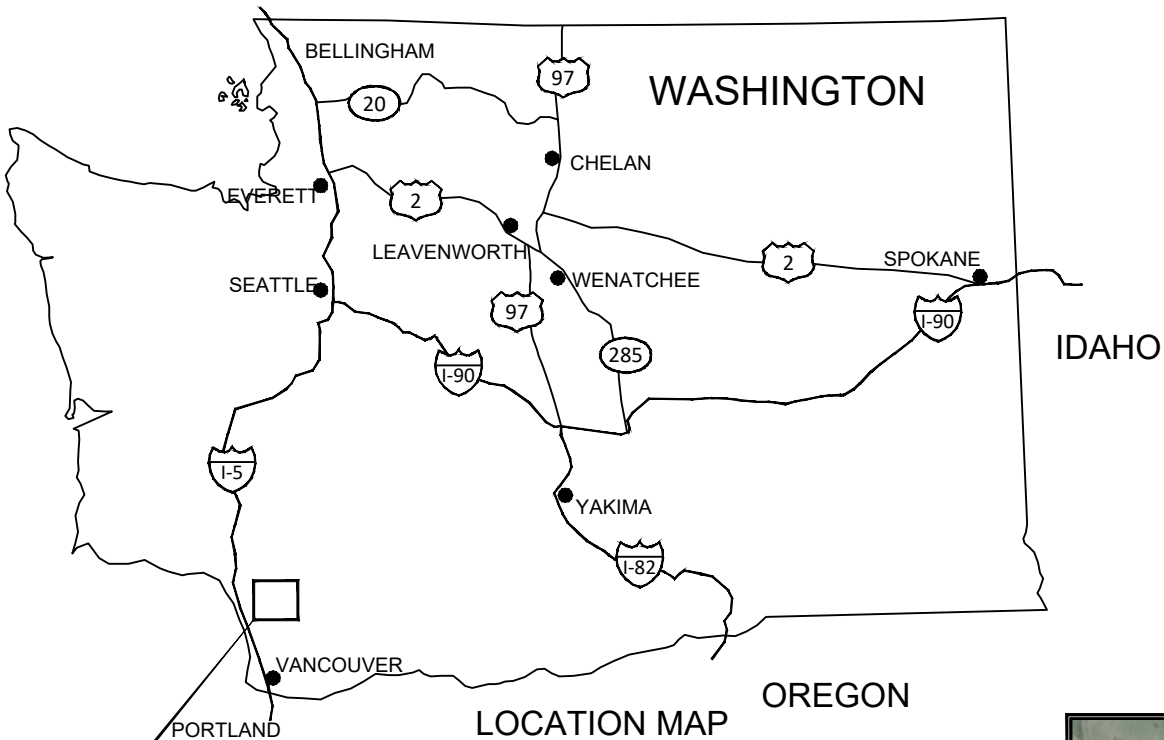


LOWER EAST FORK LEWIS RIVER

RIDGEFIELD PITS RESTORATION 60% DESIGN

JUNE 2023



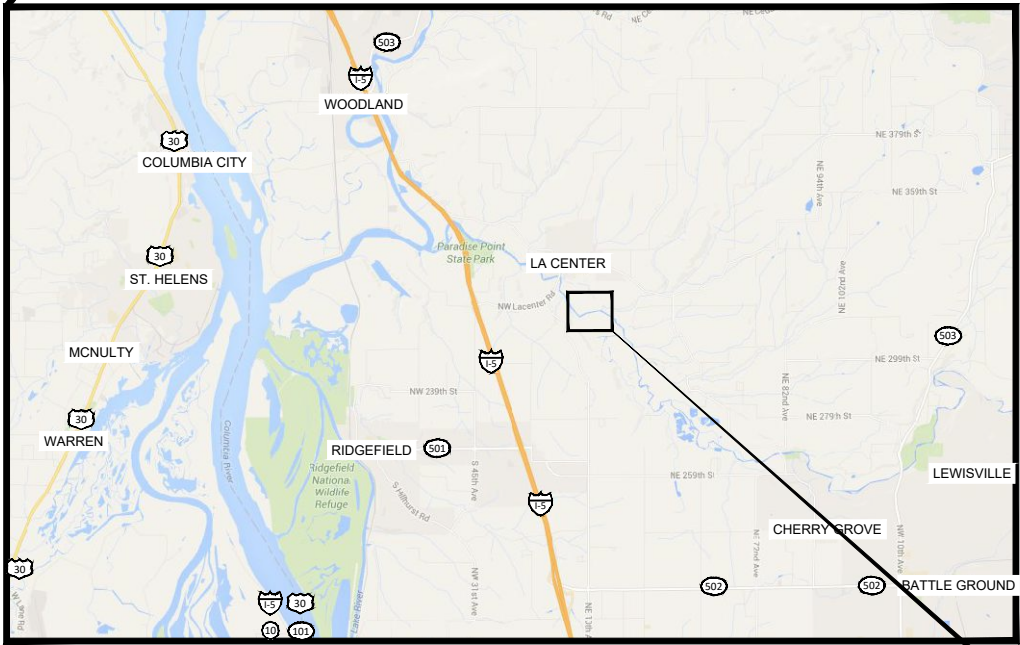
LOCATION MAP
STATE OF
WASHINGTON
NOT TO SCALE

COORDINATES:
LATITUDE 45.82059008
LONGITUDE -122.62935033
SECTION 13,24, TOWNSHIP 4N, RANGE 1E
SECTION 19,20, TOWNSHIP 4N, RANGE 2E
WATERBODY: EAST FORK LEWIS
TRIBUTARY OF: COLUMBIA RIVER

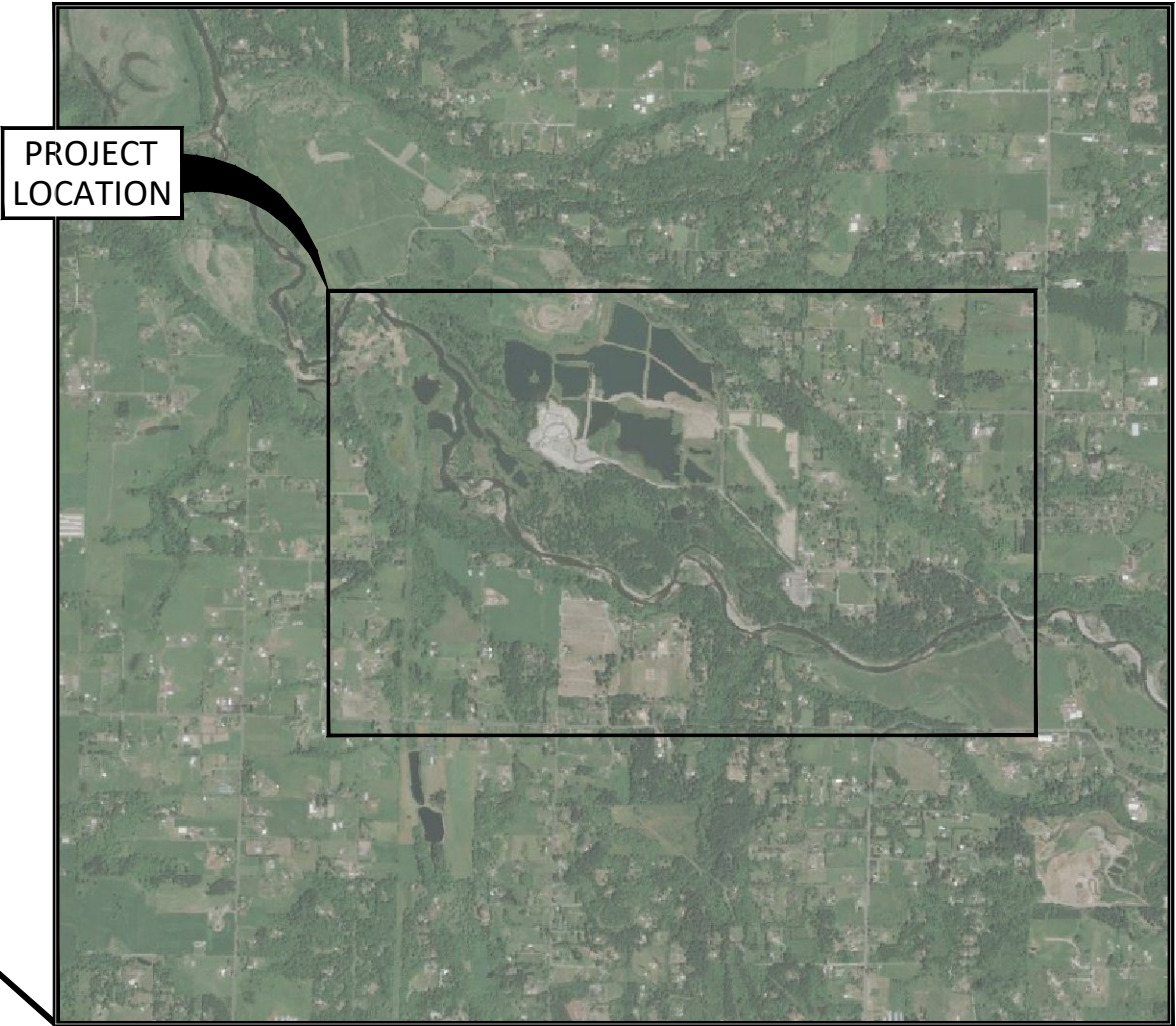


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VICINITY MAP
NOT TO SCALE



SITE MAP
NOT TO SCALE

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				DRAWN	DESIGNED	CHECKED
				----	06/07/2023	220214
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LOWER EAST FORK LEWIS RIVER
RIDGEFIELD PITS RESTORATION



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COVER SHEET

SHEET

1 OF 44

THE CONTRACTOR SHALL ATTEND A PRE-CONSTRUCTION MEETING WITH OWNER AND OWNER'S REPRESENTATIVE PRIOR TO MOBILIZING TO SITE AND 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 WILL PREVAIL.

ALL WORK SHALL BE IN COMPLIANCE WITH REQUIREMENTS STATED IN PERMITS ISSUED FOR THIS PROJECT.

WDFW IN-WATER WORK PERIODS

WORK SHALL OCCUR DURING THE PERMITTED IN-WATER WORK PERIOD STATED IN THE HYDRAULIC PROJECT APPROVAL.

EXISTING DATA

TOPOBATHYMETRIC LIDAR DATA AND HIGH RESOLUTION AERIAL PHOTOS WERE COLLECTED FOR THE ESTUARY PARTNERSHIP BY NV5 GEOSPATIAL IN JUNE 2022. TOPOGRAPHIC DATA WERE SUPPLEMENTED VIA GROUND AND BATHYMETRIC SURVEYS BY INTER-FLUVE AND THE ESTUARY PARTNERSHIP IN OCTOBER 2022.

HORIZONTAL DATUM: STATE PLANE NAD83 WASHINGTON SOUTH
VERTICAL DATUM: NAVD88.

LANDOWNERSHIP DATA OBTAINED FROM CLARK COUNTY IN MAY 2023.

BPA POWERLINE LOCATION DATA OBTAINED FROM BPA AND SPOT-CHECKED DURING SITE SURVEYS.

EXISTING REVEGETATION AREAS (CONDUCTED BY VARIOUS ENTITIES) DETERMINED VIA AERIAL PHOTO ANALYSIS AND SITE OBSERVATIONS.

SOILS

SUBSURFACE MATERIAL INVESTIGATIONS HAVE BEEN CONDUCTED IN SELECT LOCATIONS IN THE PROJECT AREA. THESE DATA ARE AVAILABLE BY REQUEST.

UTILITIES

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

THE CONTRACTOR SHALL CALL (800-424-5555) FOR UTILITY LOCATE PRIOR TO CONSTRUCTION

THE CONTRACTOR SHALL IMMEDIATELY CONTACT THE EFFECTED UTILITY SERVICE TO REPORT ANY DAMAGED OR DESTROYED UTILITIES.

THE CONTRACTOR SHALL PROVIDE EQUIPMENT AND LABOR TO AID THE EFFECTED UTILITY SERVICE IN REPAIRING DAMAGED OR DESTROYED UTILITIES AT NO ADDITIONAL COST.

CONSTRUCTION STAKING

CONTRACTOR WILL PROVIDE STAKING OF PROJECT LIMITS, GRADE STAKES, AND ELEVATION CONTROL POINTS. SOME FIELD ADJUSTMENTS TO THE LINES AND GRADES ARE TO BE EXPECTED.

CONTRACTOR SHALL MEET WITH THE OWNER AND OWNER'S REPRESENTATIVE TO DEFINE AND MARK LIMITS OF DISTURBANCE PRIOR TO MOBILIZATION OF EQUIPMENT OR MATERIALS ONTO THE SITE.

THE CONTRACTOR SHALL REPLACE DAMAGED OR DESTROYED CONSTRUCTION STAKES AT NO ADDITIONAL COST.

CONSTRUCTION MATERIALS

ALL MATERIALS QUANTITIES ARE BASED ON IN-PLACE CONDITION DETERMINED BY A PRE-PROJECT CONDITION SURVEY COMPARED AGAINST A PROJECT CONDITION SURVEY

CONTRACTOR SHALL ALLOW FOR EXPANSION OF EXCAVATED MATERIAL AND COMPACTION OF PLACED MATERIAL AT NO ADDITIONAL MEASURE OR COST TO OWNER. MEASUREMENT AND PAYMENT SHALL NOT BE BASED ON WEIGHT TICKETS OR TRUCK MEASURE WITHOUT PRIOR WRITTEN APPROVAL.

LOCATION, ALIGNMENT, AND ELEVATION OF LOGS AND LOGS WITH ROOT WADS ARE SUBJECT TO ADJUSTMENT BASED ON FIELD CONDITIONS, AND MATERIAL SIZE.

ANY EXCESS MATERIAL SHALL BE STOCKPILED NEATLY IN AN APPROVED LOCATION IN STOCKPILE AND STAGING AREAS. AT COMPLETION OF WORK, THE MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE FOR LEGAL DISPOSAL.

CONSTRUCTION ACCESS/TRAFFIC CONTROL

CONTRACTOR SHALL SUBMIT AN ACCESS, STAGING, AND STOCKPILE PLAN TO THE OWNER'S REPRESENTATIVE FOR APPROVAL PRIOR TO MOBILIZATION.

PUBLIC ACCESS TO/ALONG ROADWAYS SHALL BE MAINTAINED AT ALL TIMES.

THE CONTRACTOR IS SOLELY RESPONSIBLE FOR OBTAINING ANY REQUIRED TRAFFIC CONTROL OR ACCESS PERMITS.

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

ALL DISTURBED AREAS INCLUDING ROADS, DRIVEWAYS AND ACCESS ROUTES SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER AND RE-VEGETATED PER PLANS.

ALL DISTURBED AREAS OUTSIDE THE LIMITS OF DISTURBANCE SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER AT NO ADDITIONAL COST.

ANY FENCES REMOVED FOR ACCESS OR CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR AT NO EXPENSE TO THE OWNER.

EROSION AND SEDIMENT CONTROL

THESE BMPS SERVE AS A GUIDELINE FOR THE CONTRACTOR TO DEVELOP A TESC PLAN.

THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR PROVIDING EROSION CONTROL MEASURES TO COMPLY WITH APPLICABLE REGULATIONS.

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

GENERAL TESC PLAN RECOMMENDATIONS:

- 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 LIMIT SHALL BE PERMITTED. THE FLAGGING SHALL BE MAINTAINED BY THE CONTRACTOR FOR THE DURATION OF CONSTRUCTION.
- TESC 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.
- THE TESC 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 EVENT AND TO ENSURE THAT SEDIMENT AND SEDIMENT-LADEN WATER DO NOT LEAVE THE SITE.
- THE TESC FACILITIES SHALL BE INSPECTIONS DAILY BY THE CONTRACTOR AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING.

- THE TESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A WEEK OR WITHIN THE 24 HOURS FOLLOWING A STORM EVENT.
- STABILIZED CONSTRUCTION ENTRANCE AND ADDITIONAL MEASURES MAY BE REQUIRED AND SHALL BE MAINTAINED FOR THE DURATION OF THE PROJECT TO ENSURE ALL ACCESS ROADS ARE KEPT CLEAN AT NO ADDITIONAL COST.

INSPECTION AND MAINTENANCE:

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. AND AFTER EVENTS EXCEEDING TWO HOURS DURATION.

CONTRACTOR'S TESC RECORD

WEEKLY REPORTS SUMMARIZING THE SCOPE OF INSPECTIONS, THE PERSONNEL CONDUCTING THE INSPECTION, THE DATES 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:

- WHEN MAJOR GRADING ACTIVITIES OCCUR
- DATES OF RAINFALL EVENTS EITHER EXCEEDING TWO HOURS DURATION OR MORE THAN 0.5 INCHES IN 24 HOURS.
- WHEN CONSTRUCTION ACTIVITIES TEMPORARILY OR PERMANENTLY CEASE ON SITE, OR ON A PORTION OF THE SITE.
- 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.

STABILIZE SOILS AND PROTECT SLOPES

- FROM MAY 1 THROUGH SEPTEMBER 30, ALL EXPOSED SOIL SHALL BE PROTECTED FROM EROSION BY MULCHING, HYDROSEED COVERING, OR OTHER APPROVED MEASURES WITHIN THREE DAYS OF GRADING. SOILS SHALL BE STABILIZED BEFORE A WORK SHUT DOWN, HOLIDAY, OR WEEKEND, IF NEEDED BASED ON THE WEATHER FORECAST. SOIL STOCKPILINGS MUST BE STABILIZED AND PROTECTED WITH SEDIMENT TRAPPING MEASURES. HYDROSEED ALL DISTURBED AREAS AS SOON AS PRACTICAL IF NOT INDICATED IN THE CONTRACT DOCUMENTS FOR OTHER PERMANENT STABILIZATION MEASURES.
- 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 OFFSITE 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 BEST MANAGEMENT PRACTICES (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.

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RIDGEFIELD PITS RESTORATION



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GENERAL NOTES

BMPS FOR GENERAL IMPACT AVOIDANCE AND MINIMIZATION

ALL WORK SHALL BE IN COMPLIANCE WITH REQUIREMENTS STATED IN PERMITS ISSUED FOR THIS PROJECT.

ALL CONSTRUCTION ACTIVITIES WILL COMPLY WITH THE STATE OF WASHINGTON SURFACE WATER QUALITY STANDARDS (WASHINGTON ADMINISTRATIVE CODE [WAC] 173-201A).

IN-WATER WORK SHALL OCCUR DURING THE PERMITTED IN-WATER WORK PERIOD STATED IN THE HYDRAULIC PROJECT APPROVAL.

A TEMPORARY EROSION AND SEDIMENT CONTROL (TESC) PLAN WILL BE DEVELOPED AND IMPLEMENTED FOR ALL PROJECT ELEMENTS THAT ENTAIL CLEARING, VEGETATION REMOVAL, GRADING, DITCHING, FILLING, EMBANKMENT COMPACTION, OR EXCAVATION.

A SPILL PREVENTION CONTROL AND COUNTERMEASURES (SPCC) PLAN WILL BE DEVELOPED TO PREVENT AND MINIMIZE SPILLS THAT MAY CONTAMINATE SOIL OR NEARBY WATERS OF THE STATE.

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

BOUNDARIES OF CLEARING LIMITS WILL BE CLEARLY FLAGGED TO PREVENT DISTURBANCE OUTSIDE OF THE LIMITS.

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

THE CONTRACTOR SHALL IMPLEMENT MEASURES TO CONTROL AND MINIMIZE WIND BLOWN DUST FROM LEAVING THE SITE.

ALL SAPLINGS AND TREES TO BE TRANSPLANTED OR REMOVED SHALL BE CLEARLY MARKED AND APPROVED BY THE OWNER OR OWNER'S REPRESENTATIVE.

ALL TREES NOT MARKED FOR REMOVAL SHALL BE LEFT STANDING UNDISTURBED. ANY TRACKING OR IMPACT TO THE DRIPLINE OF STANDING TREES SHALL BE AVOIDED. CONSTRUCTION ACTIVITY SHALL NOT DEBARK OR DAMAGE LIVE TREES.

ALL NATIVE TREES AND SLASH REMOVED FOR CONSTRUCTION SHALL BE TEMPORARILY STOCKPILED WITHIN THE LIMITS OF DISTURBANCE. STOCKPILED TREES AND SLASH SHALL BE INCORPORATED INTO THE FINISHED PROJECT PER OWNER'S OR OWNER REPRESENTATIVE'S DIRECTION.

STAGING AND STOCKPILE AREAS WILL BE FLAGGED BY THE OWNER. STAGING AREAS USED FOR CONSTRUCTION EQUIPMENT STORAGE, VEHICLE STORAGE, FUELING, SERVICING, AND HAZARDOUS MATERIAL STORAGE SHALL BE 150 FEET OR MORE FROM ANY NATURAL WATER BODY OR WETLAND. NATURAL MATERIALS MAY BE STOCKPILED NEAR INSTALLATION AREAS.

BIODEGRADABLE HYDRAULIC FLUID SHALL BE USED IN EACH EXCAVATOR WORKING WITHIN LIVE WATER. MECHANIZED EQUIPMENT AND VEHICLES SHALL BE INSPECTED DAILY FOR LEAKS, AND CLEANED THOROUGHLY BEFORE OPERATION NEAR WATER.

THE OWNER REQUIRES MECHANIZED EQUIPMENT TO BE CLEANED (PRESSURE WASHED OR BLOWN WITH PRESSURIZED AIR) TO REMOVE NON-NATIVE SEEDS/SOIL BEFORE MOVING INTO THE PROJECT AREA.

CONSTRUCTION DEWATERING

TEMPORARY COFFERDAMS SHALL BE USED TO ISOLATE IN-CHANNEL EXCAVATION AREAS FROM THE RIVER.

COFFERDAM TECHNIQUES AND MATERIALS NEED TO BE APPROVED BY THE OWNER OR OWNER'S REPRESENTATIVE PRIOR TO USE.

DEWATERING OF IN-CHANNEL WORK AREAS SHALL OCCUR CONCURRENT WITH FISH RESCUE. CONTRACTOR SHALL PROVIDE AMPLE TIME TO SCHEDULE FISH RESCUE. IF DIVERSION FAILS DUE TO CONTRACTOR NEGLIGENCE THIS RESCUE SHALL BE REPEATED AT CONTRACTOR'S EXPENSE.

CONTRACTOR SHALL PERFORM CONSTRUCTION DEWATERING IN SUCH A MANNER AS TO AVOID THE RELEASE OF SEDIMENT-LADEN WATER TO SURFACE WATERS. 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 THE RIVER, A "DIRT BAG" OR SEDIMENT RETENTION STRUCTURE MAY BE REQUIRED AS NECESSARY TO COMPLY WITH LAWS AND PERMIT REQUIREMENTS AT NO ADDITIONAL COST TO THE OWNER.

DEWATERING, WHEN NECESSARY, WILL BE CONDUCTED OVER A SUFFICIENT PERIOD OF TIME TO ALLOW SPECIES TO NATURALLY MIGRATE OUT OF THE WORK AREA AND WILL BE LIMITED TO THE SHORTEST LINEAR EXTENT PRACTICABLE.

DIVERSION AROUND THE CONSTRUCTION SITE MAY BE ACCOMPLISHED WITH COFFERDAMS AND USE OF BYPASS CHANNELS. WHERE GRAVITY FEED IS NOT POSSIBLE, A PUMP MAY BE USED, BUT MUST BE OPERABLE IN SUCH A WAY AS TO AVOID REPETITIVE DEWATERING AND RE-WATERING OF THE SITE. IMPOUNDMENT BEHIND THE COFFERDAM MUST OCCUR SLOWLY THROUGH THE TRANSITION, WHILE CONSTANT FLOW IS DELIVERED TO THE DOWNSTREAM REACHES.

ALL PUMPS WILL HAVE FISH SCREENS TO AVOID JUVENILE FISH IMPINGEMENT OR ENTRAINMENT, AND WILL BE OPERATED IN ACCORDANCE WITH NMFS'S CURRENT FISH SCREEN CRITERIA (NMFS 2014, OR MOST RECENT VERSION). IF THE PUMPING RATE EXCEEDS 3 CUBIC FEET PER SECOND (CFS), A NMFS HYDRO FISH PASSAGE REVIEW WILL BE NECESSARY.

CONTRACTOR SHALL PROVIDE VISQUINE OR GEOTEXTILE LINER OR PLYWOOD OR METAL PLATING AS NECESSARY TO DISSIPATE PUMP DISCHARGE JET TO PREVENT EROSION.

OWNER OR OWNERS REPRESENTATIVE SHALL APPROVE DEWATERING DISCHARGE LOCATION PRIOR TO IMPLEMENTATION.

FISH MANAGEMENT AND RESCUE

ALL FISH RESCUE EFFORTS SHALL BE SUPERVISED BY AN AQUATIC BIOLOGIST EXPERIENCED WITH THE COLLECTION AND HANDLING OF SALMONID FISHES FROM CONSTRUCTION SITES.

ALL FISH TRAPPED IN RESIDUAL POOLS WITHIN THE PROJECT AREA WILL BE CAREFULLY COLLECTED BY SEINE AND/OR DIP NETS AND PLACED IN CLEAN TRANSFER CONTAINERS WITH ADEQUATE VOLUME OF FRESH RIVER WATER.

CAPTURED FISH SHALL BE IMMEDIATELY RELEASED INTO RIVER AT AREAS SELECTED BY THE BIOLOGIST.

WATERS AND WETLANDS OF THE US

THE ORDINARY HIGH WATER LINE WAS DELINEATED BY INTER-FLUVE USING FIELD SURVEYS AND SUPPLEMENTED WITH HYDRAULIC MODELING RESULTS.

THE WETLAND DELINEATION WAS DONE BY THE LOWER COLUMBIA ESTUARY PARTNERSHIP IN 2022 AND 2023.

WITHIN THE STATE OF WASHINGTON, THE U.S. ARMY CORPS OF ENGINEERS AND THE WASHINGTON DEPARTMENT OF ECOLOGY HAVE THE FINAL AUTHORITY IN DETERMINING BOUNDARIES OF WETLANDS AND WATERS.

SUGGESTED CONSTRUCTION SEQUENCE

- RIDGEFIELD PITS
- ISOLATE MAIN CHANNEL FROM RIVER-RIGHT FLOODPLAIN USING A TEMPORARY COFFERDAM AT PIT 7 CONNECTION.
 - PERFORM FISH RESCUE AND THEM CONSTRUCT RIVER-RIGHT CHANNEL AND FLOODPLAIN GRADING.
 - USE TEMPORARY COFFERDAMS IN MAIN CHANNEL TO BYPASS RIVER INTO RIVER-RIGHT CHANNEL, ISOLATING THE MIDDLE AND UPPER MAIN CHANNEL AND RIVER-LEFT FLOODPLAIN.
 - PERFORM FISH RESCUE AND THEN CONSTRUCT MIDDLE AND UPPER MAIN CHANNEL, RIVER-LEFT CHANNEL, AND RIVER-LEFT FLOODPLAIN GRADING.
 - USE TEMPORARY COFFERDAMS TO SWITCH BYPASS INTO RIVER-LEFT CHANNEL, ISOLATING LOWER MAIN CHANNEL.
 - PERFORM FISH RESCUE OF LOWER MAIN CHANNEL THEN CONSTRUCT LOWER MAIN CHANNEL AND FINAL GRADING.
 - REMOVE COFFERDAMS AND INTRODUCE FLOW TO FULL SITE.

CONSTRUCTION OF THE WEST FLOODPLAIN SIDE CHANNELS; EAST FLOODPLAIN SIDE-CHANNELS AND LEVEE REMOVALS; DANGER PARK LEVEE REMOVALS; AND COUNTY YARD LEVEE AND FILL REMOVALS CAN OCCUR IN ISOLATION FROM THE MAIN RIVER, WITH USE OF TEMPORARY COFFERDAMS WHERE CHANNELS CONNECT TO THE MAIN CHANNEL, DEPENDING ON FLOW CONDITIONS AT TIME OF CONSTRUCTION. CONSTRUCTION OF THESE SITES CAN OCCUR BEFORE, OR COMMENSURATE WITH, RIDGEFIELD PITS GRADING AS NEEDED TO PROVIDE MATERIALS FOR RIDGEFIELD PITS GRADING.

CONSTRUCTION OF THE DAYBREAK TRAIL SITE CAN OCCUR INDEPENDENT OF THE OTHER SITES. CONSTRUCTION OF THE CHANNEL MARGIN LARGE WOOD PLACEMENTS WILL REQUIRE TEMPORARY COFFERDAMS ALONG THE MAIN CHANNEL.

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				CM, JR, NS	MR, GJ	----	LOWER COLUMBIA ESTUARY PARTNERSHIP LOWER EAST FORK LEWIS RIVER RIDGEFIELD PITS RESTORATION		501 Portway Avenue, Suite 101 Hood River, OR 97031 541.386.9003 www.interfluve.com	GENERAL NOTES	SHEET
				DRAWN	DESIGNED	CHECKED					
				----	06/07/2023	220214					3 OF 44
				APPROVED	DATE	PROJECT					
NO.	BY	DATE	REVISION DESCRIPTION								

QUANTITIES

PERMIT QUANTITY TABLES WILL BE INCLUDED IN FINAL 60% DESIGN PLANS

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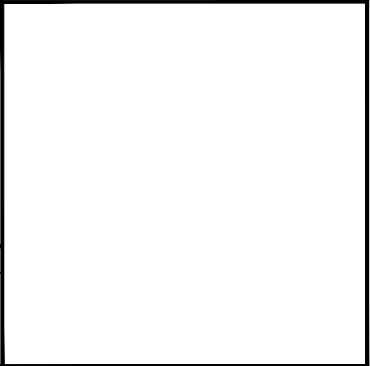
LOWER COLUMBIA ESTUARY PARTNERSHIP
LOWER EAST FORK LEWIS RIVER
RIDGEFIELD PITS RESTORATION

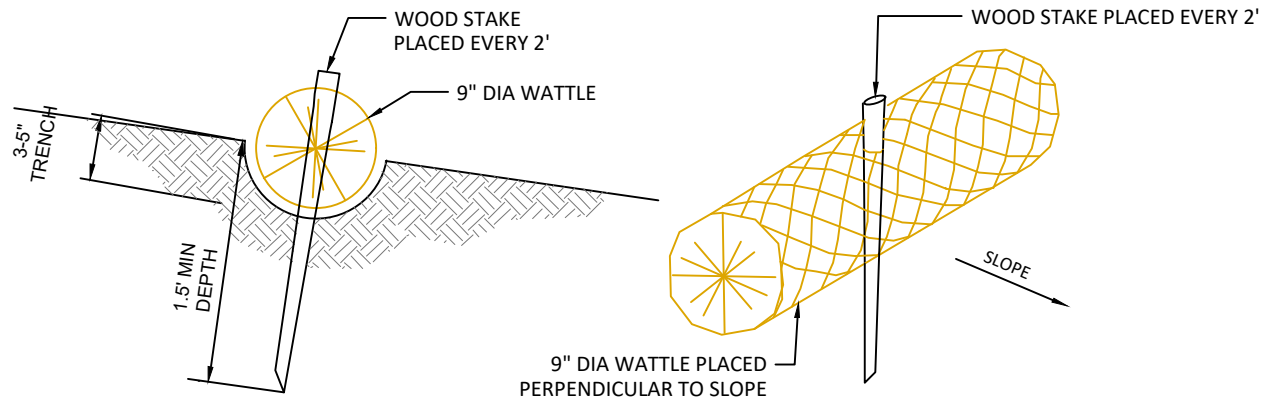


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PERMITTING QUANTITIES

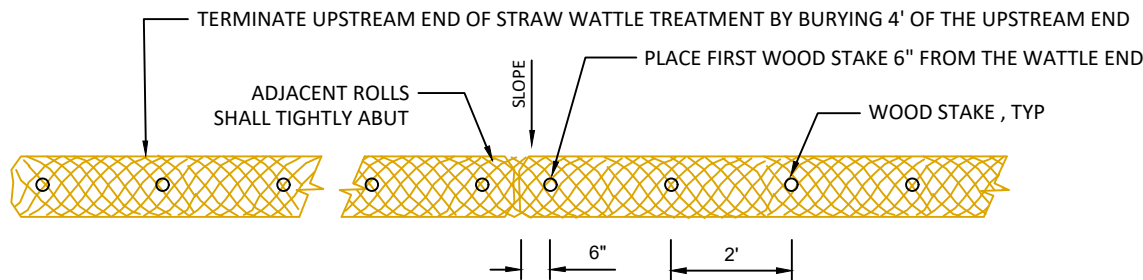
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SECTION

ISOMETRIC



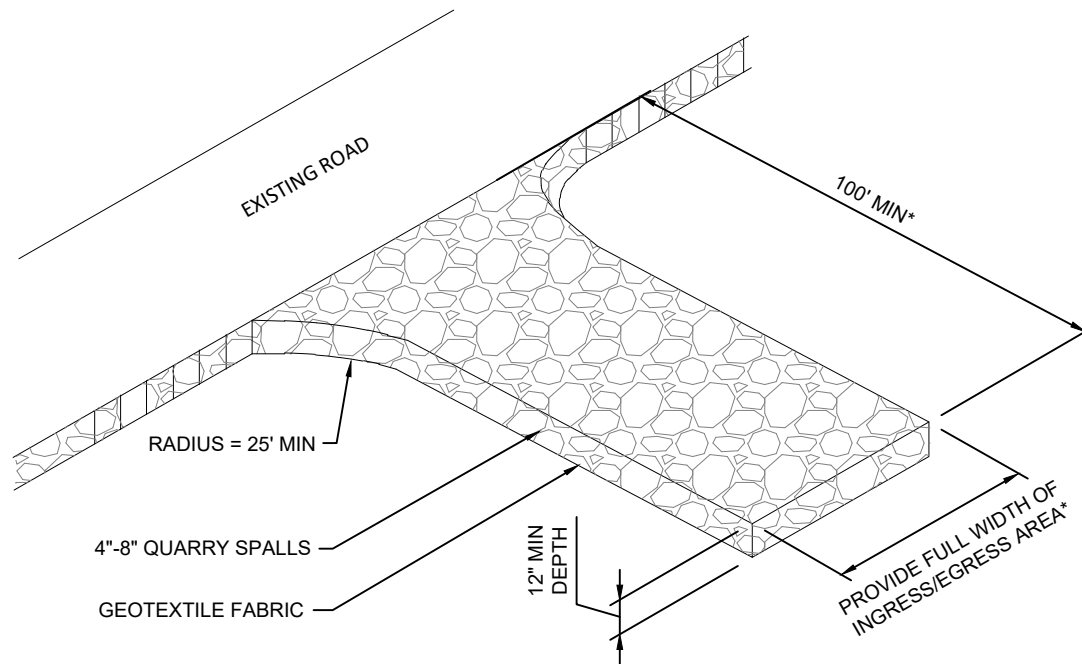
PLAN VIEW

NOTES:

1. INSTALL WATTLES WITHIN TRENCH, SO THAT NO GAPS EXIST BETWEEN THE SOIL AND THE BOTTOM OF THE WATTLE. THE ENDS OF ADJACENT WATTLES SHALL BE TIGHTLY ABUTTED SO THAT NO OPENING EXISTS FOR WATER OR SEDIMENT TO PASS THROUGH.
2. WOOD STAKES SHALL BE USED TO FASTEN THE WATTLES TO THE SOIL. WHEN CONDITIONS WARRANT, A STRAIGHT METAL BAR CAN BE USED TO DRIVE A "PILOT HOLE" THROUGH THE WATTLE AND INTO THE SOIL.
3. WOOD STAKES SHALL BE PLACED 6" FROM THE WATTLE END, ANGLED SUCH THAT THEY ARE PERPENDICULAR TO GRADE. WOOD STAKES SHALL BE SPACED AT 2-FEET CENTERS LEAVING LESS THAN 1-2 INCHES OF STAKE EXPOSED ABOVE THE WATTLE.
4. AT TERMINAL ENDS OF WATTLES, EXCAVATE MIN 2' DEEP KEY TRENCH AND BURY A MIN 4' OF WATTLE END.
5. CARE SHALL BE TAKEN DURING INSTALLATION SO AS TO AVOID DAMAGE OCCURRING TO THE WATTLE AS A RESULT OF THE INSTALLATION PROCESS. SHOULD THE WATTLE BE DAMAGED DURING INSTALLATION, A WOODEN STAKE SHALL BE PLACED EITHER SIDE OF THE DAMAGED AREA TERMINATING THE WATTLE SEGMENT.
6. ANY WATTLE DAMAGED DURING PLACEMENT SHALL BE REPLACED AS DIRECTED BY AGENCY STAFF, AT THE CONTRACTOR'S EXPENSE.
7. INSTALL WATTLES IN FILL LOCATIONS ACCORDING TO THE FOLLOWING GUIDELINES:

STRAW WATTLE: VERTICAL SPACING	
SLOPE	SPACING
2:1	10'
2:1 - 5:1	25'
<5:1	50'

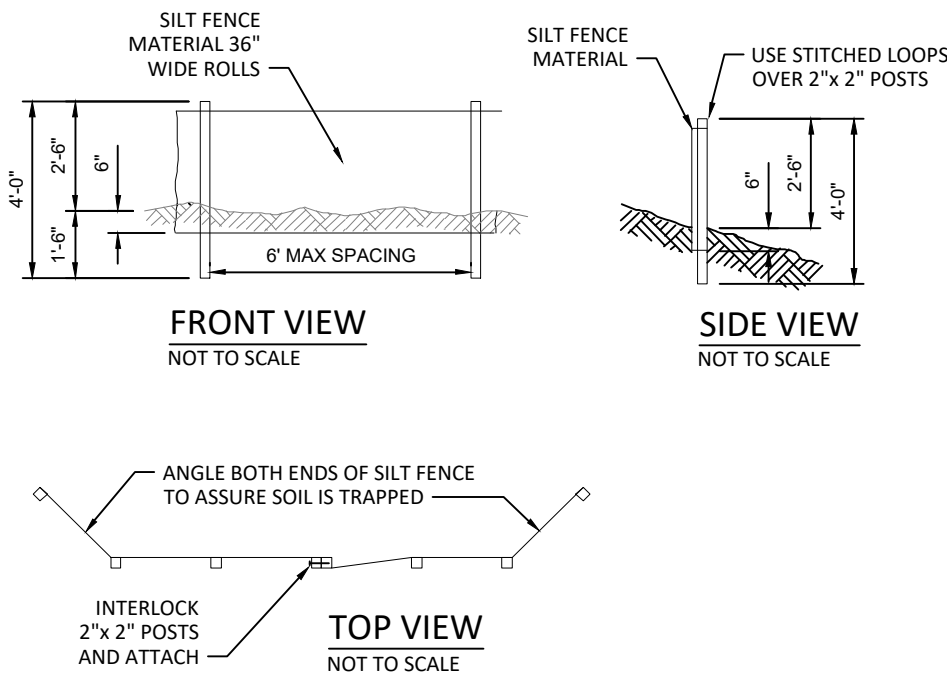
1 TYP NOT TO SCALE



2 TYP NOT TO SCALE

NOTES:

1. STABILIZED ACCESS MUST BE USED IN ALL AREAS OF THE SITE WITH VEHICLE TRAFFIC AND PARKING.
2. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHT-OF-WAYS. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEAN OUT OF ANY MEASURES USED TO TRAP SEDIMENT.
3. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
4. SEE SECTION 9-37.2 (TABLE 3) FOR GEOTEXTILE REQUIREMENTS. GEOTEXTILE MODIFICATIONS BASED ON SPECIFIC PROJECT SITE CONDITIONS MAY BE APPROVED BY THE ENGINEER.
5. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.



3 TYP NOT TO SCALE

SILT FENCE NOTES:

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.

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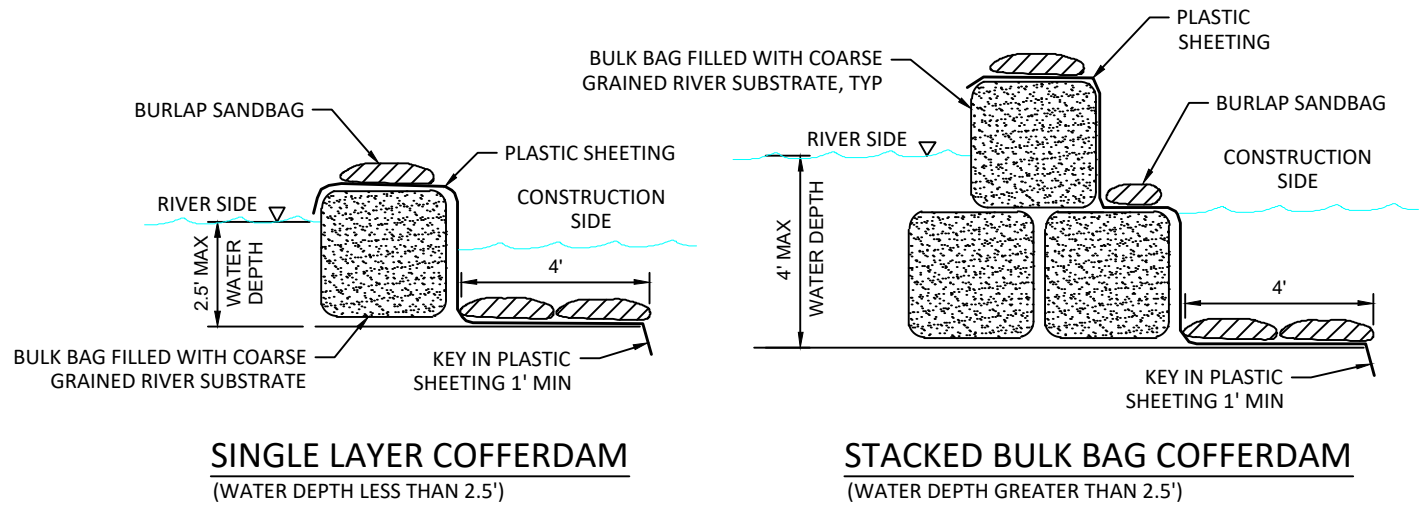


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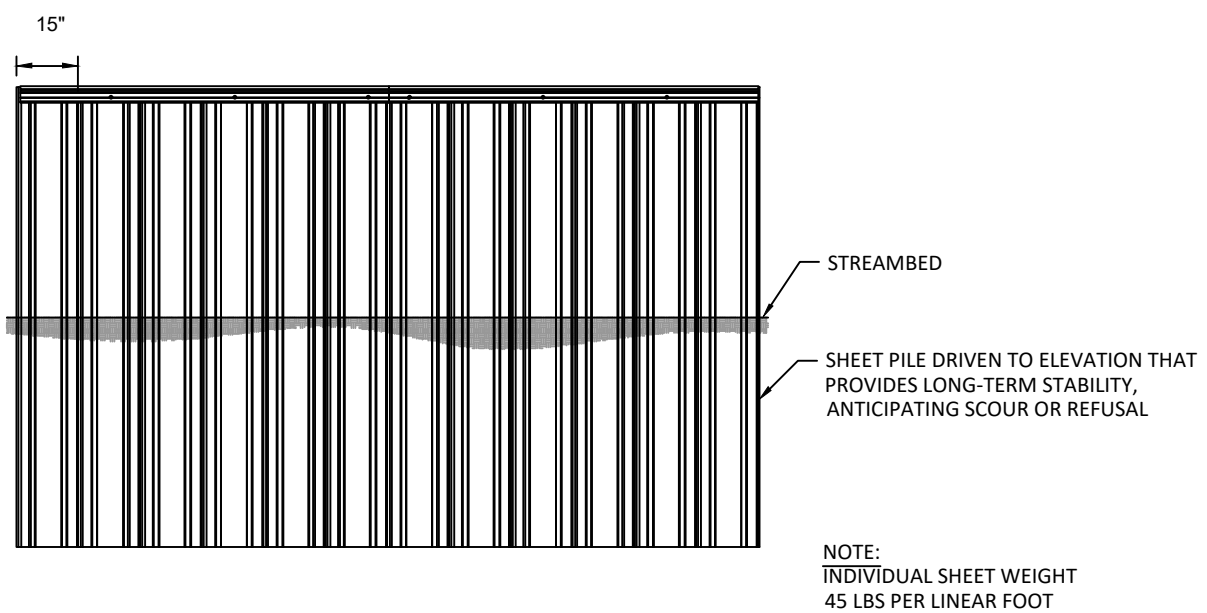
EROSION CONTROL DETAILS

SHEET

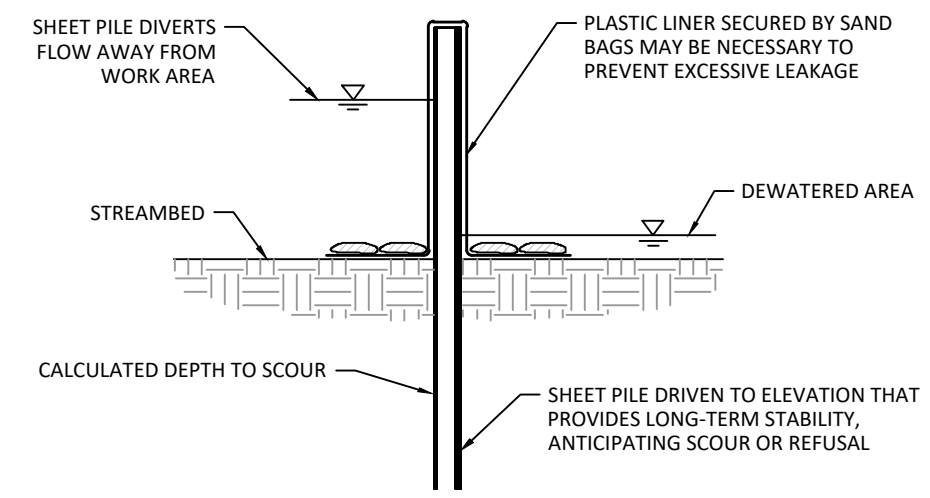
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1 TYPICAL DETAIL - TEMPORARY BULK BAG COFFERDAM
NOT TO SCALE



ELEVATION



SECTION

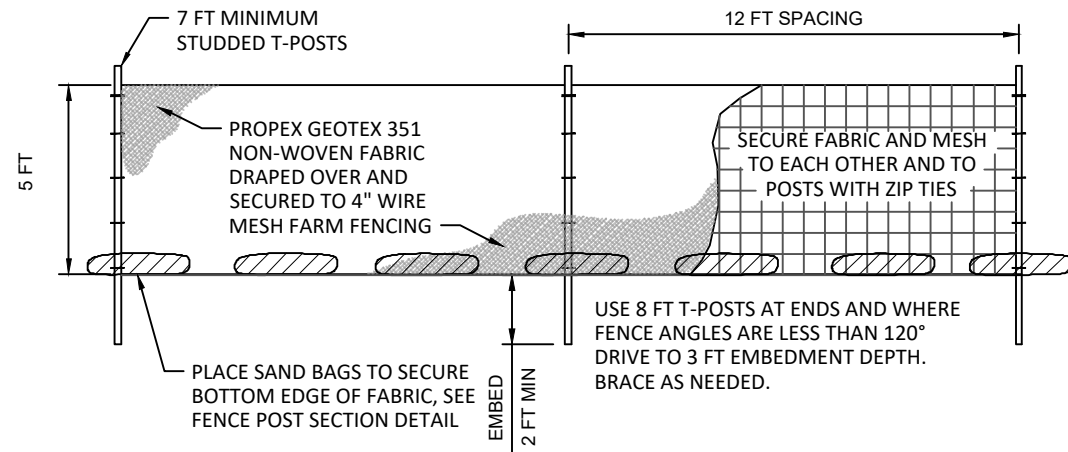
2 TYPICAL DETAIL - TEMPORARY SHEET PILE COFFERDAM
NOT TO SCALE

BULK BAG NOTES:

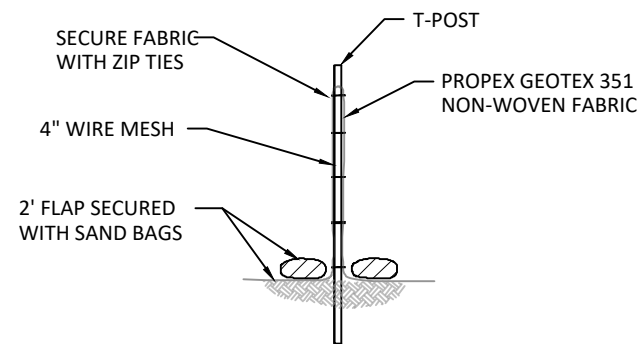
- BULK BAG COFFERDAM SHALL BE CONSTRUCTED OF SEVERAL UNITS OF BULK BAGS FILLED WITH WASHED COBBLE, AND ABUTTED SIDE BY SIDE TO CREATE A ROW THAT ISOLATES THE CONSTRUCTION SITE.
- IF WATER DEPTH EXCEEDS 85% OF THE BULK BAG HEIGHT, AN ADDITIONAL TOP ROW OF BULK BAGS SHALL BE INSTALLED, SUPPORTED BY TWO BOTTOM ROWS OF BULK BAGS. BULK BAG COFFERDAM SHALL BE SEALED BY COVERING THE COFFERDAM WITH PLASTIC SHEETING HELD IN PLACE BY STANDARD 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 RIVER 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. ALL SANDBAGS SHALL BE FILLED WITH WASHED PEA GRAVEL.
- THE TERMINAL ENDS OF BULK BAG COFFERDAM, WHERE IT CONNECTS TO CHANNEL BANK OR HIGH GROUND, SHALL BE SEALED WITH PLASTIC SHEETING AND STANDARD SANDBAGS.
- BULK BAGS SHALL BE CUBE-SHAPED POLYPROPYLENE WOVEN FABRIC BAGS WITH FULLY OPEN TOP, FLAT BOTTOM, FOUR LOOPS, MINIMUM 2-TON WEIGHT CAPACITY, MINIMUM 5:1 SAFETY FACTOR.
- 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.
- BULK BAG COFFERDAM SHALL BE COMPLETELY REMOVED AFTER CONSTRUCTION IS COMPLETED AND TURBIDITY HAS BEEN REMOVED. BULK BAG FILL (WASHED COBBLE) AND SANDBAG FILL (WASHED PEA GRAVEL) SHALL BE DISPOSED OF ON SITE. BAGS AND PLASTIC SHEETING SHALL BE REMOVED FROM THE SITE ONCE CONSTRUCTION IS COMPLETED.
- MEASUREMENT AND PAYMENT FOR BULK BAG COFFERDAM, SAND BAGS, PLASTIC SHEETING, WASHED COBBLE PLACEMENT, AND MAINTENANCE AND REMOVAL OF ALL MATERIALS, SHALL BE INCIDENTAL TO THE LUMP SUM ALL INCLUSIVE COST FOR DIVERSION AND DEWATERING.
- ALTERNATE COFFERDAM MATERIALS AND CONFIGURATIONS MAY BE ALLOWED BUT SHALL NOT BE IMPLEMENTED WITHOUT REVIEW AND APPROVAL BY THE OWNER'S REPRESENTATIVE. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS AND/OR VENDOR CUT SHEETS FOR SUBSTITUTIONS.
- IF NECESSARY, GAPS BETWEEN BULK BAGS SHALL BE FILLED WITH WASHED STREAM GRAVEL TO IMPROVE COFFERDAM SEAL.
- IF FLOW CONDITIONS ENCOUNTERED ON SITE DURING CONSTRUCTION DO NOT ALLOW FOR SUCCESSFUL DEWATERING USING THIS METHOD, SHEETPILE COFFERDAM (HIGH FLOWS) OR SAND BAG COFFERDAM (LOW FLOWS) MAY BE CONSIDERED.

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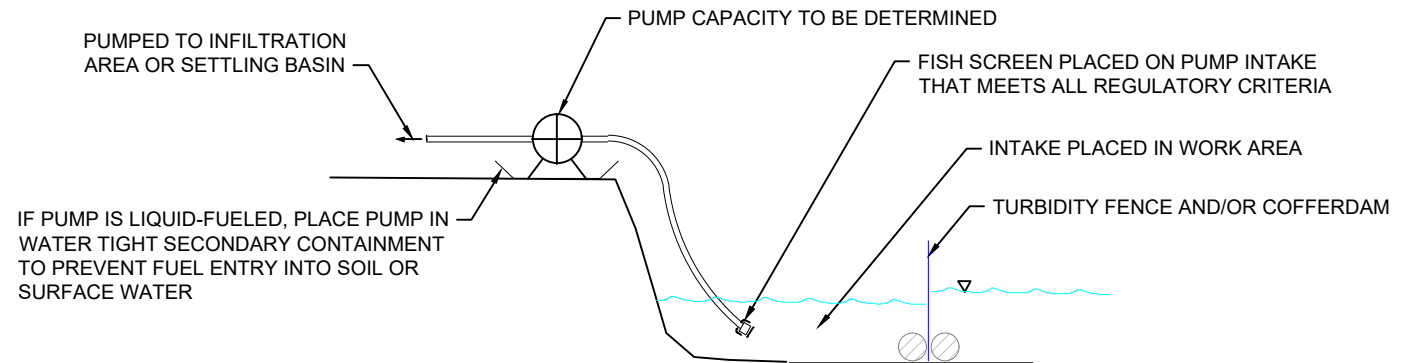


ELEVATION



SECTION

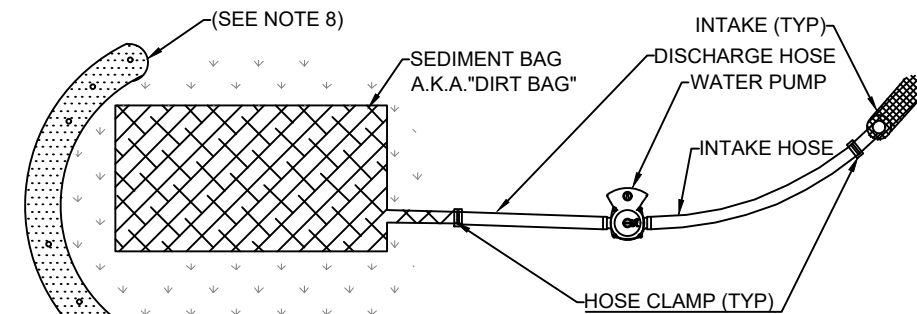
1
TYP
NOT TO SCALE
TYPICAL DETAIL - TURBIDITY CURTAIN



NOTES:

- PREFERENCE IS TO LAND APPLY WITHOUT DIGGING A SETTLING BASIN. IF LAND APPLICATION SITE IS INADEQUATE TO PREVENT ENTRY OF TURBID WATER INTO STREAM, SETTLING BASIN SHALL BE CONSTRUCTED IN A PREVIOUSLY DISTURBED AREA.
- SETTLING BASIN SHALL BE MONITORED FOR SILTATION AND REDUCTION IN INFILTRATION RATES WHILE IN USE.

2
TYP
NOT TO SCALE
TYPICAL DETAIL - PUMP



PLAN VIEW

SEDIMENT BAG NOTES:

- THE SEDIMENT BAG SHALL BE MANUFACTURED USING A POLYPROPYLENE 8 OZ. NON-WOVEN GEOTEXTILE SEWN INTO A BAG WITH A DOUBLE NEEDLE, USING A HIGH STRENGTH THREAD.
- EACH STANDARD SEDIMENT BAG MUST HAVE A FILL SPOUT LARGE ENOUGH TO ACCOMMODATE A 4" DISCHARGE HOSE. STRAPS ARE ATTACHED TO SECURE THE HOSE AND PREVENT PUMPED WATER FROM ESCAPING WITHOUT BEING FILTERED.
- THE SEDIMENT BAG SHALL MEET OR EXCEED OVERALL BAG REMOVAL EFFICIENCY RATE OF 97.55%.
- WATER BEING DISCHARGED FROM THE SEDIMENT BAG MUST BE FREE OF ALL SEDIMENT PRIOR TO LEAVING THE SITE OR ENTERING INTO THE STORM SYSTEM.
- SEDIMENT BAG IS FULL WHEN IT NO LONGER CAN EFFICIENTLY FILTER SEDIMENT OR ALLOW WATER TO PASS AT A RATE LESS THAN 50% OF MANUFACTURER'S DESIGNED FLOW RATE.
- DURING USE, THE SEDIMENT BAG MUST BE MONITORED.
- DISPOSE OF USED SEDIMENT BAG OFF SITE OR AS APPROVED BY CWS.
- FOR BEST RESULTS, PLACE SEDIMENT BAG ON FLAT SURFACE.
- SEDIMENT BAG SHOULD BE PLACED ON EXISTING VEGETATION, ROCK, OR BED OF STRAW. SEDIMENT BAG SHOULD NOT BE PLACED ON BARE GROUND.

3
TYP
NOT TO SCALE
TYPICAL DETAIL - SEDIMENT BAG

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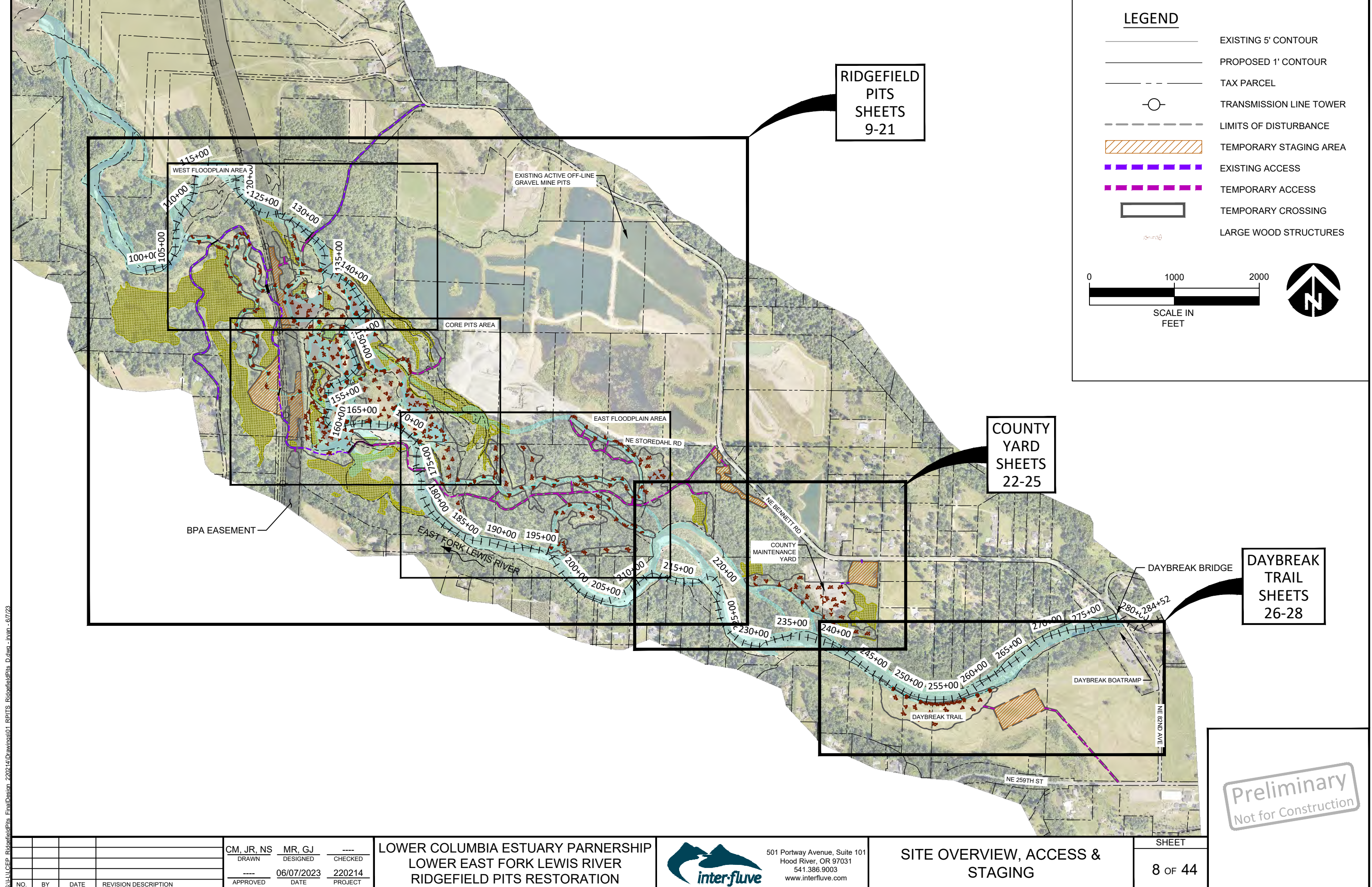
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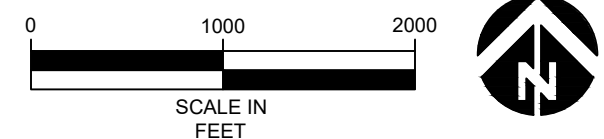
WORK ISOLATION DETAILS (2 OF 2)

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LEGEND

- EXISTING 5' CONTOUR
- PROPOSED 1' CONTOUR
- TAX PARCEL
- TRANSMISSION LINE TOWER
- LIMITS OF DISTURBANCE
- TEMPORARY STAGING AREA
- EXISTING ACCESS
- TEMPORARY ACCESS
- TEMPORARY CROSSING
- LARGE WOOD STRUCTURES



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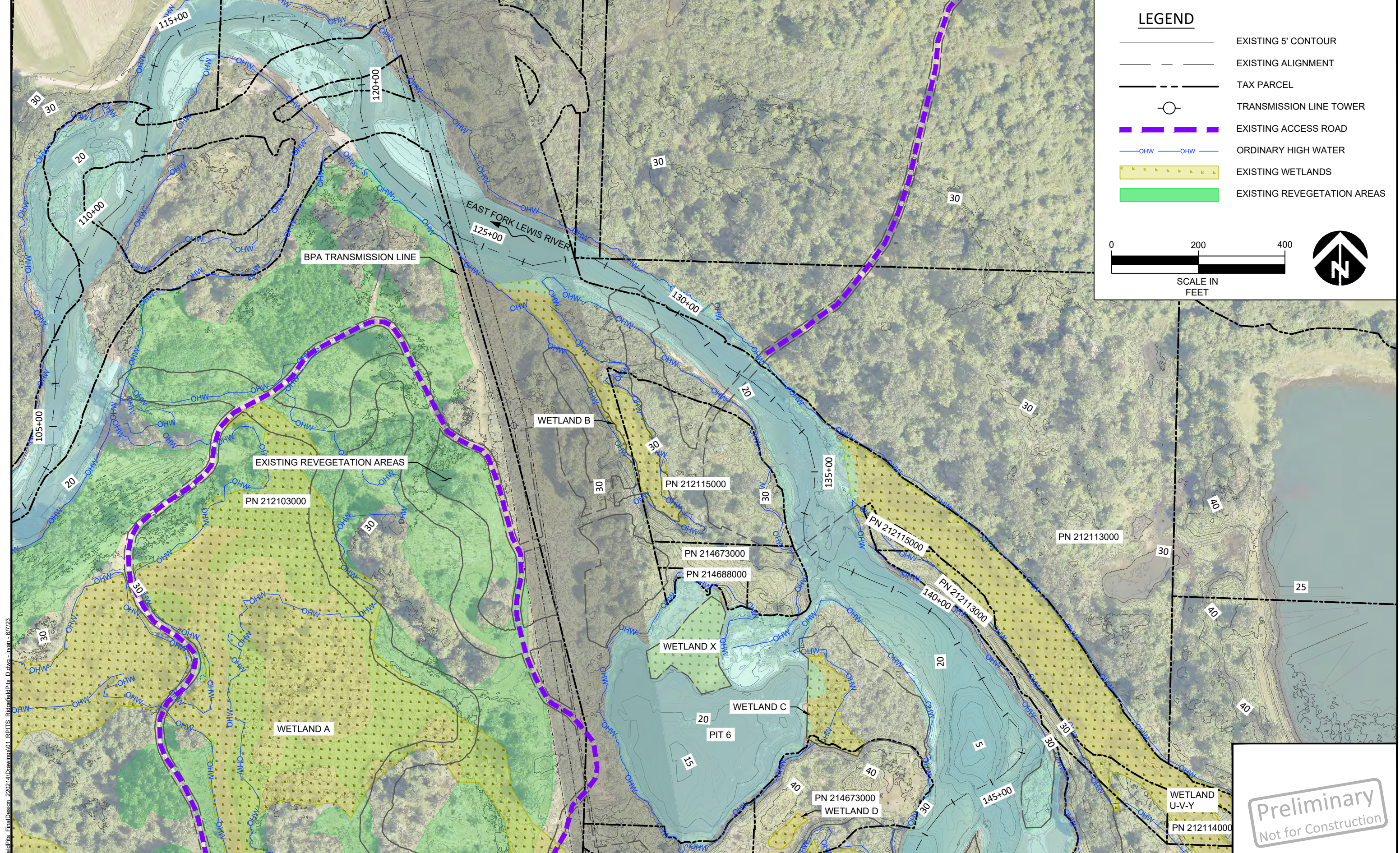


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SITE OVERVIEW, ACCESS &
STAGING

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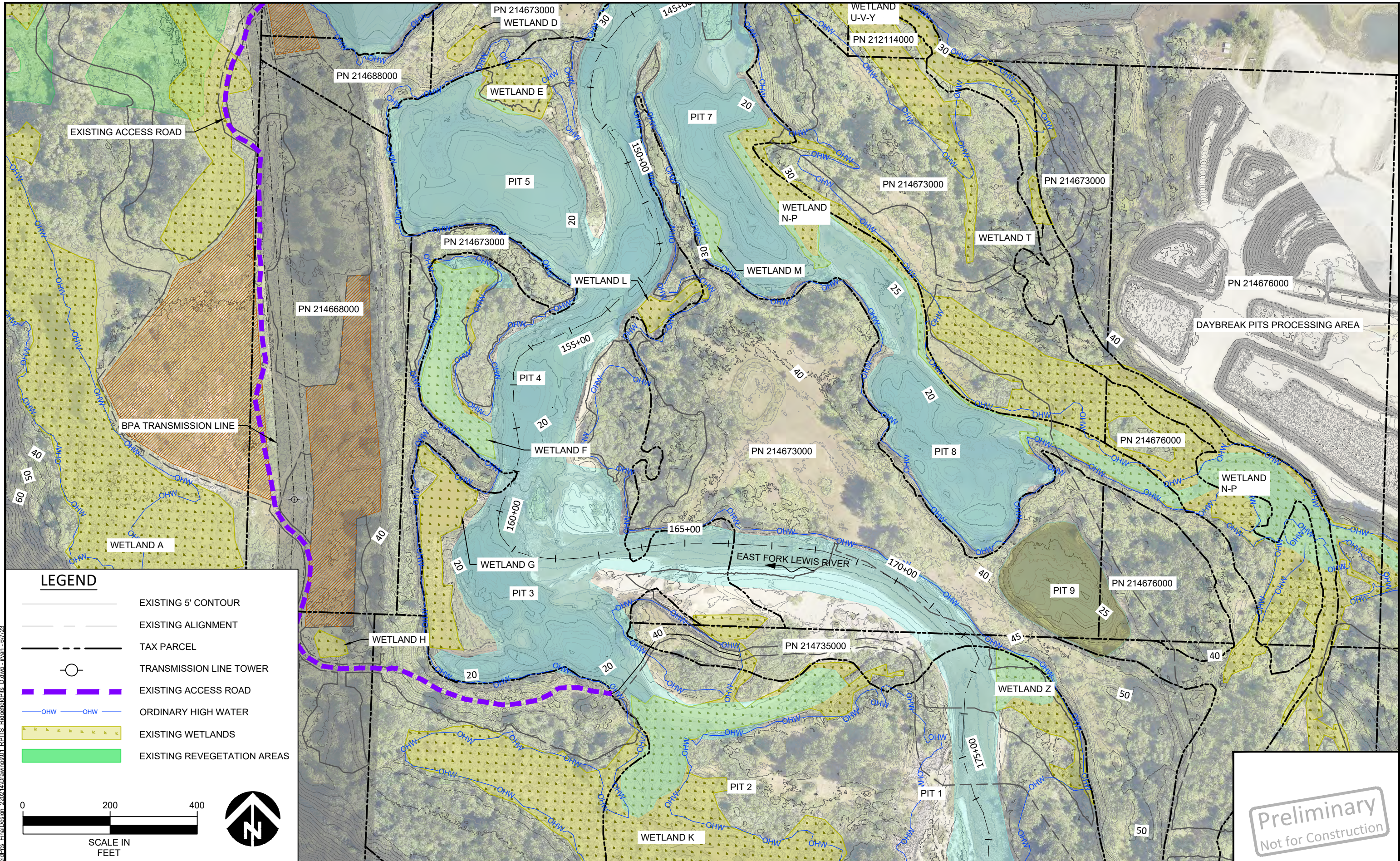


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CORE PITS EXISTING CONDITIONS
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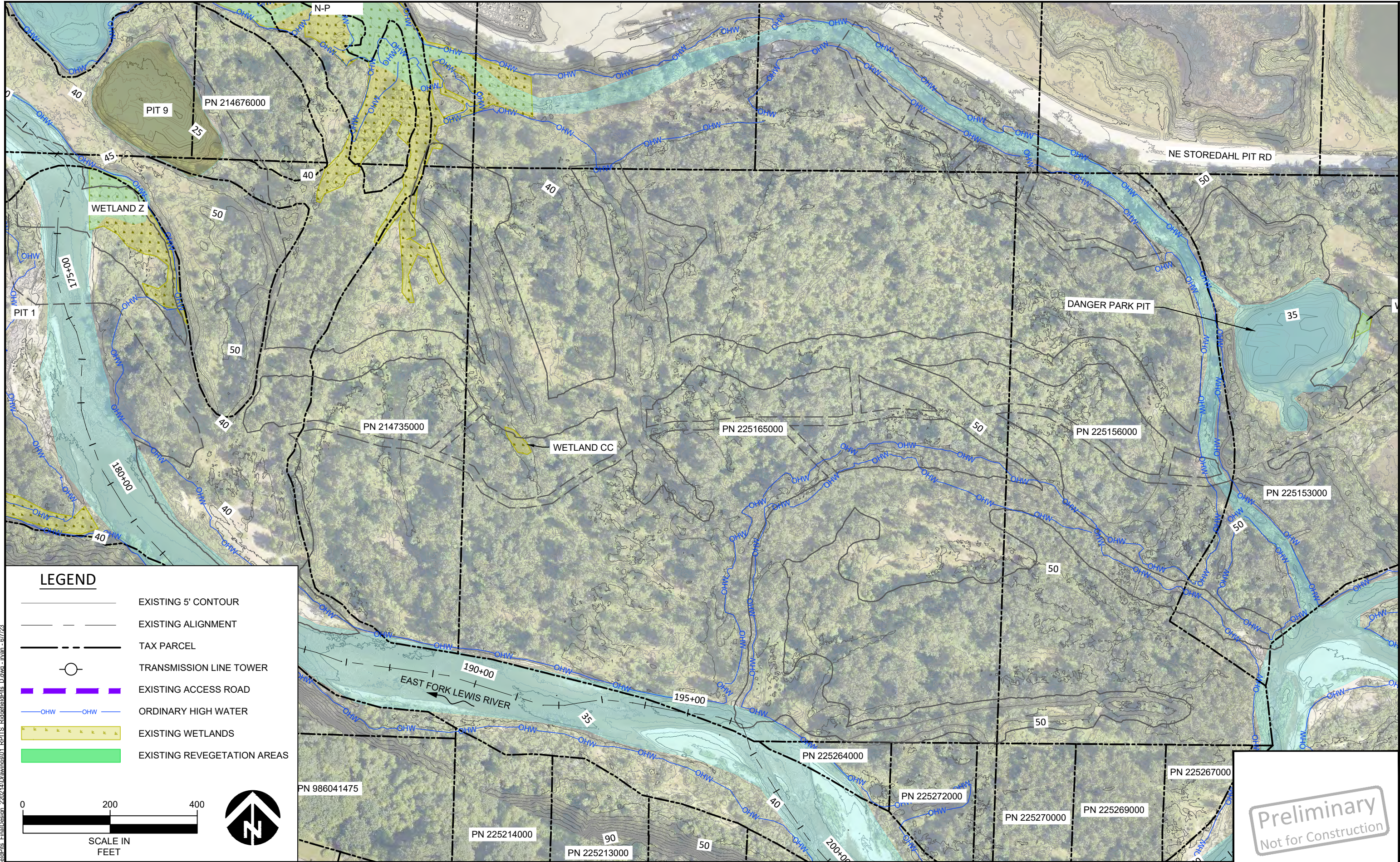


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CORE PITS EXISTING CONDITIONS
(2 OF 3)

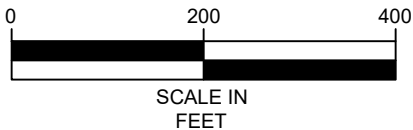
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LEGEND

- EXISTING 5' CONTOUR
- EXISTING ALIGNMENT
- TAX PARCEL
- TRANSMISSION LINE TOWER
- EXISTING ACCESS ROAD
- ORDINARY HIGH WATER
- EXISTING WETLANDS
- EXISTING REVEGETATION AREAS



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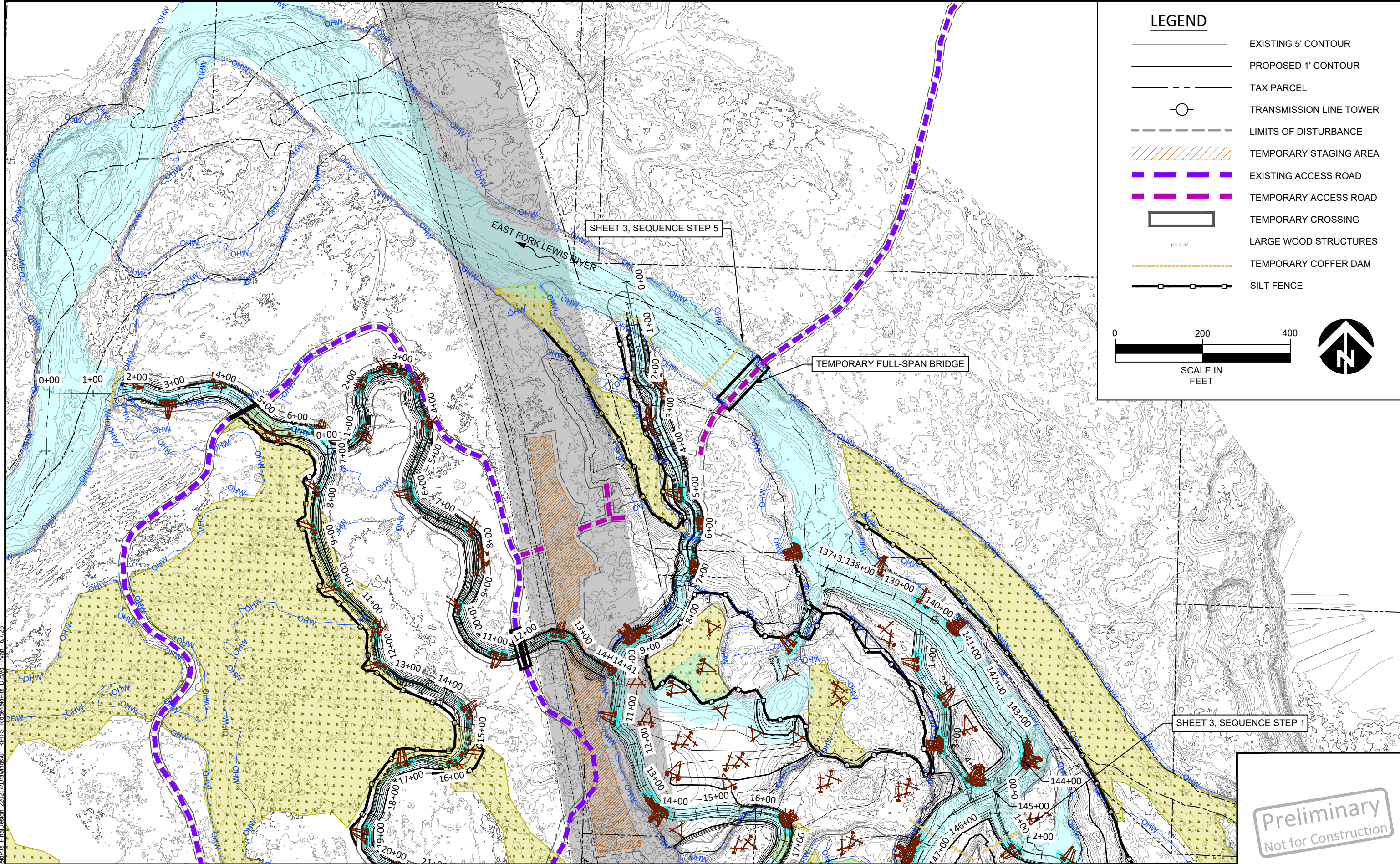


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CORE PITS EXISTING CONDITIONS
(3 OF 3)

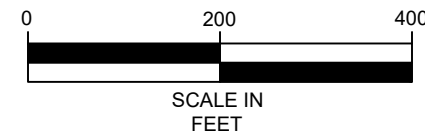
SHEET
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LEGEND

- EXISTING 5' CONTOUR
- PROPOSED 1' CONTOUR
- TAX PARCEL
- TRANSMISSION LINE TOWER
- LIMITS OF DISTURBANCE
- TEMPORARY STAGING AREA
- EXISTING ACCESS ROAD
- TEMPORARY ACCESS ROAD
- TEMPORARY CROSSING
- LARGE WOOD STRUCTURES
- TEMPORARY COFFER DAM
- SILT FENCE



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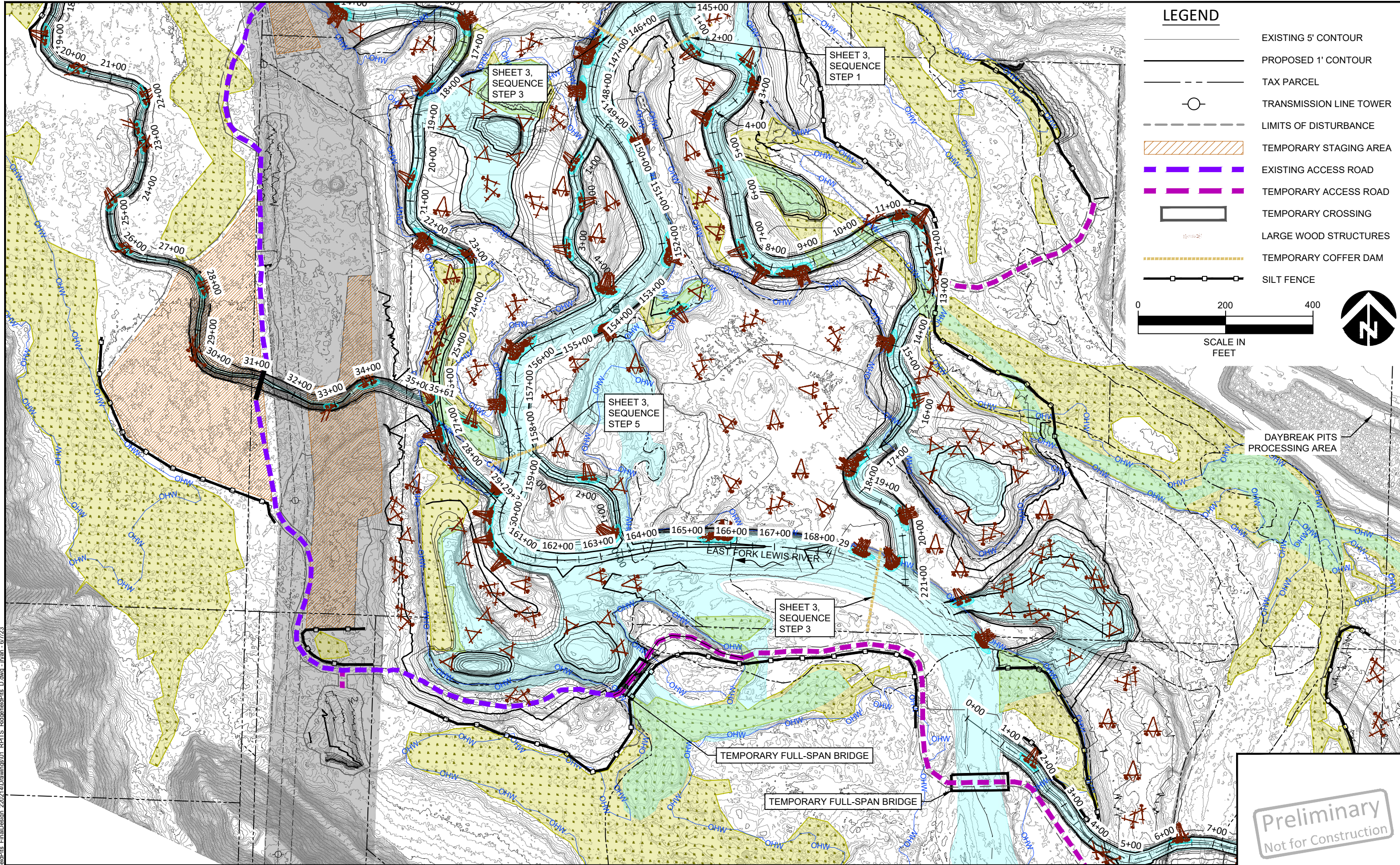


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CORE PITS TESC & WORK
ISOLATION (1 OF 3)

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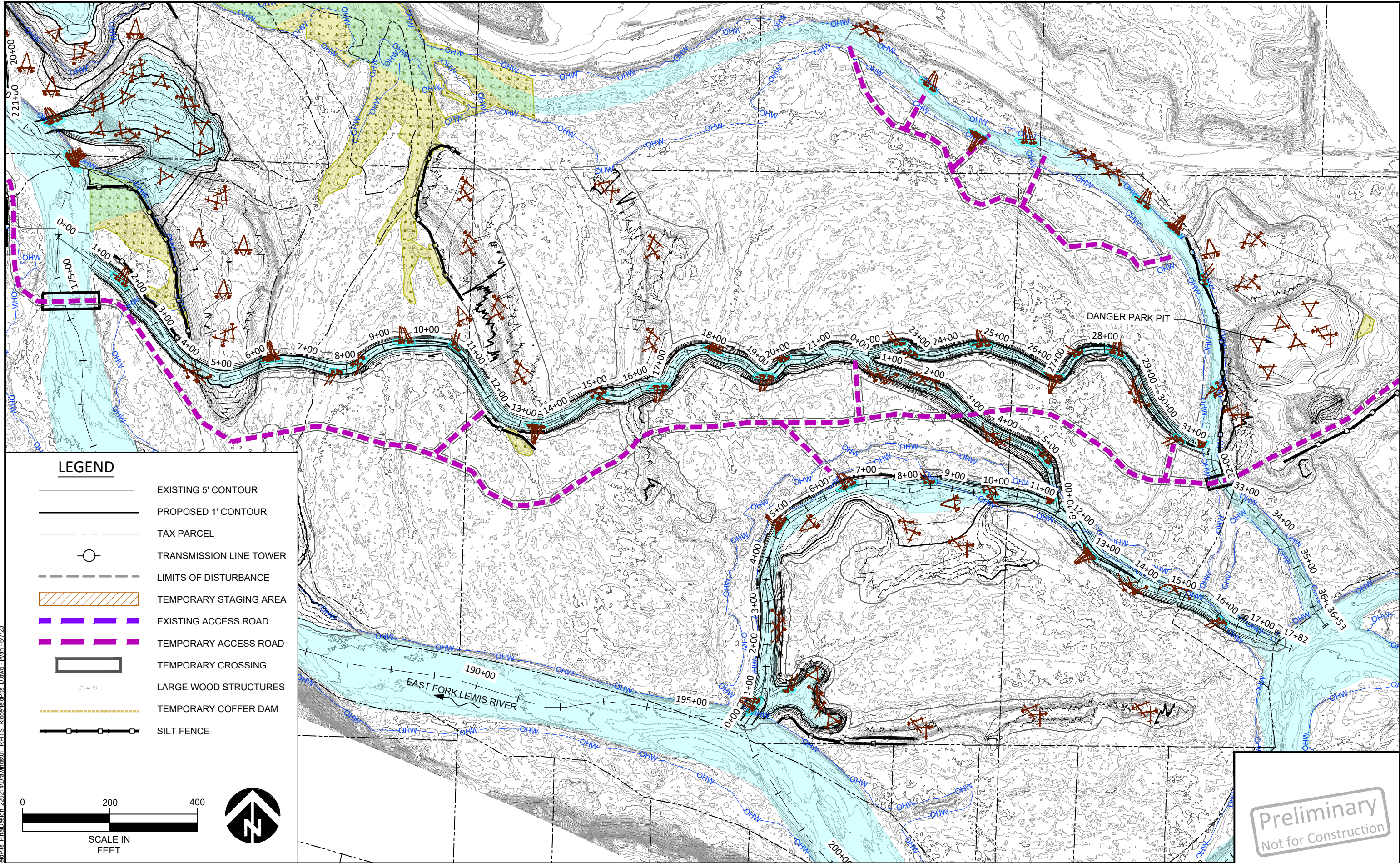
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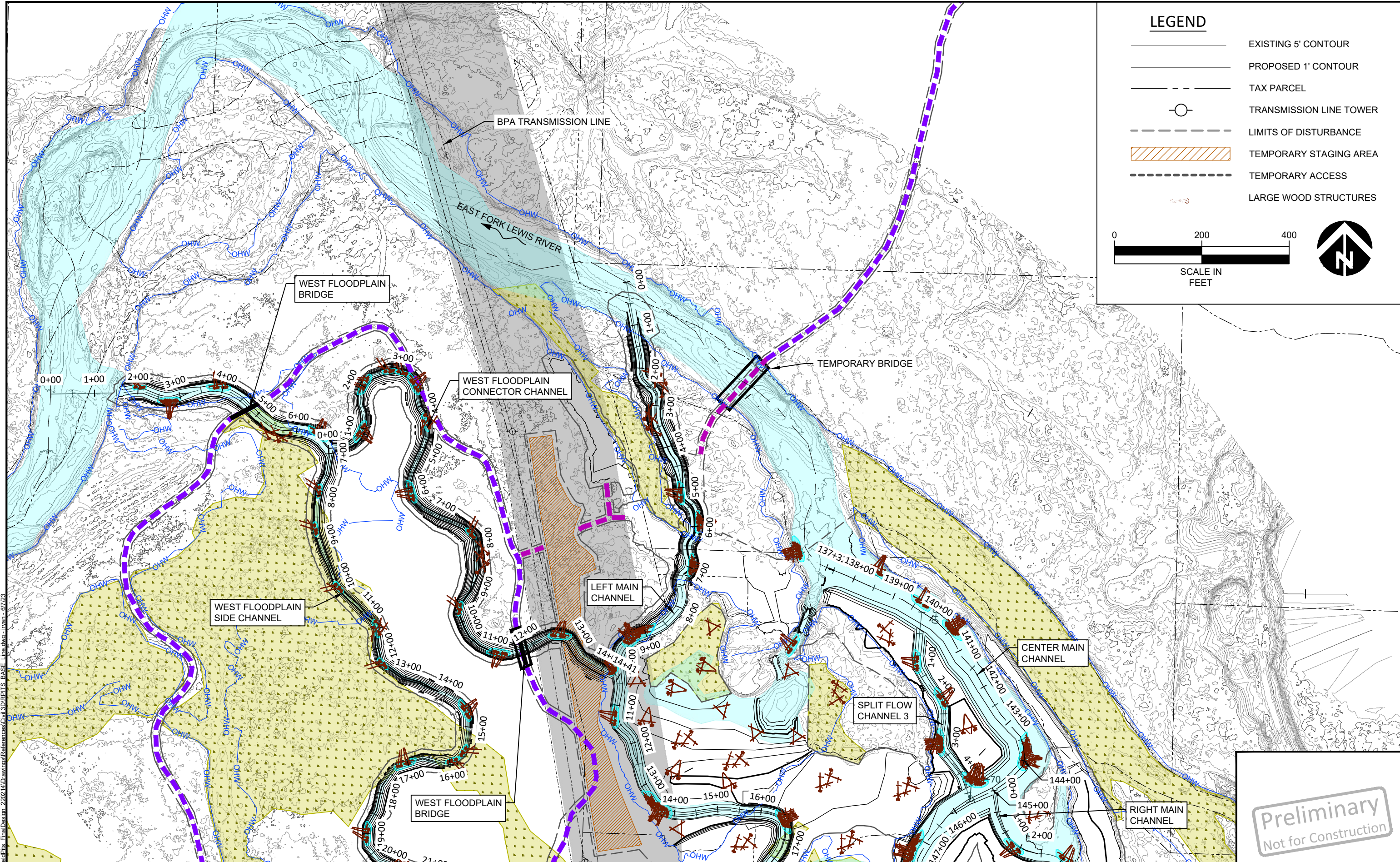
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CORE PITS TESC & WORK
ISOLATION (3 OF 3)

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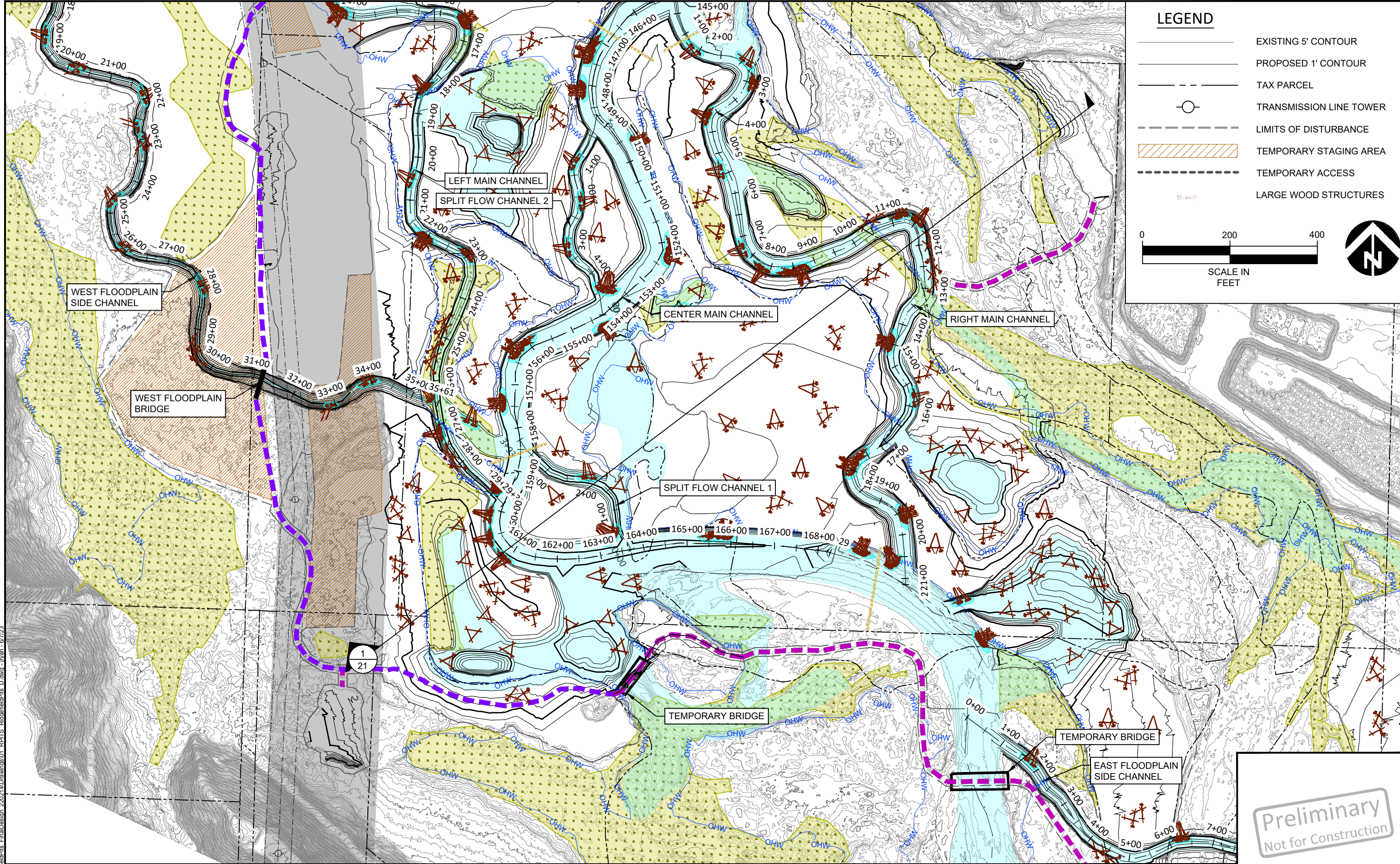


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CORE PITS PROPOSED
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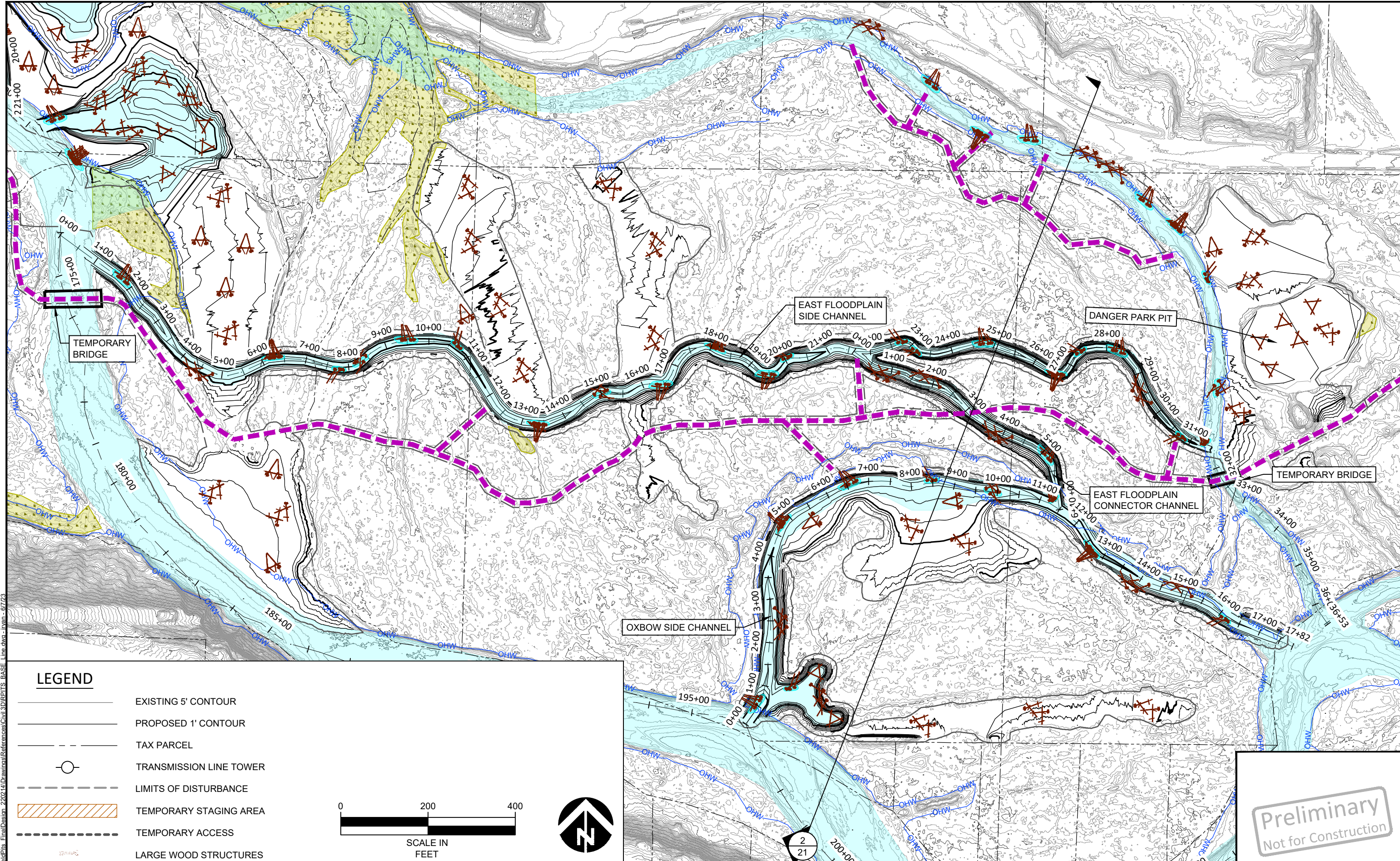


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CORE PITS PROPOSED
CONDITIONS (2 OF 3)

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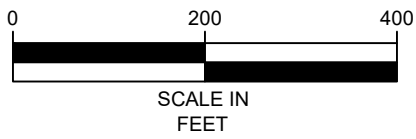
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LEGEND

- EXISTING 5' CONTOUR
- PROPOSED 1' CONTOUR
- TAX PARCEL
- TRANSMISSION LINE TOWER
- LIMITS OF DISTURBANCE
- TEMPORARY STAGING AREA
- TEMPORARY ACCESS
- LARGE WOOD STRUCTURES



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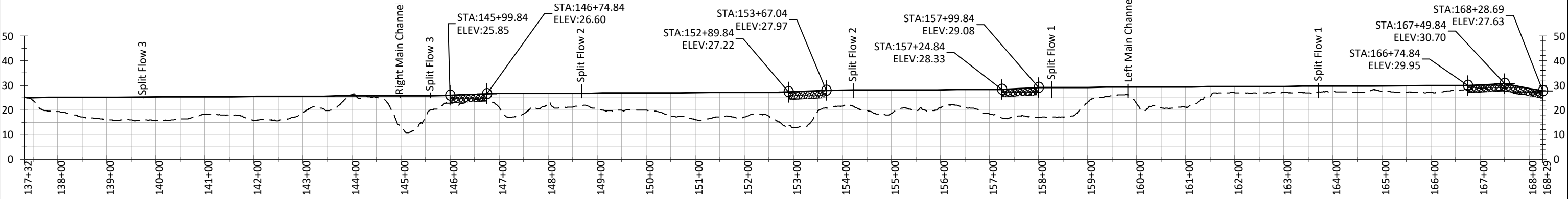


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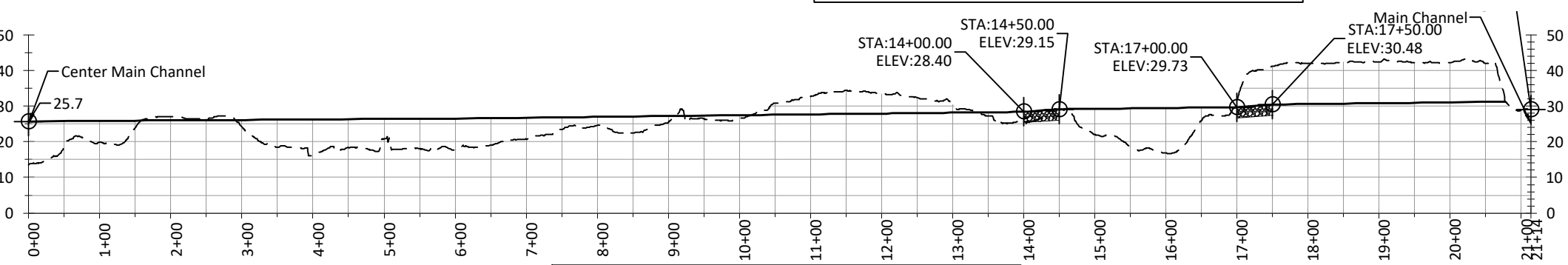
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CONDITIONS (3 OF 3)

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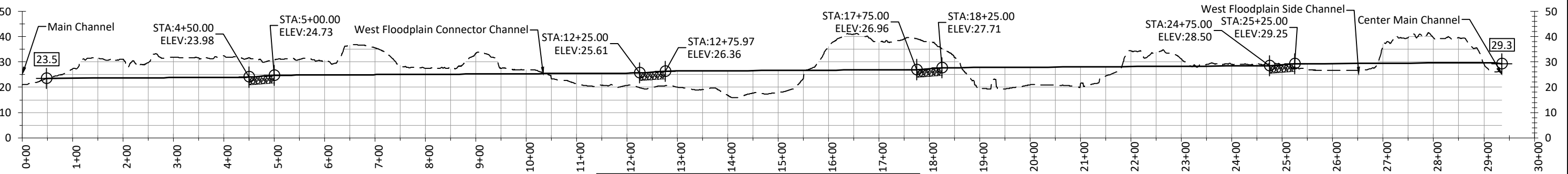
GRADING PROFILES
NOTE: ADDITIONAL LONGITUDINAL PROFILE DETAILS, INCLUDING POOLS AND CHANNEL BED COMPLEXITY WILL BE DEVELOPED IN FINAL DESIGN STAGE.



PROPOSED CENTER MAIN CHANNEL ALIGNMENT



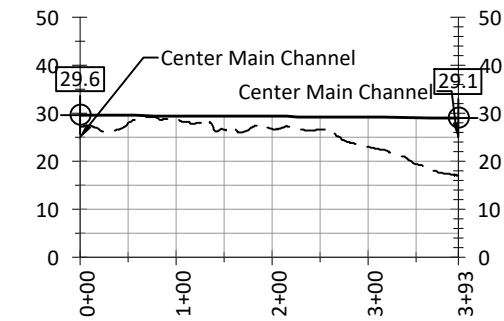
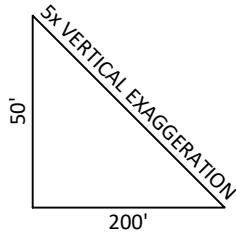
PROPOSED RIGHT MAIN CHANNEL ALIGNMENT



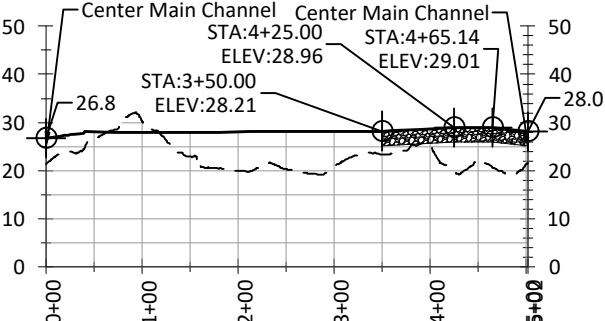
PROPOSED LEFT MAIN CHANNEL ALIGNMENT

LEGEND

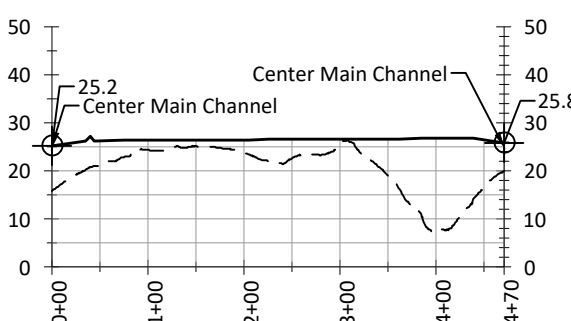
--- EXISTING GRADE
— PROPOSED GRADE



SPLIT FLOW CHANNEL 1 ALIGNMENT



SPLIT FLOW CHANNEL 2 ALIGNMENT



SPLIT FLOW CHANNEL 3 ALIGNMENT

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LOWER EAST FORK LEWIS RIVER
RIDGEFIELD PITS RESTORATION



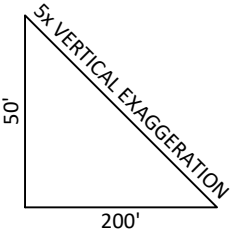
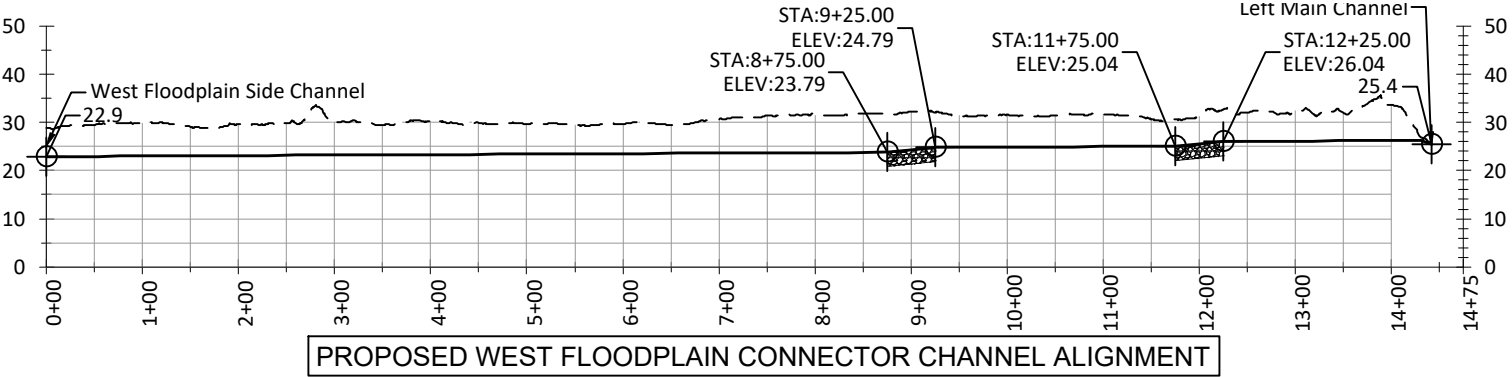
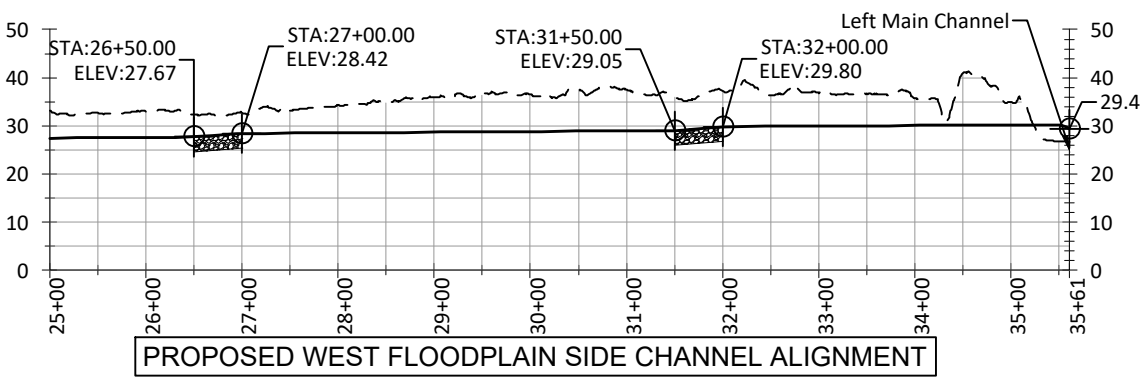
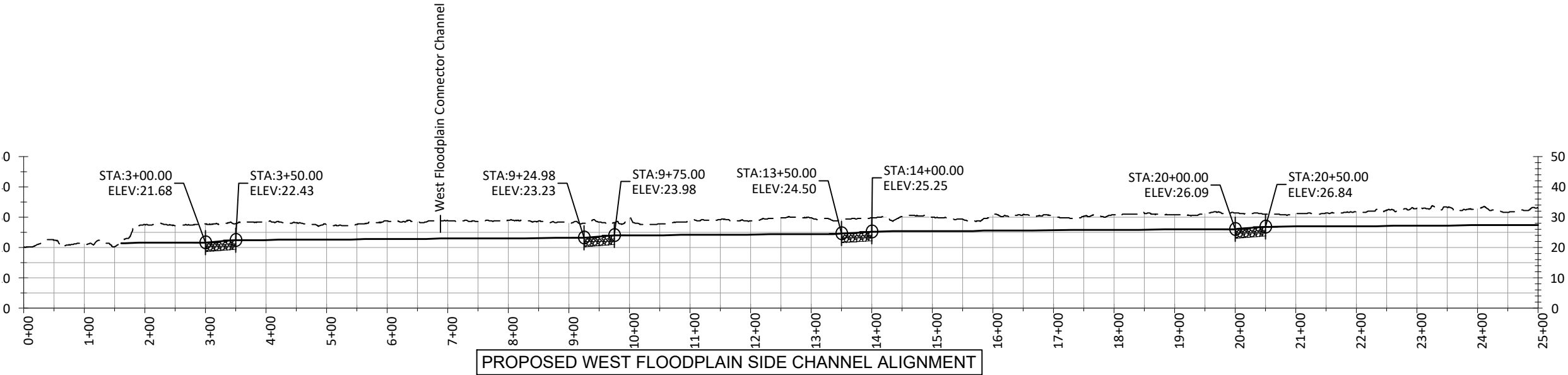
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CORE PITS MAIN CHANNEL
PROFILES (1 OF 3)

SHEET
18 OF 44

GRADING PROFILES

NOTE: ADDITIONAL LONGITUDINAL PROFILE DETAILS, INCLUDING POOLS AND CHANNEL BED COMPLEXITY WILL BE DEVELOPED IN FINAL DESIGN STAGE.



LEGEND

- EXISTING GRADE
- PROPOSED GRADE

Preliminary
Not for Construction

G:\H\CEP RidgefieldPits FinalDesign 22021.d\Drawings\01_RPTS_RidgefieldPits D.dwg - jryan - 6/7/23

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LOWER COLUMBIA ESTUARY PARTNERSHIP
LOWER EAST FORK LEWIS RIVER
RIDGEFIELD PITS RESTORATION



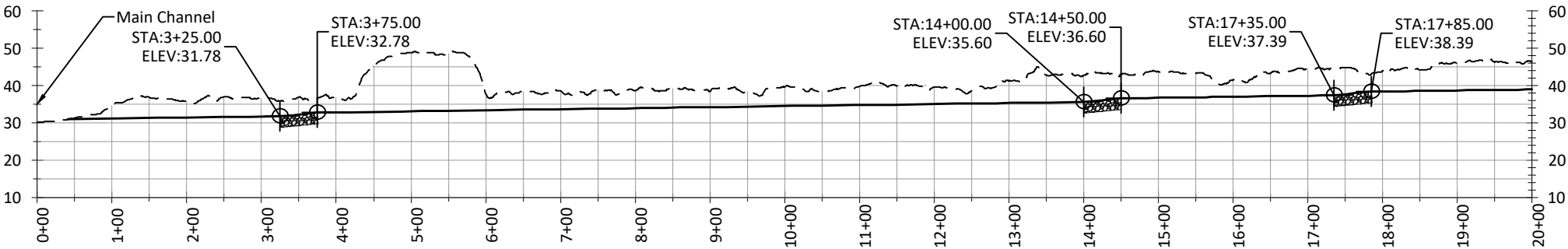
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WEST FLOODPLAIN CHANNEL
PROFILES (2 OF 3)

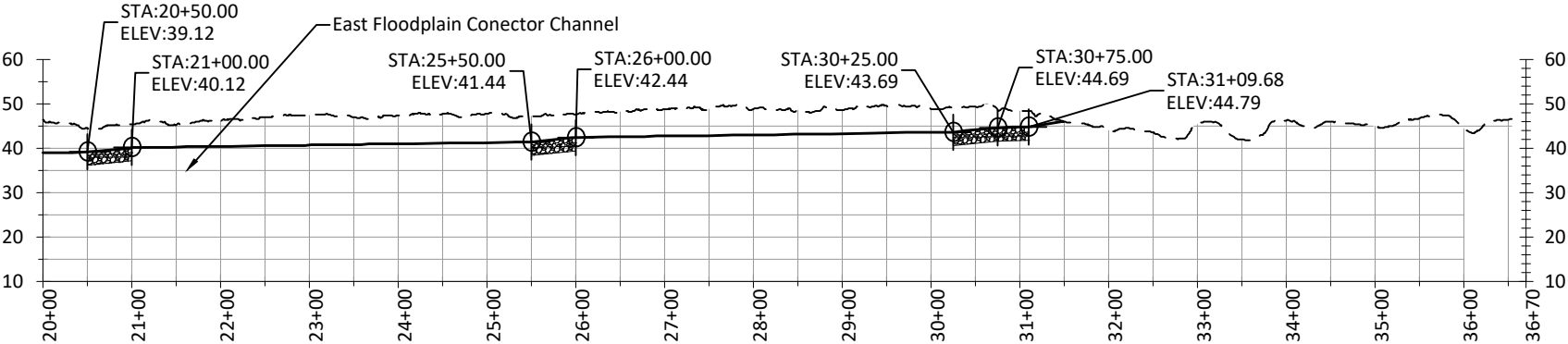
SHEET
19 OF 44

GRADING PROFILES

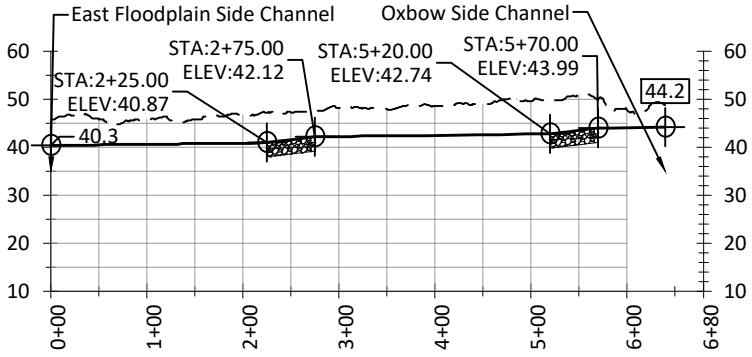
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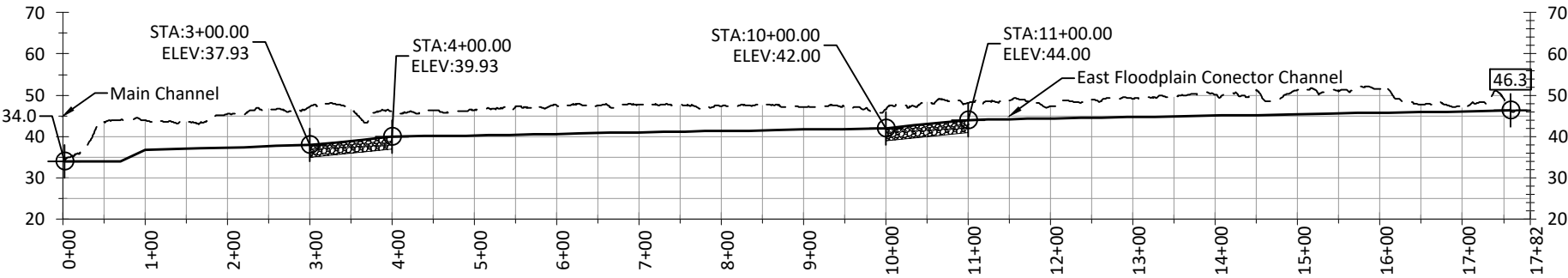
PROPOSED EAST FLOODPLAIN SIDE CHANNEL ALIGNMENT - STA: 0+00 TO STA: 25+00



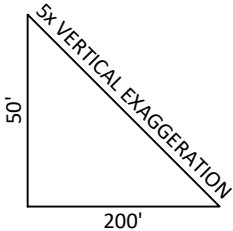
PROPOSED EAST FLOODPLAIN SIDE CHANNEL ALIGNMENT - STA: 25+00 TO STA: 36+53



PROPOSED EAST FLOODPLAIN CONNECTOR CHANNEL ALIGNMENT



PROPOSED OXBOW SIDE CHANNEL ALIGNMENT



LEGEND

- EXISTING GRADE
- PROPOSED GRADE

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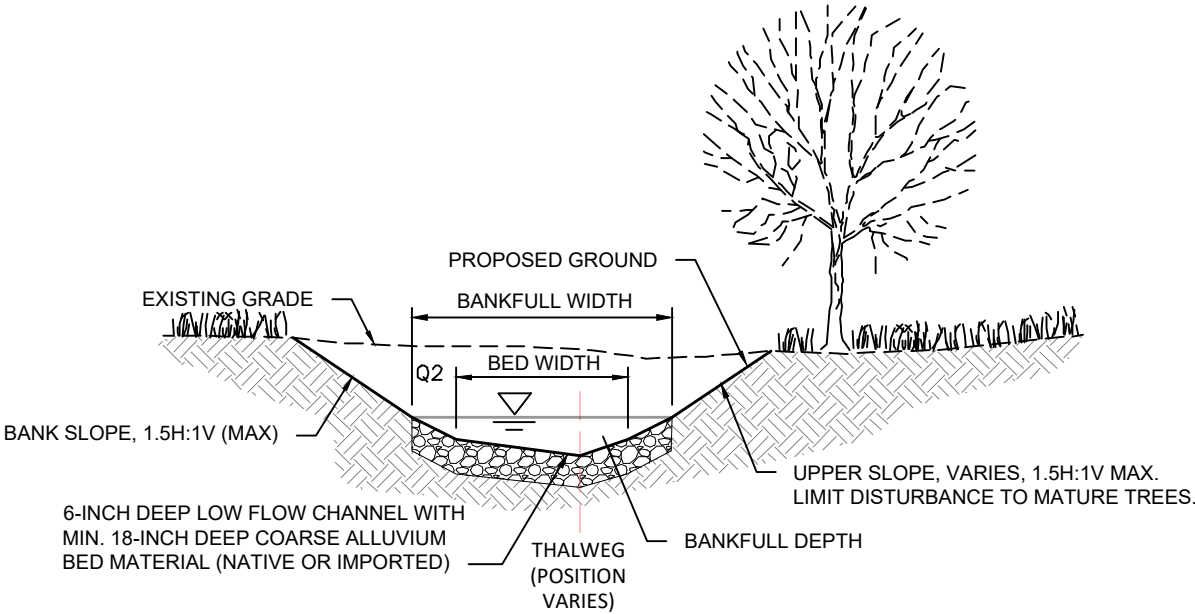
EAST FLOOD PLAIN CHANNEL
PROFILES (1 OF 3)

SHEET
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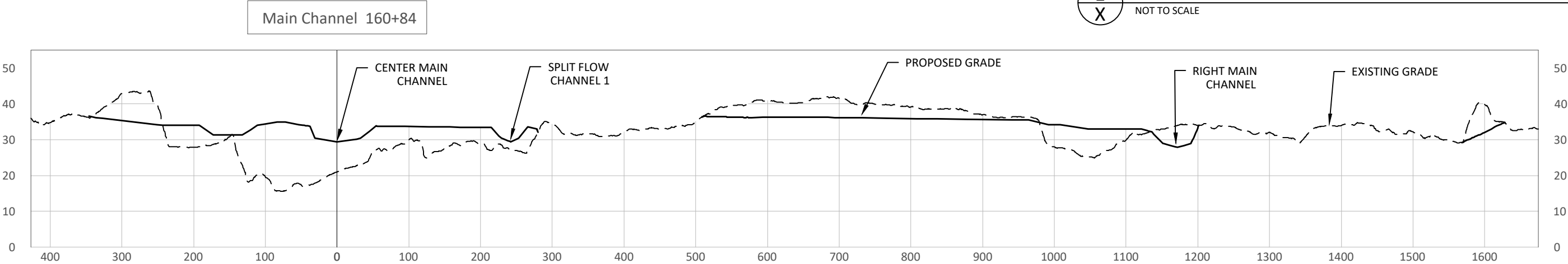
CHANNEL GEOMETRY SUMMARY TABLE										
ALIGNMENT		STATION (FT)		TYPICAL WIDTH (FT)		TYPICAL DEPTH (FT)		SIDE SLOPES (XH:1V) (FT)		
ZONE	NAME	START	END	BED	BANKFULL	LOW FLOW	BANKFULL	MIN	TYP	MAX
EAST FORK LEWIS RIVER CORE PITS	CENTER MAIN CHANNEL	137+38	168+29	62	94	1	5	2	4	6
	LEFT MAIN CHANNEL	0+00	29+36	20	44	1	5	2	3	4
	RIGHT MAIN CHANNEL	0+00	21+14	34	58	1	5	2	3	4
	SPLIT FLOW CHANNEL 1	0+00	3+93	20	32	1	3	2	3	4
	SPLIT FLOW CHANNEL 2	0+00	5+02	20	32	1	3	2	3	4
WEST FLOODPLAIN	SPLIT FLOW CHANNEL 3	0+00	4+70	20	32	1	3	2	3	4
	LOWER SIDE CHANNEL	0+00	6+88	24	48	1	5	2	3	4
	UPPER SIDE CHANNEL	6+88	35+61	8	32	1	5	2	3	4
EAST FLOODPLAIN	CONNECTOR CHANNEL	0+00	14+41	8	32	1	5	2	3	4
	OXBOW SIDE CHANNEL	0+00	17+82	26	50	1	5	2	3	4
	LOWER SIDE CHANNEL	0+00	21+62	22	40	1	4	2	3	4
	UPPER SIDE CHANNEL	21+62	36+53	14	27.5	1	4	1.5	2.25	3
	CONNECTOR CHANNEL	0+00	6+40	14	38	1	5	2	3	4

NOTE:
BANKFULL WIDTHS AND DEPTHS WILL VARY ALONG EACH ALIGNMENT BASED ON THE LOCAL FLOODPLAIN ELEVATIONS. THESE DIMENSIONS ARE NOT DIRECTLY TIED TO INUNDATION FREQUENCIES.

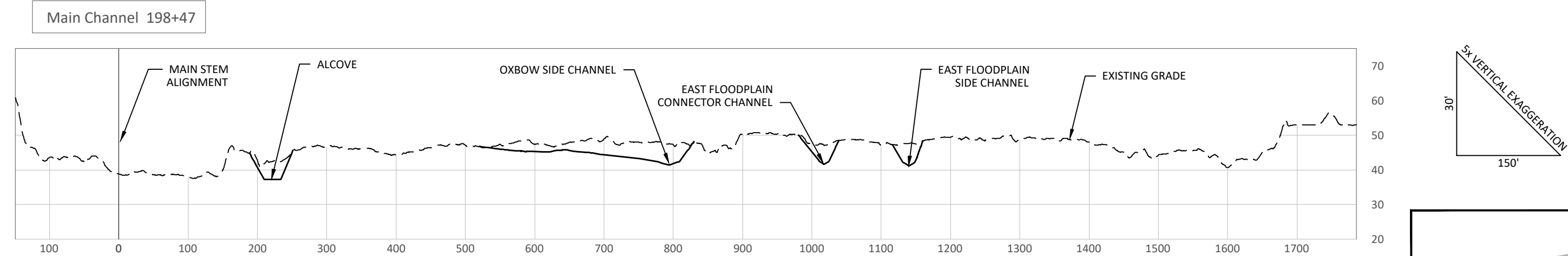
TYPICAL SIDE SLOPES ARE APPLIED TO RELATIVELY STRAIGHT CHANNEL SEGMENTS. MAXIMUM AND MINIMUM SIDE SLOPES ARE APPLIED TO INNER AND OUTER CHANNEL MEANDERS, RESPECTIVELY. SOME VARIATION MAY BE REQUIRED BASED ON CONDITIONS ENCOUNTERED IN THE FIELD, AS DIRECTED BY THE ENGINEER.



1 SIDE CHANNEL GEOMETRY - CROSS SECTION VIEW
X NOT TO SCALE



1 MAIN CHANNEL FLOODPLAIN REPRESENTATIVE CROSS SECTION
21 NOT TO SCALE



NOTE:
ADDITIONAL CROSS-SECTION DETAILS, INCLUDING POOLS, RIFFLES, AND CHANNEL BED COMPLEXITY WILL BE DEVELOPED IN FINAL DESIGN STAGE.

2 EAST FLOODPLAIN REPRESENTATIVE CROSS SECTION
21 NOT TO SCALE

LEGEND
--- EXISTING GRADE
— PROPOSED GRADE

Preliminary
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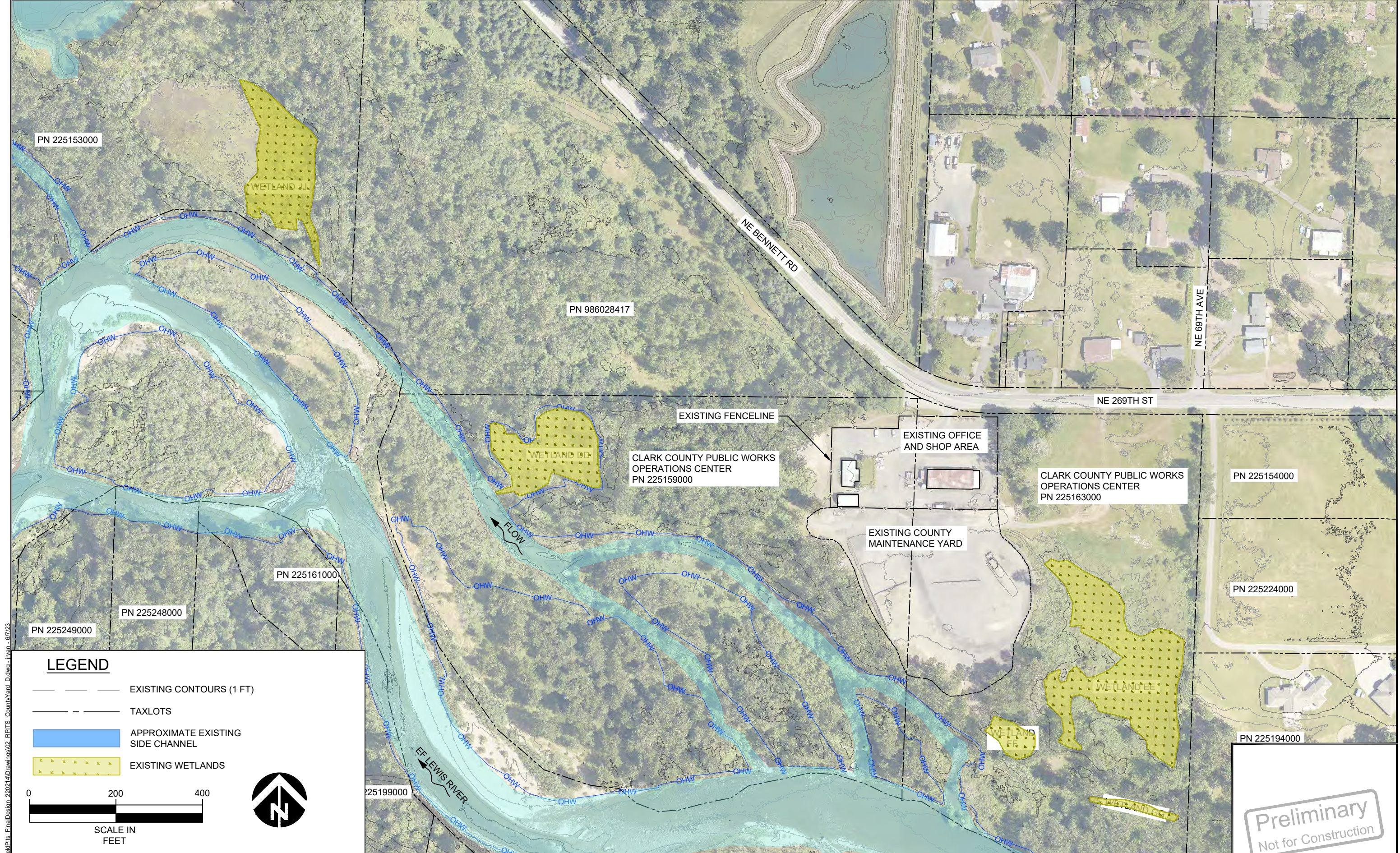
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CORE PITS CROSS-SECTIONS

SHEET
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G:\HUCEP_RidgefieldPlus_Final\Drawings\02_RPTS CountyYard D.dwg - Iwan - 6/7/23

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LOWER COLUMBIA ESTUARY PARTNERSHIP
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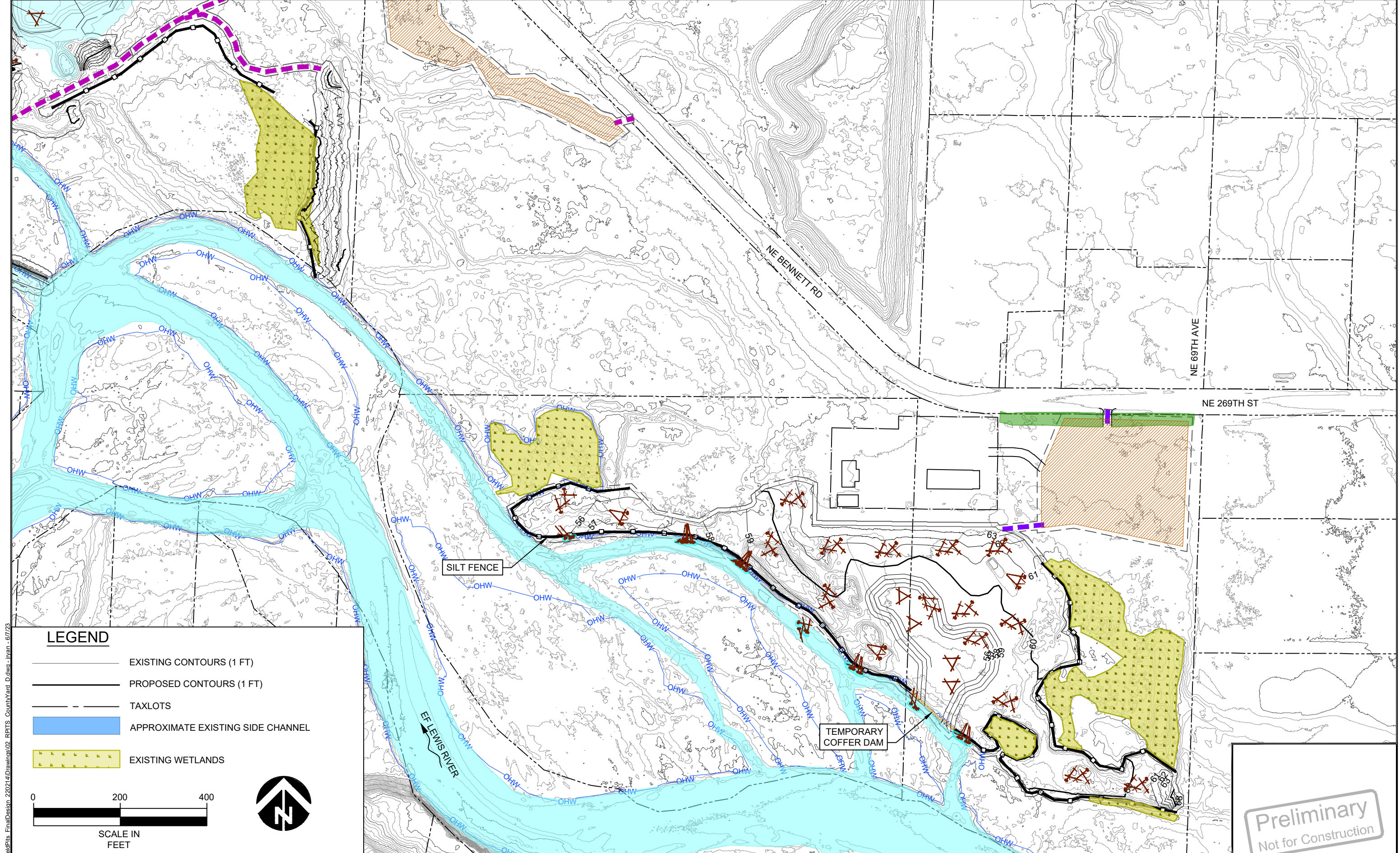


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COUNTY YARD
EXISTING CONDITIONS

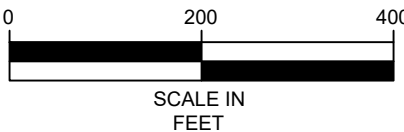
SHEET
22 OF 44

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LEGEND

- EXISTING CONTOURS (1 FT)
- PROPOSED CONTOURS (1 FT)
- TAXLOTS
- APPROXIMATE EXISTING SIDE CHANNEL
- EXISTING WETLANDS



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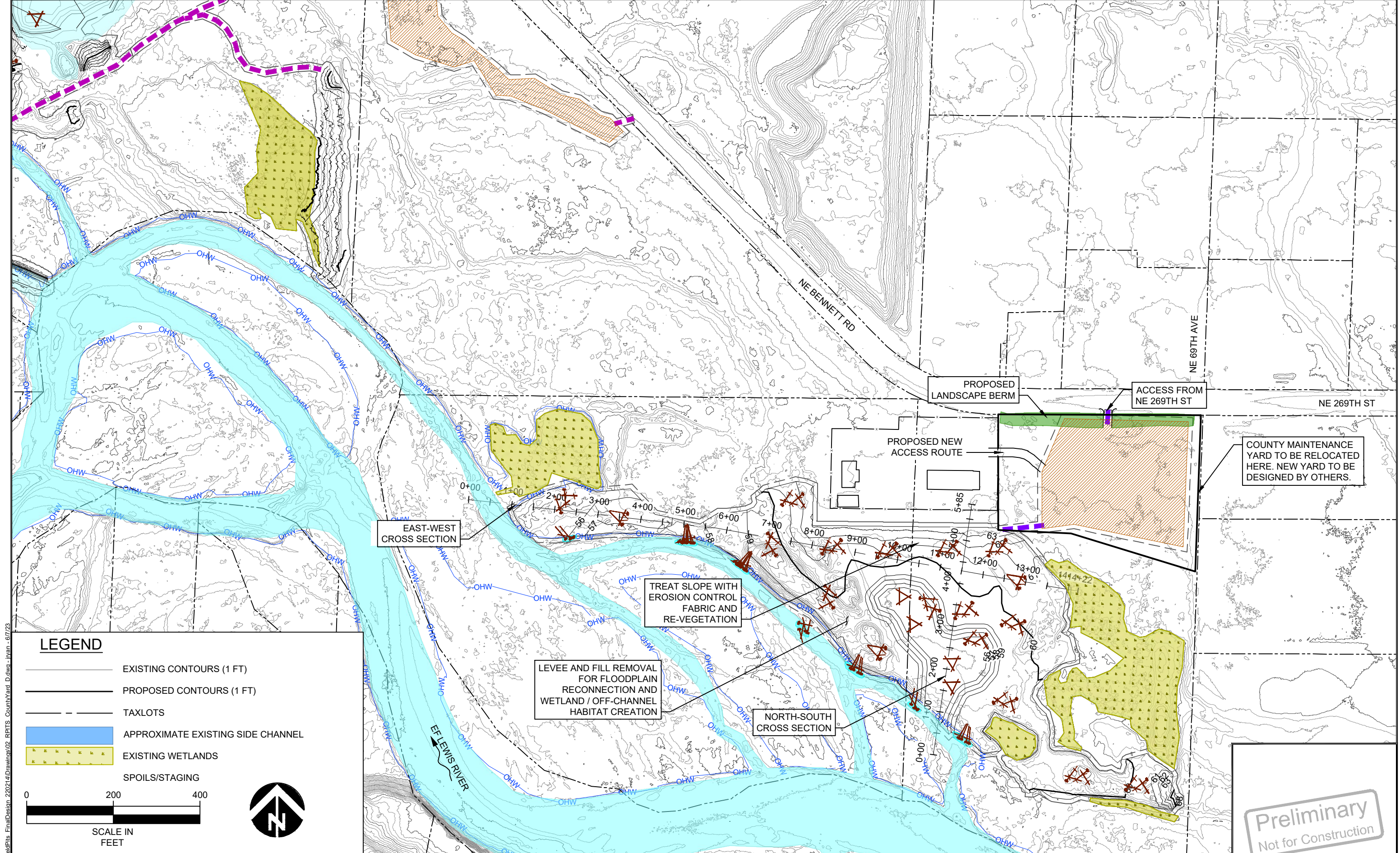


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COUNTY YARD TESC &
WORK ISOLATION

SHEET
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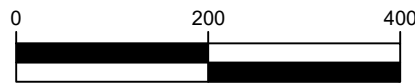
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LEGEND

- EXISTING CONTOURS (1 FT)
- PROPOSED CONTOURS (1 FT)
- TAXLOTS
- APPROXIMATE EXISTING SIDE CHANNEL
- EXISTING WETLANDS
- SPOILS/STAGING



SCALE IN FEET



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LOWER EAST FORK LEWIS RIVER
RIDGEFIELD PITS RESTORATION

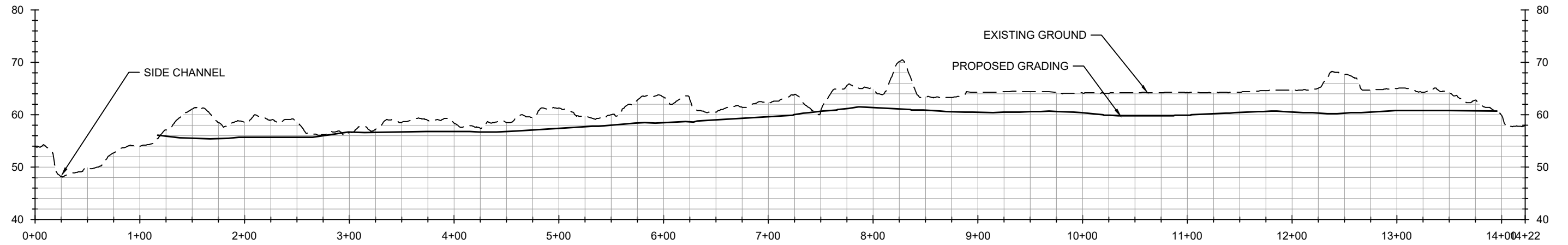


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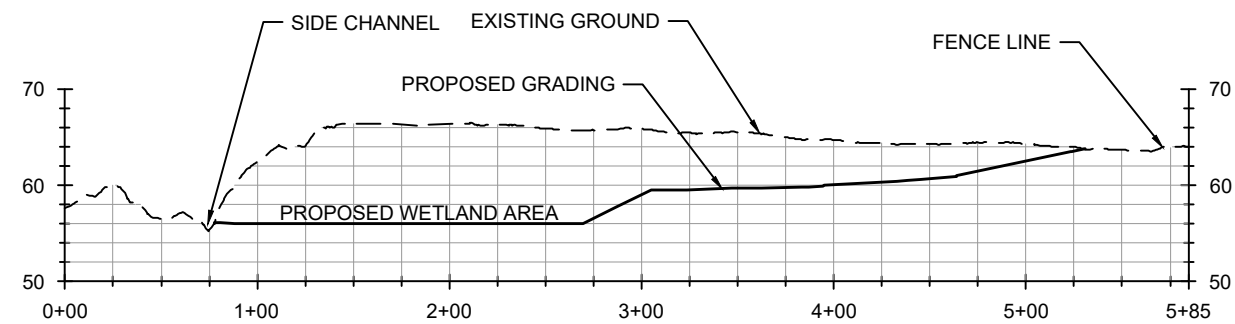
COUNTY YARD
PROPOSED CONDITIONS

SHEET
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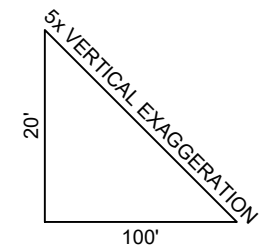
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PROFILE - EAST-WEST CROSS SECTION



PROFILE - NORTH-SOUTH CROSS SECTION



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 RIDGEFIELD PITS RESTORATION

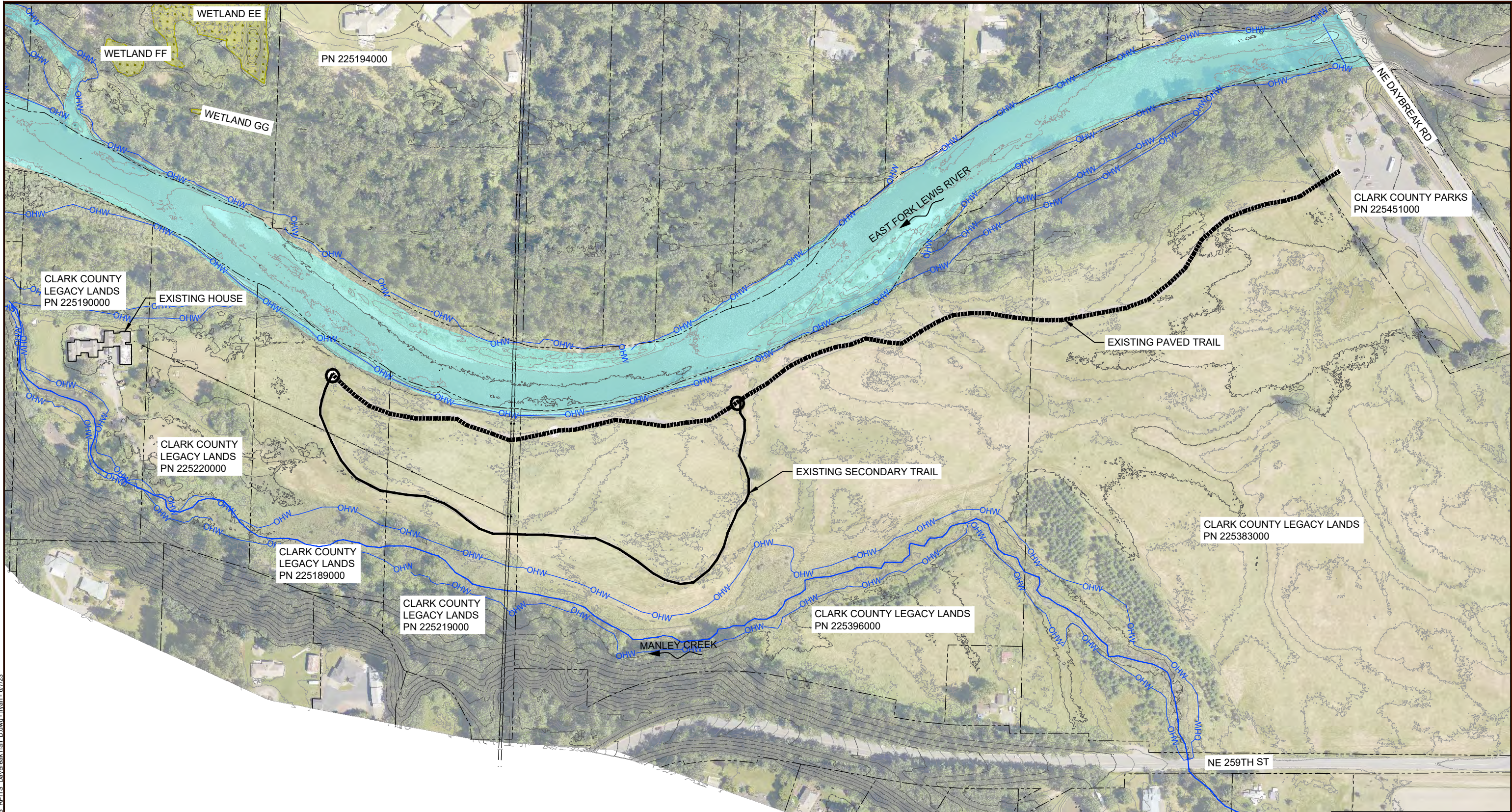


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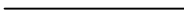
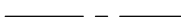
COUNTY YARD
 PROFILES & SECTIONS

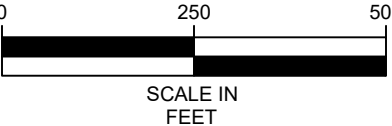
SHEET
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LEGEND

-  PAVED TRAIL
-  SECONDARY GRAVEL TRAIL
-  OVERLOOK AND RESTING AREAS
-  ELECTRICAL LINES
-  TAXLOTS



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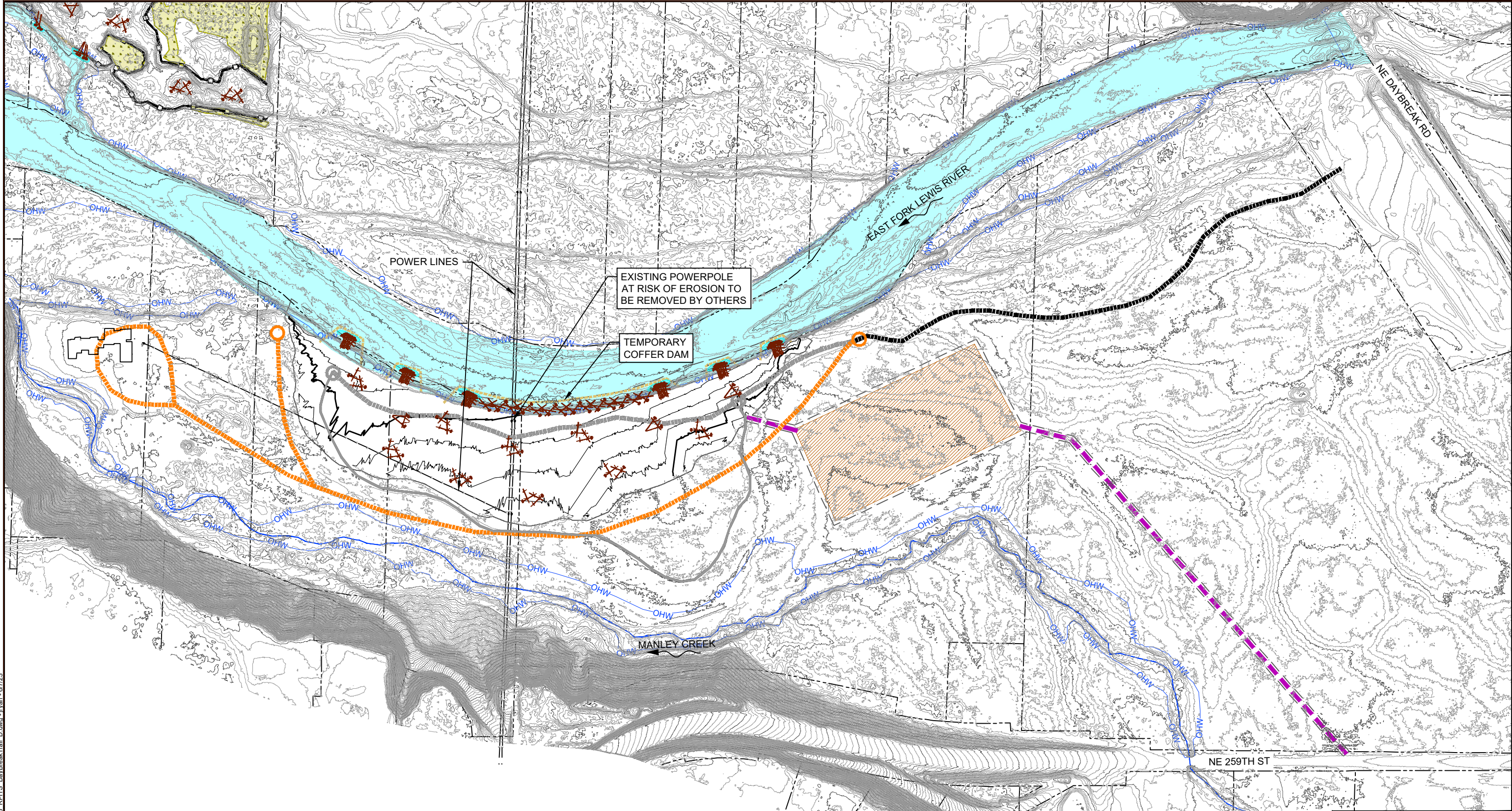
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DAYBREAK TRAIL
EXISTING CONDITIONS

SHEET
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LEGEND

PAVED TRAIL

PAVED TRAIL TO BE RELOCATED

SECONDARY GRAVEL TRAIL

OVERLOOK AND RESTING AREAS

ELECTRICAL LINES

TAXLOTS

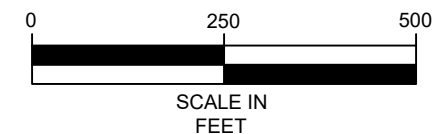
PROPOSED RELOCATED
PAVED TRAIL

TEMPORARY COFFER DAM

TEMPORARY ACCESS

STOCKPILE/STAGING

PROPOSED LWS STRUCTURE (TYP)



SCALE IN
FEET

Preliminary
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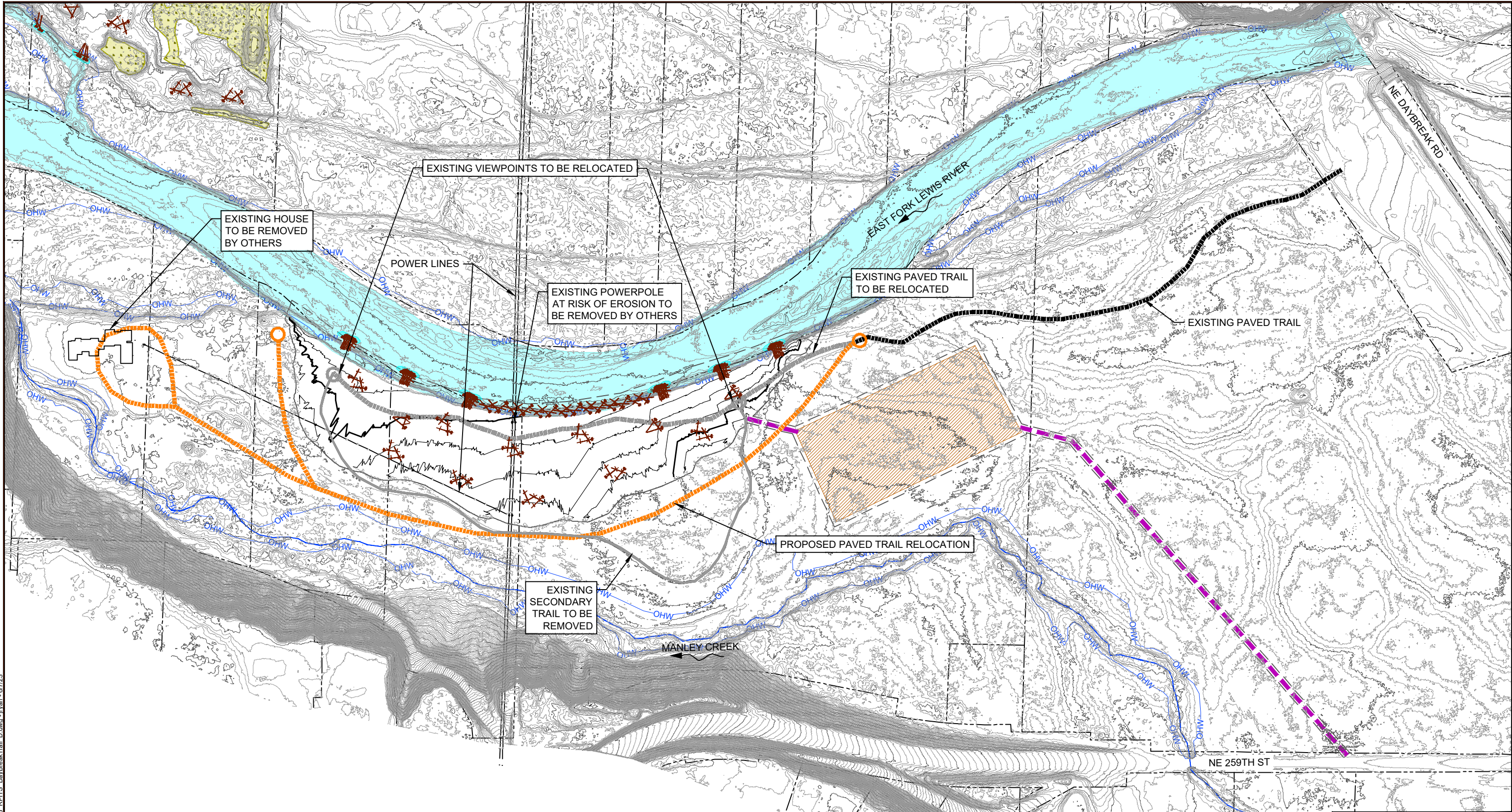


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DAYBREAK TRAIL TESC &
WORK ISOLATION

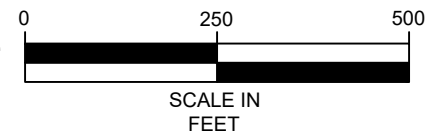
SHEET

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LEGEND

- | | | | | | |
|--|-----------------------------|--|--------------------------------|--|------------------------------|
| | PAVED TRAIL | | ELECTRICAL LINES | | TEMPORARY ACCESS |
| | PAVED TRAIL TO BE RELOCATED | | TAXLOTS | | STOCKPILE/STAGING |
| | SECONDARY GRAVEL TRAIL | | PROPOSED RELOCATED PAVED TRAIL | | PROPOSED LWS STRUCTURE (TYP) |
| | OVERLOOK AND RESTING AREAS | | TEMPORARY COFFER DAM | | |



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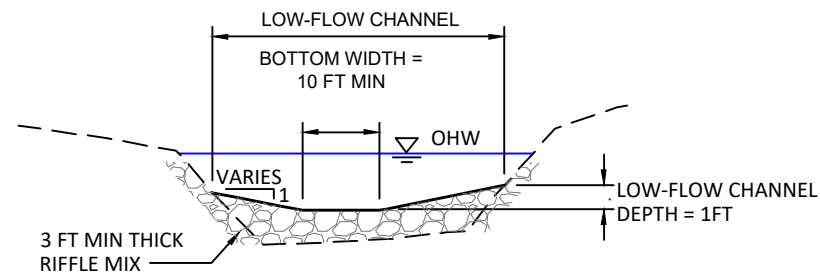
LOWER COLUMBIA ESTUARY PARTNERSHIP
LOWER EAST FORK LEWIS RIVER
RIDGEFIELD PITS RESTORATION



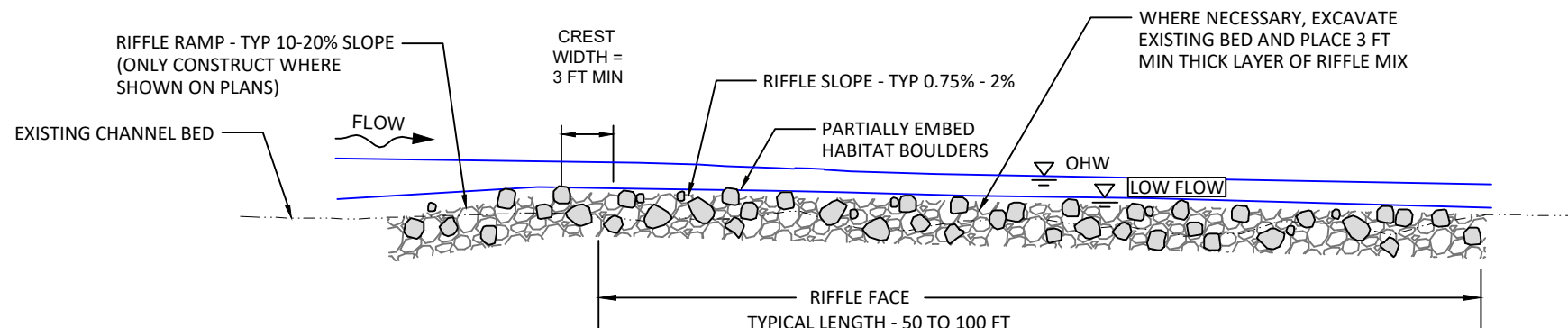
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DAYBREAK TRAIL
PROPOSED CONDITIONS

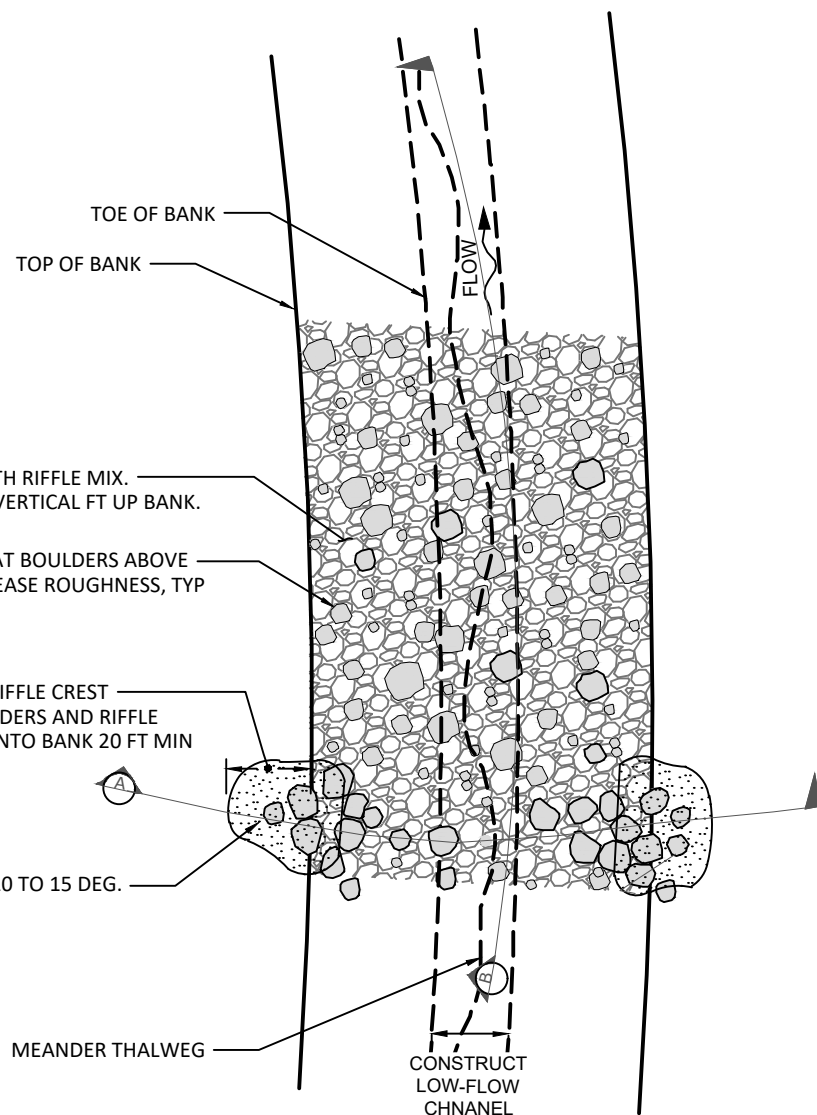
SHEET
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A SECTION VIEW



B PROFILE VIEW



1 TYPICAL DETAIL - RIFFLE
NOT TO SCALE

RIFFLE CREST GEOMETRY TABLE

LISTED UPSTREAM TO DOWNSTREAM

TABLE TO BE PROVIDED
DURING FUTURE DESIGN PHASE

NOTE:

KEY RIFFLE INTO IN-SITU GRAVEL/ COBBLE MATERIAL. IF APPROPRIATE IN-SITU GRAVEL/COBBLE MATERIAL IS NOT ENCOUNTERED, WIDTH OF RIFFLE KEYED INTO BANK SHALL BE INCREASED.

NOTES:

1. LIMITS OF EACH RIFFLE ARE SHOWN ON THE PLAN AND PROFILE SHEETS.
2. WITHIN THE LIMITS OF THE RIFFLE STRUCTURES, EXTEND RIFFLE MIX TO THE TOP OF BANKFULL CHANNEL .
3. SHAPE RIFFLE BED TO CREATE A 1 FT DEEP LOW FLOW PATH.
4. WASH FINES TO SEAL BED PROPERLY TO PREVENT FLOWS FROM GOING SUBSURFACE.

RIFFLE MIX

TABLE TO BE PROVIDED
DURING FUTURE DESIGN PHASE

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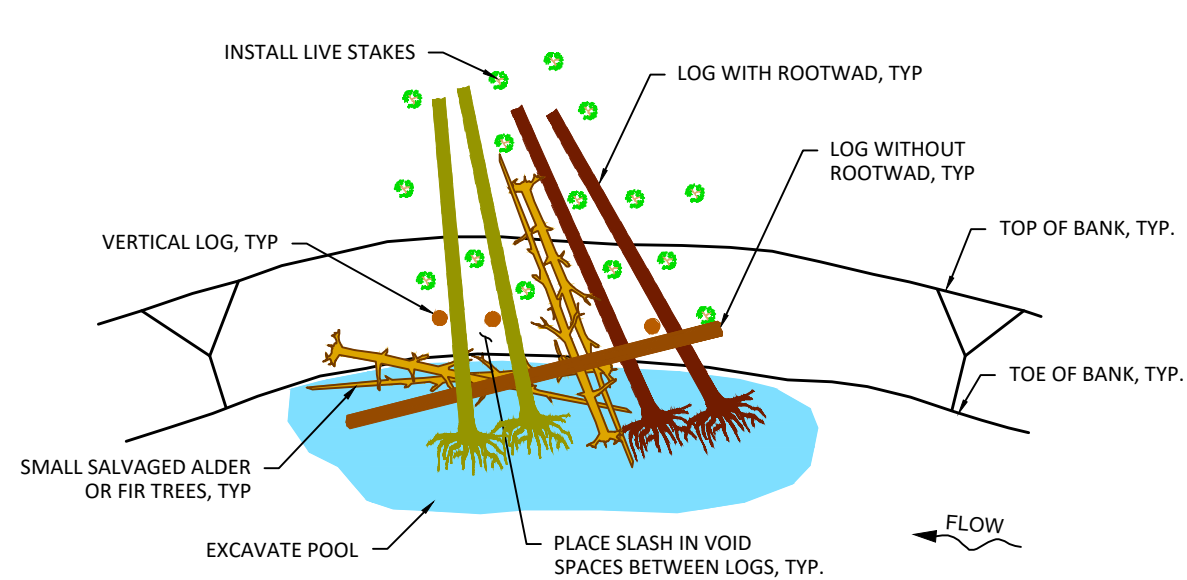
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RIFFLE DETAILS

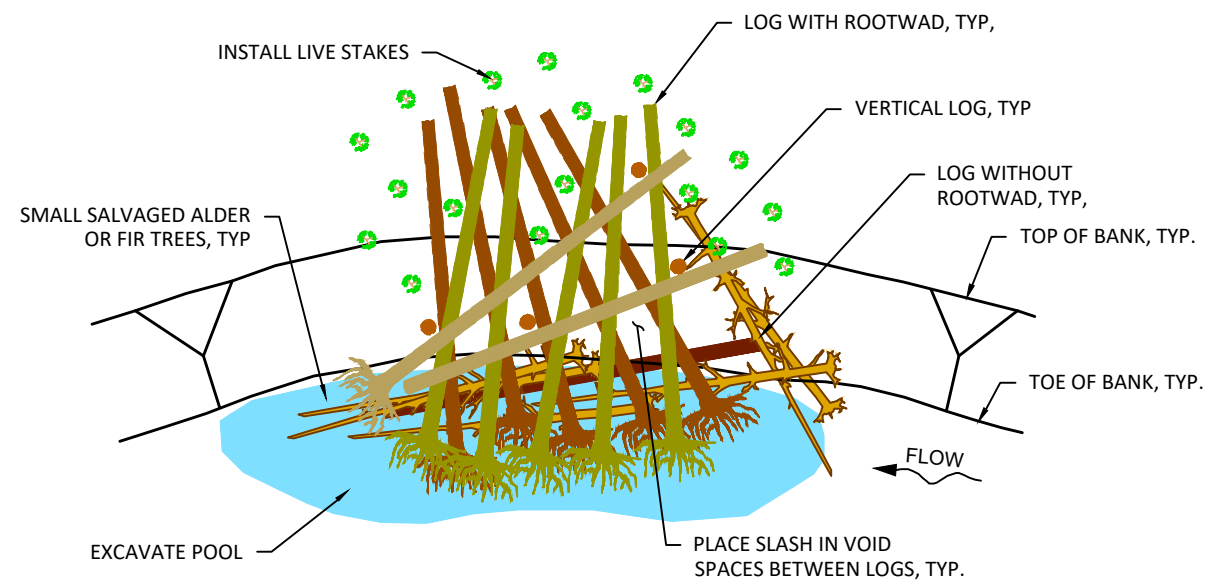
SHEET

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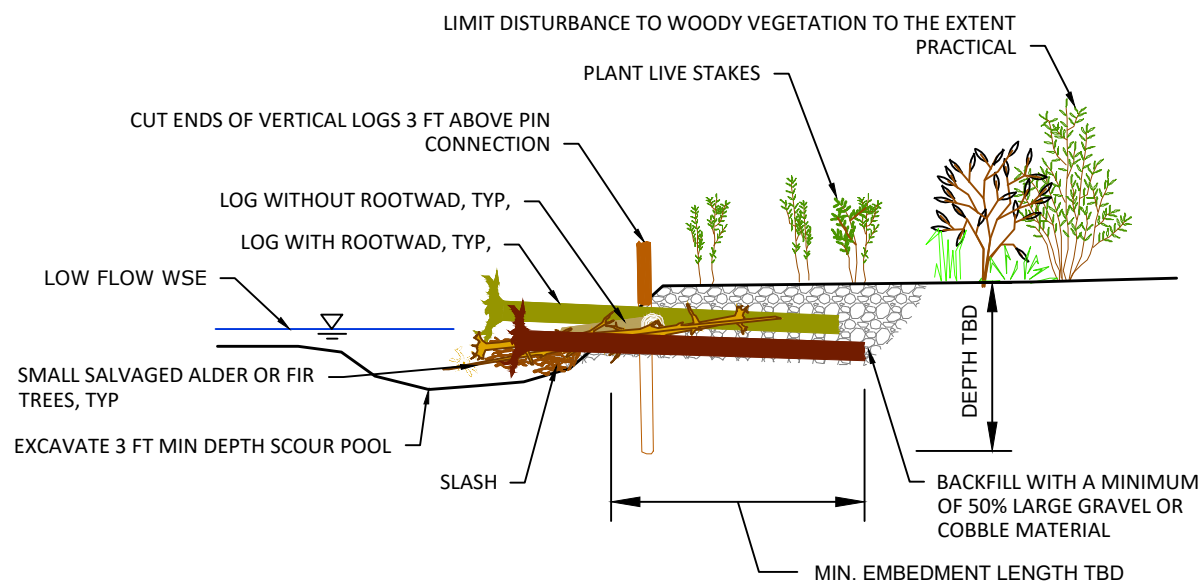
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PLAN VIEW

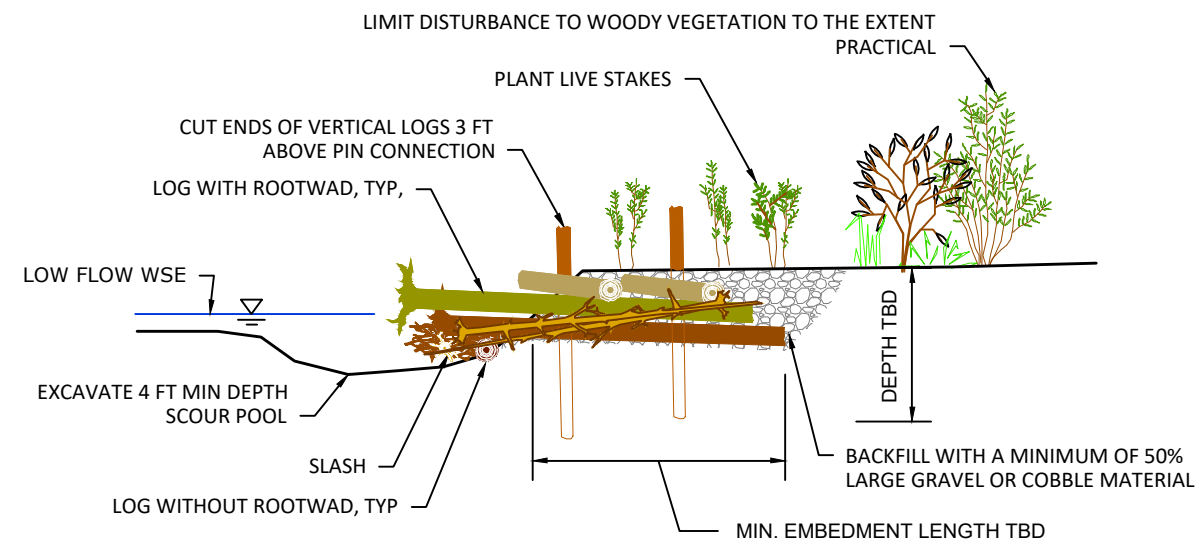


PLAN VIEW



SECTION VIEW

1
30 SMALL BANK BURIED WOOD STRUCTURE
NOT TO SCALE



SECTION VIEW

2
30 LARGE BANK BURIED WOOD STRUCTURE
NOT TO SCALE

LARGE WOOD STRUCTURE NOTES:

1. SPECIFIC ORIENTATION OF LOGS MAY VARY FROM TYPICAL DRAWINGS DEPENDING ON SITE CONDITIONS AND SIZE AND SHAPE OF LARGE WOOD MATERIAL.
2. EACH VERTICAL LOG SHOULD ONLY BE MECHANICALLY CONNECTED TO THE TOP LOG LAYER (WITH A MINIMUM DIAMETER OF 12 INCHES) UNLESS OTHERWISE DIRECTED BY THE ENGINEER IN THE FIELD. REFER TO TIMBER PILE DETAIL FOR MORE INFORMATION ON BALLAST REQUIREMENTS.
3. INSTALL LIVE STAKES AND/OR DEEP-ROOTED LIVE POLES IN AND AROUND EACH STRUCTURE. REFER TO PLANTING PLANS FOR MORE INFORMATION AND DETAILS ABOUT REVEGETATION.

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LOWER EAST FORK LEWIS RIVER
RIDGEFIELD PITS RESTORATION

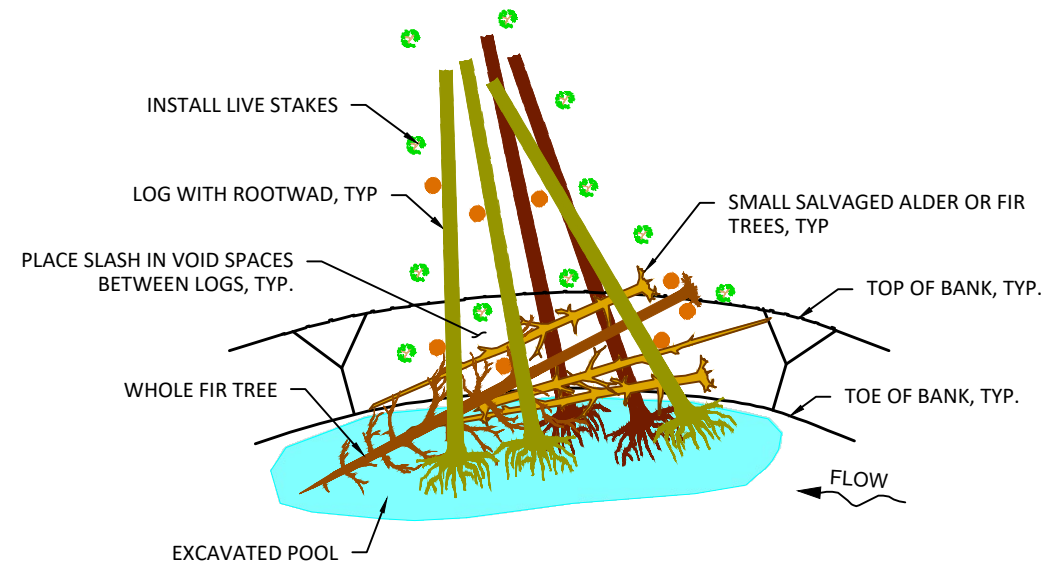


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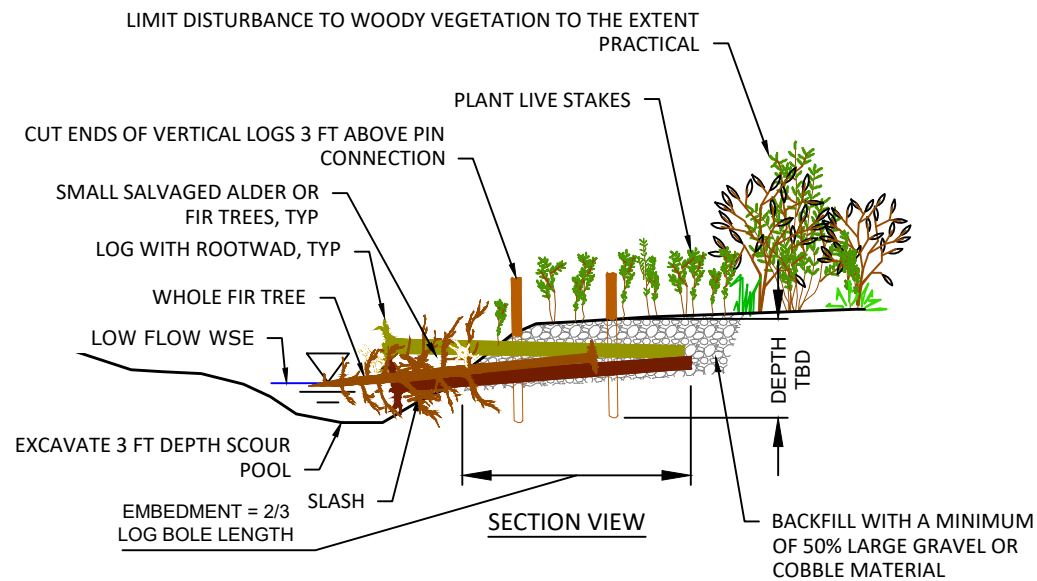
LARGE WOOD STRUCTURE
DETAILS (1 OF 6)

SHEET
30 OF 44

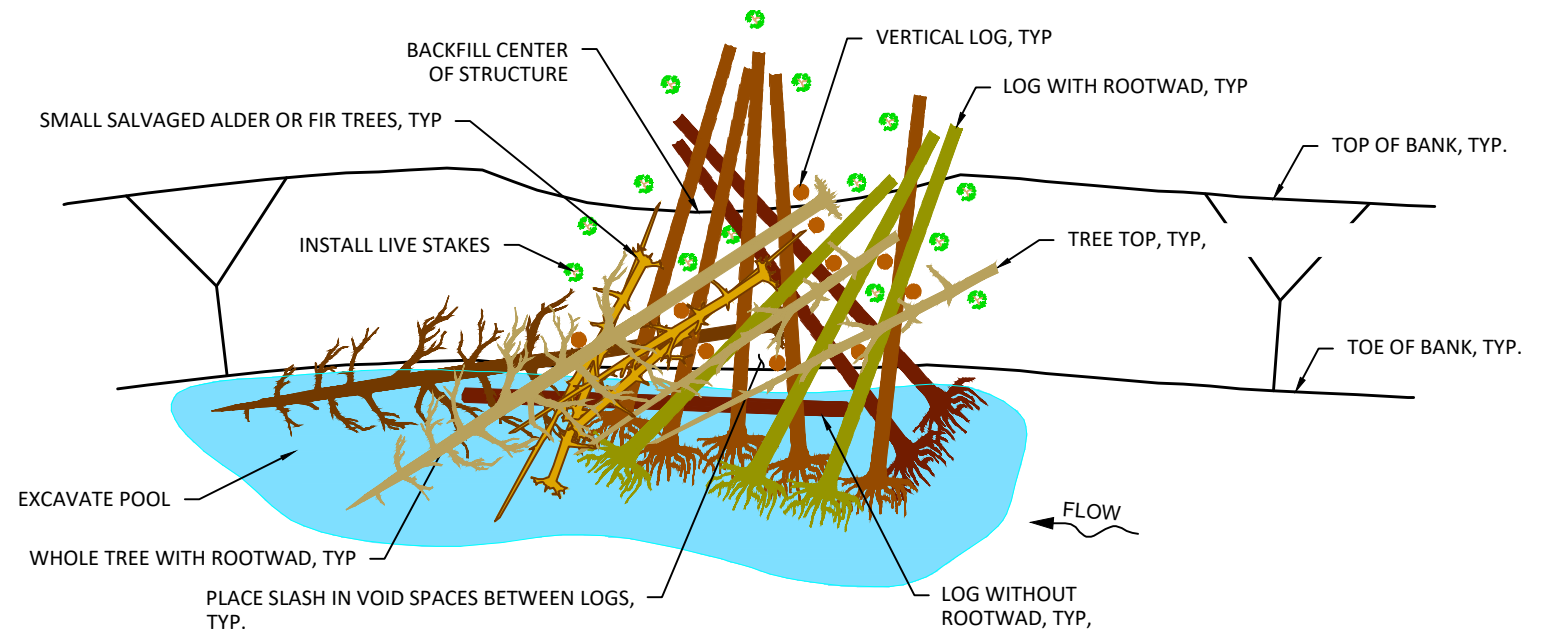
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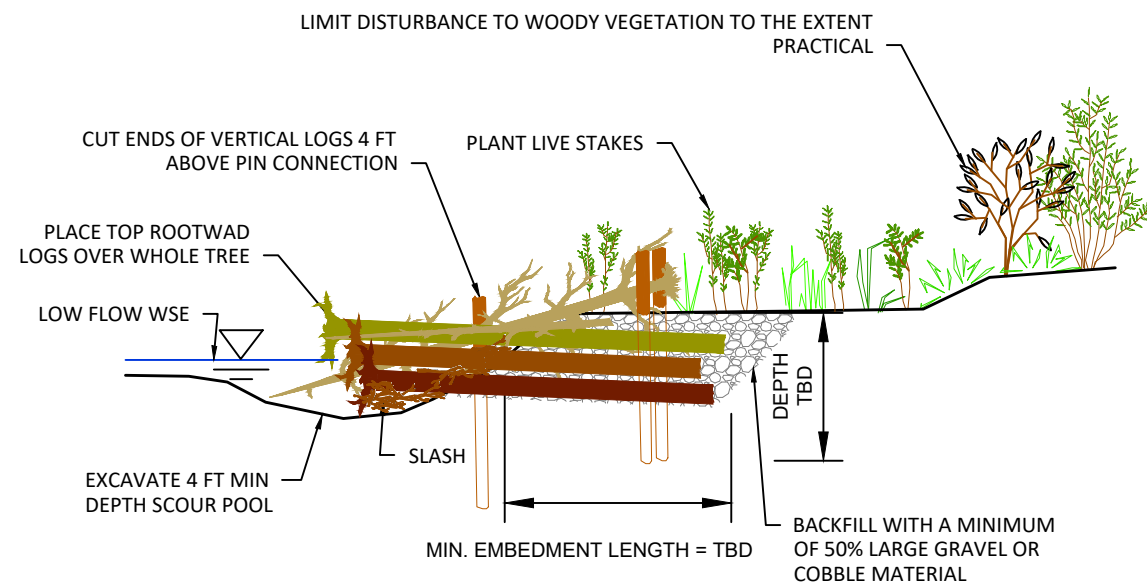
PLAN VIEW



1
31
SMALL WHOLE TREE WOOD STRUCTURE
NOT TO SCALE



PLAN VIEW



SECTION VIEW

2
31
LARGE WHOLE TREE WOOD STRUCTURE
NOT TO SCALE

LARGE WOOD STRUCTURE NOTES:

1. SPECIFIC ORIENTATION OF LOGS MAY VARY FROM TYPICAL DRAWINGS DEPENDING ON SITE CONDITIONS AND SIZE AND SHAPE OF LARGE WOOD MATERIAL.
2. EACH VERTICAL LOG SHOULD ONLY BE MECHANICALLY CONNECTED TO THE TOP LOG LAYER (WITH A MINIMUM DIAMETER OF 12 INCHES) UNLESS OTHERWISE DIRECTED BY THE ENGINEER IN THE FIELD. REFER TO TIMBER PILE DETAIL FOR MORE INFORMATION ON BALLAST REQUIREMENTS.
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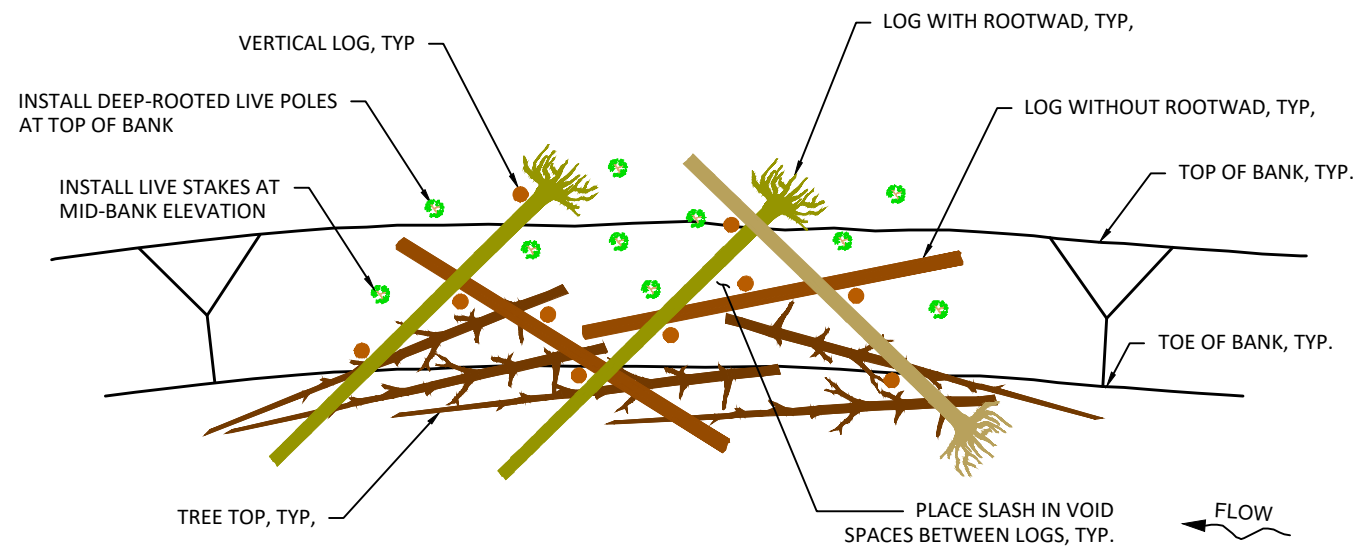
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LOWER EAST FORK LEWIS RIVER
RIDGEFIELD PITS RESTORATION



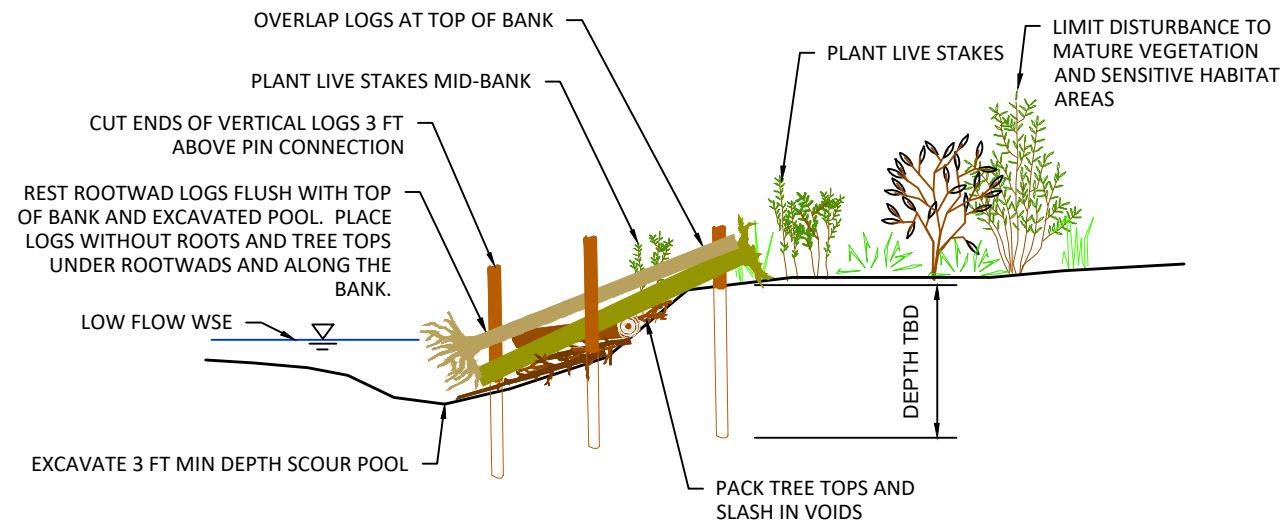
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LARGE WOOD STRUCTURE
DETAILS (2 OF 6)

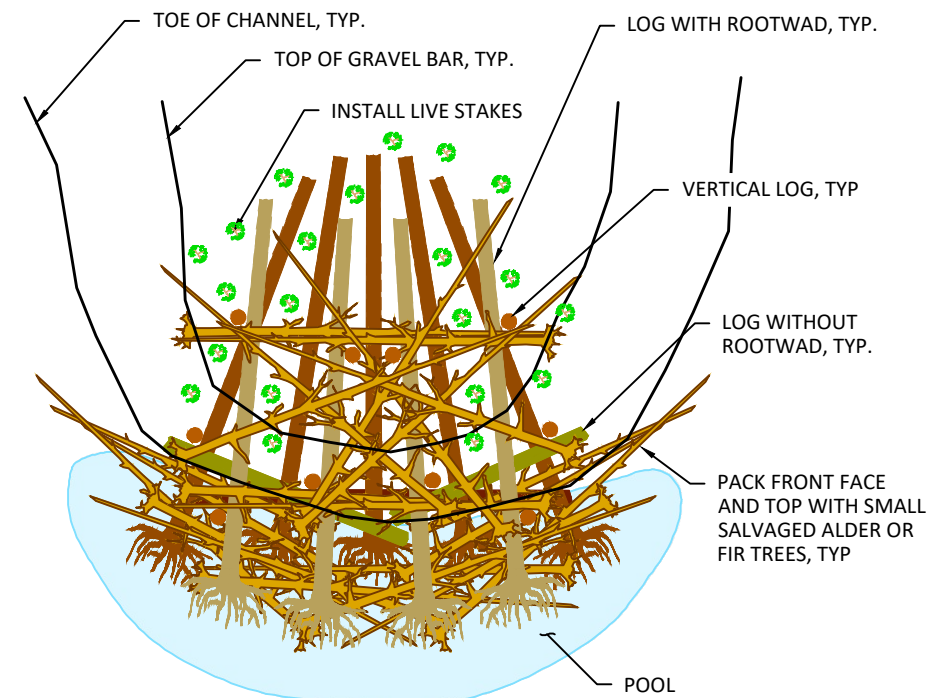
SHEET
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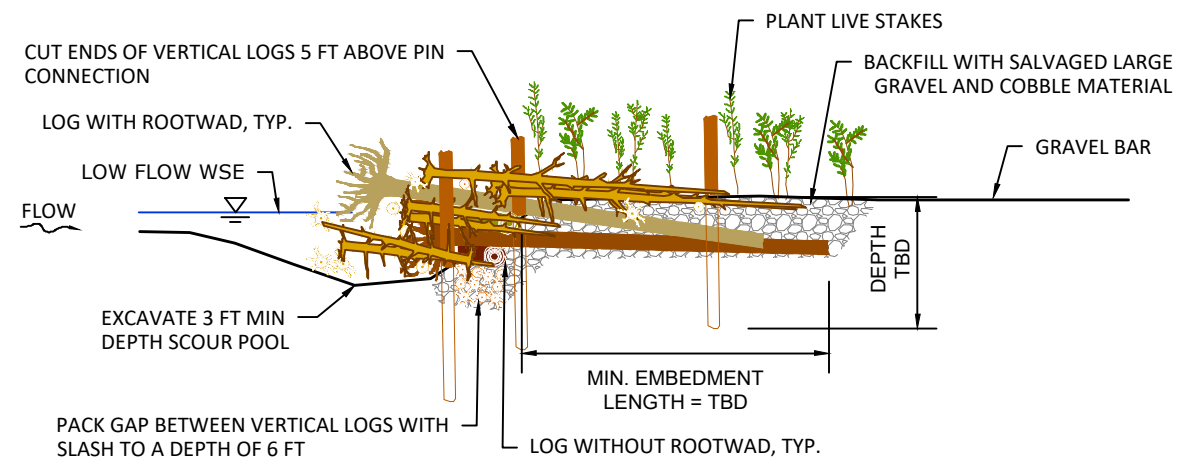
PLAN VIEW



SECTION VIEW



PLAN VIEW



SECTION VIEW

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1
32 MARGIN HABITAT WOOD STRUCTURE
NOT TO SCALE

2
32 APEX WOOD STRUCTURE
NOT TO SCALE

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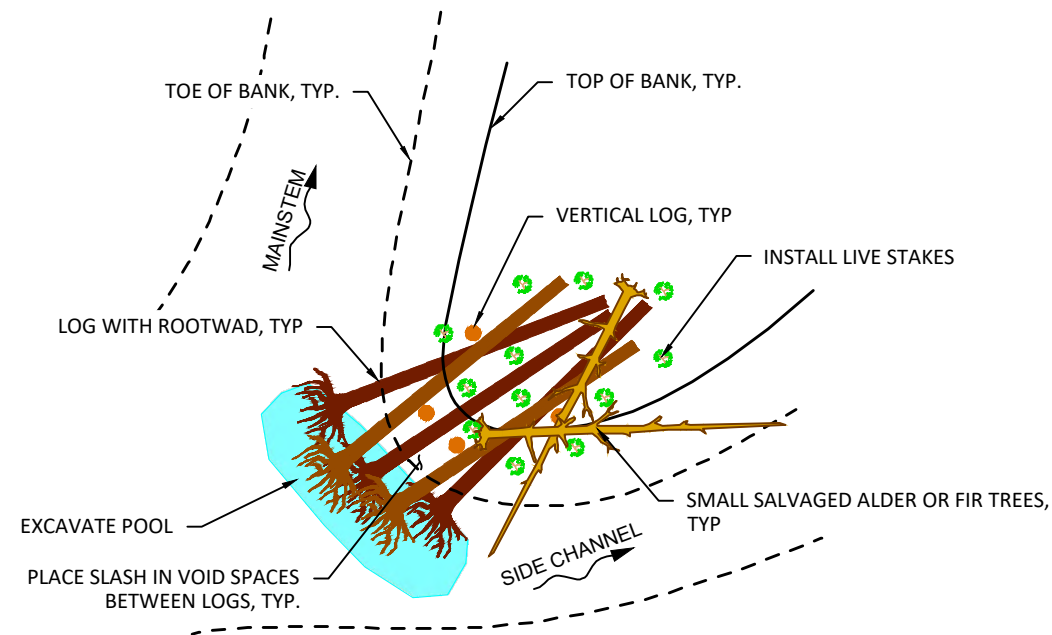


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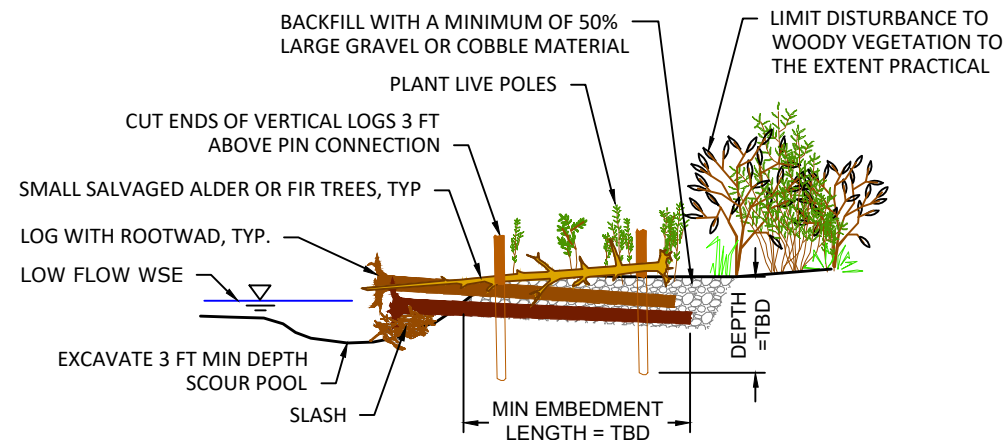
LARGE WOOD STRUCTURE
DETAILS (3 OF 6)

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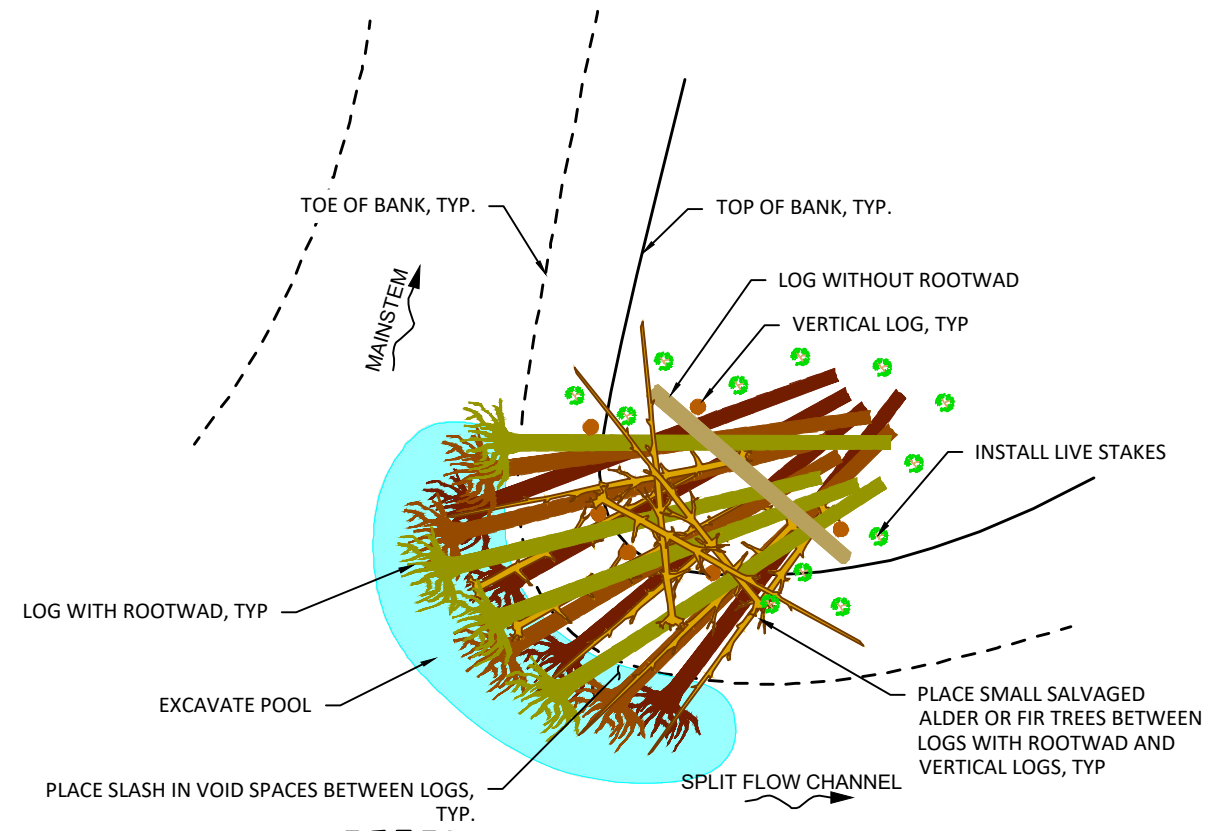


PLAN VIEW

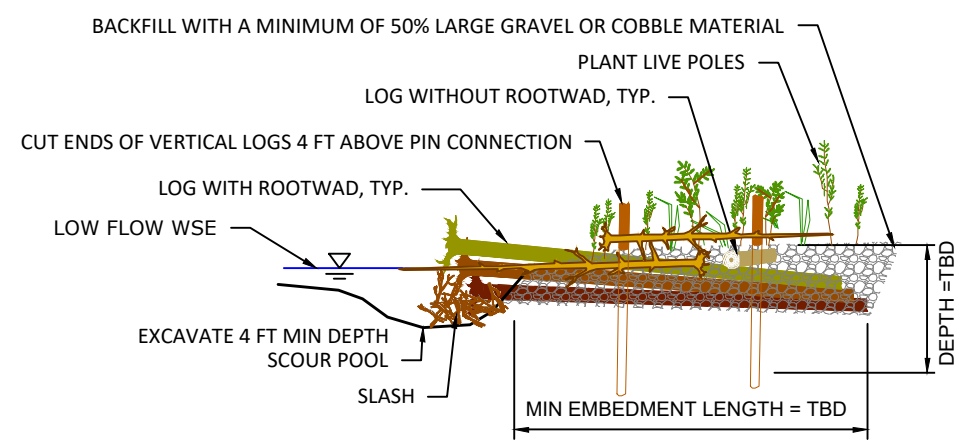


SECTION VIEW

1
33 MINOR INLET WOOD STRUCTURE
NOT TO SCALE



PLAN VIEW



SECTION VIEW

2
33 MAJOR INLET WOOD STRUCTURE
NOT TO SCALE

LARGE WOOD STRUCTURE NOTES:

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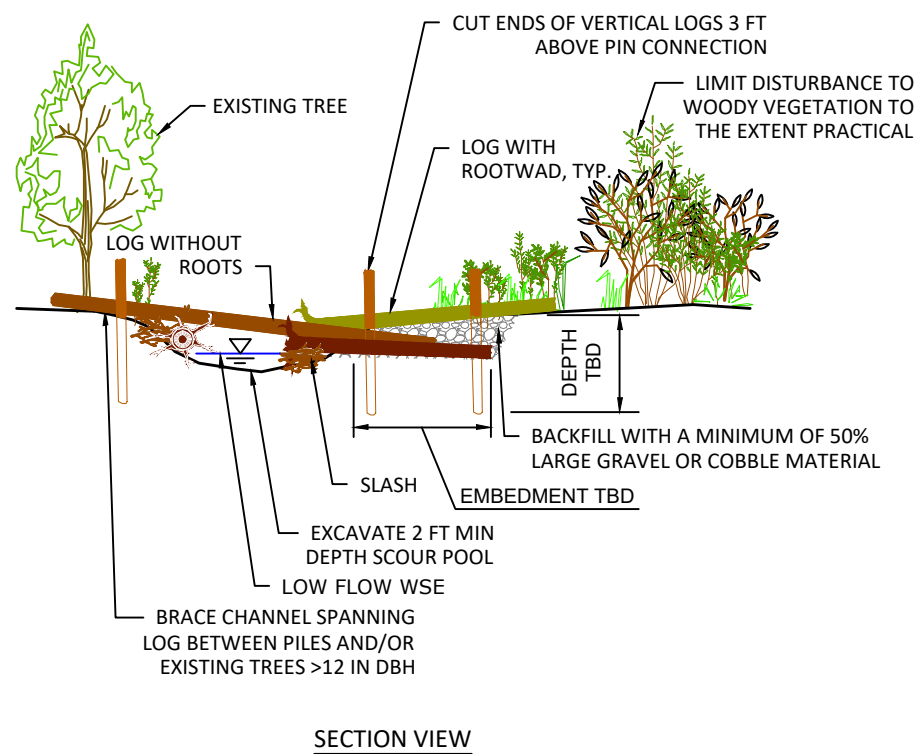
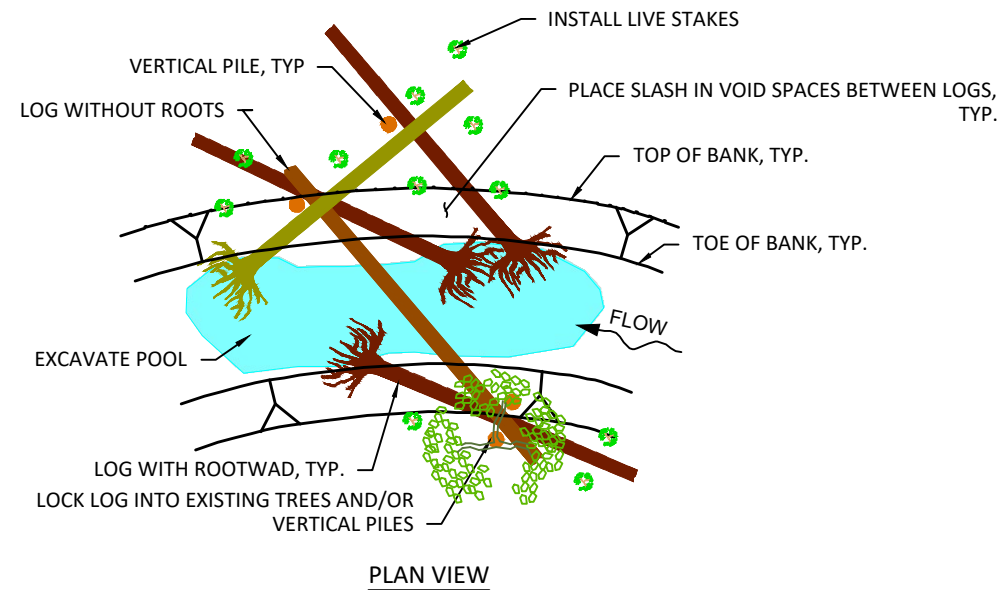
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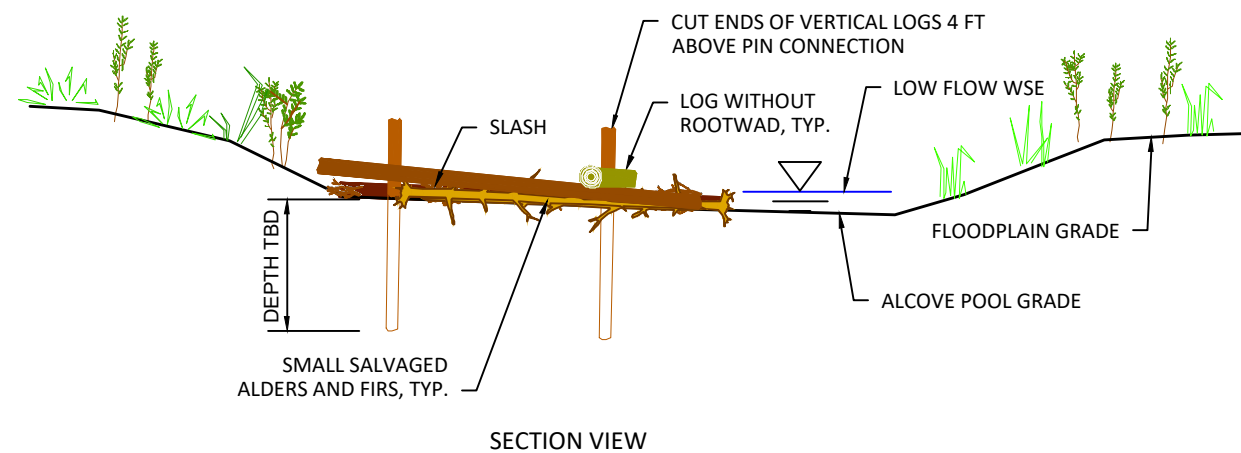
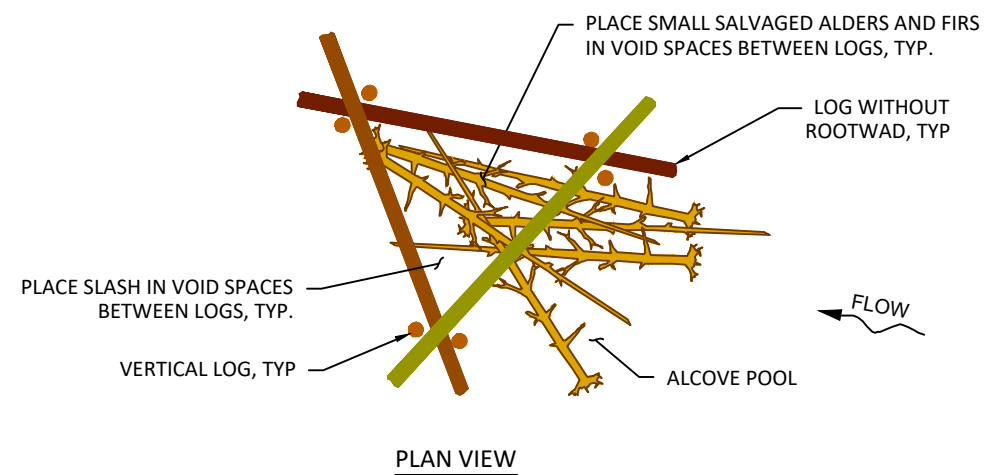
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LARGE WOOD STRUCTURE
DETAILS (4 OF 6)

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1
34 CHANNEL SPANNING WOOD STRUCTURE
NOT TO SCALE



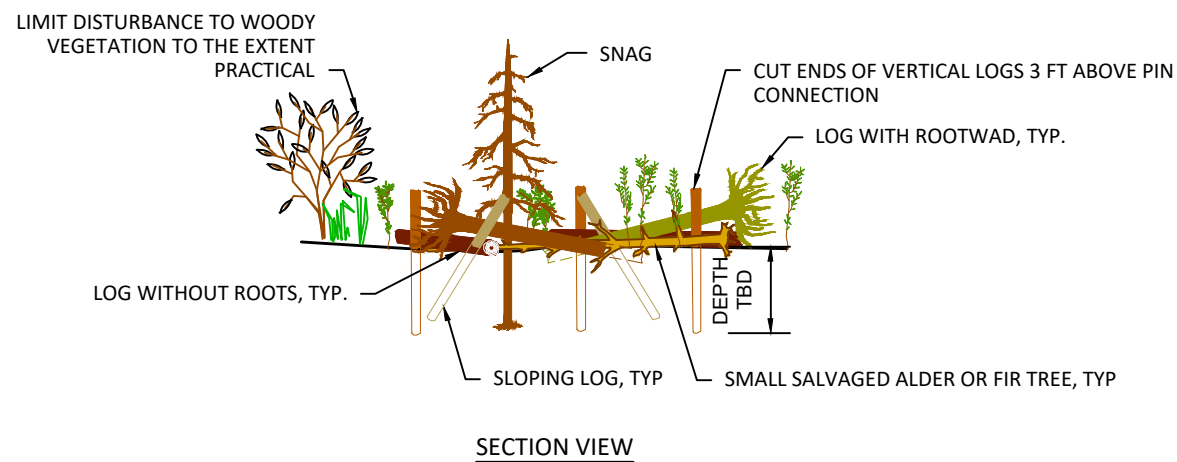
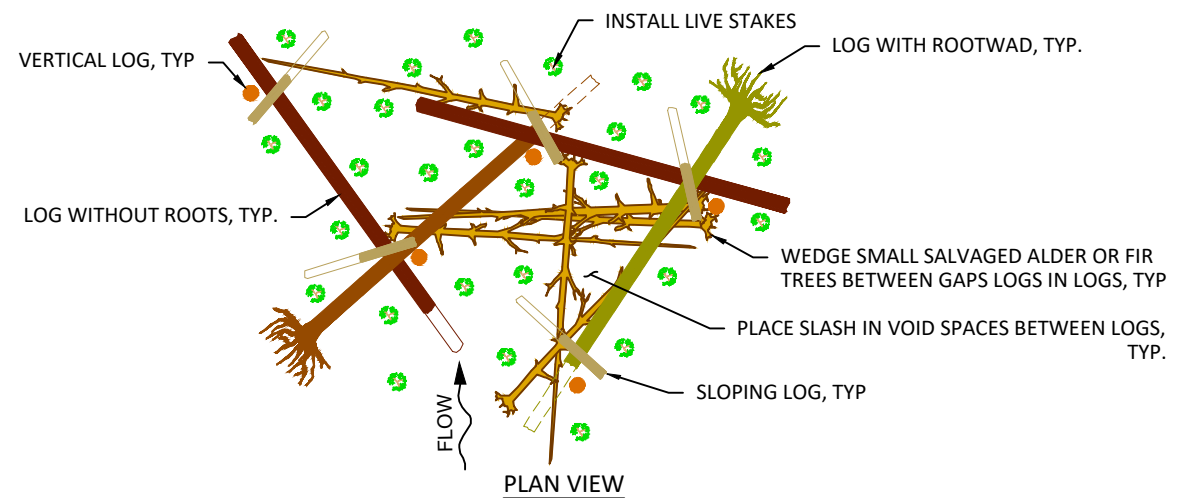
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34 ALCOVE POOL WOOD STRUCTURE
NOT TO SCALE

LARGE WOOD STRUCTURE NOTES:

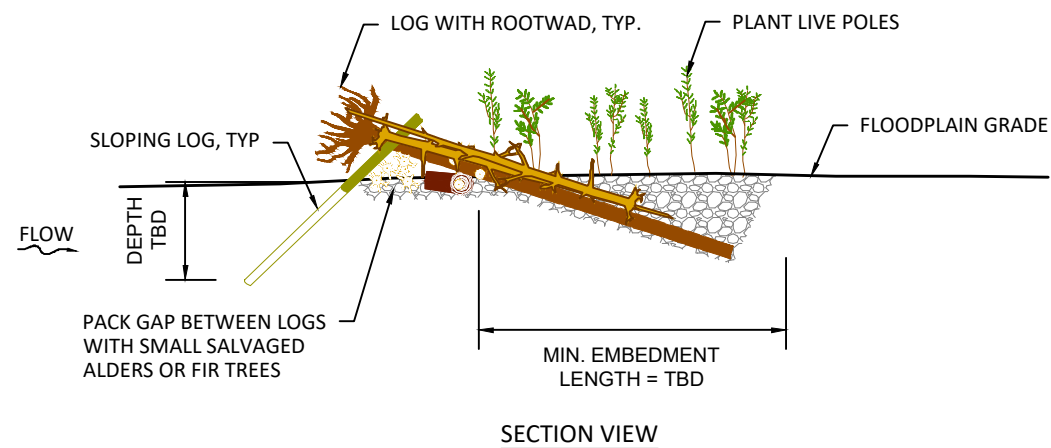
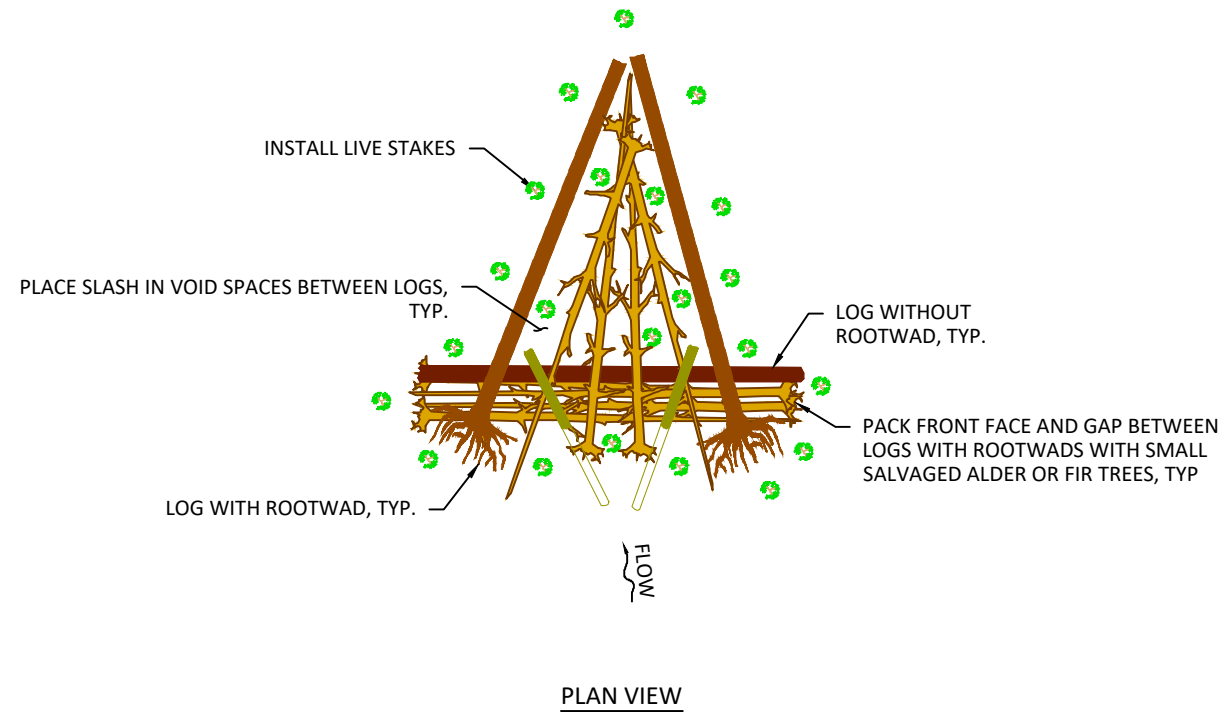
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1
35 FLOODPLAIN ROUGHNESS WOOD STRUCTURE - TYPE 1
NOT TO SCALE



2
35 FLOODPLAIN ROUGHNESS WOOD STRUCTURE - TYPE 2
NOT TO SCALE

LARGE WOOD STRUCTURE NOTES:

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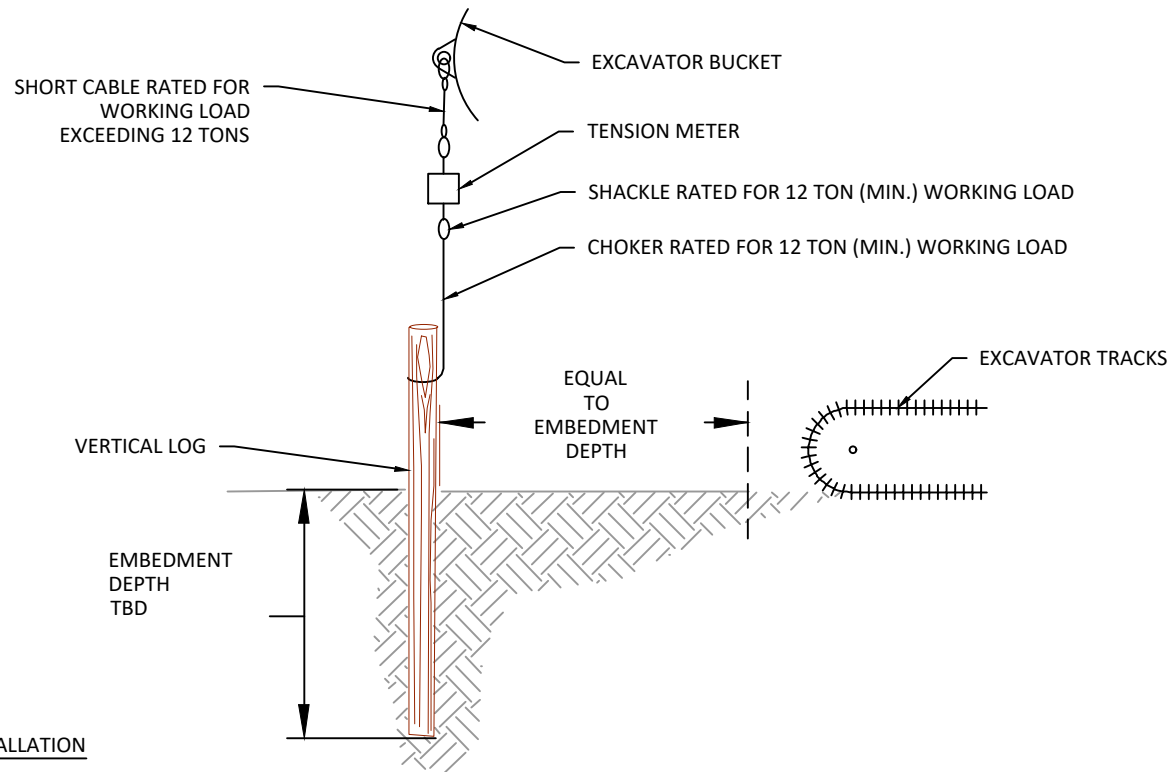


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LARGE WOOD STRUCTURE
DETAILS (6 OF 6)

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VERTICAL LOG INSTALLATION

GENERAL NOTES: RIGGING

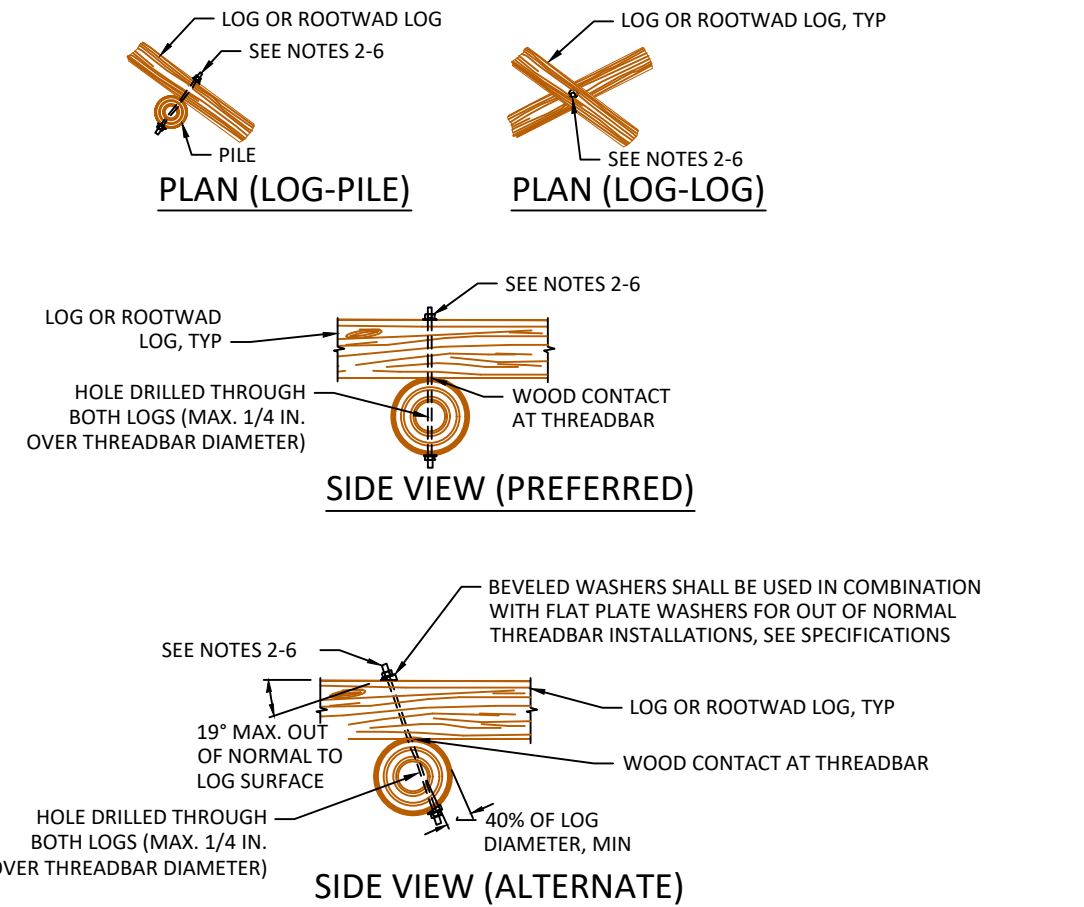
1. RIGGING FOR VERTICAL LOG TESTING SHALL CONFORM TO THE TENSION SCALE MANUFACTURER'S RECOMMENDATIONS.
2. CHOKERS, CABLES AND AND SHACKLES SHALL HAVE MINIMUM WORKING LOAD RATING OF 12 TONS. FITTINGS SHALL BE SIZED ACCORDINGLY.

TESTING

1. TESTING OF VERTICAL LOG SHALL BE PERFORMED IN THE PRESENCE OF THE ENGINEER. UP TO FOUR LOAD TESTS SHALL BE APPLIED TO EACH TESTED VERTICAL LOG. EACH OF THE FOUR LOAD TESTS SHALL BE APPLIED TO THE VERTICAL LOG WITH A DIFFERENT INSTALLED DEPTH.
2. EACH VERTICAL LOG TEST SHALL HAVE UPWARD LOAD GRADUALLY INCREASED AND AS CLOSELY ALIGNED TO AXIS OF PILE AS POSSIBLE. RECORD THE VERTICAL LOG DIAMETER, EMBEDMENT DEPTH AND MAXIMUM FORCE REQUIRED TO MOVE THE PILE VERTICALLY APPROXIMATELY 1 INCH. THEN DRIVE THE VERTICAL LOG TO A NEW DEPTH IN CONSULTATION WITH THE ENGINEER. APPLY NEW LOAD AND RECORD MAX FORCE THAT CAUSES THE VERTICAL LOG TO MOVE VERTICALLY 1 INCH. REPEAT FOR THIRD AND FOURTH TEST.
3. PROOF TESTS SHALL BE MADE AT UP TO FOUR EMBEDMENT DEPTHS FOR EACH VERTICAL LOG. DEPTHS SHALL BE DETERMINED IN THE FIELD. AS A GUIDELINE, TEST EMBEDMENT DEPTHS MAY INCLUDE 8 FT, 10 FT, 12 FT, AND 14 FT. TESTS AT 12 FT AND 14 FT WILL ONLY BE REQUIRED IF PILES MUST BE DRIVEN DEEPER THAN 10 FT TO ACHIEVE TARGET PULLOUT RESISTANCE. SEE NOTE BELOW.
4. EXCAVATOR CONDUCTING PULL OUT LOADING SHALL BE POSITIONED NO CLOSER THAN EMBEDMENT DEPTH OF VERTICAL LOG, IF POSSIBLE. IF A CLOSER POSITIONING IS REQUIRED, EXCAVATOR SHALL BE NO CLOSER THAN THAT REQUIRED TO GENERATE DESIRED LOADING WITH DISTANCE FROM VERTICAL LOG NOTED IN THE TEST RECORD. LIMIT COMPRESSIVE LOADING OF THE TRACKS ON THE GROUND BY DRIVING THE EXCAVATOR ONTO LOGS LAID ON THE GROUND TO DISTRIBUTE THE WEIGHT OVER A LARGER AREA.
5. PULL OUT RESISTANCE READING SHALL BE COMPARED AGAINST EXCAVATOR MAX LIFT OFFSET TABLE.
6. UP TO 10% OF PRODUCTION VERTICAL LOGS SHALL BE PROOF TESTED. IF RESULTS VARY MORE THAN 50% THEN IT SHOULD BE ANTICIPATED THAT UP TO 25% OF THE PRODUCTION VERTICAL LOGS SHALL BE PROOF TESTED.
7. VERTICAL LOG EMBEDMENT DEPTH SPECIFIED IN THESE DRAWINGS MAY BE INCREASED, AT NO ADDITIONAL COST, PENDING COMPARISON OF PULL OUT TEST RESULTS TO AN ASSUMED RAW PULLOUT RESISTANCE OF 15,000 POUNDS. IF TESTING REVEALS FIELD PULLOUT RESISTANCE VALUES THAT ARE LESS THAN THE ASSUMED VALUES, VERTICAL LOGS MAY BE REQUIRED TO BE DRIVEN UP TO 5 FT DEEPER THAN INDICATED. ENGINEER WILL DETERMINE WHETHER THE NUMBER OF VERTICAL LOGS MAY BE REDUCED IF TESTING YIELDS VALUES THAT EXCEED ASSUMED VALUES, BASED ON EVALUATION OF VERTICAL PULLOUT AND LATERAL BRACING OBJECTIVES AT EACH LOCATION. (THE RESISTANCE VALUE MAY BE ADJUSTED DURING A FUTURE PHASE OF DESIGN.)
8. TO INSTALL A SNAG INSTEAD OF A VERTICAL LOG, EXCAVATE TO A DEPTH OF AT LEAST 6 FEET, AND PLACE THE SNAG WITH THE ROOTWAD (IF ATTACHED) BURIED IN THE GROUND.
9. VERTICAL PILES ARE PREFERRED INSTEAD OF SNAGS IF MECHANICAL CONNECTIONS (THREADED ROD) ARE REQUIRED. SNAGS MAY BE USED AS BRACE POINTS FOR SURFACE LOGS, AS APPROVED BY THE ENGINEER.

1 36 TYPICAL DETAIL - VERTICAL LOG TESTING

NOT TO SCALE



NOTES:

1. REQUIREMENTS FOR LOG TO LOG AND LOG TO PILE CONNECTIONS AT LOCATIONS SHOWN ON THE LARGE WOOD TYPICAL DETAIL OR AS OTHERWISE REQUIRED BY THE ENGINEER. THREADBAR SHALL BE #8 FULLY THREADED REBAR WITH A MIN. TENSILE YIELD RATING OF 75,000 POUNDS PER SQUARE INCH (75KSI). WASHERS SHALL BE 3" SQUARE AND 3/16" THICK. NUTS SHALL MATCH THREADBAR AND BE CAPABLE OF DEVELOPING 100% OF THE THREADBAR CAPACITY IN TENSION.
2. INSERT THREADBAR THROUGH HOLE DRILLED IN BOTH LOGS.
3. PLACE WASHER(S) OVER EACH END OF THREADBAR. THREAD A NUT ONTO EACH END OF THREADBAR AND TIGHTEN UNTIL WOOD SURFACE CRUSHES UNDER THE WASHER.
4. IF END OF THREADBAR EXTENDS MORE THAN 2 IN. BEYOND NUT. CUT OFF EXCESS TO NO CLOSER THAN 1 IN. FROM THE NUT.
5. PEEN END OF THREADBAR OR CHISEL THREADS SO NUT CANNOT BE BACKED OFF.
6. FILE OR GRIND OFF SHARP EDGES.

2 36 TYPICAL DETAIL - THREAD BAR CONNECTION

NOT TO SCALE

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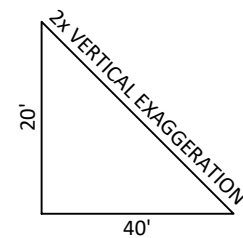
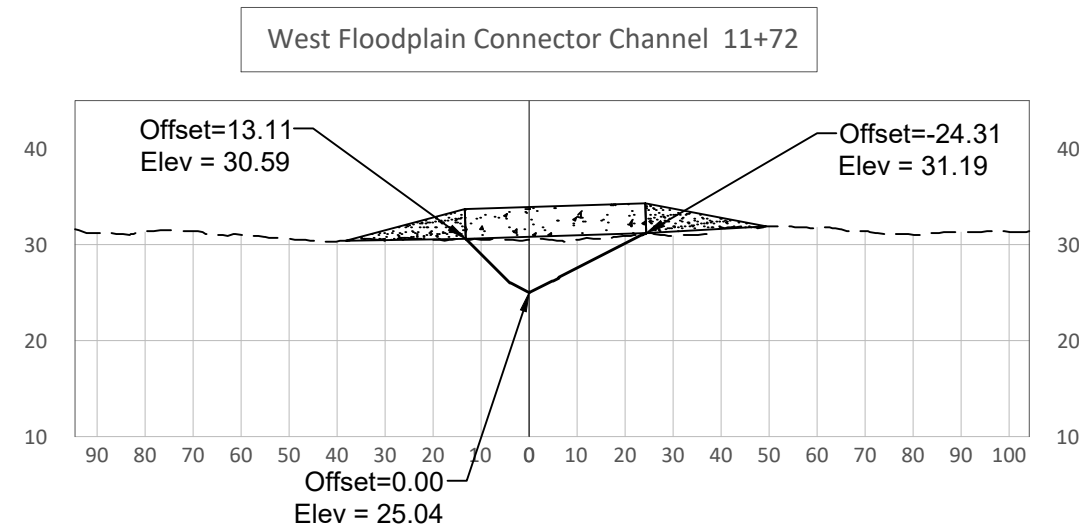
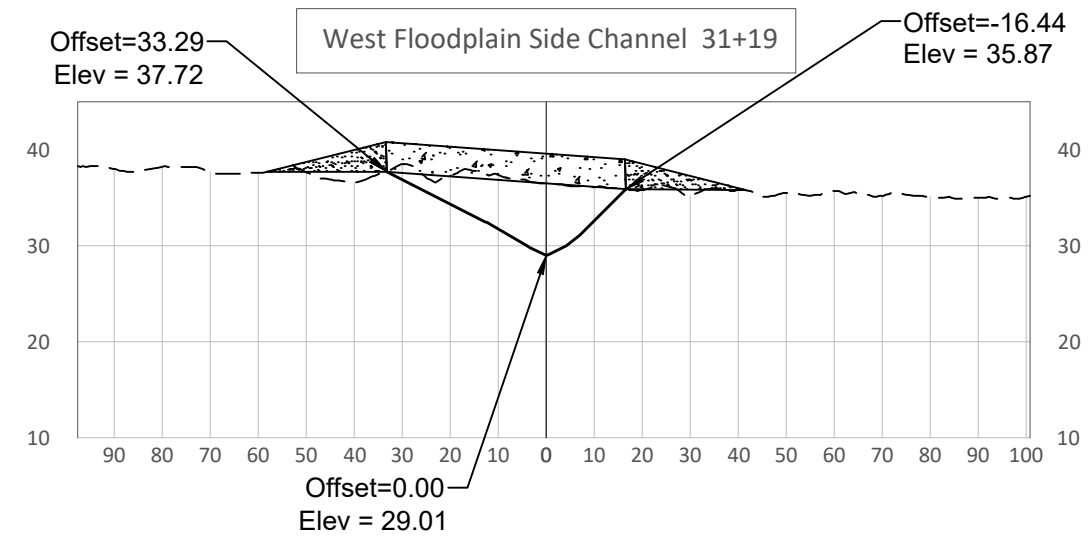
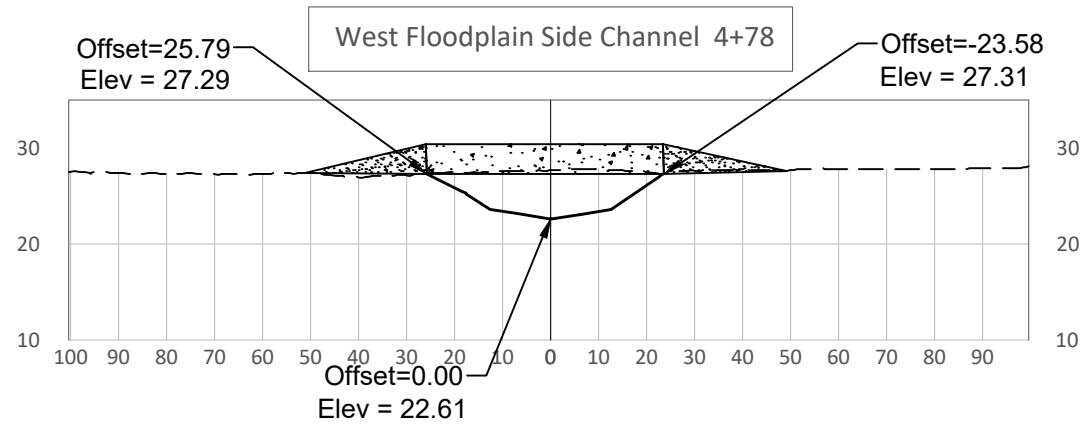


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LARGE WOOD BALLASTING DETAIL

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LEGEND

--- EXISTING GRADE
— PROPOSED GRADE

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WEST FLOODPLAIN BRIDGE
CROSS-SECTIONS

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