

# COUGAR CREEK FISH PASSAGE BARRIER REMOVAL

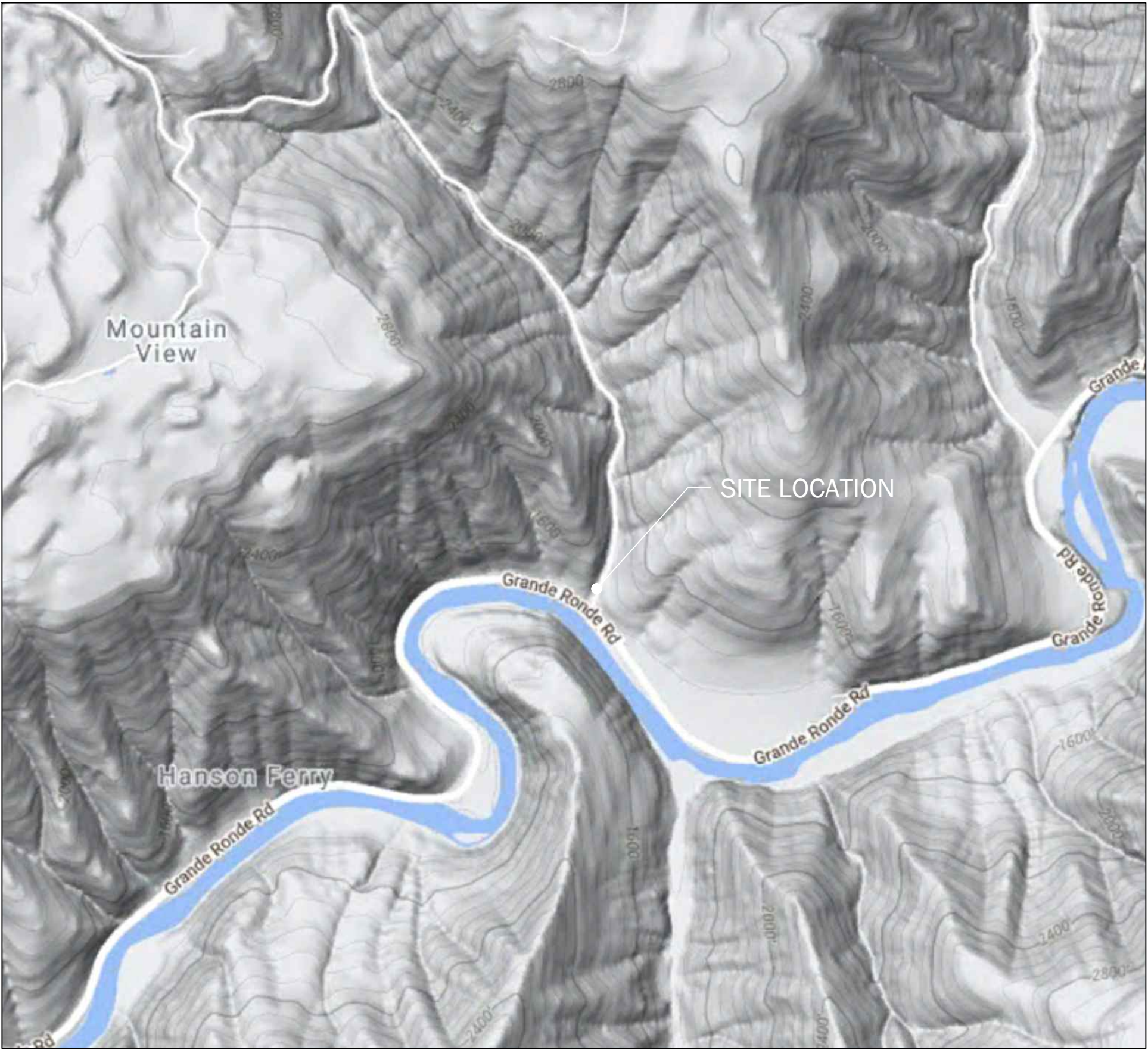
## ASOTIN COUNTY WASHINGTON FINAL DESIGN

### WASHINGTON STATE



PROJECT LOCATION  
NORTHING: 271370.62 FEET  
EASTING: 2448078.41 FEET

DIRECTIONS: FROM ASOTIN WASHINGTON, TAKE WA-129 SOUTH  
APPROXIMATELY 31 MILES TO THE GRAND RONDE RIVER.  
AT THE GRAND RONDE RIVER, TAKE THE GRAND RONDE RIVER ROAD WEST  
APPROXIMATELY 4.5 MILES TO THE CULVERT CROSSING OF COUGAR CREEK.



Not to Scale



Not to Scale

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**ASOTIN COUNTY CONSERVATION DISTRICT**  
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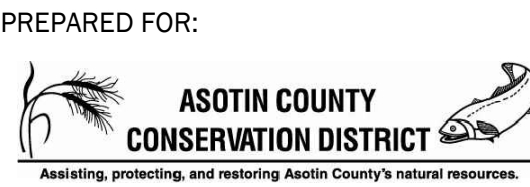
Know what's below.  
Call before you dig.



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DRAWN BY:	GLS/SCY
APPROVED BY:	RSC
REVISION NO.:	4
DATE:	01/21/2022



ASOTIN COUNTY  
CONSERVATION  
DISTRICT

COUGAR CREEK FISH PASSAGE BARRIER REMOVAL  
CLARKSTON, WASHINGTON

COVER SHEET

DRAWING NUMBER:

110

SHEET: 1 OF 28



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GENERAL NOTES

1. WORK AND MATERIALS SHALL COMPLY WITH THE MOST CURRENT EDITION OF THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION AS JOINTLY PROMULGATED BY THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION (WSDOT) AND THE WASHINGTON STATE CHAPTER OF THE AMERICAN PUBLIC WORKS ASSOCIATION (APWA).
2. THE CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF ASOTIN COUNTY STANDARD PLANS: GENERAL CONSTRUCTION REQUIREMENTS.
3. THE CONTRACTOR SHALL CALL THE UNDERGROUND SERVICE ALERT ONE-CALL NUMBER 811 TWO BUSINESS DAYS PRIOR TO EXCAVATION.
4. INFORMATION ON EXISTING CONDITIONS SHOWN ON THESE PLANS WAS OBTAINED FROM A SURVEY PERFORMED BY COFFMAN ENGINEERS. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND REQUIRED ELEVATIONS AT THE SUBJECT SITE. VERIFY THE LOCATION AND SIZE OF EXISTING UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION ACTIVITIES, INCLUDING UNDERGROUND AND OVERHEAD UTILITIES, UTILITY STRUCTURES, POINTS OF CONNECTION, AND UTILITY CROSSINGS. NOTIFY THE ENGINEER OF ANY DISCREPANCIES OR EXCEPTIONS ENCOUNTERED PRIOR TO PROCEEDING. ANY COSTS INCURRED AS A RESULT OF THE CONTRACTOR'S FAILURE TO VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION SHALL BE BORNE BY THE CONTRACTOR.
5. THE CONTRACTOR SHALL HAVE A COMPLETE SET OF APPROVED PLANS ON THE JOB SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
6. THE DRAWINGS INDICATE LOCATIONS, DIMENSIONS, REFERENCES, AND TYPICAL DETAILS OF CONSTRUCTION. THE DRAWINGS DO NOT INDICATE EVERY CONDITION. WORK NOT FULLY DETAILED SHALL BE OF CONSTRUCTION SIMILAR TO PARTS THAT ARE FULLY DETAILED.
7. THE CONTRACTOR SHALL OBTAIN THE APPROPRIATE APPROVALS AND PERMITS FROM THE AUTHORITIES HAVING JURISDICTION PRIOR TO PROCEEDING WITH CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL COORDINATE WITH THE AUTHORITIES HAVING JURISDICTION TO CONFIRM INSPECTION, TESTING, AND CERTIFICATION REQUIREMENTS.
8. CONSTRUCTION SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADAAG).
9. EXISTING PROPERTY CORNERS AND SURVEY MONUMENTS SHALL BE PROTECTED DURING CONSTRUCTION. ANY DAMAGED OR OBLITERATED CORNERS OR MONUMENTS SHALL BE RE-ESTABLISHED BY A PROFESSIONAL SURVEYOR AT THE CONTRACTOR'S EXPENSE.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR TRAFFIC CONTROL IN ACCORDANCE WITH THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) STANDARDS. COORDINATE REQUIREMENTS WITH THE AUTHORITIES HAVING JURISDICTION.
11. SAFETY STANDARDS AND REQUIREMENTS SHALL BE

- THE RESPONSIBILITY OF THE CONTRACTOR AND COMPLIED WITH AS SET FORTH BY THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA).
12. THE CONTRACTOR SHALL HAVE THE APPROPRIATE LICENSES TO PERFORM THE SPECIFIED WORK IN CONFORMANCE WITH THE AUTHORITIES HAVING JURISDICTION.
  13. RECORD DRAWINGS IDENTIFYING AND ACCURATELY LOCATING SUBSURFACE UTILITIES AND IMPROVEMENTS AND NOTING AS-CONSTRUCTED CONDITIONS SHALL BE PROVIDED BY THE CONTRACTOR AT THE END OF CONSTRUCTION.

EROSION & SEDIMENT CONTROL NOTES

1. THE FOLLOWING CONSTRUCTION SEQUENCE SHALL BE FOLLOWED IN ORDER TO BEST MINIMIZE THE POTENTIAL FOR EROSION AND SEDIMENTATION CONTROL (ESC) PROBLEMS:
  - a) CLEAR AND GRUB SUFFICIENTLY FOR INSTALLATION OF TEMPORARY EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICE MEASURES (BMPS);
  - b) INSTALL TEMPORARY ESC BMPS, CONSTRUCTING SEDIMENT TRAPPING BMPS AS ONE OF THE FIRST STEPS PRIOR TO GRADING;
  - c) CLEAR, GRUB AND ROUGH GRADE FOR ROADS, TEMPORARY ACCESS POINTS AND UTILITY LOCATIONS;
  - d) STABILIZE ROADWAY APPROACHES AND TEMPORARY ACCESS POINTS WITH THE APPROPRIATE CONSTRUCTION ENTRY BMP;
  - e) CLEAR, GRUB AND GRADE SUBJECT SITE;
  - f) TEMPORARILY STABILIZE, THROUGH RE-VEGETATION OR OTHER APPROPRIATE BMPS, SUBJECT SITE IN SITUATIONS WHERE SUBSTANTIAL CUT OR FILL SLOPES ARE A RESULT OF THE SITE GRADING;
  - g) CONSTRUCT ROADS, BUILDINGS, PERMANENT STORMWATER FACILITIES (SUCH AS INLETS, PONDS, UNDERGROUND INJECTION CONTROL (UIC) FACILITIES, ETC.);
  - h) PROTECT ALL PERMANENT STORMWATER FACILITIES UTILIZING THE APPROPRIATE BMPS;
  - i) INSTALL PERMANENT ESC CONTROLS, WHEN APPLICABLE; AND,
  - j) REMOVE TEMPORARY ESC CONTROLS WHEN:
    - i. PERMANENT ESC CONTROLS, WHEN APPLICABLE, HAVE BEEN COMPLETELY INSTALLED;
    - j. ALL LAND-DISTURBING ACTIVITIES THAT HAVE THE POTENTIAL TO CAUSE EROSION OR SEDIMENTATION PROBLEMS HAVE CEASED; AND,
    - k. VEGETATION HAS BEEN ESTABLISHED IN THE AREAS NOTED AS REQUIRING VEGETATION ON THE ACCEPTED ESC PLAN ON FILE WITH THE LOCAL JURISDICTION.

2. INSPECT ALL ROADWAYS, AT THE END OF EACH DAY,

- ADJACENT TO THE CONSTRUCTION ACCESS ROUTE. IF IT IS EVIDENT THAT SEDIMENT HAS BEEN TRACKED OFF SITE AND/OR BEYOND THE ROADWAY APPROACH, CLEANING IS REQUIRED.
3. IF SEDIMENT REMOVAL IS NECESSARY PRIOR TO STREET WASHING, IT SHALL BE REMOVED BY SHOVELING OR PICKUP SWEEPING AND TRANSPORTED TO A CONTROLLED SEDIMENT DISPOSAL AREA.
  4. IF STREET WASHING IS REQUIRED TO CLEAN SEDIMENT TRACKED OFF SITE, ONCE SEDIMENT HAS BEEN REMOVED, STREET WASH WASTEWATER SHALL BE CONTROLLED BY PUMPING BACK ON-SITE OR OTHERWISE PREVENTED FROM DISCHARGING INTO SYSTEMS TRIBUTARY TO WATERS OF THE STATE.
  5. RESTORE CONSTRUCTION ACCESS ROUTE EQUAL TO OR BETTER THAN THE PRE-CONSTRUCTION CONDITION.
  6. RETAIN THE DUFF LAYER, NATIVE TOPSOIL, AND NATURAL VEGETATION IN AN UNDISTURBED STATE TO THE MAXIMUM EXTENT PRACTICAL.
  7. INSPECT SEDIMENT CONTROL BMPS WEEKLY AT A MINIMUM, DAILY DURING A STORM EVENT, AND AFTER ANY DISCHARGE FROM THE SITE (STORMWATER OR NON-STORMWATER). THE INSPECTION FREQUENCY MAY BE REDUCED TO ONCE A MONTH IF THE SITE IS STABILIZED AND INACTIVE.
  8. CONTROL FUGITIVE DUST FROM CONSTRUCTION ACTIVITY IN ACCORDANCE WITH THE STATE AND/OR LOCAL AIR QUALITY CONTROL AUTHORITIES WITH JURISDICTION OVER THE PROJECT AREA. DO NOT USE WATER WHEN IT MAY DAMAGE ADJACENT CONSTRUCTION OR CREATE HAZARDOUS OR OBJECTIONABLE CONDITIONS, SUCH AS ICE, FLOODING, AND POLLUTION.
  9. STABILIZE EXPOSED UNWORKED SOILS (INCLUDING STOCKPILES), WHETHER AT FINAL GRADE OR NOT, WITHIN 10 DAYS DURING THE REGIONAL DRY SEASON (JULY 1 THROUGH SEPTEMBER 30) AND WITHIN 5 DAYS DURING THE REGIONAL WET SEASON (OCTOBER 1 THROUGH JUNE 30). SOILS MUST BE STABILIZED AT THE END OF A SHIFT BEFORE A HOLIDAY WEEKEND IF NEEDED BASED ON THE WEATHER FORECAST. THIS TIME LIMIT MAY ONLY BE ADJUSTED BY A LOCAL JURISDICTION WITH A "QUALIFIED LOCAL PROGRAM," IF IT CAN BE DEMONSTRATED THAT THE RECENT PRECIPITATION JUSTIFIES A DIFFERENT STANDARD AND MEETS THE REQUIREMENTS SET FORTH IN THE CONSTRUCTION STORMWATER GENERAL PERMIT.
  10. CONSTRUCT STORMWATER CONTROL FACILITIES (DETENTION/RETENTION STORAGE POND OR SWALES) BEFORE GRADING BEGINS. THESE FACILITIES SHALL BE OPERATIONAL BEFORE THE CONSTRUCTION OF IMPERVIOUS SITE IMPROVEMENTS.
  11. STOCKPILE MATERIALS (SUCH AS TOPSOIL) ON SITE, KEEPING OFF OF ROADWAY AND SIDEWALKS.
  12. COVER, CONTAIN AND PROTECT ALL CHEMICALS, LIQUID PRODUCTS, PETROLEUM PRODUCT, AND NONINERT WASTES PRESENT ON SITE FROM VANDALISM (SEE CHAPTER 173-304 OF THE WASHINGTON ADMINISTRATIVE CODE (WAC) FOR THE DEFINITION OF INERT WASTE), USE SECONDARY CONTAINMENT FOR ON-SITE FUELING TANKS.

13. CONDUCT MAINTENANCE AND REPAIR OF HEAVY EQUIPMENT AND VEHICLES INVOLVING OIL CHANGES, HYDRAULIC SYSTEM REPAIRS, SOLVENT AND DE-GREASING OPERATIONS, FUEL TANK DRAIN DOWN AND REMOVAL, AND OTHER ACTIVITIES THAT MAY RESULT IN DISCHARGE OR SPILLAGE OF POLLUTANTS TO THE GROUND OR INTO STORMWATER RUNOFF USING SPILL PREVENTION MEASURES, SUCH AS DRIP PANS. CLEAN ALL CONTAMINATED SURFACES IMMEDIATELY FOLLOWING ANY DISCHARGE OR SPILL INCIDENT. IF RAINING OVER EQUIPMENT OR VEHICLE, PERFORM EMERGENCY REPAIRS ON SITE USING TEMPORARY PLASTIC BENEATH THE VEHICLE.
14. CONDUCT APPLICATION OF AGRICULTURAL CHEMICALS, INCLUDING FERTILIZERS AND PESTICIDES, IN SUCH A MANNER, AND AT APPLICATION RATES, THAT INHIBITS THE LOSS OF CHEMICALS INTO STORMWATER RUNOFF FACILITIES. AMEND MANUFACTURER'S RECOMMENDED APPLICATION RATES AND PROCEDURES TO MEET THIS REQUIREMENT, IF NECESSARY.
15. INSPECT ON A REGULAR BASIS (AT A MINIMUM WEEKLY, AND DAILY DURING/AFTER A RUNOFF PRODUCING STORM EVENT) AND MAINTAIN ALL EROSION AND SEDIMENT CONTROL BMPS TO ENSURE SUCCESSFUL PERFORMANCE OF THE BMPS. NOTE THAT INLET PROTECTION DEVICES SHALL BE CLEANED OR REMOVED AND REPLACED BEFORE SIX INCHES OF SEDIMENT CAN ACCUMULATE.
16. REMOVE TEMPORARY ESC BMPS WITHIN 30 DAYS AFTER THE TEMPORARY BMPS ARE NO LONGER NEEDED. PERMANENTLY STABILIZE AREAS THAT ARE DISTURBED DURING THE REMOVAL PROCESS.
17. PROVIDE TEMPORARY EROSION AND SEDIMENTATION CONTROL MEASURES TO PREVENT SOIL EROSION AND DISCHARGE OF SOIL-BEARING WATER RUNOFF OR AIRBORNE DUST TO ADJACENT PROPERTIES, ACCORDING TO REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION. THE CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS FOR STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITY, INCLUDING OBTAINING THE APPROPRIATE PERMITS AND APPROVALS.
18. EROSION CONTROL MEASURES IN ADDITION TO THOSE INDICATED AS PART OF THIS PLAN MAY BE REQUIRED DUE TO UNFORESEEN CONDITIONS, IF THE MEASURES DO NOT FUNCTION AS INTENDED, OR IF THE AUTHORITIES HAVING JURISDICTION DETERMINE INDICATED MEASURES ARE INADEQUATE.
19. FILTER FENCE OR SIMILAR SHALL BE USED TO AID IN CONTAINING ANY SEDIMENT ON THE SITE DURING CONSTRUCTION. STABILIZED CONSTRUCTION ENTRANCES SHALL BE USED AT POINTS OF INGRESS AND EGRESS FOR CONSTRUCTION VEHICLES. THE CONTRACTOR SHALL KEEP THE AREAS ADJACENT TO THE SITE INCLUDING ROADWAYS AND PARKING LOTS FREE FROM DEBRIS. REFER TO THE EROSION AND SEDIMENT CONTROL MEASURE DETAILS FOR ADDITIONAL INFORMATION.
20. PROVIDE A DESIGNATED, POSTED CONCRETE WASHOUT AREA. THE CONCRETE WASHOUT SHALL NOT BE ALLOWED TO DRAIN OFF THE SITE OR INTO ANY EXISTING OR FUTURE STORM DRAINAGE FACILITIES. HARDENED CONCRETE WASHOUT SHALL BE BROKEN UP AND REMOVED FROM THE SITE.



NO.	DATE	BY	ISSUE / DESCRIPTION

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DRAWN BY:	GLS/SCY
APPROVED BY:	RSC
REVISION NO.:	4
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COUGAR CREEK FISH PASSAGE BARRIER REMOVAL  
CLARKSTON, WASHINGTON

CONSTRUCTION NOTES

DRAWING NUMBER:

111

SHEET: 2 OF 28



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EROSION & SEDIMENT CONTROL NOTES

21. LITTER, CONSTRUCTION DEBRIS, AND CONSTRUCTION CHEMICALS THAT COULD BE EXPOSED TO STORMWATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE IN STORMWATER DISCHARGES.
22. APPLY A DRY-LAND SEED MIX TO ALL SOILS EXPOSED OR DISTURBED BY CONSTRUCTION ACTIVITIES. THE DISTURBED AREAS SHALL BE HYDROSEEDING USING A STANDARD HYDROSEED APPLICATION PER WSDOT STANDARD SPECIFICATIONS, INCLUDING WOOD FIBER MULCH, GUAR GUM TACKIFIER, AND SLOW RELEASE FERTILIZER. PRIOR TO APPLYING THE HYDROSEED, THE CONTRACTOR SHALL VERTICAL TRACK (WITH A CATERPILLAR OR SIMILAR) PERPENDICULAR TO THE CONTOURS TO SCARIFY THE SOIL ENOUGH TO PROVIDE PLACES FOR THE SEED TO STICK/ESTABLISH TO ALLOW FOR BETTER GERMINATION. APPLY SEEDING WITHIN FIVE (5) DAYS AFTER FINISHED GRADING IS COMPLETE. EROSION CONTROL BLANKETS MAY BE USED WHERE SEEDING IS NOT FEASIBLE.

DEMOLITION NOTES

20. MAINTAIN EXISTING UTILITIES INDICATED TO REMAIN IN SERVICE AND PROTECT THEM AGAINST DAMAGE DURING DEMOLITION OPERATIONS. DO NOT INTERRUPT EXISTING UTILITIES SERVING ADJACENT OCCUPIED OR OPERATING FACILITIES UNLESS AUTHORIZED IN WRITING BY OWNER AND AUTHORITIES HAVING JURISDICTION. PROVIDE TEMPORARY SERVICES DURING INTERRUPTIONS TO EXISTING UTILITIES, AS ACCEPTABLE TO OWNER AND AUTHORITIES HAVING JURISDICTION.
21. COORDINATE DEMOLITION OPERATIONS AND ANY REQUIRED UTILITY RELOCATIONS WITH THE OWNER AND APPROPRIATE UTILITY PURVEYOR, INCLUDING REQUIREMENTS AND SCHEDULING.
22. COORDINATE EXTENT OF DEMOLITION WITH PROPOSED IMPROVEMENTS. CONTRACTOR SHALL REVIEW THE PROJECT LIMITS TO DETERMINE THE QUANTITY AND TYPE OF DEMOLITION WASTE MATERIAL AND DEBRIS TO BE INCLUDED IN THEIR BID. THE CONTRACTOR IS RESPONSIBLE FOR REMOVING, AND RELOCATING IF NECESSARY, ANY ITEMS NOT OTHERWISE NOTED THAT CONFLICT WITH THE CONSTRUCTION OF THE PROPOSED IMPROVEMENTS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY CONFLICTING ITEMS NOT SHOWN ON THE PLANS THAT MUST BE REMOVED OR RELOCATED. FAILURE TO NOTIFY THE ENGINEER DOES NOT RELIEVE THE CONTRACTOR OF COST RESPONSIBILITY FOR REMOVING REQUIRED ITEMS.
23. COMPLY WITH GOVERNING NOTIFICATION REGULATIONS BEFORE BEGINNING DEMOLITION. COMPLY WITH HAULING AND DISPOSAL REGULATIONS OF AUTHORITIES HAVING JURISDICTION.
24. IF MATERIALS SUSPECTED OF CONTAINING HAZARDOUS MATERIALS ARE ENCOUNTERED, DO NOT DISTURB; IMMEDIATELY NOTIFY THE ENGINEER AND OWNER.
25. CONDUCT DEMOLITION ACTIVITIES AND DEBRIS REMOVAL OPERATIONS TO ENSURE MINIMUM INTERFERENCE WITH ROADS, WALKWAYS, AND OTHER ADJACENT FACILITIES.
26. REMOVE OBSTRUCTIONS, TREES, SHRUBS, GRASS, AND OTHER VEGETATION TO PERMIT INSTALLATION OF NEW CONSTRUCTION. REFER TO REVEGETATION PLANS FOR TREE PROTECTION AND TREE REMOVAL PROCEDURES TO PRESERVE HEALTH OF ADJACENT TREES.
27. AREAS DISTURBED OR DAMAGED BY CONSTRUCTION ACTIVITIES SHALL BE CONSTRUCTED OR RESTORED TO ORIGINAL CONDITIONS OR BETTER, TO THE SATISFACTION OF THE OWNER, AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR IS RESPONSIBLE FOR DOCUMENTING CONDITIONS PRIOR TO CONSTRUCTION ACTIVITIES AND ANY DAMAGE THAT MAY OCCUR.
28. REMOVE DEMOLITION WASTE MATERIALS AND DEBRIS FROM PROJECT SITE AND LEGALLY DISPOSE OF THEM IN AN APPROVED LANDFILL ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.

EARTHWORK & GRADING NOTES

1. SITE PREPARATION, GRADING, EXCAVATION AND FILL REQUIREMENTS BELOW THE PROPOSED IMPROVEMENTS, EMBANKMENTS, AND UTILITY TRENCHING SHALL BE COMPLETED IN CONFORMANCE WITH WSDOT STANDARD SPECIFICATIONS AND THE GEOTECHNICAL ENGINEERING EVALUATION FOR THE SUBJECT SITE.
2. EXAMINE EXPOSED SUBGRADES AND BASE SURFACES FOR COMPLIANCE WITH REQUIREMENTS FOR DIMENSIONAL, GRADING, AND ELEVATION TOLERANCES. PREVENT SURFACE WATER AND GROUNDWATER FROM ENTERING EXCAVATIONS, FROM PONDING ON PREPARED SUBGRADES AND BASE SURFACES, AND FROM FLOODING PROJECT SITE AND SURROUNDING AREA. PROTECT SUBGRADES AND BASE SURFACES FROM SOFTENING, UNDERMINING, WASHOUT, DAMAGE BY RAIN OR WATER ACCUMULATION, AND AGAINST FREEZING TEMPERATURES AND FROST.
3. SPOT ELEVATIONS ARE FOR FINISH GRADE UNLESS OTHERWISE NOTED.
4. GROUNDWATER OR UNANTICIPATED SUBSURFACE CONDITIONS SHALL BE REPORTED TO THE GEOTECHNICAL ENGINEER FOR ASSESSMENT AND RECOMMENDATIONS.
5. COMPACTION EFFORTS AND MASS GRADING SHALL BE MONITORED AND TESTED AS RECOMMENDED IN THE PROJECT GEOTECHNICAL REPORT.

FIRE HAZARD RESTRICTIONS

1. THE PROJECT SITE IS LOCATED WITHIN THE WASHINGTON STADE DEPARTMENT OF NATURAL RESOURCES (DEPARTMENT) INDUSTRIAL FIRE PRECAUTION LEVEL (IFPL) SECTION 633. THE CONTRACTOR IS RESPONSIBLE TO CHECK IFPL PRECAUTION LEVEL DURING CONSTRUCTION BY CALLING 1-800-527-3305 OR BY CHECKING THE IFPL WEBSITE <http://bmidc.org/ifpl3.shtml>.
2. THE PROJECT SITE IS SUBJECT TO INDUSTRIAL FIRE RESTRICTIONS ADMINISTERED BY THE WASHINGTON ADMINISTRATIVE CODE (WAC) SECTION 332-24-301. THE CONTRACTOR SHALL COMPLY WITH RESTRICTIONS ASSOCIATED WITH RESPECTIVE FIRE DANGER LEVELS AS DETERMINED BY THE DEPARTMENT.
3. THE PROJECT SITE IS SUBJECT TO THE REVISED CODE OF WASHINGTON (RCW) 76.04.305 WHICH AUTHORIZES THE DEPARTMENT TO DESIGNATE FORESTLAND AS A REGION OF EXTRA FIRE HAZARD SUBJECT TO CLOSURE AND AUTHORIZES THE DEPARTMENT TO ADOPT RULES FOR THE PROTECTION THEREOF. THE CONTRACTOR IS RESPONSIBLE TO REVIEW LOCATION PUBLICATIONS AND OBEY RESTRICTIONS POSTED.
4. THE PROJECT SITE IS SUBJECT TO THE REVISED CODE OF WASHINGTON (RCW) 76.04.325 WHICH AUTHORIZES THE DEPARTMENT TO ISSUE AN ORDER SHUTTING DOWN LAND CLEARING, OR OTHER INDUSTRIAL OPERATION WHICH CAUSE A FIRE TO START. THIS RCW ALSO AUTHORIZES THE DEPARTMENT TO RESTRICT ACCESS TO FOREST LANDS AT THEIR DISCRETION WHEN EXTREME FIRE WEATHER EXISTS.
5. THE PROJECT SITE IS SUBJECT TO INDUSTRIAL FIRE RESTRICTIONS ADMINISTERED BY THE WASHINGTON ADMINISTRATIVE CODE (WAC) SECTION 332-24-405. THE CONTRACTOR SHALL COMPLY WITH LIMITATIONS REGARDING THE USE OF SPARK EMITTING EQUIPMENT AS DEFINED IN THE RESPECTIVE CODE.

Item No.	Specification Pay Item	Item Description	Quantity	Unit Measure
1	1-09	Mobilization	1.0	LS
2	1-10	Other Temporary Traffic Control	1.0	LS
3	1-10	Flaggers	1.0	LS
4	2-01	Clearing and Grubbing	1.0	LS
5	2-01	Roadside Cleanup	1.0	FA
6	2-02	Removal of Structures and Obstructions	1.0	LS
7	2-03	Roadway Excavation Inc. Haul	960.0	CY
8	2-03	Channel Excavation Incl. Haul	67.0	CY
9	2-03	Select Borrow Inc. Haul (Grande Ronde Rd. Embankment)	800.0	CY
10	2-09	Structure Excavation Class A Incl. Haul	36.0	CY
11	2-09SP	Dewatering	1.0	LS
12	2-12	Construction Geosynthetic for Separation	106.0	SY
13	4-04	Crushed Surfacing Base Course (Grande Ronde Rd.)	90.0	CY
14	5-04 SP	HMA Cl. 1/2-inch, PG 70-28	65.0	TON
15	5-03	HMA Sawcut And Seal	52.0	LF
16	6-10	Precast Concrete Barrier Type II	108.0	LF
17	6-11	Conc. Class 4000 for Retaining Wall	116.0	CY
18	6-11	Steel Reinforcement Bar for Retaining Wall	18325.0	LB
19	6-20	Contractor Design Buried Structure No. 1	1.0	LS
20	7-06	Temporary Stream Diversion	1.0	LS
21	8-01	Erosion Control and Water Pollution Control	1.0	LS
22	8-02	Seeding and and Mulching	1.7	AC
23	8-02	Live Pole	106.0	EA
24	8-12	Chain Link Fence Type 4	25.0	LF
25	8-19 SP	Streambed Sediment	40.0	TON
26	8-19 SP	Native Streambed Material	200.0	TON
27	8-19 SP	Streambed Boulders - Three Man	56.0	TON
28	8-21	Permanent Signing	1.0	LS



PREPARED FOR:



ASOTIN COUNTY  
CONSERVATION  
DISTRICT

COUGAR CREEK FISH PASSAGE BARRIER REMOVAL  
CLARKSTON, WASHINGTON

CONSTRUCTION NOTES AND QUANTITIES

DRAWING NUMBER:

112

SHEET: 3 OF 28

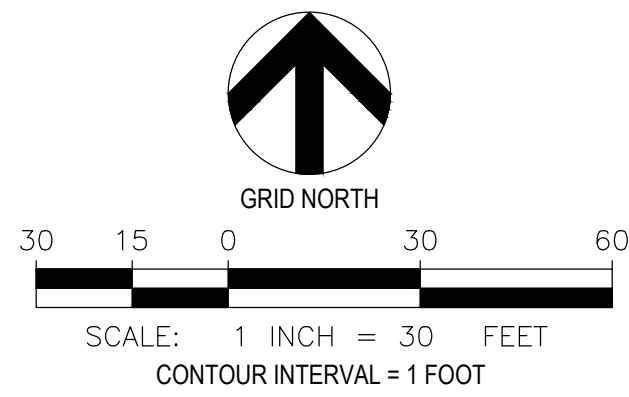
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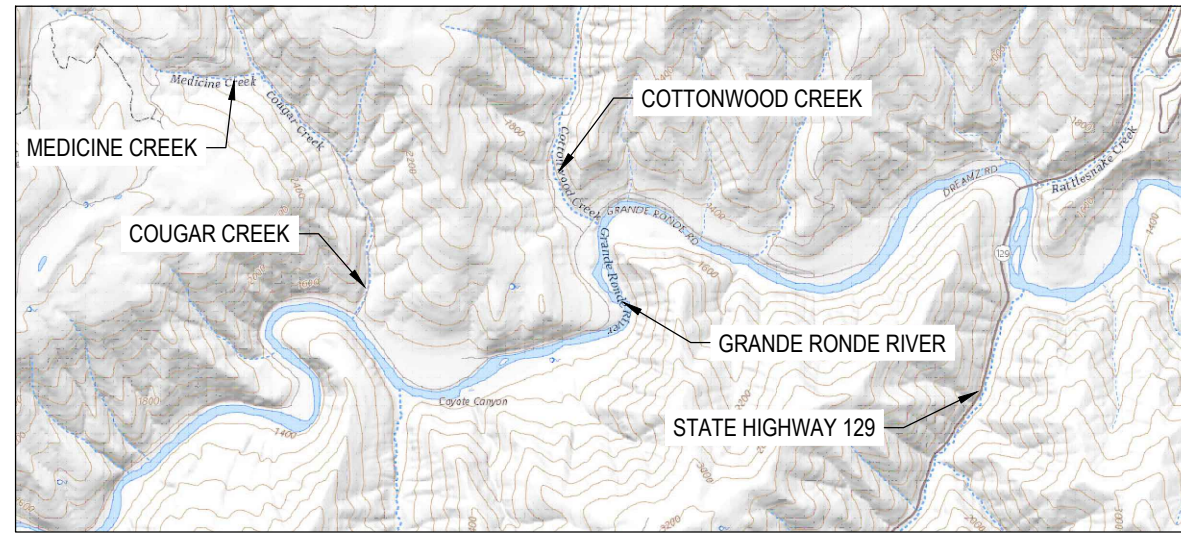
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COUGAR CREEK FISH PASSAGE BARRIER REMOVAL  
TOPOGRAPHIC SURVEY  
S.32, T.7N., R.44E., W.M., ASOTIN COUNTY, WA

VICINITY MAP



TBM INFORMATION

POINT #	NORTHING	EASTING	GRID NORTHING	GRID EASTING	ELEVATION	DESCRIPTION
1	271498.56	2447867.09	271498.55	2447867.09	1335.92	SET MAG
2	271289.33	2448207.07	271289.34	2448207.05	1338.64	SET MAG
3	271356.04	2448083.94	271356.05	2448083.92	1341.27	SET MAG
60	271479.05	2447940.67	271479.05	2447940.67	1337.66	SET 3RBC

LEGEND

	ASPHALT
	GRAVEL
	FENCE
	OVERHEAD ELECTRIC
	UNDERGROUND TELEPHONE
	GUY ANCHOR
	POWER POLE
	TELEPHONE RISER
	CONIFEROUS TREE
	DECIDUOUS TREE
	POST
	SIGN
	THALWEG ELEVATION
	BANKFULL WIDTH

UTILITY STATEMENT

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN EXACT LOCATION INDICATED, ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.

ACCURACY STATEMENT

SURVEY PERFORMED USING A LEICA MS-60 ONE SECOND ROBOTIC MULTI STATION AND A JAVAD TRIUMPH-1M GPS BASE STATION AND A JAVAD TRIUMPH-LS ROVER. FIELD TRAVERSE METHODS PER WAC 332-130-090 PART C.

HORIZONTAL DATUM

SURVEY IS BASED ON THE WASHINGTON STATE PLANE COORDINATE SYSTEM, NAD83, SOUTH ZONE, U.S. FOOT. GROUND COORDINATES HAVE BEEN OBTAINED BY CREATING AN ADJUSTED STATE PLANE COORDINATE SYSTEM SCALED AROUND GRID POINT # 60. THE SCALE FACTOR OF 1.000100456 WAS APPLIED TO ALL THE GRID COORDINATES TO OBTAIN THE GROUND COORDINATES.

ELEVATION DATUM

NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88), GEOID 12B



NOTES

- FIELD SURVEY COMPLETED IN APRIL 2021.
- THIS DRAWING HAS BEEN PREPARED FOR TOPOGRAPHIC DESIGN PURPOSES ONLY AND DOES NOT REPRESENT A FORMAL BOUNDARY SURVEY BY COFFMAN ENGINEERS.

IMAGE #6 (LOOKING SOUTHEAST)

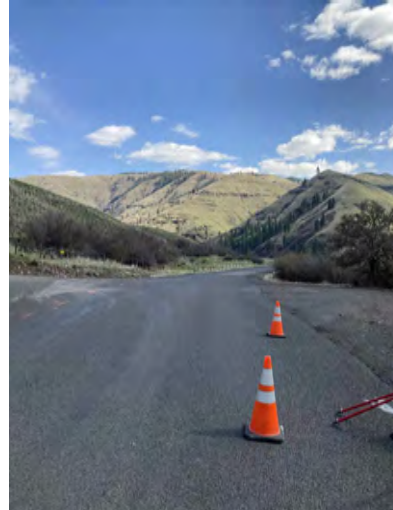


IMAGE #7 (LOOKING NORTHWEST)



IMAGE #8



IMAGE #1



IMAGE #2

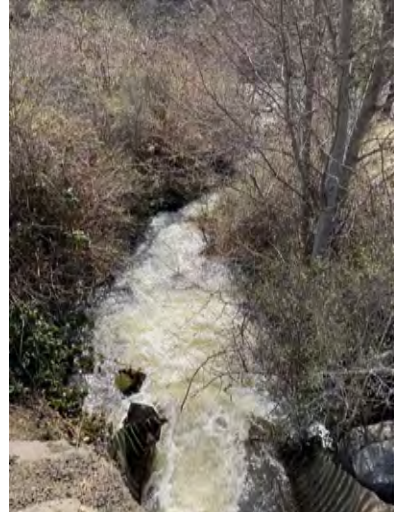


IMAGE #3

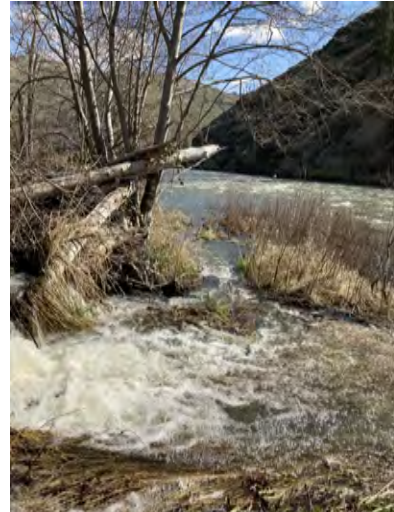
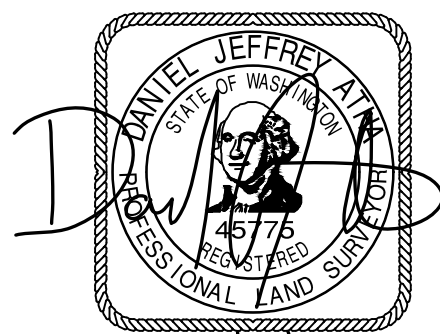


IMAGE #4



IMAGE #5



4/9/21

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PREPARED FOR:



ASOTIN COUNTY  
CONSERVATION  
DISTRICT

COUGAR CREEK FISH PASSAGE BARRIER REMOVAL  
ASOTIN COUNTY, WASHINGTON

TOPOGRAPHIC SURVEY AND EXISTING CONDITIONS

DRAWING NUMBER:

120

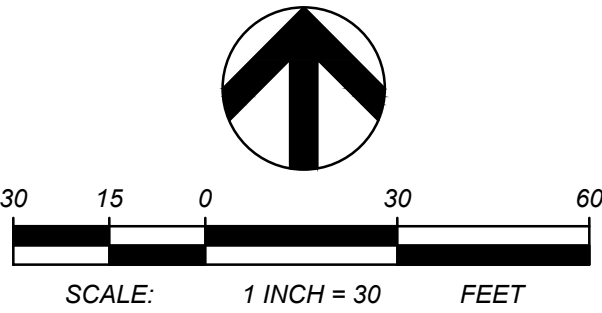
SHEET: 4 OF 28



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DRAWN BY: CWD  
APPROVED BY:  
REVISION NO.:  
DATE: 01/20/22





TBM INFORMATION

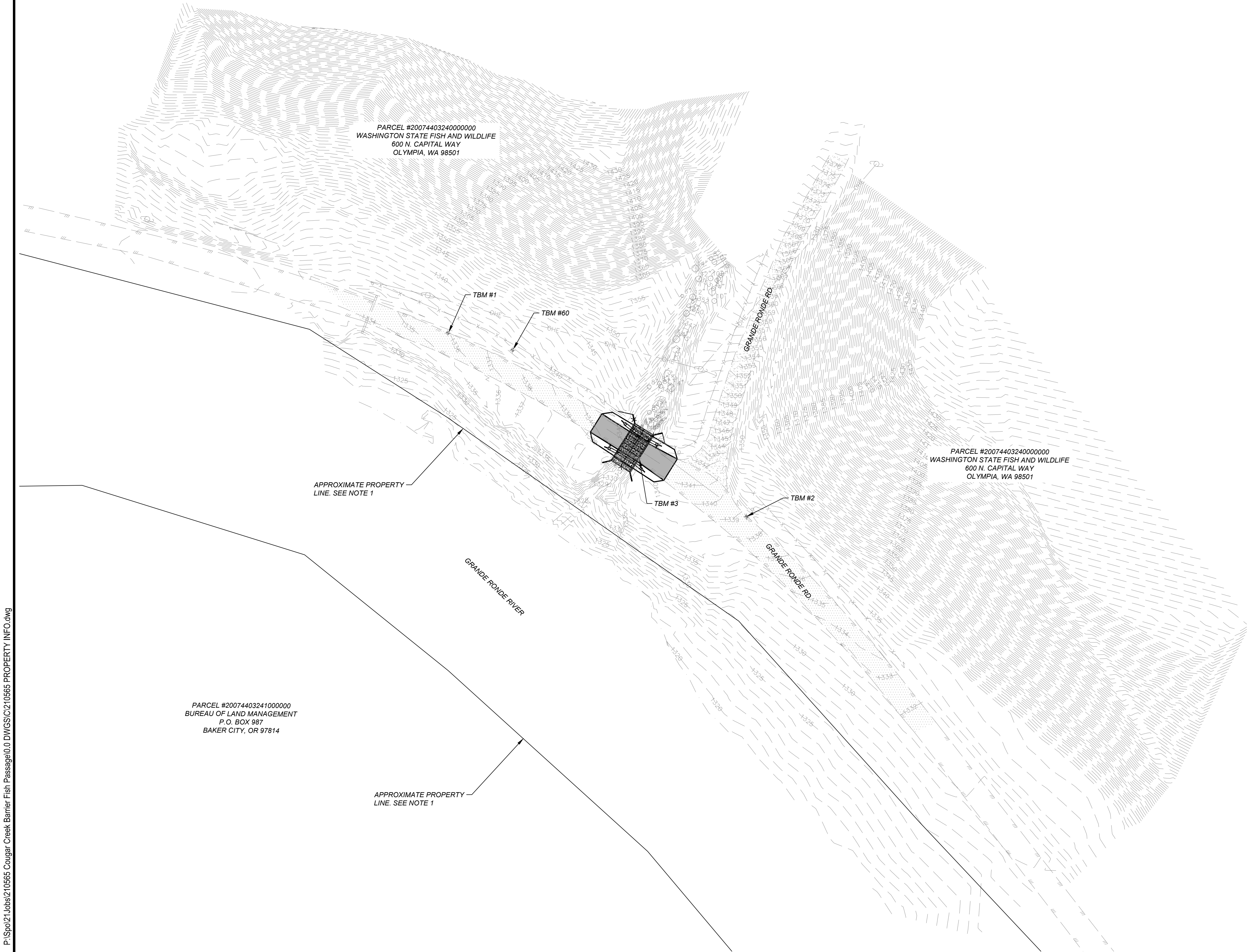
POINT #	NORTHING	EASTING	GRID NORTHING	GRID EASTING	ELEVATION	DESCRIPTION
1	271498.56	2447867.09	271498.55	2447867.09	1335.92	SET MAG
2	271289.33	2448207.07	271289.34	2448207.05	1338.64	SET MAG
3	271356.04	2448083.94	271356.05	2448083.92	1341.27	SET MAG
60	271479.05	2447940.67	271479.05	2447940.67	1337.66	SET 3RBC


BENCH MARK NOTE

CONTRACTOR SHALL PROTECT ALL EXISTING PROPERTY CORNERS AND BENCH MARKS. ANY DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES SHALL BE REMEDIED AT THE CONTRACTOR'S EXPENSE.

NOTES

- ASOTIN COUNTY GIS WAS USED TO OBTAIN PROPERTY INFORMATION.
- REFER TO SHEET 120 FOR ADDITIONAL INFORMATION REGARDING EXISTING GRADE ALONG THALWEG ALIGNMENT.



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P:\Spa2\Jobs\210565 Cougar Creek Barrier Fish Passage\0.0 DWG\SC\210565 PROPERTY INFO.dwg  
Plotted: 01/20/2022, 09:06 | ddkken

NO.	DATE	BY	ISSUE / DESCRIPTION

DESIGNED BY:	CWD
DRAWN BY:	CWD
APPROVED BY:	
REVISION NO.:	
DATE:	01/20/22

  
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**ASOTIN COUNTY**  
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Assisting, protecting, and restoring Asotin County's natural resources.

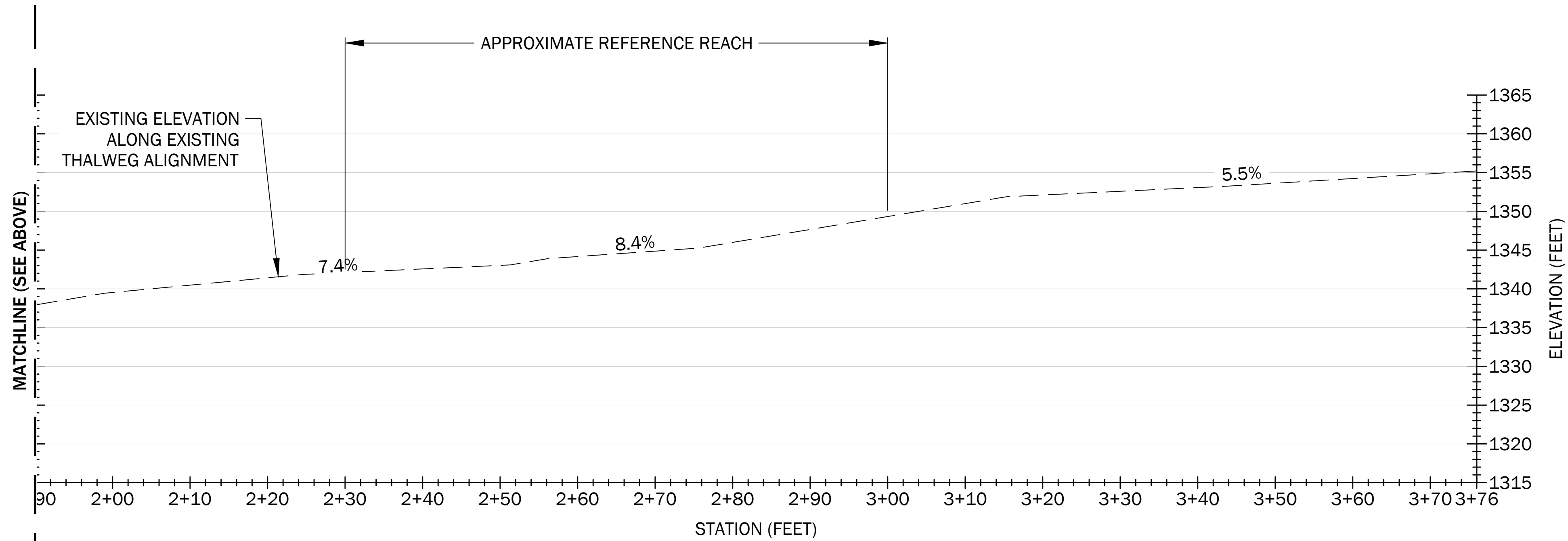
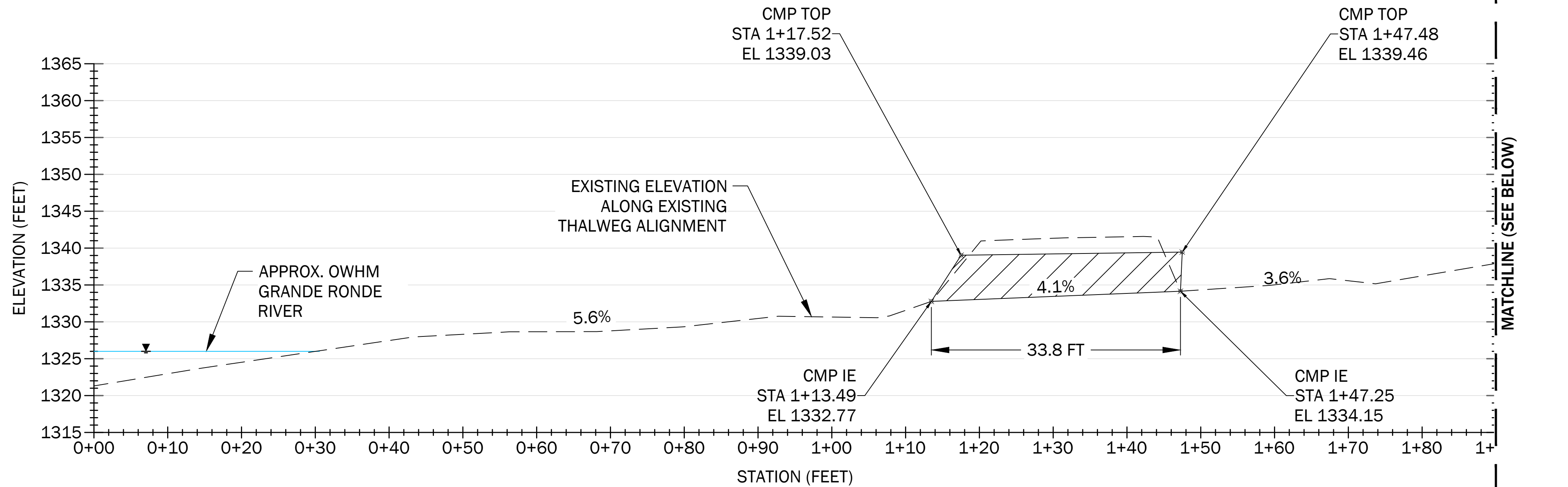
**ASOTIN COUNTY**  
CONSERVATION DISTRICT

COUGAR CREEK FISH PASSAGE BARRIER REMOVAL ASOTIN COUNTY, WASHINGTON
PROPERTY OWNER INFORMATION

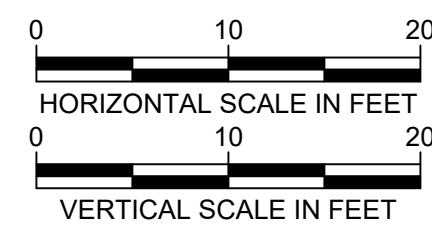
DRAWING NUMBER:
121
SHEET: 5 OF 28



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Plotted: 01/21/2022, 10:30 | syi



EXISTING LONG PROFILE



NO.	DATE	BY	ISSUE / DESCRIPTION

DESIGNED BY: GLS  
DRAWN BY: GLS/SCY  
APPROVED BY: RSC  
REVISION NO.: 4  
DATE: 01/21/2022



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ASOTIN COUNTY  
CONSERVATION  
DISTRICT

COUGAR CREEK FISH PASSAGE BARRIER REMOVAL  
CLARKSTON, WASHINGTON

COUGAR CREEK EXISTING LONG PROFILE

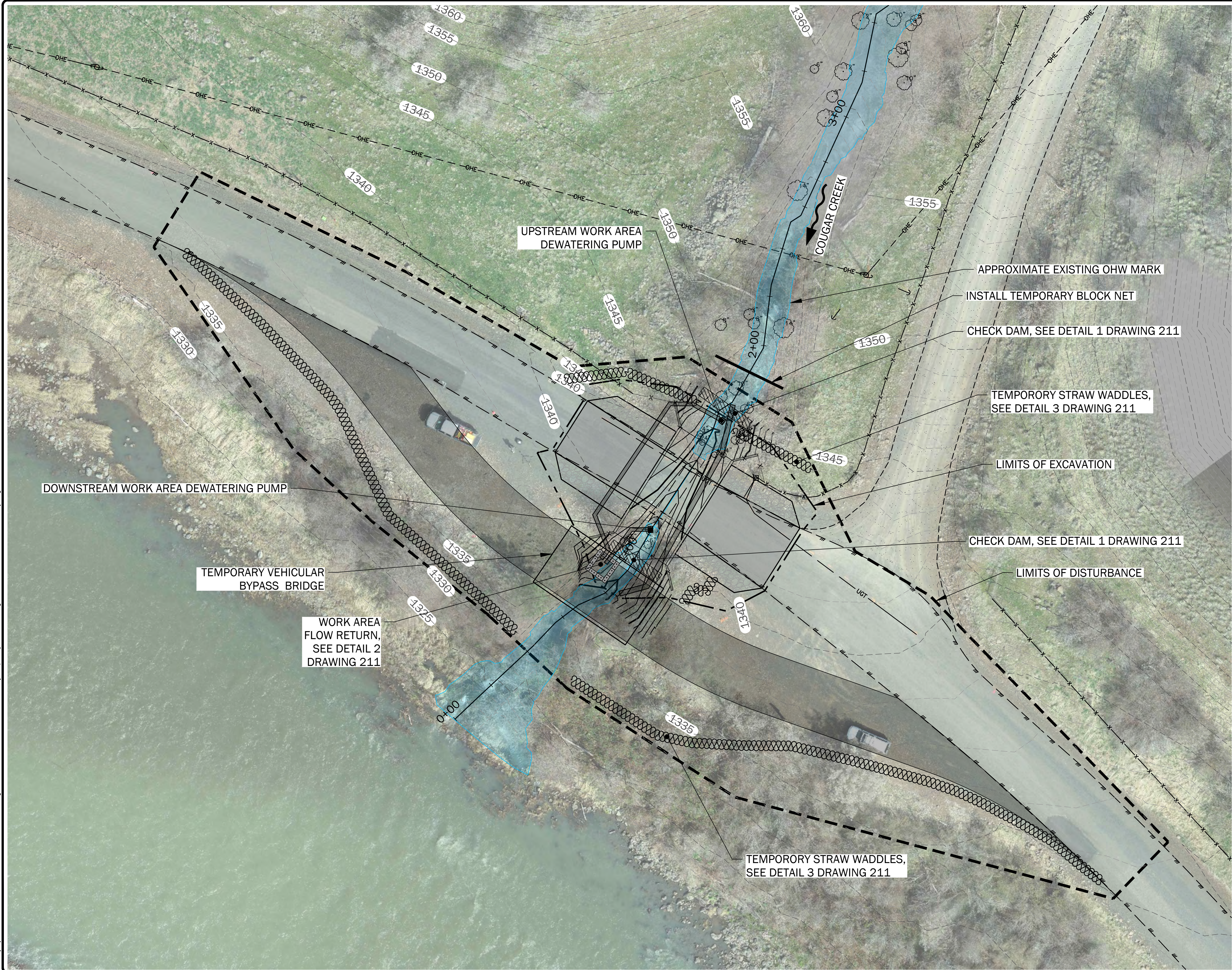
DRAWING NUMBER:

122

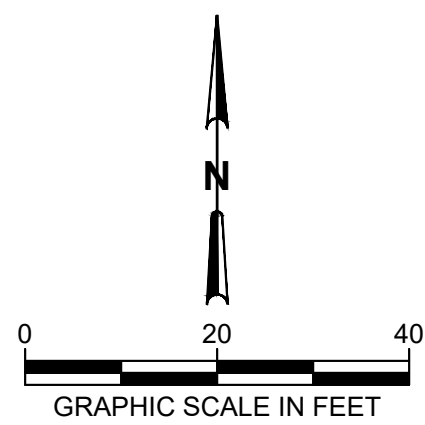
SHEET: 6 OF 28



P:\22\22281\04\CAD\00\Channel Design\04\_Final\2228100400\_Sht 7\_210 [Temporary Water Management and Erosion Control Plan].dwg  
Plotted: 01/21/2022, 10:30 | svt



- LEGEND**
- EXISTING MINOR CONTOUR (1-FT)
  - EXISTING MAJOR CONTOUR (5-FT)
  - EXISTING FENCING
  - EDGE OF ASPHALT
  - EDGE OF GRAVEL
  - EXISTING CULVERT
  - UGT UNDERGROUND TELEPHONE LINE
  - OHE OVERHEAD POWER
  - ASPHALT PAVEMENT
  - GRAVEL PAVEMENT
  - EXISTING 2-YEAR INUNDATION (APPROXIMATE OHWM)
  - EXISTING TREE
  - BENCHMARK / CONTROL POINT
  - PROPOSED MINOR CONTOUR
  - PROPOSED MAJOR CONTOUR
  - LIMITS OF DISTURBANCE
  - LIMITS OF EXCAVATION



NO.	DATE	BY	ISSUE / DESCRIPTION

DESIGNED BY: GLS  
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APPROVED BY: RSC  
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DATE: 01/21/2022



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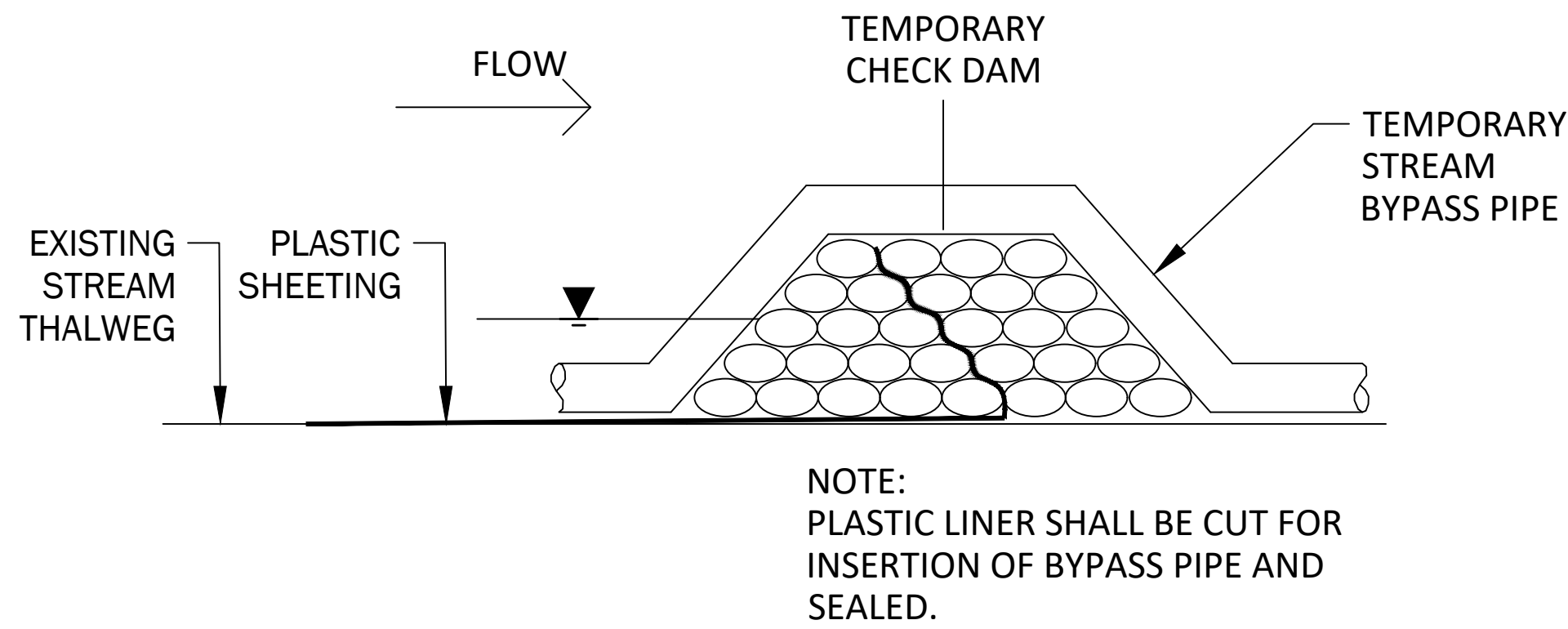
ASOTIN COUNTY  
CONSERVATION DISTRICT

COUGAR CREEK FISH PASSAGE BARRIER REMOVAL  
CLARKSTON, WASHINGTON  
**TEMPORARY WATER MANAGEMENT AND  
EROSION CONTROL PLAN**

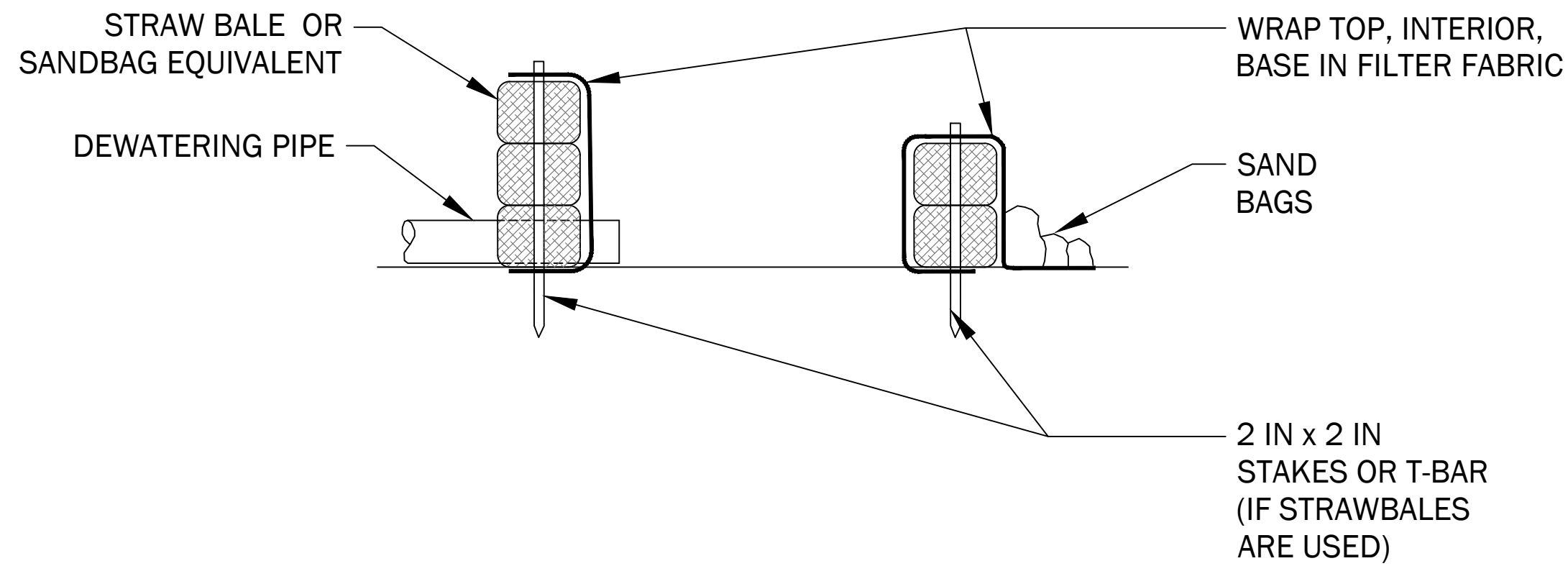
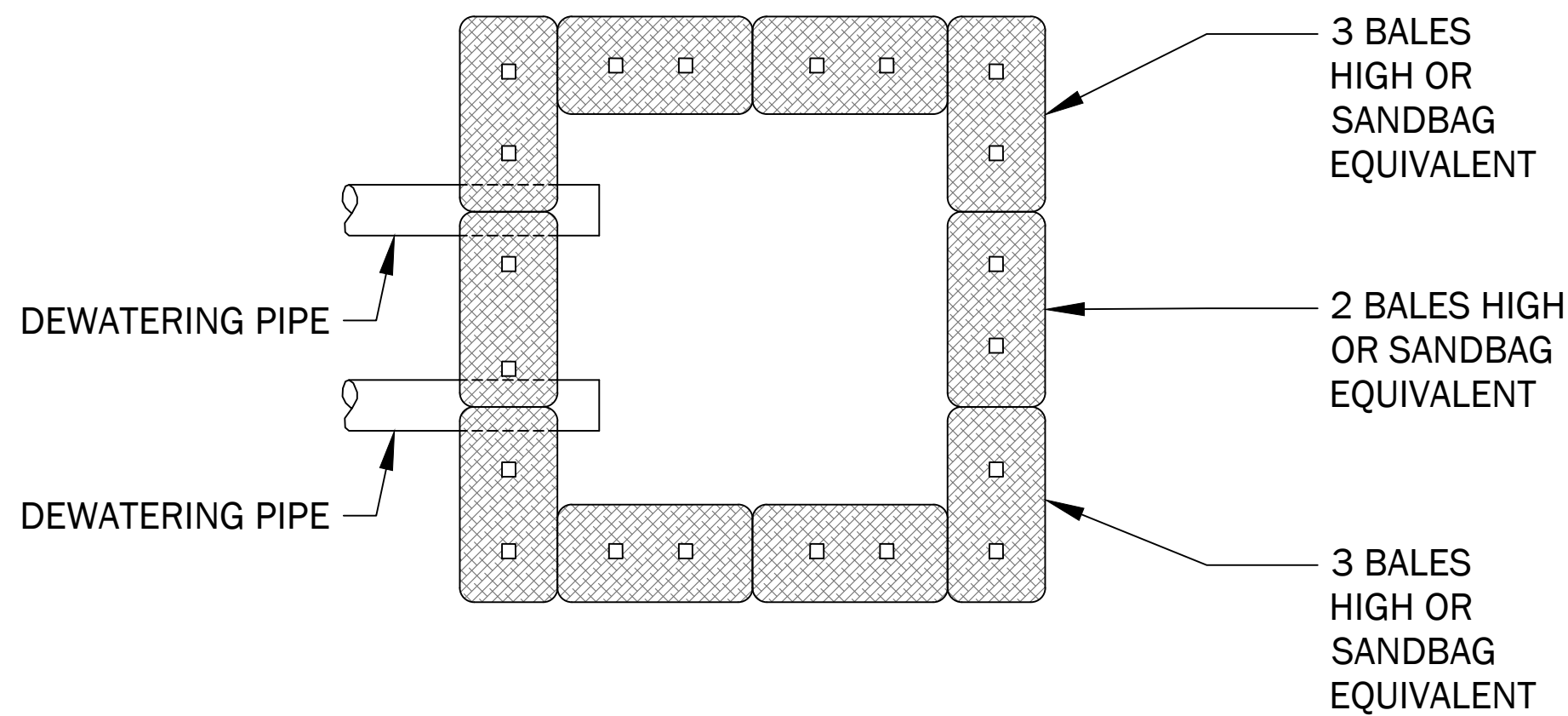
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**210**  
SHEET: 7 OF 28



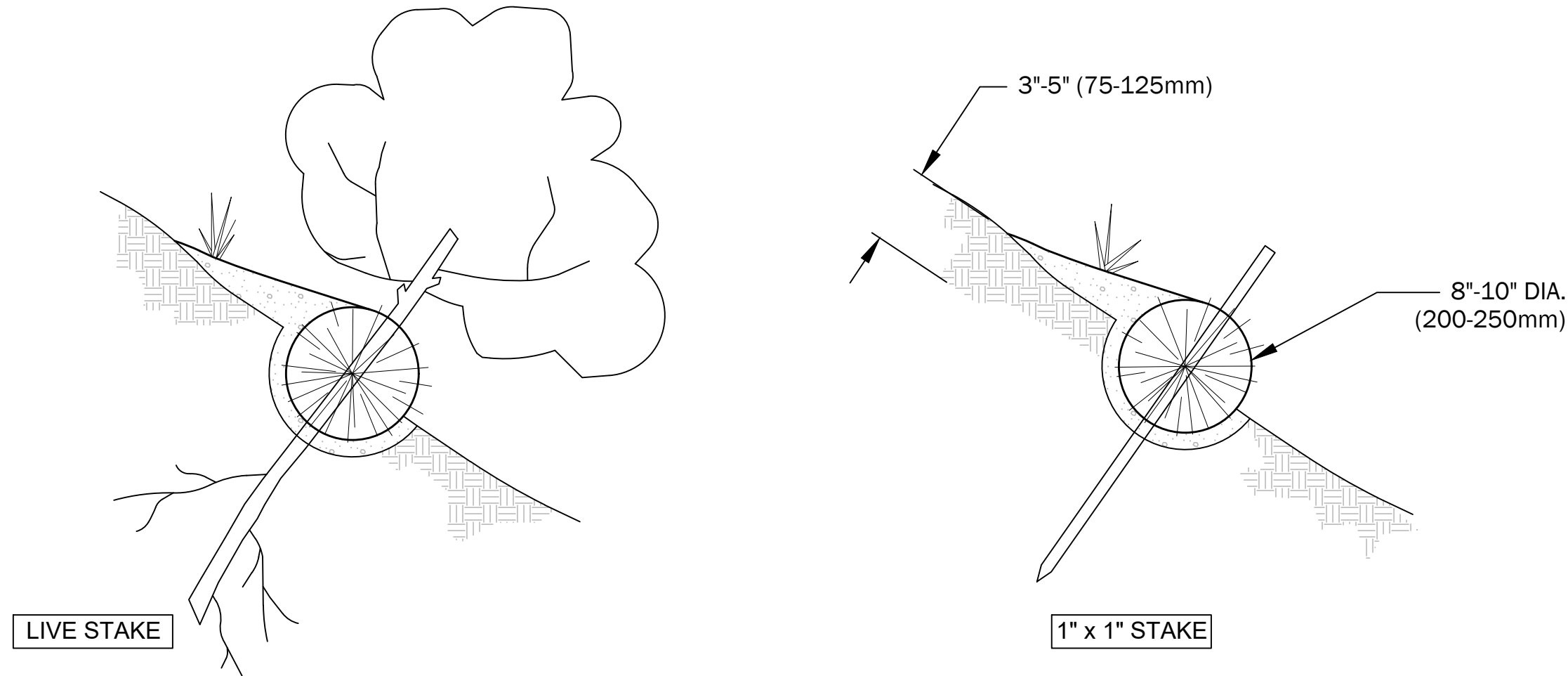
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P:\22\2228\104\CAD\00\Channel Design\04\_Final\2228\00400\_Sht 8\_211\_Temporary Water Management Details.dwg  
01/21/2022, 10:31 I syi



**CHECK DAM**  
SCALE: NOT SCALE

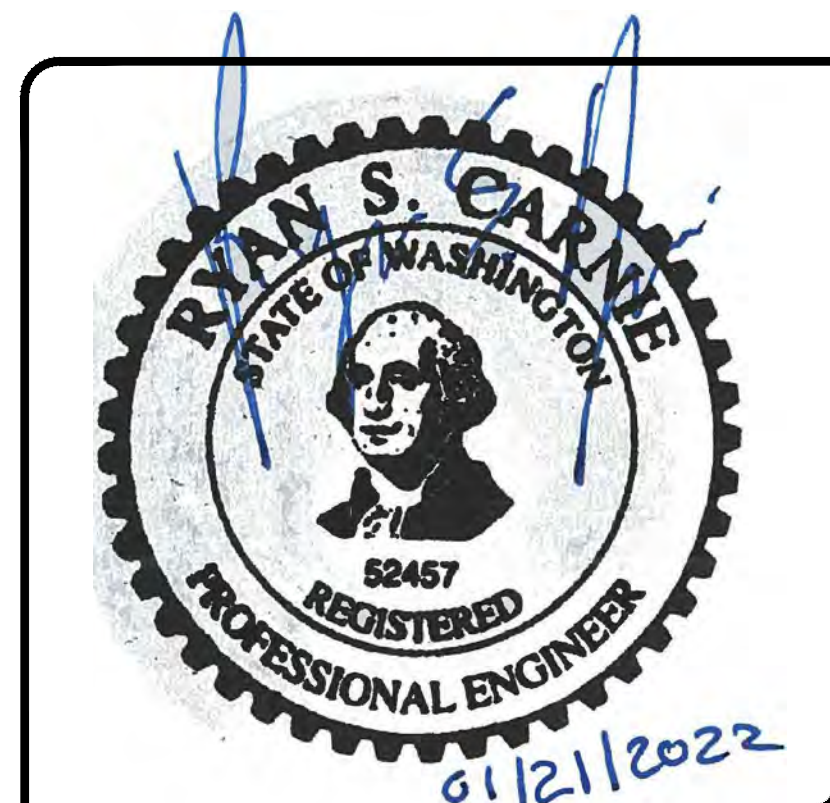


**STRAW BALE DISCHARGE STRUCTURE**  
SCALE: NOT SCALE



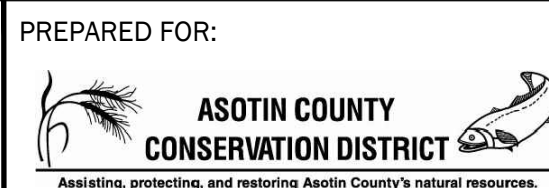
- NOTES:
1. STRAW ROLL INSTALLATION REQUIRES THE PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRENCH, 3" x 5" (75-125mm) DEEP, DUG ON CONTOUR.
  2. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND ROLL.

**STRAW WATTLES**  
SCALE: NOT SCALE



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DESIGNED BY:	GLS
DRAWN BY:	GLS/SCY
APPROVED BY:	RSC
REVISION NO.:	4
DATE:	01/21/2022



ASOTIN COUNTY  
CONSERVATION  
DISTRICT

COUGAR CREEK FISH PASSAGE BARRIER REMOVAL  
CLARKSTON, WASHINGTON

TEMPORARY WATER MANAGEMENT DETAILS

DRAWING NUMBER:

211

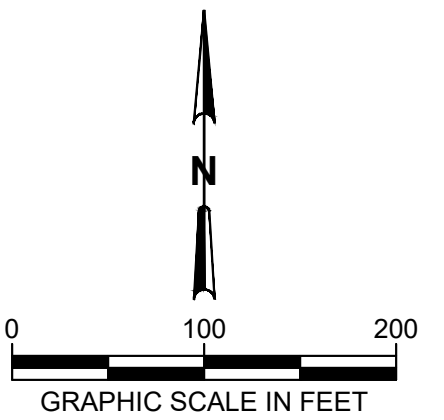
SHEET: 8 OF 28



P:\22\2228\104\CAD\00\Channel Design\04\_Final\2228\00400\_Sht 9\_212 [Temporary Staging and Stockpile].dwg  
Plotted: 01/21/2022, 10:31 | syi

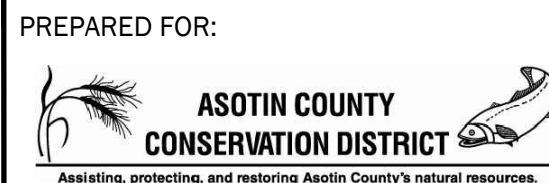


- LEGEND**
- PARCEL BOUNDARY
  - PROJECT LOCATION
  - STAGING AND STOCKPILE LOCATION
  - MINIMUM 150-FOOT SETBACK FROM OHWM



NO.	DATE	BY	ISSUE / DESCRIPTION

DESIGNED BY: GLS  
DRAWN BY: GLS/SCY  
APPROVED BY: RSC  
REVISION NO.: 4  
DATE: 01/21/2022



ASOTIN COUNTY  
CONSERVATION  
DISTRICT

COUGAR CREEK FISH PASSAGE BARRIER REMOVAL  
CLARKSTON, WASHINGTON

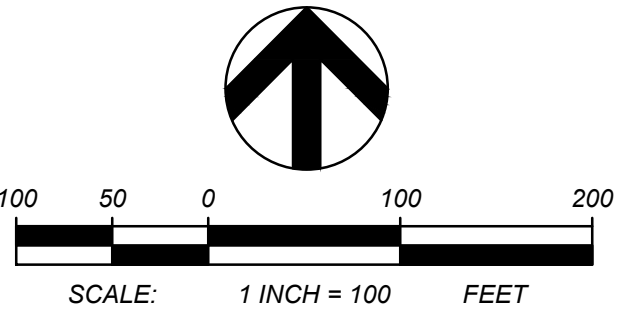
TEMPORARY STAGING AND STOCKPILE

DRAWING NUMBER:

212

SHEET: 9 OF 28





TBM INFORMATION

POINT #	NORTHING	EASTING	GRID NORTHING	GRID EASTING	ELEVATION	DESCRIPTION
1	271498.56	2447867.09	271498.55	2447867.09	1335.92	SET MAG
2	271289.33	2448207.07	271289.34	2448207.05	1338.64	SET MAG
3	271356.04	2448083.94	271356.05	2448083.92	1341.27	SET MAG
60	271479.05	2447940.67	271479.05	2447940.67	1337.66	SET 3RBC

BENCH MARK NOTE

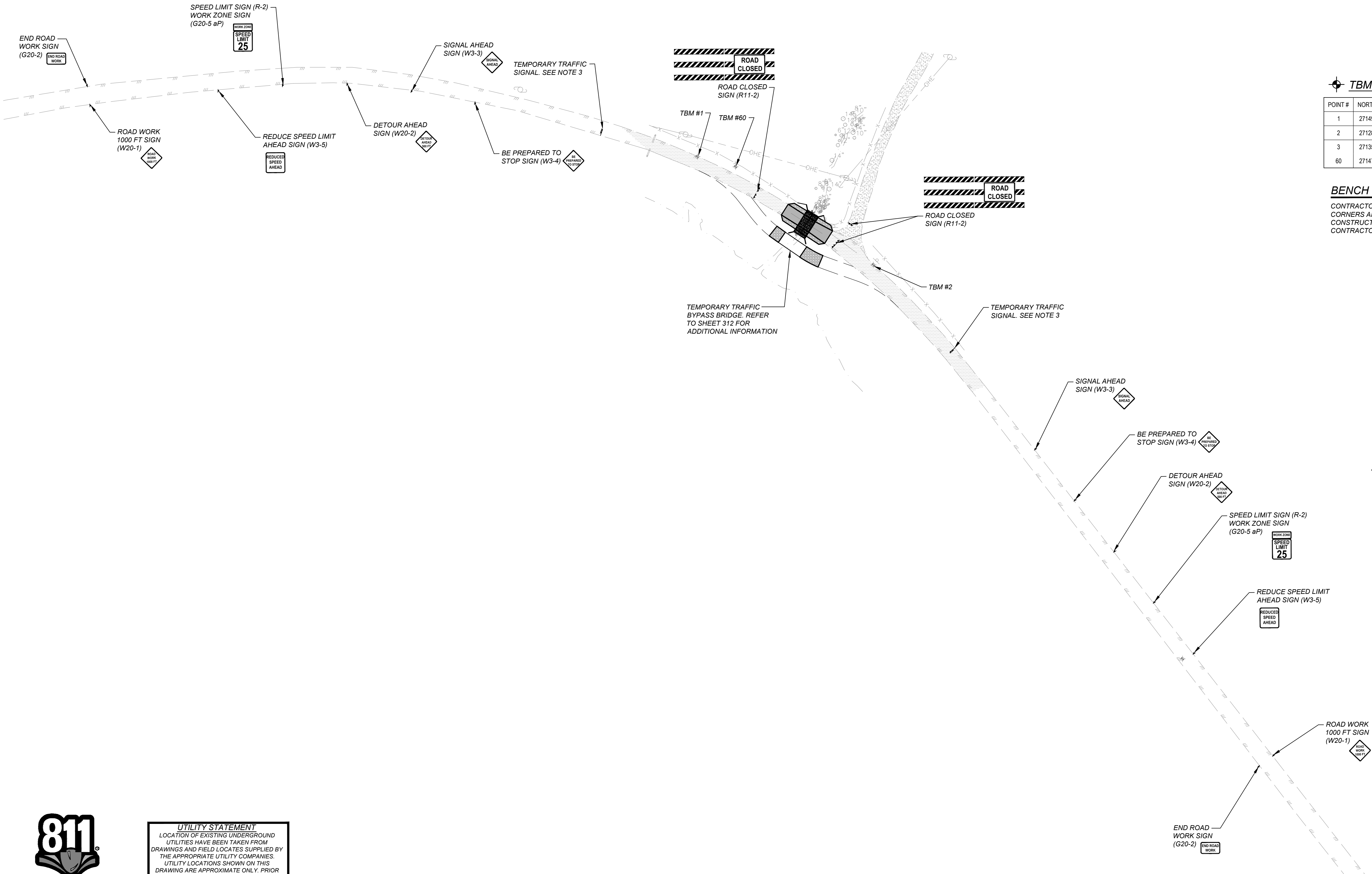
CONTRACTOR SHALL PROTECT ALL EXISTING PROPERTY CORNERS AND BENCH MARKS. ANY DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES SHALL BE REMEDIED AT THE CONTRACTOR'S EXPENSE.

LEGEND

	ASPHALT PAVEMENT
	SIGN
	PORTABLE TRAFFIC SIGNAL
	TEMPORARY GRAVEL BYPASS ROAD

NOTES

- REFER TO SHEETS 111 AND 112 FOR ADDITIONAL NOTES.
- THIS PLAN IS A GUIDELINE FOR TRAFFIC CONTROL. CONTRACTOR IS RESPONSIBLE FOR USING ADEQUATE SIGNING FOR THE TRAFFIC SITUATION AS DEEMED NECESSARY.
- CONTRACTOR TO PROVIDE A PORTABLE TEMPORARY TRAFFIC SIGNAL TO MANAGE TRAFFIC SIMILAR TO ADDCO PTS-2000 OR EQUIVALENT. TEMPORARY BYPASS ROAD IS INTENDED FOR SINGLE LANE OF TRAFFIC WITH THE SIGNAL CONTROLLING ONE-WAY TRAFFIC IN EACH DIRECTION.



**UTILITY STATEMENT**  
LOCATION OF EXISTING UNDERGROUND UTILITIES HAVE BEEN TAKEN FROM DRAWINGS AND FIELD LOCATES SUPPLIED BY THE APPROPRIATE UTILITY COMPANIES. UTILITY LOCATIONS SHOWN ON THIS DRAWING ARE APPROXIMATE ONLY. PRIOR TO BEGINNING ANY CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF EACH UTILITY.

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Plotted: 01/20/2022, 09:06 | dolken P:\Sp02\Jobs\210565 Cougar Creek Barrier Fish Passage\00 DWG\Sp02\10565 TRAFFIC CONTROL.dwg


NO.	DATE	BY	ISSUE / DESCRIPTION

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DRAWN BY: CWD
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REVISION NO.:
DATE: 01/20/22



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CONSERVATION DISTRICT

ASOTIN COUNTY  
CONSERVATION DISTRICT

COUGAR CREEK FISH PASSAGE BARRIER REMOVAL  
ASOTIN COUNTY, WASHINGTON

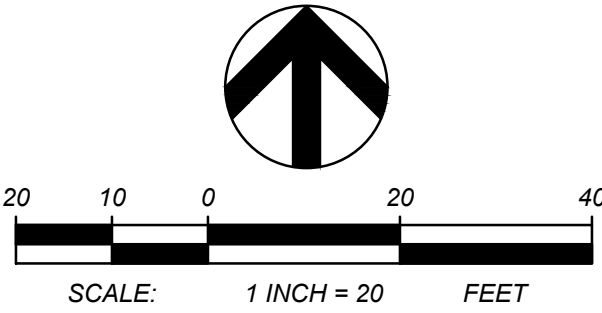
TRAFFIC CONTROL PLAN

DRAWING NUMBER:

310

SHEET: 10 OF 28





TBM INFORMATION

POINT #	NORTHING	EASTING	GRID NORTHING	GRID EASTING	ELEVATION	DESCRIPTION
1	271498.56	2447867.09	271498.55	2447867.09	1335.92	SET MAG
2	271289.33	2448207.07	271289.34	2448207.05	1338.64	SET MAG
3	271356.04	2448083.94	271356.05	2448083.92	1341.27	SET MAG
60	271479.05	2447940.67	271479.05	2447940.67	1337.66	SET 3RBC

BENCH MARK NOTE

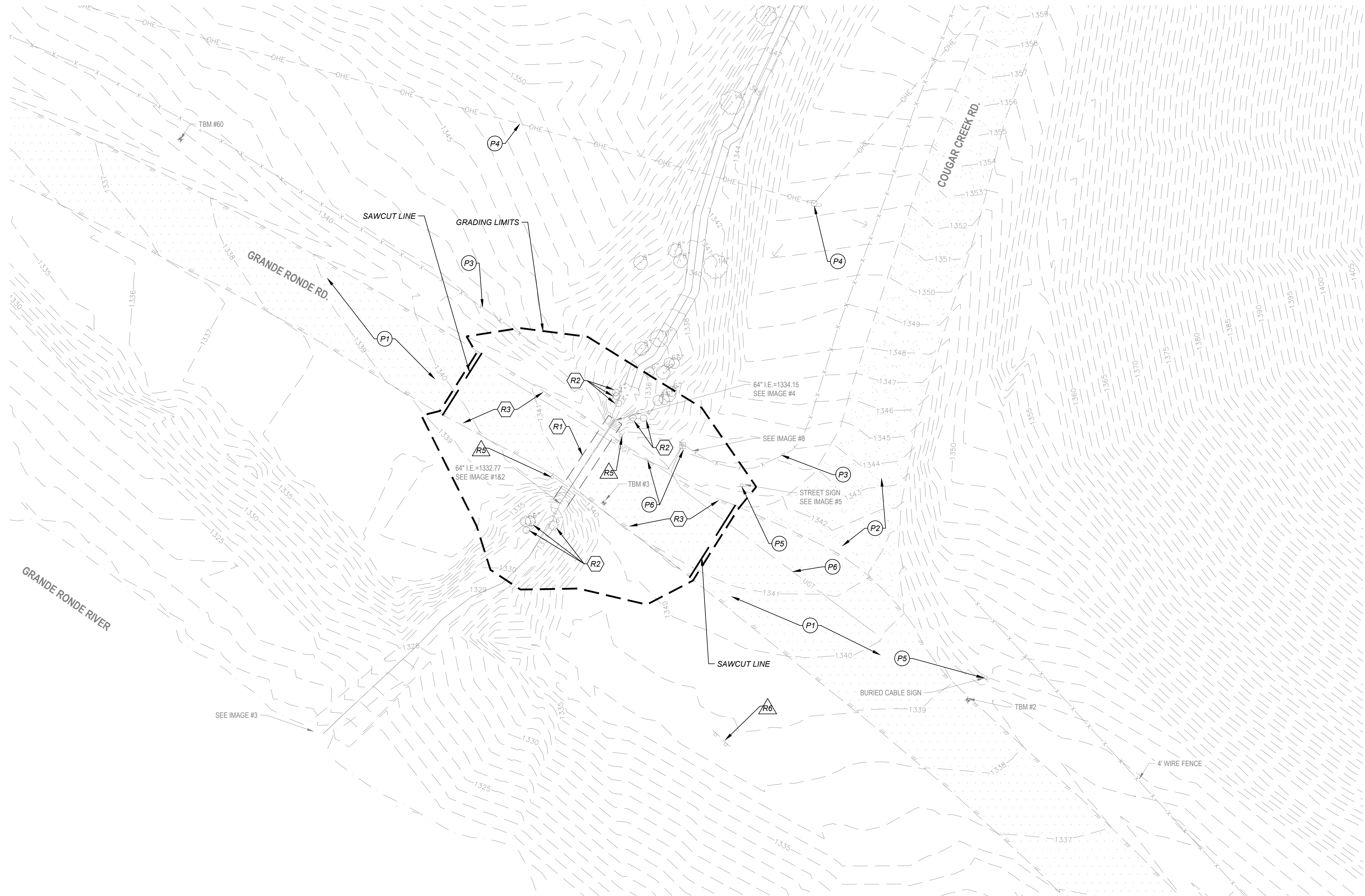
CONTRACTOR SHALL PROTECT ALL EXISTING PROPERTY CORNERS AND BENCH MARKS. ANY DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES SHALL BE REMEDIED AT THE CONTRACTOR'S EXPENSE.

DEMOLITION LEGEND

<div>P1</div>	PROTECT ASPHALT.
<div>P2</div>	PROTECT EXISTING GRAVEL ROAD.
<div>P3</div>	PROTECT FENCE.
<div>P4</div>	PROTECT OVERHEAD POWER AND APPURTENANCES.
<div>P5</div>	PROTECT SIGN.
<div>P6</div>	PROTECT UNDERGROUND CABLE AND APPURTENANCES. SEE NOTE 7.
<div>R1</div>	REMOVE CULVERT.
<div>R2</div>	REMOVE TREE, SEE NOTE 2.
<div>R3</div>	REMOVE ASPHALT.
<div>R4</div>	REMOVE POST.
<div>R5</div>	SALVAGE SIGN, SEE NOTE 5.
<div>R6</div>	SALVAGE WILDLIFE SIGN, SEE NOTE 3.
<div>R7</div>	SALVAGE FENCE, SEE NOTE 6.

NOTES

- SEE SHEET 112 FOR DEMOLITION NOTES.
- CONTRACTOR SHALL SALVAGE, STOCKPILE AND REUSE TREES REMOVED FROM THE SITE AS IDENTIFIED IN THE SPECIAL PROVISIONS. COORDINATE EXTENT OF TREE AND VEGETATION REMOVAL WITH LIMITS OF EXCAVATION AND CULVERT INSTALLATION.
- CONTRACTOR SHALL REMOVE AND REPLACE WILDLIFE SIGN IN COORDINATION WITH CONSTRUCTION OF TEMPORARY BYPASS ROAD.
- SAWCUT LINE LOCATION IS APPROXIMATE. CONTRACTOR SHALL ADJUST IN COORDINATION WITH EXCAVATION.
- CONTRACTOR SHALL REMOVE AND REPLACE SIGN IN COORDINATION WITH CONSTRUCTION OF GRANDE RONDE ROAD. REINSTALL SIGN PER ASOTIN COUNTY STANDARDS. REFER TO SHEET 411 FOR SIGN PLACEMENT.
- CONTRACTOR SHALL REMOVE AND REPLACE FENCE IN COORDINATION WITH GRADING ACTIVITIES.
- CONTRACTOR TO COORDINATE CONSTRUCTION OF CULVERT AND ROAD IMPROVEMENTS WITH UTILITY PURVEYOR. COORDINATE SCHEDULING, ADJUSTMENT OF UTILITY LINE, AND ALL REQUIREMENTS WITH UTILITY PURVEYOR. TDS TELECOM 509-243-4111



UTILITY STATEMENT  
LOCATION OF EXISTING UNDERGROUND UTILITIES HAVE BEEN TAKEN FROM DRAWINGS AND FIELD LOCATES SUPPLIED BY THE APPROPRIATE UTILITY COMPANIES. UTILITY LOCATIONS SHOWN ON THIS DRAWING ARE APPROXIMATE ONLY. PRIOR TO BEGINNING ANY CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF EACH UTILITY.



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DRAWN BY: CWD
APPROVED BY:
REVISION NO.:
DATE: 01/20/22



COUGAR CREEK FISH PASSAGE BARRIER REMOVAL  
ASOTIN COUNTY, WASHINGTON  
DEMOLITION PLAN AND EXCAVATION LIMITS

DRAWING NUMBER:  
311  
SHEET: 11 OF 28



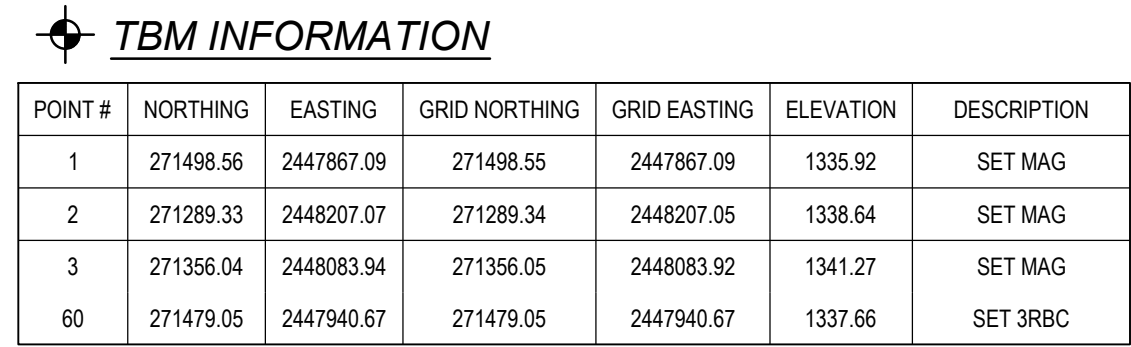
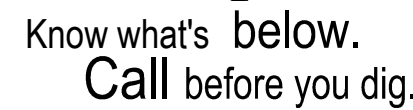


Figure 10 is a cross-sectional diagram of a concrete culvert structure. The diagram shows a concrete culvert structure at the bottom, labeled "CONCRETE CULVERT STRUCTURE". Above the structure is a layer of gravel, labeled "GRAVEL PAVEMENT". Above the gravel is a layer of asphalt, labeled "ASPHALT PAVEMENT". The diagram also shows the "EXISTING CONTOUR" and "PROPOSED CONTOUR" lines. A "SPOT ELEVATION (MATCH EXISTING)" is indicated at a point on the existing contour, labeled "1340.75 ME". The width of the structure is labeled "1340" on both sides.



**UTILITY STATEMENT**  
LOCATION OF EXISTING UNDERGROUND UTILITIES HAVE BEEN TAKEN FROM DRAWINGS AND FIELD LOCATES SUPPLIED BY THE APPROPRIATE UTILITY COMPANIES. UTILITY LOCATIONS SHOWN ON THIS DRAWING ARE APPROXIMATE ONLY. PRIOR TO BEGINNING ANY CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF EACH UTILITY.

[illegible]

DESIGNED BY:	CWD
DRAWN BY:	CWD
APPROVED BY:	
REVISION NO.:	
DATE:	01/20/22



PREPARED FOR:



**ASOTIN COUNTY  
CONSERVATION DISTRICT**

Assisting, protecting, and restoring Asotin County's natural resources.

**ASOTIN COUNTY  
CONSERVATION  
DISTRICT**

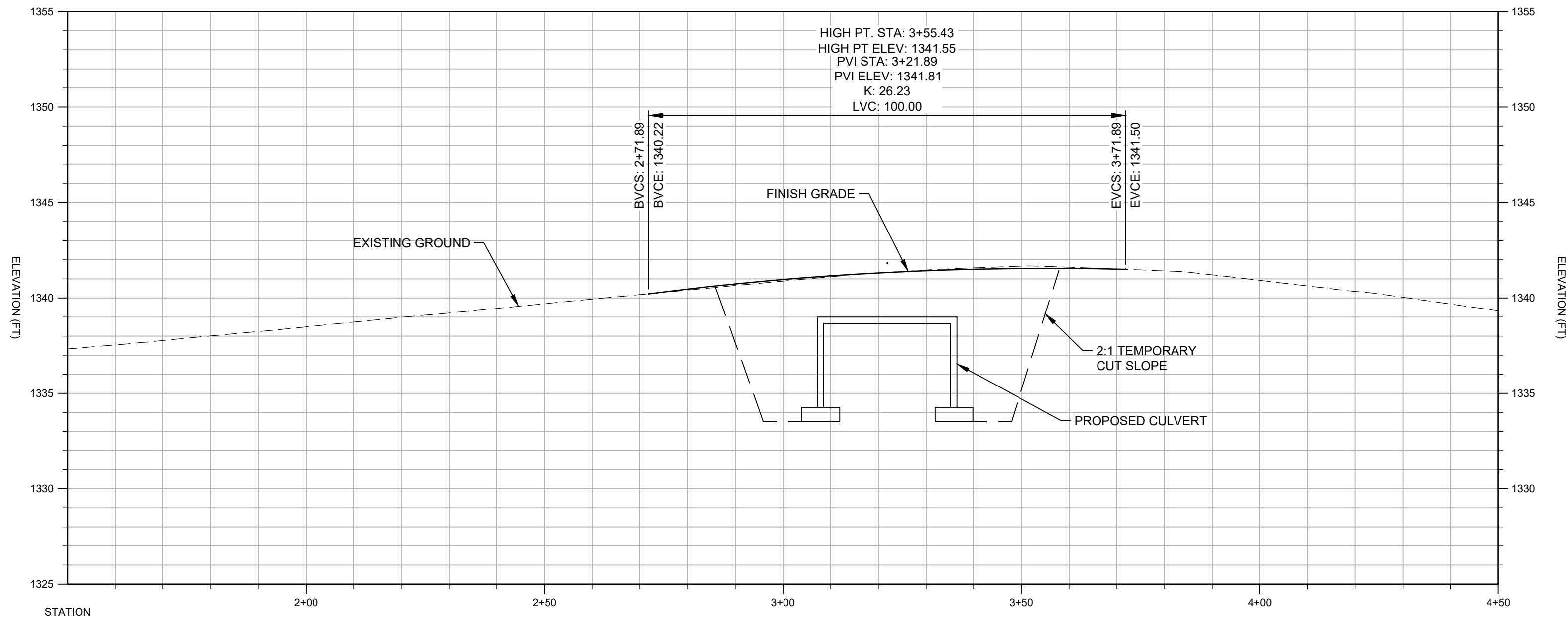
COUGAR CREEK FISH PASSAGE BARRIER REMOVAL  
ASOTIN COUNTY, WASHINGTON

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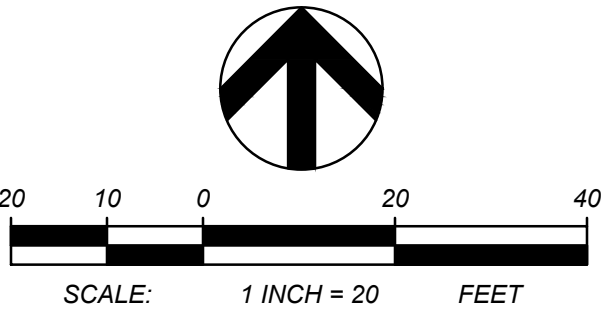
TEMPORARY BYPASS ROAD PLAN AND PROFILE

DRAWING NUMBER:  
**312**  
SHEET: 12 OF 28





PROFILE OF CENTERLINE - GRANDE RONDE RD.  
VERT SCALE: 1"=5' HOR SCALE: 1"=20'



#### TBM INFORMATION

POINT #	NORTHING	EASTING	GRID NORTHING	GRID EASTING	ELEVATION	DESCRIPTION
1	271498.56	2447867.09	271498.55	2447867.09	1335.92	SET MAG
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3	271356.04	2448083.94	271356.05	2448083.92	1341.27	SET MAG
60	271479.05	2447940.67	271479.05	2447940.67	1337.66	SET 3RBC

#### BENCH MARK NOTE

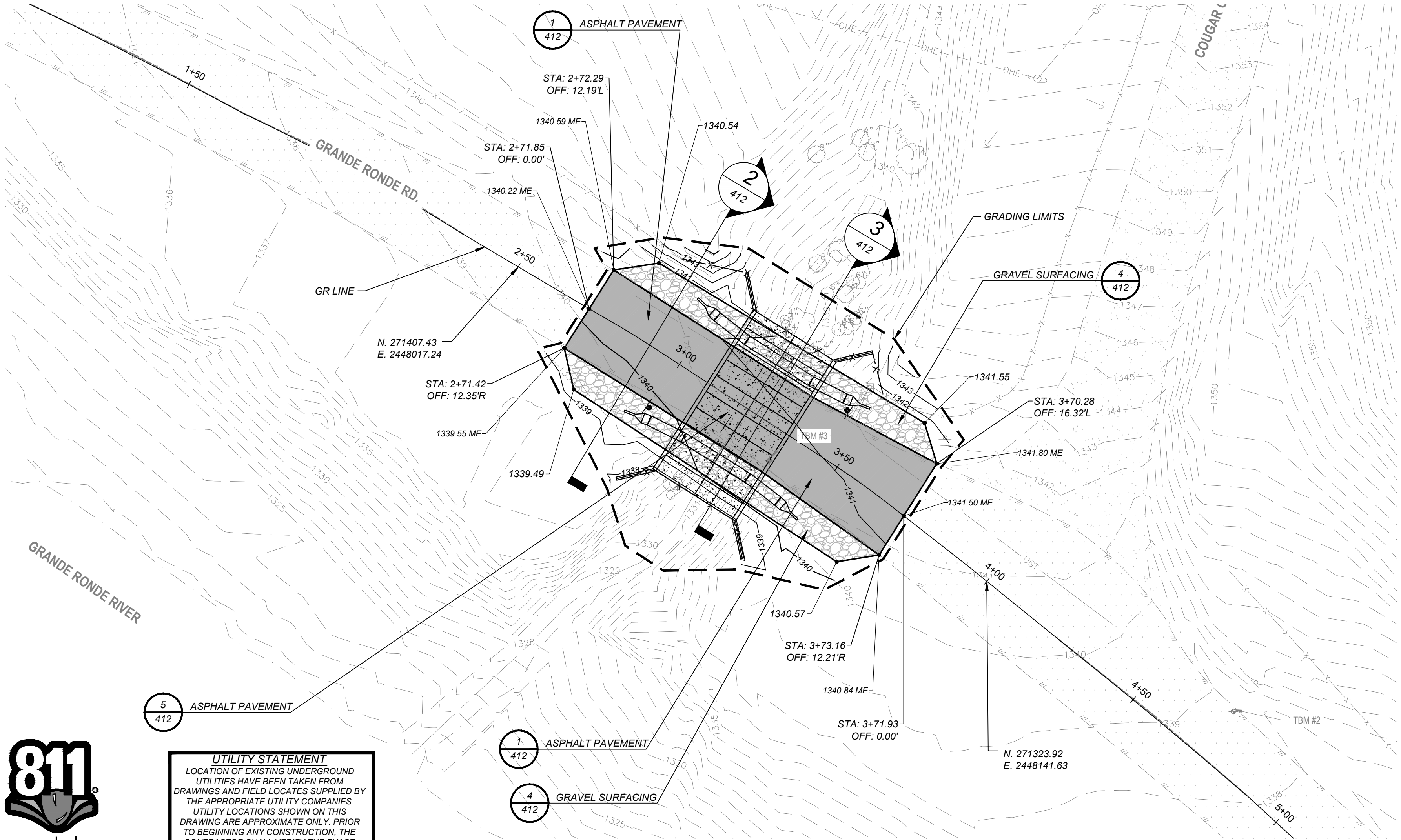
CONTRACTOR SHALL PROTECT ALL EXISTING PROPERTY CORNERS AND BENCH MARKS. ANY DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES SHALL BE REMEDIED AT THE CONTRACTOR'S EXPENSE.

#### LEGEND

	ASPHALT PAVEMENT
	EXISTING CONTOUR
	PROPOSED CONTOUR
	SPOT ELEVATION (MATCH EXISTING)
	EXISTING PAVEMENT
	CONCRETE CULVERT STRUCTURE

#### NOTES

- SEE SHEETS 111 AND 112 FOR ADDITIONAL NOTES.
- REFER TO SHEET 412 FOR ROAD SECTION DETAILS.
- SAWCUT LINE LOCATION IS APPROXIMATE. CONTRACTOR SHALL ADJUST IN COORDINATION WITH EXCAVATION.
- REFER TO SHEET 610 FOR ADDITIONAL EARTHWORK AND GRADING INFORMATION, INCLUDING COUGAR CREEK PLAN AND PROFILE.



**UTILITY STATEMENT**  
LOCATION OF EXISTING UNDERGROUND UTILITIES HAVE BEEN TAKEN FROM DRAWINGS AND FIELD LOCATES SUPPLIED BY THE APPROPRIATE UTILITY COMPANIES. UTILITY LOCATIONS SHOWN ON THIS DRAWING ARE APPROXIMATE ONLY. PRIOR TO BEGINNING ANY CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF EACH UTILITY.

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Plotted: 01/20/2022, 09:03 | dolken P:\Sp02\Jobs\210565 Cougar Creek Barrier Fish Passage\00 DWG\SC210565 ROAD P-P.dwg

NO.	DATE	BY	ISSUE / DESCRIPTION

DESIGNED BY: CWD
DRAWN BY: CWD
APPROVED BY:
REVISION NO.:
DATE: 01/20/22

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COUGAR CREEK FISH PASSAGE BARRIER REMOVAL  
ASOTIN COUNTY, WASHINGTON

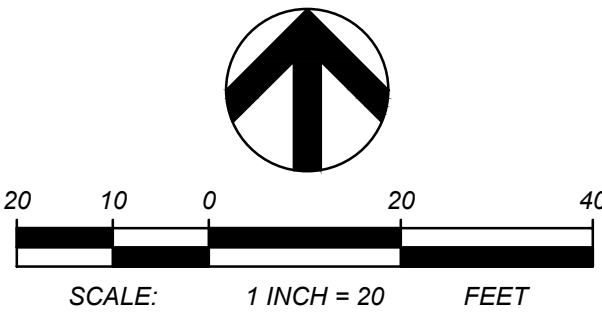
ROAD PLAN AND PROFILE

DRAWING NUMBER:

410

SHEET: 13 OF 28





**TBM INFORMATION**

POINT #	NORTHING	EASTING	GRID NORTHING	GRID EASTING	ELEVATION	DESCRIPTION
1	271498.56	2447867.09	271498.55	2447867.09	1335.92	SET MAG
2	271289.33	2448207.07	271289.34	2448207.05	1338.64	SET MAG
3	271356.04	2448083.94	271356.05	2448083.92	1341.27	SET MAG
60	271479.05	2447940.67	271479.05	2447940.67	1337.66	SET 3RBC

**BENCH MARK NOTE**

CONTRACTOR SHALL PROTECT ALL EXISTING PROPERTY CORNERS AND BENCH MARKS. ANY DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES SHALL BE REMEDIED AT THE CONTRACTOR'S EXPENSE.

**LEGEND**

	ASPHALT PAVEMENT
	SIGN
	EXISTING PAVEMENT
	CONCRETE CULVERT STRUCTURE

**NOTES**

- REFER TO SHEET 111 FOR ADDITIONAL NOTES.
- TYPE 2 CONCRETE BARRIER SHALL CONFORM TO WSDOT STANDARD PLAN C-8. FLARE BARRIER SECTIONS AWAY FROM ROAD AS SHOWN.
- CONTRACTOR SHALL INSTALL SIGN POST PER WSDOT STANDARD PLAN G-24.20-01. INSTALL POST 2 FEET FROM EDGE OF PAVEMENT.
- RECONSTRUCT FENCE DISTURBED DURING GRADING ACTIVITIES.
- CONTRACTOR SHALL INSTALL WILDLIFE SIGN IN THE EXISTING LOCATION WITH 4x4 POST.
- TYPE 4 CHAINLINK FENCE PER WSDOT STANDARD PLAN L-20.10-03. REFER TO SHEETS 412 AND 511 FOR ADDITIONAL DETAIL.



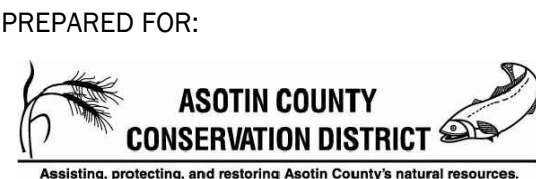
**UTILITY STATEMENT**  
LOCATION OF EXISTING UNDERGROUND UTILITIES HAVE BEEN TAKEN FROM DRAWINGS AND FIELD LOCATES SUPPLIED BY THE APPROPRIATE UTILITY COMPANIES. UTILITY LOCATIONS SHOWN ON THIS DRAWING ARE APPROXIMATE ONLY. PRIOR TO BEGINNING ANY CONSTRUCTION, THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF EACH UTILITY.



**COFFMAN ENGINEERS**  
10 N. Post St.  
Spokane, WA 99201  
ph 509.328.2994  
www.coffman.com

NO.	DATE	BY	ISSUE / DESCRIPTION

DESIGNED BY:	CWD
DRAWN BY:	CWD
APPROVED BY:	
REVISION NO.:	
DATE:	01/20/22



ASOTIN COUNTY  
CONSERVATION  
DISTRICT

COUGAR CREEK FISH PASSAGE BARRIER REMOVAL  
ASOTIN COUNTY, WASHINGTON

BARRIER, STRIPING, AND SIGNAGE PLAN

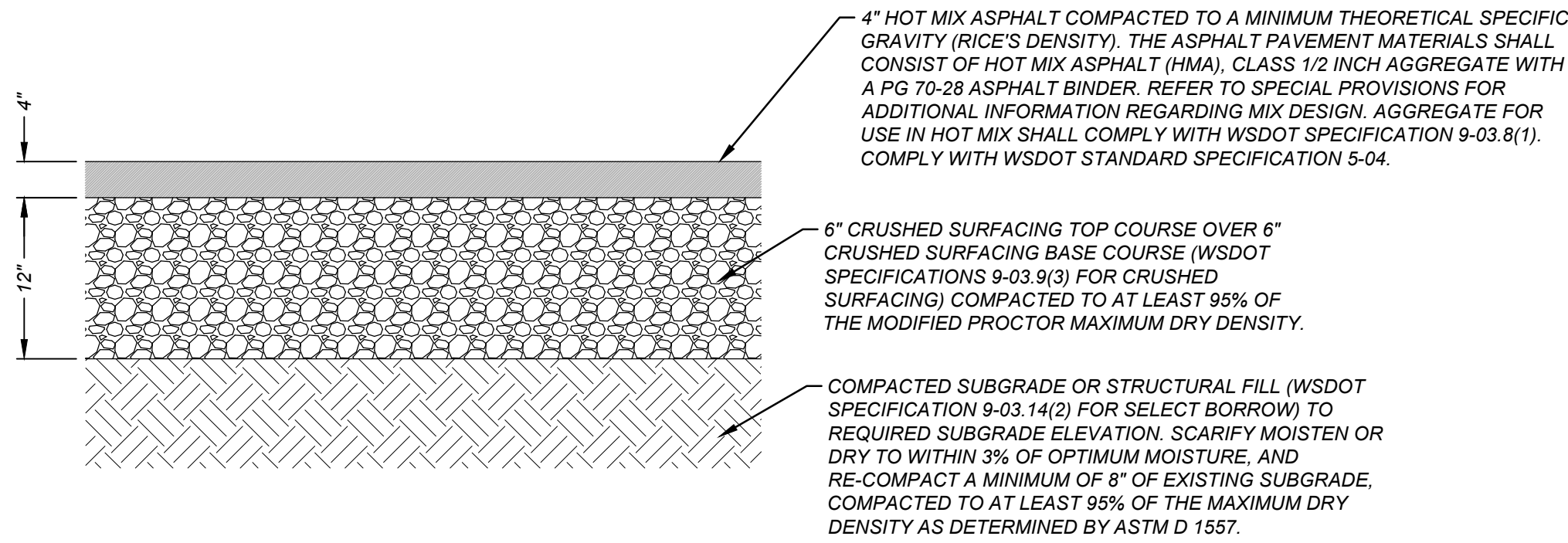
DRAWING NUMBER:

411

SHEET: 14 OF 28



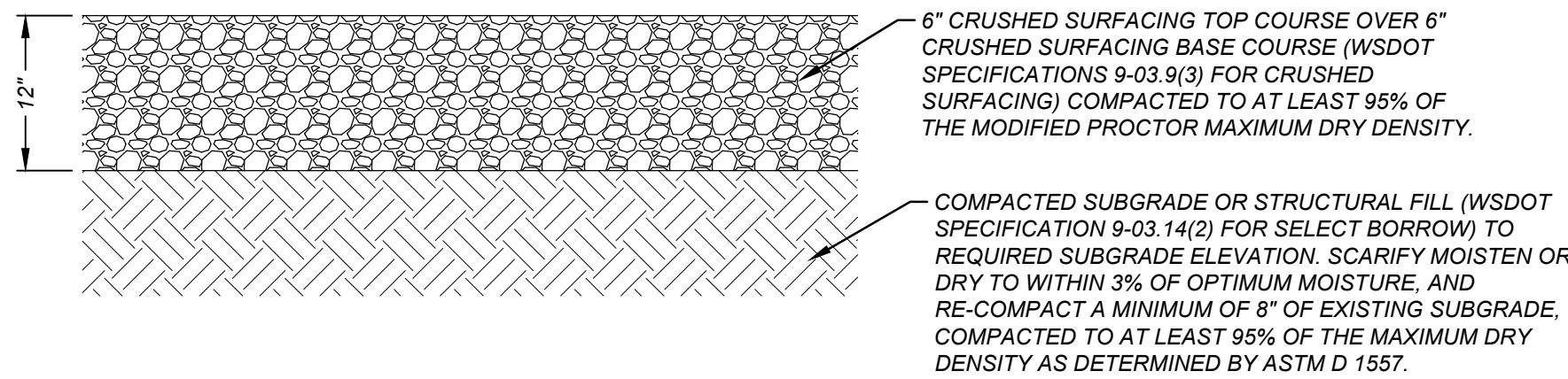
P:\Spa2\Jobs\210565 Cougar Creek Barrier Fish Passage\0.0 DWGS\0210565 CIVIL DETAILS.dwg  
Plotted: 01/20/2022, 09:09 | ddkken



NOTES

1. PLACE ACCEPTABLE SOIL MATERIAL IN LAYERS TO REQUIRED SUBGRADE ELEVATION.
2. MATERIAL AND COMPACTION REQUIREMENTS SHALL COMPLY WITH THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL ENGINEERING REPORT.
3. IF EXISTING SUBGRADE SOIL CONDITIONS INHIBIT PROPER COMPACTION, OVER EXCAVATE A MINIMUM 12" AND REPLACE WITH APPROVED ONSITE MATERIAL OR IMPORTED MATERIAL. COORDINATE WITH THE GEOTECHNICAL ENGINEER.
4. COMPACTION EFFORTS AND MASS GRADING SHALL BE MONITORED AND TESTED BY AN EXPERIENCED SOILS TECHNICIAN, UNDER THE SUPERVISION OF A LICENSED GEOTECHNICAL ENGINEER REPRESENTING THE OWNER.

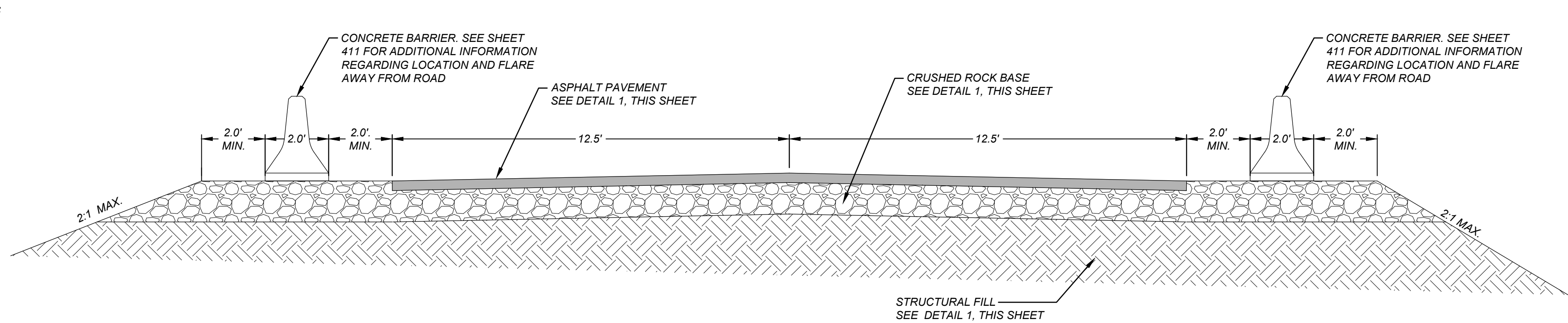
1 ASPHALT PAVEMENT SECTION  
SCALE: NTS



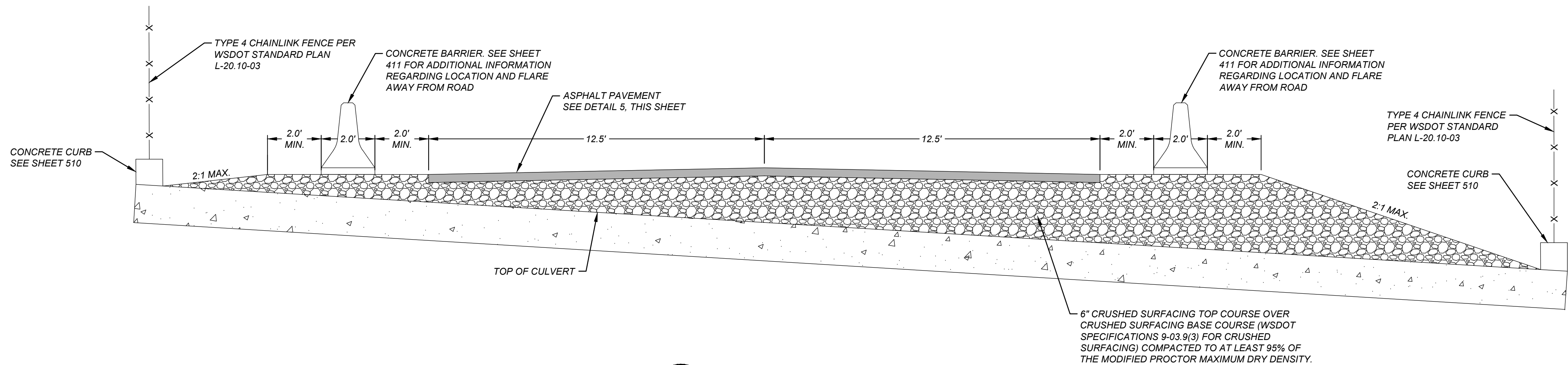
NOTES

1. PLACE ACCEPTABLE SOIL MATERIAL IN LAYERS TO REQUIRED SUBGRADE ELEVATION.
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4. COMPACTION EFFORTS AND MASS GRADING SHALL BE MONITORED AND TESTED BY AN EXPERIENCED SOILS TECHNICIAN, UNDER THE SUPERVISION OF A LICENSED GEOTECHNICAL ENGINEER REPRESENTING THE OWNER.

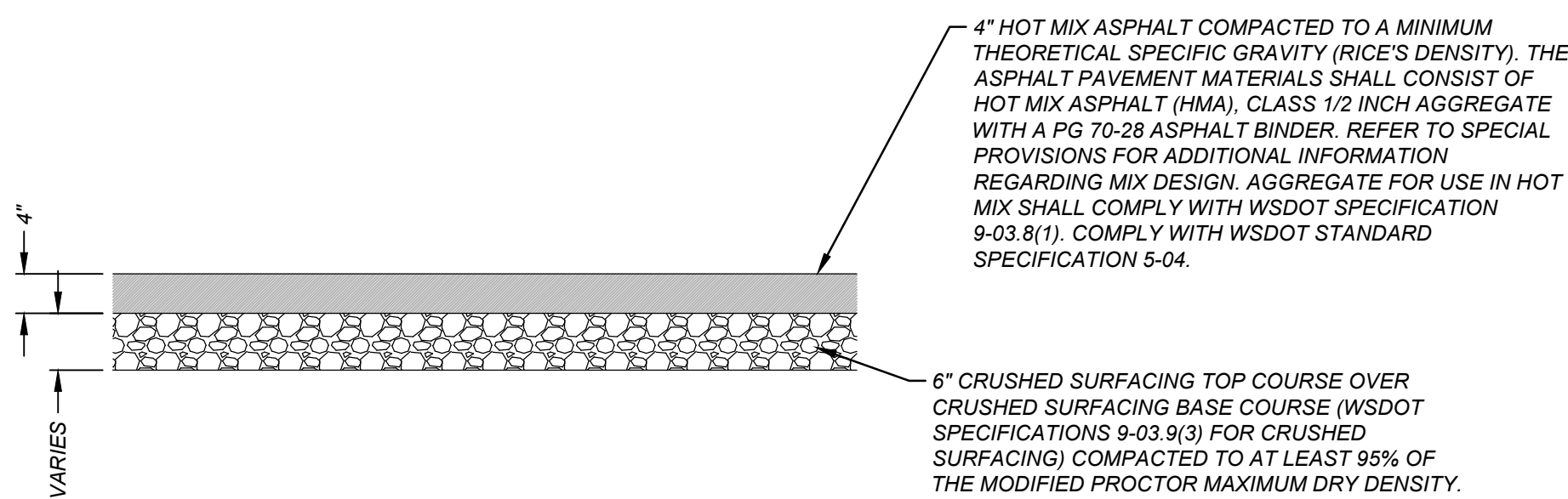
4 GRAVEL SURFACING SECTION  
SCALE: NTS



2 TYPICAL ROAD SECTION  
SCALE: NTS



3 ROAD SECTION (OVER CULVERT)  
SCALE: NTS



NOTES

1. MATERIAL AND COMPACTION REQUIREMENTS SHALL COMPLY WITH THE RECOMMENDATIONS OF THE PROJECT GEOTECHNICAL ENGINEERING REPORT.
2. COMPACTION EFFORTS AND MASS GRADING SHALL BE MONITORED AND TESTED BY AN EXPERIENCED SOILS TECHNICIAN, UNDER THE SUPERVISION OF A LICENSED GEOTECHNICAL ENGINEER REPRESENTING THE OWNER.

5 ASPHALT PAVEMENT SECTION (OVER CULVERT)  
SCALE: NTS



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Spokane, WA 99201  
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NO.	DATE	BY	ISSUE / DESCRIPTION

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DRAWN BY: CWD
APPROVED BY:
REVISION NO.:
DATE: 01/20/22

**GEOENGINEERS**  
WWW.GEOENGINEERS.COM

PREPARED FOR:  
**ASOTIN COUNTY CONSERVATION DISTRICT**  
ASOTIN COUNTY CONSERVATION DISTRICT

COUGAR CREEK FISH PASSAGE BARRIER REMOVAL  
ASOTIN COUNTY, WASHINGTON  
ROAD SECTIONS AND DETAILS

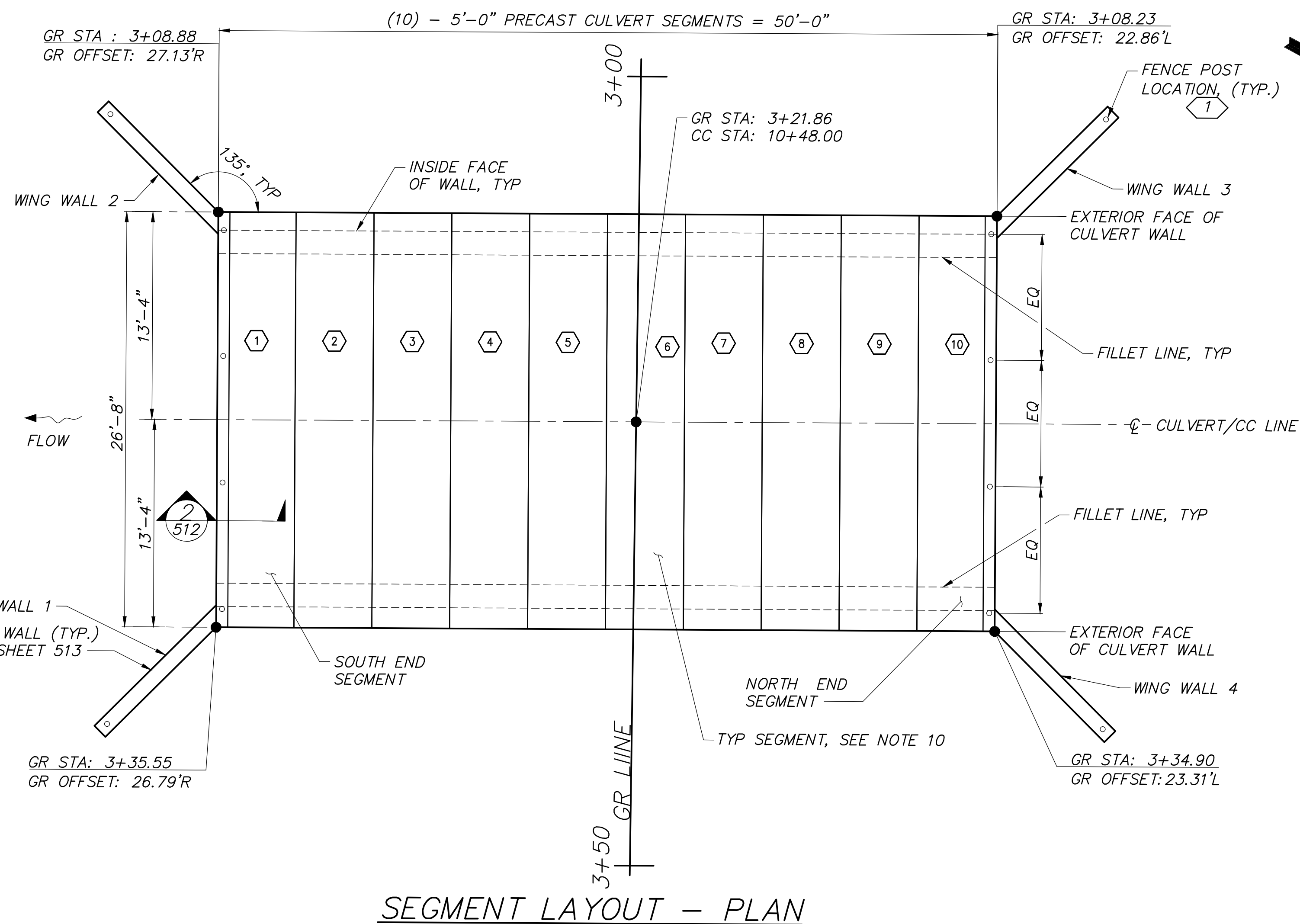
DRAWING NUMBER:  
**412**  
SHEET: 15 OF 28



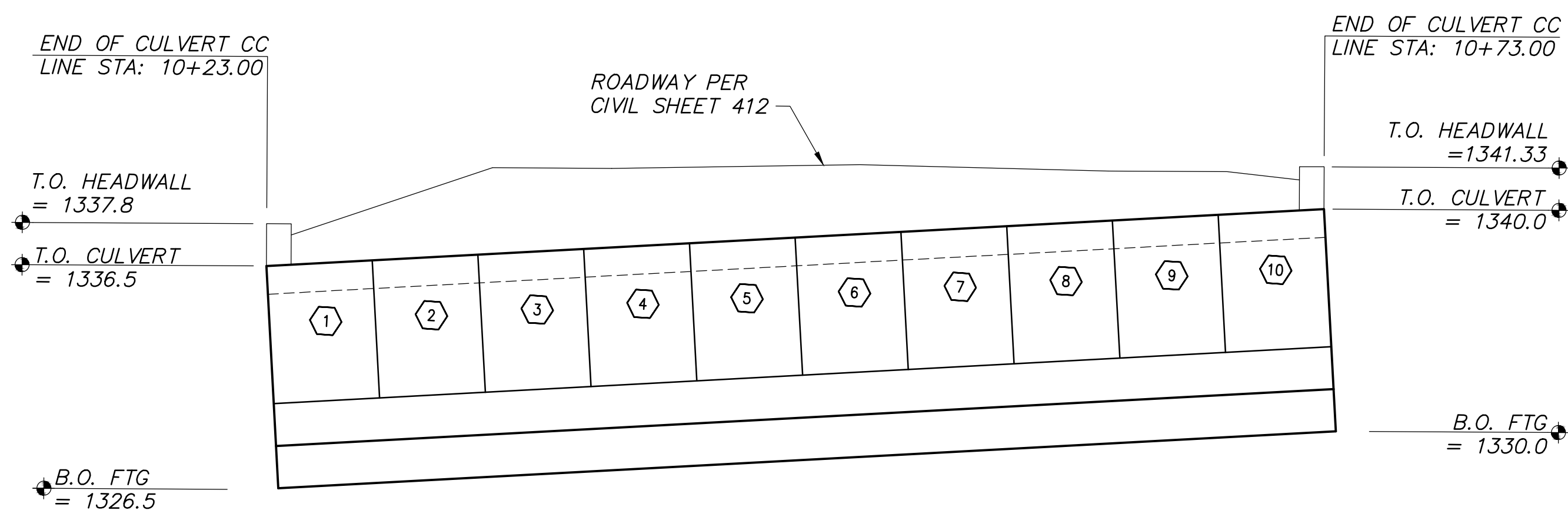
Plotted: 01/20/2022, 15:38 I:\diagrama\prof\BdSp\21\Jobs\210565 Cougar Creek Barrier Fish Passage\00 DWG\GIS\210565 - STRUCTURAL PLAN.dwg



Know what's below.  
Call before you dig.



SEGMENT LAYOUT - PLAN



ELEVATION

GENERAL NOTES:

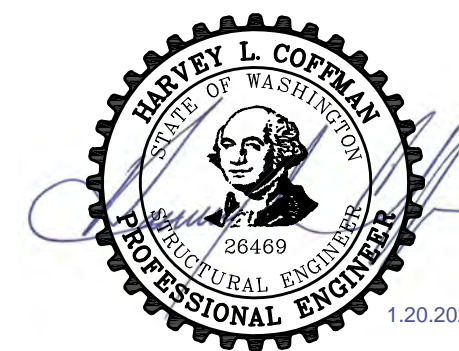
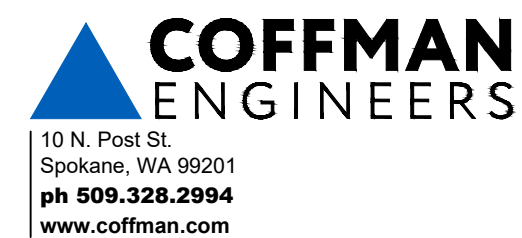
- ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION STANDARDS SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION DATED 2022.
- THE CULVERT TO BE DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE SPECIFICATIONS 9TH EDITION 2020.
- THE SEISMIC DESIGN OF THIS STRUCTURE TO BE DESIGNED IN ACCORDING TO PUBLICATION NO. FHWA-NHI-10-034 NOVEMBER 2008 EDITION "TECHNICAL MANUAL FOR DESIGN AND CONSTRUCTION OF ROAD TUNNELS - CIVIL ELEMENTS" WITH THE SEISMIC PEAK GROUND ACCELERATION OF 0.091g PER GEOTECHNICAL REPORT BY GEOENGINEERS DATED 11/05/2021.
- THE PRECAST CULVERT SHALL BE DESIGNED AS A PIN CONNECTION AT BOTTOM OF PRECAST AND THE TOP OF WALL. THE CONNECTION BETWEEN THE PRECAST CULVERT AND THE WALLS SHALL BE DESIGNED PER LOADING DEFINED BELOW.
- THE PRECAST CONCRETE SHALL BE CLASS 5000, OR 6000 SELF CONSOLIDATING CONCRETE (SCC). OTHER CONCRETE SHALL BE CLASS 4000.
- THE FABRICATOR SHALL DESIGN FOR LIFTING AND TRANSPORTING FOR SUBMITTAL PER STD. SPEC. SECTION 7-02.3(6)A2.
- ALL STEEL PLATES AND SHAPES SHALL BE ASTM A36 OR ASTM A992. ALL BOLTS, NUTS AND WASHERS (UNLESS NOTED OTHERWISE) SHALL BE ASTM A307 AND COMPLY WITH STD. SPEC. SECT. 9-16.3(4), AND RESIN BONDED ANCHORS SHALL BE ASTM A193 GRADE B7, OR ASTM A449. ALL STEEL PLATES SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111 AFTER FABRICATION. BOLTS AND HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M232.
- UNLESS NOTED OTHERWISE ON THE PLANS, CONCRETE COVER MEASURED FROM THE FACE OF CONCRETE TO THE FACE OF ANY REINFORCING STEEL SHALL BE 2" AT THE TOP OF THE CULVERT DECK, 1 1/2" AT THE BOTTOM TO THE CULVERT DECK, 3" AT THE BOTTOM OF FOOTINGS, AND 2" AT ALL OTHER LOCATIONS.
- THE BACKFILL ON BOTH SIDES OF THE CULVERT TO BE PLACED IN SEQUENCE AND COMPACTED IN ACCORDANCE TO THE STD. SPEC 2-09.3(1)E. THE MAXIMUM FIELD HEIGHT DIFFERENCE MEASURED FROM SIDE TO SIDE NO MORE THAN 2'-0".
- PRECAST STRUCTURE IS CONTRACTOR DESIGNED. BASIS OF DESIGN IS WSDOT FC25 3-SIDED CULVERT. CULVERT SHALL BE DESIGNED FOR AASHTO HL 93 LOADING AND A MAXIMUM OF 4'-0" OF SOIL COVER.
- SOIL BEARING PRESSURE VARIES DEPENDING ON FOOTING WIDTH AND LOAD COMBINATION. 8,250 PSF BEARING PRESSURE USED FOR 9 FOOT WIDE FOOTING FOR STRENGTH LIMIT STATE. SEE FIGURE 4 OF GEOTECHNICAL REPORT OTHER CONDITIONS.

NOTES:

- PROVIDE 4'-0" TALL CHAIN LINK FENCE PER WSDOT STD. PLAN L-20.10-03 (TYP.).
- WINGWALLS NOT SHOWN FOR CLARITY.

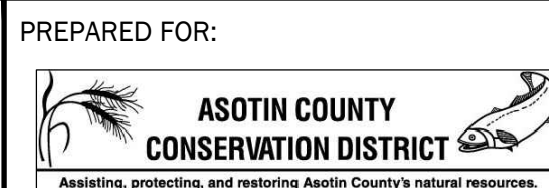
LEGEND

- IDENTIFIES SECTION OR VIEW
- TAKEN OR SHOWN ON BRIDGE SHEET 5
- IDENTIFIES DETAIL
- TAKEN OR SHOWN ON THE SAME SHEET
- FLAGNOTE: IDENTIFIES NOTE REFERENCE ON THE SAME SHEET
- IDENTIFIES PRECAST CULVERT SEGMENTS



NO.	DATE	BY	ISSUE / DESCRIPTION

DESIGNED BY: DMS
DRAWN BY: DFP
APPROVED BY: HLC
REVISION NO.:
DATE: 01/20/22



ASOTIN COUNTY  
CONSERVATION  
DISTRICT

COUGAR CREEK FISH PASSAGE BARRIER REMOVAL  
ASOTIN COUNTY, WASHINGTON

LAYOUT

DRAWING NUMBER:

510

SHEET: 16 OF 28



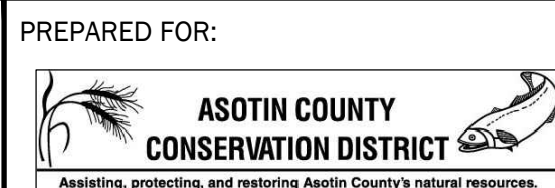
Plotted: 01/20/2022, 15:38 I:\diagrama\prof\BdSp\21\Jobs\210565 Cougar Creek Barrier Fish Passage\00 DWG\GIS\210565 - FOUNDATION PLAN.dwg



Know what's below.  
Call before you dig.

NO.	DATE	BY	ISSUE / DESCRIPTION

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DRAWN BY:	DFP
APPROVED BY:	HLC
REVISION NO.:	
DATE:	01/20/22



ASOTIN COUNTY  
CONSERVATION  
DISTRICT

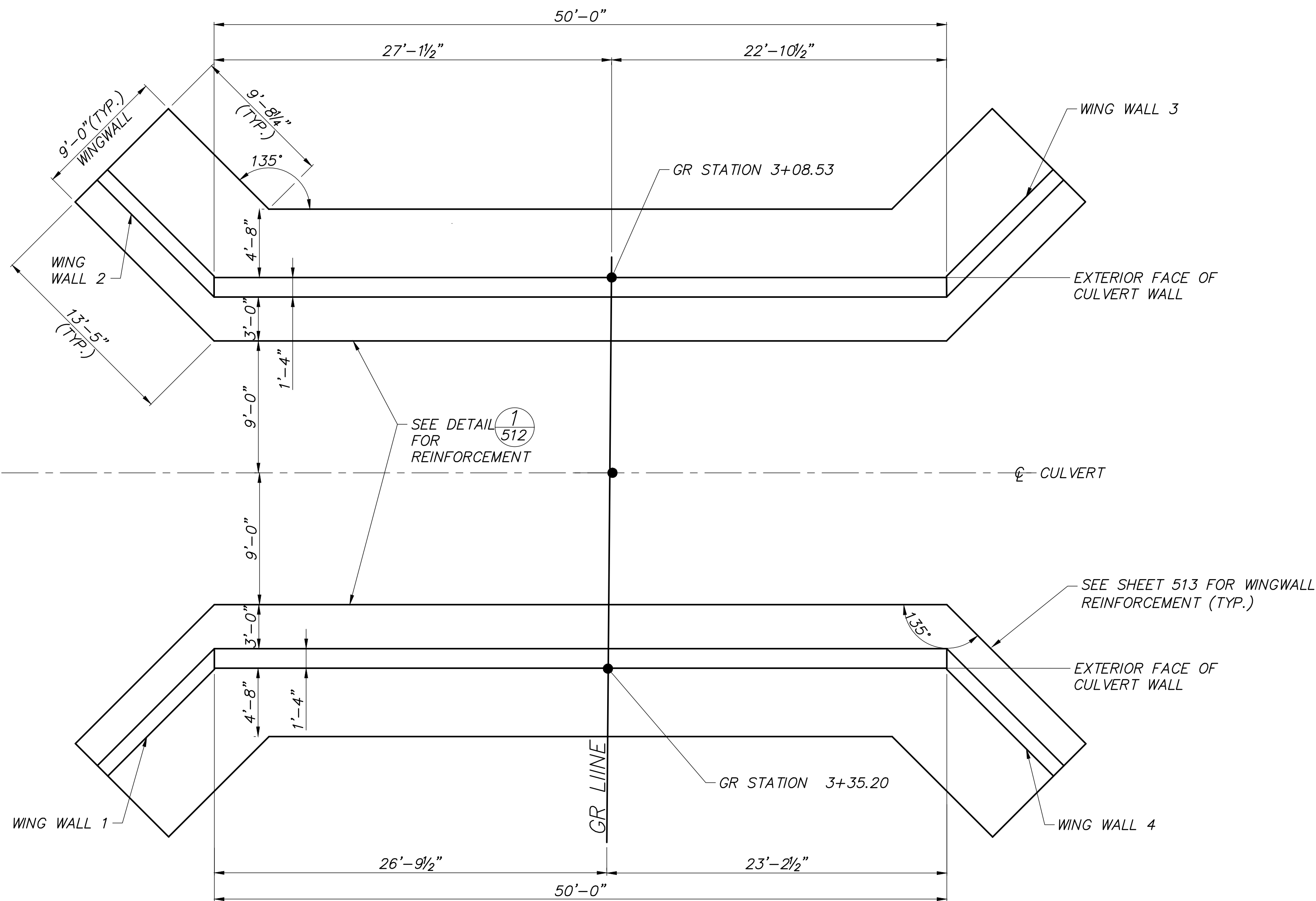
COUGAR CREEK FISH PASSAGE BARRIER REMOVAL  
ASOTIN COUNTY, WASHINGTON

FOUNDATION PLAN

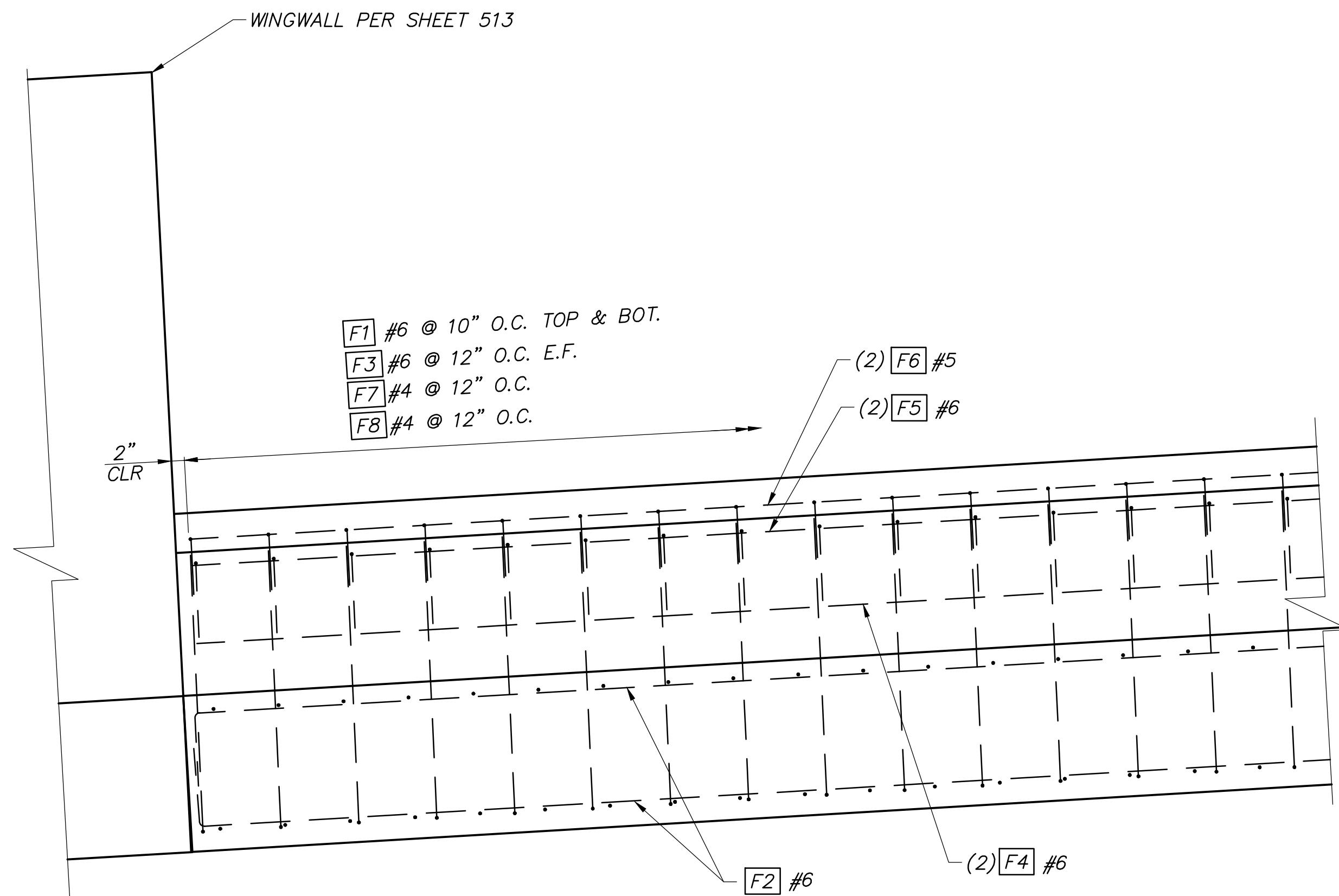
DRAWING NUMBER:

511

SHEET: 17 OF 28



FOUNDATION LAYOUT



FOUNDATION ELEVATION

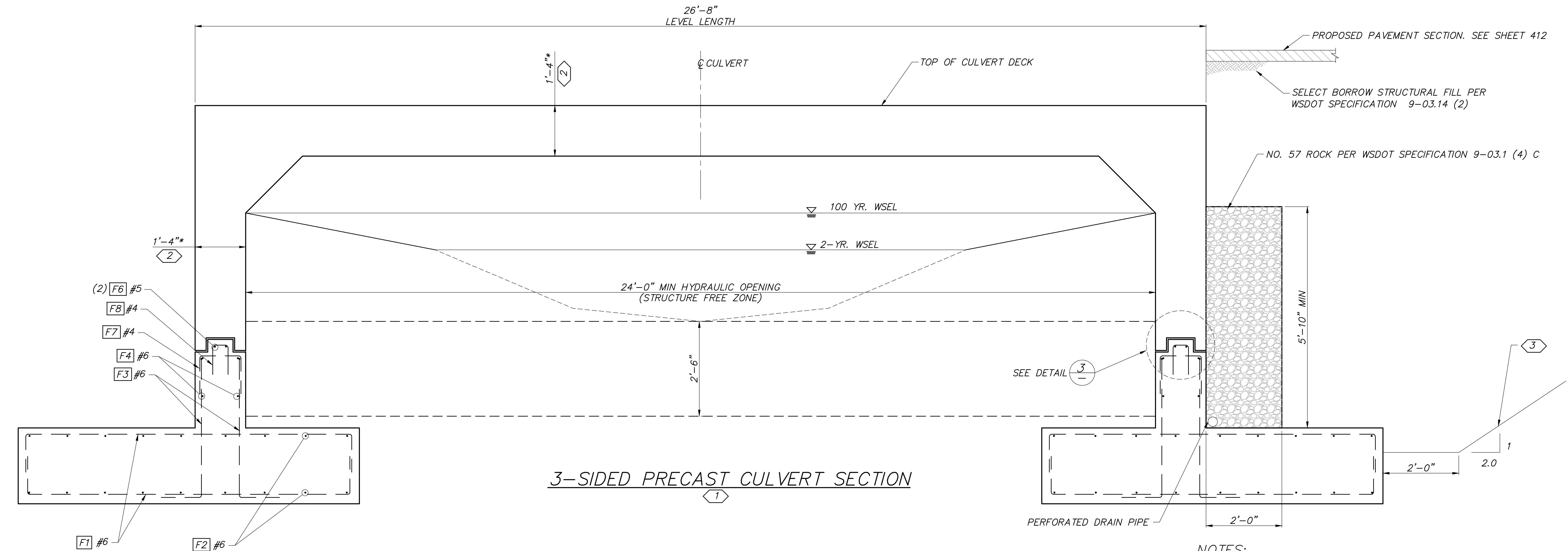
NOTE:

1 PRECAST CULVERT NOT SHOWN FOR CLARITY.



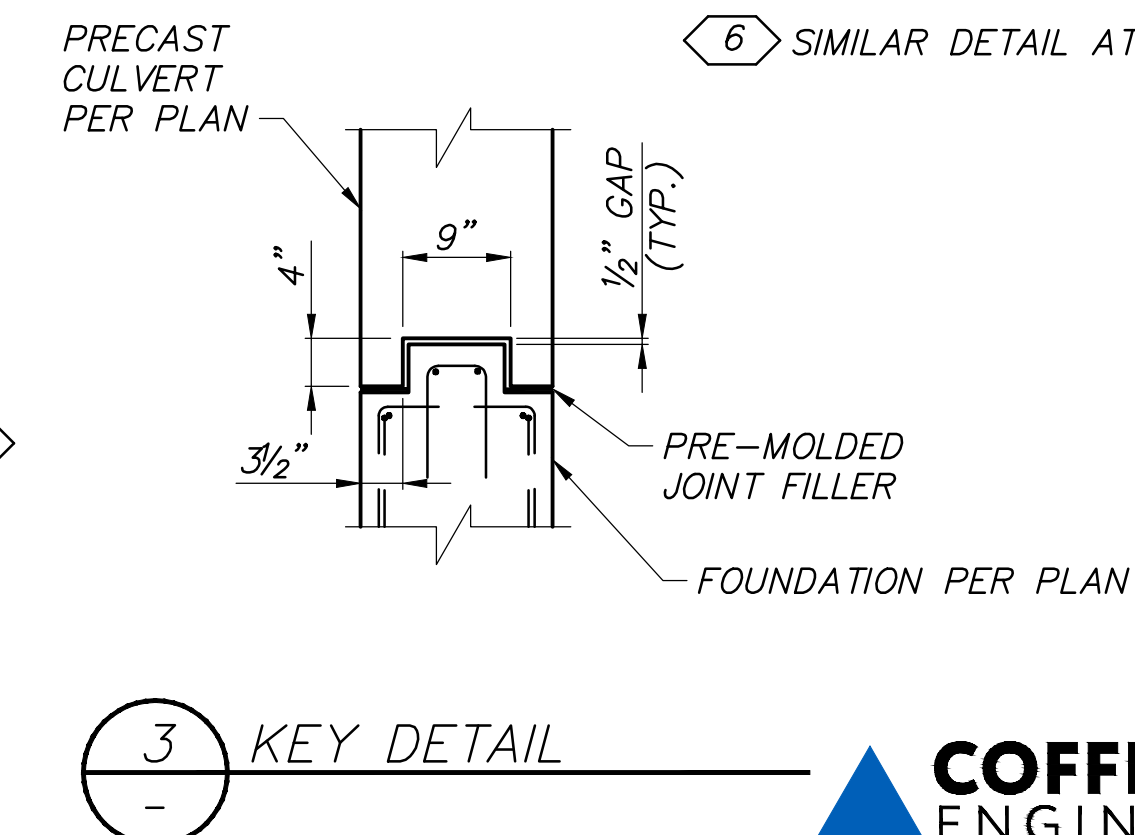
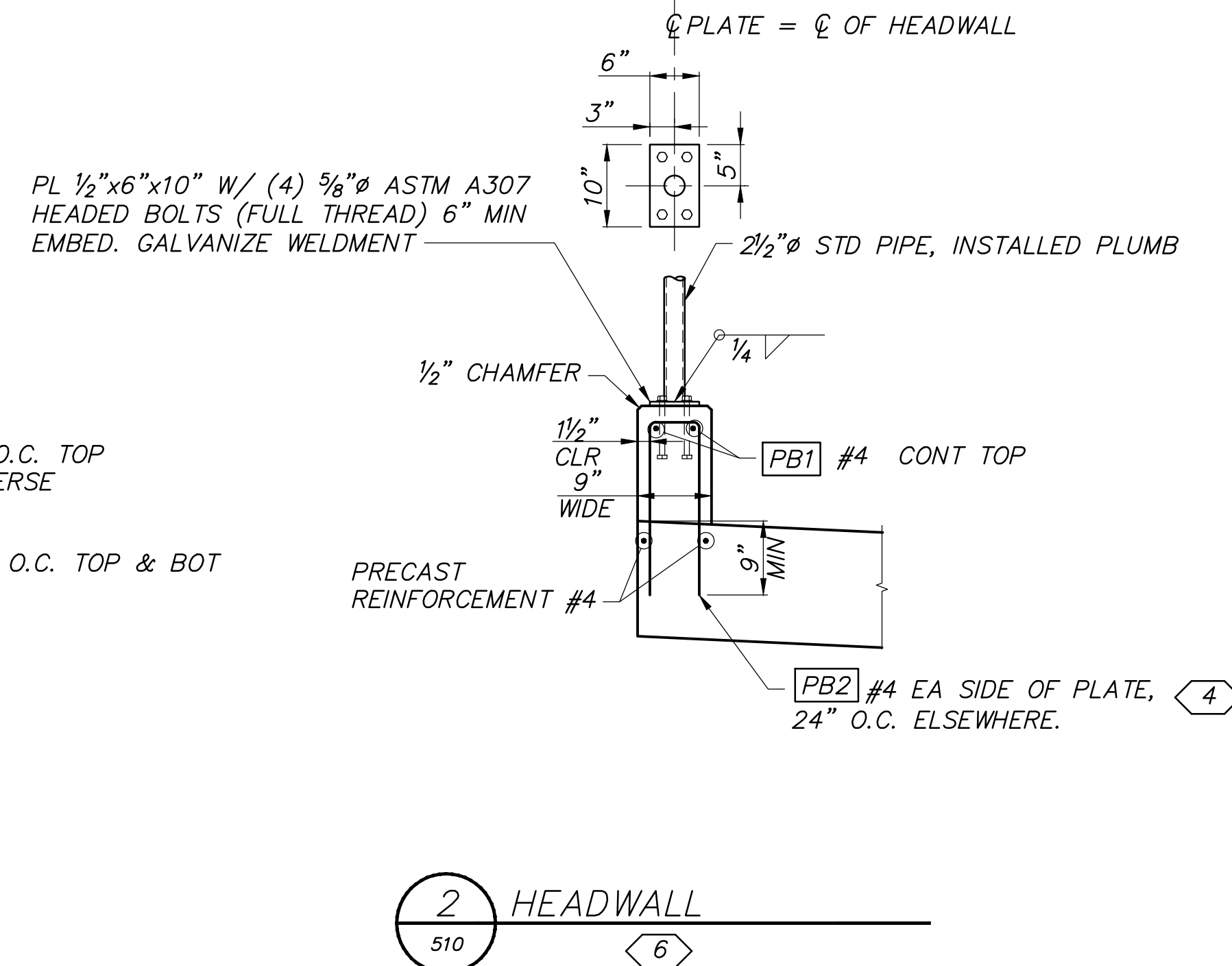
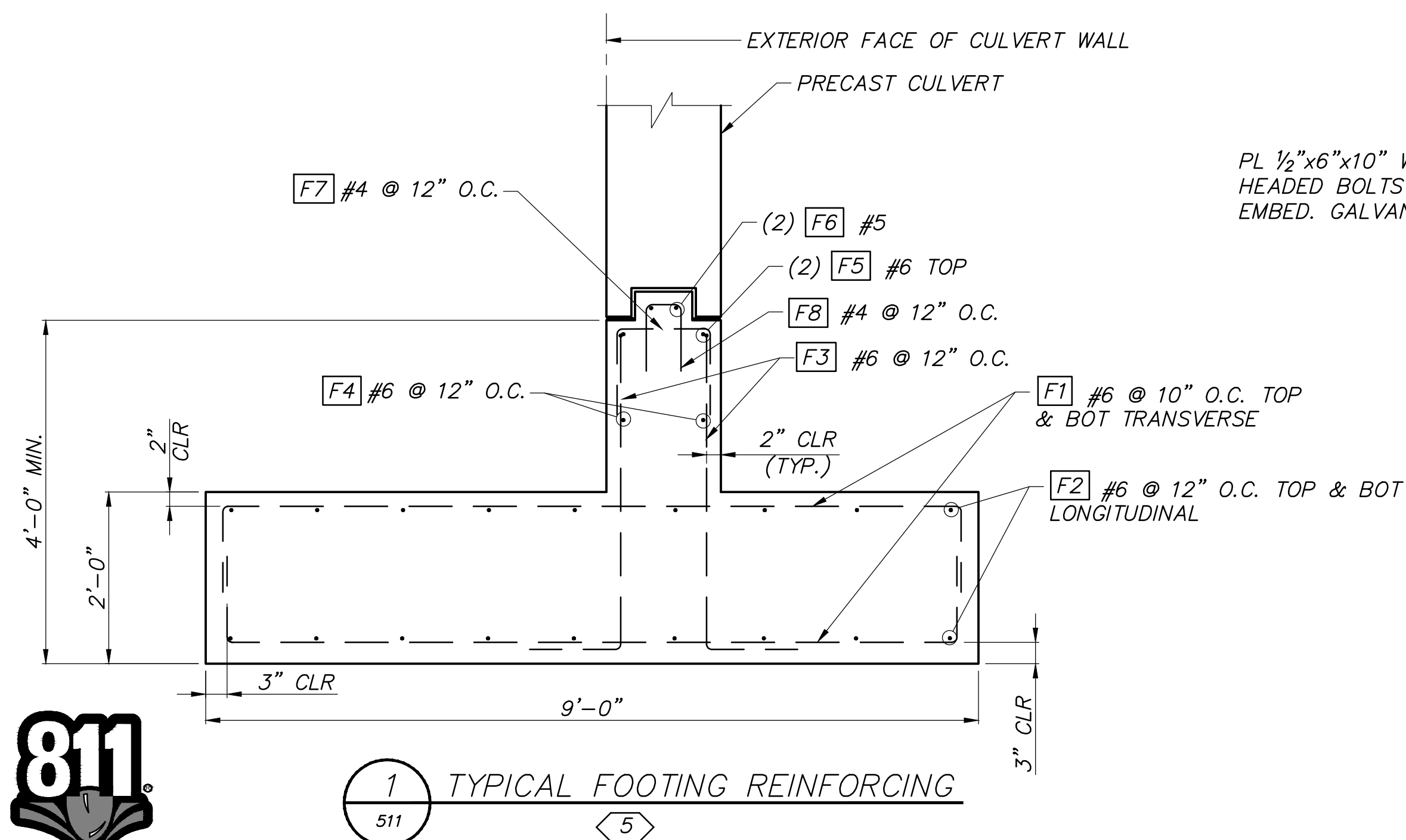


Plotted: 01/20/2022, 15:38 I:\diagram\prof\BdSp21\Jobs\210565 Cougar Creek Barrier Fish Passage\00 DWG\GIS\210565 - CULVERT SECTION AND FTG DETAILS.dwg



NOTES:

- SEE SHEETS 610, 611, AND 612 FOR CHANNEL PLAN AND PROFILE, AND CHANNEL TYPICAL SECTIONS.
- DIMENSIONS SHALL BE COORDINATED WITH FINAL CONTRACTOR DESIGNED SECTION.
- RECOMENDED CUT SLOPE AND REPRESENTATIVE OF ROADWAY PROFILE. CONTRACTOR IS RESPONSIBLE FOR SITE SAFETY AND CUT SLOPE STABILITY.
- STIRRUP SHALL BE LOCATED WITHIN THE CONFINES OF PRECAST REINFORCEMENT.
- CONTRACTORS OPTION TO USE DOWEL GROUT CONNECTION.
- SIMILAR DETAIL AT WINGWALL CONDITION.

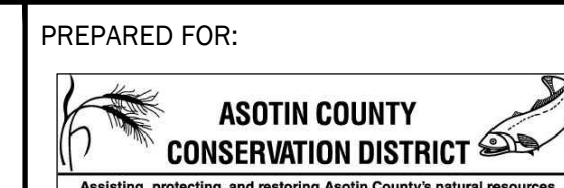


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DRAWN BY:	DFP
APPROVED BY:	HLC
REVISION NO.:	
DATE:	01/20/22



ASOTIN COUNTY  
CONSERVATION  
DISTRICT

COUGAR CREEK FISH PASSAGE BARRIER REMOVAL  
ASOTIN COUNTY, WASHINGTON

CULVERT SECTION AND DETAILS

DRAWING NUMBER:

512

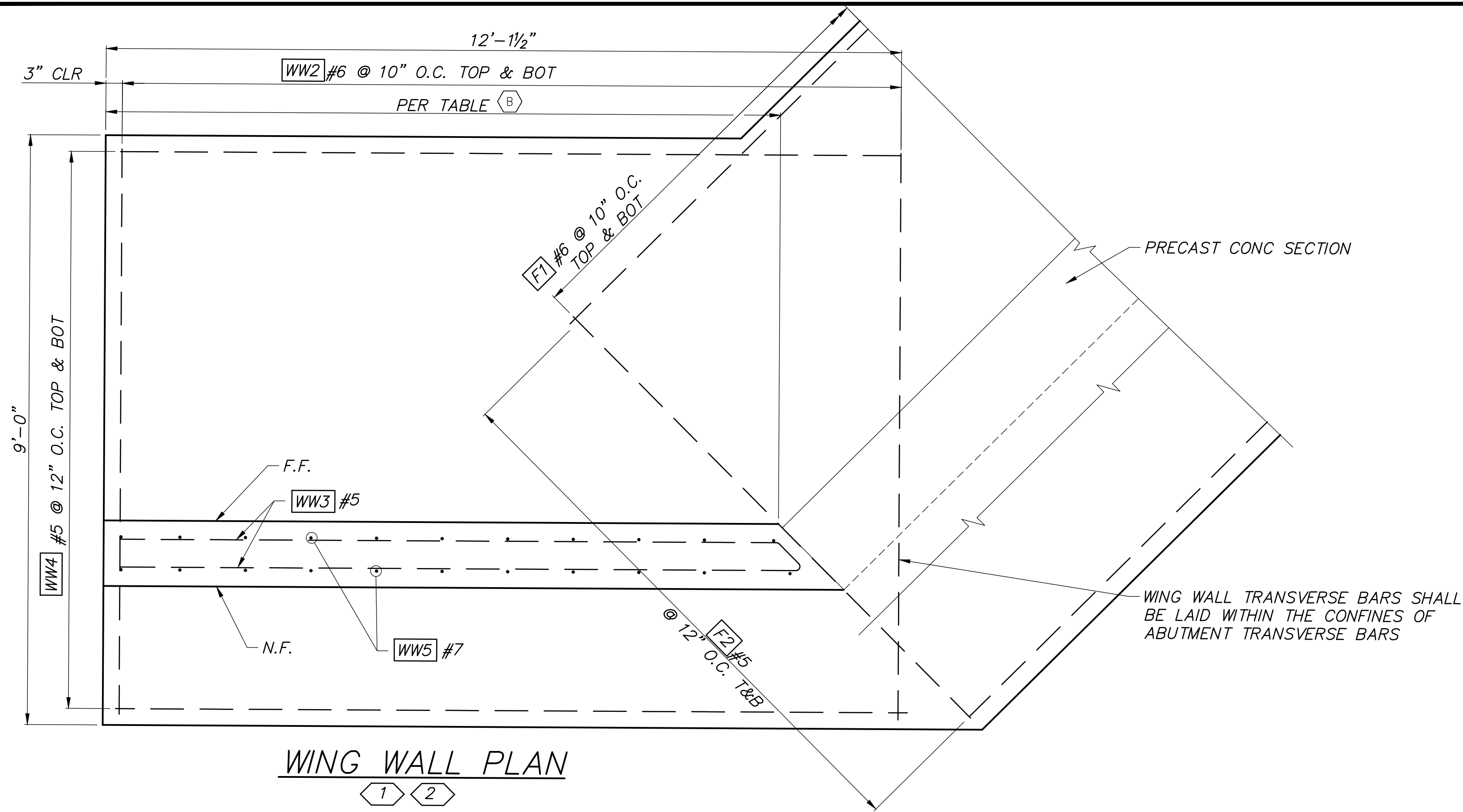
SHEET: 18 OF 28



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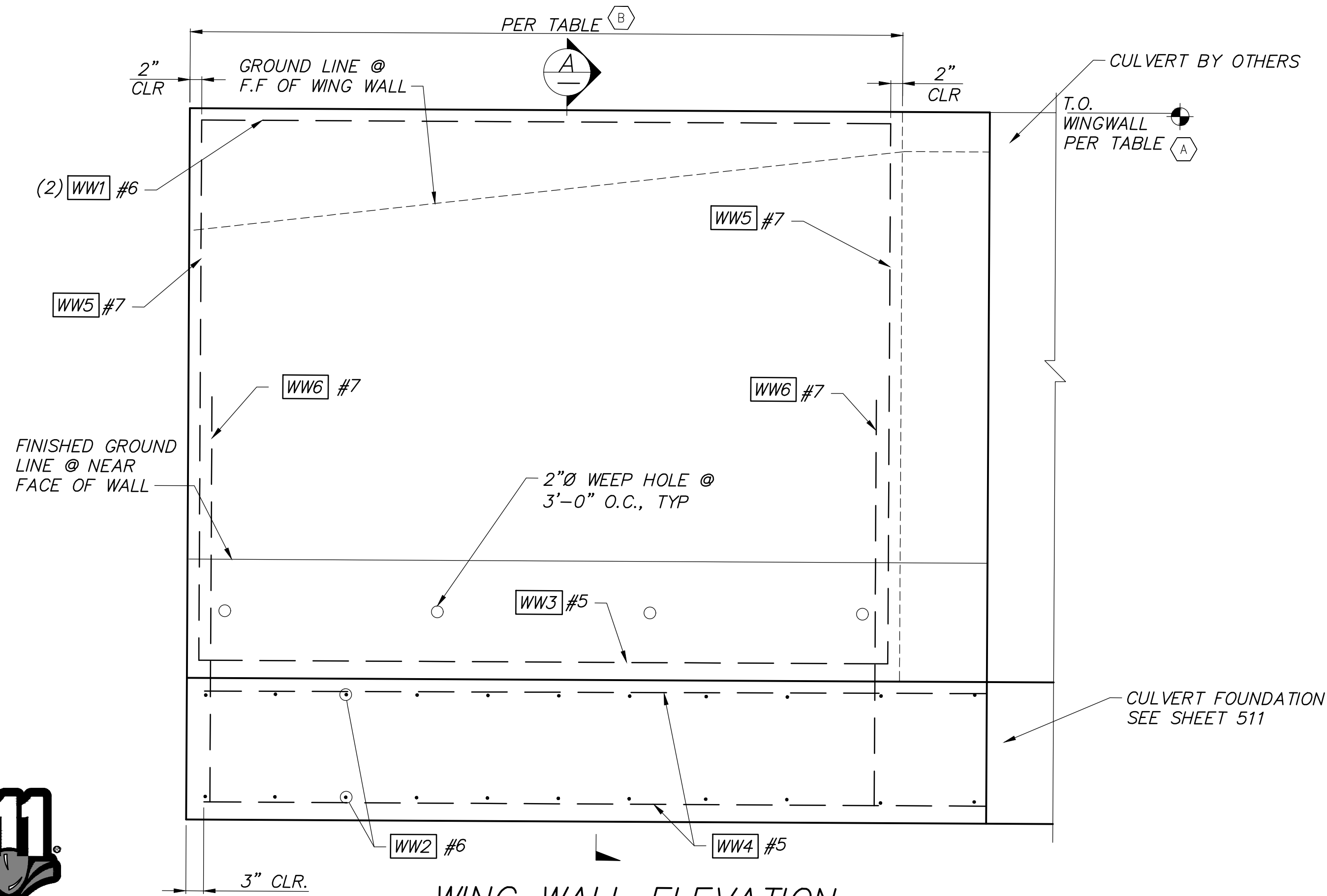


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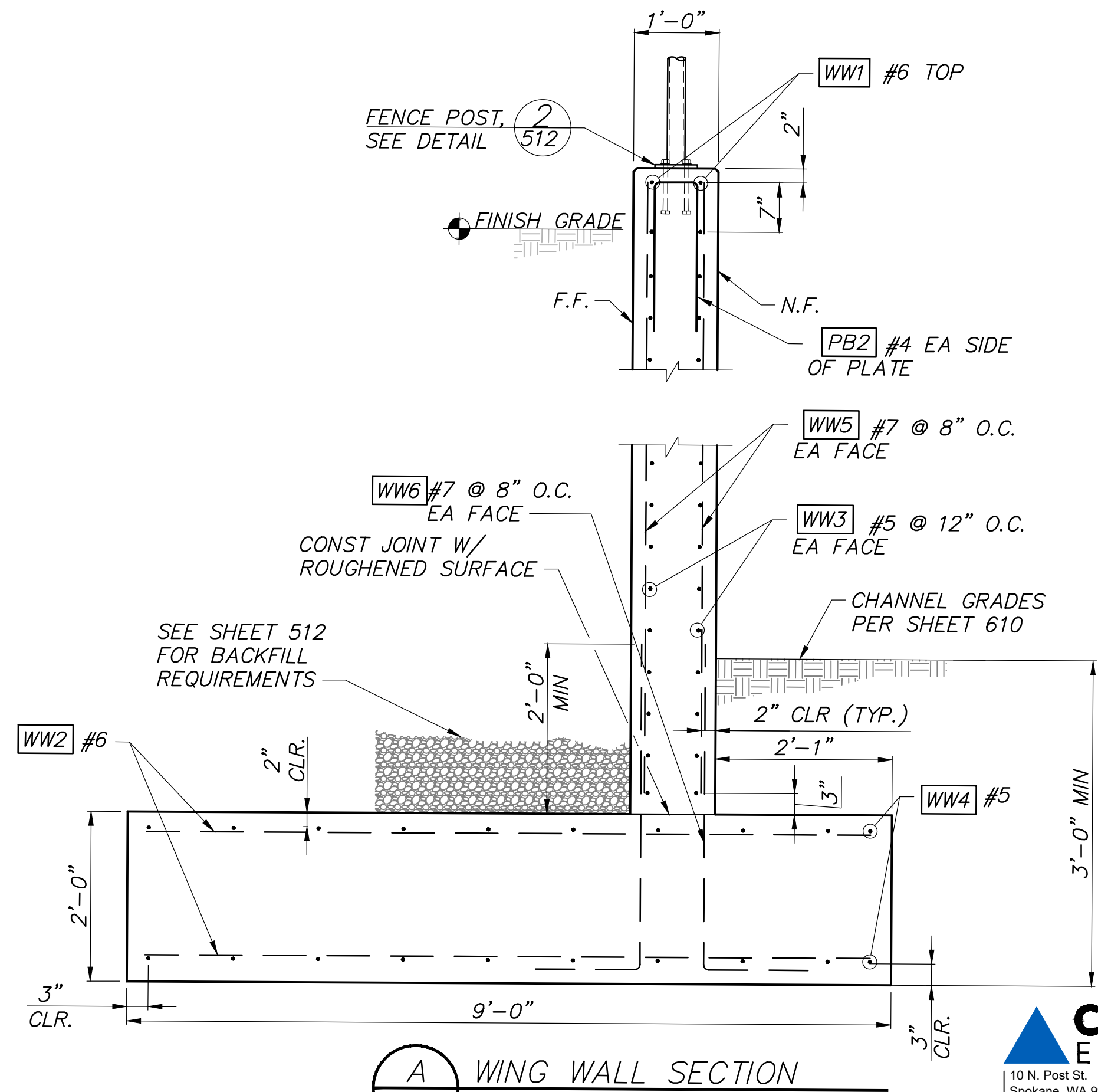
WING WALL PLAN

1 2



WING WALL ELEVATION

1 2



WING WALL SECTION

A

NOTES:

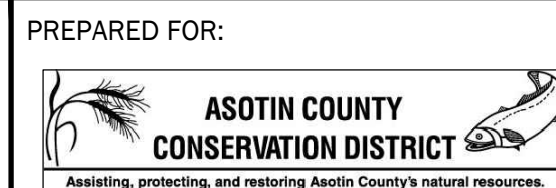
- WING WALL 2 SHOWN, WING WALL 1, 3, AND 4 SIMILAR.
- FENCE POST NOT SHOWN FOR CLARITY, SEE SEGMENT LAYOUT IN PLAN VIEW.



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ENGINEERS  
10 N. Post St.  
Spokane, WA 99201  
ph 509.328.2994  
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DRAWN BY: DFP
APPROVED BY: HLC
REVISION NO.:
DATE: 01/20/22



ASOTIN COUNTY  
CONSERVATION  
DISTRICT

COUGAR CREEK FISH PASSAGE BARRIER REMOVAL  
ASOTIN COUNTY, WASHINGTON

WINGWALL PLAN, ELEVATION AND SECTION

DRAWING NUMBER:

513

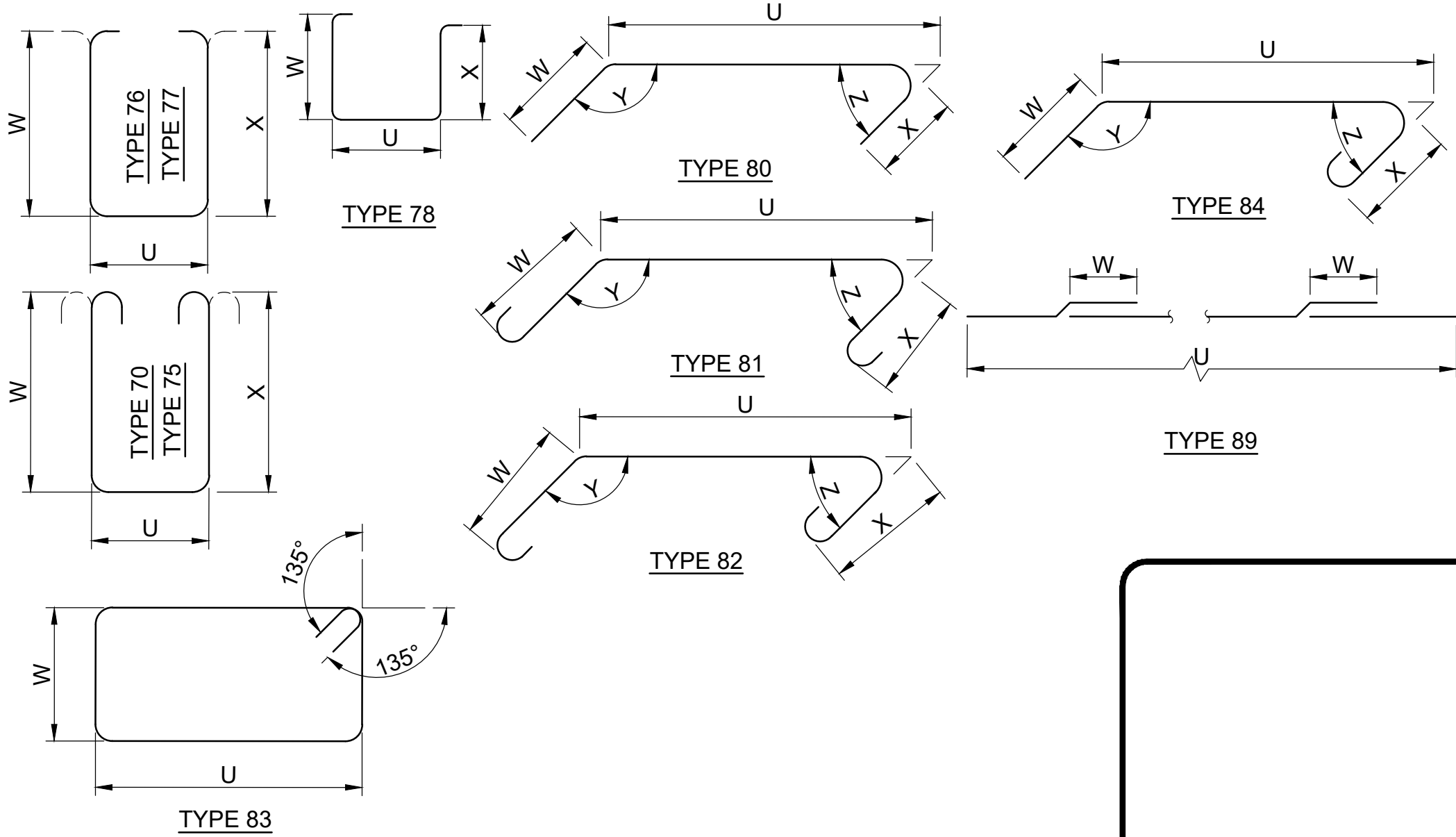
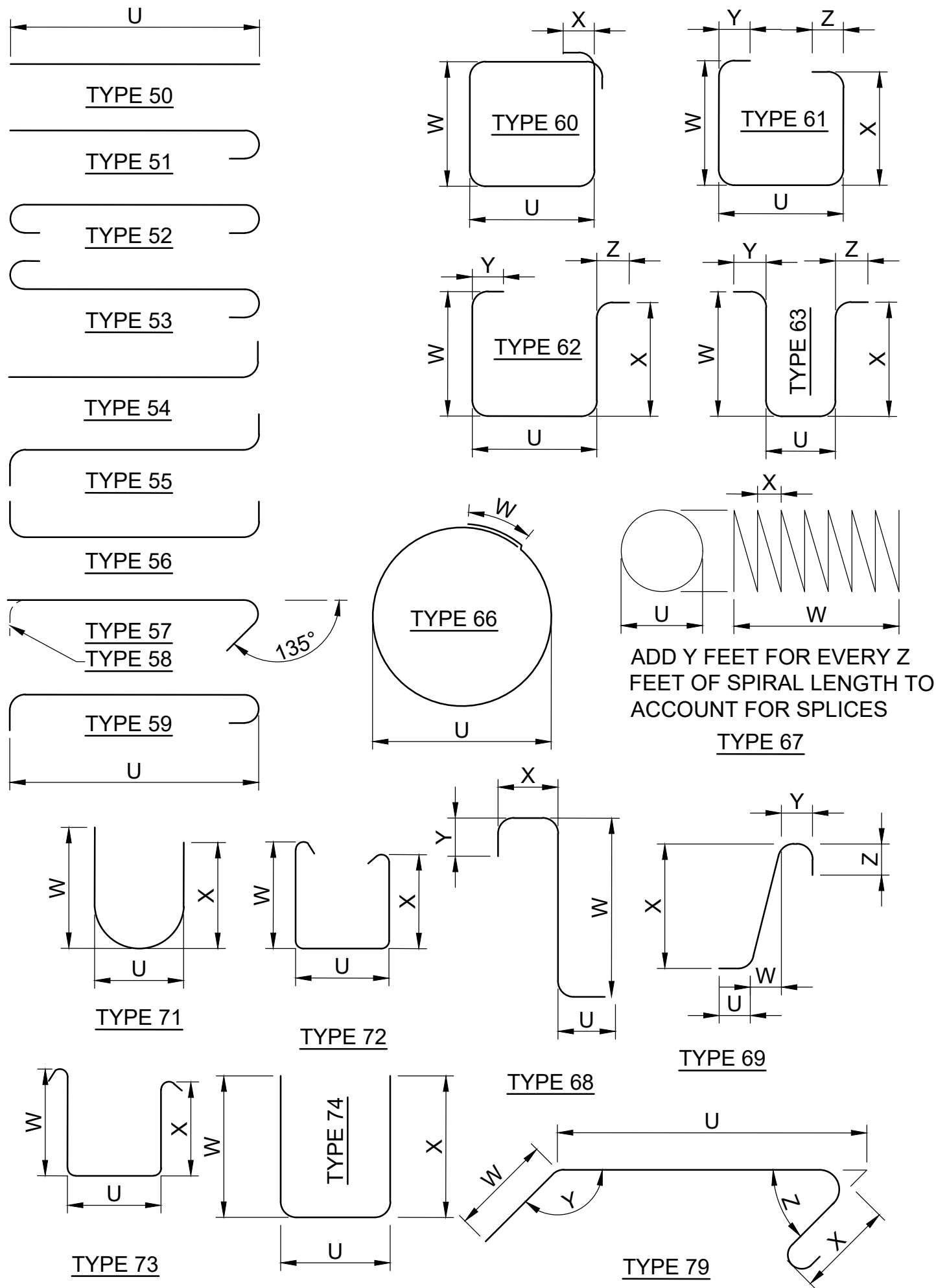
SHEET: 19 OF 28



Plotted: 01/20/2022, 15:38 | d:\asotin\prof\Bd6Sp02\Jobs\210565 Cougar Creek Barrier Fish Passage\00 DWG\SS\210565 - BARLIST.dwg

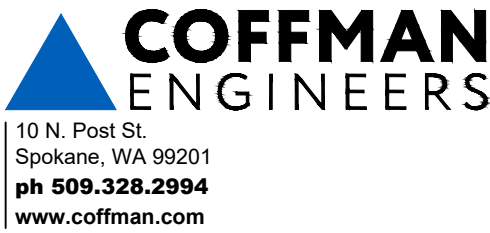
S = Bar is included in substructure quantities.  
L = Lump sum quantity.  
T = Transverse or  
S = Seismic  
E = Bar is to be epoxy coated.  
V = Bar dimensions vary between dimensions shown on this line and the following line.

MARK NO.	LOCATION	SIZE	NO. REQD	BEND TYPE	TIE OR STIR.	LUMP SUM	SUBST.	EPOXY COAT	VARIES	NO. EACH	DIMENSIONS (Out to Out)												LENGTH		WEIGHT	
											U		W		X		Y		Z		∠ <sub>1</sub>	∠ <sub>2</sub>				
											FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	FT.	IN.	DEG.	DEG.	FT.	IN.		LBS.
	FOOTING																									
F1	Transverse Bar	6	244	56							8	8											10	4.2	3795	
F2	Longitudal Bar	6	40	56							49	6											51	2.2	3075	
F3	Vertical Bar	6	204	54							5	7											6	5.1	1969	
F4	Wall Bar	6	4	56							49	8											51	4.2	309	
F5	Wall Bar - Top	6	4	56							49	8											51	4.2	309	
F6	Wall Bar - Top Notch	5	4	56							49	8											51	0.9	213	
F7	Wall - Confinement	4	102	74							1	0	2	0	2	0							4	9.5	326	
F8	Wall - Confinement-Notch	4	102	74							0	6	1	6	1	6							3	3.5	224	
	WING WALL																									
WW1	Top of Wall	6	8	50							9	8											9	8	116	
WW2	Transverse Footing bar	6	128	56							8	8											10	4.2	1991	
WW3	Horizontal Wall Bar	5	80	56							9	8											11	0.9	924	
WW4	Long Footing Bar	5	80	50							9	8											9	8	807	
WW5	Vertical Wall Bar	7	128	50							9	7											9	7	2507	
WW6	Vertical Wall Bar hook	7	128	54							5	0											5	11.8	1566	
	POST BASE																									
PB1	Top Bar	4	4	50							26	2											26	2	70	
PB2	Top Bar	4	44	74							0	6	1	11.5	1	11.5							4	2.5	124	



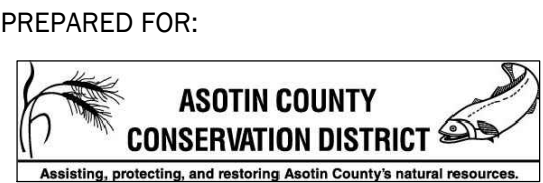
NOTES:

- SEE PLANS FOR REINFORCEMENT NOT SHOWN.
- BEND FOR TRANSVERSE BARS DUE TO ROADWAY CROWN CONDITIONS HAS NOT BEEN SHOWN. THESE BARS SHALL BE BENT AS REQUIRED TO CONFORM TO THE CONFIGURATION OF THE STRUCTURE.
- BARLIST IS FOR QUANTITY ESTIMATION ONLY. REINFORCEMENT FABRICATION DETAILS SHALL BE DETERMINED FROM PLANS.



NO.	DATE	BY	ISSUE / DESCRIPTION

DESIGNED BY:	DMS
DRAWN BY:	DFP
APPROVED BY:	HLC
REVISION NO.:	
DATE:	01/20/22



ASOTIN COUNTY  
CONSERVATION  
DISTRICT

COUGAR CREEK FISH PASSAGE BARRIER REMOVAL  
ASOTIN COUNTY, WASHINGTON

BARLIST

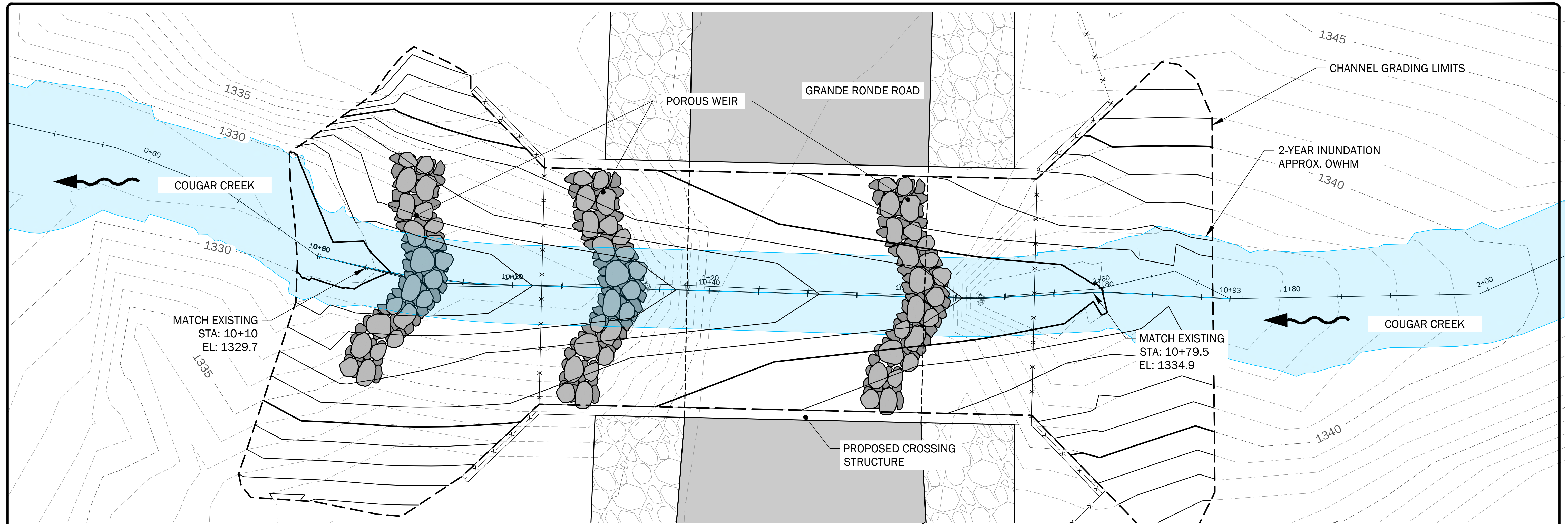
DRAWING NUMBER:

514

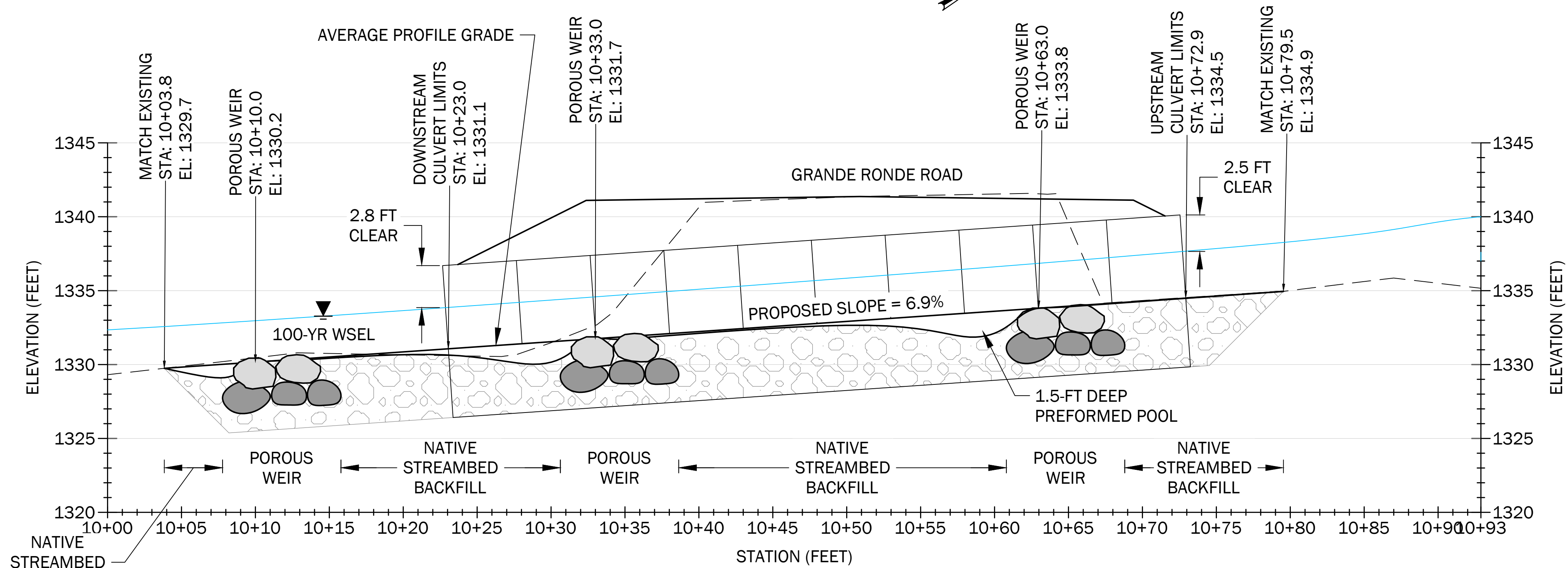
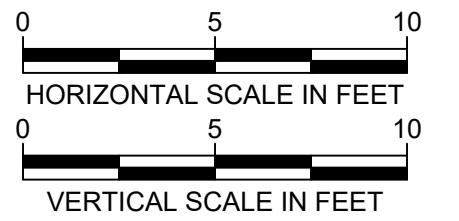
SHEET: 20 OF 28



P:\22222228\004\CAD\000\Channel Design\04\_Final\2228\00400\_Sht 21\_610\_Cougar Creek Plan and Profile.dwg  
Plotted: 01/21/2022, 10:31 | syi



PLAN VIEW



PROFILE VIEW



NO.	DATE	BY	ISSUE / DESCRIPTION

DESIGNED BY:	GLS
DRAWN BY:	GLS/SCY
APPROVED BY:	RSC
REVISION NO.:	4
DATE:	01/21/2022

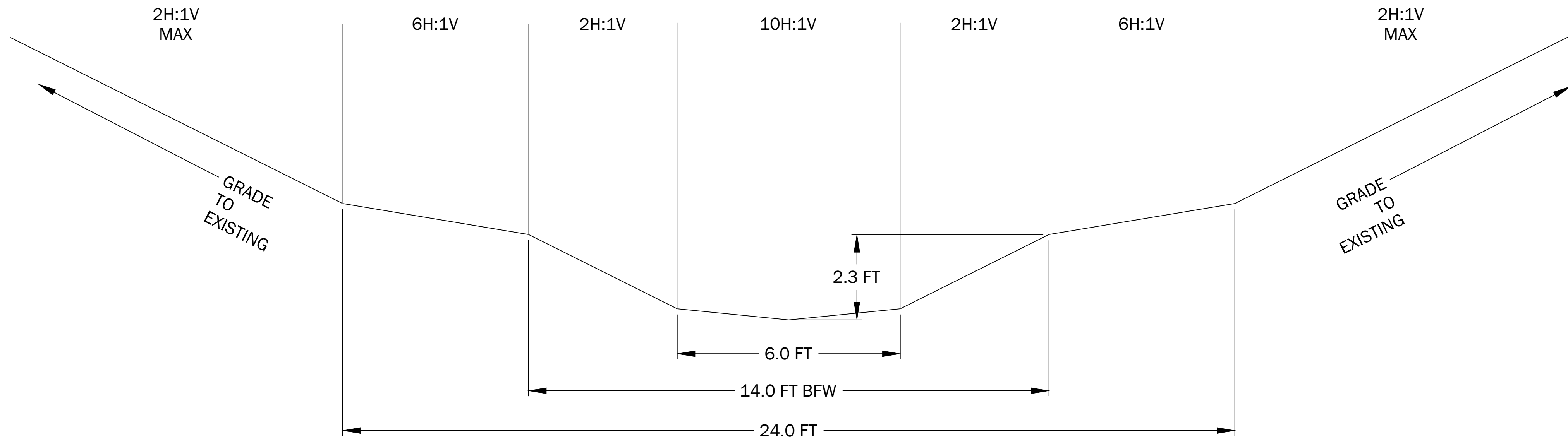


COUGAR CREEK FISH PASSAGE BARRIER REMOVAL CLARKSTON, WASHINGTON
COUGAR CREEK PLAN AND PROFILE

DRAWING NUMBER: <b>610</b>
SHEET: 21 OF 28



P:\22\2228\104\CAD\00\Channel\Design\04\_Final\2228\104\00\_Std 22\_611\Cougar Creek Typical Sections.dwg  
Plotted: 01/21/2022, 10:31 | syi

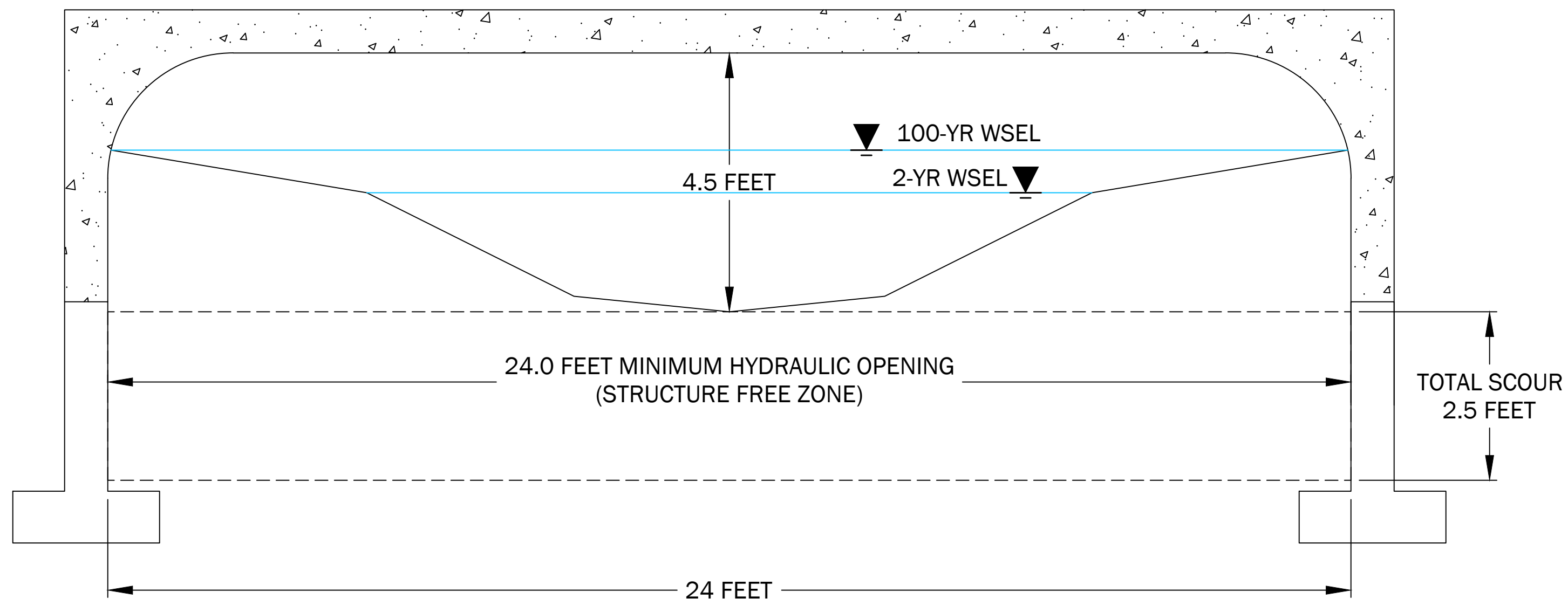


TYPICAL CHANNEL SECTION OUTSIDE OF CULVERT

STA:

SCALE: NTS

1



TYPICAL CHANNEL SECTION WITHIN CULVERT

STA:

SCALE: NTS

2

MATERIAL GRADATION (IN)

NATIVE STREAMBED BACKFILL MATERIAL	D100	18.4
	D84	9.6
	D50	2.9
	D15	0.6

NOTE: NATIVE STREAMBED BACKFILL MATERIAL TO BE CONSTRUCTED IN THREE LIFTS WITH A MAXIMUM THICKNESS OF 1-FOOT PER LIFT. PLACE 12 TO 18-INCH COBBLES WITH EACH LIFT AND WASH IN STREAMED SEDIMENTS. WASH IN STREAMBED SEDIMENT FOLLOWING THE PLACEMENT OF THE FINAL LIFT.



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APPROVED BY: RSC	
REVISION NO.: 4	
DATE: 01/21/2022	



COUGAR CREEK FISH PASSAGE BARRIER REMOVAL  
CLARKSTON, WASHINGTON

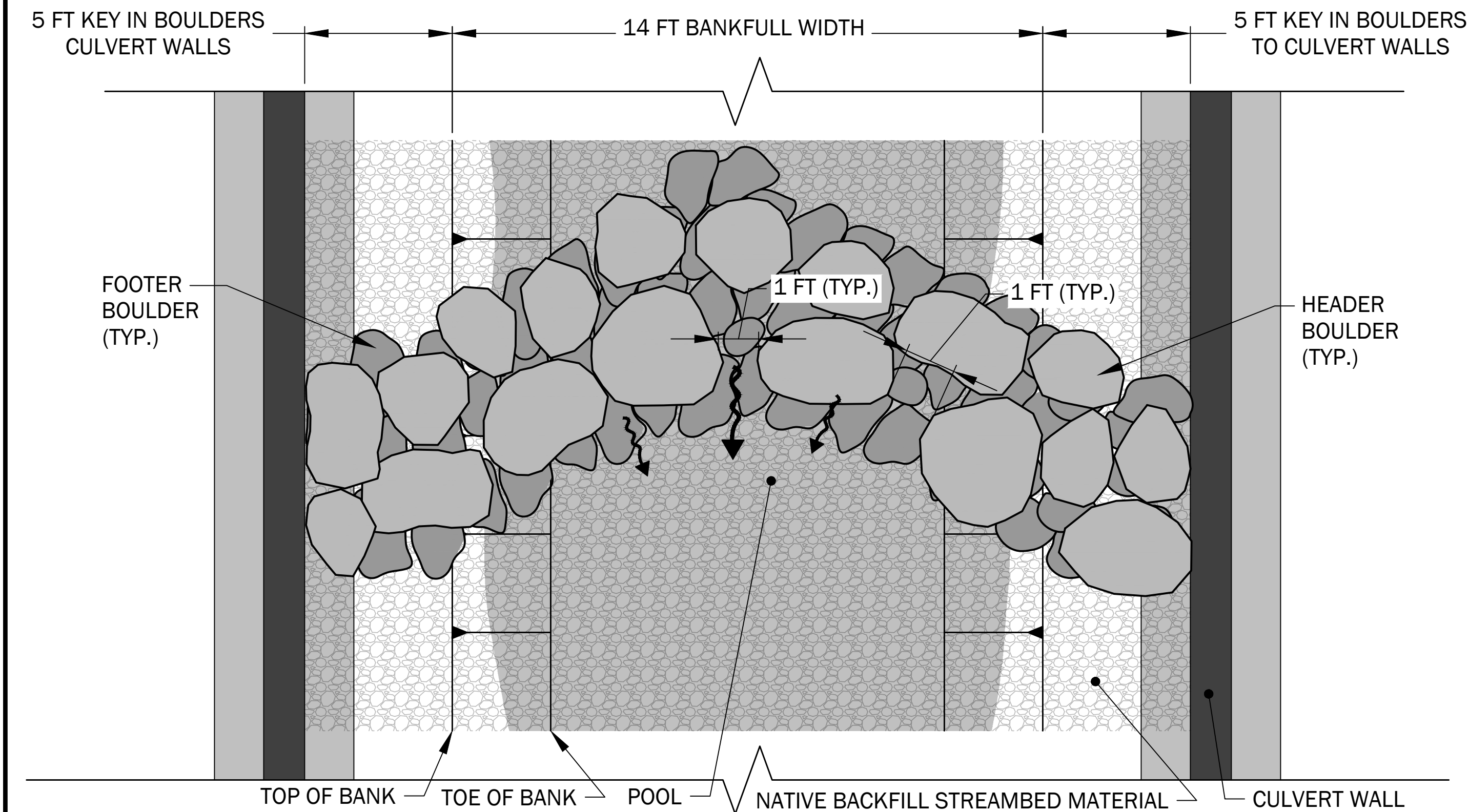
COUGAR CREEK TYPICAL SECTIONS

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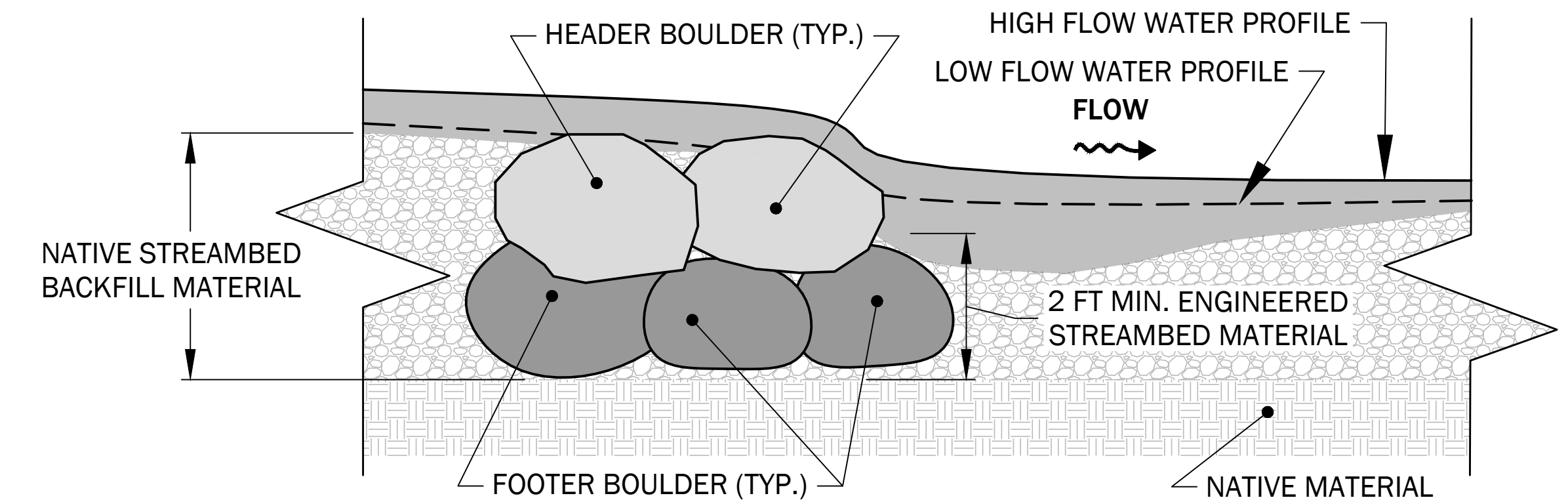
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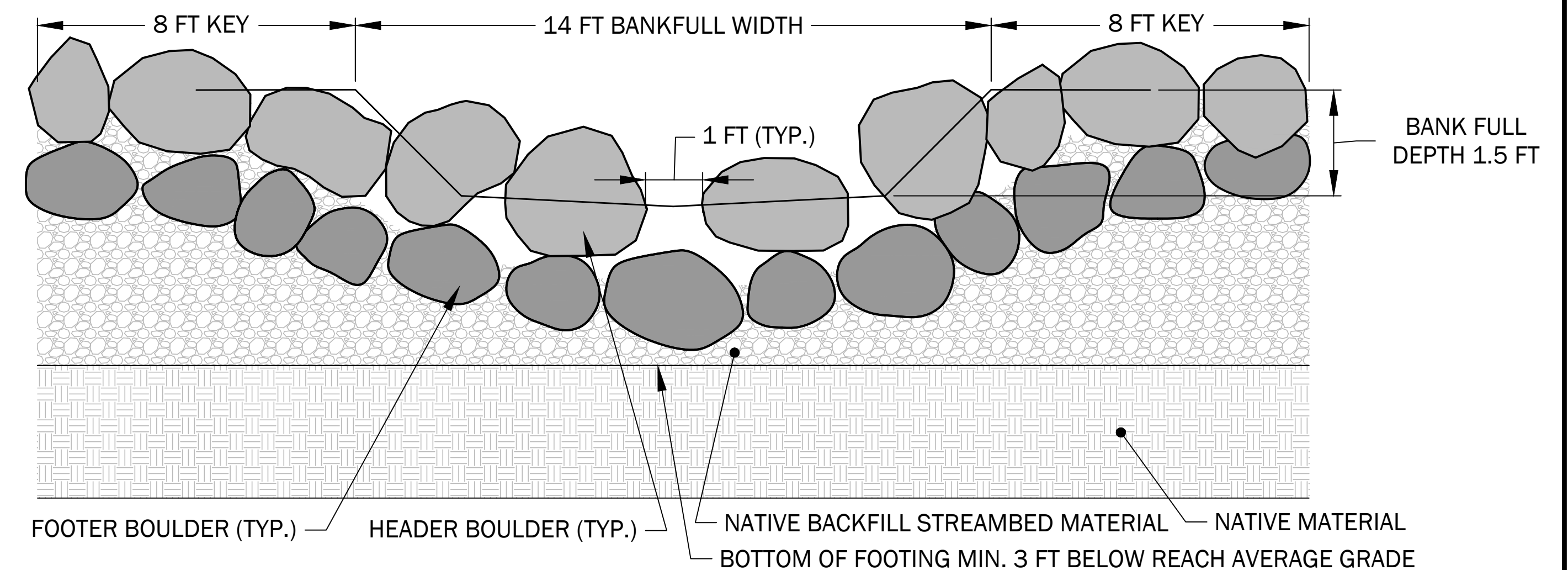




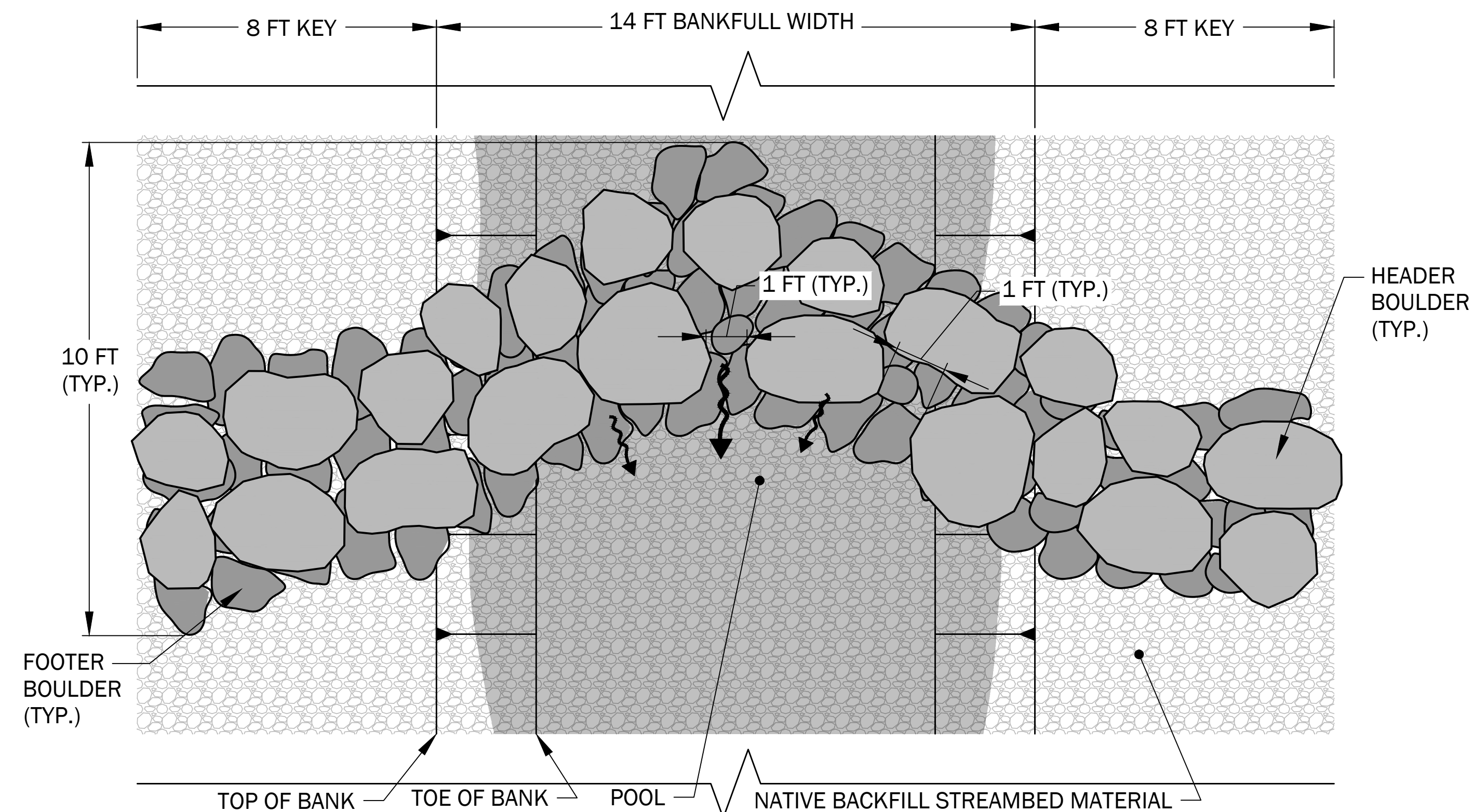
**TYPICAL POROUS WEIR - PLAN VIEW WITHIN CULVERT**  
SCALE: NOT TO SCALE



**TYPICAL POROUS WEIR - PROFILE VIEW**  
SCALE: NOT TO SCALE



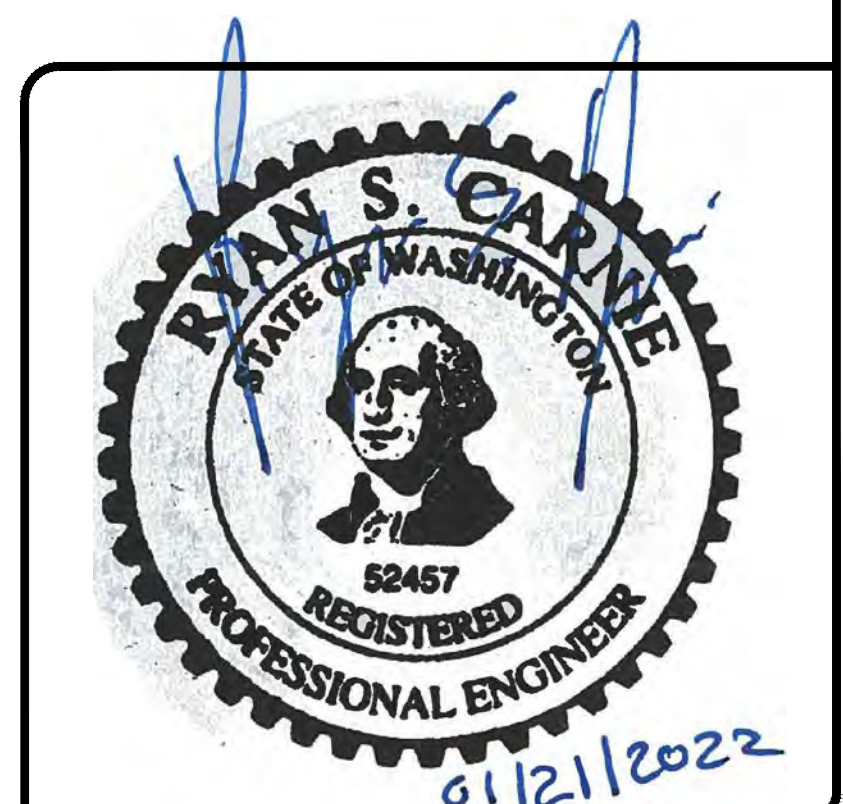
**TYPICAL POROUS WEIR - SECTION VIEW DOWNSTREAM OF CULVERT**  
SCALE: NOT TO SCALE



**TYPICAL POROUS WEIR - PLAN VIEW DOWNSTREAM OF CULVERT**  
SCALE: NOT TO SCALE

POROUS WEIR MATERIALS SHALL BE COMPRISED OF THREE-MAN STREAMBED BOULDERS PER WSDOT STANDARD SPECIFICATIONS 9-03.11.(3)  
MIN. DIAMETER = 28 IN  
MAX. DIAMETER = 36 IN  
AND NATIVE BACKFILL

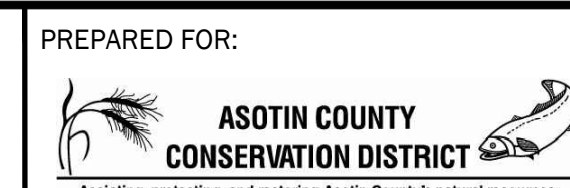
PLACE FOOTER BOULDERS, FILL WITH WELL-GRADED NATIVE BACKFILL IN 1-FOOT LIFTS BETWEEN PORES, WASH IN FINES WITH EACH LIFT, PLACE HEADER BOULDERS. HEADER BOULDERS SHALL PROVIDE 1-FOOT WIDE (HORIZONTAL) GAPS FOR FISH AND LOW-FLOW PASSAGE. HEADER BOULDERS SHALL BE EXPOSED ABOVE THE NATIVE BACKFILL APPROXIMATELY 0.5 VERTICAL FEET.



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DISTRICT

COUGAR CREEK FISH PASSAGE BARRIER REMOVAL  
CLARKSTON, WASHINGTON

COUGAR CREEK TYPICAL DETAILS

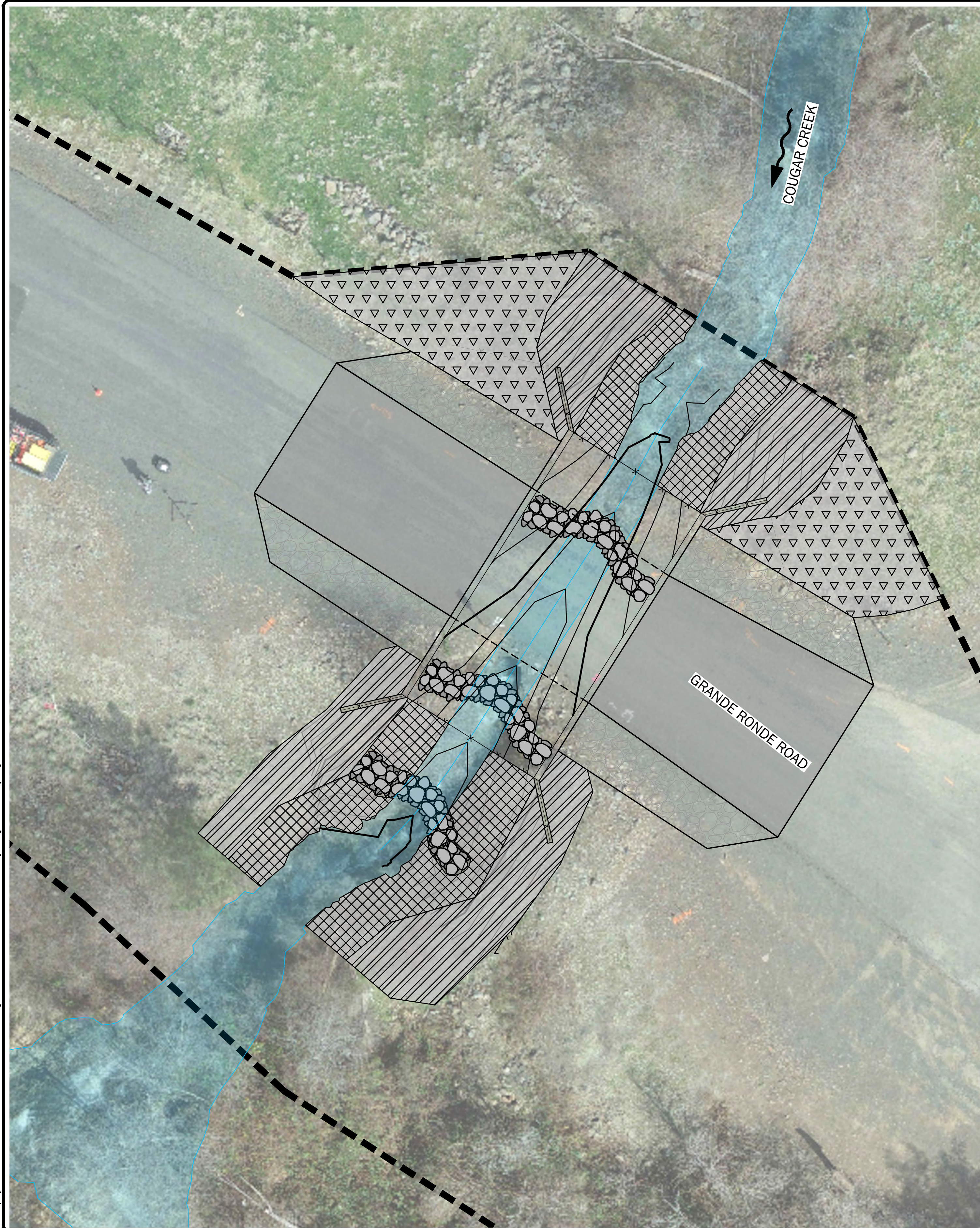
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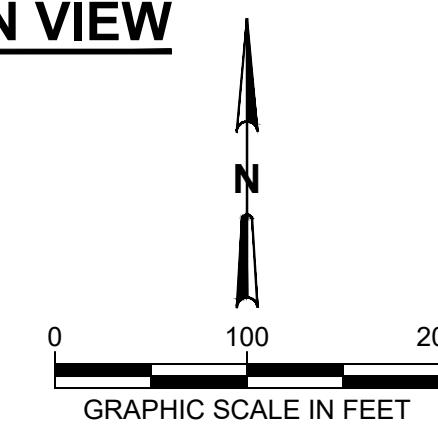
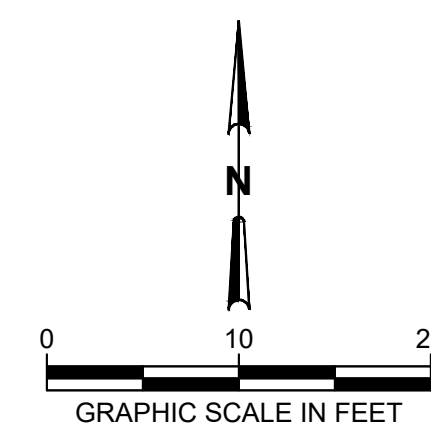
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OVERALL PLAN VIEW



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Assisting, protecting, and restoring Asotin County's natural resources.

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COUGAR CREEK FISH PASSAGE BARRIER REMOVAL  
CLARKSTON, WASHINGTON

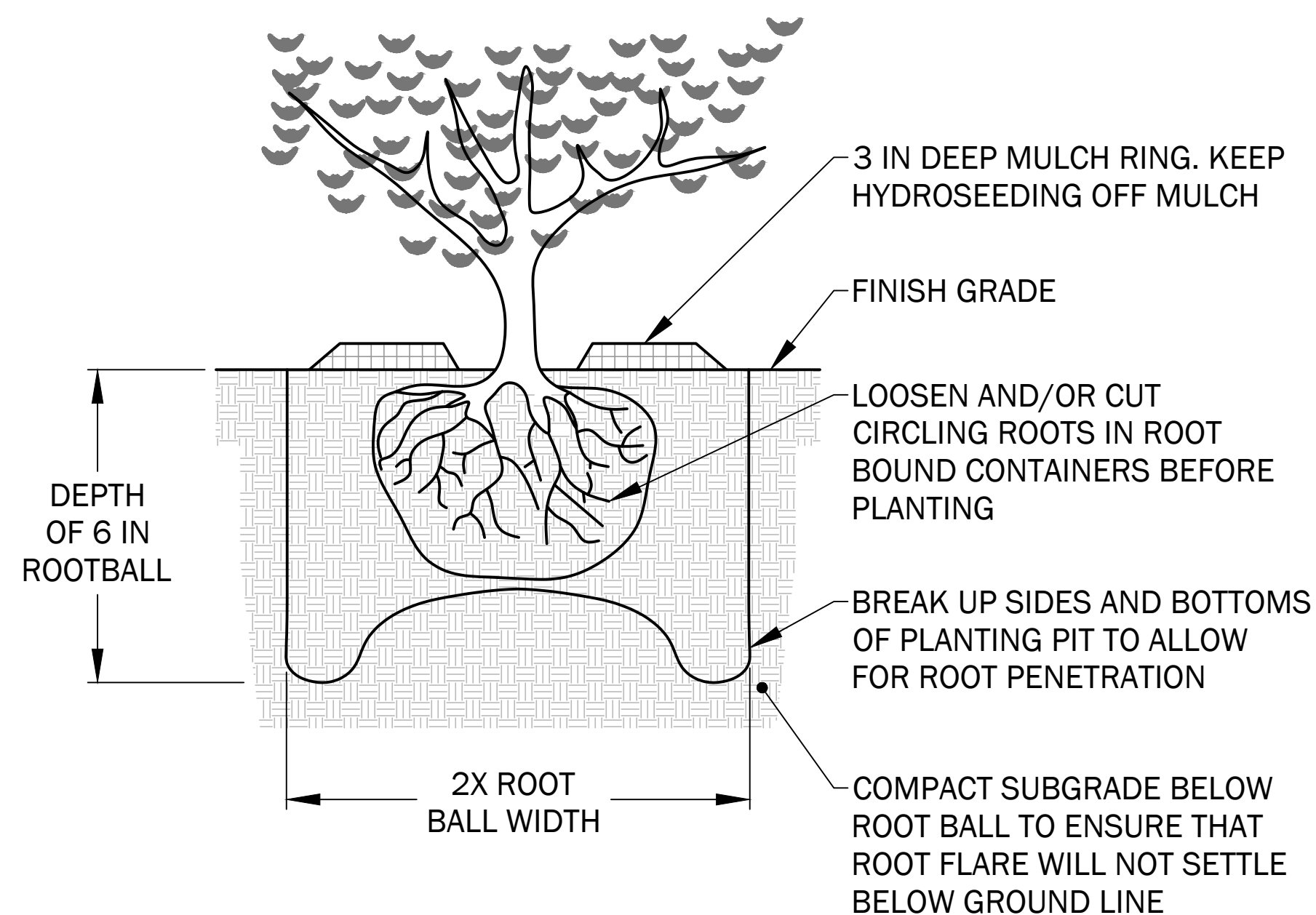
REVEGETATION PLAN

DRAWING NUMBER:

710

SHEET: 24 OF 28





The diagram illustrates a cross-section of a stream channel with three distinct zones: UPLAND ZONE, RIPARIAN ZONE, and BANK ZONE. The UPLAND ZONE is the leftmost area, followed by the RIPARIAN ZONE, and then the BANK ZONE. The channel bed is shown with a hatched pattern. Key specifications include:

- UPLAND ZONE:** A width of 24" MAX is indicated between two vertical lines.
- RIPARIAN ZONE:** A width of 3" MAX is indicated between two vertical lines.
- BANK ZONE:** A width of 3" MAX is indicated between two vertical lines.
- Channel Dimensions:** A 6" MAX depth is shown for the riparian zone, and a 3" MAX depth is shown for the bank zone.
- Flow Levels:** The BANKFULL WSEL (Water Surface Elevation) and LOW FLOW WSEL are indicated by horizontal lines with inverted triangles.
- Channel Width:** The channel width varies by ± 1' between the low flow and bankfull levels.



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APPROVED BY:	RSC
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DATE:	01/21/2022



COUGAR CREEK FISH PASSAGE BARRIER REMOVAL  
CLARKSTON, WASHINGTON

## REVEGETATION QUANTITIES AND DETAILS

DRAWING NUMBER:

711

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HIP GENERAL CONSERVATION MEASURES APPLICABLE TO ALL ACTIONS

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

PROJECT DESIGN AND SITE PREPARATION.

1. STATE AND FEDERAL PERMITS.
- A. ALL APPLICABLE REGULATORY PERMITS AND OFFICIAL PROJECT AUTHORIZATIONS WILL BE OBTAINED BEFORE PROJECT IMPLEMENTATION.

B. THESE PERMITS AND AUTHORIZATIONS INCLUDE, BUT ARE NOT LIMITED TO, NATIONAL ENVIRONMENTAL POLICY ACT, NATIONAL HISTORIC PRESERVATION ACT, THE APPROPRIATE STATE AGENCY REMOVAL AND FILL PERMIT, USACE CLEAN WATER ACT (CWA) 404 PERMITS, CWA SECTION 401 WATER QUALITY CERTIFICATIONS, AND FEMA NO-RISE ANALYSES.
2. TIMING OF IN-WATER WORK.
- A. APPROPRIATE STATE (OREGON DEPARTMENT OF FISH AND WILDLIFE (ODFW), WASHINGTON DEPARTMENT OF FISH AND WILDLIFE (WDFW), IDAHO DEPARTMENT OF FISH AND GAME (IDFG), AND MONTANA FISH WILDLIFE AND PARKS (MFWP)) GUIDELINES FOR TIMING OF IN-WATER WORK WINDOWS (IWW) WILL BE FOLLOWED.

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

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

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

E. THE IN-WATER WORK WINDOW WILL BE PROVIDED IN THE CONSTRUCTION PLANS.
3. CONTAMINANTS.
- A. EXCAVATION OF MORE THAN 20 CUBIC YARDS WILL REQUIRE A SITE VISIT AND DOCUMENTED ASSESSMENT FOR POTENTIAL CONTAMINANT SOURCES. THE SITE ASSESSMENT WILL BE STORED WITH PROJECT FILES OR AS AN APPENDIX TO THE BASIS OF DESIGN REPORT.

B. THE SITE ASSESSMENT WILL SUMMARIZE:

1. THE SITE VISIT, CONDITION OF THE PROPERTY, AND IDENTIFICATION OF ANY AREAS USED FOR VARIOUS INDUSTRIAL PROCESSES;

2. AVAILABLE RECORDS, SUCH AS FORMER SITE USE, BUILDING PLANS, AND RECORDS OF ANY PRIOR CONTAMINATION EVENTS;

3. INTERVIEWS WITH KNOWLEDGEABLE PEOPLE, SUCH AS SITE OWNERS, OPERATORS, OCCUPANTS, NEIGHBORS, OR LOCAL GOVERNMENT OFFICIALS; AND

4. THE TYPE, QUANTITY, AND EXTENT OF ANY POTENTIAL CONTAMINATION SOURCES.
4. SITE LAYOUT AND FLAGGING.
- A. CONSTRUCTION AREAS TO BE CLEARLY FLAGGED PRIOR TO CONSTRUCTION.

B. AREAS TO BE FLAGGED WILL INCLUDE:

1. SENSITIVE RESOURCE AREAS, SUCH AS AREAS BELOW ORDINARY HIGH WATER, SPAWNING AREAS, SPRINGS, AND WETLANDS;

2. EQUIPMENT ENTRY AND EXIT POINTS;

3. ROAD AND STREAM CROSSING ALIGNMENTS;

4. STAGING, STORAGE, AND STOCKPILE AREAS; AND

5. NO-SPRAY AREAS AND BUFFERS.

5. TEMPORARY ACCESS ROADS AND PATHS.
- A. EXISTING ACCESS ROADS AND PATHS WILL BE PREFERENTIALLY USED WHENEVER REASONABLE, AND THE NUMBER AND LENGTH OF TEMPORARY ACCESS ROADS AND PATHS THROUGH RIPARIAN AREAS AND FLOODPLAINS WILL BE MINIMIZED.

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

C. TEMPORARY ACCESS ROADS AND PATHS WILL NOT BE BUILT ON SLOPES WHERE GRADE, SOIL, OR OTHER FEATURES SUGGEST A LIKELIHOOD OF EXCESSIVE EROSION OR FAILURE. IF SLOPES ARE STEEPER THAN 30%, THEN THE ROAD WILL BE DESIGNED BY A CIVIL ENGINEER WITH EXPERIENCE IN STEEP ROAD DESIGN.

D. THE REMOVAL OF RIPARIAN VEGETATION DURING CONSTRUCTION OF TEMPORARY ACCESS ROADS WILL BE MINIMIZED. WHEN TEMPORARY VEGETATION REMOVAL IS REQUIRED, VEGETATION WILL BE CUT AT GROUND LEVEL (NOT GRUBBED).

E. AT PROJECT COMPLETION, ALL TEMPORARY ACCESS ROADS AND PATHS WILL BE OBLITERATED, AND THE SOIL WILL BE STABILIZED AND REVEGETATED. ROAD AND PATH OBLITERATION REFERS TO THE MOST COMPREHENSIVE DEGREE OF DECOMMISSIONING AND INVOLVES DECOMPACTING THE SURFACE AND DITCH, PULLING THE FILL MATERIAL ONTO THE RUNNING SURFACE, AND RESHAPING TO MATCH THE ORIGINAL CONTOUR.

F. HELICOPTER FLIGHT PATTERNS WILL BE ESTABLISHED IN ADVANCE AND LOCATED TO AVOID TERRESTRIAL ESA-LISTED SPECIES AND THEIR OCCUPIED HABITAT DURING SENSITIVE LIFE STAGES.
6. TEMPORARY STREAM CROSSINGS.
- A. EXISTING STREAM CROSSINGS OR BEDROCK WILL BE PREFERENTIALLY USED WHENEVER REASONABLE, AND THE NUMBER OF TEMPORARY STREAM CROSSINGS WILL BE MINIMIZED.

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

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

5. THE LOCATION AND NUMBER OF ALL WET CROSSINGS SHALL BE APPROVED BY THE BPA EC LEAD AND DOCUMENTED IN THE CONSTRUCTION PLANS;

6. VEHICLES AND MACHINERY SHALL CROSS STREAMS AT RIGHT ANGLES TO THE MAIN CHANNEL WHENEVER POSSIBLE;

7. NO STREAM CROSSINGS WILL OCCUR 300 FEET UPSTREAM OR 100 FEET DOWNSTREAM OF AN EXISTING REDD OR SPAWNING FISH; AND

8. AFTER PROJECT COMPLETION, TEMPORARY STREAM CROSSINGS WILL BE OBLITERATED AND BANKS RESTORED.

7. STAGING, STORAGE, AND STOCKPILE AREAS.

A. STAGING AREAS (USED FOR CONSTRUCTION EQUIPMENT STORAGE, VEHICLE STORAGE, FUELING, SERVICING, AND HAZARDOUS MATERIAL STORAGE) WILL BE 150 FEET OR MORE FROM ANY NATURAL WATER BODY OR WETLAND. STAGING AREAS CLOSER THAN 150 FEET WILL BE APPROVED BY THE EC LEAD.

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

C. ANY LARGE WOOD, TOPSOIL, AND NATIVE CHANNEL MATERIAL DISPLACED BY CONSTRUCTION WILL BE STOCKPILED FOR USE DURING SITE RESTORATION AT A SPECIFICALLY IDENTIFIED AND FLAGGED AREA.

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

8. EQUIPMENT.

A. MECHANIZED EQUIPMENT AND VEHICLES WILL BE SELECTED, OPERATED, AND MAINTAINED IN A MANNER THAT MINIMIZES ADVERSE EFFECTS ON THE ENVIRONMENT (E.G., MINIMALLY-SIZED, LOW PRESSURE TIRES; MINIMAL HARD-TURN PATHS FOR TRACKED VEHICLES; TEMPORARY MATS OR PLATES WITHIN WET AREAS OR ON SENSITIVE SOILS).

B. EQUIPMENT WILL BE STORED, FUELED, AND MAINTAINED IN AN CLEARLY IDENTIFIED STAGING AREA THAT MEETS STAGING AREA CONSERVATION MEASURES.
- C. EQUIPMENT WILL BE REFUELED IN A VEHICLE STAGING AREA OR IN AN ISOLATED HARD ZONE, SUCH AS A PAVED PARKING LOT OR ADJACENT, ESTABLISHED ROAD (THIS MEASURE APPLIES ONLY TO GAS-POWERED EQUIPMENT WITH TANKS LARGER THAN 5 GALLONS).

D. BIODEGRADABLE LUBRICANTS AND FLUIDS WILL BE USED ON EQUIPMENT OPERATING IN AND ADJACENT TO THE STREAM CHANNEL AND LIVE WATER.

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

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

9. EROSION CONTROL.

A. TEMPORARY EROSION CONTROL MEASURES INCLUDE:

1. TEMPORARY EROSION CONTROLS WILL BE IN PLACE BEFORE ANY SIGNIFICANT ALTERATION OF THE ACTION SITE AND APPROPRIATELY INSTALLED DOWNSLOPE OF PROJECT ACTIVITY WITHIN THE RIPARIAN BUFFER AREA UNTIL SITE REHABILITATION IS COMPLETE;

2. IF THERE IS A POTENTIAL FOR ERODED SEDIMENT TO ENTER THE STREAM, SEDIMENT BARRIERS WILL BE INSTALLED AND MAINTAINED FOR THE DURATION OF PROJECT IMPLEMENTATION;

3. TEMPORARY EROSION CONTROL MEASURES MAY INCLUDE SEDGE MATS, FIBER WATTLES, SILT FENCES, JUTE MATTING, WOOD FIBER MULCH AND SOIL BINDER, OR GEOTEXTILES AND GEOSYNTHETIC FABRIC;

4. SOIL STABILIZATION UTILIZING WOOD FIBER MULCH AND TACKIFIER (HYDRO-APPLIED) MAY BE USED TO REDUCE EROSION OF BARE SOIL IF THE MATERIALS ARE NOXIOUS WEED FREE AND NONTOXIC TO AQUATIC AND TERRESTRIAL ANIMALS, SOIL MICROORGANISMS, AND VEGETATION;

5. SEDIMENT WILL BE REMOVED FROM EROSION CONTROLS ONCE IT HAS REACHED 1/3 OF THE EXPOSED HEIGHT OF THE CONTROL; AND

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


1. A SUPPLY OF SEDIMENT CONTROL MATERIALS; AND

2. AN OIL-ABSORBING FLOATING BOOM WHENEVER SURFACE WATER IS PRESENT.

10.DUST ABATEMENT.

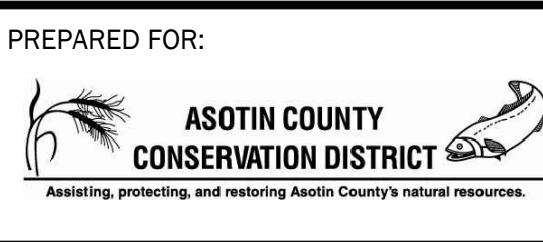
A. THE PROJECT SPONSOR WILL DETERMINE THE APPROPRIATE DUST CONTROL MEASURES BY CONSIDERING SOIL TYPE, EQUIPMENT USAGE, PREVAILING WIND DIRECTION, AND THE EFFECTS CAUSED BY OTHER EROSION AND SEDIMENT CONTROL MEASURES.

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

C. DUST-ABATEMENT ADDITIVES AND STABILIZATION CHEMICALS (TYPICALLY MAGNESIUM CHLORIDE, CALCIUM CHLORIDE SALTS, OR LIGNINSULFONATE) WILL NOT BE APPLIED WITHIN 25 FEET OF WATER OR A STREAM CHANNEL AND WILL BE APPLIED SO AS TO MINIMIZE THE LIKELIHOOD THAT THEY WILL ENTER STREAMS. APPLICATIONS OF LIGNINSULFONATE WILL BE LIMITED TO A MAXIMUM RATE OF 0.5 GALLONS PER SQUARE YARD OF ROAD SURFACE, ASSUMING MIXED 50:50 WITH WATER.
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CONSERVATION DISTRICT

Assisting, protecting, and restoring Asotin County's natural resources.

ASOTIN COUNTY  
CONSERVATION  
DISTRICT
- COUGAR CREEK FISH PASSAGE BARRIER REMOVAL  
CLARKSTON, WASHINGTON

HIP IV GENERAL CONSERVATION MEASURES
- DRAWING NUMBER:

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- D. APPLICATION OF DUST ABATEMENT CHEMICALS WILL BE AVOIDED DURING OR JUST BEFORE WET WEATHER, AND AT STREAM CROSSINGS OR OTHER AREAS THAT COULD RESULT IN UNFILTERED DELIVERY OF THE DUST ABATEMENT MATERIALS TO A WATERBODY (TYPICALLY THESE WOULD BE AREAS WITHIN 25 FEET OF A WATERBODY OR STREAM CHANNEL; DISTANCES MAY BE GREATER WHERE VEGETATION IS SPARSE OR SLOPES ARE STEEP).
- E. SPILL CONTAINMENT EQUIPMENT WILL BE AVAILABLE DURING APPLICATION OF DUST ABATEMENT CHEMICALS.
- F. PETROLEUM-BASED PRODUCTS WILL NOT BE USED FOR DUST ABATEMENT.

11. SPILL PREVENTION, CONTROL, AND COUNTER MEASURES.

- A. A DESCRIPTION OF HAZARDOUS MATERIALS THAT WILL BE USED, INCLUDING INVENTORY, STORAGE, AND HANDLING PROCEDURES WILL BE AVAILABLE ON-SITE.
- B. WRITTEN PROCEDURES FOR NOTIFYING ENVIRONMENTAL RESPONSE AGENCIES WILL BE POSTED AT THE WORK SITE.
- C. SPILL CONTAINMENT KITS (INCLUDING INSTRUCTIONS FOR CLEANUP AND DISPOSAL) ADEQUATE FOR THE TYPES AND QUANTITY OF HAZARDOUS MATERIALS USED AT THE SITE WILL BE AVAILABLE AT THE WORK SITE.
- D. WORKERS WILL BE TRAINED IN SPILL CONTAINMENT PROCEDURES AND WILL BE INFORMED OF THE LOCATION OF SPILL CONTAINMENT KITS.
- E. ANY WASTE LIQUIDS GENERATED AT THE STAGING AREAS WILL BE TEMPORARILY STORED UNDER AN IMPERVIOUS COVER, SUCH AS A TARPULIN, UNTIL THEY CAN BE PROPERLY TRANSPORTED TO AND DISPOSED OF AT A FACILITY THAT IS APPROVED FOR RECEIPT OF HAZARDOUS MATERIALS.
- F. PUMPS USED ADJACENT TO WATER SHALL USE SPILL CONTAINMENT SYSTEMS.

12. INVASIVE SPECIES CONTROL.

- A. PRIOR TO ENTERING THE SITE, ALL VEHICLES AND EQUIPMENT WILL BE POWER WASHED, ALLOWED TO FULLY DRY, AND INSPECTED TO MAKE SURE NO PLANTS, SOIL, OR OTHER ORGANIC MATERIAL ADHERES TO THE SURFACE.
- B. WATERCRAFT, WADERS, BOOTS, AND ANY OTHER GEAR TO BE USED IN OR NEAR WATER WILL BE INSPECTED FOR AQUATIC INVASIVE SPECIES.
- C. WADING BOOTS WITH FELT SOLES ARE NOT TO BE USED DUE TO THEIR PROPENSITY FOR AIDING IN THE TRANSFER OF INVASIVE SPECIES UNLESS DECONTAMINATION PROCEDURES HAVE BEEN APPROVED BY THE EC LEAD.

WORK AREA ISOLATION AND FISH SALVAGE.

1. WORK AREA ISOLATION.

- A. ANY WORK AREA WITHIN THE WETTED CHANNEL WILL BE ISOLATED FROM THE ACTIVE STREAM WHENEVER ESA-LISTED FISH ARE REASONABLY CERTAIN TO BE PRESENT, OR IF THE WORK AREA IS LESS THAN 300-Feet UPSTREAM FROM KNOWN SPAWNING HABITATS.
- B. WORK AREA ISOLATION AND FISH SALVAGE ACTIVITIES WILL COMPLY WITH THE IN-WATER WORK WINDOW.
- C. DESIGN PLANS WILL INCLUDE ALL ISOLATION ELEMENTS AND AREAS (COFFER DAMS, PUMPS, DISCHARGE AREAS, FISH SCREENS, FISH RELEASE AREAS, ETC.).
- D. WORK AREA ISOLATION AND FISH CAPTURE ACTIVITIES WILL OCCUR DURING PERIODS OF THE COOLEST AIR AND WATER TEMPERATURES POSSIBLE, NORMALLY EARLY IN THE MORNING VERSUS LATE IN THE DAY, AND DURING CONDITIONS APPROPRIATE TO MINIMIZE STRESS AND DEATH OF SPECIES PRESENT.

2. FISH SALVAGE.

- A. MONITORING AND RECORDING WILL TAKE PLACE FOR DURATION OF SALVAGE. THE SALVAGE REPORT WILL BE COMMUNICATED TO AGENCIES VIA THE PROJECT COMPLETION FORM (PCF).
- B. SALVAGE ACTIVITIES SHOULD TAKE PLACE DURING CONDITIONS TO MINIMIZE STRESS TO FISH SPECIES, TYPICALLY PERIODS OF THE COOLEST AIR AND WATER TEMPERATURES WHICH OCCUR IN THE MORNING VERSUS LATE IN THE DAY.
- C. SALVAGE OPERATIONS WILL FOLLOW THE ORDERING, METHODS, AND CONSERVATION MEASURES SPECIFIED BELOW:
  - 1. SLOWLY REDUCE WATER FROM THE WORK AREA TO ALLOW SOME FISH TO LEAVE VOLITIONALLY.
  - 2. BLOCK NETS WILL BE INSTALLED AT UPSTREAM AND DOWNSTREAM LOCATIONS AND MAINTAINED IN A SECURED POSITION TO EXCLUDE FISH FROM ENTERING THE PROJECT AREA.

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

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

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

3. ELECTROFISHING.

- A. INITIAL SITE SURVEY AND INITIAL SETTINGS.
  - 1. IDENTIFY SPAWNING ADULTS AND ACTIVE REDDS TO AVOID.
  - 2. RECORD WATER TEMPERATURE. ELECTROFISHING WILL NOT OCCUR WHEN WATER TEMPERATURES ARE ABOVE 18 DEGREES CELSIUS.
  - 3. IF POSSIBLE, A BLOCK NET WILL BE PLACED DOWNSTREAM AND CHECKED REGULARLY TO CAPTURE STUNNED FISH THAT DRIFT DOWNSTREAM.

- 4. INITIAL SETTINGS WILL BE 100 VOLTS, PULSE WIDTH OF 500 MICRO SECONDS, AND PULSE RATE OF 30 HERTZ.
- 5. RECORDS FOR CONDUCTIVITY, WATER TEMPERATURE, AIR TEMPERATURE, ELECTROFISHING SETTINGS, ELECTROFISHER MODEL, ELECTROFISHER CALIBRATION, FISH CONDITIONS, FISH MORTALITIES, AND TOTAL CAPTURE RATES WILL BE INCLUDED IN THE SALVAGE LOG BOOK.

B. ELECTROFISHING TECHNIQUE.

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

C. SAMPLE PROCESSING.

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

D. BULL TROUT ELECTROFISHING.

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



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COUGAR CREEK FISH PASSAGE BARRIER REMOVAL CLARKSTON, WASHINGTON
HIP IV GENERAL CONSERVATION MEASURES

DRAWING NUMBER: <b>811</b>
SHEET: 27 OF 28



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E. LARVAL LAMPREY ELECTROFISHING.

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

4. DEWATERING.

- A. DEWATERING WILL OCCUR AT A RATE SLOW ENOUGH TO ALLOW SPECIES TO NATURALLY MIGRATE OUT OF THE WORK AREA.
- B. WHERE A GRAVITY FEED DIVERSION IS NOT POSSIBLE, A PUMP MAY BE USED. PUMPS WILL BE INSTALLED TO AVOID REPETITIVE DEWATERING AND REWATERING.
- C. WHEN FISH ARE PRESENT, PUMPS WILL BE SCREENED IN ACCORDANCE WITH NMFS FISH SCREEN CRITERIA. NMFS ENGINEERING REVIEW AND APPROVAL WILL BE OBTAINED FOR PUMPS EXCEEDING 3 CUBIC FEET PER SECOND.
- D. DISSIPATION OF FLOW ENERGY AT THE BYPASS OUTFLOW WILL BE PROVIDED TO PREVENT DAMAGE TO THE STREAM CHANNEL AND RIPARIAN VEGETATION.
- E. SEEPAGE WATER WILL BE PUMPED TO A TEMPORARY STORAGE AND TREATMENT SITE OF INTO UPLAND AREAS TO ALLOW WATER TO PERCOLATE THROUGH SOIL AND VEGETATION PRIOR TO REENTERING THE STREAM CHANNEL.

CONSTRUCTION AND POST CONSTRUCTION CONSERVATION MEASURES.

1. FISH PASSAGE.

- A. FISH PASSAGE WILL BE PROVIDED FOR ADULT AND JUVENILE FISH LIKELY TO BE PRESENT DURING CONSTRUCTION UNLESS PASSAGE DID NOT EXIST BEFORE CONSTRUCTION, THE STREAM IS NATURALLY IMPASSABLE, OR PASSAGE WILL NEGATIVELY IMPACT ESA-LISTED SPECIES OR THEIR HABITAT.
- B. FISH PASSAGE ALTERNATIVES WILL BE APPROVED BY THE BPA EC LEAD UNDER ADVISEMENT BY THE NMFS HABITAT BIOLOGIST.

2. CONSTRUCTION AND DISCHARGE WATER.

- A. SURFACE WATER MAY BE DIVERTED TO MEET CONSTRUCTION NEEDS ONLY IF DEVELOPED SOURCES ARE UNAVAILABLE OR INADEQUATE.
- B. DIVERSIONS WILL NOT EXCEED 10% OF THE AVAILABLE FLOW.
- C. CONSTRUCTION DISCHARGE WATER WILL BE COLLECTED AND TREATED TO REMOVE DEBRIS, NUTRIENTS, SEDIMENT, PETROLEUM HYDROCARBONS, METALS, AND OTHER POLLUTANTS.

3. TIME AND EXTENT OF DISTURBANCE.

- A. EARTHWORK REQUIRING IN-STREAM MECHANIZED EQUIPMENT (INCLUDING DRILLING, EXCAVATION, DREDGING, FILLING, AND COMPACTING) WILL BE COMPLETED AS QUICKLY AS POSSIBLE.
- B. MECHANIZED EQUIPMENT WILL WORK FROM TOP OF BANK UNLESS WORK FROM ANOTHER LOCATION WILL RESULT IN LESS HABITAT DISTURBANCE (TURBIDITY, VEGETATION DISTURBANCE, ETC.).

4. CESSATION OF WORK.

- A. PROJECT OPERATIONS WILL CEASE WHEN HIGH FLOW CONDITIONS MAY RESULT IN INUNDATION OF THE PROJECT AREA (FLOOD EFFORTS TO DECREASE DAMAGES TO NATURAL RESOURCES PERMITTED).
- B. WATER QUALITY LEVELS EXCEEDED. SEE CWA SECTION 401 WATER QUALITY CERTIFICATION AND TURBIDITY MEASURES.

5. SITE RESTORATION.

- A. DISTURBED AREAS, STREAM BANKS, SOILS, AND VEGETATION WILL BE CLEANED UP AND RESTORED TO IMPROVED OR PRE-PROJECT CONDITIONS.
- B. PROJECT-RELATED WASTE WILL BE REMOVED.
- C. TEMPORARY ACCESS ROADS AND STAGING WILL BE DECOMPACTED AND RESTORED. SOILS WILL BE LOOSENED IF NEEDED FOR REVEGETATION OR WATER INFILTRATION.
- D. THE PROJECT SPONSOR WILL RETAIN THE RIGHT OF REASONABLE ACCESS TO THE SITE TO MONITOR AND MAINTAIN THE SITE OVER THE LIFE OF THE PROJECT.

6. REVEGETATION.

- A. PLANTING AND SEEDING WILL OCCUR PRIOR TO OR AT THE BEGINNING OF THE FIRST GROWING SEASON AFTER CONSTRUCTION.
- B. A MIX OF NATIVE SPECIES (INVASIVE SPECIES NOT ALLOWED) APPROPRIATE TO THE SITE WILL BE USED TO REESTABLISH VEGETATION, PROVIDE SHADE, AND REDUCE EROSION. REESTABLISHED VEGETATION SHOULD BE AT LEAST 70% OF PRE-PROJECT CONDITIONS WITHIN THREE YEARS.
- C. VEGETATION SUCH AS WILLOWS, SEDGES, OR RUSH MATS WILL BE SALVAGED FROM DISTURBED OR ABANDONED AREAS TO BE REPLANTED.
- D. SHORT-TERM STABILIZATION MEASURE MAY INCLUDE THE USE OF NON-NATIVE STERILE SEED MIX (WHEN NATIVE NOT AVAILABLE), WEED-FREE CERTIFIED STRAW, OR OTHER SIMILAR TECHNIQUES.
- E. SURFACE FERTILIZER WILL NOT BE APPLIED WITHIN 50 FEET OF ANY STREAM, WATE BODY, OR WETLAND.
- F. FENCING WILL BE INSTALLED AS NECESSARY TO PREVENT ACCESS TO REVEGETATED SITES BY LIVESTOCK OR UNAUTHORIZED PERSONS.
- G. INVASIVE PLANTS WILL BE REMOVED OR CONTROLLED UNTIL NATIVE PLANT SPECIES ARE WELL ESTABLISHED (TYPICALLY THREE YEARS POST-CONSTRUCTION).

7. SITE ACCESS AND IMPLEMENTATION MONITORING.

- A. THE PROJECT SPONSOR WILL PROVIDE CONSTRUCTION MONITORING DURING IMPLEMENTATION TO ENSURE ALL CONSERVATION MEASURES ARE ADEQUATELY FOLLOWED, EFFECTS TO LISTED SPECIES ARE NOT GREATER THAN PREDICTED, AND INCIDENTAL TAKE LIMITATIONS ARE NOT EXCEEDED.
- B. THE PROJECT SPONSOR OR DESIGNATED REPRESENTATIVE WILL SUBMIT THE PROJECT COMPLETION FORM (PCF) WITHIN 30 DAYS OF PROJECT COMPLETION.

8. CWA SECTION 401 WATER QUALITY CERTIFICATION.

- A. THE PROJECT SPONSOR OR DESIGNATED REPRESENTATIVE WILL COMPLETE AND RECORD WATER QUALITY OBSERVATIONS (SEE TURBIDITY MONITORING) TO ENSURE IN-WATER WORK IS NOT DEGRADING WATER QUALITY.
- B. DURING CONSTRUCTION, WATER QUALITY PROVISIONS PROVIDED BY THE OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY, WASHINGTON DEPARTMENT OF ECOLOGY, IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY WILL BE FOLLOWED.

STAGED REWATERING PLAN.

- A. WHEN REINTRODUCING WATER TO DEWATERED AREAS AND NEWLY CONSTRUCTED CHANNELS, A STAGED REWATERING PLAN WILL BE APPLIED.
- B. THE FOLLOWING WILL BE APPLIED TO ALL REWATERING EFFORTS. COMPLEX REWATERING EFFORTS MAY REQUIRE ADDITIONAL NOTES OR A DEDICATED SHEET IN THE CONSTRUCTION DETAILS.

1. TURBIDITY MONITORING PROTOCOL WILL BE APPLIED TO REWATERING EFFORTS.
2. PRE-WASH THE AREA BEFORE REWATERING. TURBID WASH WATER WILL BE DETAINED AND PUMPED TO THE FLOODPLAIN OR SEDIMENT CAPTURE AREAS RATHER THAN DISCHARGING TO FISH-BEARING STREAMS.

3. INSTALL SEINE NETS AT UPSTREAM END TO PREVENT FISH FROM MOVING DOWNSTREAM UNTIL 2/3 OF TOTAL FLOW IS RESTORED TO THE CHANNEL.
4. STARTING IN EARLY MORNING INTRODUCE 1/3 OF NEW CHANNEL FLOW OVER PERIOD OF 1-2 HOURS.
5. INTRODUCE SECOND THIRD OF FLOW OVER NEXT 1 TO 2 HOURS AND BEGIN FISH SALVAGE OF BYPASS CHANNEL IF FISH ARE PRESENT.
6. REMOVE UPSTREAM SEINE NETS ONCE 2/3 FLOW IN REWATERED CHANNEL AND DOWNSTREAM TURBIDITY IS WITHIN ACCEPTABLE RANGE (LESS THAN 40 NTU OR LESS THAN 10% BACKGROUND).
7. INTRODUCE FINAL THIRD OF FLOW ONCE FISH SALVAGE EFFORTS ARE COMPLETE AND DOWNSTREAM TURBIDITY VERIFIED TO BE WITHIN ACCEPTABLE RANGE.
8. INSTALL PLUG TO BLOCK FLOW INTO OLD CHANNEL OR BYPASS. REMOVE ANY REMAINING SEINE NETS.
9. IN LAMPREY SYSTEMS, LAMPREY SALVAGE AND DRY SHOCKING MAY BE NECESSARY.

TURBIDITY MONITORING.

- A. RECORD THE READING, LOCATION, AND TIME FOR THE BACKGROUND READING APPROXIMATELY 100 FEET UPSTREAM OF THE PROJECT AREA USING A RECENTLY CALIBRATED TURBIDIMETER OR VIA VISUAL OBSERVATION (SEE THE HIP HANDBOOK TURBIDITY MONITORING SECTION FOR A VISUAL OBSERVATION KEY).
- B. RECORD THE TURBIDITY READING, LOCATION, AND TIME AT THE MEASUREMENT COMPLIANCE LOCATION POINT.
  1. 50 FEET DOWNSTREAM FOR STREAMS LESS THAN 30 FEET WIDE.
  2. 100 FEET DOWNSTREAM FOR STREAMS BETWEEN 30 AND 100 FEET WIDE.
  3. 200 FEET DOWNSTREAM FOR STREAMS GREATER THAN 100 FEET WIDE.
  4. 300 FEET FROM THE DISCHARGE POINT OR NONPOINT SOURCE FOR LOCATIONS SUBJECT TO TIDAL OR COASTAL SCOUR.
- C. TURBIDITY SHALL BE MEASURED (BACKGROUND LOCATION AND COMPLIANCE POINTS) EVERY 4 HOURS WHILE WORK IS BEING IMPLEMENTED.
- D. IF THERE IS A VISIBLE DIFFERENCE BETWEEN A COMPLIANCE POINT AND THE BACKGROUND, THE EXCEEDANCE WILL BE NOTED IN THE PROJECT COMPLETION FORM (PCF). ADJUSTMENTS OR CORRECTIVE MEASURES WILL BE TAKEN IN ORDER TO REDUCE TURBIDITY.
- E. IF EXCEEDANCES OCCUR FOR MORE THAN TWO CONSECUTIVE MONITORING INTERVALS (AFTER 8 HOURS), THE ACTIVITY WILL STOP UNTIL THE TURBIDITY LEVEL RETURNS TO BACKGROUND. THE BPA EC LEAD WILL BE NOTIFIED OF ALL EXCEEDANCES AND CORRECTIVE ACTIONS AT PROJECT COMPLETION.
- F. IF TURBIDITY CONTROLS (COFFER DAMS, WADDLES, FENCING, ETC.) ARE DETERMINED INEFFECTIVE, CREWS WILL BE MOBILIZED TO MODIFY AS NECESSARY. OCCURRENCES WILL BE DOCUMENTED IN THE PROJECT COMPLETION FORM (PCF).
- G. FINAL TURBIDITY READINGS, EXCEEDANCES, AND CONTROL FAILURES WILL BE SUBMITTED TO THE BPA EC LEAD USING THE PROJECT COMPLETION FORM (PCF).



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COUGAR CREEK FISH PASSAGE BARRIER REMOVAL CLARKSTON, WASHINGTON
HIP IV GENERAL CONSERVATION MEASURES

DRAWING NUMBER: <b>812</b>
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