limits of disturbance
- Electrical lines
- 6-inch conveyance pipe
- 12-inch HOPE welded joint SD1-17 diversion pipe
- Existing dam and spillway
- Evaporative drainage
- Ephemeral drainage
- Floating intakes following initial drawdown.

Notes:

- Sump pumps shall be Hydrotech, 6" submersible trash pump, setc, fitted with round fish screen, or approved equal. Each sump pump shall be powered by hydrotech, HT40DJV Power Unit, or approved equal.
- High end pumps shall be pioneer pump, PPG67512, or approved equal.
TYPICAL DETAIL - PRECAST CONCRETE BLOCK

NOT TO SCALE

2.5 FT.
5 FT.

NOTE: 4300 LBS

FULL FLAT

TYPICAL DETAIL - SPRAYER PLATFORM DETAILS

NOT TO SCALE

2.5 FT.
5 FT.

NOTE: 4300 LBS

FULL FLAT

TYPICAL DETAIL - SPRAYER PLATFORM DETAILS

22

ELEVATION VIEW - SPRAYER PLATFORM

NOT TO SCALE

PLACE CRUSHED SURFACING BASE COARSE 0.20 FT. THICK

PLACE GRAVEL BASE MATERIAL 0.75 FT. THICK

CLEAR AND GRUB EXISTING VEGETATION, ORGANICS AND SOILS DOWN TO FIRM SUBSOILS

EXCAVATE ADJACENT GROUND SURFACE TO MAINTAIN 13 FT. MIN PIPE RADIUS

CONTRACTOR MAY HAVE TO ROTATE BLOCKS AND RE-DRILL HOLES, AND SET NEW BOLTS WHEN RE-PURPOSING SPRAYER PLATFORM FOR EVAPORATIVE SPRAYING

CAREFULLY LEVEL BASE BLOCKS TO EACH OTHER. SINCE LEVELING ERRORS WILL MULTIPLY AS SUBSEQUENT BLOCKS ARE STACKED

PRECAST CONCRETE BLOCKS ULTRABLOCK OR APPROVED EQUAL. TOP COARSE FULL FLAT BLOCKS. BASE COARSE AND MIDDLE COARSE, FULL BLOCKS, TYP.

NELSON BIG GUN SR200, OR APPROVED EQUAL RING NOZZLE

4 IN. STEEL MALE NTP. WELDED CONNECTION TO STEEL PLATE

4 IN. HDPE FLANGED PIPE END BOLTED TO BOTTOM OF ½ IN. THICK, STEEL PLATE

4 IN. HDPE PIPE FROM PUMP

R12.5 FT (MIN.)

FLOW

4 FT.

FULL FLAT ULTRABLOCK

ULTRABLOCK 6 IN. HDPE FLANGED PIPE END BOLTED TO BOTTOM OF ½ IN. THICK, STEEL PLATE

4 IN. MALE NTP. WELDED CONNECTION TO STEEL PLATE

FULL FLAT ULTRABLOCK

4 FT.
SR200 BIG GUN

4 IN. STEEL MALE NTP. WELDED CONNECTION TO STEEL PLATE

6 IN. HDPE FLANGED PIPE END BOLTED TO BOTTOM OF ½ IN. THICK, STEEL PLATE

6 IN. HDPE PIPE

IN. DIA., ALL THREAD ASTM A307, GRADE A EMBEDDED 6 IN. MIN. ADHERE WITH HILTI HIT RE 500, OR APPROVED EQUAL. STEEL WASHER AND NUT FASTENERS, ASTM A307 GRADE A.

NOTE:

4320 LBS

5 FT.
2.5 FT.

NOTE:

4300 LBS

5 FT.
2.5 FT.

NOTE:

4300 LBS

FULL FLAT

FULL Flat

TYPICAL DETAIL - PRECAST CONCRETE BLOCK

NOT TO SCALE
PLACE EXISTING RIPRAP EXCAVATED FOR GRAVITY DIVERSION PIPE INSIDE OF NORTHWEST CORNER OF OGEE CREST. RIPRAP MATERIAL SHALL BE PLACED INDIVIDUALLY AND IN LIFTS OF HALF THE RIPRAP HEIGHT THICKNESS. EACH LIFT OF RIPRAP SHALL BE FILLED WITH SMALL (3-INCH, MINUS) REMOVED FROM THE DAM BEFORE THE NEXT LIFT OF RIPRAP IS PLACED. CONTRACTOR SHALL COMPACT MATERIALS WITH EXCAVATOR BUCKET AND TRACKS FOR EACH SUCCESSIVE LIFT. SUBSEQUENT LIFTS OF RIPRAP SHALL BE PLACED IN SUCH A WAY THAT POCKETS BETWEEN OR UNDER THEM CAN BE FILLED WITH CRUSHED ROCK FROM THE DAM EITHER BEFORE OR AFTER RIPRAP PLACEMENT. ADD GRAVEL BASE AND CRUSHED SURFACING BASE PER DETAIL 1 OF SHEET 18 OVER RIPRAP LIFTS.

EXISTING CONCRETE SPILLWAY WALL

EXISTING GRADE

SR200 BIG GUN

6 IN. HDPE FLANGED PIPE END BOLTED TO BOTTOM OF ½ IN. THICK, STEEL PLATE.

NELSON BIG GUN, SR200, OR APPROVED EQUAL RING NOZZLE

27°

4 IN. MALE NTP. WELDED CONNECTION TO STEEL PLATE

6 IN. HDPE PIPE FROM PUMP

82.5 FT. (MIN.)

EXCAVATE ADJACENT GROUND SURFACE TO MAINTAIN 13 FT. MIN PIPE RADIUS.

SECTION VIEW - SPRAYER PLATFORM

6 IN. HDPE FLANGED PIPE END BOLTED TO BOTTOM OF ½ IN. THICK, STEEL PLATE.

TYPICAL DETAIL - SPRAYER PLATFORM IN SPILLWAY DETAILS

FULL FLAT ULTRABLOCK

EXISTING GRADE

OGEE CREST

SR200 BIG GUN

6 IN. HDPE PIPE

FLOW
EXCAVATION AND FILL QUANTITIES WITHIN OHW UPSTREAM OF DAM

<table>
<thead>
<tr>
<th>Description</th>
<th>Temporary Cut in OHW</th>
<th>Temporary Fill in OHW</th>
<th>Permanent Cut in OHW</th>
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<td>Reservoir Tributary/Spillway</td>
<td>3270</td>
<td>2481</td>
<td>1801</td>
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EXISTING RIVER PATHWAYS
EXISTING DAM AND SPILLWAY
TEMPORARY ACCESS ROADS
STAGING AND STOCKPILE
EXISTING GRADING
CHANNEL CENTERLINE
PROPOSED GRADING
DIVERSION DAM
LIMITS OF DISTURBANCE
ORDINARY HIGH WATER (OHW)

AREA FOR DRAWING OF FINE SOILS REMOVED FROM THE BOTTOM OF THE RESERVOIR AND MIXING WITH ORIGINAL DAM CONSTRUCTION SPOLS. THE SOILS MIXTURE SHALL SUBSEQUENTLY BE SPREAD THROUGHOUT PROPOSED UPLAND AND RIPARIAN AREAS WITHIN THE RESERVOIR FOOTPRINT.

NOTES:

REMOVE IMPounded SEDiments TO PRE-DAM SURFACE.
APPROXIMATED ENCOUNTERING BEDROck, GRAVEL/CObBLES, STumps OR OTHER TBD IN FIELD BY ENGINEER.
WEST TRIBUTARY (SEE SHEETS 47-50)

NORTH TRIBUTARY (SEE SHEETS 39-42)

EXISTING DEPRESSION AREA

NOTES:
All excavation cut and fills are permanent
All cross-sections are oriented left to right looking downstream.

LEGEND
- - - EXISTING GRADE
- - - ORDINARY HIGH WATER (OHW) [ft]
- - - ANTICIPATED GRADE
- - - ANTICIPATED DAM SUBGRADE
- - - ACCESS ROAD SALVAGED ROCK
LEGEND

- - - - EXISTING GRADE

--- OORDINARY HIGH WATER (OHW)

- - - - ANTICIPATED GRADE

--- ACCESS ROAD SALVAGED ROCK

NOTES:

ALL EXCAVATION CUT AND FILLS ARE PERMANENT

ALL CROSS-SECTIONS ARE ORIENTED LEFT TO RIGHT LOOKING DOWNSTREAM.

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ALL EXCAVATION CUT AND FILLS ARE PERMANENT

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EXISTING STREAMBED

FLOW

DIVERSION DAM: BULKBAGS FILLED WITH SAND

PROJECT AREA

CONSTRUCTION AREA

PUMP FROM IMPOUNDED AREA

4 FT. MIN.

FLOW

4.5 FT. MAX.
WATER DEPTH

PLASTIC SHEETING

SANDBAG

EXISTING STREAMBED

KEY IN PLASTIC SHEETING 1 FT. MIN.

TYPICAL SECTION VIEW: SINGLE LAYER

NOT TO SCALE

COFFERDAM NOTES:
1. BULKBAG COFFERDAM IS A PRE-APPROVED METHOD FOR ISOLATING THE WORK AREA FROM SURFACE FLOWS. CONTRACTOR MAY SUBMIT ALTERNATE COFFERDAM DESIGN TO THE ENGINEER FOR REVIEW AND APPROVAL. ALTERNATE DESIGN SUBMITTAL SHALL INCLUDE SHOP DRAWINGS AND/OR MATERIALS DATA AND MANUFACTURER’S RECOMMENDATIONS.
2. BULKBAGS SHALL BE FILLED WITH SAND. PLACE FILLED BULKBAGS ADJACENT TO ONE ANOTHER TO CREATE A CONTINUOUS ROW THAT ISOLATES THE WORK AREA FROM SURFACE FLOWS.
3. IF WATER DEPTH EXCEEDS 85% OF THE BULKBAG HEIGHT, AN ADDITIONAL TOP ROW OF BULKBAGS SHALL BE INSTALLED, SUPPORTED BY TWO BOTTOM ROWS OF BULKBAGS.
4. BULKBAG COFFERDAM SHALL BE SEALED BY COVERING THE COFFERDAM WITH PLASTIC SHEETING HELD IN PLACE BY STANDARDS SANDBAGS PLACED IN ROWS ON TOP OF COFFERDAM, AND AT TOE OF COFFERDAM. THE PLASTIC SHEETING SHALL BE DRAPED ALONG THE CHANNEL BOTTOM ON THE WORK AREA SIDE OF THE COFFERDAM WITH OUTWARD EDGE OF SHEETING MINIMUM 4-Feet FROM TOE OF COFFERDAM. THE DRAPED PORTION OF PLASTIC SHEETING SHALL BE PINNED TO THE CHANNEL BED BY MINIMUM TWO ROWS OF STANDARD SANDBAGS.
5. THE OUTWARD EDGE OF PLASTIC SHEETING ON WORK AREA SIDE SHALL BE TOED INTO THE CHANNEL BED MINIMUM 1 FT. TOERING IN THE OUTWARD EDGE OF PLASTIC SHEETING SHALL OCCUR AFTER THE COFFERDAM IS CLOSED TO PREVENT TURBIDITY RELEASE TO THE WATERWAY.
6. THE COFFERDAM SHALL BE TIGHTLY SEALED TO THE GROUND BY PLASTIC SHEETING AND STANDARD SANDBAGS. MULTIPLE LAYERS OF SHEETING AND SANDBAGS MAY BE REQUIRED TO FORM A WATERTIGHT SEAL.
7. BULKBAGS SHALL BE WATERPROOF CUBE-SHAPED POLYPROPYLENE WOVEN FABRIC BAGS WITH FULLY OPEN TOP, FLAT BOTTOM, FOUR HOOPS, MINIMUM 2-TON WEIGHT CAPACITY, MINIMUM 5:1 SAFETY FACTOR.
8. PLASTIC SHEETING SHALL BE MINIMUM 6-MIL THICKNESS. ROLL LENGTH SHALL BE LONG ENOUGH TO ENSURE THAT ENTIRE LENGTH OF COFFERDAM WILL BE COVERED WITHOUT A SEAM. MINIMUM 12 FT Wide ROLL SHALL BE USED FOR SINGLE LAYER BULK BAG COFFERDAM. MINIMUM 16 FT Wide ROLL SHALL BE USED FOR 2 LAYER STACKED BULK BAG COFFERDAM.
9. CONTRACTOR SHALL PROVIDE PUMPING SUFFICIENT FOR A NET INFLOW TO THE WORK AREA, AND DISCHARGE TURBID WATER TO UPLAND FLOODPLAIN.
10. BULKBAG COFFERDAM SHALL BE COMPLETELY REMOVED AFTER CONSTRUCTION IS COMPLETED AND TURBIDITY HAS BEEN REMOVED.
11. IF NECESSARY, GAPS BETWEEN BULKBAGS MAY BE FILLED WITH BENONITE TO SEAL AND IMPROVE COFFERDAM SEAL.
PUMP TURBID WATER TO UPLAND LOCATION FOR INFILTRATION. SPRAYERS AND SPRAYER LOCATIONS USED FOR INITIAL DRAWDOWN MAY BE USED FOR DISCHARGE, IF REQUIRED FROM DEWATERED AND DEFIED PLUNGE POOL.

INSTALL DEWATERING COFFERDAM 1 TO INTERCEPT FLOW THAT SEEPS OR RAINS INTO THE RESERVOIR AND PUMP TO UPLAND LOCATION FOR INFILTRATION. CONTRACTOR SHALL ENSURE THAT ALL FLOW IS INTERCEPTED PRIOR TO REMOVING THE BOTTOM 10 FEET OF CONCRETE APRON AT THE UPSTREAM DAM FACE.

EXISTING KWONEESUM DAM CONCRETE SPILLWAY

THE CONCRETE APRON AT THE LAST 30 FEET OF THE SPILLWAY SHALL REMAIN INTACT AS A HISTORICAL REMNANT.

PUMP TURBID WATER TO UPLAND LOCATION FOR INFILTRATION. SPRAYERS AND SPRAYER LOCATIONS USED FOR INITIAL DRAWDOWN MAY BE USED FOR DISCHARGE, IF REQUIRED FROM DEWATERED AND DEFIED PLUNGE POOL.

EXISTING DAM AND SPILLWAY

EXISTING GRADING

CHANNEL CENTERLINE

EXISTING CONCRETE TO BE REMOVED

PROPOSED GRADING

ORDINARY HIGH WATER (OHW)

LEGEND

REDUCE ROCK FROM SPILLWAY AND SALVAGE FOR REUSE IN LARGE WOOD STRUCTURES.

THE CONCRETE APRON AT THE LAST 30 FEET OF THE SPILLWAY SHALL REMAIN INTACT AS A HISTORICAL REMNANT.

CAMP KWONEESUM

EXISTING KWONEESUM DAM CONCRETE SPILLWAY

EXISTING DAM AND SPILLWAY

EXISTING GRADING

CHANNEL CENTERLINE

EXISTING CONCRETE TO BE REMOVED

PROPOSED GRADING

ORDINARY HIGH WATER (OHW)

LEGEND

REDUCE ROCK FROM SPILLWAY AND SALVAGE FOR REUSE IN LARGE WOOD STRUCTURES.

THE CONCRETE APRON AT THE LAST 30 FEET OF THE SPILLWAY SHALL REMAIN INTACT AS A HISTORICAL REMNANT.
EXISTING SPILLWAY TO BE REMOVED.

EXISTING DAM TO BE REMOVED. ROCK SHALL BE SALVAGED FOR REUSE FOR ACCESS ROADS AND LARGE WOOD STRUCTURES.

CONTRACTOR SHALL REARRANGE LARGE ROCK AND ADD LARGE WOOD GRADE CONTROL IN THIS AREA.

NOTES:
ALL EXCAVATION CUT AND FILLS ARE PERMANENT
ALL CROSS-SECTIONS ARE ORIENTED LEFT TO RIGHT LOOKING DOWNSTREAM.

LEGEND
- - - - - EXISTING GRADE
- - - - - - - ANTICIPATED DAM SUBGRADE
- - - - - - - - - EXISTING DAM TO BE REMOVED
- - - - - - - - - - - DAM FOUNDATION MATERIAL

Preliminary Design
KWONEESUM DAM REMOVAL DESIGN
KWONEESUM RESERVOIR AND DAM – DAM SUBGRADE CROSS-SECTIONS