



CHELAN COUNTY NATURAL RESOURCES DEPARTMENT  
 UPPER WENATCHEE PILOT PROJECT AQUATIC ORGANISM  
 PASSAGE RTE 6102000 MP 1.7 DEEP CREEK  
 COVER SHEET  
 FINAL DESIGN

DATE 01/31/2025  
 COUNTY CHELAN  
 LATITUDE 47°49'47.38"N  
 LONGITUDE 120°37'28.90"W  
 TN/SC/RG T27N/S20R18E  
 DESIGN\_GB DRAWN\_KS  
 CHECK\_NT CHECK\_GB, RD

0 1  
 IF THIS BAR DOES NOT MEASURE  
 1" THEN DRAWING IS NOT  
 PLOTTED TO ORIGINAL SCALE.

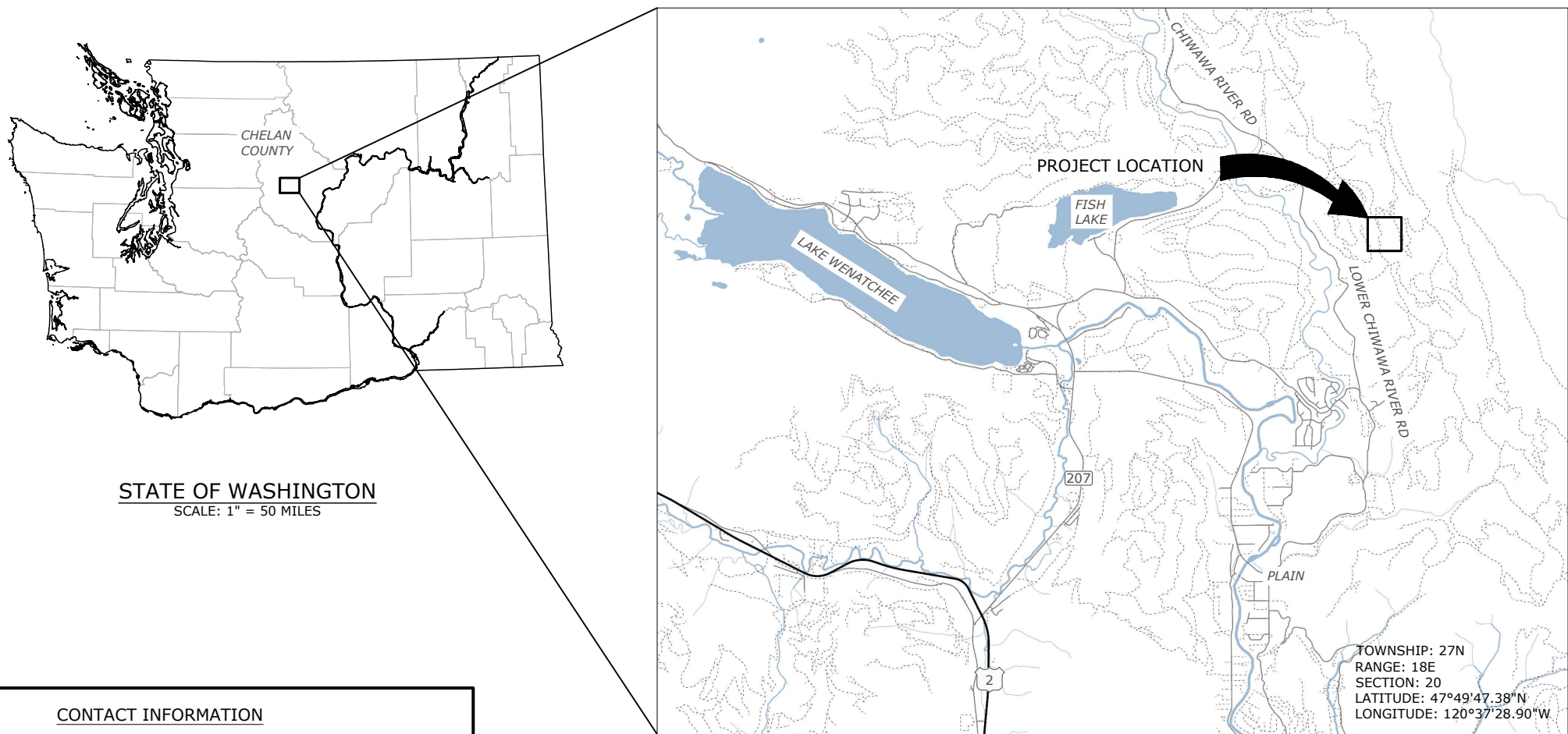
SHEET  
 1 OF 12

# UPPER WENATCHEE PILOT PROJECT AQUATIC ORGANISM PASSAGE

## FINAL DESIGN

### RTE 6102000 MP 1.7 DEEP CREEK

CHELAN COUNTY NATURAL RESOURCES DEPARTMENT



SHEET LIST TABLE

SHEET NO.	SHEET TITLE
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10	SITE RESTORATION PLAN
11	TESC DETAILS 1
12	TESC DETAILS 2

**REVIEWED BY:**  
 ASSISTANT FOREST ENGINEER  
 OKANOGAN-WENATCHEE NATIONAL FOREST  
 DATE

**RECOMMENDED BY:**  
 WENATCHEE RIVER DISTRICT RANGER  
 OKANOGAN-WENATCHEE NATIONAL FOREST  
 DATE

**APPROVED BY:**  
 FOREST SUPERVISOR  
 OKANOGAN-WENATCHEE NATIONAL FOREST  
 DATE

**DESIGNED BY:**  
 GRACE BACCI, PE  
 NATURAL SYSTEMS DESIGN  
 06/23/2026  
 DATE

**CONTACT INFORMATION**

**ENGINEER:** NATURAL SYSTEMS DESIGN, INC  
 1900 N NORTHLAKE WAY, SUITE 211  
 SEATTLE, WA 98103  
 (206) 834-0175

**CONTRACTING AGENCY:** CHELAN COUNTY NATURAL RESOURCES DEPARTMENT  
 411 WASHINGTON ST #201  
 WENATCHEE, WA 98801  
 (509) 667-6533



VICINITY MAP  
 SCALE: 1" = 1 MILE



P:\A\_G\CCNRD\UWPP\_AOP\_C1\_C12\_C14\DESIGN\CAD - C1\COVER SHEET.DWG Grace 06/23/2026 3:10:23 PM

**GENERAL NOTES**

1. THESE PLANS HAVE BEEN PREPARED FOR THE EXCLUSIVE USE OF CHELAN COUNTY NATURAL RESOURCES DEPARTMENT (CCNRD), HEREAFTER REFERRED TO AS "CONTRACTING AGENCY", AND THEIR AUTHORIZED AGENTS.
2. NATURAL SYSTEMS DESIGN, HEREAFTER REFERRED TO AS "PROJECT ENGINEER" IS RESPONSIBLE FOR THE PREPARATION OF THESE ORIGINAL PLANS AND ASSOCIATED SPECIFICATIONS; AND WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGE, OR USE, OF THESE PLANS WHICH INCLUDES ALTERATION, DELETION, OR EDITING OF THIS DOCUMENT WITHOUT EXPLICIT WRITTEN PERMISSION FROM THE PROJECT ENGINEER. ANY OTHER UNAUTHORIZED USE OF THIS DOCUMENT IS PROHIBITED.
3. BASED ON OBSERVATIONS AND PREVIOUS FIELD VISITS DURING THE LATE SUMMER AND EARLY FALL, IT IS EXPECTED THE CREEK WILL BE DRY AT THE TIME OF CONSTRUCTION, LIMITING THE NEED FOR SITE ISOLATION AND DEWATERING. SUGGESTED WATER MANAGEMENT IF SURFACE WATER IS PRESENT IS DETAILED IN THE FOLLOWING SHEETS.
4. CONTRACTOR SHALL LOCATE ANY UTILITY LINES WITHIN PROJECT AREA PRIOR TO COMMENCING WORK. CONTRACTOR SHALL BE LIABLE FOR ANY DAMAGE OR DISRUPTION TO UTILITY SERVICE LINES.
5. EACH SHEET IN THIS PLANSET IS STAMPED AND SIGNED BY THE LICENSED PROFESSIONAL ENGINEER RESPONSIBLE FOR THE DESIGN ON THAT SHEET.

**PERMIT NOTES**

1. THE CONTRACTOR SHALL CONDUCT THE ACTIVITIES SHOWN IN THESE PLANS IN A MANNER THAT MINIMIZES THE ADVERSE IMPACT ON WATER QUALITY, FISH AND WILDLIFE, AND THE NATURAL ENVIRONMENT.
2. ALL WORK SHALL BE IN COMPLIANCE WITH PERMIT CONDITIONS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO HAVE COPIES OF ALL PERMITS ON THE JOB SITE, UNDERSTAND AND COMPLY WITH ALL PERMIT CONDITIONS.
3. IF AT ANY TIME FISH ARE OBSERVED IN DISTRESS, A FISH KILL OCCURS, OR WATER QUALITY PROBLEMS DEVELOP (INCLUDING EQUIPMENT LEAKS OR SPILLS), OPERATIONS SHALL CEASE AND THE CONTRACTING AGENCY AND PERMIT AGENCIES SHALL BE NOTIFIED IMMEDIATELY.
4. AVOID AND MINIMIZE ADVERSE IMPACTS TO WATERS OF THE UNITED STATES, INCLUDING MINIMIZING THE NUMBER, DURATION, AND EXTENT OF WORK BELOW ORDINARY HIGH WATER AND EQUIPMENT CROSSINGS OF WETTED CHANNELS.
5. IF, DURING CONSTRUCTION, ARCHAEOLOGICAL REMAINS ARE ENCOUNTERED, CONSTRUCTION IN THE VICINITY SHALL BE HALTED, AND THE STATE OFFICE OF HISTORIC PRESERVATION ((509) 674-2262) AND THE CONTRACTING AGENCY SHALL BE NOTIFIED IMMEDIATELY.

**SURVEY NOTES**

1. SURVEY FOR THIS PROJECT WAS COLLECTED IN 2024 AND 2025 AND LIDAR WAS COLLECTED IN 2017. THE VERTICAL DATUM IS NAVD88 (FT). THE HORIZONTAL DATUM IS NAD83 WASHINGTON STATE PLANE NORTH AND THE UNIT IS US SURVEY FEET.
2. GATES, FENCELINES, AND UTILITIES WERE NOT SURVEYED. CONTRACTOR TO VERIFY IN FIELD.

**CONSTRUCTION NOTES**

1. THE CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY.
2. CONSTRUCTION HOURS SHALL BE WEEKDAYS BETWEEN 7:00 A.M. AND 6:30 P.M. UNLESS PRIOR APPROVAL IS RECEIVED FROM THE CONTRACTING AGENCY.
3. ANY DISCREPANCIES ARE TO BE BROUGHT TO THE ATTENTION OF THE CONTRACTING AGENCY PRIOR TO PROCEEDING WITH THE WORK.
4. THE CONTRACTOR SHALL PROTECT ALL EXISTING STRUCTURES, MONUMENTS, VEGETATION, AND IMPROVEMENTS NOT INDICATED FOR REMOVAL. IT IS ILLEGAL UNDER WASHINGTON STATE ADMINISTRATIVE CODE TO WILFULLY DESTROY SURVEY MARKERS, STAKES, MARKS, AND OTHER REFERENCE POINTS SET BY CITY FORCES, AND EXISTING CITY, STATE, OR FEDERAL MONUMENTATION, SHALL BE CAREFULLY PRESERVED BY THE CONTRACTOR. THE CONTRACTOR SHALL NOTIFY THE PROJECT ENGINEER IMMEDIATELY IF IT BECOMES APPARENT THAT A SURVEY MARKER WILL BE DISTURBED DUE TO CONSTRUCTION. THE CONTRACTOR SHALL ALLOW AMPLE TIME FOR CONTRACTING AGENCY PERSONNEL TO ACQUIRE ADEQUATE INFORMATION SO THAT THE MONUMENT MAY BE REPLACED IN ITS ORIGINAL POSITION AFTER CONSTRUCTION.
5. THE CONTRACTOR SHALL KEEP THE JOB SITE CLEAN AND HAZARD FREE.
6. THE CONTRACTOR SHALL DISPOSE OF ALL DIRT, DEBRIS, AND RUBBISH GENERATED BY THE WORK. UPON COMPLETION OF WORK, CONTRACTOR SHALL REMOVE ALL MATERIAL AND EQUIPMENT NOT SPECIFIED AS REMAINING ON THE PROPERTY OFF FOREST LANDS.
7. NO TREES OR VEGETATION SHALL BE REMOVED UNLESS NOTED ON THE PLANS OR SPECIFIED ON-SITE BY THE CONTRACTING AGENCY OR THE PROJECT ENGINEER. NO GRADING SHALL TAKE PLACE WITHIN THE DRIP LINE OF TREES NOT PROPOSED FOR REMOVAL UNLESS OTHERWISE APPROVED. ANY MERCHANTABLE TIMBER IS GOVERNMENT PROPERTY AND SHALL BE DECKED AT A LOCATION APPROVED BY THE CONTRACTING AGENCY.
8. THE CONTRACTOR SHALL MAINTAIN A SET OF PLANS ON THE JOB SHOWING "AS-CONSTRUCTED" CHANGES MADE TO DATE. UPON COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL SUPPLY TO CONTRACTING AGENCY A SET OF PLANS, MARKED UP TO THE SATISFACTION OF THE CONTRACTING AGENCY, REFLECTING THE AS-CONSTRUCTED MODIFICATIONS WITHIN 30 DAYS OF CONSTRUCTION COMPLETION.

9. ALL EQUIPMENT AND MATERIALS BROUGHT ON SITE SHALL BE WEED FREE.
10. OVERLOAD PERMITS: ALL VEHICLES AND EQUIPMENT SHALL NOT EXCEED STATE LEGAL HIGHWAY LOADS AND WIDTHS OR POSTED LIMITS WITHOUT VALID STATE, COUNTY AND FOREST SERVICE OVERLOAD, OVER WIDTH PERMITS. CHELAN COUNTY OVERLOAD PERMITS REQUIRE 7 WORKING DAYS FOR REVIEW AND APPROVAL. FOREST SERVICE OVERLOAD PERMITS WILL REQUIRE FOREST SERVICE REGIONAL OFFICE REVIEW AND APPROVAL. ALLOW 30 DAYS FOR FOREST SERVICE OVERLOAD PERMIT REVIEW.

**DESIGN CRITERIA NOTES**

1. THE CULVERT STRUCTURE SHALL BE DESIGNED TO A RATING OF A HL-93 AASHTO VEHICLE LIVE LOAD. IN ACCORDANCE WITH AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION WITH CURRENT INTERIMS.
2. FOR CULVERT FOUNDATIONS, THE RECOMMENDED ALLOWABLE BEARING PRESSURE IS 3,000 PSF, AND A RECOMMENDED PASSIVE RESISTANCE OF 230 PCF. SEE GEOTECHNICAL REPORT FOR ADDITIONAL DETAILS.
3. HYDRAULIC MODEL RESULTS SHOWN INCLUDE THE TWO YEAR FLOOD (Q2) (10.3 CFS) AND THE 100 YEAR FLOOD (Q100) (32.1 CFS).

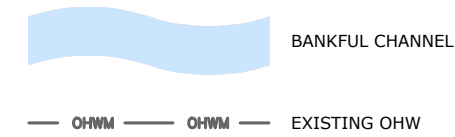
SUMMARY OF QUANTITIES				
ITEM #	ITEM DESCRIPTION	WSDOT REF	QTY	UNIT
1	MOBILIZATION	2-01	1	LS
2	MINOR CHANGE	1-04	1	DOL
3	SURVEY	1-05.4	1	LS
4	TEMPORARY ACCESS AND STAGING	2-05	1	LS
5	TEMPORARY TRAFFIC CONTROL	2-04	1	LS
6	TEMPORARY WATER MANAGEMENT	8-31	1	LS
7	EROSION CONTROL AND WATER POLLUTION CONTROL	8-01	1	LS
8	CULVERT REMOVAL AND DISPOSAL	3-02	1	LS
9	ROADWAY EXCAVATION INCL. HAUL	3-03	20	CY
10	CHANNEL EXCAVATION INCL. HAUL	3-03	15	CY
11	STRUCTURE EXCAVATION CLASS B INCL. HAUL	3-07	240	CY
12	SHORING OR EXTRA EXCAVATION CLASS B	3-07	1	LS
13	CRUSHED SURFACING BASE COURSE	4-05	40	TN
14	CONTRACTOR DESIGNED BURIED STRUCTURE NO. 1	6-20	1	LS
15	STREAMBED SAND	8-30	3	TN
16	STREAMBED SEDIMENT	8-30	30	TN
17	STREAMBED COBBLES - 6"	8-30	50	TN
18	RESTORATION	8-02	1	LS

ROADWAY ALIGNMENT TABLE						
NUMBER	START STATION	END STATION	RADIUS	LENGTH	START COORDINATE	END COORDINATE
L1	10+00.0	10+92.7		92.66	N = 302713.2187 E = 1691545.6800	N = 302775.6555 E = 1691614.1390
C1	10+92.7	11+31.6	120.00	38.92	N = 302775.6555 E = 1691614.1390	N = 302806.0479 E = 1691638.1782
L2	11+31.6	11+35.8		4.19	N = 302806.0479 E = 1691638.1782	N = 302809.7138 E = 1691640.2145
C2	11+35.8	11+87.8	105.00	52.07	N = 302809.7138 E = 1691640.2145	N = 302859.5274 E = 1691653.4182
L3	11+87.8	12+18.6		30.76	N = 302859.5274 E = 1691653.4182	N = 302890.2878 E = 1691653.7619

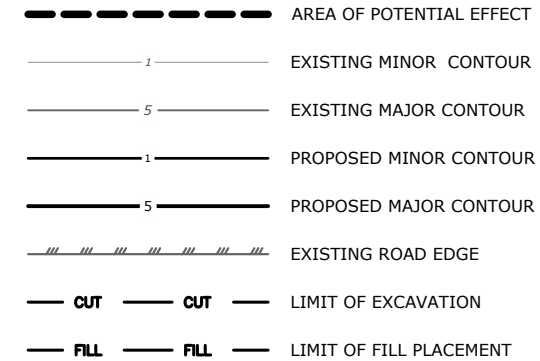


**GENERAL LEGEND**

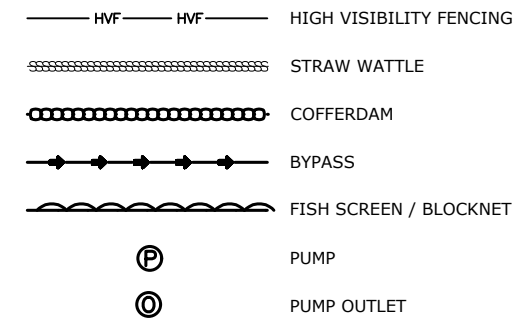
**NATURAL RESOURCES**



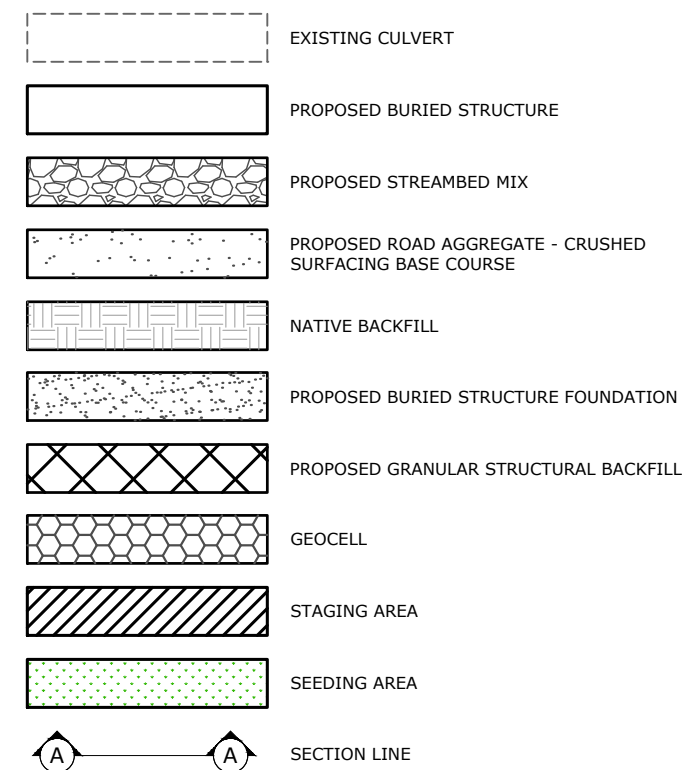
**TOPOGRAPHY & GRADING**



**TESC**



**MATERIALS**



CHELAN COUNTY NATURAL RESOURCES DEPARTMENT  
UPPER WENATCHEE PILOT PROJECT AQUATIC ORGANISM  
PASSAGE RTE 6102000 MP 1.7 DEEP CREEK

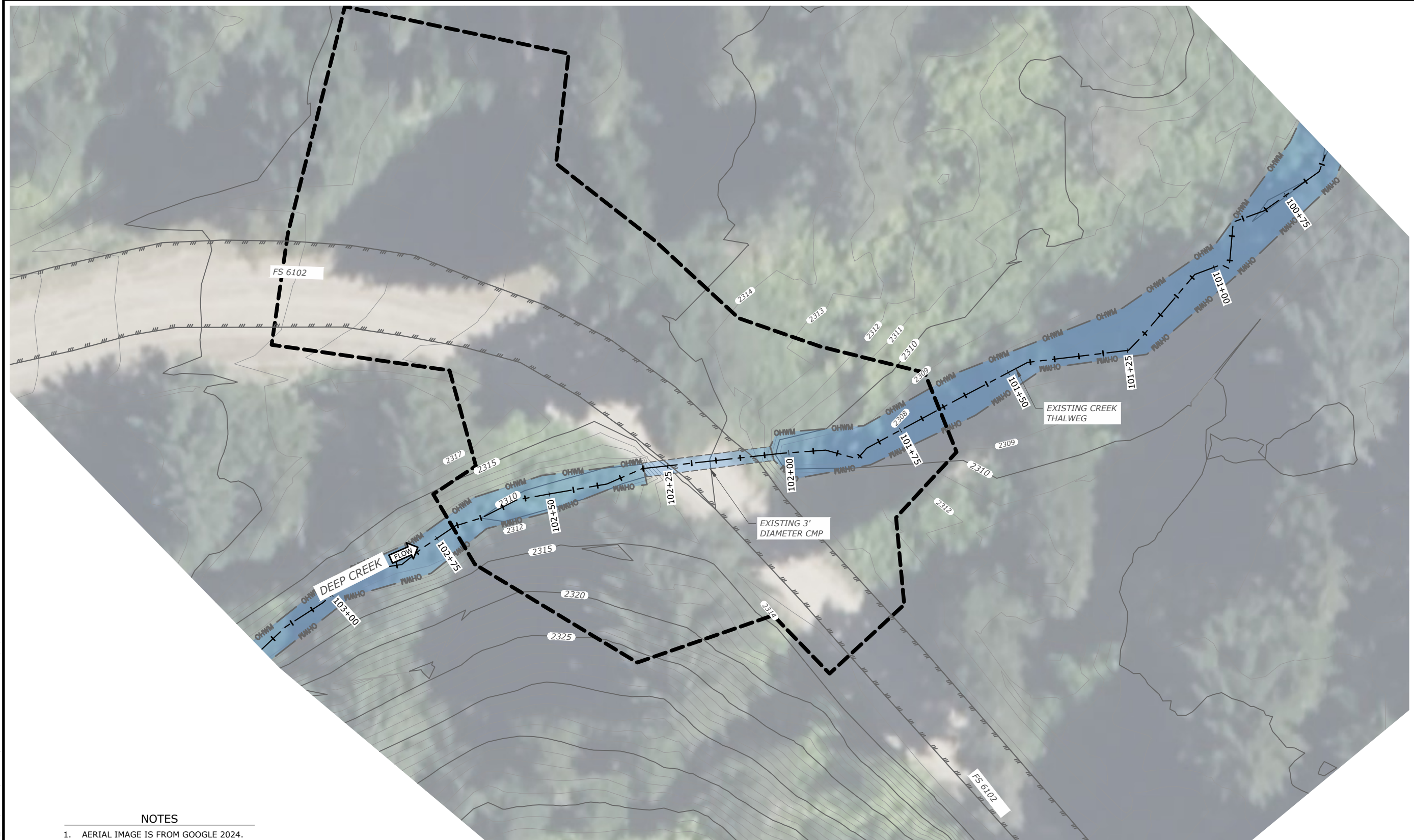
**GENERAL NOTES & LEGEND**

FINAL DESIGN

DATE 01/31/2025  
COUNTY CHELAN  
LATITUDE 47°49'47.38"N  
LONGITUDE -120°37'28.90"W  
TN/SC/RG T27N/S20/R18E  
DESIGN\_GB DRAWN\_KS  
CHECK\_NT CHECK\_GB\_RD

0 1  
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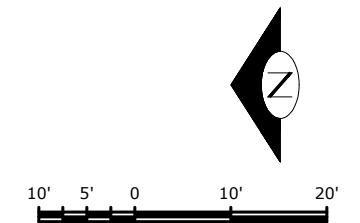
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**NOTES**

- 1. AERIAL IMAGE IS FROM GOOGLE 2024.

**EXISTING CONDITIONS**  
SCALE: 1" = 10'



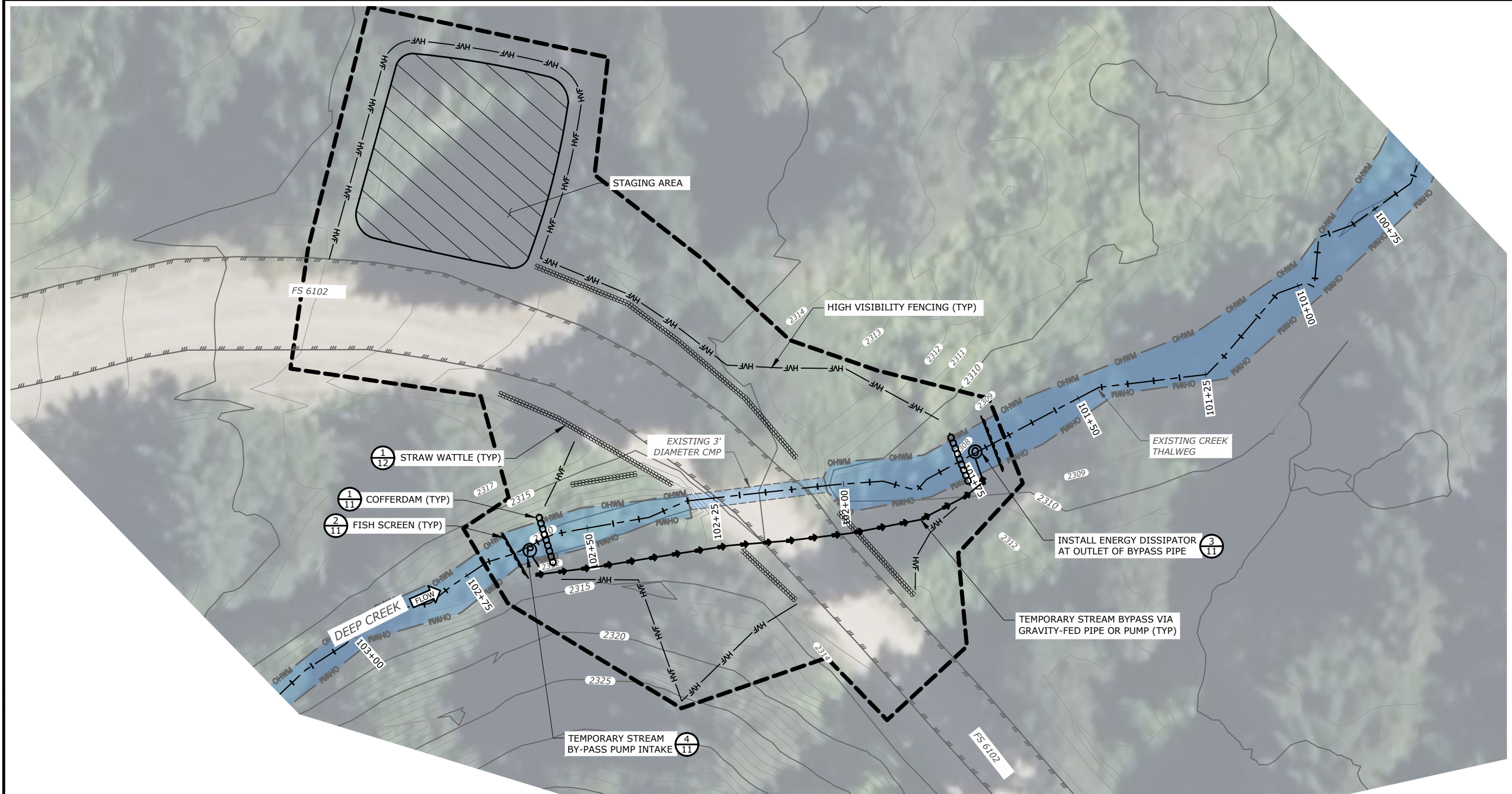
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**EXISTING CONDITIONS**

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LATITUDE	47°49'47.38"N
LONGITUDE	120°37'28.90"W
TN/SC/RG	T27N/S20/R18E
DESIGN_GB	DRAWN_KS
CHECK_NT	CHECK_GB, RD

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**TESC PLAN**  
SCALE: 1" = 10'

**NOTES**

1. TESC ELEMENTS SHOWN ON THIS SHEET SHALL BE ADJUSTED TO ACCOMMODATE CONTRACTORS WORK PLAN.
2. THE LOCATION OF THE STAGING AREA SHOWN IS APPROXIMATE. EXISTING ROAD CAN BE USED AS STAGING.
3. CONTRACTOR TO VERIFY ALL OVERHEAD AND UNDERGROUND UTILITIES BEFORE CONSTRUCTION.
4. HIGH VISIBILITY FENCE AND WATTLES SHALL BE INSTALLED AFTER WATER MANAGEMENT MEASURES ARE INSTALLED.
5. CLEARING LIMITS ARE EQUAL TO THE HIGH VISIBILITY FENCE EXTENTS.
6. TEMPORARY ROAD CLOSURES ARE PERMITTED DURING CONSTRUCTION. CONTRACTOR SHALL PREPARE AND SUBMIT A TEMPORARY TRAFFIC CONTROL PLAN FOR REVIEW AND APPROVAL. CONTRACTOR SHALL NOTIFY THE CONTRACTING AGENCY A MINIMUM OF 30 CALENDAR DAYS PRIOR TO THE START OF CONSTRUCTION AND ANY ROAD CLOSURE.
7. EXISTING ROADS THAT WILL BE USED AS ACCESS SHALL BE STABILIZED AS NEEDED TO ACCOMMODATE EQUIPMENT, SEE SHEET 12 FOR DETAILS. ANY ROAD USED DURING CONSTRUCTION MUST BE RESTORED TO IT'S EXISTING CONDITION OR BETTER AT THE CONTRACTOR'S EXPENSE ONCE CONSTRUCTION IS COMPLETE.
8. STAGING AREA SHALL BE RESTORED AND REVEGETATED FOLLOWING CONSTRUCTION. SEE SHEET 10 FOR DETAILS.
9. BASED ON OBSERVATIONS AND PREVIOUS FIELD VISITS DURING THE LATE SUMMER AND EARLY FALL, NO FLOW IN THE CHANNEL IS EXPECTED AT THE TIME OF CONSTRUCTION, LIMITING THE NEED FOR SITE ISOLATION AND DEWATERING. SUGGESTED WATER MANAGEMENT IF SURFACE WATER IS PRESENT IS DETAILED ON THIS SHEET. IF DEWATERING IS REQUIRED, DEWATERING PLAN MUST FOLLOW NATIONAL MARINE FISHERIES SERVICE (NMFS) ARBO II AND WASHINGTON ADMINISTRATIVE CODE (WAC) 173-201A-200(1) REQUIREMENTS.
10. IF SURFACE WATER IS PRESENT, CONTRACTING AGENCY TO INSTALL FISH EXCLUSION MEASURES AND COMPLETE FISH SALVAGE. NOTIFY THE CONTRACTING AGENCY AT LEAST 7 CALENDAR DAYS PRIOR TO THE START OF WORK.
11. IN-WATER WORK WINDOW IS JULY 1 - FEBRUARY 28.



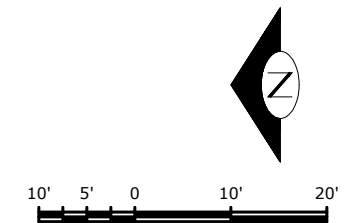
CHELAN COUNTY NATURAL RESOURCES DEPARTMENT  
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**TESC PLAN**  
FINAL DESIGN

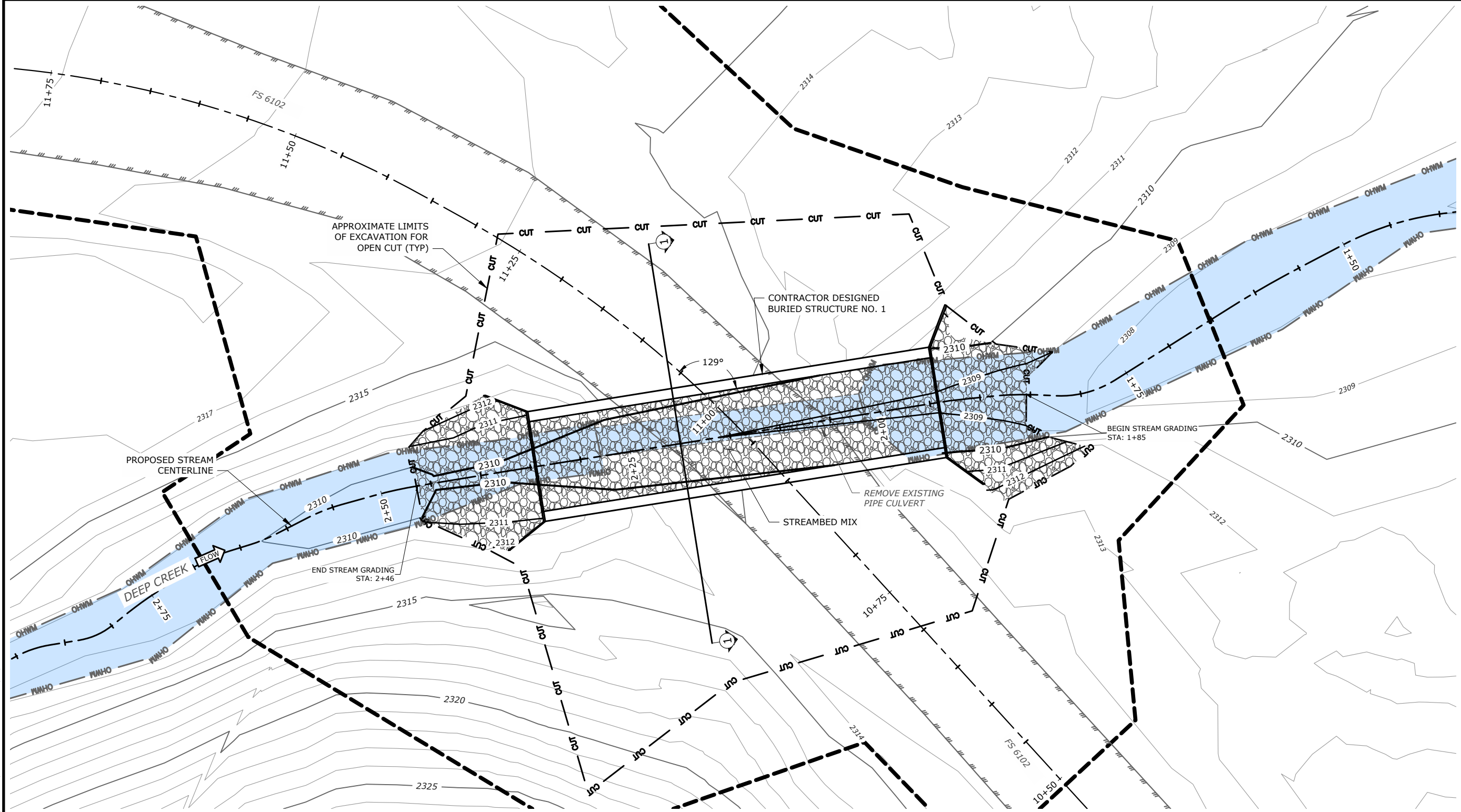
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COUNTY CHELAN  
LATITUDE 47°49'47.38"N  
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IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT PLOTTED TO ORIGINAL SCALE.

SHEET  
4 OF 12



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**NOTES**

1. STREAMBED MIX SHALL CONSIST OF TWO PARTS 6 INCH STREAMBED COBBLE AND ONE PART STREAMBED SEDIMENT. SEE TABLE ON THIS SHEET.
2. EXISTING STREAMBED MATERIAL MAY BE REUSED AS APPROVED BY THE PROJECT ENGINEER OR CONTRACTING AGENCY.
3. STREAMBED SAND OR EXISTING STREAMBED MATERIAL SHALL BE USED AS NECESSARY TO SEAL THE PROPOSED STREAMBED.
4. EXISTING IN-STREAM WOOD REMOVED DURING CONSTRUCTION SHALL BE REINCORPORATED WITHIN THE STREAM AS DIRECTED BY THE PROJECT ENGINEER OR CONTRACTING AGENCY.
5. CONTRACTOR DESIGNED BURIED STRUCTURE NO. 1 SHALL MEET BUILD AMERICA, BUY AMERICA ACT MANUFACTURING REQUIREMENTS.
6. REFER TO SHEET 6 FOR THE STREAM PROFILE AND SHEET 7 FOR STREAM CROSS-SECTIONS.
7. MAJOR CONTOURS ARE AT 5' INTERVAL, MINOR CONTOURS ARE AT 1' INTERVAL.

**STREAM PLAN**  
SCALE: 1" = 5'

STREAMBED MIX		
MATERIAL	PERCENTAGE	SPECIFICATION
STREAMBED SEDIMENT	34%	9-03.11(1)
6" STREAMBED COBBLES	66%	9-03.11(4)



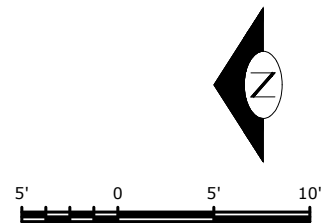
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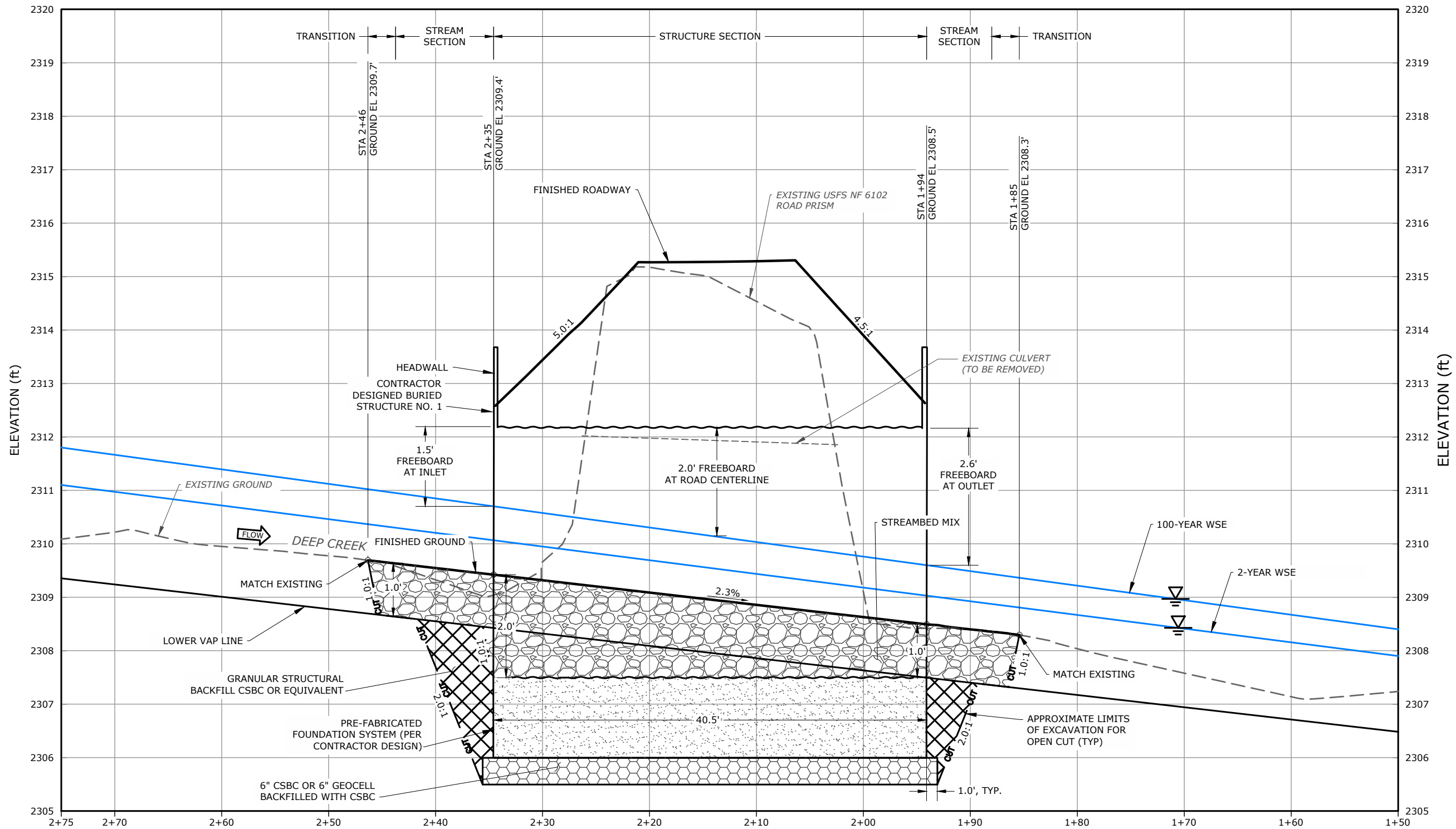
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SHEET  
5 OF 12



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**STREAM PROFILE**  
 HORIZONTAL SCALE: 1"=5'; VERTICAL SCALE: 1"=1'



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**STREAM PROFILE**

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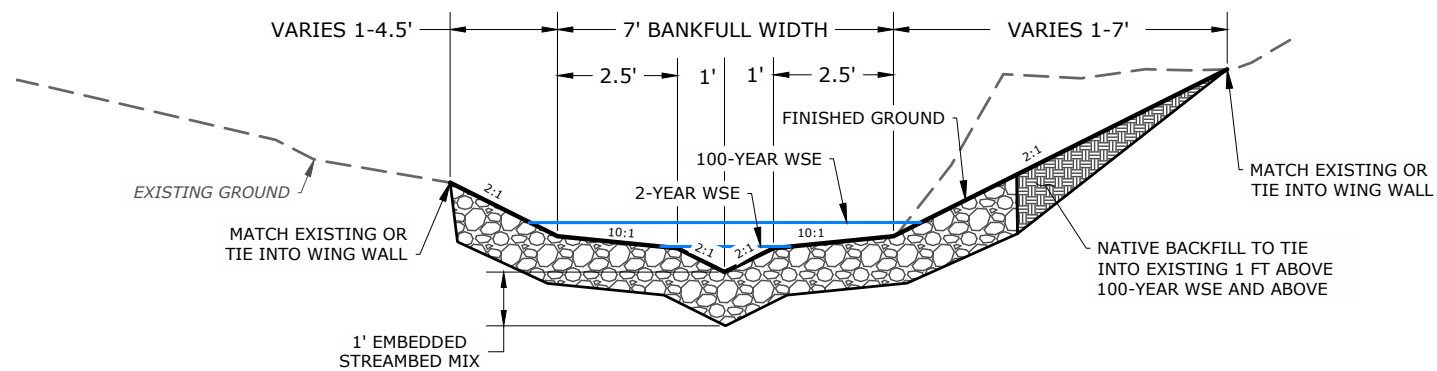
STREAM CROSS SECTIONS

FINAL DESIGN

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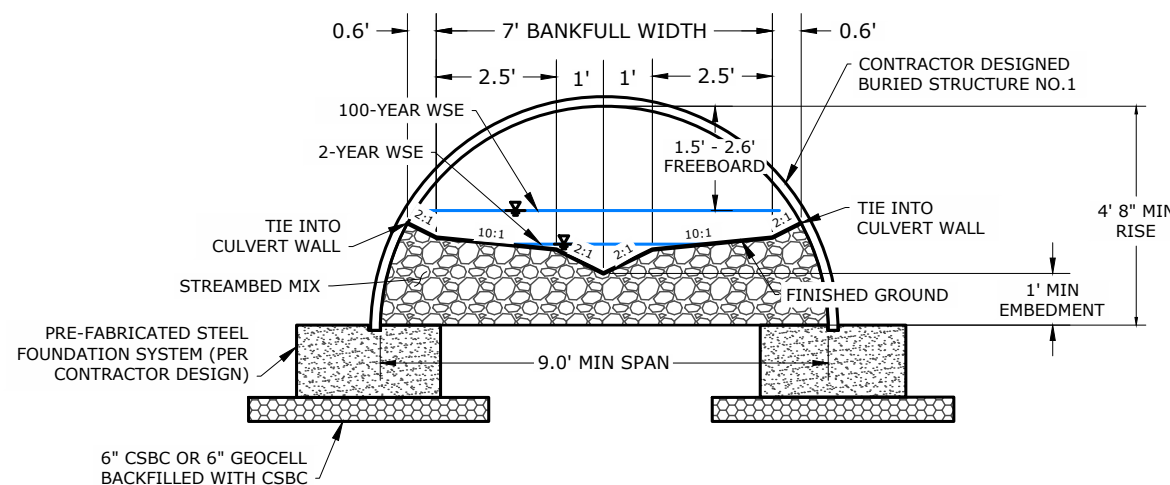
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SHEET  
 7 OF 12



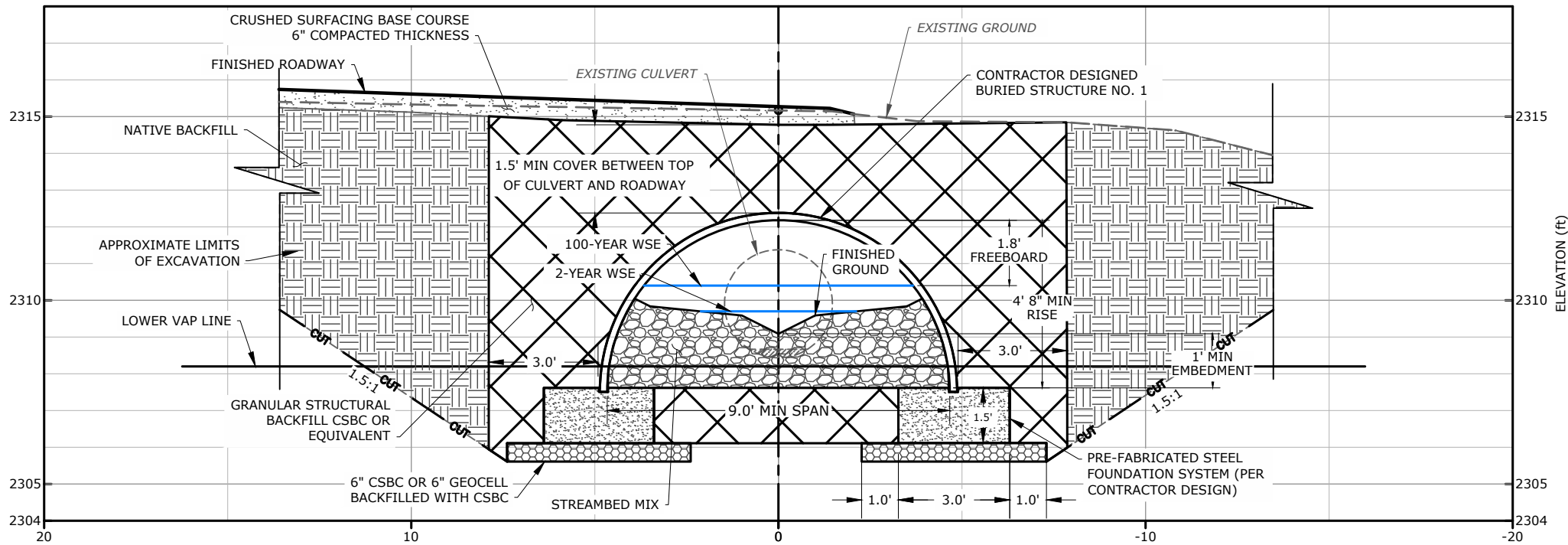
**TYPICAL STREAM SECTION**

NTS  
 STA 1+85 TO 1+94  
 STA 2+35 TO 2+46



**TYPICAL STRUCTURE SECTION**

NTS  
 STA 1+94 TO 2+35

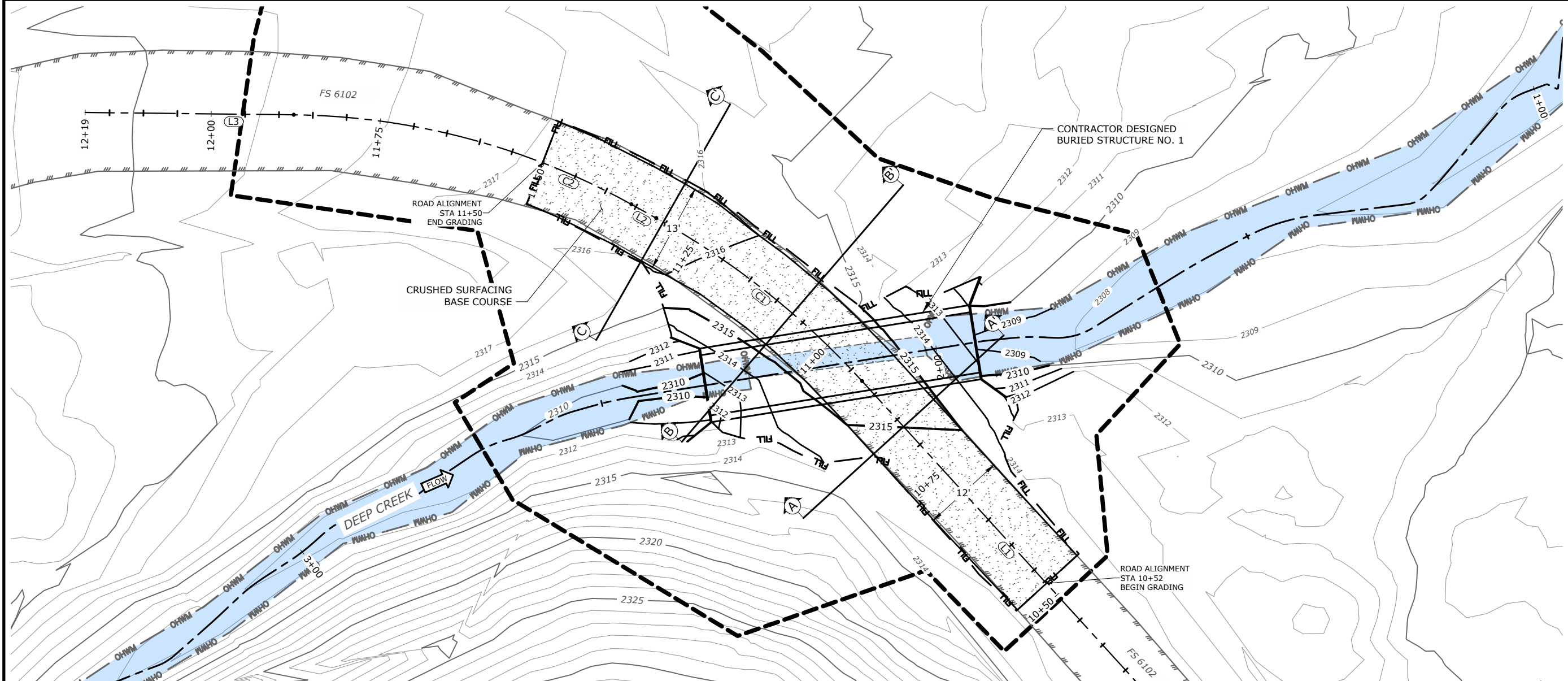


**CROSS-SECTION 1 (STA 2+20)**

HORIZONTAL SCALE: 1"=2'; VERTICAL SCALE: 1"=2'

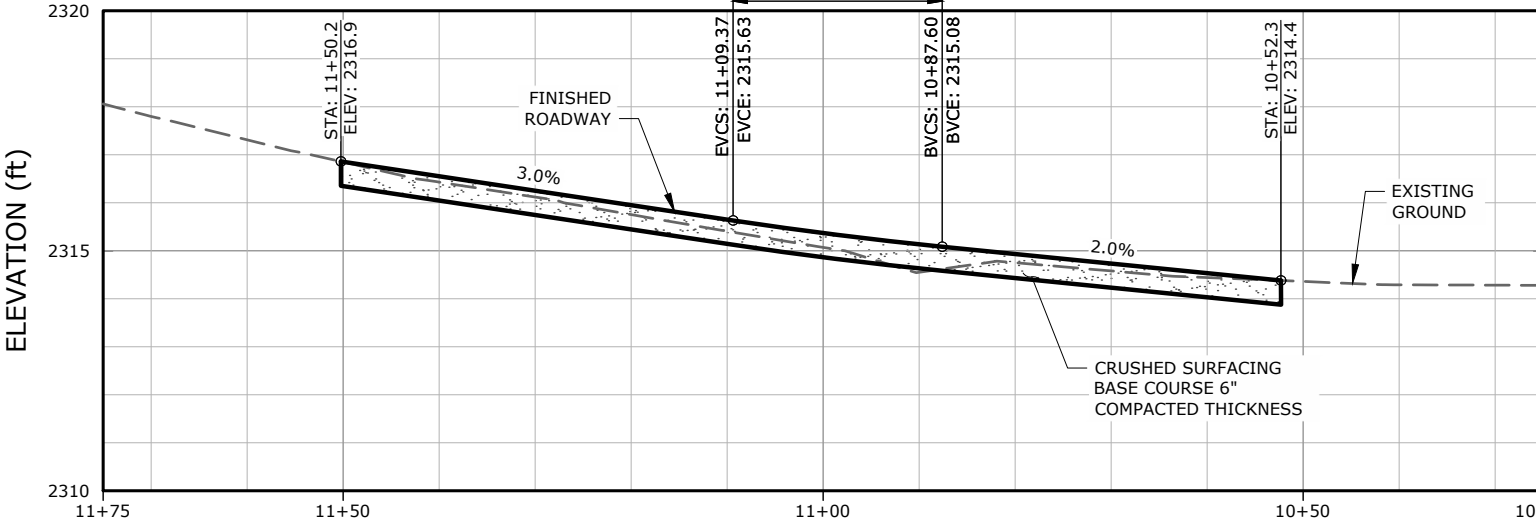
**NOTES**

1. THE CONTRACTOR SHALL FURNISH A CULVERT THAT COMPLIES WITH THE BUILD AMERICA, BUY AMERICA ACT MANUFACTURING REQUIREMENTS AND MEETS THE MINIMUM DIMENSIONS SHOWN ON THIS SHEET. THE CONTRACTOR SHALL SUBMIT TYPE 2E WORKING DRAWINGS FOR THE CULVERT AND FOOTINGS DOCUMENTING CONFORMANCE WITH DESIGN STANDARDS OUTLINED IN THE SPECIAL PROVISIONS.
2. FINAL FOOTING DIMENSIONS, FOUNDATION PREPARATION, AND SUBGRADE IMPROVEMENTS SHALL BE DESIGNED BY THE CONTRACTOR BASED ON THE GEOTECHNICAL REPORT.
3. CROSS SECTIONS ARE LOOKING DOWNSTREAM.



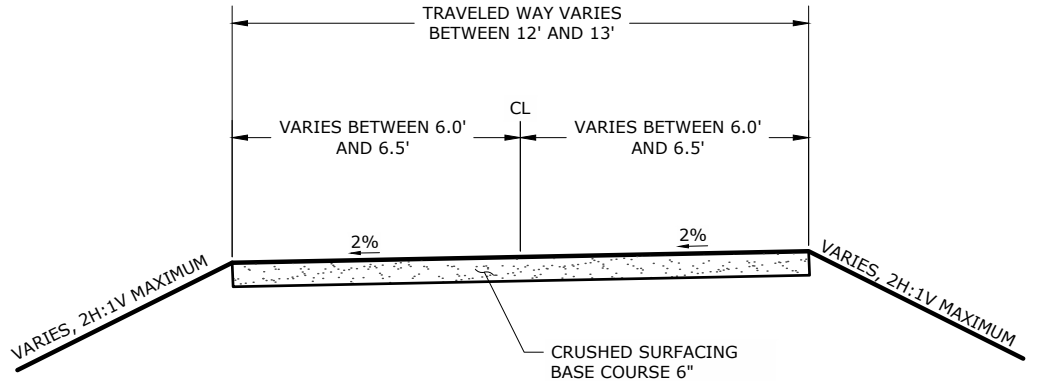
**ROAD PLAN**  
SCALE: 1" = 8'

PVI STA: 10+98.49  
PVI ELEV: 2315.30  
K: 21.54  
LVC: 21.77

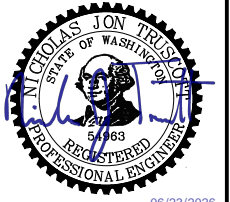


**ROAD PROFILE**

HORIZONTAL SCALE: 1"=5'; VERTICAL SCALE: 1"=1'



**TYPICAL ROADWAY SECTION**  
NTS



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**ROAD PLAN AND PROFILE**

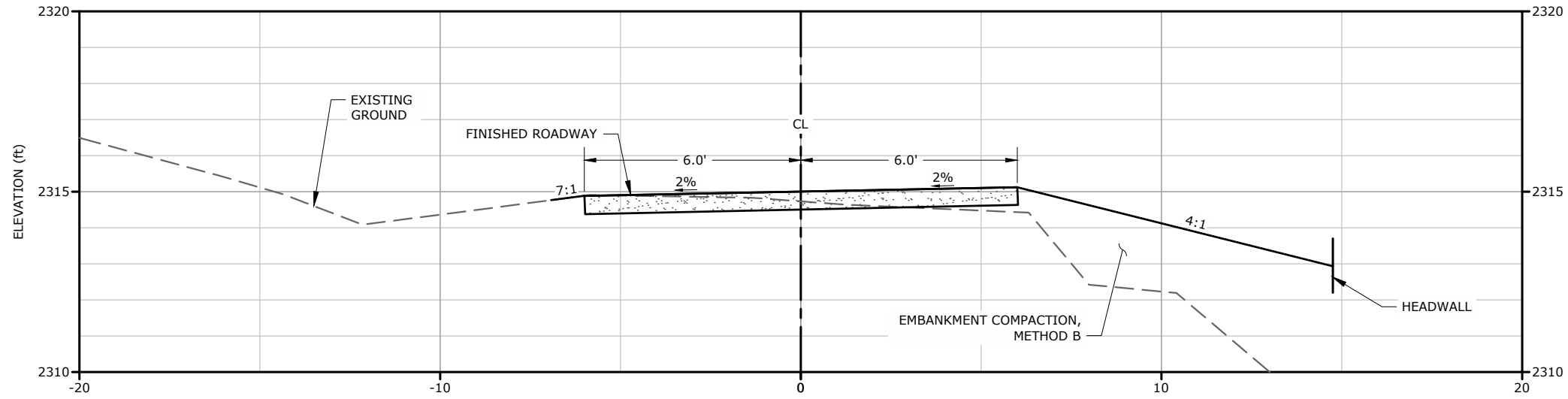
FINAL DESIGN

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COUNTY	CHELAN
LATITUDE	47°49'47.38"N
LONGITUDE	120°37'28.90"W
TN/SC/RG	T27N/S20/R18E
DESIGN	GB
DRAWN	KS
CHECK	NT
CHECK	GB, RD

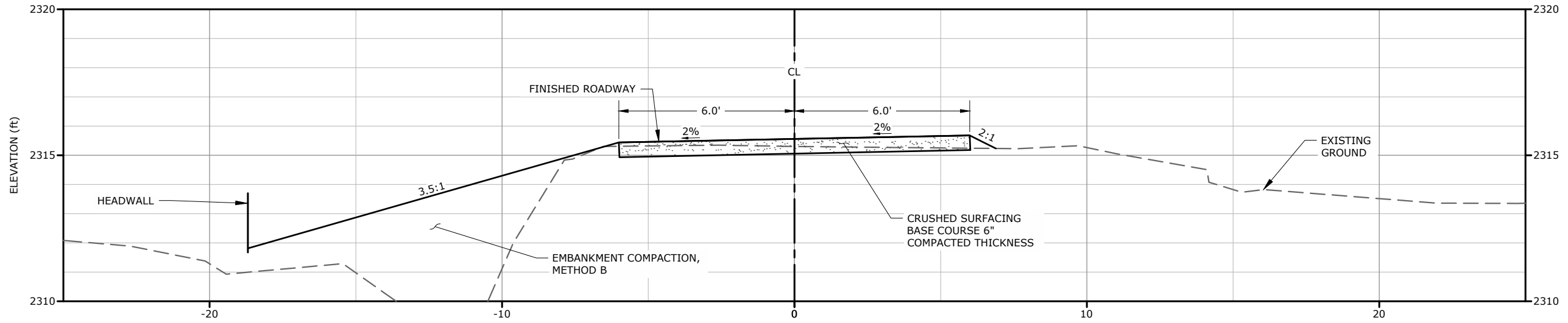
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IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT PLOTTED TO ORIGINAL SCALE.

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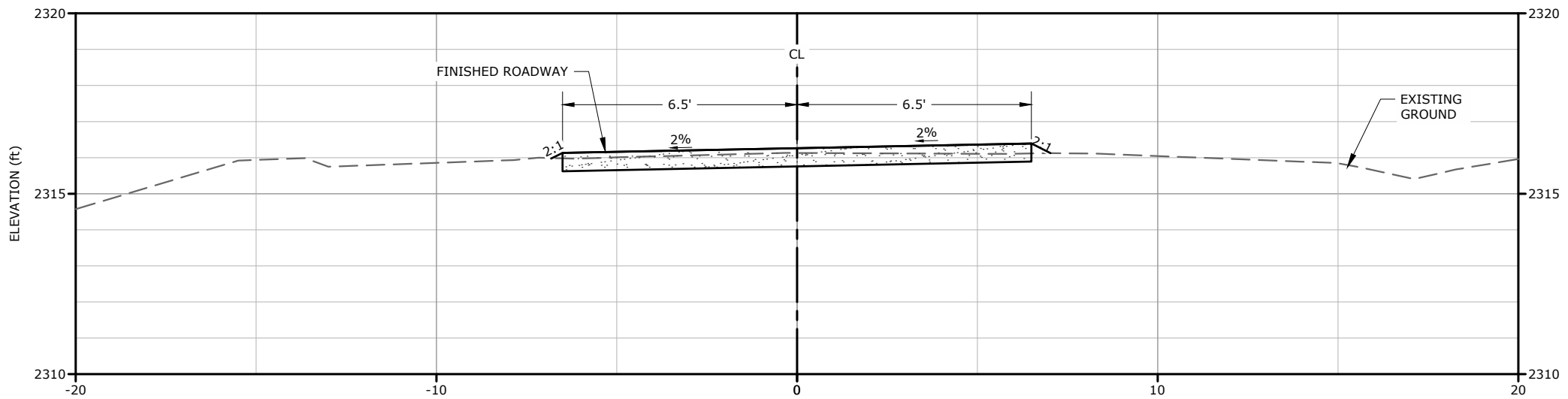
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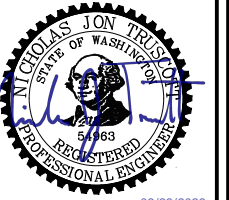
**CROSS-SECTION A (STA 10+84)**  
HORIZONTAL SCALE: 1"=2'; VERTICAL SCALE: 1"=2'



**CROSS-SECTION B (STA 11+07)**  
HORIZONTAL SCALE: 1"=2'; VERTICAL SCALE: 1"=2'



**CROSS-SECTION C (STA 11+30)**  
HORIZONTAL SCALE: 1"=2'; VERTICAL SCALE: 1"=2'



06/23/2026

CHELAN COUNTY NATURAL RESOURCES DEPARTMENT  
UPPER WENATCHEE PILOT PROJECT AQUATIC ORGANISM  
PASSAGE RTE 6102000 MP 1.7 DEEP CREEK

ROAD CROSS SECTIONS

FINAL DESIGN

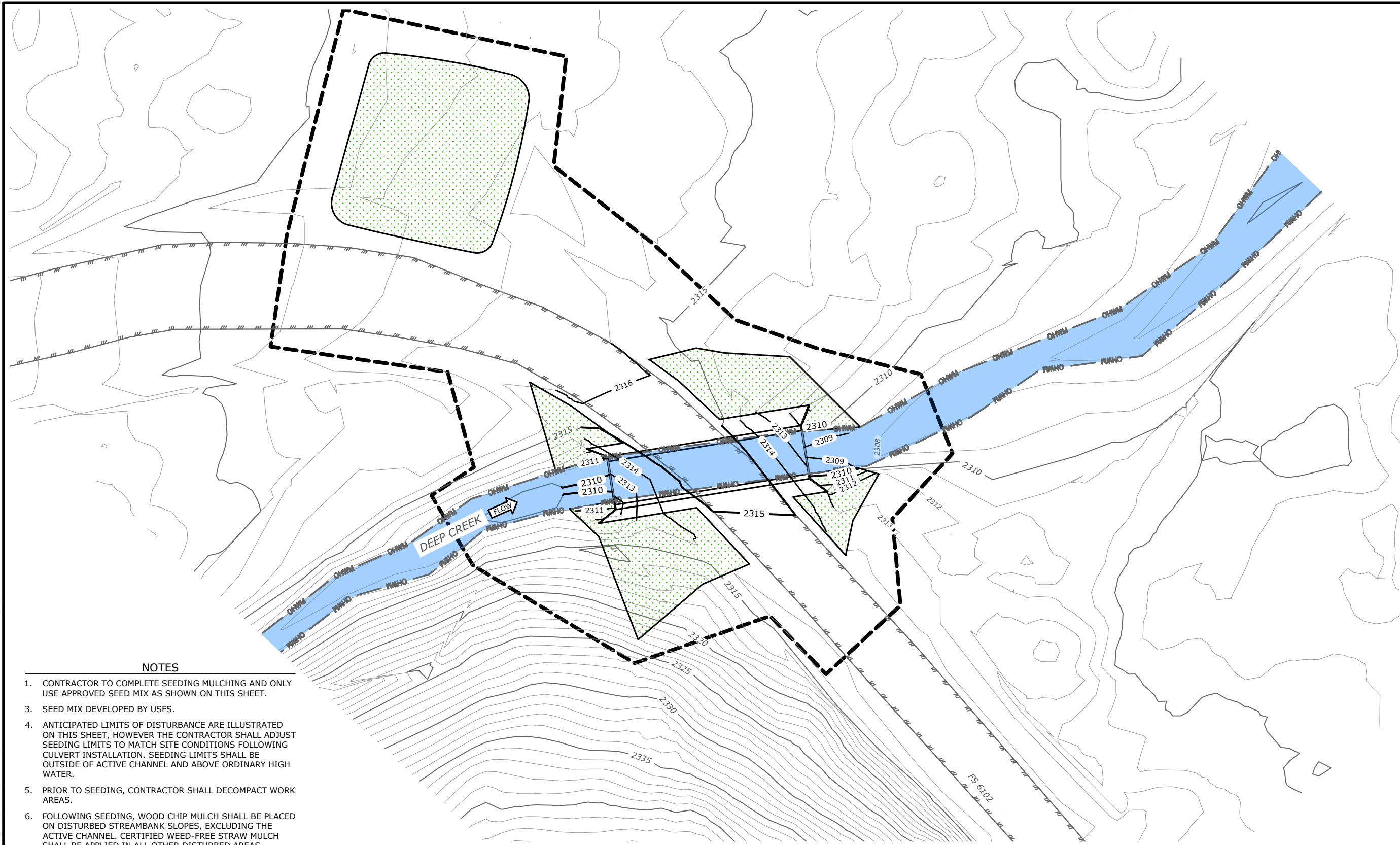
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COUNTY CHELAN  
LATITUDE 47°49'47.38"N  
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CHECK\_NT CHECK\_GB\_RD



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SHEET  
9 OF 12

P:\A\_G\CCNRD\CCNRD072\_UWPP\_AOP\_C1\_C12\_C14\DESIGN\CAD - C1\SITE RESTORATION PLAN.DWG Grace 06/23/2026 3:11:45 PM

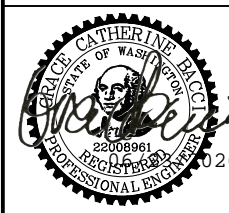


**NOTES**

1. CONTRACTOR TO COMPLETE SEEDING MULCHING AND ONLY USE APPROVED SEED MIX AS SHOWN ON THIS SHEET.
3. SEED MIX DEVELOPED BY USFS.
4. ANTICIPATED LIMITS OF DISTURBANCE ARE ILLUSTRATED ON THIS SHEET, HOWEVER THE CONTRACTOR SHALL ADJUST SEEDING LIMITS TO MATCH SITE CONDITIONS FOLLOWING CULVERT INSTALLATION. SEEDING LIMITS SHALL BE OUTSIDE OF ACTIVE CHANNEL AND ABOVE ORDINARY HIGH WATER.
5. PRIOR TO SEEDING, CONTRACTOR SHALL DECOMPACT WORK AREAS.
6. FOLLOWING SEEDING, WOOD CHIP MULCH SHALL BE PLACED ON DISTURBED STREAMBANK SLOPES, EXCLUDING THE ACTIVE CHANNEL. CERTIFIED WEED-FREE STRAW MULCH SHALL BE APPLIED IN ALL OTHER DISTURBED AREAS.
7. PLANT SCHEDULE TO BE DEVELOPED, PROCURED, AND INSTALLED BY THE CONTRACTING AGENCY.

**SITE RESTORATION PLAN**  
SCALE: 1" = 10'

SEED MIX		
SPECIES NAME	COMMON NAME	PERCENTAGE
<i>AGROPYRON SPICATUM</i>	BLUEBUNCH WHEATGRASS	54%
<i>FESTUCA IDAHOENSIS</i>	IDAHO FESCUE	20%
<i>CALAMAGROSTIS RUBESCENS</i>	PINEGRASS	20%
<i>HEUCHERA CYLINDRICA</i>	ROUNDLEAF ALUMROOT	3%
<i>ACHILLEA MILLEFOLIUM</i>	YARROW	3%

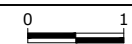


CHELAN COUNTY NATURAL RESOURCES DEPARTMENT  
UPPER WENATCHEE PILOT PROJECT AQUATIC ORGANISM  
PASSAGE RTE 6102000 MP 1.7 DEEP CREEK

**SITE RESTORATION PLAN**

FINAL DESIGN

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LONGITUDE E 120°37'28.90"W  
TN/SC/RG T27N/S20R18E  
DESIGN\_GB DRAWN\_KS  
CHECK\_NT CHECK\_GB, RD

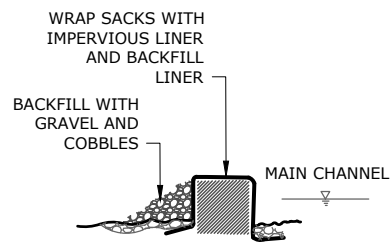
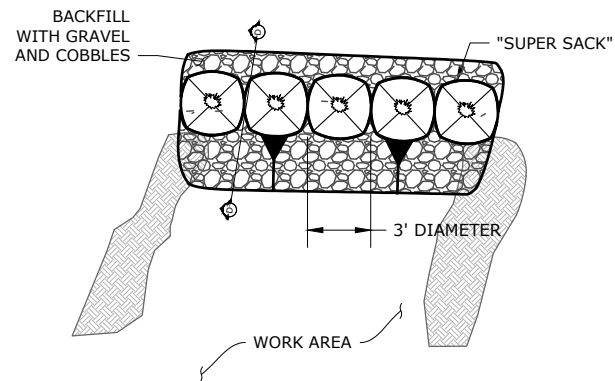


IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT PLOTTED TO ORIGINAL SCALE.

SHEET

10 OF 12





SECTION D-D

NOTES

1. WRAP "SUPER SACKS" WITH IMPERVIOUS PLASTIC LINER TO PREVENT SEEPAGE.
2. BACKFILL THE DOWNSTREAM SIDE COFFER DAM WITH NATIVE, ADJACENT ALLUVIUM FROM SIDE CHANNEL EXCAVATION.
3. USE "SUPER SACKS" AS BUTTRESSES AS REQUIRED.
4. "SUPER SACKS" MAY BE REPLACED WITH SAND BAGS IF FLOWS ALLOW AND APPROVED BY THE PROJECT ENGINEER. SAND BAGS MAY BE FILLED WITH EXCAVATION FROM THE SIDE CHANNEL AND FILL MATERIAL MAY BE PLACED ON GRAVEL BARS FOLLOWING USE. REMOVE ALL PLASTIC FROM THE SITE.

COFFERDAM

NTS

1

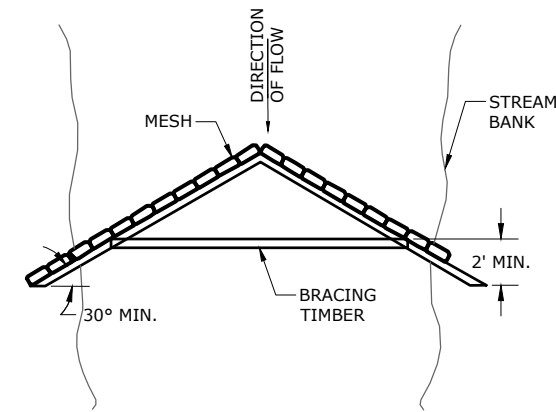
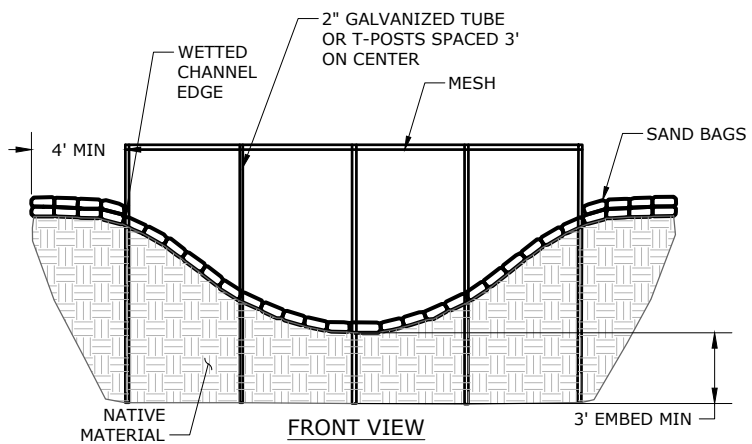
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FISH SCREEN

NTS

2

11

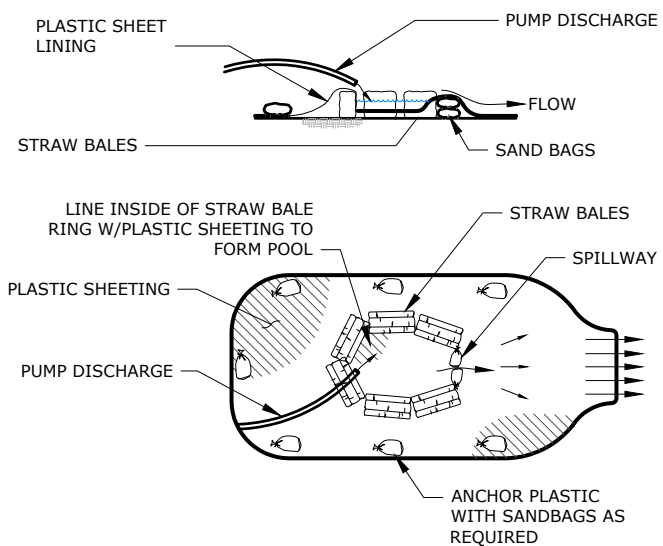


PLAN VIEW

NOTES

1. IF NEEDED, INSTALL 2" GALVANIZED TUBES OR STEEL T-POSTS ON 3' CENTERS.
2. SECURE MESH TO SAND BAGS ON BANK OR TO 2" GALVANIZED TUBES WITH WIRE FASTENER.
3. SECURE WIRE FISH NET TO STREAM BOTTOM WITH SAND BAGS.
4. EXTEND SAND BAGS 4' MIN. PAST WETTED CHANNEL EDGE.
5. ADD BRACING TIMBER AS NEEDED TO SUPPORT THE SCREEN.
6. REMOVE DEBRIS FROM THE UPSTREAM SIDE OF FENCE A MINIMUM OF THREE TIMES PER DAY TO PREVENT CLOGGING.

\*DEFISHING WILL BE COMPLETED BY THE CONTRACTING AGENCY. BMPS SHALL BE INSTALLED TO MEET WAC 220-660-120. BMPS SHOWN FOR DEFISHING AND FISH ISOLATION ARE FOR REFERENCE AND NOT PART OF THIS CONTRACT.

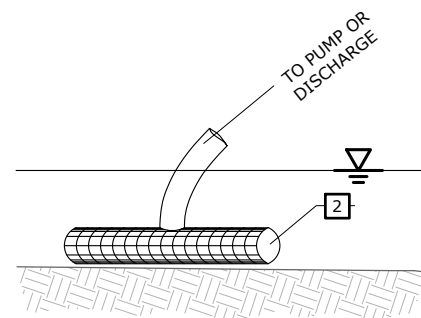


ENERGY DISSIPATOR

NTS

3

11



STREAM BY-PASS PUMP INTAKE

NTS

4

11

NOTES

1. STREAM BY PASS INTAKE SHALL REST ON EXISTING STREAMBED.
2. PUMP INTAKE SHALL BE FITTED WITH FISH SCREEN MEETING APPLICABLE RCW SECTIONS (RCW 77.57.010 AND 77.57.070) AS WELL AS NMFS CRITERIA.
3. PUMP CAPACITY SHALL BE SIZED TO CONVEY THE ENTIRETY OF STREAMFLOW WITHOUT DEWATERING THE CHANNEL OUTSIDE THE ISOLATED WORK AREA; VARIABLE PUMPING MAY BE REQUIRED.
4. INSTALL INTAKE BETWEEN BLOCK NET AND COFFERDAM.



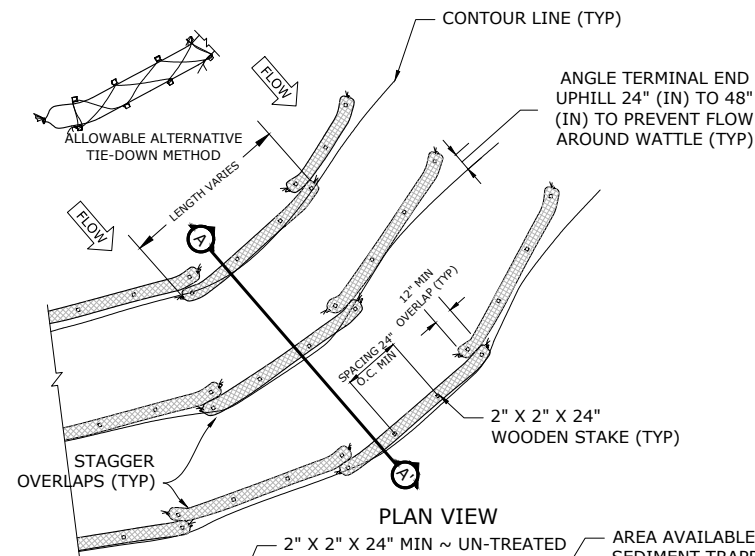
CHELAN COUNTY NATURAL RESOURCES DEPARTMENT  
 UPPER WENATCHEE PILOT PROJECT AQUATIC ORGANISM  
 PASSAGE RTE 6102000 MP 1.7 DEEP CREEK

TESC DETAILS 1

FINAL DESIGN

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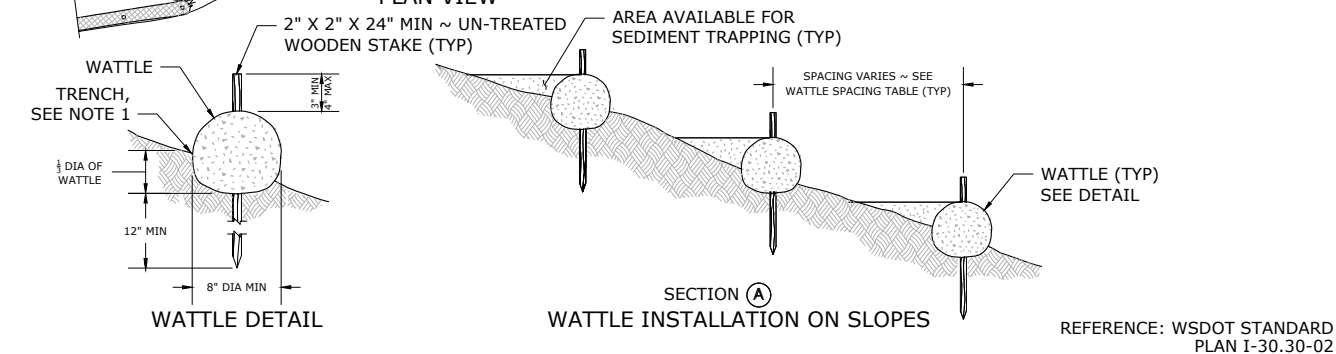
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 IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT PLOTTED TO ORIGINAL SCALE.



- NOTES**
1. INSTALL WATTLES PERPENDICULAR TO FLOW ALONG CONTOURS.
  2. SECURELY KNOT EACH END OF WATTLE. OVERLAP ADJACENT WATTLE ENDS 12" (IN) BEHIND ONE ANOTHER AND SECURELY TIE TOGETHER.
  3. COMPACT EXCAVATED SOIL AND TRENCHES TO PREVENT UNDERCUTTING. ADDITIONAL STAKING MAY BE NECESSARY TO PREVENT UNDERCUTTING.
  4. WATTLES SHALL BE INSPECTED REGULARLY, AND IMMEDIATELY AFTER A RAINFALL PRODUCES RUNOFF, TO ENSURE THE REMAIN THOROUGHLY ENTRENCHED AND IN CONTACT WITH THE SOIL.

**WATTLE SPACING TABLE**

TEMPORARY		PERMANENT	
8" - 10" OR 10" - 12" DIAM.		10" - 12" DIAM.	
SLOPE	MAX. SPACING	SLOPE	MAX. SPACING
1H : 1V	5' - 0"	-	-
2H : 1V	10' - 0"	2H : 1V	5' - 0"
3H : 1V	15' - 0"	3H : 1V	10' - 0"
4H : 1V	20' - 0"	4H : 1V	15' - 0"



REFERENCE: WSDOT STANDARD PLAN I-30.30-02

**STRAW WATTLE**  
NTS

1  
12

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CHELAN COUNTY NATURAL RESOURCES DEPARTMENT  
UPPER WENATCHEE PILOT PROJECT AQUATIC ORGANISM  
PASSAGE RTE 6102000 MP 1.7 DEEP CREEK

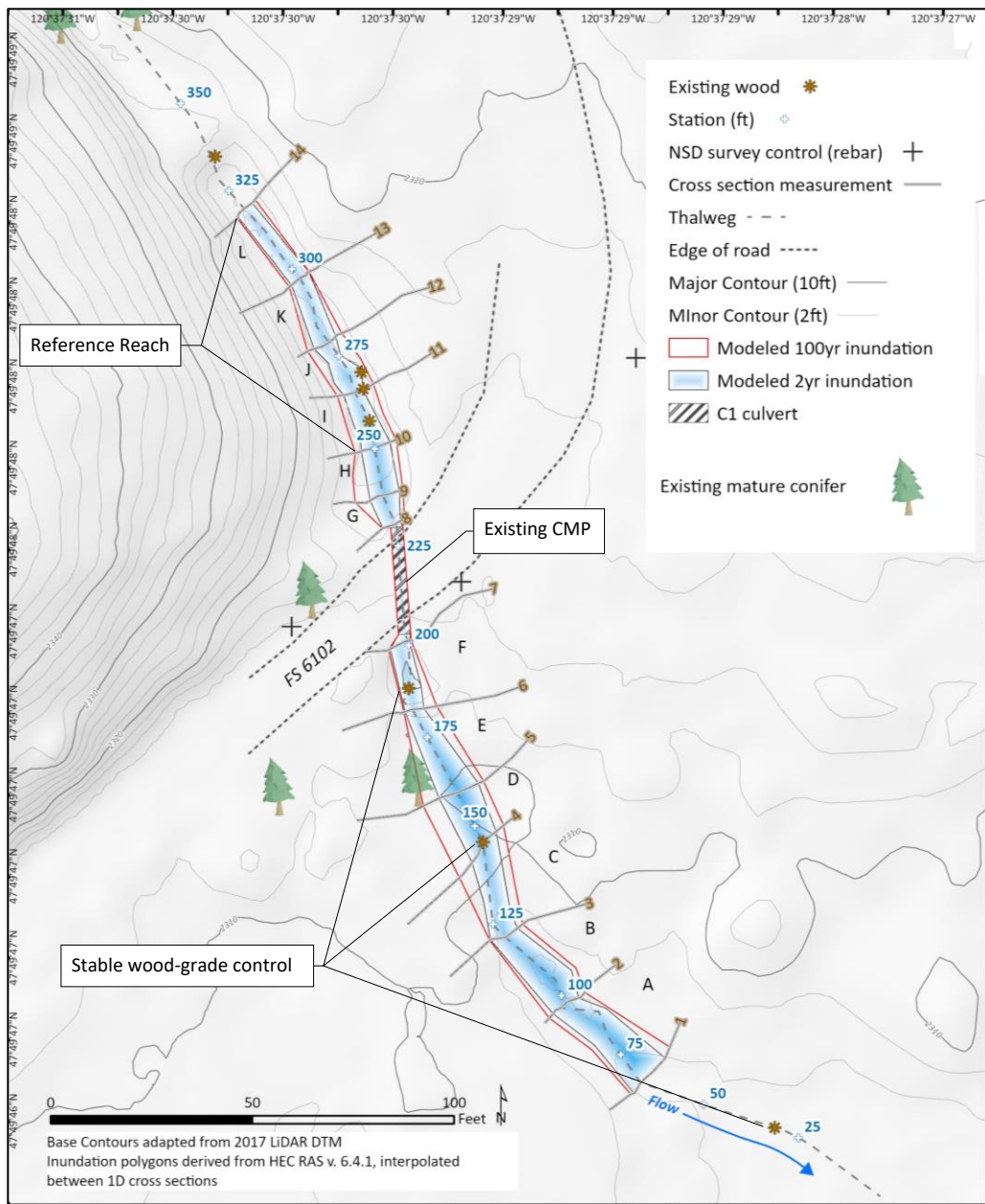
TESC DETAILS 2

FINAL DESIGN

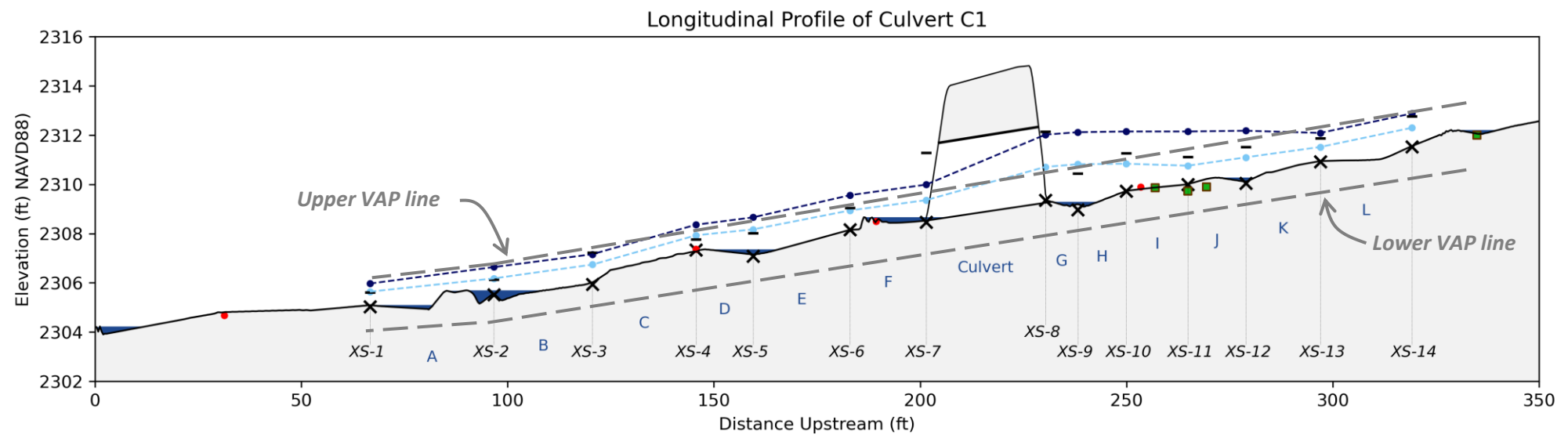
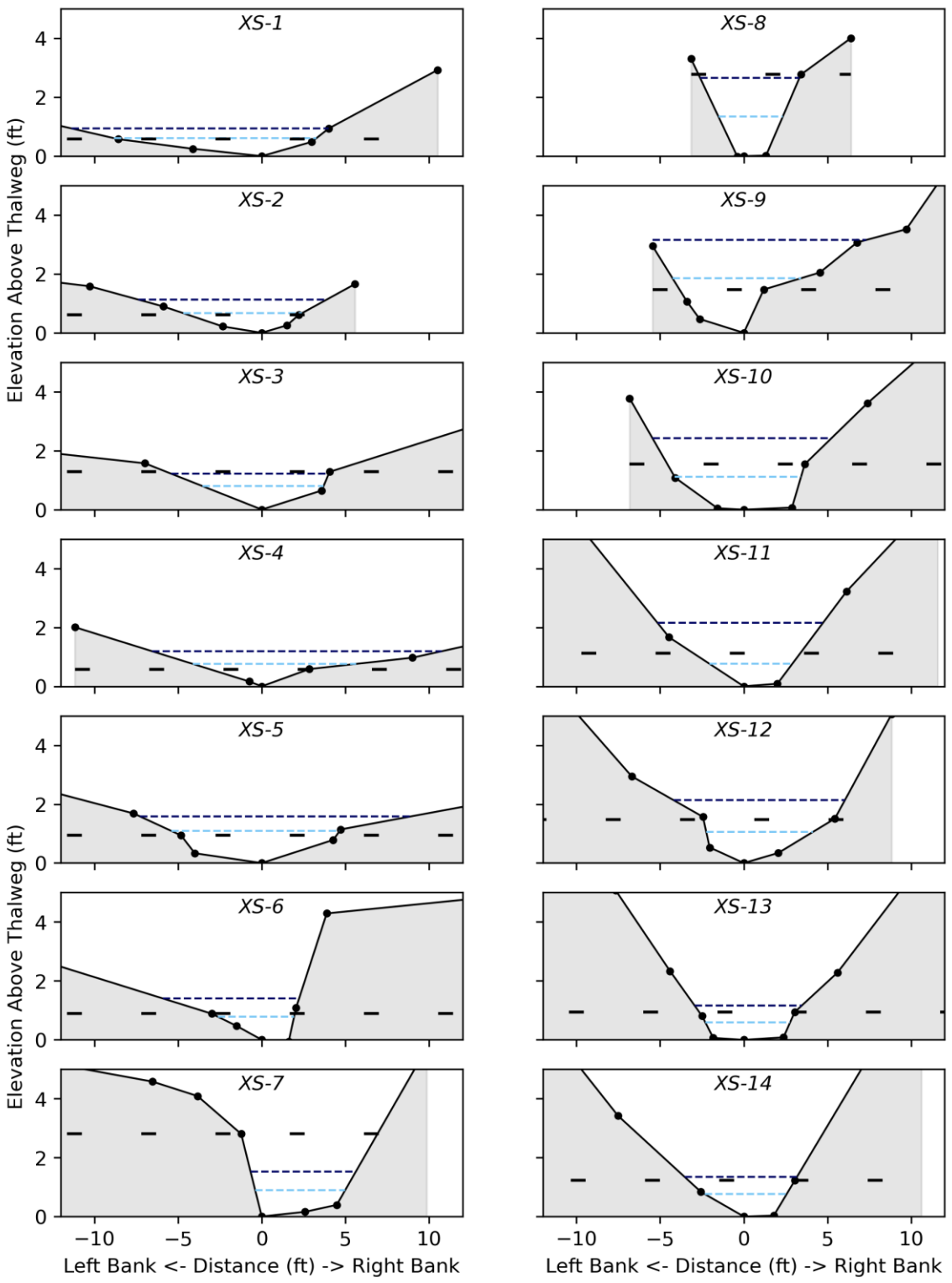
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Segment	Elevation Change (ft)	Segment Length (ft)	Gradient	N Grade Controls	Max Residual Pool Depth (ft)
A	0.48	30.11	0.016	0	0.53
B	0.43	23.80	0.018	0	0.27
C	1.39	28.82	0.048	1	0
D	-0.26	13.85	-0.018	0	0.21
E	1.08	23.43	0.046	0	0.21
F	0.31	18.45	0.017	1	0.23
Culvert	0.90	28.90	0.031	0	0
G	-0.40	7.90	-0.051	0	0.2
H	0.76	11.75	0.065	0	0.2
I	0.27	26.64	0.010	1	0
J	0.05	14.08	0.003	0	0.16
K	0.89	17.98	0.049	0	0.16
L	0.61	22.17	0.027	0	0



- Channel Bed Profile
- Residual Pool
- Road Prism
- Top of Culvert
- X Cross Section Locations
- Q100YR WSE
- Q2YR WSE
- Top of Bank/FP
- Wood, Stable
- Wood, Low Stability

CCNRD-072  
**Stream Simulation of Culvert C1:**  
 Longitudinal Profile and Cross Sections of Existing Conditions

Stream: Deep Creek  
 Road Crossing: NF Road 6102

