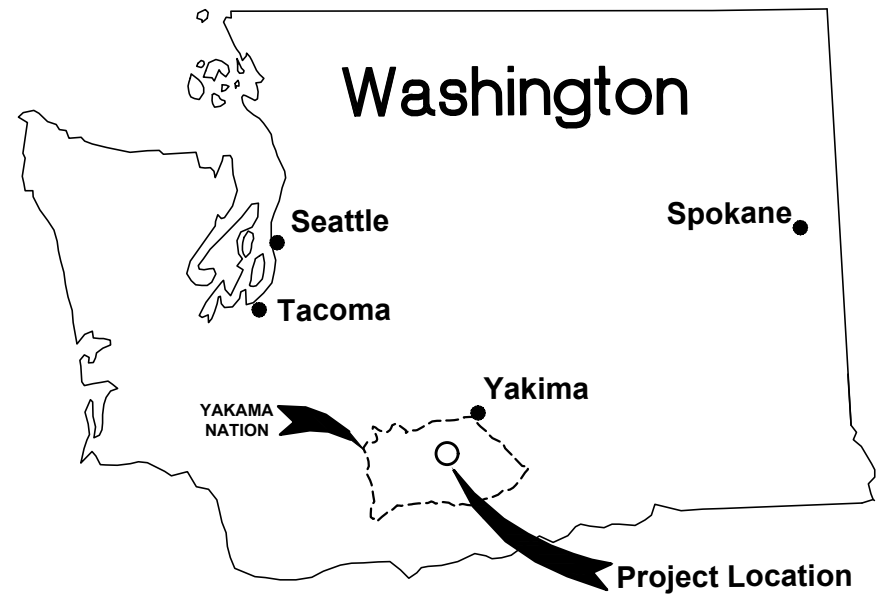
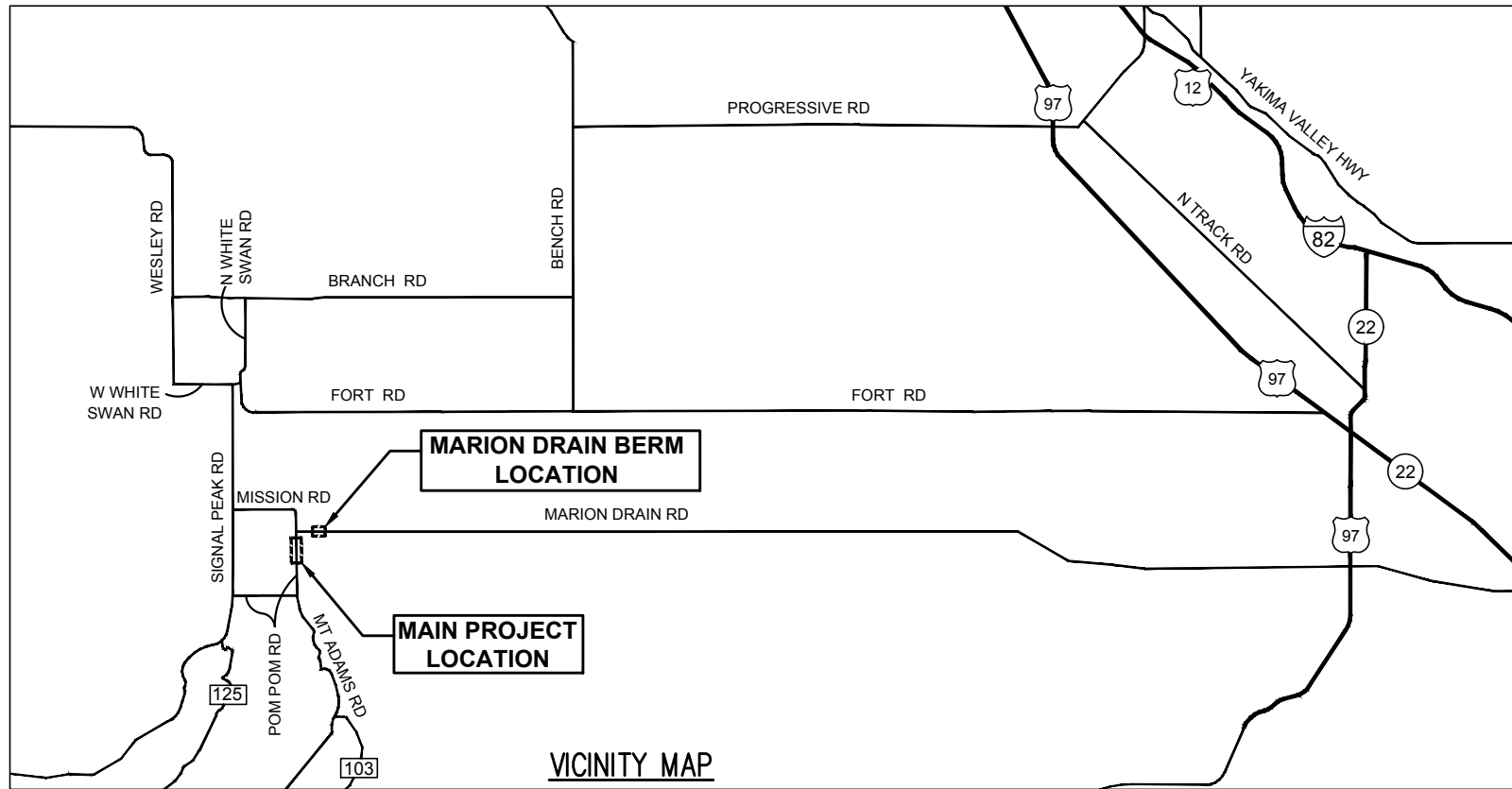


YAKAMA NATION POM POM ROAD AT TOPPENISH CREEK

SEC. 20 & 21, T. 10 N., R. 17 E., W.M.
NOVEMBER 2025



LOCATION MAP



IN-WATER WORK WINDOW =
JULY 1ST THROUGH OCTOBER 31ST

DATUM
VERTICAL DATUM: NAVD 88
HORIZONTAL DATUM: NAD 83/11

SHEET INDEX

DRAWING	SHEET	DESCRIPTION
GENERAL SHEETS		
G01	1	COVER SHEET
G02	2	LEGEND AND ABBREVIATIONS
G03	3	PROJECT PROPOSED CONSTRUCTION SEQUENCE
G04	4	HIP CONSERVATION MEASURES
G05	5	HIP CONSERVATION MEASURES II
G06	6	HIP CONSERVATION MEASURES III
CIVIL SHEETS		
C01	7	TYPICAL SECTIONS - POM POM ROAD
C02	8	TYPICAL SECTIONS II - POM POM ROAD
C03	9	POM POM ROAD TEMPORARY TRAFFIC CONTROL PLAN
C10	10	POM POM ROAD PLAN & PROFILE - STA 1+00 TO STA 4+75
C11	11	POM POM ROAD PLAN & PROFILE - STA 4+75 TO STA 8+75
C12	12	POM POM ROAD PLAN & PROFILE - STA 8+75 TO STA 12+75
C13	13	POM POM ROAD PLAN & PROFILE - STA 12+75 TO STA 16+75
C14	14	POM POM ROAD PLAN & PROFILE - STA 16+75 TO STA 20+75
C20	15	EROSION CONTROL NOTES AND DETAILS
C21	16	GRADING AND EROSION CONTROL PLAN I
C22	17	GRADING AND EROSION CONTROL PLAN II
C23	18	GRADING AND EROSION CONTROL PLAN III
C24	19	GRADING AND EROSION CONTROL PLAN IV
C25	20	WALL PROFILE AT BOX CULVERTS
C26	21	WALL PROFILE AT BOX CULVERTS II
C27	22	WALL PROFILE AT BRIDGE ABUTMENTS
C28	23	WALL PROFILE AT BRIDGE ABUTMENTS II
C30	24	ROADWAY CROSS-SECTIONS STA 1+00 TO 8+00
C31	25	ROADWAY CROSS-SECTIONS STA 8+50 TO 15+50
C32	26	ROADWAY CROSS-SECTIONS STA 16+00 TO 19+50
C40	27	CIVIL DETAILS I
C41	28	CIVIL DETAILS II
STRUCTURAL SHEETS		
S1	29	BRIDGE GENERAL NOTES
S2	30	BRIDGE PLAN AND ELEVATION
S3	31	BRIDGE SUPERSTRUCTURE CONSTRUCTION SEQUENCE
S4	32	BRIDGE FOUNDATION PLAN
S5	33	SHAFT DETAILS
S6	34	BRIDGE ABUTMENT PLAN AND ELEVATION
S7	35	BRIDGE ABUTMENT DETAILS 1
S8	36	BRIDGE ABUTMENT DETAILS 2
S9	37	BEARING DETAILS
S10	38	BRIDGE TYPICAL SECTION
S11	39	BRIDGE FRAMING PLAN
S12	40	BRIDGE GIRDER DETAILS 1
S13	41	BRIDGE GIRDER DETAILS 2
S14	42	BRIDGE GIRDER DETAILS 3
S15	43	DIAPHRAGM DETAILS
S16	44	UTILITY DETAILS AT BRIDGE
S17	45	BRIDGE TRAFFIC BARRIER DETAILS 1
S18	46	BRIDGE TRAFFIC BARRIER DETAILS 2
S19	47	APPROACH SLAB DETAILS
S20	48	BAR LIST SCHEDULE
S30	49	CULVERT LAYOUT
S31	50	CULVERT GENERAL NOTES
S32	51	CULVERT DETAILS
S33	52	CULVERT GUARDRAIL DETAILS
S40	53	STRUCTURAL EARTH WALL DETAILS
CHANNEL SHEETS		
CH1	54	CHANNEL PLAN AT BRIDGE
CH2	55	CHANNEL EXCAVATION AND RIPRAP PLAN AT BRIDGE
CH3	56	CHANNEL PROFILE AND SECTIONS AT BRIDGE
CH4	57	CHANNEL AND RIPRAP SC SECTIONS AT BRIDGE
CH5	58	CHANNEL GRADING PLAN AT CULVERT 1
CH6	59	CHANNEL GRADING PLAN AT CULVERT 2
CH7	60	CHANNEL GRADING PLAN AT CULVERT 3
CH8	61	CHANNEL NOTES, DETAILS, AND STAKING
MARION DRAIN ROAD BERM SHEET		
	62	MARION BERM GRADING AND SECTION

NO.	DATE	BY	REVISION

ABBREVIATIONS:

A/C	ASPHALT CONCRETE	MAX	MAXIMUM
ABT	ABOUT	MED	MEDIUM
ABUT	ABUTMENT	MFG	MANUFACTURER
ALT	ALTERNATE	MIL	MILLIMETER
ALUM	ALUMINUM	MIN	MINIMUM
AP	ANGLE POINT	MJ	MECHANICAL JOINT
APPROX	APPROXIMATE	NA	NOT APPLICABLE
AVE	AVENUE	NAD	NORTH AMERICAN DATUM
B	BOTTOM	NAVD	NORTH AMERICAN VERTICAL DATUM
BFS	BEGIN FULL SUPER ELEVATION	N.C.	NATIONAL COURSE
BK	BIKE	NF	NEAR FACE
BOT	BOTTOM	NO.	NUMBER
BRG	BEARING	NTS	NOT TO SCALE
BST	BEGIN SUPER TRANSITION	NW	NORTH WEST
BTWN	BETWEEN	OC	ON CENTER
BVCS	BEGIN VERTICAL CURVE STATION	OD	OUTSIDE DIAMETER
BVCE	BEGIN VERTICAL CURVE ELEVATION	OHWM	ORDINARY HIGH WATER MARK
CB	CATCH BASIN	OPP	OPPOSITE
CG	CENTER OF GRAVITY	PAVM'T	PAVEMENT
CIP	CAST IN PLACE	PEN	PENETRATION
CJ	CONSTRUCTION JOINT	PERF	PERFORATED
CL, &	CENTERLINE	PC	POINT OF CURVATURE, PRECAST
CLR	CLEAR	PCC	POINT OF COMPOUND CURVE
CLEAR	CLEARANCE	PCF	POUNDS PER CUBIC FOOT
CMP	CORRUGATED METAL PIPE	PGA	PEAK GROUND ACCELERATION
CNTR	CENTER	PSF	POUNDS PER SQUARE FOOT
CO.	COUNTY	PSI	POUNDS PER SQUARE INCH
COB	CITY OF BURIE	PI	POINT OF INTERSECTION
COMP	COMPRESSIVE	PL	PLATE
CONC	CONCRETE	PLF	POUNDS PER LINEAL FOOT
CONST	CONSTRUCTION	PRC	POINT OF REVERSE CURVE
CONT	CONTINUOUS	PSE	PUGET SOUND ENERGY
CPE	CORRUGATED POLYETHYLENE	PT	POINT OF TANGENCY, POST-TENSIONED, POINT
CSL	CROSS SONIC LOGGING	PVC	POINT OF VERTICAL CURVATURE, POLYVINYL CHLORIDE
DEG	DEGREE	PVI	POINT OF VERTICAL INTERSECTION
DEM	DIGITAL ELEVATION MAP	PVT	POINT OF VERTICAL TANGENCY
DI	DUCTILE IRON	R	RADIUS, RANGE
DIA	DIAMETER	RAD	RADIAN
DIAPH	DIAPHRAGM	RCP	REINFORCED CONCRETE PIPE
DIM	DIMENSION	RGS	RIGID GALVANIZED STEEL
DIP	DUCTILE IRON PIPE	RD	ROAD
DL	DEAD LOAD	RDWY	ROADWAY
DR	DRIVE, DIAMETER RATIO	REF	REFERENCE
DWG	DRAWING	REINF	REINFORCEMENT
E	EAST, EXPANSION	REQ'D	REQUIRED
EA	EACH	RJ	RESTRAINED JOINT
EF	EACH FACE	RPM	RAISED PAVEMENT MARKER
EFS	END FULL SUPER ELEVATION	RT	RIGHT
EL, ELEV	ELEVATION	R/W, ROW	RIGHT OF WAY
EQ	EQUAL	S	SOUTH, SECTION
ESC	EROSION AND SEDIMENT CONTROL	SCL	SEATTLE CITY LIGHT
EST	END SUPER TRANSITION	SD	STORM DRAIN
EVCS	END VERTICAL CURVE STATION	SDWK/SW	SIDEWALK
EVCE	END VERTICAL CURVE ELEVATION	SE	SOUTH EAST
EXIST	EXISTING	SEW, SE WALL	STRUCTURAL EARTH WALL
EXP	EXPANSION	SHLD	SHOULDER
EXT	EXTERIOR	SHT	SHEET
FED	FEDERAL	SPA	SPACING
FF	FAR FACE	SPEC	SPECIFICATION
FL	FLOW LINE	SPL	SPLICE
FT	FEET, FOOT	SS	SANITARY SEWER
FTG	FOOTING	ST	STREET
GA	GAGE	STA	STATION
GALV	GALVANIZED	STD	STANDARD
GIR	GIRDER	STIRR	STIRRUP
GV	GATE VALVE	SYM, SYMM	SYMMETRICAL
HDPE	HIGH DENSITY POLYETHYLENE	T	TANGENT, TOWNSHIP, TOP
HMA	HOT MIX ASPHALT	TB	THRUST BLOCK
HORIZ	HORIZONTAL	TESC	TEMPORARY EROSION AND SEDIMENT CONTROL
HPS	HIGH PRESSURE SODIUM	T&B	TOP AND BOTTOM
HS	HIGH STRENGTH	TRIB	TRIBUTARY
IE	INVERT ELEVATION	TYP	TYPICAL
IN	INCH(ES)	UD	UNDERDRAIN
INT	INTERIOR	UNO	UNLESS NOTED OTHERWISE
JCT	JUNCTION	VC	VERTICAL CURVE
JT	JOINT	VERT	VERTICAL
K	COEFFICIENT OF VERTICAL CURVATURE	W	WATER LINE, WEST
KSF	KIPS PER SQUARE FOOT	WHS	WELDED HEADED STUD
KSI	KIPS PER SQUARE INCH	WM	WILLAMATE MERIDIAN
KVA	KILOVOLT-AMPERE	WMA	WARM MIX ASPHALT
L	LENGTH	WP	WORK POINT
LBS	POUNDS	WSDOT	WASHINGTON STATE DEPARTMENT OF TRANSPORTATION
LF	LINEAL FEET	W/	WITH
LT	LEFT	W/O	WITHOUT
MAT'L	MATERIAL	YR	YEAR

SURVEY LEGEND:

	BOUNDARY LINE		POWER POLE W/LUMINAIRE		WETLAND OR OHWM FLAG
	PROPERTY LINE		POWER POLE		BORE HOLE
	LOT LINE		GUY ANCHOR		MAILBOX
	RIGHT-OF-WAY LINE		WATER VALVE		SEWER MANHOLE
	CHAIN LINK FENCE		FIRE HYDRANT		WATER MANHOLE
	WOOD FENCE		CATCH BASIN/INLET		GAS VALVE
	WATER MAIN		STORM DRAIN MANHOLE		DECIDUOUS TREE - AS NOTED
	STORM DRAIN LINE		JUNCTION BOX		CONIFEROUS TREE - AS NOTED
	UNDERGROUND COMMUNICATION		ELECTRIC METER		
	OVERHEAD COMMUNICATION		ELECTRIC VAULT		
	UNDERGROUND POWER		WATER METER		
	OVERHEAD UTILITIES		IRRIGATION VALVE		
	ORDINARY HIGH WATER MARK		SIGN		
	GUARDRAIL		LINE CONTINUES		
			WHEEL CHAIR RAMP		

SURVEY NOTES:

- HORIZONTAL DATUM: WASHINGTON STATE COORDINATE SYSTEM, SOUTH ZONE 4602 PER WSRN NETWORK.
- VERTICAL DATUM: NAVD 88.
- SURVEY PERFORMED IN AUGUST 2022.
- UTILITIES SHOWN HEREON ARE PER KPFF ON SITE SURVEY OF SURFACE FEATURES IN CONJUNCTION WITH UNDERGROUND UTILITY LOCATES PERFORMED BY KPFF. AS WELL AS AS-BUILT DATA ON FILE AT THE OFFICE OF KPFF. ALL UTILITIES SHOWN HEREON SHOULD BE CONSIDERED APPROXIMATE ONLY AND SHOULD BE VERIFIED PRIOR TO EXCAVATION.
- THE SURVEY WORK PERFORMED DURING THE COURSE OF THIS SURVEY MEETS OR EXCEEDS THE STANDARDS AS SET FORTH IN WAC 332-130-090.



1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com



NO.	DATE	BY	REVISION

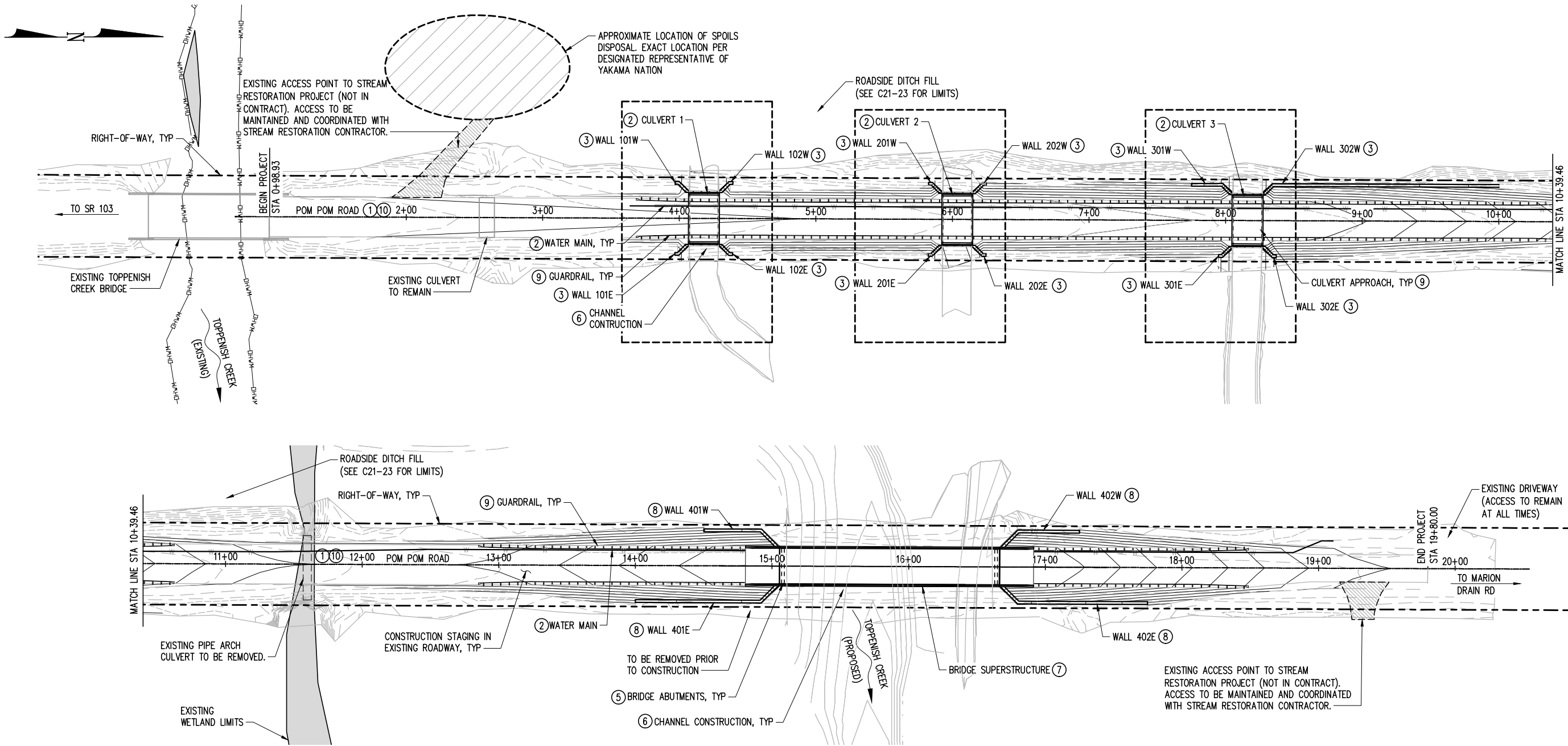


POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

LEGEND AND ABBREVIATIONS

DRAWN: HT	PROJECT NO.: 2200093
DESIGN: TL	SCALE: AS SHOWN
CHECKED: JLP	DATE: 11/26/2025
DRAWING NO.	G02
SHEET NO.	2 OF 62

Xrefs:
KPFfb-2234x.b
xPRR_BRIDGE
22059BASE
22059EXTG
PomPomOHV
22059BASE-Surf_Proposed



PROJECT PROPOSED CONSTRUCTION SEQUENCE

1. CLOSE POM POM ROAD. INSTALL TESC, SEE CIVIL SHEETS.
2. CONSTRUCT CULVERTS AND WATER MAIN AT CULVERTS. SEE CULVERT PROPOSED CONSTRUCTION SEQUENCE, THIS SHEET.
3. BACKFILL CULVERTS, GRADE CHANNEL AROUND THE CULVERTS, AND INSTALL SCOUR COUNTERMEASURES, SEE CHANNEL SHEETS.
4. RAISE ROADWAY GRADE AND CONSTRUCT WALLS AROUND THE CULVERTS, SEE CIVIL SHEETS.
5. INSTALL BRIDGE DRILLED SHAFTS AND CONSTRUCT ABUTMENTS, SEE STRUCTURAL SHEETS.
6. GRADE CHANNEL UNDER BRIDGE, SEE CHANNEL SHEETS (CONTRACTOR SHALL BE PREPARED TO WORK IN WET CONDITIONS).
7. INSTALL BRIDGE SUBSTRUCTURE. SEE DWG S03 BRIDGE SUPERSTRUCTURE CONSTRUCTION SEQUENCE. INSTALL WATER MAIN AT BRIDGE, SEE STRUCTURAL SHEETS.
8. RAISE ROADWAY GRADE AND CONSTRUCT WALLS AROUND BRIDGE ABUTMENTS, SEE CIVIL SHEETS.
9. INSTALL GUARDRAIL, SEE CIVIL SHEETS
10. ADJUST ROADWAY GRADE, AS NEEDED, TO ADDRESS SETTLEMENT AT CULVERT AND BRIDGE APPROACHES.
11. OPEN POM POM ROAD.

CULVERT PROPOSED CONSTRUCTION SEQUENCE

1. ASSEMBLE WATER MAIN CARRIER PIPE.
2. OVER EXCAVATE FOR CULVERT.
3. PLACE WATER MAIN CARRIER PIPE AT BASE OF EXCAVATION (CONTRACTOR SHOULD BE PREPARED TO WORK IN WET CONDITIONS).
4. PREPARE CULVERT SUBGRADE.
5. INSTALL WATER MAIN IN CARRIER PIPE.
6. PLACE CULVERT.

THIS SHEET OUTLINES ONE FEASIBLE SEQUENCE TO CONSTRUCT THE PROJECT. THE CONTRACTOR SHALL EITHER ELECT TO USE THIS SEQUENCE OR DEVELOP AN ALTERNATIVE SEQUENCE, BASED ON CONTRACTOR PREFERENCES. IF A DIFFERENT SEQUENCE IS PROPOSED, IT SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO THE BEGINNING OF CONSTRUCTION.

CAD USER: touniep PLOT DATE: Nov 26, 2025-11:42am
PATH: V:\2200093 (Pom Pom Road Bridges)\02_Design (v2022)\PPR-G03.dwg



NO.	DATE	BY	REVISION



POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

PROJECT PROPOSED CONSTRUCTION SEQUENCE

DRAWN: HT	PROJECT NO.: 2200093
DESIGN: TL	SCALE: AS SHOWN
CHECKED: JLP	DATE: 11/26/2025
DRAWING NO.	G03
SHEET NO.	3 OF 62

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:
1. THE LOCATION AND NUMBER OF ALL WET CROSSINGS SHALL BE APPROVED BY THE BPA EC LEAD AND DOCUMENTED IN THE CONSTRUCTION PLANS;
2. VEHICLES AND MACHINERY SHALL CROSS STREAMS AT RIGHT ANGLES TO THE MAIN CHANNEL WHENEVER POSSIBLE;
3. NO STREAM CROSSINGS WILL OCCUR 300 FEET UPSTREAM OR 100 FEET DOWNSTREAM OF AN EXISTING REDD OR SPAWNING FISH; AND
4. AFTER PROJECT COMPLETION, TEMPORARY STREAM CROSSINGS WILL BE OBLITERATED AND BANKS RESTORED.

7. STAGING, STORAGE, AND STOCKPILE AREAS.

- A. STAGING AREAS (USED FOR CONSTRUCTION EQUIPMENT STORAGE, VEHICLE STORAGE, FUELING, SERVICING, AND HAZARDOUS MATERIAL STORAGE) WILL BE 150 FEET OR MORE FROM ANY NATURAL WATER BODY OR WETLAND. STAGING AREAS CLOSER THAN 150 FEET WILL BE APPROVED BY THE EC LEAD.
- B. NATURAL MATERIALS USED FOR IMPLEMENTATION OF AQUATIC RESTORATION, SUCH AS LARGE WOOD, GRAVEL, AND BOULDERS, MAY BE STAGED WITHIN 150 FEET IF CLEARLY INDICATED IN THE PLANS THAT AREA IS FOR NATURAL MATERIALS ONLY.
- C. ANY LARGE WOOD, TOPSOIL, AND NATIVE CHANNEL MATERIAL DISPLACED BY CONSTRUCTION WILL BE STOCKPILED FOR USE DURING SITE RESTORATION AT A SPECIFICALLY IDENTIFIED AND FLAGGED AREA.
- D. ANY MATERIAL NOT USED IN RESTORATION, AND NOT NATIVE TO THE FLOODPLAIN, WILL BE DISPOSED OF OUTSIDE THE 100-YEAR FLOODPLAIN.

8. EQUIPMENT.

- A. MECHANIZED EQUIPMENT AND VEHICLES WILL BE SELECTED, OPERATED, AND MAINTAINED IN A MANNER THAT MINIMIZES ADVERSE EFFECTS ON THE ENVIRONMENT (E.G., MINIMALLY-SIZED, LOW PRESSURE TIRES; MINIMAL HARD-TURN PATHS FOR TRACKED VEHICLES; TEMPORARY MATS OR PLATES WITHIN WET AREAS OR ON SENSITIVE SOILS).
- B. EQUIPMENT WILL BE STORED, FUELED, AND MAINTAINED IN 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
6. ONCE THE SITE IS STABILIZED AFTER CONSTRUCTION, TEMPORARY EROSION CONTROL MEASURES WILL BE REMOVED.
- B. EMERGENCY EROSION CONTROLS. THE FOLLOWING MATERIALS FOR EMERGENCY EROSION CONTROL WILL BE AVAILABLE AT THE WORK SITE:
1. A SUPPLY OF SEDIMENT CONTROL MATERIALS; AND
2. AN OIL-ABSORBING FLOATING BOOM WHENEVER SURFACE WATER IS PRESENT.

10. DUST ABATEMENT.

- A. THE PROJECT SPONSOR WILL DETERMINE THE APPROPRIATE DUST CONTROL MEASURES BY CONSIDERING SOIL TYPE, EQUIPMENT USAGE, PREVAILING WIND DIRECTION, AND THE EFFECTS CAUSED BY OTHER EROSION AND SEDIMENT CONTROL MEASURES.
- B. WORK WILL BE SEQUENCED AND SCHEDULED TO REDUCE EXPOSED BARE SOIL SUBJECT TO WIND EROSION.
- C. DUST-ABATEMENT ADDITIVES AND STABILIZATION CHEMICALS (TYPICALLY MAGNESIUM CHLORIDE, CALCIUM CHLORIDE SALTS, OR LIGNINSULFONATE) WILL NOT BE APPLIED WITHIN 25 FEET OF WATER OR A STREAM CHANNEL AND WILL BE APPLIED SO AS TO MINIMIZE THE LIKELIHOOD THAT THEY WILL ENTER STREAMS. APPLICATIONS OF LIGNINSULFONATE WILL BE LIMITED TO A MAXIMUM RATE OF 0.5 GALLONS PER SQUARE YARD OF ROAD SURFACE, ASSUMING MIXED 50:50 WITH WATER.
- D. APPLICATION OF DUST ABATEMENT CHEMICALS WILL BE AVOIDED DURING OR JUST BEFORE WET WEATHER, AND AT STREAM CROSSINGS OR OTHER AREAS THAT COULD RESULT IN UNFILTERED DELIVERY OF THE DUST ABATEMENT MATERIALS TO A WATERBODY (TYPICALLY THESE WOULD BE AREAS WITHIN 25 FEET OF A WATERBODY OR STREAM CHANNEL; DISTANCES MAY BE GREATER WHERE VEGETATION IS SPARSE OR SLOPES ARE STEEP).
- E. SPILL CONTAINMENT EQUIPMENT WILL BE AVAILABLE DURING APPLICATION OF DUST ABATEMENT CHEMICALS.
- F. PETROLEUM-BASED PRODUCTS WILL NOT BE USED FOR DUST ABATEMENT.



1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com



Plan + Design + Engineer + Manage

6400 SE Lake Road, Ste 200, Portland, Oregon 97222



EXP. 6/25/2027

NO.	DATE	BY	REVISION



POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

HIP CONSERVATION MEASURES

DRAWN: DAN	PROJECT NO.: 2200093
DESIGN: DAN/DKL	SCALE: AS SHOWN
CHECKED: ARR	DATE: 11/26/2025
DRAWING NO.	G04
SHEET NO.	4 OF 62

PROJECT DESIGN AND SITE PREPARATION (CONTINUED).

11. SPILL PREVENTION, CONTROL, AND COUNTER MEASURES.

- A. A DESCRIPTION OF HAZARDOUS MATERIALS THAT WILL BE USED, INCLUDING INVENTORY, STORAGE, AND HANDLING PROCEDURES WILL BE AVAILABLE ON-SITE.
- B. WRITTEN PROCEDURES FOR NOTIFYING ENVIRONMENTAL RESPONSE AGENCIES WILL BE POSTED AT THE WORK SITE.
- C. SPILL CONTAINMENT KITS (INCLUDING INSTRUCTIONS FOR CLEANUP AND DISPOSAL) ADEQUATE FOR THE TYPES AND QUANTITY OF HAZARDOUS MATERIALS USED AT THE SITE WILL BE AVAILABLE AT THE WORK SITE.
- D. WORKERS WILL BE TRAINED IN SPILL CONTAINMENT PROCEDURES AND WILL BE INFORMED OF THE LOCATION OF SPILL CONTAINMENT KITS.
- E. ANY WASTE LIQUIDS GENERATED AT THE STAGING AREAS WILL BE TEMPORARILY STORED UNDER AN IMPERVIOUS COVER, SUCH AS A 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.

WORK TO BE COMPLETED AS AND COST INCIDENTAL TO ANY IN-WATER WORK

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. 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 (AT OWNER'S REQUEST)

- A. MONITORING AND RECORDING WILL TAKE PLACE FOR DURATION OF SALVAGE. THE SALVAGE REPORT WILL BE COMMUNICATED TO AGENCIES VIA THE PROJECT COMPLETION FORM (PCF).
- B. SALVAGE ACTIVITIES SHOULD TAKE PLACE DURING CONDITIONS TO MINIMIZE STRESS TO FISH SPECIES, TYPICALLY PERIODS OF THE COOLEST AIR AND WATER TEMPERATURES WHICH OCCUR IN THE MORNING VERSUS LATE IN THE DAY.
- C. SALVAGE OPERATIONS WILL FOLLOW THE ORDERING, METHODS, AND CONSERVATION MEASURES SPECIFIED BELOW:

- 1. SLOWLY REDUCE WATER FROM THE WORK AREA TO ALLOW SOME FISH TO LEAVE VOLITIONALLY.
- 2. BLOCK NETS WILL BE INSTALLED AT UPSTREAM AND DOWNSTREAM LOCATIONS AND MAINTAINED IN A SECURED POSITION TO EXCLUDE FISH FROM ENTERING THE PROJECT AREA.
- 3. BLOCK NETS WILL BE SECURED TO THE STREAM CHANNEL BED AND BANKS UNTIL FISH CAPTURE AND TRANSPORT ACTIVITIES ARE COMPLETE. BLOCK NETS MAY BE LEFT IN PLACE FOR THE DURATION OF THE PROJECT TO EXCLUDE FISH AS LONG AS PASSAGE REQUIREMENTS ARE MET.
- 4. NETS WILL BE MONITORED HOURLY DURING IN-STREAM DISTURBANCE.

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

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

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

3. ELECTROFISHING.

A. INITIAL SITE SURVEY AND INITIAL SETTINGS.

- 1. IDENTIFY SPAWNING ADULTS AND ACTIVE REDDS TO AVOID.
- 2. RECORD WATER TEMPERATURE. ELECTROFISHING WILL NOT OCCUR WHEN WATER TEMPERATURES ARE ABOVE 18 DEGREES CELSIUS.
- 3. IF POSSIBLE, A BLOCK NET WILL BE PLACED DOWNSTREAM AND CHECKED REGULARLY TO CAPTURE STUNNED FISH THAT DRIFT DOWNSTREAM.
- 4. INITIAL SETTINGS WILL BE 100 VOLTS, PULSE WIDTH OF 500 MICRO SECONDS, AND PULSE RATE OF 30 HERTZ.
- 5. RECORDS FOR CONDUCTIVITY, WATER TEMPERATURE, AIR TEMPERATURE, ELECTROFISHING SETTINGS, ELECTROFISHER MODEL, ELECTROFISHER CALIBRATION, FISH CONDITIONS, FISH MORTALITIES, AND TOTAL CAPTURE RATES WILL BE INCLUDED IN THE SALVAGE LOG BOOK.

B. ELECTROFISHING TECHNIQUE.

- 1. SAMPLING WILL BEGIN USING STRAIGHT DC. POWER WILL REMAIN ON UNTIL THE FISH I 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.
- 15. ELECTROFISHING OF BULL TROUT WILL NOT OCCUR WHEN WATER TEMPERATURES EXCEED 15 DEGREES CELSIUS.

E. LARVAL LAMPREY ELECTROFISHING.

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



1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com



Plan + Design + Engineer + Manage

6400 SE Lake Road, Ste 200, Portland, Oregon 97222



EXP. 6/25/2027

NO.	DATE	BY	REVISION



POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

HIP CONSERVATION MEASURES II

DRAWN: DAN	PROJECT NO.: 2200093
DESIGN: DAN/DKL	SCALE: AS SHOWN
CHECKED: ARR	DATE: 11/26/2025
DRAWING NO.	G05
SHEET NO.	5 OF 62

WORK AREA ISOLATION AND FISH SALVAGE (CONTINUED).			TURBIDITY MONITORING.		
4. DEWATERING.					
A. DEWATERING WILL OCCUR AT A RATE SLOW ENOUGH TO ALLOW SPECIES TO NATURALLY MIGRATE OUT OF THE WORK AREA.			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. WHERE A GRAVITY FEED DIVERSION IS NOT POSSIBLE, A PUMP MAY BE USED. PUMPS WILL BE INSTALLED TO AVOID REPETITIVE DEWATERING AND REWATERING.			B. RECORD THE TURBIDITY READING, LOCATION, AND TIME AT THE MEASUREMENT COMPLIANCE LOCATION POINT.		
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.			1. 50 FEET DOWNSTREAM FOR STREAMS LESS THAN 30 FEET WIDE.		
D. DISSIPATION OF FLOW ENERGY AT THE BYPASS OUTFLOW WILL BE PROVIDED TO PREVENT DAMAGE TO THE STREAM CHANNEL AND RIPARIAN VEGETATION.			2. 100 FEET DOWNSTREAM FOR STREAMS BETWEEN 30 AND 100 FEET WIDE.		
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.			3. 200 FEET DOWNSTREAM FOR STREAMS GREATER THAN 100 FEET WIDE.		
CONSTRUCTION AND POST CONSTRUCTION CONSERVATION MEASURES.			4. 300 FEET FROM THE DISCHARGE POINT OR NONPOINT SOURCE FOR LOCATIONS SUBJECT TO TIDAL OR COASTAL SCOUR.		
1. FISH PASSAGE.			C. TURBIDITY SHALL BE MEASURED (BACKGROUND LOCATION AND COMPLIANCE POINTS) EVERY 4 HOURS WHILE WORK IS BEING IMPLEMENTED.		
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.			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.		
B. FISH PASSAGE ALTERNATIVES WILL BE APPROVED BY THE BPA EC LEAD UNDER ADVISEMENT BY THE NMFS HABITAT BIOLOGIST.			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.		
2. CONSTRUCTION AND DISCHARGE WATER.			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).		
A. SURFACE WATER MAY BE DIVERTED TO MEET CONSTRUCTION NEEDS ONLY IF DEVELOPED SOURCES ARE UNAVAILABLE OR INADEQUATE.			G. FINAL TURBIDITY READINGS, EXCEEDANCES, AND CONTROL FAILURES WILL BE SUBMITTED TO THE BPA EC LEAD USING THE PROJECT COMPLETION FORM (PCF).		
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 LOOSENEED 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.					
E. COSTS INCIDENTAL TO EROSION CONTROL AND PLANTING: SEEDING AND MULCHING PER WSDOT STANDARD SPECIFICATION SECTION 8-02 OR OWNERS SEED MIX.					
6. REVEGETATION.					
A. PLANTING AND SEEDING WILL OCCUR PRIOR TO OR AT THE BEGINNING OF THE FIRST GROWING SEASON AFTER CONSTRUCTION.					
B. PLANTING AND SEEDING TO BE MONITORED UNTIL CLEARLY ESTABLISHED AND DEEMED SUSTAINABLE BY OWNER.					
C. 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.					
D. VEGETATION SUCH AS WILLOWS, SEDGES, OR RUSH MATS WILL BE SALVAGED FROM DISTURBED OR ABANDONED AREAS TO BE REPLANTED.					
E. 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.					
F. SURFACE FERTILIZER WILL NOT BE APPLIED WITHIN 50 FEET OF ANY STREAM, WATE BODY, OR WETLAND.					
G. FENCING WILL BE INSTALLED AS NECESSARY TO PREVENT ACCESS TO REVEGETATED SITES BY LIVESTOCK OR UNAUTHORIZED PERSONS. COST INCIDENTAL TO EROSION CONTROL AND PLANTING.					
H. 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.					



1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com



Plan + Design + Engineer + Manage
6400 SE Lake Road, Ste 200, Portland, Oregon 97222



DAVID K. LUNEKE
STATE OF WASHINGTON
49176
PROFESSIONAL ENGINEER
EXP. 6/25/2027

NO.	DATE	BY	REVISION

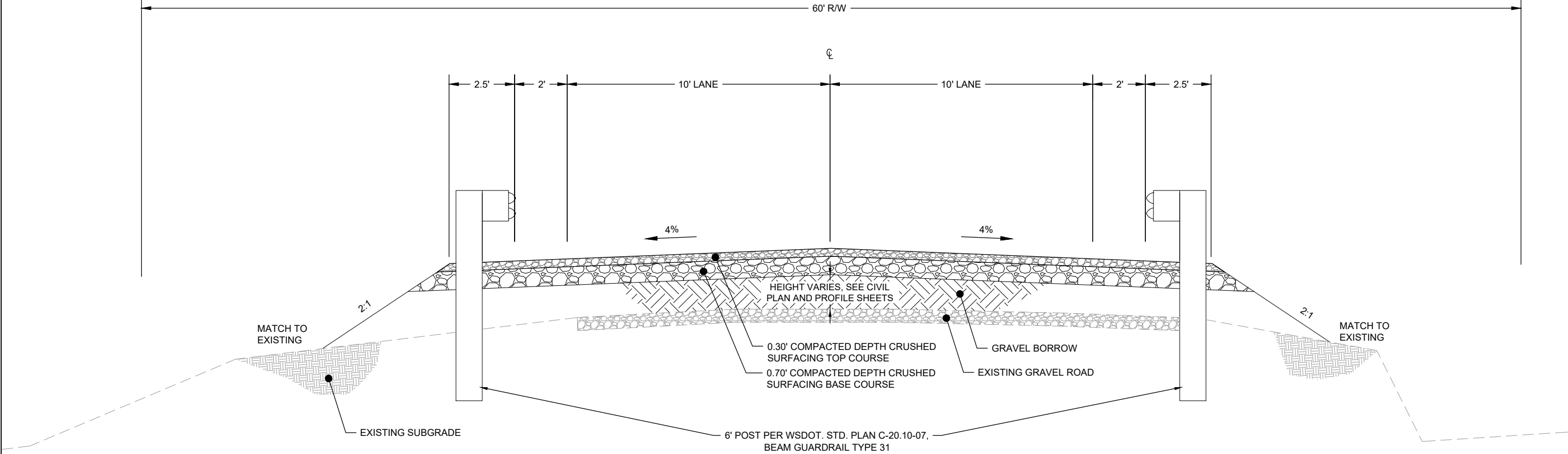


POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

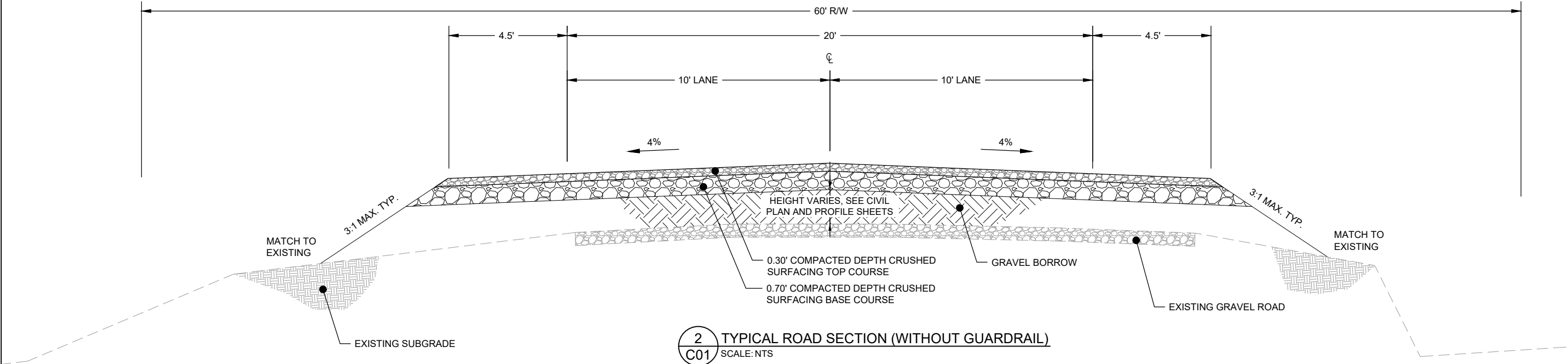
HIP CONSERVATION MEASURES III

DRAWN: DAN	PROJECT NO.: 2200093
DESIGN: DAN/DKL	SCALE: AS SHOWN
CHECKED: ARR	DATE: 11/26/2025
DRAWING NO. G06	
SHEET NO.	6 OF 62

Xrefs:
KPFFB-2234xtb Pom Pom
Luneke-STAMP-WA



1 TYPICAL ROAD SECTION (WITH GUARDRAIL)
C01 SCALE: NTS



2 TYPICAL ROAD SECTION (WITHOUT GUARDRAIL)
C01 SCALE: NTS

CAD USER: Dominic.Nudo PLOT DATE: Nov 25, 2025-10:52pm
PATH: P:\PDX PROJECTS\2022\22-059 KPFF Pom Pom Bridge\05_CAD\2-Sheets\Civil\C 01 - TYPICAL SECTIONS 1.dwg



Plan + Design + Engineer + Manage
6400 SE Lake Road, Ste 200, Portland, Oregon 97222



NO.	DATE	BY	REVISION

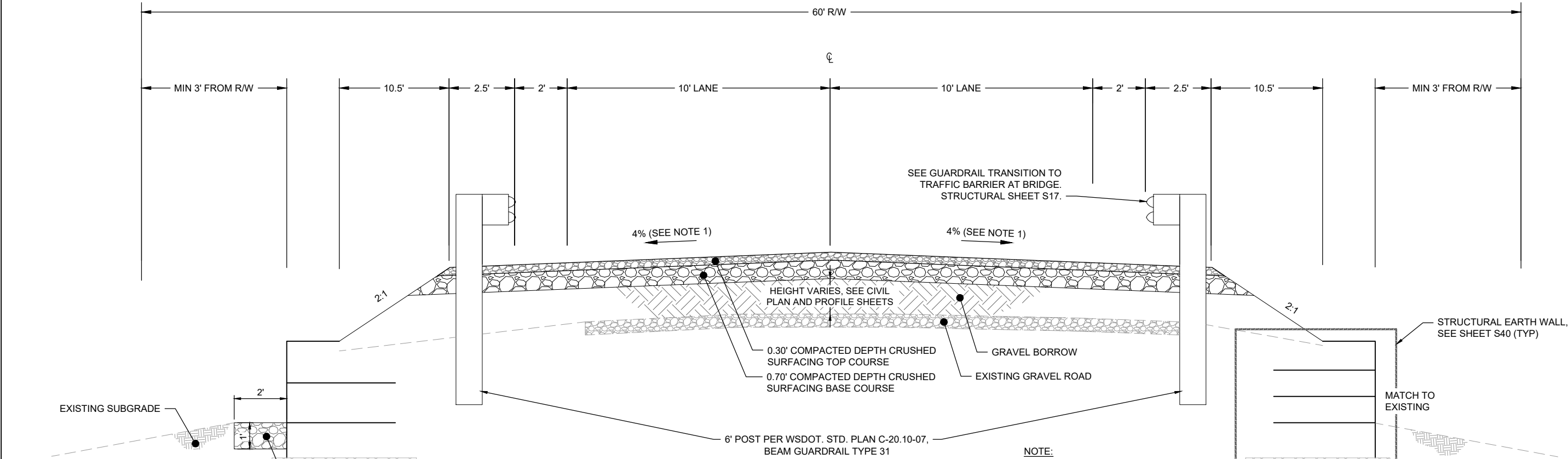


POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

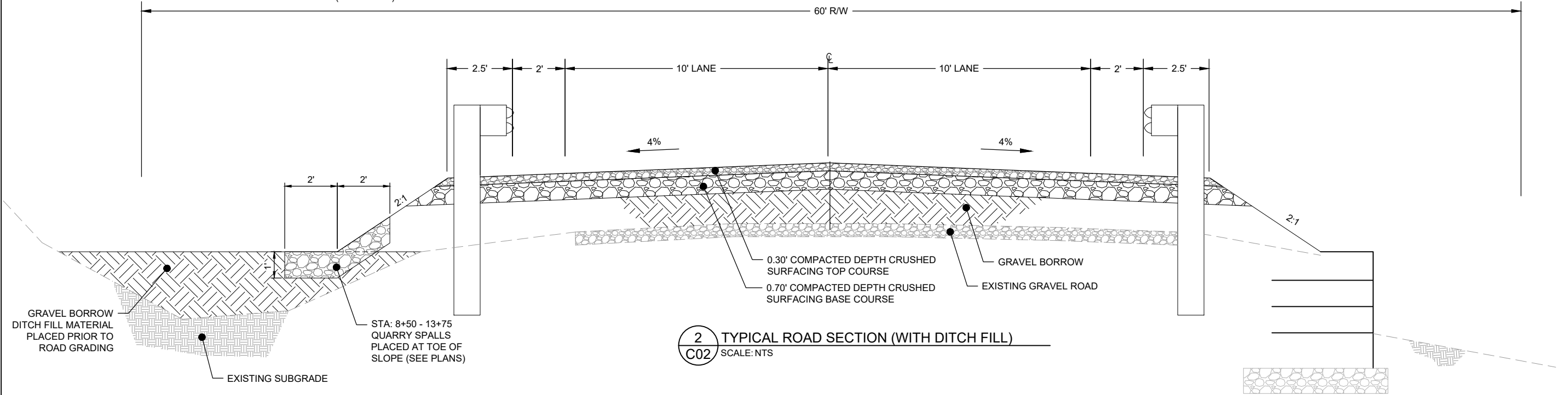
TYPICAL SECTIONS - POM POM ROAD

DRAWN: DAN	PROJECT NO.: 2200093
DESIGN: DAN/DKL	SCALE: AS SHOWN
CHECKED: ARR	DATE: 11/26/2025
DRAWING NO.	C01
SHEET NO.	7 OF 62

Xrefs:
KPFfb-2234xtb Pom Pom
Luneke-STAMP-WA



1 TYPICAL ROAD SECTION (WITH WALL)
C02 SCALE: NTS



2 TYPICAL ROAD SECTION (WITH DITCH FILL)
C02 SCALE: NTS

kpff

1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com

AKANA

Plan + Design + Engineer + Manage

6400 SE Lake Road, Ste 200, Portland, Oregon 97222



NO.	DATE	BY	REVISION



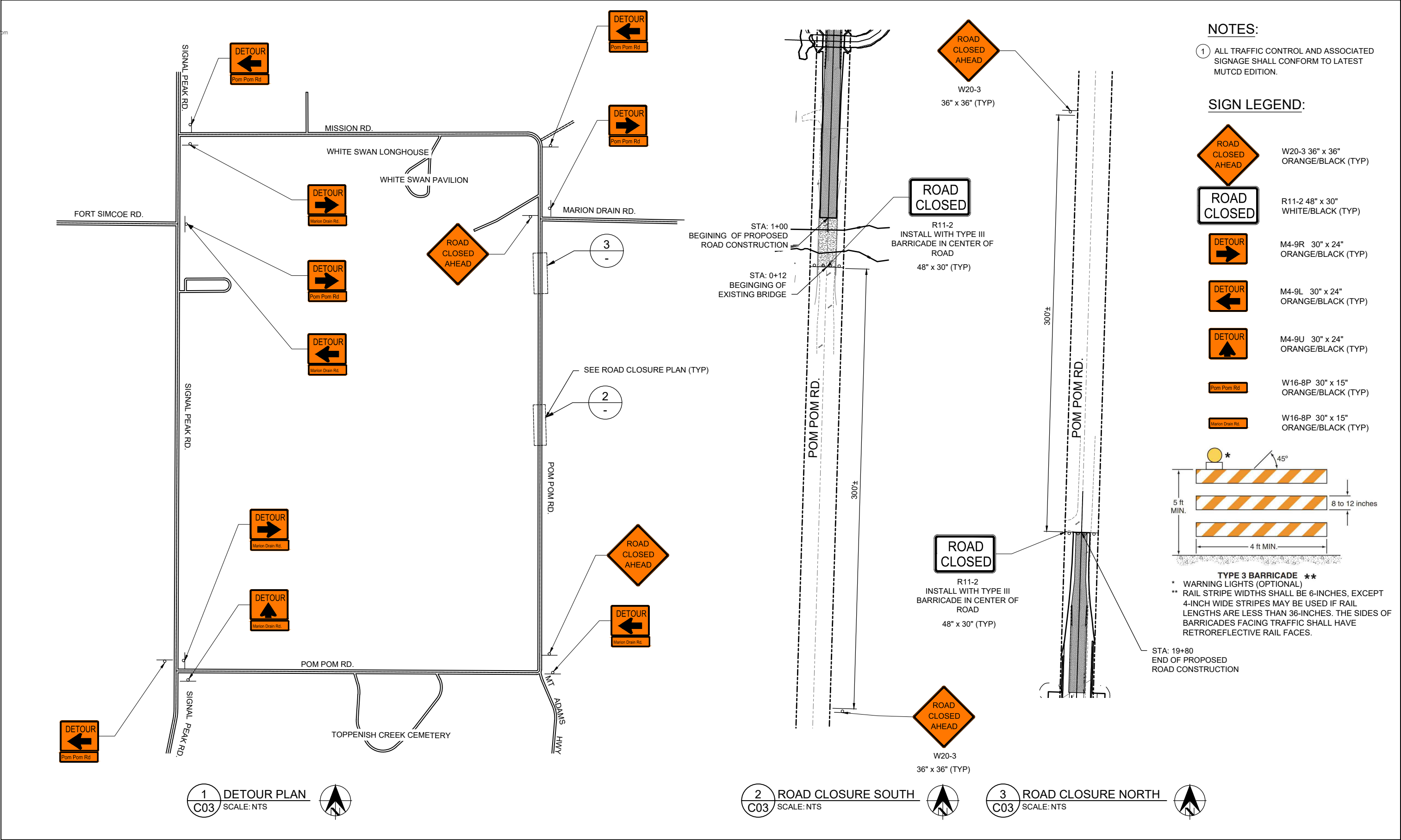
POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

TYPICAL SECTIONS II - POM POM ROAD

DRAWN: DAN	PROJECT NO.: 2200093
DESIGN: DAN/DKL	SCALE: AS SHOWN
CHECKED: ARR	DATE: 11/26/2025
DRAWING NO.	C02
SHEET NO.	8 OF 62

Xrefs:
22059EXTG
22059BASE
KPFFB-2234x1b-Pom Pom
Luneke-STAMP-WA

CAD USER: Dominic.Nudo PLOT DATE: Nov 25, 2025-10:55pm
PATH: P:\PDX PROJECTS\2022\22-059 KPFF Pom Pom Bridge\05_CAD\2-Sheets\Civil\C 03 - TRAFFIC CONTROL PLAN.dwg



kpff
1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com

AKANA
Plan + Design + Engineer + Manage
6400 SE Lake Road, Ste 200, Portland, Oregon 97222

DAVID K. LUNKE
STATE OF WASHINGTON
49176
PROFESSIONAL ENGINEER
Exp. 6/25/2027

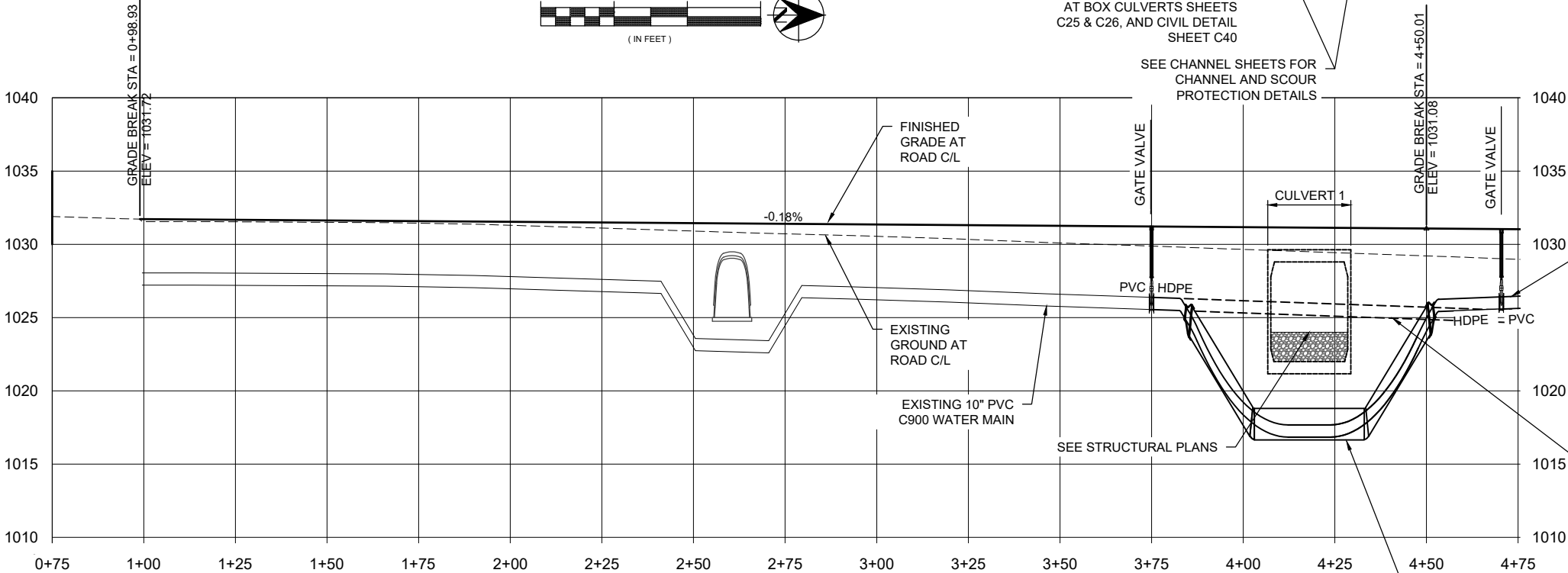
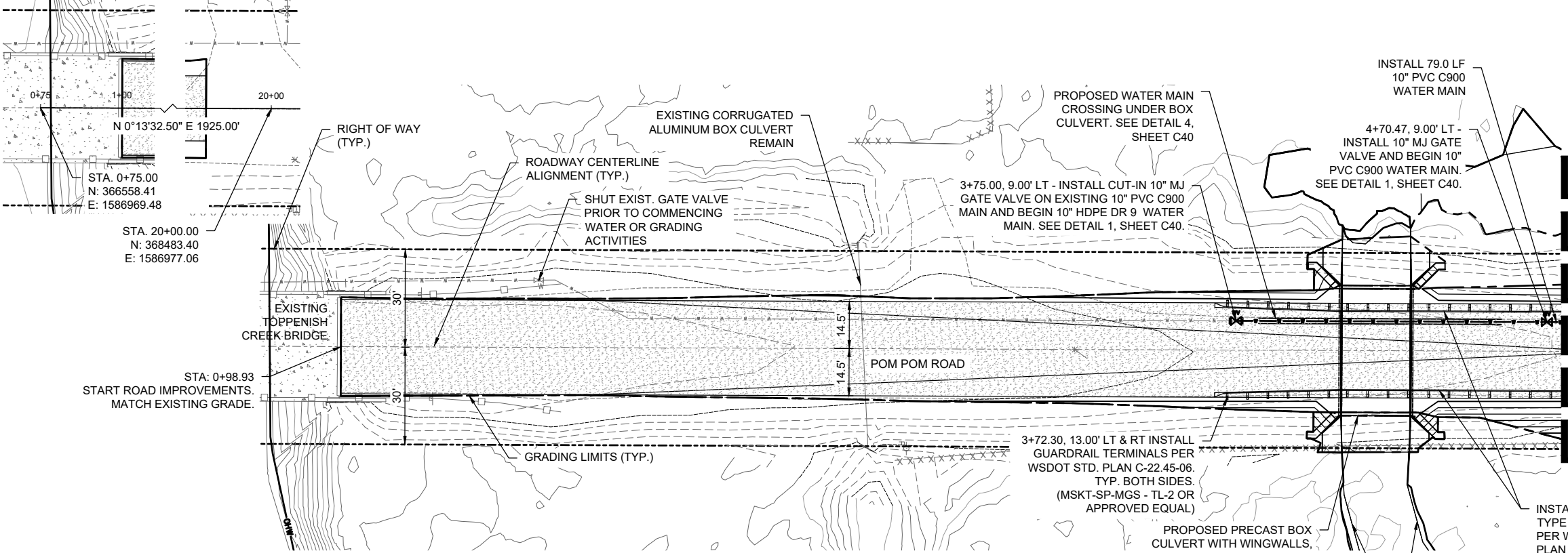
NO.	DATE	BY	REVISION



POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION
POM POM ROAD
TEMPORARY TRAFFIC CONTROL PLAN

DRAWN: DAN	PROJECT NO.: 2200093
DESIGN: DAN/DKL	SCALE: AS SHOWN
CHECKED: ARR	DATE: 11/26/2025
DRAWING NO.	C03
SHEET NO.	9 OF 62

Xrefs:
22059EXTG
22059BASE
KPFFB-2234xtb Pom Pom
Luneke-STAMP-WA



LEGEND:

EXISTING GROUND CONTOUR — 1020 —

FINISHED GRADE CONTOUR — 1020 —

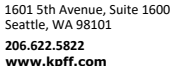
RIGHT OF WAY ————

GRADING LIMIT ————

GENERAL NOTES:

1. PROVIDE MIN 1 WEEK NOTICE TO YAKAMA INDIAN NATION TRIBAL WATER AND SEWER DEPARTMENT PRIOR TO OPENING OR CLOSING VALVES ON WATER MAIN.
2. PRESSURE TESTING, CHLORINATION, AND FLUSHING OF NEW WATER MAIN SHALL BE COORDINATED WITH TRIBAL WATER AND SEWER DEPARTMENT. COST OF WORK INCIDENTAL TO PIPE FOR WATER MAIN.
3. BACTERIOLOGICAL TESTING SHALL BE PERFORMED BY TRIBAL WATER AND SEWER DEPARTMENT
4. THE ROADWAY IS EXPECTED TO SETTLE DURING INSTALLATION OF THE FILL REQUIRED TO RAISE THE ROADWAY. ELEVATIONS LISTED ON THIS SHEET ARE FOR POST-SETTLEMENT CONDITIONS.
5. CONTRACTOR RESPONSIBLE FOR VERIFYING SURVEY LOCATION INFORMATION

MATCH LINE - STA 4+75



NO.	DATE	BY	REVISION



POM POM ROAD AT TOPPENISH CREEK

YAKAMA NATION

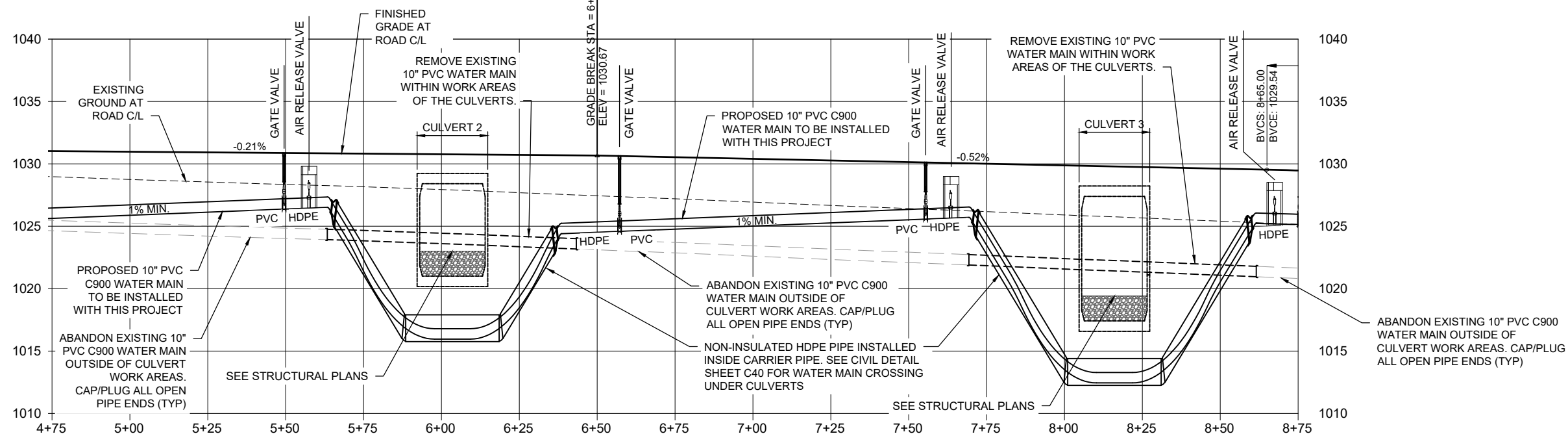
POM POM ROAD
PLAN & PROFILE - STA 1+00 TO STA 4+75

DRAWN: DAN	PROJECT NO.: 2200093
DESIGN: DAN/DKL	SCALE: AS SHOWN
CHECKED: ARR	DATE: 11/26/2025
DRAWING NO.	C10
SHEET NO	10 OF 62



GENERAL NOTES:

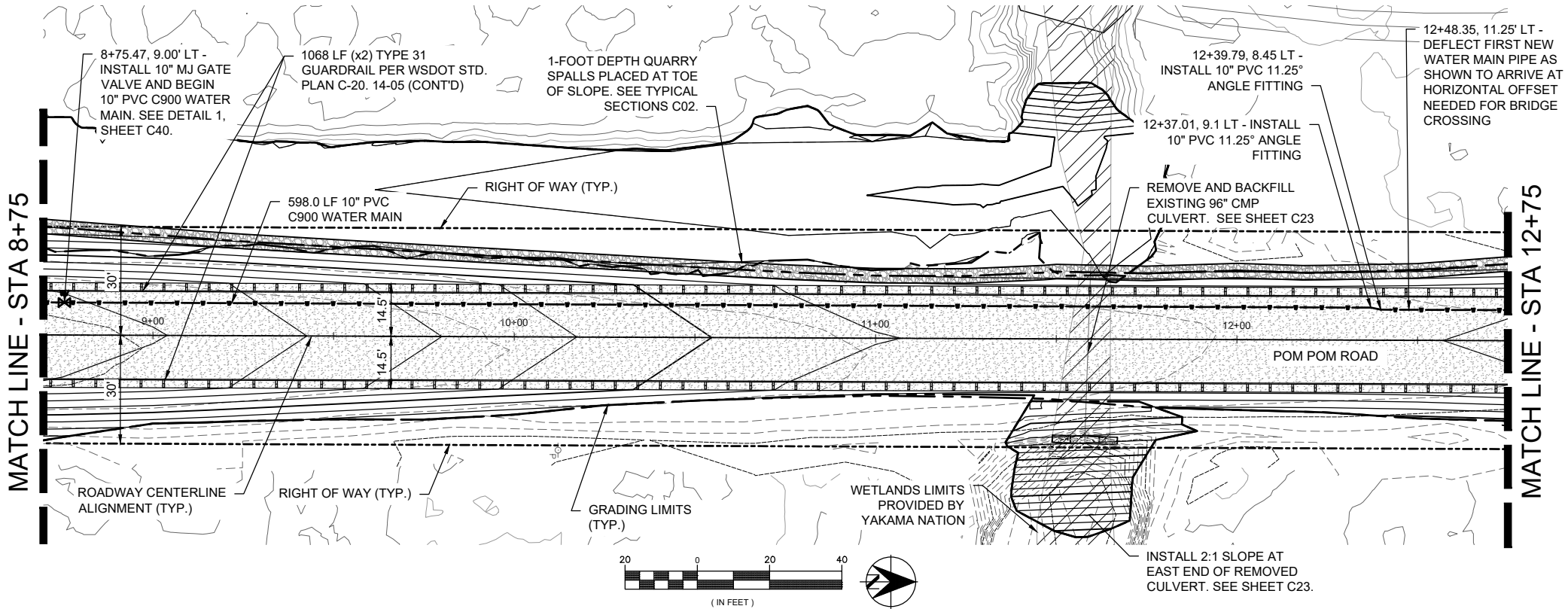
1. THE ROADWAY IS EXPECTED TO SETTLE DURING INSTALLATION OF THE FILL REQUIRED TO RAISE THE ROADWAY. ELEVATIONS LISTED ON THIS SHEET ARE FOR POST-SETTLEMENT CONDITIONS, UNQ.

[illegible]

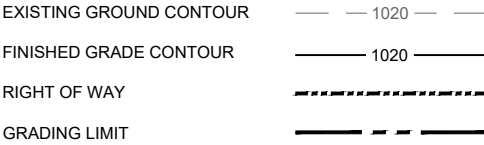
POM POM ROAD
PLAN & PROFILE - STA 4+75 TO STA 8+75

DRAWN: DAN	PROJECT NO.: 2200093
DESIGN: DAN/DKL	SCALE: AS SHOWN
CHECKED: ARR	DATE: 11/26/2025
DRAWING NO. C11	
SHEET NO. 11 OF 62	

Xrefs:
22059EXTG
22059BASE
KPF08-2234x1b Pom Pom
Luneke-STAMP-WA

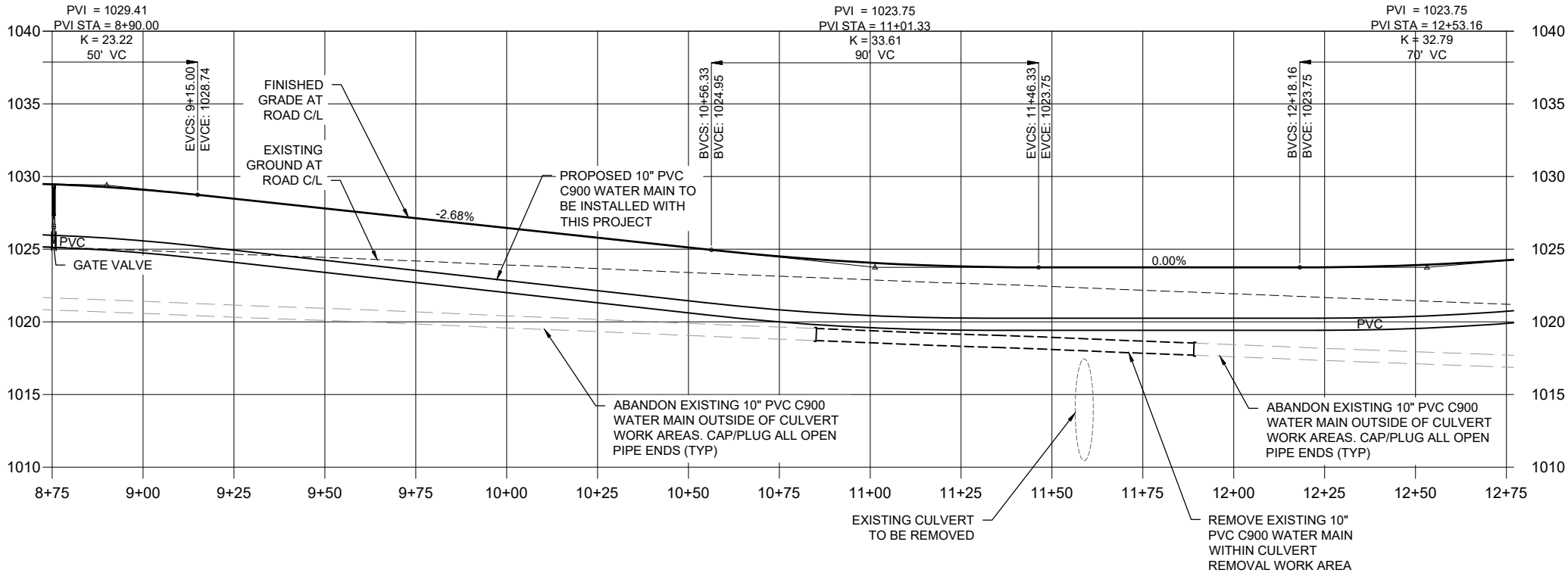


LEGEND:



GENERAL NOTES:

1. THE ROADWAY IS EXPECTED TO SETTLE DURING INSTALLATION OF THE FILL REQUIRED TO RAISE THE ROADWAY. ELEVATIONS LISTED ON THIS SHEET ARE FOR POST-SETTLEMENT CONDITIONS, UNO.



CAD USER: Dominic.Nudo PLOT DATE: Nov 26, 2025-01:09pm
PATH: P:\PDX PROJECTS\2022\22-059 KPFF Pom Pom Bridge\05_CAD\2-Sheets\Civil\C 12 - PLAN AND PROFILE ILL.dwg



Plan + Design + Engineer + Manage
6400 SE Lake Road, Ste 200, Portland, Oregon 97222



NO.	DATE	BY	REVISION

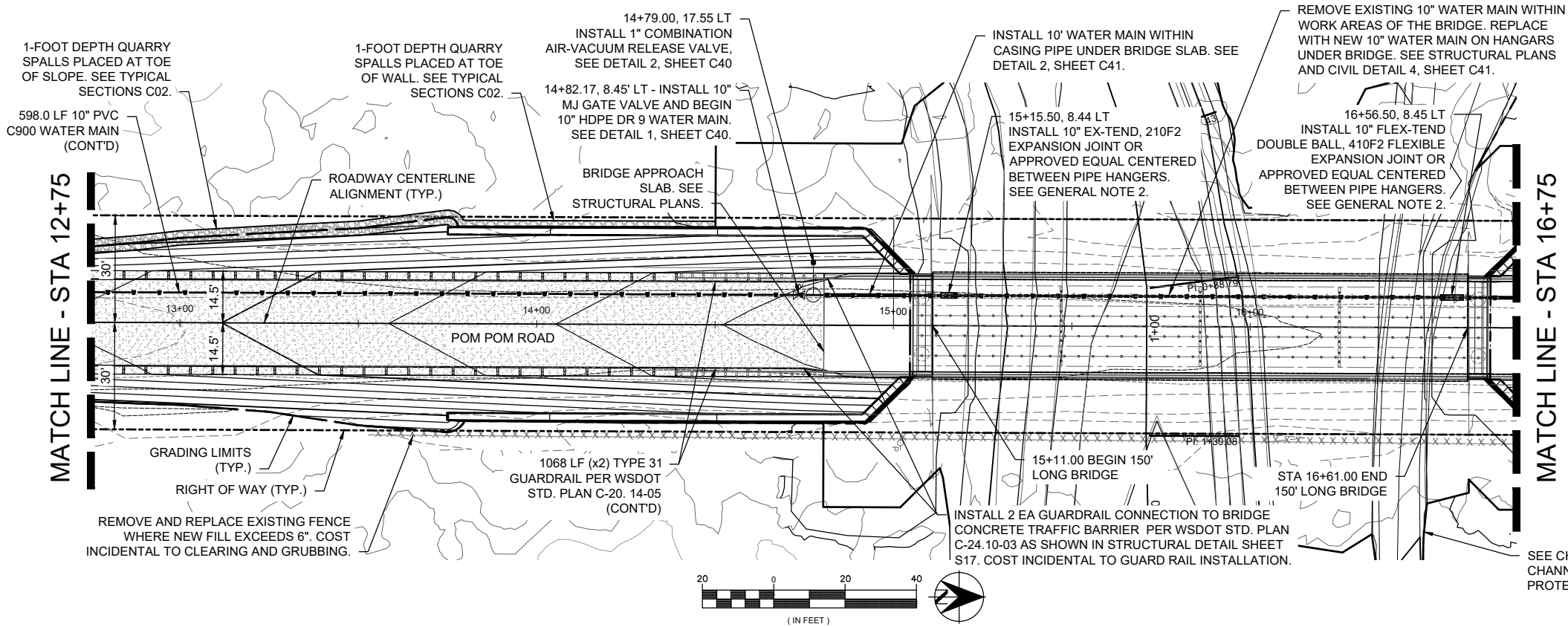


POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

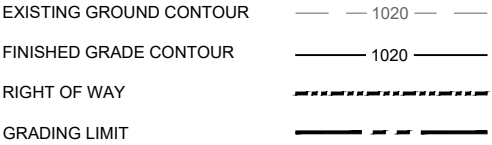
POM POM ROAD
PLAN & PROFILE - STA 8+75 TO STA 12+75

DRAWN: DAN	PROJECT NO.: 2200093
DESIGN: DAN/DKL	SCALE: AS SHOWN
CHECKED: ARR	DATE: 11/26/2025
DRAWING NO.	C12
SHEET NO.	12 OF 62

Xrefs:
22059EXTG
22059BASE
KPF0B-2234x1b Pom Pom
xPPR_BRIDGE
xPPR_WALLS
Luneke-STAMP-WA

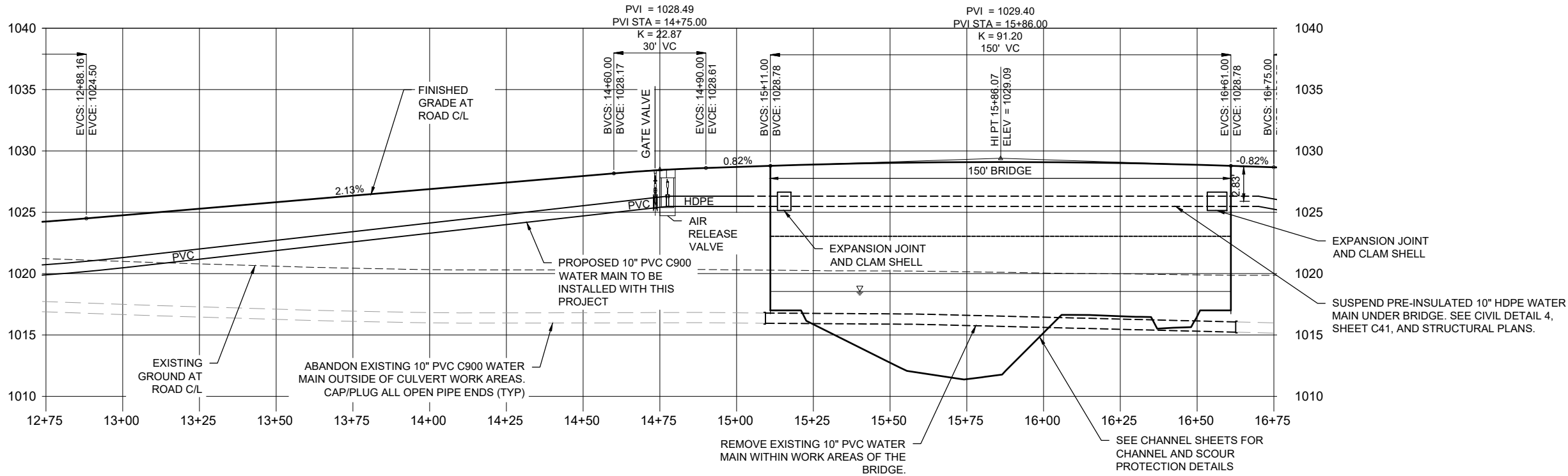


LEGEND:



GENERAL NOTES:

1. THE ROADWAY IS EXPECTED TO SETTLE DURING INSTALLATION OF THE FILL REQUIRED TO RAISE THE ROADWAY. ELEVATIONS LISTED ON THIS SHEET ARE FOR POST-SETTLEMENT CONDITIONS, UNO.
2. CONTRACTOR TO FIELD FABRICATE INSULATION AND CLAMSHELL COVER FOR BOTH EXPANSION JOINTS. RECOMMEND USING SPLIT 24" HDPE PIPE FOR CLAMSHELL WITH STAINLESS STEEL BAND CLAMPS FOR CLOSURES.



1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com



Plan + Design + Engineer + Manage
6400 SE Lake Road, Ste 200, Portland, Oregon 97222



NO.	DATE	BY	REVISION



POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

POM POM ROAD
PLAN & PROFILE - STA 12+75 TO STA 16+75

DRAWN: DAN	PROJECT NO.: 2200093
DESIGN: DAN/DKL	SCALE: AS SHOWN
CHECKED: ARR	DATE: 11/26/2025
DRAWING NO.	C13
SHEET NO.	13 OF 62

Xrefs:
22059EXTG
22059BASE
KPF08-2234yrb Pom Pom
xPPR_BRIDGE
xPPR_WALLS
Luneke-STAMP-WA

INSTALL 10" HDPE DR 9 WATER MAIN
WITHIN CASING PIPE UNDER BRIDGE
SLAB. SEE DETAIL 2, SHEET C41.

16+98.50 8.65' LT - INSTALL
10" MJ GATE VALVE AND
BEGIN 10" PVC C900. SEE
DETAIL 1, SHEET C40.

REMOVE EXISTING
32" CMP CULVERT

INSTALL 114 LF (x2)
TYPE 31 GUARDRAIL
PER WSDOT STD.
PLAN C-20.14-05

GRADING LIMITS
(TYP.)

18+45.65, 13.00' LT & RT INSTALL
GUARDRAIL TERMINALS PER
WSDOT STD. PLAN C-22.45-06
(MSKT-SP-MGS-TL-2 OR
APPROVED EQUAL)

19+10.59, 20.00' LT - INSTALL CUT-IN 10"
MJ GATE VALVE ON EXISTING 10" PVC
C900 MAIN AND END PROPOSED 10" PVC
C900 WATER MAIN. SEE DETAIL 3,
SHEET C40.

STA 19+80.00 END ROAD
IMPROVEMENTS AND MATCH
EXISTING GRADE

RIGHT OF WAY (TYP.)

19+06.29 20.00' LT - INSTALL 10"
PVC 22.5° ANGLED FITTING

18+94.00, 10.00' LT & RT - END 11.11 : 1
HORIZONTAL TAPER AT ROAD EDGE,
TYPICAL OF BOTH SIDE OF ROAD.

18+74.55, 8.45' LT - INSTALL 10"
PVC 22.5° ANGLED FITTING

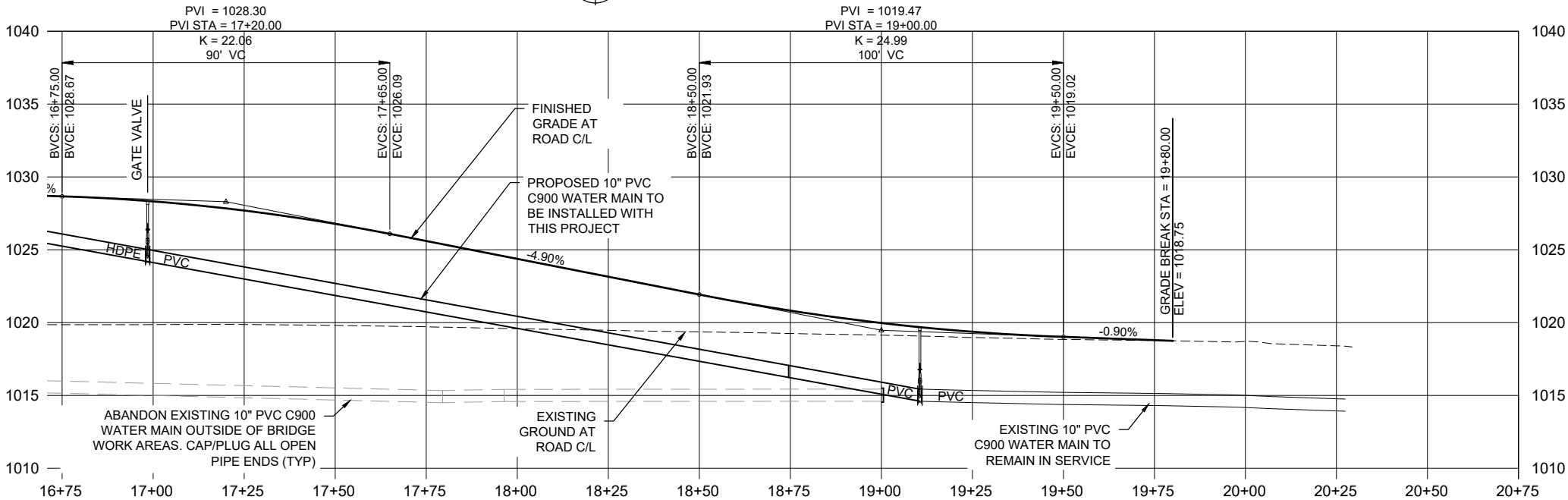
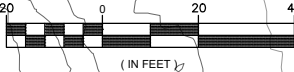
18+44.00, 14.50' LT & RT -
BEGIN 11.11 : 1 HORIZONTAL
TAPER AT ROAD EDGE,
TYPICAL OF BOTH SIDE OF
ROAD.

ROADWAY CENTERLINE
ALIGNMENT (TYP.)

EXISTING FENCE

INSTALL 214 LF
10" PVC C900
WATER MAIN

INSTALL 2 EA GUARDRAIL CONNECTION TO
BRIDGE CONCRETE TRAFFIC BARRIER PER
WSDOT STD. PLAN C-24.10-03 AS SHOWN IN
STRUCTURAL DETAIL SHEET S17. COST
INCIDENTAL TO GUARD RAIL INSTALLATION.



LEGEND:

EXISTING GROUND CONTOUR		1020
FINISHED GRADE CONTOUR		1020
RIGHT OF WAY		
GRADING LIMIT		

GENERAL NOTES:

1. PROVIDE MIN 1 WEEK NOTICE TO YAKAMA INDIAN NATION TRIBAL WATER AND SEWER DEPARTMENT PRIOR TO OPENING OR CLOSING VALVES ON WATER MAIN.
2. PRESSURE TESTING, CHLORINATION, AND FLUSHING OF NEW WATER MAIN SHALL BE COORDINATED WITH TRIBAL WATER AND SEWER DEPARTMENT
3. BACTERIOLOGICAL TESTING SHALL BE PERFORMED BY TRIBAL WATER AND SEWER DEPARTMENT
4. THE ROADWAY IS EXPECTED TO SETTLE DURING INSTALLATION OF THE FILL REQUIRED TO RAISE THE ROADWAY. ELEVATIONS LISTED ON THIS SHEET ARE FOR POST-SETTLEMENT CONDITIONS, UNO.

CAD USER: Dominic.Nudo PLOT DATE: Nov 26, 2025-01:13pm
PATH: P:\PDX PROJECTS\2022\22-059 KPF Pom Pom Bridge\05_CAD\2-Sheets\Civil\C 14 - PLAN AND PROFILE_V.dwg



1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com



Plan + Design + Engineer + Manage
6400 SE Lake Road, Ste 200, Portland, Oregon 97222



EXP. 6/25/2027

NO.	DATE	BY	REVISION



POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

POM POM ROAD
PLAN & PROFILE - STA 16+75 TO STA 20+75

DRAWN: DAN	PROJECT NO.: 2200093
DESIGN: DAN/DKL	SCALE: AS SHOWN
CHECKED: ARR	DATE: 11/26/2025
DRAWING NO.	C14
SHEET NO.	14 OF 62

EROSION CONTROL GENERAL NOTES

- APPROVAL OF THIS EROSION AND SEDIMENT CONTROL (ESC) PLAN DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT ROAD OR DRAINAGE DESIGN (E.G. SIZE AND LOCATION OR ROADS, PIPES, RESTRICTORS, CHANNELS, RETENTION FACILITIES, UTILITIES, ETC.).
- THE IMPLEMENTATION OF THIS ESC PLAN AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE ESC BEST MANAGEMENT PRACTICES (BMP) IS THE RESPONSIBILITY OF THE APPLICANT/CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED AND VEGETATION/LANDSCAPING IS ESTABLISHED.
- THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE CLEARLY FLAGGED IN THE FIELD PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE FLAGGED CLEARING LIMITS SHALL BE PERMITTED. THE FLAGGING SHALL BE MAINTAINED BY THE APPLICANT/CONTRACTOR FOR THE DURATION OF CONSTRUCTION.
- THE ESC BMPs SHOWN ON THIS PLAN MUST BE CONSTRUCTED IN CONJUNCTION WITH ALL CLEARING AND GRADING ACTIVITIES, AND IN SUCH A MANNER AS TO INSURE THAT SEDIMENT AND SEDIMENT LADEN WATER DO NOT ENTER THE DRAINAGE SYSTEM, ROADWAYS, OR VIOLATE APPLICABLE WATER STANDARDS.
- THE ESC BMPs SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, UPGRADE THESE ESC BMPs AS NEEDED FOR UNEXPECTED STORM EVENTS AND TO ENSURE THAT SEDIMENT AND SEDIMENT-LADEN WATER DO NOT LEAVE THE SITE.
- THE ESC BMPs SHALL BE INSPECTED DAILY AND AFTER EACH STORM EVENT BY THE APPLICANT/CONTRACTOR AND MAINTAINED AS NECESSARY TO ENSURE THEIR CONTINUED FUNCTIONING.
- INSPECT AND MAINTAIN THE ESC BMPs ON INACTIVE SITES A MINIMUM OF ONCE A MONTH OR WITHIN THE 48 HOURS FOLLOWING A MAJOR STORM EVENT (24-HOUR STORM EVENT WITH A 10-YEAR OR GREATER RECURRENCE INTERVAL).
- AT NO TIME SHALL THE SEDIMENT EXCEED 60 PERCENT OF THE SUMP DEPTH OR HAVE LESS THAN 6 INCHES OF CLEARANCE FROM THE SEDIMENT SURFACE TO THE INVERT OF LOWEST PIPE. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT LADEN WATER INTO THE DOWNSTREAM SYSTEM.
- STABILIZED CONSTRUCTION ENTRANCES SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES MAY BE REQUIRED TO INSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.

SILT FENCE

PURPOSE- TO REDUCE THE TRANSPORT OF COARSE SEDIMENT FROM A CONSTRUCTION SITE BY PROVIDING A TEMPORARY PHYSICAL BARRIER TO SEDIMENT AND REDUCING THE RUNOFF VELOCITIES OF OVERLAND FLOW.

CONDITIONS OF USE:

- DOWNSLOPE OF ALL DISTURBED AREAS.
- SILT FENCE IS NOT INTENDED TO TREAT CONCENTRATED FLOWS, NOR IS IT INTENDED TO TREAT SUBSTANTIAL AMOUNTS OF OVERLAND FLOW. ANY CONCENTRATED FLOWS MUST BE CONVEYED THROUGH THE DRAINAGE SYSTEM TO A SEDIMENT TRAP OR POND. THE ONLY CIRCUMSTANCES IN WHICH OVERLAND FLOW CAN BE TREATED SOLELY BY A SILT FENCE, RATHER THAN BY A SEDIMENT TRAP OR POND, IS WHERE THE AREA DRAINING TO THE FENCE IS SMALL (SEE INTRODUCTION TO THIS SECTION), AND THE AVERAGE SLOPE IS NOT MORE THAN 1.5H:1V.

DESIGN AND INSTALLATION SPECIFICATIONS:

- SEE FIGURE ABOVE FOR DETAIL.
- THE GEOTEXTILE USED MUST MEET THE STANDARDS LISTED BELOW. A COPY OF THE MANUFACTURER'S FABRIC SPECIFICATIONS MUST BE AVAILABLE ON-SITE.

AOS (ASTM D-4751)30-100 SIEVE SIZE 90.024-0.006 IN.) FOR SILTFILM 50-100 SEIVE SIZE(0.012-0.006 IN.) FOR OTHER FABRICS.

WATER PERMEABILITY (ASTM D-4491)=0.02 SEC ~1 MIN.

GRAB TENSILE STRENGTH (ASTM D-4632) = 180 LBS MIN. FOR EXTRA STRENGTH FABRIC 100 LBS MIN. FOR STANDARD STRENGTH FABRIC.

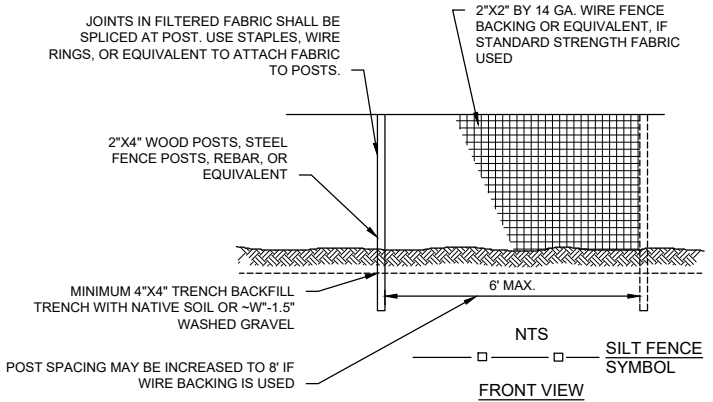
GRAB TENSILE ELONGATION (ASTM D-4632) = 30% MAX.

ULTRAVIOLET RESISTANCE (ASTM D-4355) = 70%.

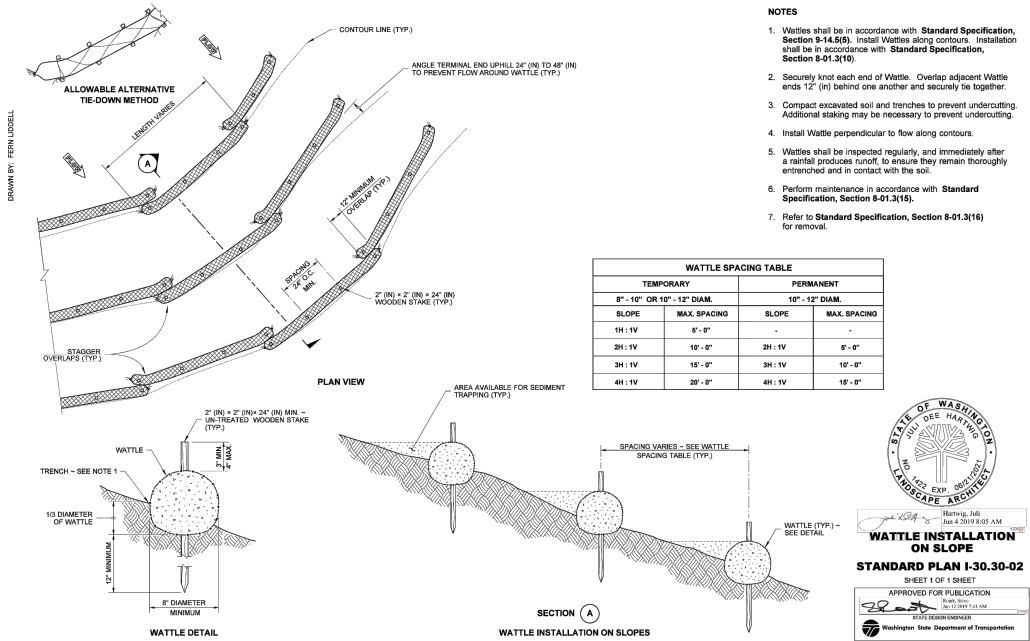
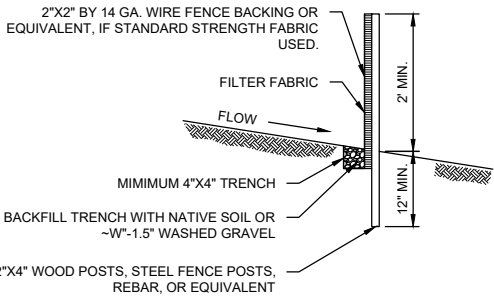
- STANDARD STRENGTH FABRIC REQUIRES WIRE BACKING TO INCREASE THE STRENGTH OF THE FENCE. WIRE BACKING OR CLOSER POST SPACING MAY BE REQUIRED FOR EXTRA STRENGTH FABRIC IF FIELD PERFORMANCE WARRENTS A STRONGER FENCE.
- WHERE THE FENCE IS INSTALLED, THE SLOPE SHALL BE NO STEEPER THAN 2H:1V.

MAINTENANCE STANDARDS:

- ANY DAMAGE SHALL BE REPAIRED IMMEDIATELY.
- IF CONCENTRATED FLOWS ARE EVIDENT UPHILL OF THE FENCE, THEY MUST BE INTERCEPTED AND CONVEYED TO A SEDIMENT TRAP OR POND.
- IT IS IMPORTANT TO CHECK THE UPHILL SIDE OF THE FENCE FOR SIGNS OF THE FENCE CLOGGING AND ACTING AS A BARRIER TO FLOW AND THEN CAUSING CHANNELIZATION OF FLOWS PARALLEL TO THE FENCE. IF THIS OCCURS, REPLACER THE FENCE AND/OR REMOVE THE TRAPPED SEDIMENT.
- SEDIMENT MUST BE REMOVED WHEN THE SEDIMENT IS 6" HIGH.
- IF THE FILTER FABRIC HAS DETERIORATED DUE TO ULTRAVIOLET BREAKDOWN, IT SHALL BE REPLACED.



NOTE: FILTER FABRIC FENCES SHALL BE INSTALLED ALONG CONTOUR WHENEVER POSSIBLE.



NOTES

- Wattles shall be in accordance with **Standard Specification, Section 9-14.5(5)**. Install Wattles along contours. Installation shall be in accordance with **Standard Specification, Section 9-21.3(10)**.
- Securely knot each end of Wattle. Overlap adjacent Wattle ends 12" (in) behind one another and securely tie together.
- Compact excavated soil and trenches to prevent undercutting. Additional staking may be necessary to prevent undercutting.
- Install Wattle perpendicular to flow along contours.
- Wattles shall be inspected regularly, and immediately after a rainfall produces runoff, to ensure they remain thoroughly entrenched and in contact with the soil.
- Perform maintenance in accordance with **Standard Specification, Section 9-01.3(15)**.
- Refer to **Standard Specification, Section 9-01.3(16)** for removal.



1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com



Plan + Design + Engineer + Manage

6400 SE Lake Road, Ste 200, Portland, Oregon 97222



NO.	DATE	BY	REVISION



POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

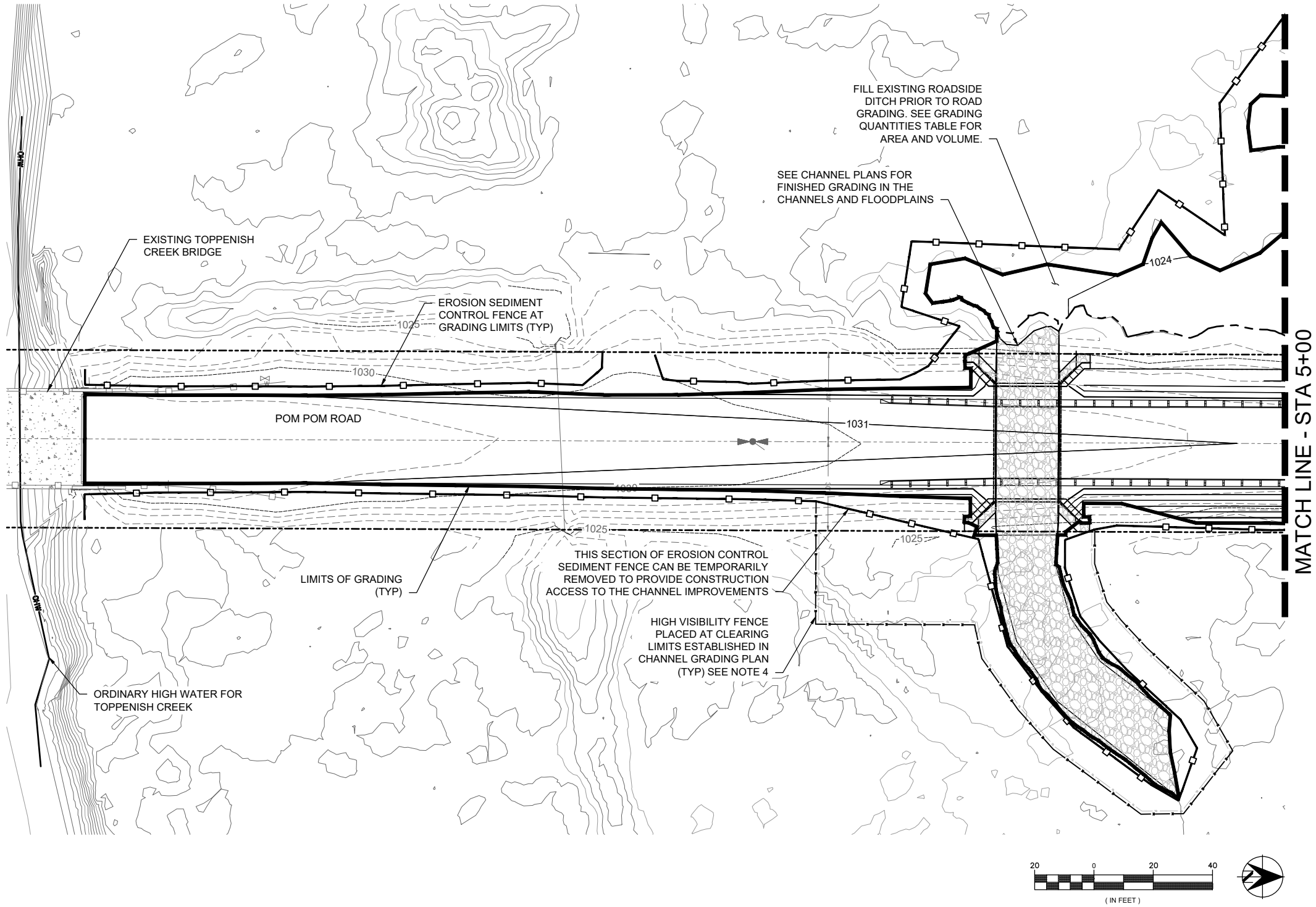
EROSION CONTROL
NOTES AND DETAILS

DRAWN: DAN	PROJECT NO.: 2200093
DESIGN: DAN/DKL	SCALE: AS SHOWN
CHECKED: ARR	DATE: 11/26/2025
DRAWING NO.	C20
SHEET NO.	15 OF 62

Xrefs:
22059EXTG
22059BASE
KPFFB-2234x1b Pom Pm
Luneke-STAMP-WA
XREF_Ch_Plans_IE90pc

GRADING QUANTITIES			
SURFACE	SURFACE AREA (SF)	TOTAL CUT (CY)	TOTAL FILL (CY)
ROADSIDE DITCH GRADING	3,538	15	7,510
ROADWAY GRADING	73,353	50	10,735

*TABLE QUANTITIES DO NOT INCLUDE STRIPPING AND WILL DIFFER FROM TOTAL VALUES IN BID QUANTITIES.



LEGEND:

EXISTING GROUND CONTOUR	— 1020 —
FINISHED GRADE CONTOUR	— 1020 —
RIGHT OF WAY	-----
GRADING LIMIT	=====
SILT FENCE	— [] —
HIGH VISIBILITY FENCE	— [] —
CHANNEL CLEARING LIMITS	— [] —
STABILIZED GRAVEL CONSTRUCTION ACCESS	[]

GENERAL NOTES:

- ALL WORK FOR THE TURBIDITY CURTAIN SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR THE SITE CONDITIONS. REMOVAL PROCEDURES SHALL BE DEVELOPED AND USED TO MINIMIZE SILT RELEASE AND DISTURBANCE OF SILT. THE CONTRACTOR SHALL SUBMIT A TYPE 2 WORKING DRAWING, DETAILING PRODUCT INFORMATION, INSTALLATION AND REMOVAL PROCEDURES, EQUIPMENT AND WORKFORCE NEEDS, MAINTENANCE PLANS, AND EMERGENCY REPAIR/ REPLACEMENT PLANS. TURBIDITY CURTAIN MATERIALS, INSTALLATION, AND MAINTENANCE SHALL BE SUFFICIENT TO COMPLY WITH WATER QUALITY STANDARDS. THE CONTRACTOR SHALL NOTIFY THE ENGINEER 10 DAYS IN ADVANCE OF REMOVING THE TURBIDITY CURTAIN. ALL COMPONENTS OF THE TURBIDITY CURTAIN SHALL BE REMOVED FROM THE PROJECT.
- THE TOP 8-INCHES OF FILL PLACED IN ROADSIDE DITCHES SHALL BE SILTY SAND OR LOAM, FREE FROM DEBRIS, SELECTED AND STOCKPILED DURING EXCAVATION. REPLANT USING TRIBAL APPROVED NATIVE SEED MIX PER SPECIAL PROVISIONS.
- FUELING AND LUBRICATION OF CONSTRUCTION EQUIPMENT SHALL NOT TAKE PLACE WITHIN 150 FEET OF ANY WETLAND OR ORDINARY HIGH WATER MARK.
- HIGH VISIBILITY PLASTIC FENCE SHALL BE COMPOSED OF A HIGH-DENSITY POLYETHYLENE MATERIAL AND SHALL BE AT LEAST FOUR FEET IN HEIGHT. POSTS FOR THE FENCING SHALL BE STEEL OR WOOD AND PLACED EVERY 6 FEET ON CENTER (MAXIMUM) OR AS NEEDED TO ENSURE RIGIDITY. THE FENCING SHALL BE FASTENED TO THE POST EVERY SIX INCHES WITH A POLYETHYLENE TIE. ON LONG CONTINUOUS LENGTHS OF FENCING, A TENSION WIRE OR ROPE SHALL BE USED AS A TOP STRINGER TO PREVENT SAGGING BETWEEN POSTS. THE FENCE COLOR SHALL BE HIGH VISIBILITY ORANGE. THE FENCE TENSILE STRENGTH SHALL BE 360 LBS./FT. USING THE ASTM D4595 TESTING METHOD.
- CLEARING LIMITS AND CHANNEL GRADING LIMITS ESTABLISHED BY ENVIRONMENTAL CONSULTANT. CONTRACTOR/SURVEYOR TO DETERMINE STAKING PLAN AND SUBMIT TO OWNER FOR APPROVAL.

kpff
1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com

AKANA
Plan + Design + Engineer + Manage

6400 SE Lake Road, Ste 200, Portland, Oregon 97222



NO.	DATE	BY	REVISION



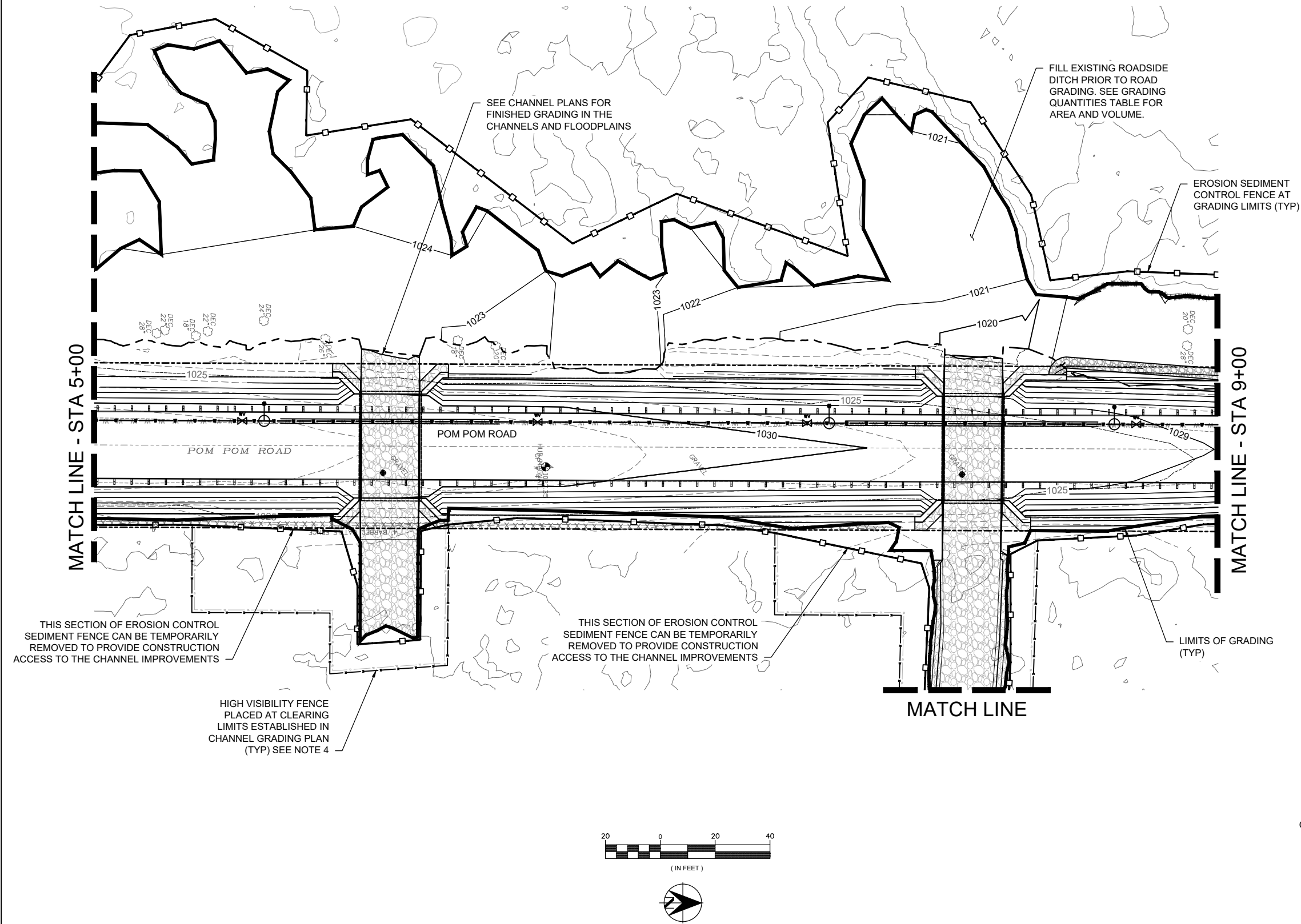
POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

GRADING AND EROSION
CONTROL PLAN I

DRAWN: DAN	PROJECT NO.: 2200093
DESIGN: DAN/DKL	SCALE: AS SHOWN
CHECKED: ARR	DATE: 11/26/2025
DRAWING NO.	C21
SHEET NO.	16 OF 62

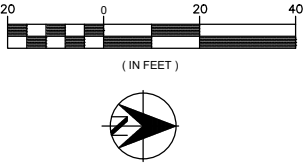
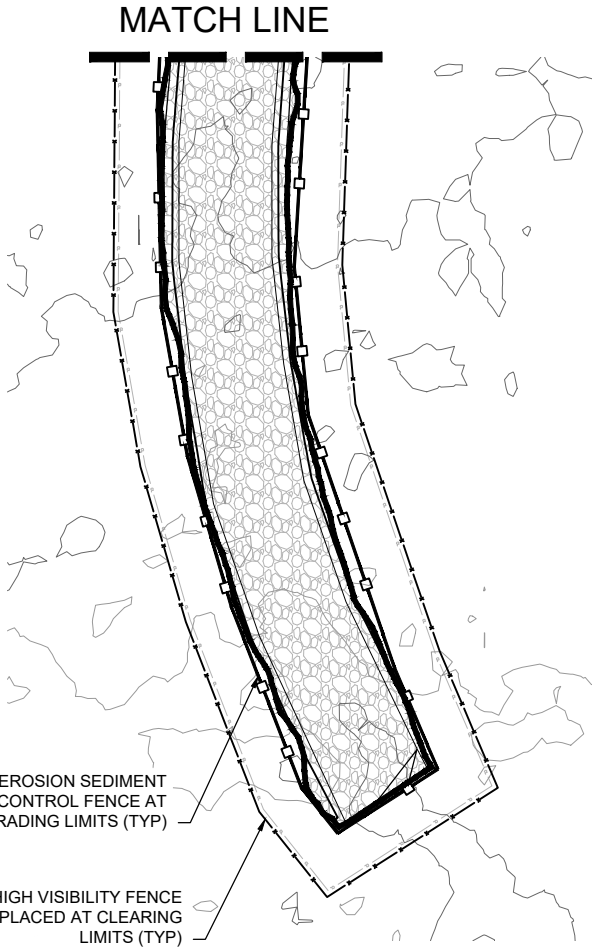
Xrefs:
22059EXTG
22059BASE
KPF2B-2234x1b Pom Pom
xPPR_BRIDGE
xPPR_WALLS
Lunke-STAMP-WA
XREF_Ch_Plans_IJ90pc

CAD USER: Dominic.Nudo PLOT DATE: Nov 26, 2025-02:18pm
PATH: P:\PDX PROJECTS\2022\22-059 KPF Pom Pom Bridge\05_CAD\2-Sheets\Civil\22 - GRADING AND EROSION CONTROL PLAN II.dwg



LEGEND:

- EXISTING GROUND CONTOUR — 1020 —
- FINISHED GRADE CONTOUR — 1020 —
- RIGHT OF WAY - - - - -
- GRADING LIMIT —————
- SILT FENCE — [] —
- HIGH VISIBILITY FENCE — + + + + +
- CHANNEL CLEARING LIMITS - - - - -
- STABILIZED GRAVEL CONSTRUCTION ACCESS [Pattern]



1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com

Plan + Design + Engineer + Manage
6400 SE Lake Road, Ste 200, Portland, Oregon 97222

DAVID K. LUNKE
STATE OF WASHINGTON
49176
PROFESSIONAL ENGINEER
EXP. 6/25/2027

NO.	DATE	BY	REVISION



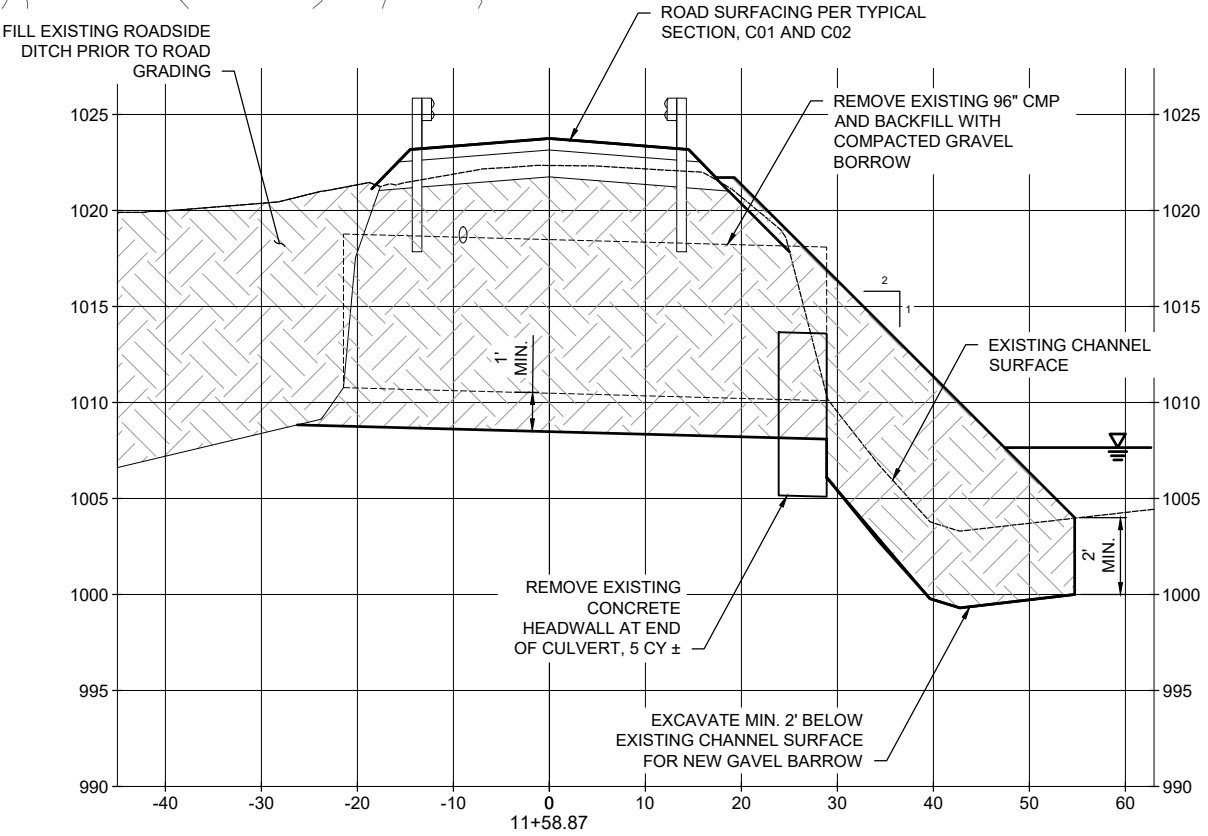
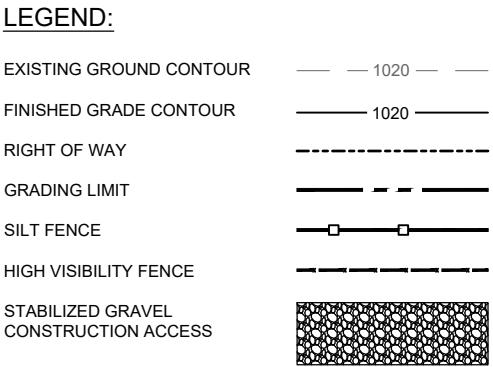
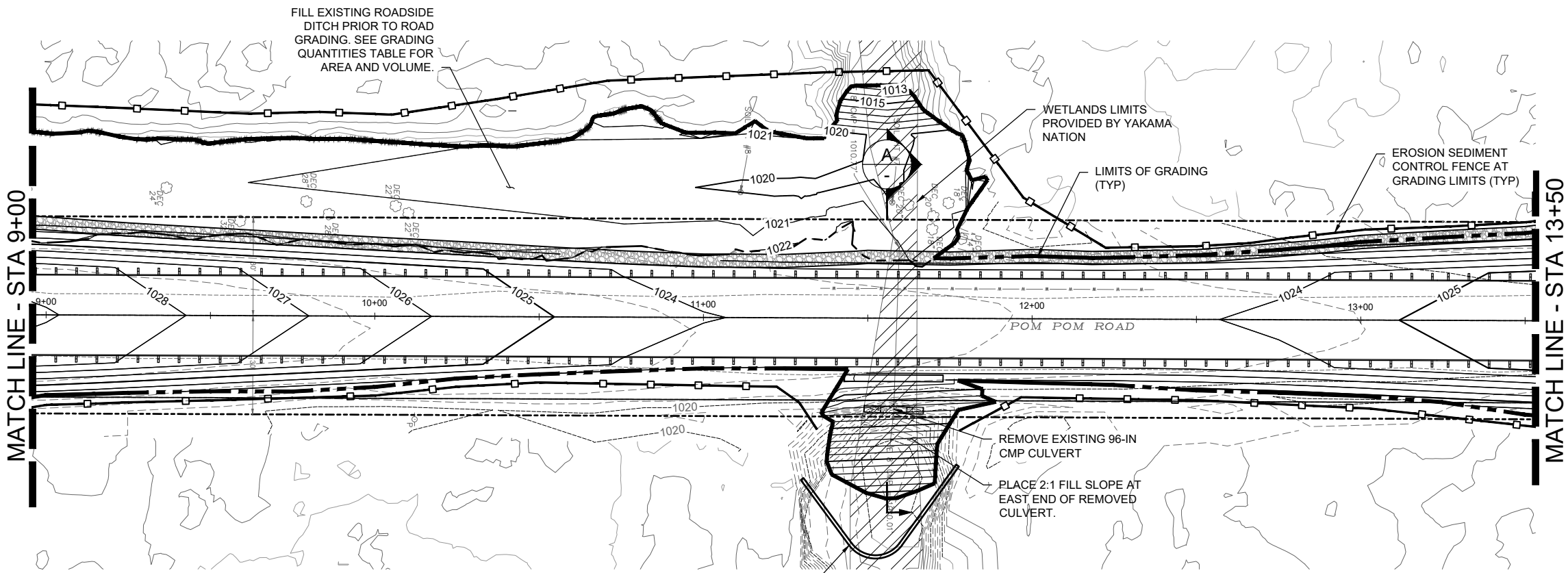
POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

GRADING AND EROSION
CONTROL PLAN II

DRAWN: DAN	PROJECT NO.: 2200093
DESIGN: DAN/DKL	SCALE: AS SHOWN
CHECKED: ARR	DATE: 11/26/2025
DRAWING NO.	C22
SHEET NO.	17 OF 62

Xrefs:
22059EXTG
22059BASE
KPF08-2234x1b Pom Pom
xPPR_BRIDGE
xPPR_WALLS
Luncke-STAMP-WA
XREF_Ch_Plans_IE90pc

CAD USER: Dominic.Nudo PLOT DATE: Nov 26, 2025-02:45pm
PATH: P:\PDX PROJECTS\2022\22-059 KPFF Pom Pom Bridge\05_CAD\2-Sheets\Civil\C 23 - GRADING AND EROSION CONTROL PLAN III.dwg



A SECTION A
SCALE: H: 1"=10'
V: 1"=5'



6400 SE Lake Road, Ste 200, Portland, Oregon 97222



NO.	DATE	BY	REVISION

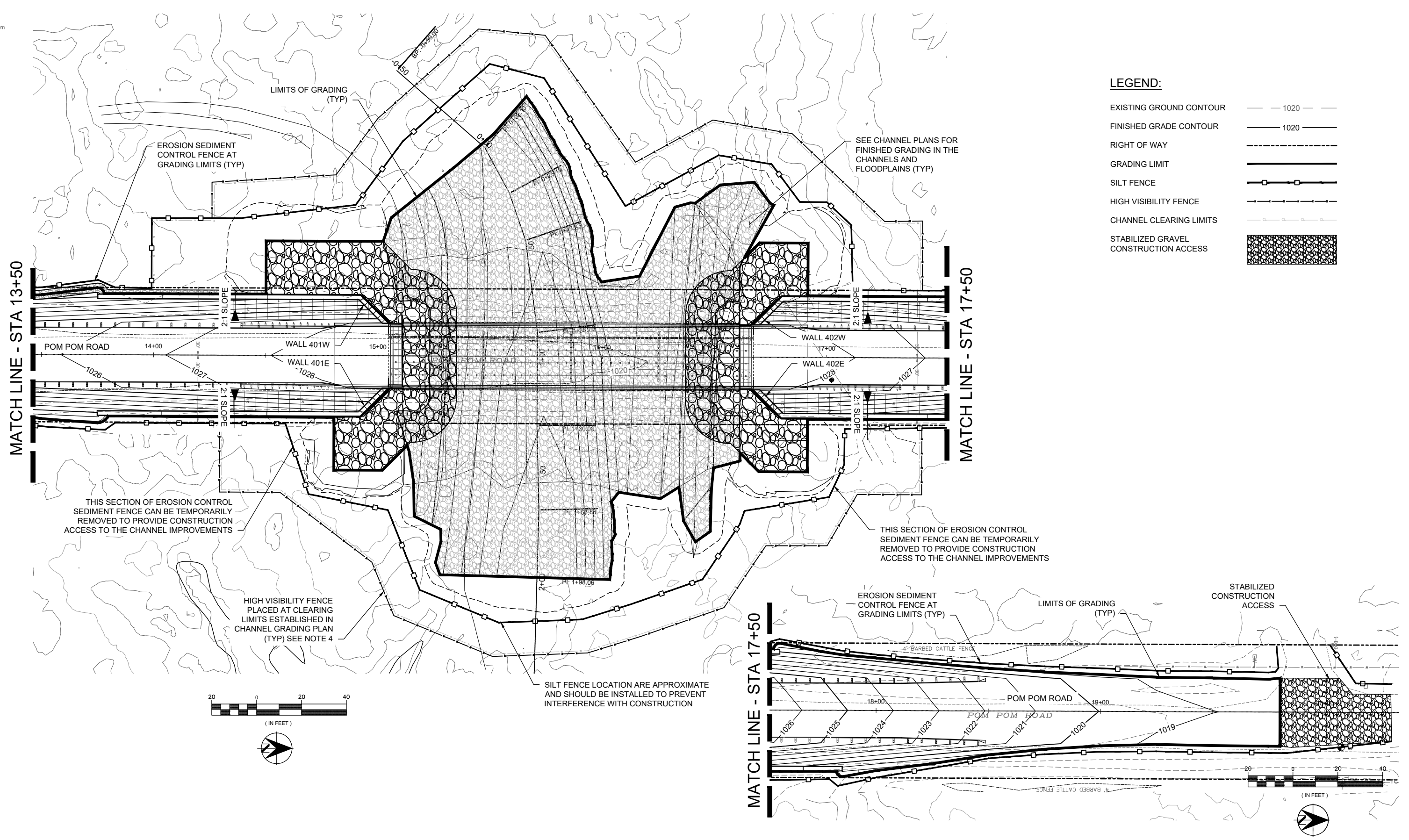


POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

GRADING AND EROSION CONTROL PLAN III

DRAWN: DAN	PROJECT NO.: 2200093
DESIGN: DAN/DKL	SCALE: AS SHOWN
CHECKED: ARR	DATE: 11/26/2025
DRAWING NO.	C23
SHEET NO.	18 OF 62

Xrefs:
22059EXTG
22059BASE
KPFFB-2234xtb Pom Pom
xPPR_BRIDGE
xPPR_WALLS
Luneke-STAMP-WA
XREF_Ch_Plans_IE90pc



NO.	DATE	BY	REVISION

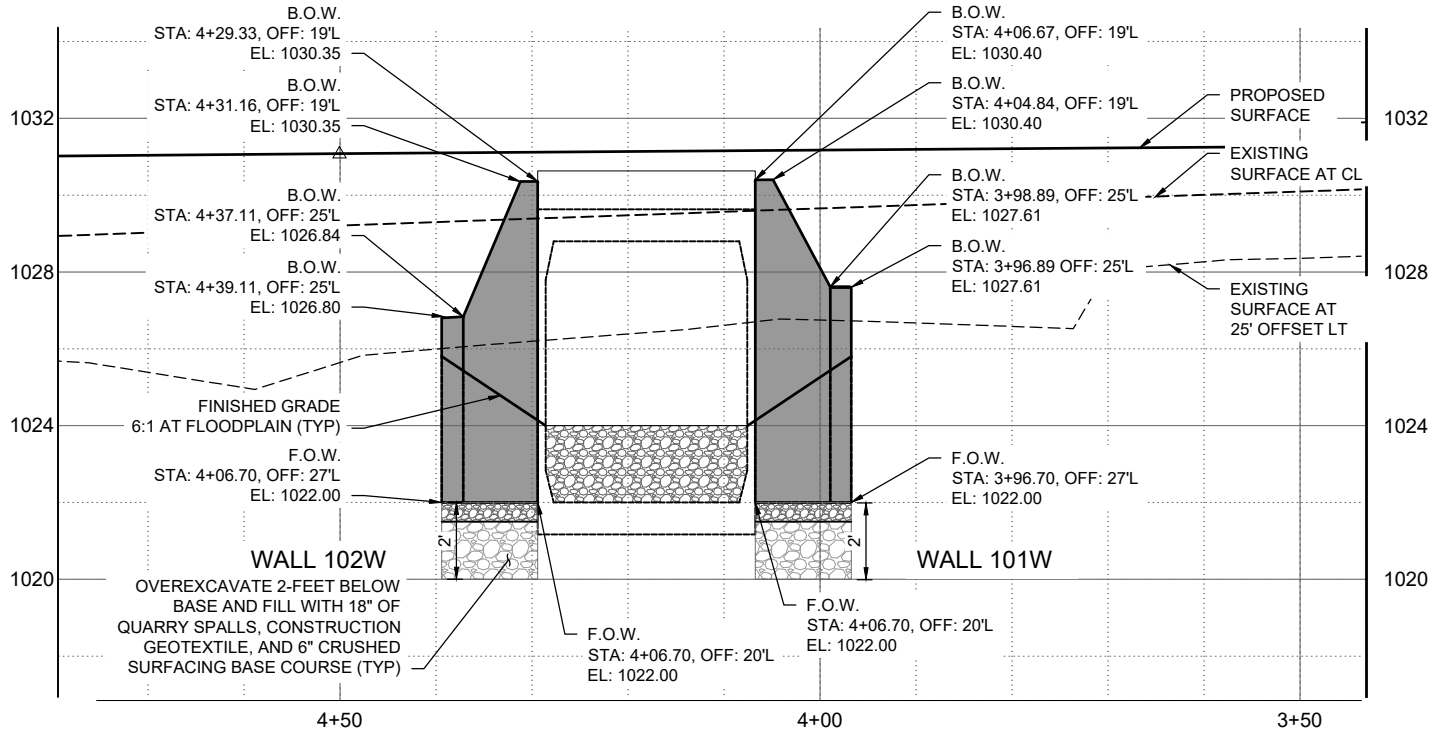


POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

GRADING AND EROSION
CONTROL PLAN IV

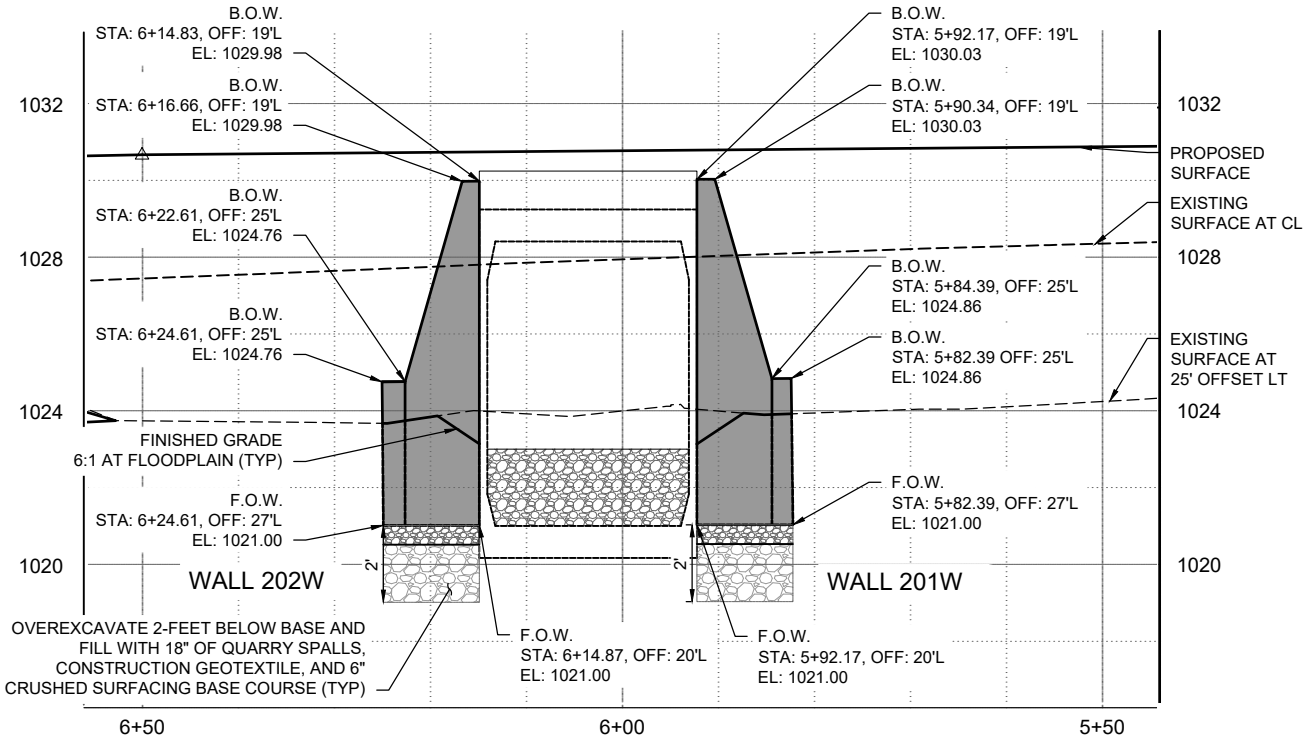
DRAWN: DAN	PROJECT NO.: 2200093
DESIGN: DAN/DKL	SCALE: AS SHOWN
CHECKED: ARR	DATE: 11/26/2025
DRAWING NO.	
C24	
SHEET NO.	
19 OF 62	

Xrefs:
22059EXTG
22059BASE
KPPFB-2234x1b Pom Pom
xPPR_BRIDGE 11-17-2022
Luneke-STAMP-WA

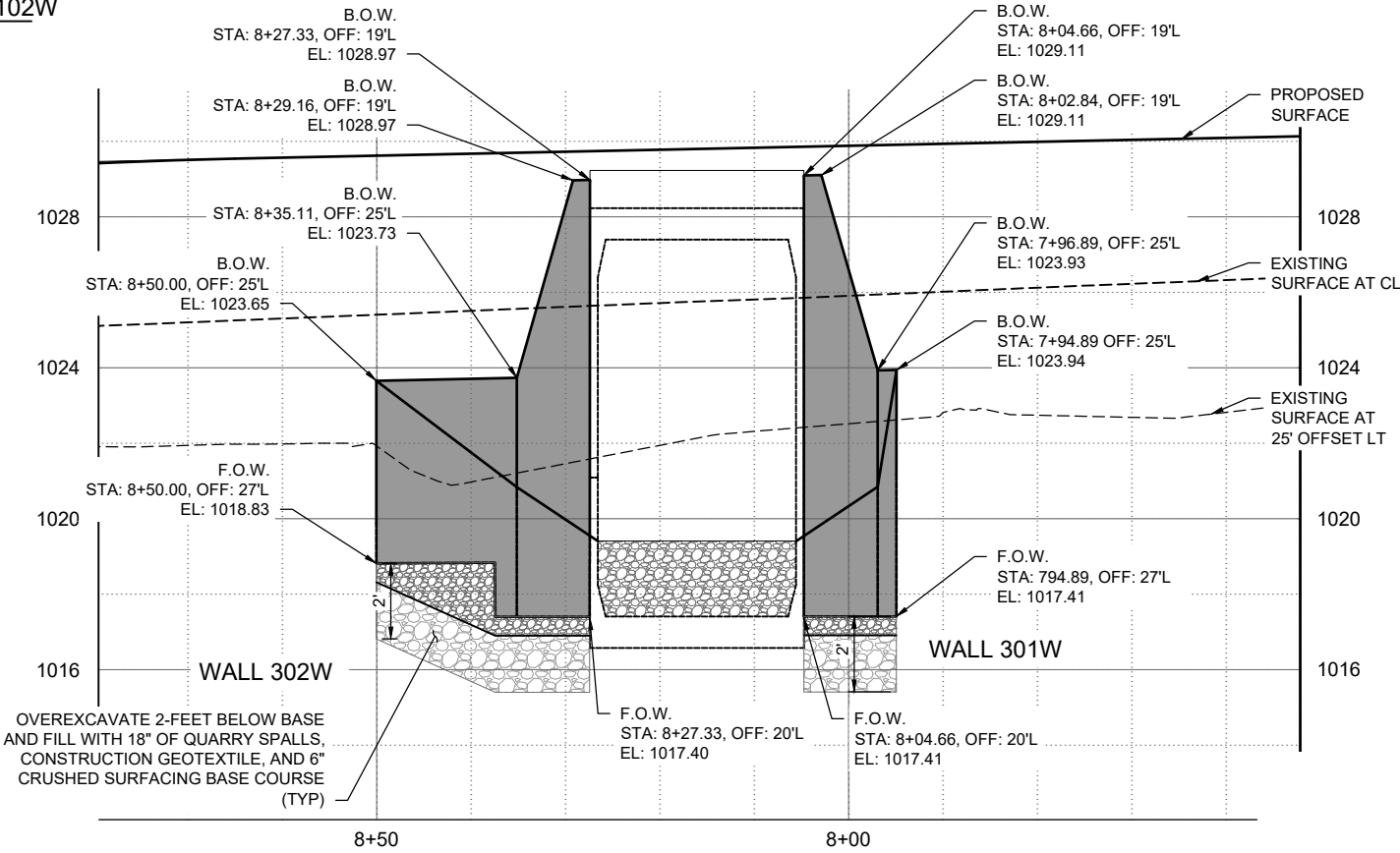


WALL PROFILES
WALLS 101W & 102W
SCALE: HORIZ: 1" = 10"
VERT: 1" = 2.5'

- NOTES:
1. THE ROADWAY IS EXPECTED TO SETTLE DURING INSTALLATION OF THE FILL REQUIRED TO RAISE THE ROADWAY. ELEVATIONS LISTED ON THIS SHEET ARE FOR PRE-SETTLEMENT CONDITIONS, UNO.
 2. B.O.W. (BACK OF WALL) IS THE POINT WHERE 2:1 ROADWAY SIDESLOPE GRADING MEETS THE WALL, AT A PROPOSED 2' BACK FROM FACE OF WALL AS SHOWN IN PLAN VIEW. NOT TRUE BACK OF STRUCTURAL WALL BACKFILL.
 3. F.O.W. (FACE OF WALL) TRUE FACE OF WALL BELOW FINISHED GRADE AS SHOWN IN PLAN VIEW



WALL PROFILES
WALLS 201W & 202W
SCALE: HORIZ: 1" = 10"
VERT: 1" = 2.5'



WALL PROFILES
WALLS 301W & 302W
SCALE: HORIZ: 1" = 10"
VERT: 1" = 2.5'

CAD USER: Dominic.Nudo PLOT DATE: Nov 26, 2025-03:37pm
PATH: P:\PDX PROJECTS\2022\22-059 KPFF Pom Pom Bridge\05_CAD\2-Sheets\Civil\C 25 - BOX CULVERT GRADING DETAILS - WEST.dwg

kppff
1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kppff.com

AKANA
Plan + Design + Engineer + Manage

6400 SE Lake Road, Ste 200, Portland, Oregon 97222



NO.	DATE	BY	REVISION

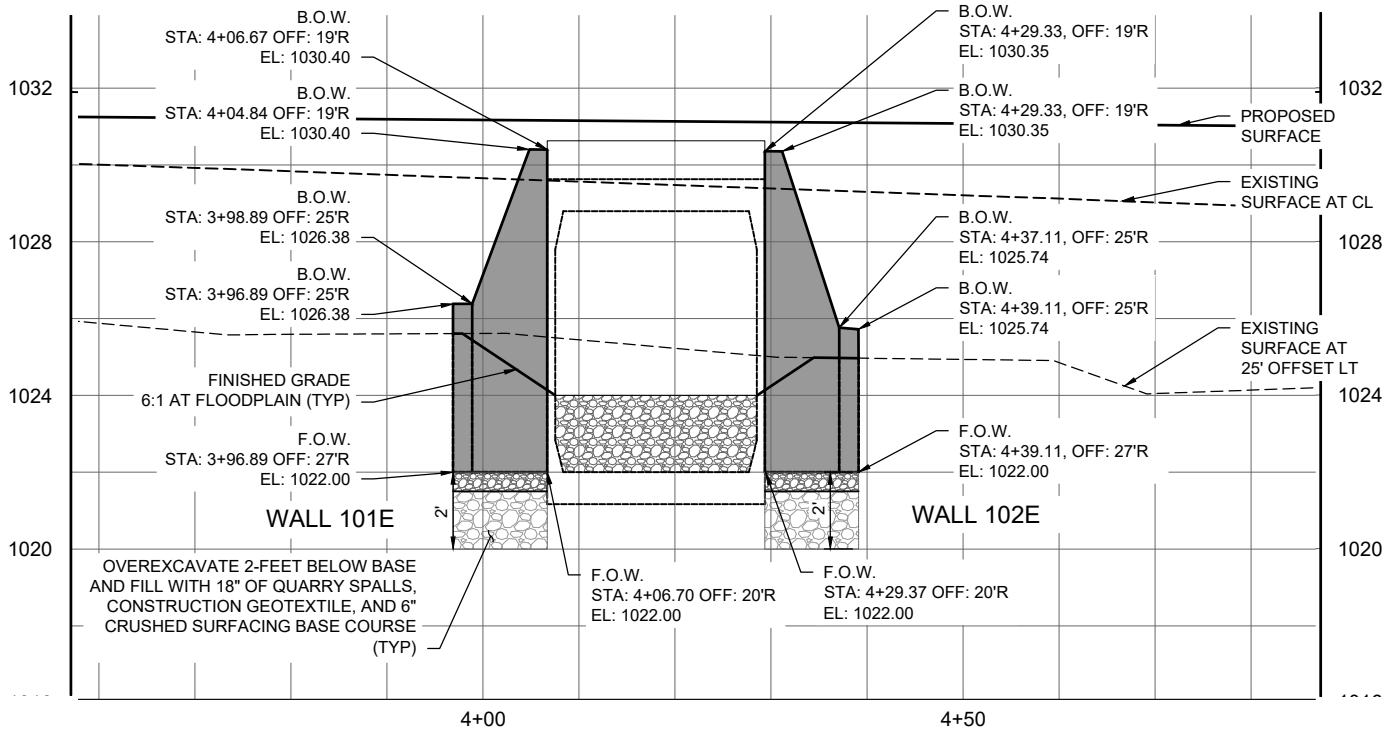


POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

WALL PROFILES AT BOX CULVERTS

DRAWN: DAN	PROJECT NO.: 2200093
DESIGN: DAN/DKL	SCALE: AS SHOWN
CHECKED: ARR	DATE: 11/26/2025
DRAWING NO.	C25
SHEET NO.	20 OF 62

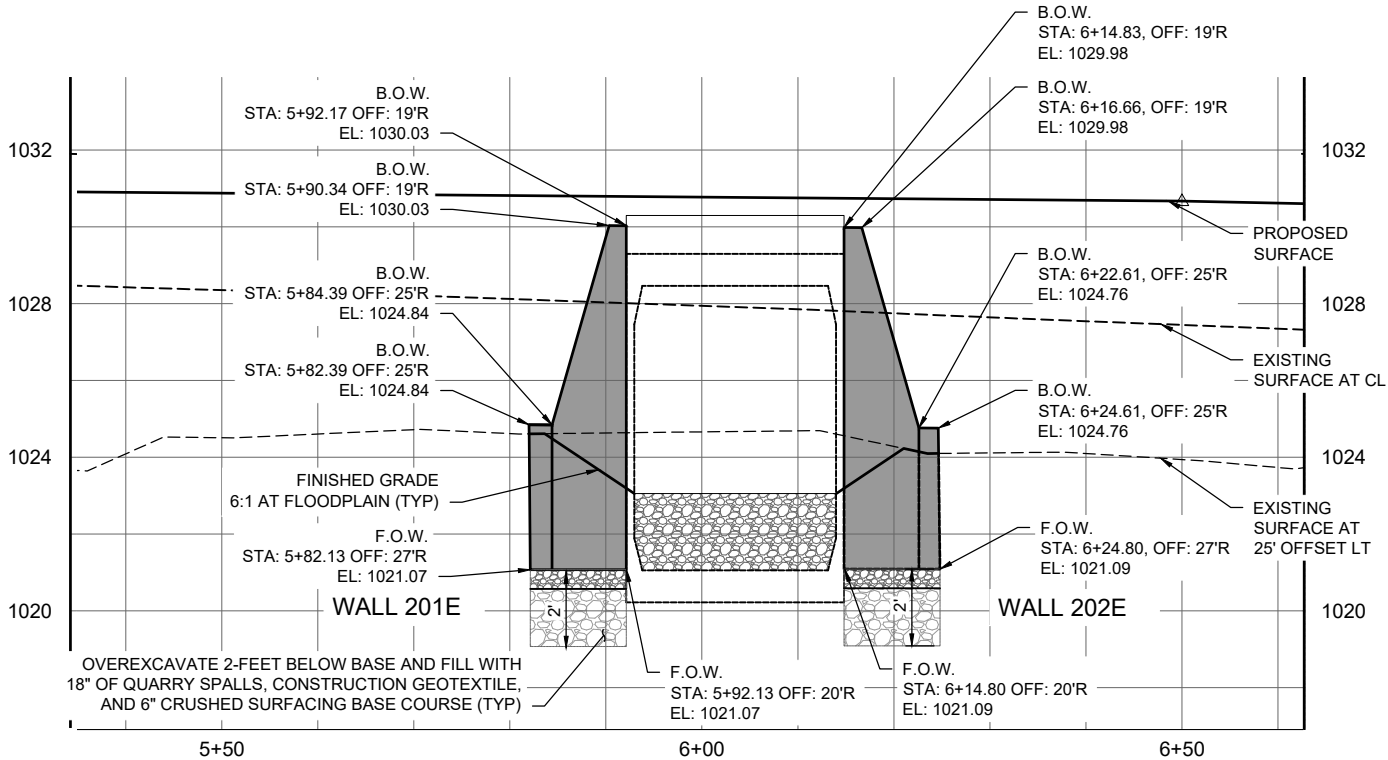
Xrefs:
22059EXTG
22059BASE
KPPFB-2234x1b Pom Pom
xPPR_BRIDGE 11-17-2022
Lunke-STAMP-WA



- NOTES:
1. THE ROADWAY IS EXPECTED TO SETTLE DURING INSTALLATION OF THE FILL REQUIRED TO RAISE THE ROADWAY. ELEVATIONS LISTED ON THIS SHEET ARE FOR PRE-SETTLEMENT CONDITIONS, UNO.
 2. B.O.W. (BACK OF WALL) IS THE POINT WHERE 2:1 ROADWAY SIDESLOPE GRADING MEETS THE WALL, AT A PROPOSED 2' BACK FROM FACE OF WALL AS SHOWN IN PLAN VIEW. NOT TRUE BACK OF STRUCTURAL WALL BACKFILL.
 3. F.O.W. (FACE OF WALL) TRUE FACE OF WALL BELOW FINISHED GRADE AS SHOWN IN PLAN VIEW

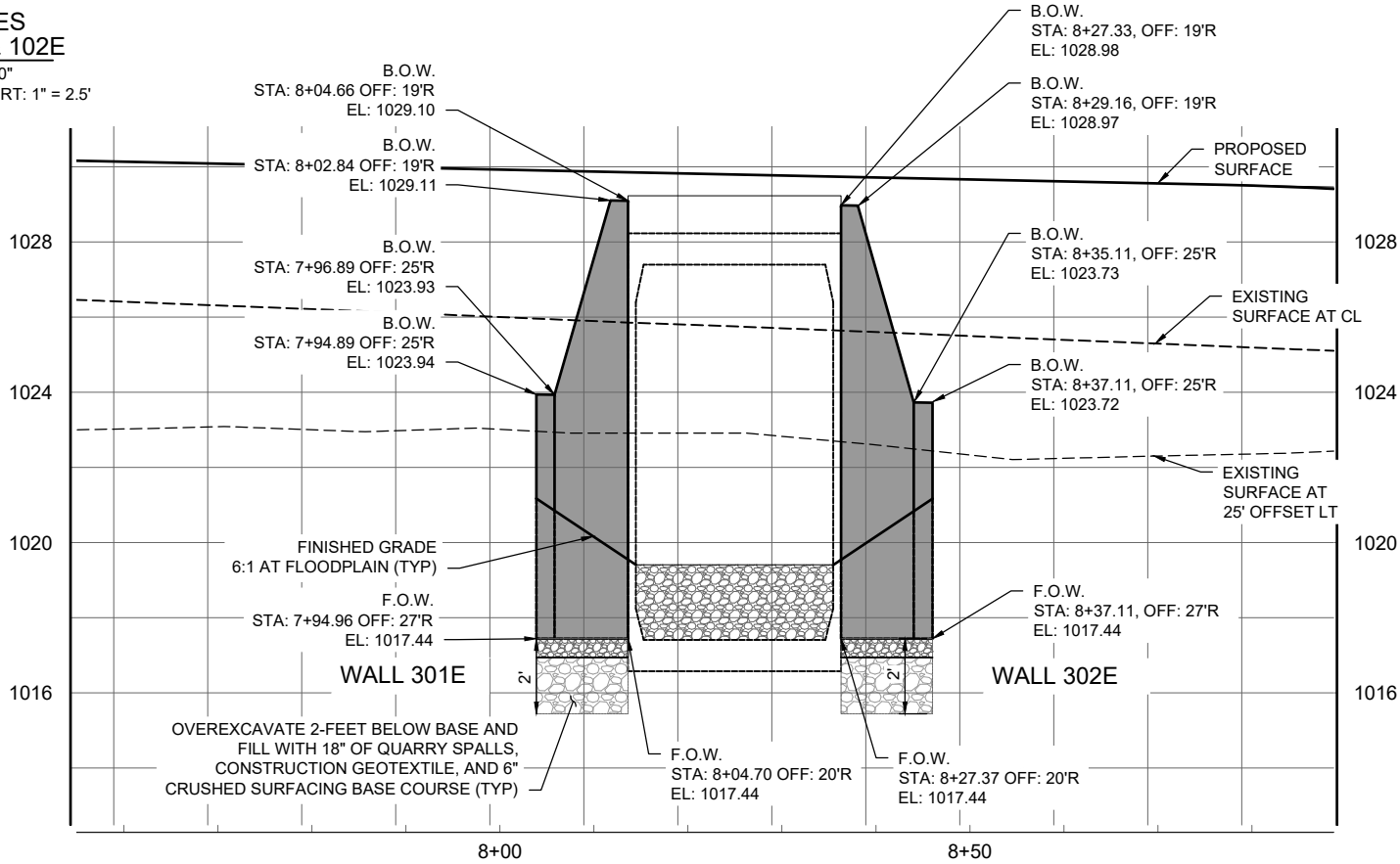
**WALL PROFILES
WALLS 101E & 102E**

SCALE: HORIZ: 1" = 10"
VERT: 1" = 2.5'



**WALL PROFILES
WALLS 201E & 202E**

SCALE: HORIZ: 1" = 10"
VERT: 1" = 2.5'



**WALL PROFILES
WALLS 301E & 302E**

SCALE: HORIZ: 1" = 10"
VERT: 1" = 2.5'

kppff

1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kppff.com

AKANA

Plan + Design + Engineer + Manage

6400 SE Lake Road, Ste 200, Portland, Oregon 97222



NO.	DATE	BY	REVISION



**POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION**

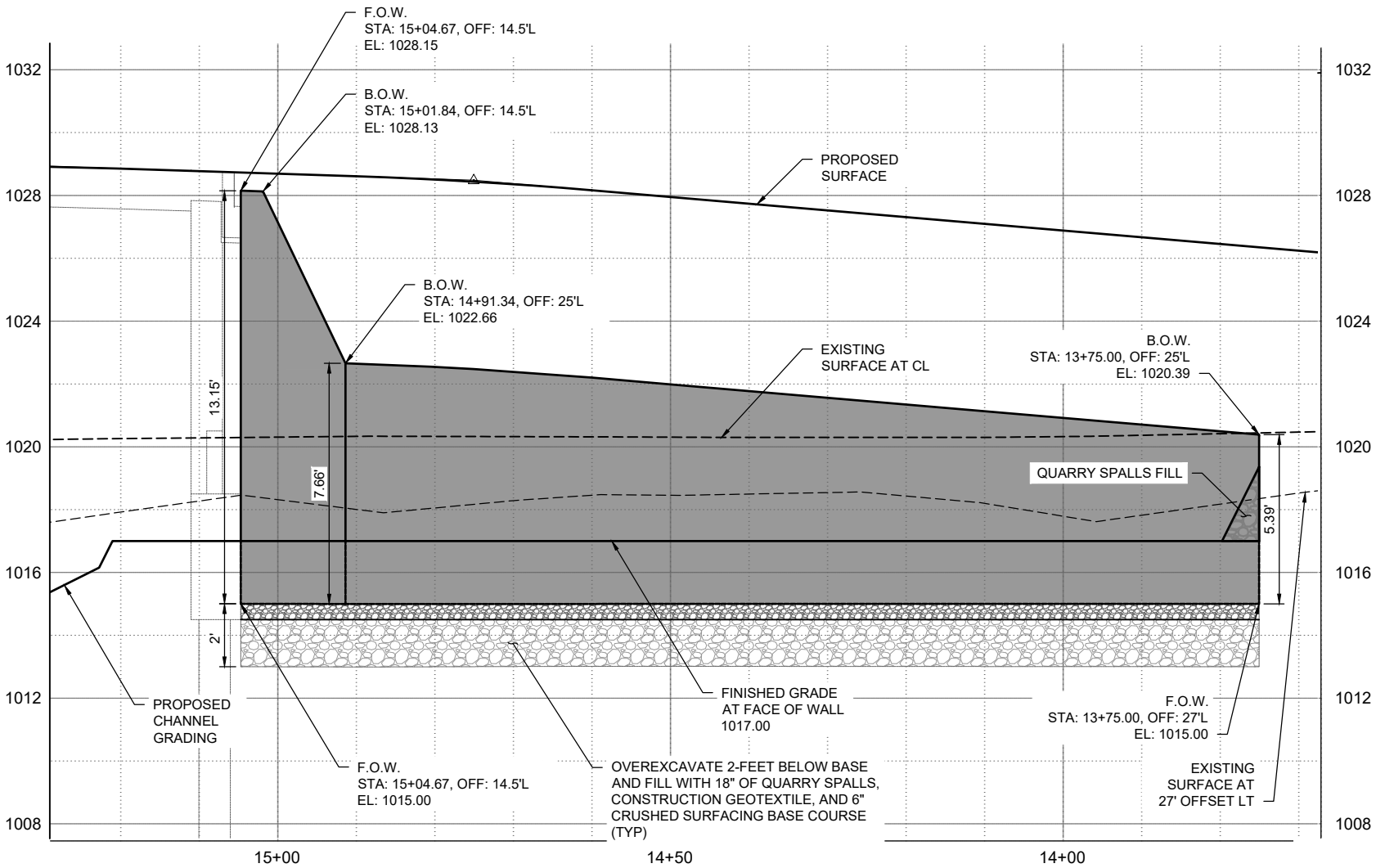
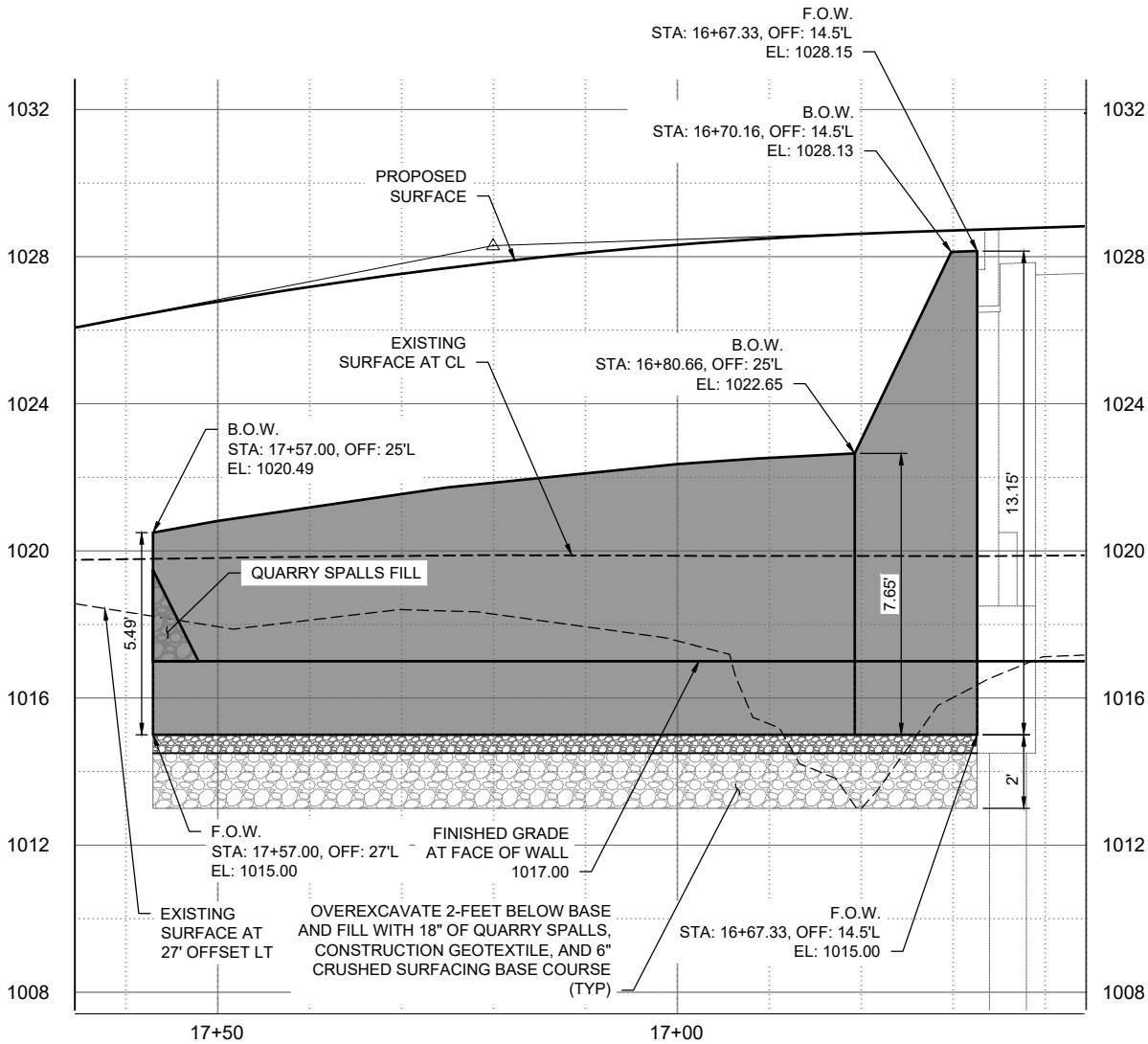
WALL PROFILES AT BOX CULVERTS II

DRAWN: DAN	PROJECT NO.: 2200093
DESIGN: DAN/DKL	SCALE: AS SHOWN
CHECKED: ARR	DATE: 11/26/2025
DRAWING NO.	C26
SHEET NO.	21 OF 62

CAD USER: Dominic.Nudo PLOT DATE: Nov 26, 2025-03:41pm
PATH: P:\PDX PROJECTS\2022\22-059 KPPFB-2234x1b Pom Pom Bridge\05_CAD\2-Sheets\Civil\26 - BOX CULVERT GRADING DETAILS - EAST.dwg

Xrefs:
22059EXTG
22059BASE
KPPFB-2234x1b Pom Pom
xPPR_BRIDGE 11-17-2022
Lunke-STAMP-WA

CAD USER: Dominic.Nudo PLOT DATE: Nov 26, 2025-03:44pm
PATH: P:\PDX PROJECTS\2022\22-059 KPPF Pom Pom Bridge\05_CAD\2-Sheets\Civil\C 27 - WALL PROFILE - WEST.dwg



- NOTES:
1. THE ROADWAY IS EXPECTED TO SETTLE DURING INSTALLATION OF THE FILL REQUIRED TO RAISE THE ROADWAY. ELEVATIONS LISTED ON THIS SHEET ARE FOR PRE-SETTLEMENT CONDITIONS, UNO.
 2. B.O.W. (BACK OF WALL) IS THE POINT WHERE 2:1 ROADWAY SIDESLOPE GRADING MEETS THE WALL, AT A PROPOSED 2' BACK FROM FACE OF WALL AS SHOWN IN PLAN VIEW. NOT TRUE BACK OF STRUCTURAL WALL BACKFILL.
 3. F.O.W. (FACE OF WALL) TRUE FACE OF WALL BELOW FINISHED GRADE AS SHOWN IN PLAN VIEW



Plan + Design + Engineer + Manage
6400 SE Lake Road, Ste 200, Portland, Oregon 97222



NO.	DATE	BY	REVISION



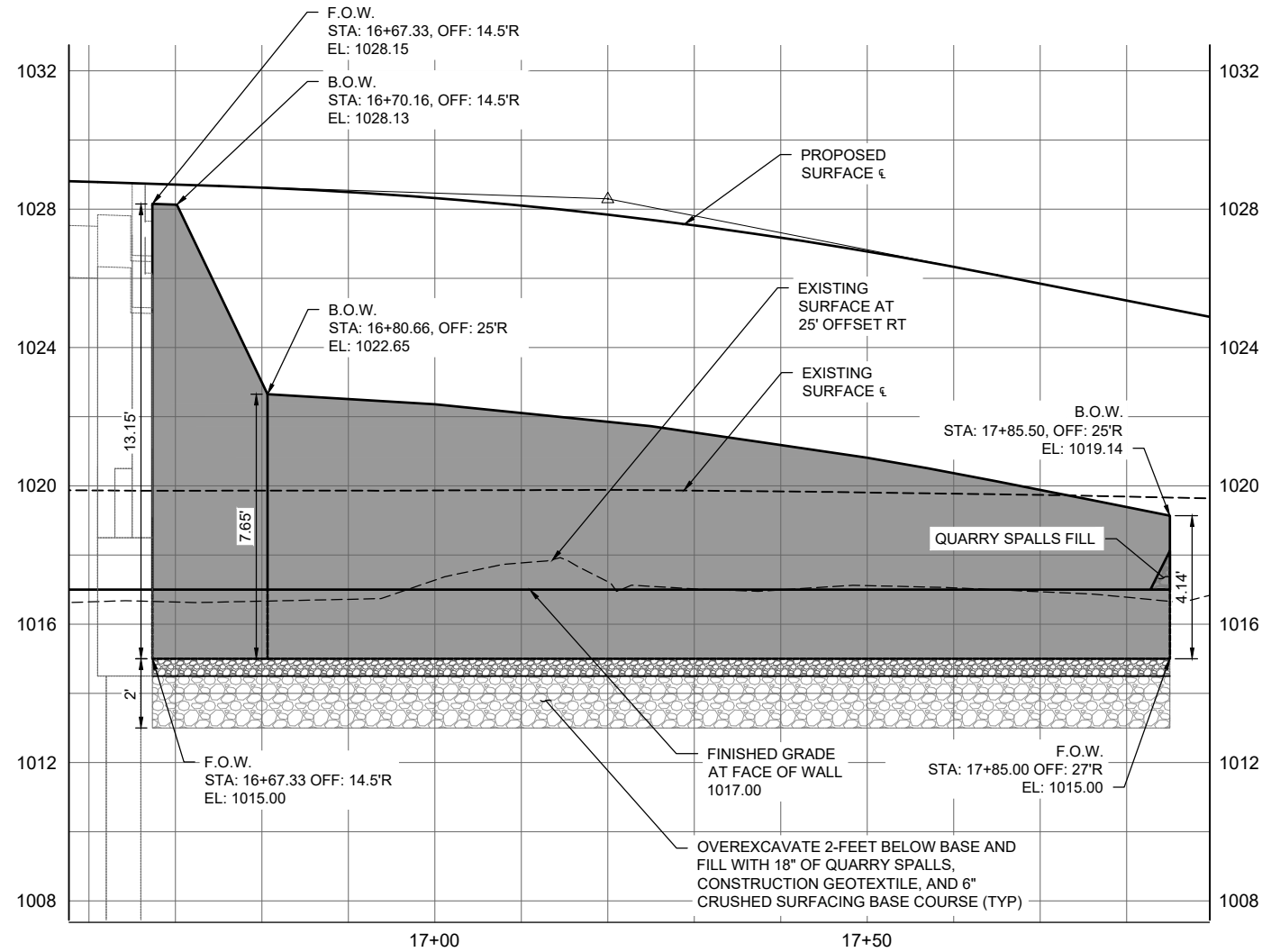
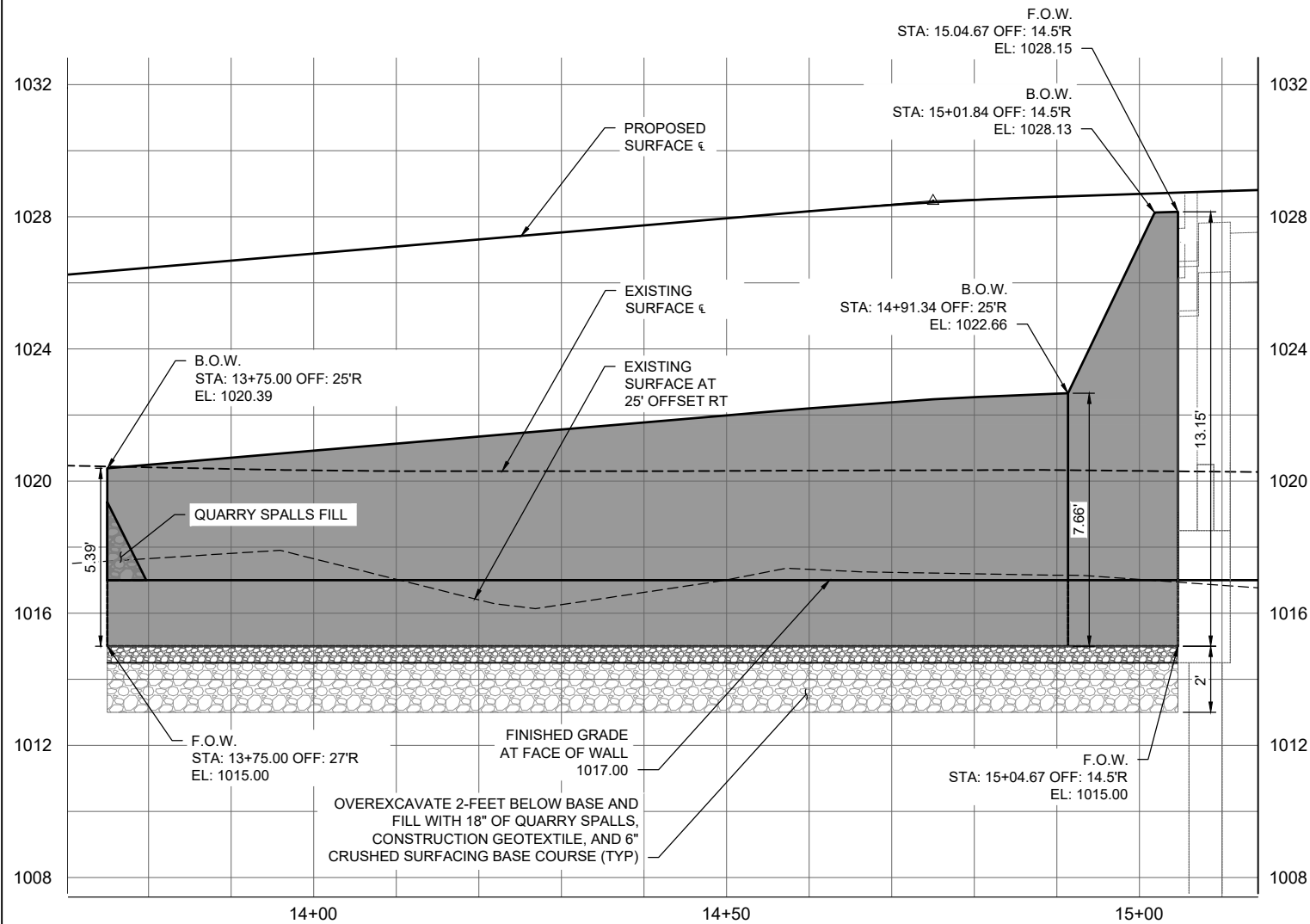
POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

WALL PROFILE
AT BRIDGE ABUTMENTS

DRAWN: DAN	PROJECT NO.: 2200093
DESIGN: DAN/DKL	SCALE: AS SHOWN
CHECKED: ARR	DATE: 11/26/2025
DRAWING NO.	C27
SHEET NO.	22 OF 62

Xrefs:
22059EXTG
22059BASE
KPPFB-2234x1b Pom Pom
xPPR_BRIDGE 11-17-2022
Lunke-STAMP-WA

CAD USER: Dominic.Nudo PLOT DATE: Nov 26, 2025-03:47pm
PATH: P:\PDX PROJECTS\2022\22-059 KPPF Pom Pom Bridge\05_CAD\2-Sheets\Civil\C 28 - WALL PROFILE - EAST.dwg



- NOTES:
1. THE ROADWAY IS EXPECTED TO SETTLE DURING INSTALLATION OF THE FILL REQUIRED TO RAISE THE ROADWAY. ELEVATIONS LISTED ON THIS SHEET ARE FOR PRE-SETTLEMENT CONDITIONS, UNO.
 2. B.O.W. (BACK OF WALL) IS THE POINT WHERE 2:1 ROADWAY SIDESLOPE GRADING MEETS THE WALL, AT A PROPOSED 2' BACK FROM FACE OF WALL AS SHOWN IN PLAN VIEW. NOT TRUE BACK OF STRUCTURAL WALL BACKFILL.
 3. F.O.W. (FACE OF WALL) TRUE FACE OF WALL BELOW FINISHED GRADE AS SHOWN IN PLAN VIEW

1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com

Plan + Design + Engineer + Manage
6400 SE Lake Road, Ste 200, Portland, Oregon 97222

DAVID K. LUNKE
49176
PROFESSIONAL ENGINEER
EXP. 6/25/2027

NO.	DATE	BY	REVISION



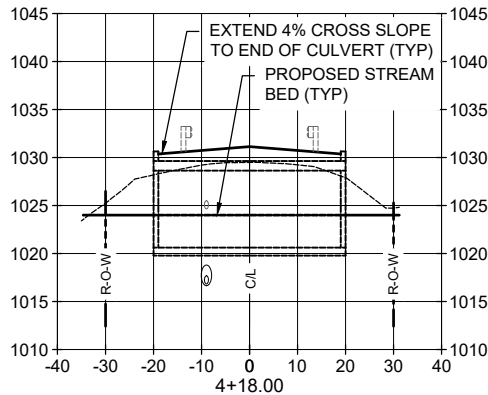
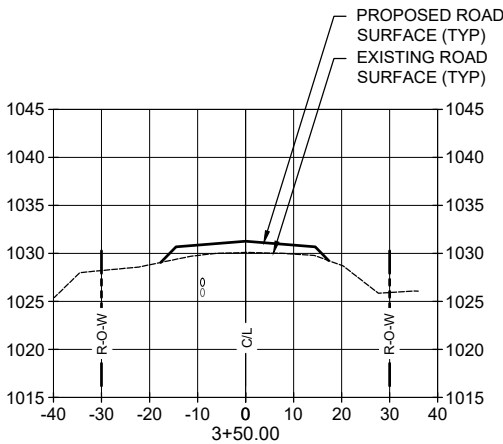
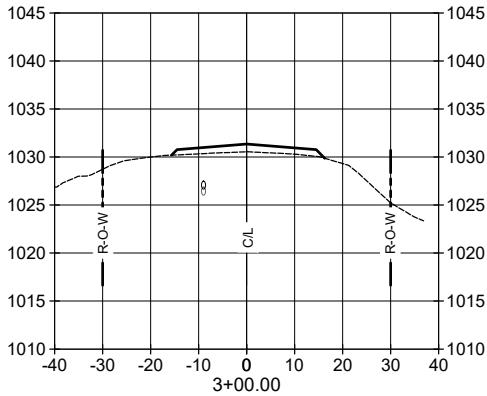
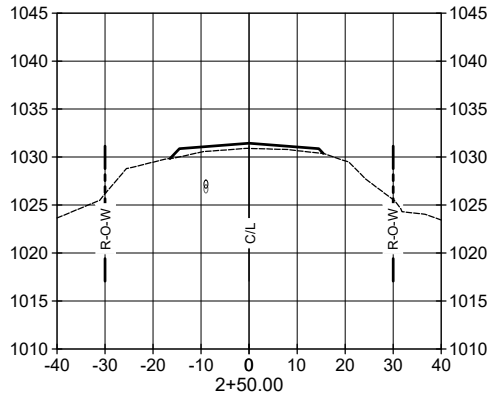
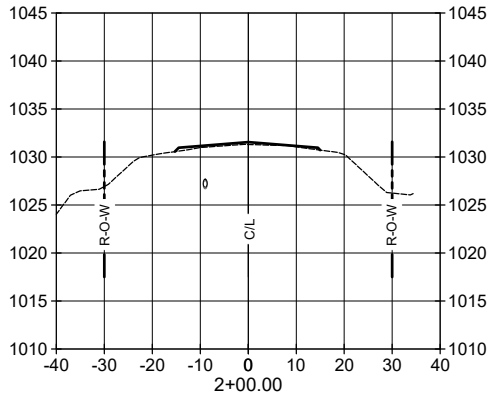
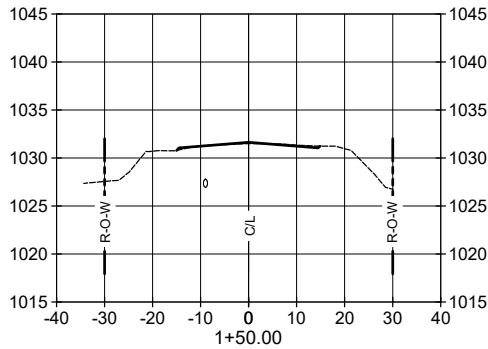
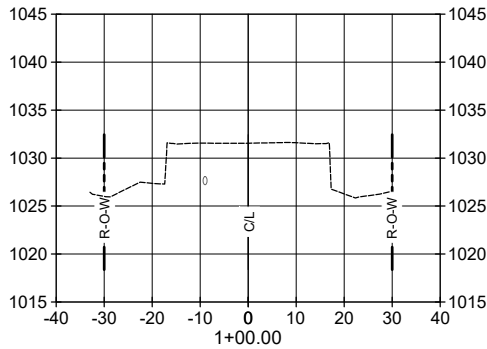
POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

WALL PROFILE
AT BRIDGE ABUTMENTS II

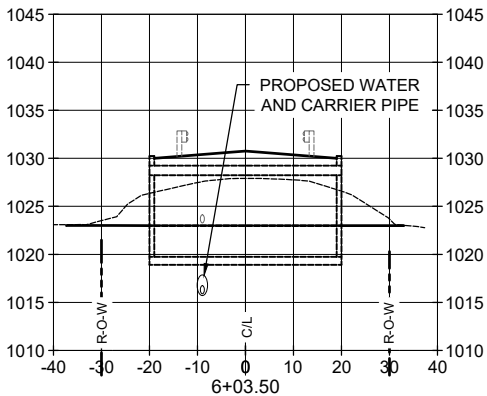
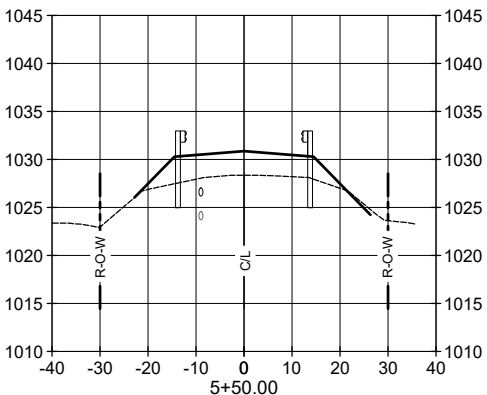
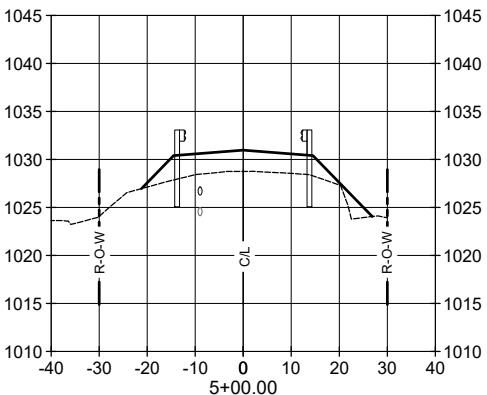
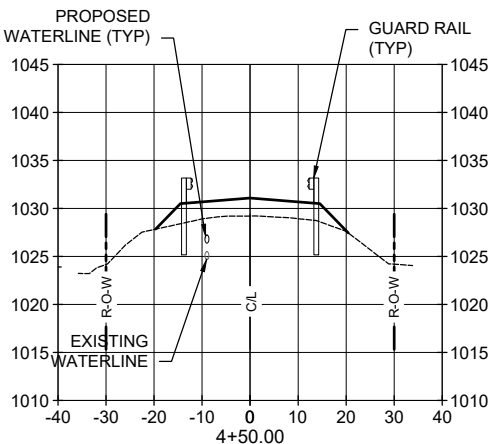
DRAWN: DAN	PROJECT NO.: 2200093
DESIGN: DAN/DKL	SCALE: AS SHOWN
CHECKED: ARR	DATE: 11/26/2025
DRAWING NO.	C28
SHEET NO.	23 OF 62

Xrefs:
22059EXTG
22059BASE
KPF08-2234x1b Pom Pom
Luncke-STAMP-WA

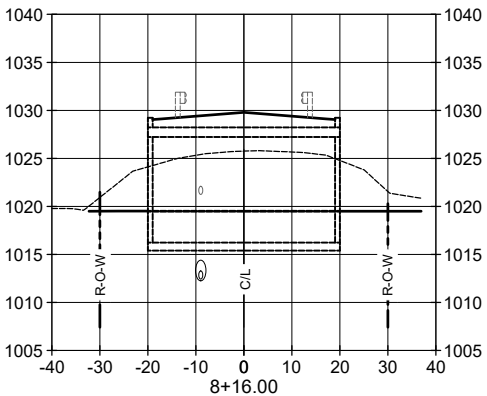
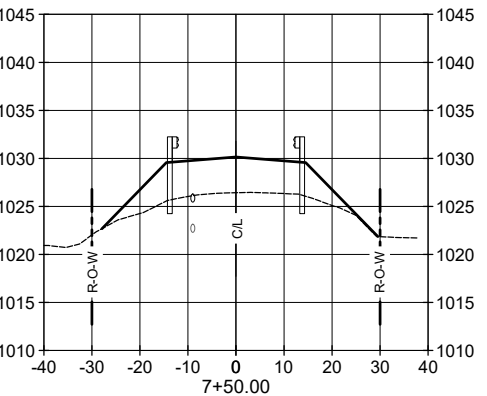
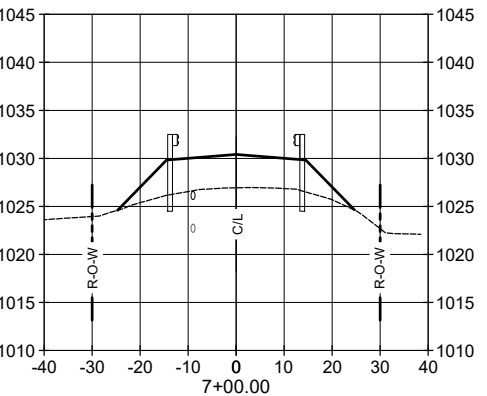
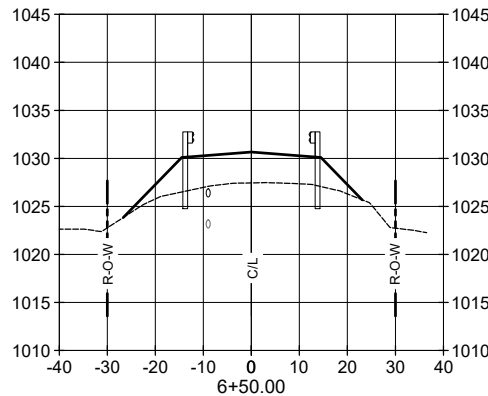
CAD USER: Dominic.Nudo PLOT DATE: Nov 26, 2025-03:52pm
PATH: P:\PDX PROJECTS\2022\22-059 KPF Pom Pom Bridge\05_CAD\2-Sheets\Civil\C 30 - ROADWAY CROSS-SECTION I.dwg



ROAD SECTION AT CULVERT 1



ROAD SECTION AT CULVERT 2



ROAD SECTION AT CULVERT 3

CROSS-SECTIONS

SCALE: HORIZONTAL 1" = 20' VERTICAL 1" = 10'



1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com



Plan + Design + Engineer + Manage
6400 SE Lake Road, Ste 200, Portland, Oregon 97222



EXP. 6/25/2027

NO.	DATE	BY	REVISION

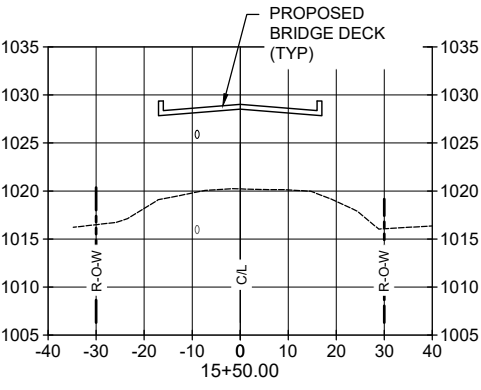
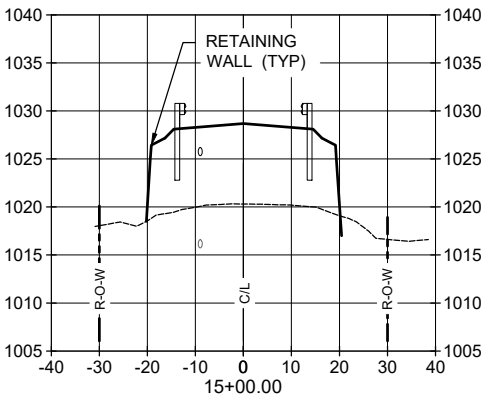
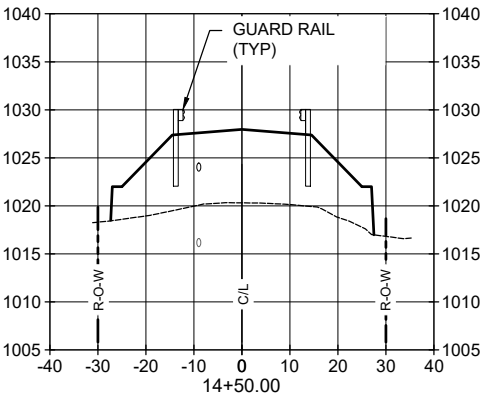
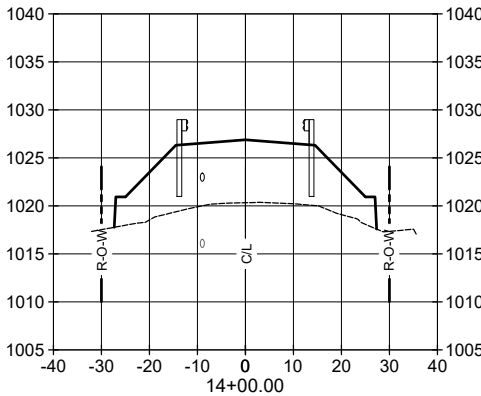
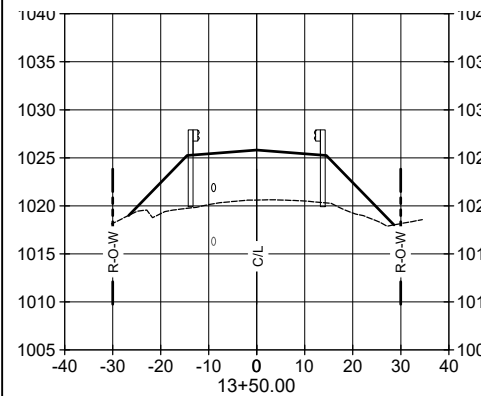
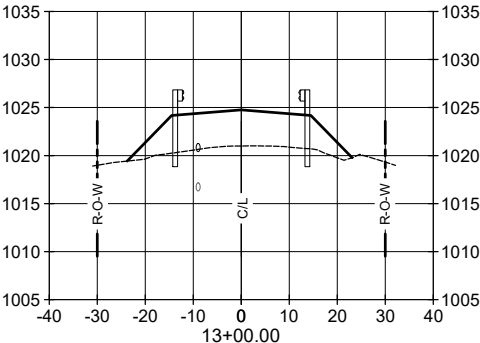
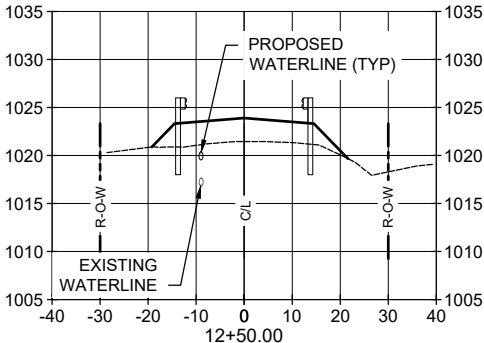
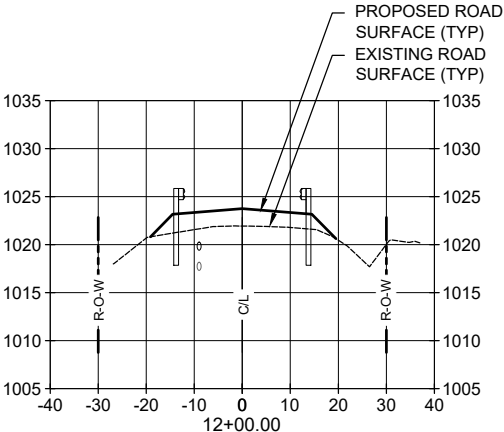
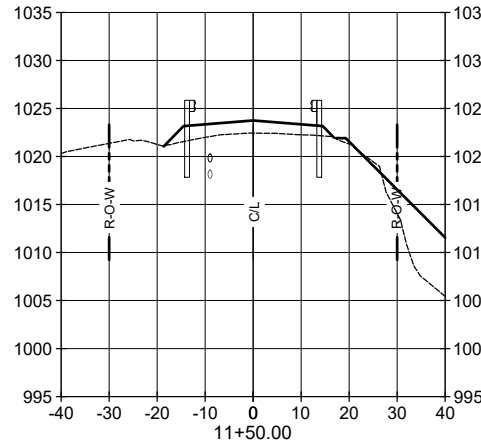
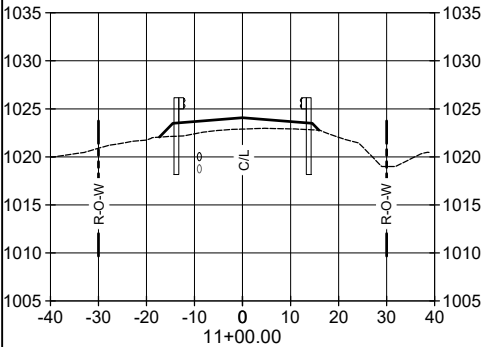
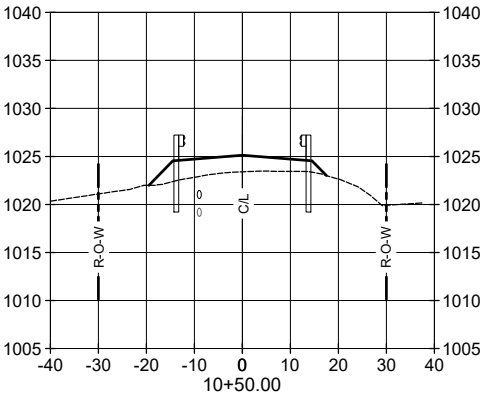
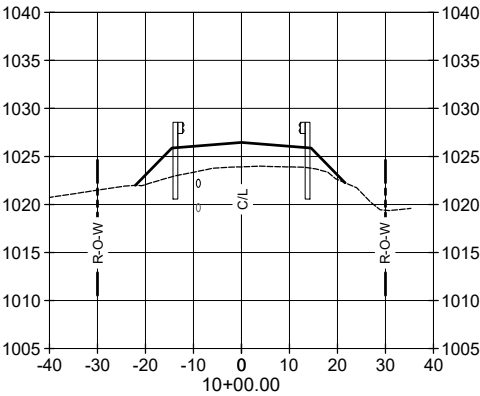
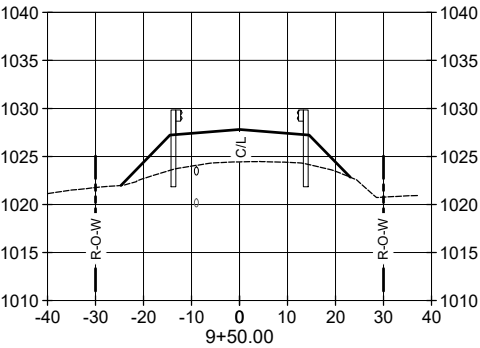
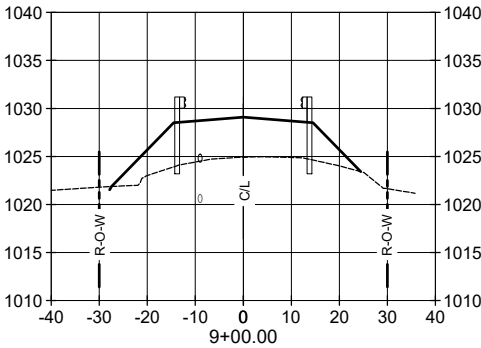
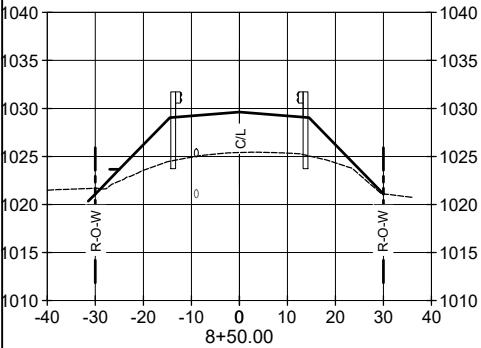


POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

ROADWAY CROSS-SECTIONS
STA 1+00 TO STA 8+00

DRAWN: DAN	PROJECT NO.: 2200093
DESIGN: DAN/DKL	SCALE: AS SHOWN
CHECKED: ARR	DATE: 11/26/2025
DRAWING NO.	C30
SHEET NO.	24 OF 62

Xrefs:
22059EXTG
22059BASE
KPFFB-2234x1b Pom Pom
Lunke-STAMP-WA



CROSS-SECTIONS
SCALE: HORIZONTAL 1" = 20' VERTICAL 1" = 10'

CAD USER: Dominic.Nudo PLOT DATE: Nov 26, 2025-03:54pm
PATH: P:\PDX PROJECTS\2022\22-059 KPFF Pom Pom Bridge\05_CAD\2-Sheets\Civil\C 31 - ROADWAY CROSS-SECTION IL.dwg



Plan + Design + Engineer + Manage
6400 SE Lake Road, Ste 200, Portland, Oregon 97222



NO.	DATE	BY	REVISION

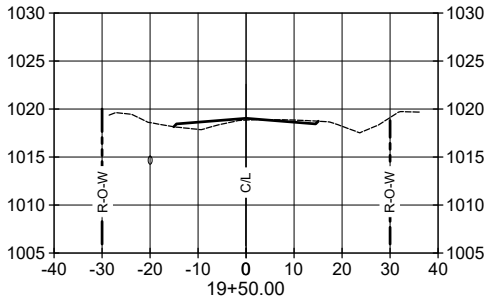
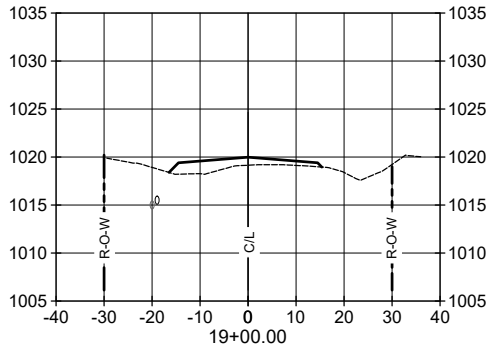
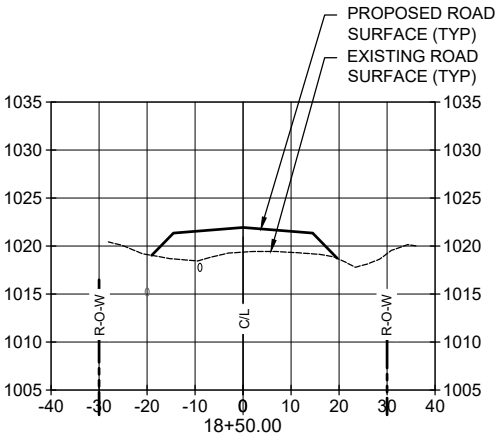
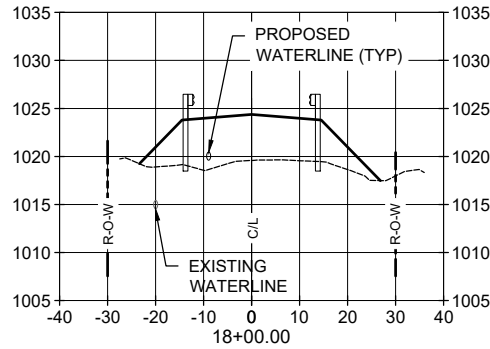
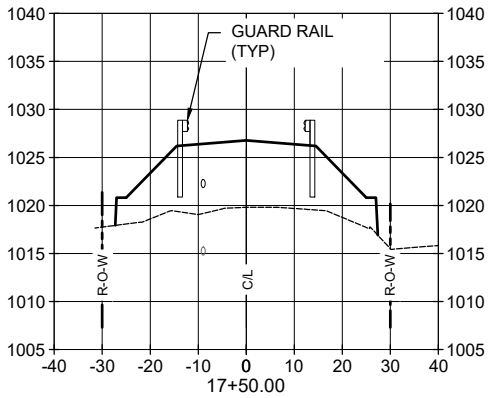
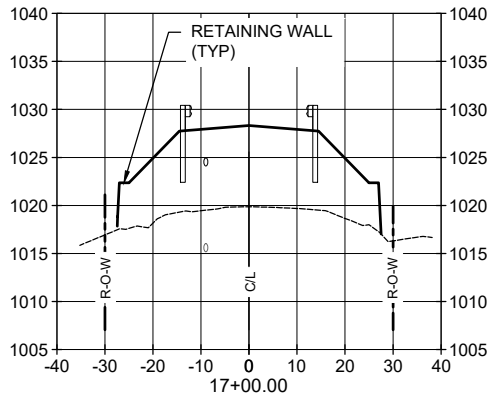
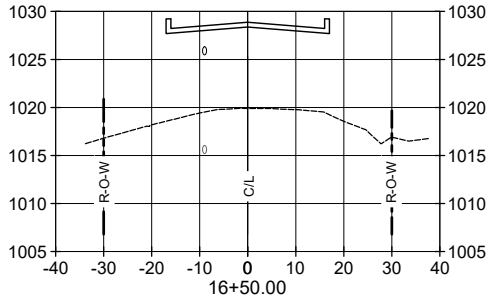
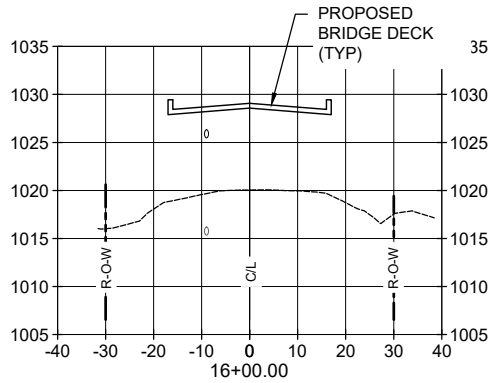


POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

ROADWAY CROSS-SECTIONS
STA 8+50 TO STA 15+50

DRAWN: DAN	PROJECT NO.: 2200093
DESIGN: DAN/DKL	SCALE: AS SHOWN
CHECKED: ARR	DATE: 11/26/2025
DRAWING NO.	C31
SHEET NO.	25 OF 62

Xrefs:
22059EXTG
22059BASE
KPFFB-2234x1b Pom Pom
Lunke-STAMP-WA



CROSS-SECTIONS

SCALE: HORIZONTAL 1" = 20' VERTICAL 1" = 10'



1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com



Plan + Design + Engineer + Manage

6400 SE Lake Road, Ste 200, Portland, Oregon 97222



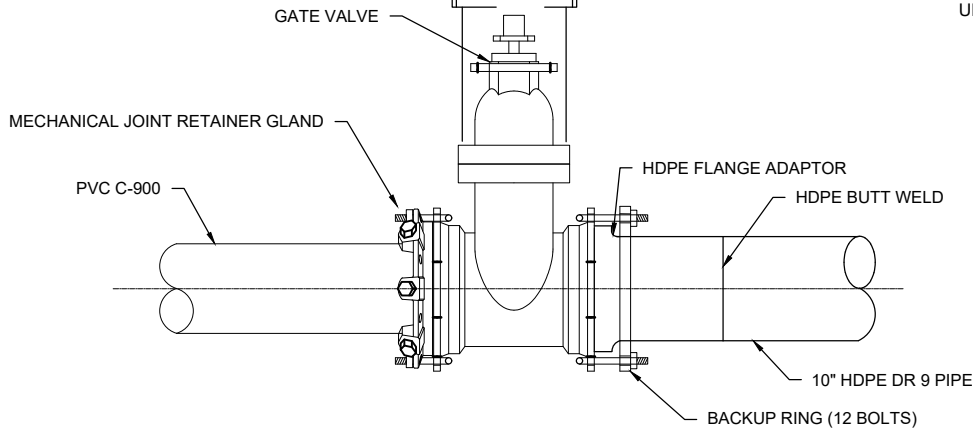
NO.	DATE	BY	REVISION



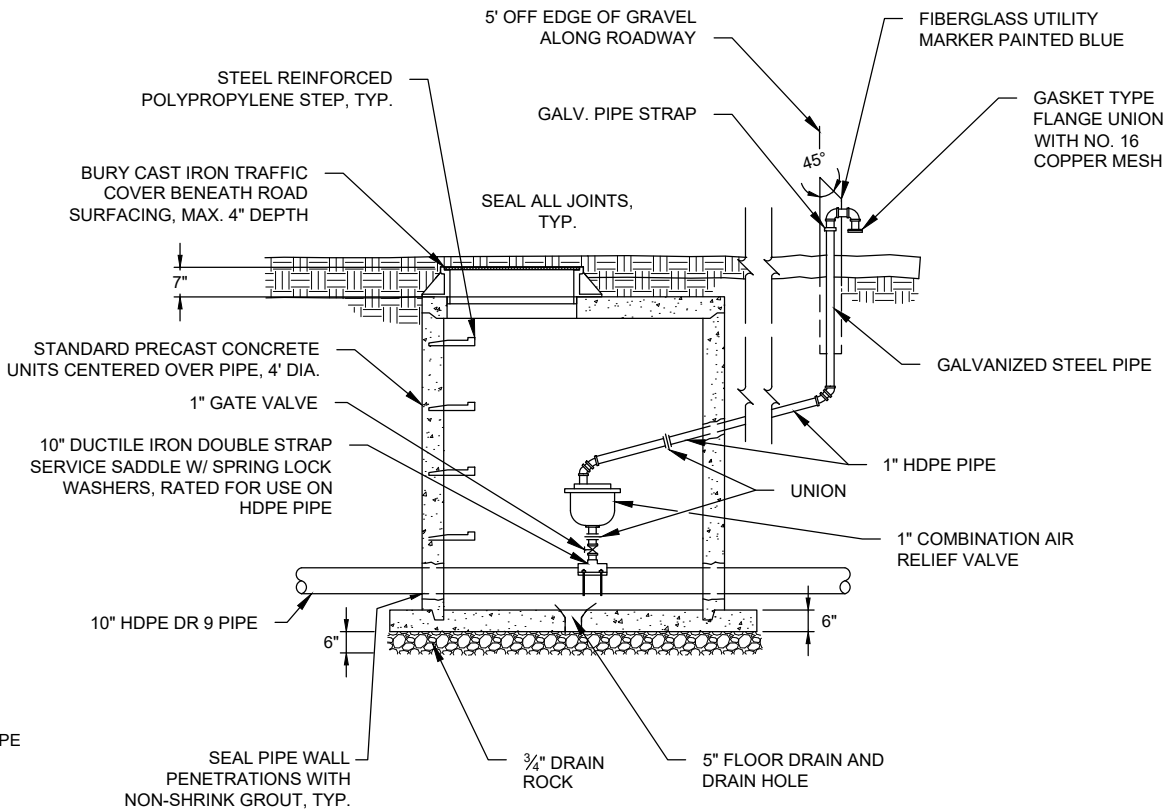
POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

ROADWAY CROSS-SECTIONS
STA 16+00 TO 19+50

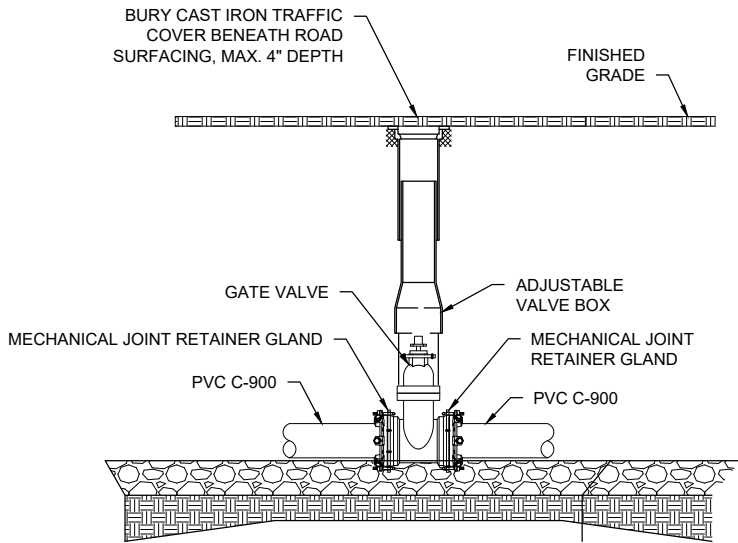
DRAWN: DAN	PROJECT NO.: 2200093
DESIGN: DAN/DKL	SCALE: AS SHOWN
CHECKED: ARR	DATE: 11/26/2025
DRAWING NO.	C32
SHEET NO.	26 OF 62



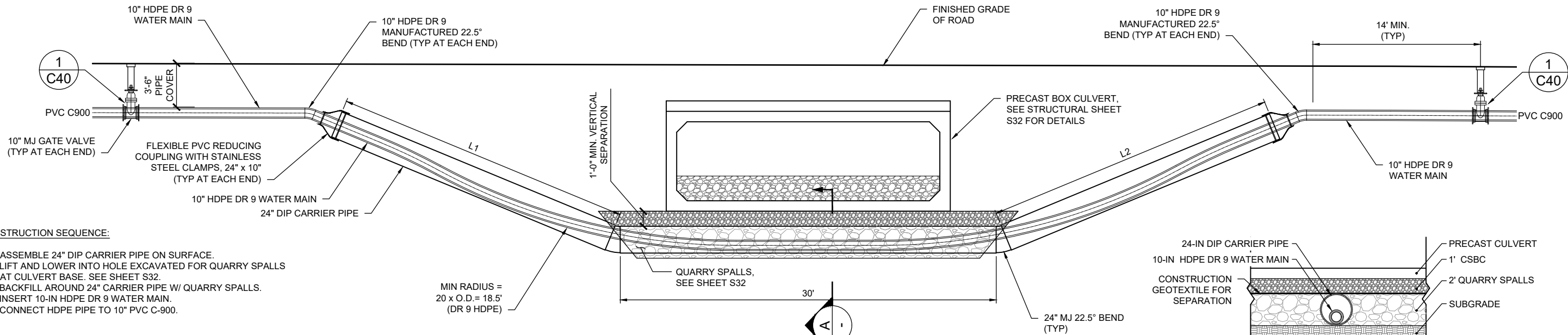
1 10" MJ GATE VALVE
AT HDPE/PVC CONVERSIONS
C40 SCALE: NTS



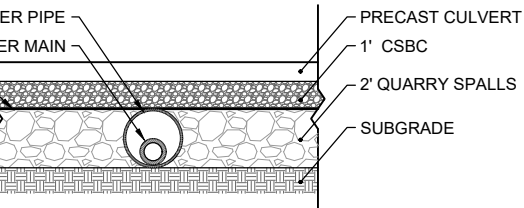
2 AIR RELIEF VALVE DETAIL
C40 SCALE: NTS



3 GATE VALVE WITH BOX
C40 SCALE: NTS



4 WATER MAIN CROSSING UNDER CULVERT
C40 SCALE: NTS



A SECTION
C40 SCALE: NTS

CONSTRUCTION SEQUENCE:

1. ASSEMBLE 24" DIP CARRIER PIPE ON SURFACE.
2. LIFT AND LOWER INTO HOLE EXCAVATED FOR QUARRY SPALLS AT CULVERT BASE. SEE SHEET S32.
3. BACKFILL AROUND 24" CARRIER PIPE W/ QUARRY SPALLS.
4. INSERT 10-IN HDPE DR 9 WATER MAIN.
5. CONNECT HDPE PIPE TO 10" PVC C-900.

CARRIER PIPE LENGTH TABLE				
CULV. NO.	STATION	L1 (FT)	L2 (FT)	
1	4+18.00	18.1	21.9	
2	6+03.50	23.6	23.2	
3	8+16.00	30.7	29.4	

kpff

1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com

AKANA

Plan + Design + Engineer + Manage

6400 SE Lake Road, Ste 200, Portland, Oregon 97222



NO.	DATE	BY	REVISION

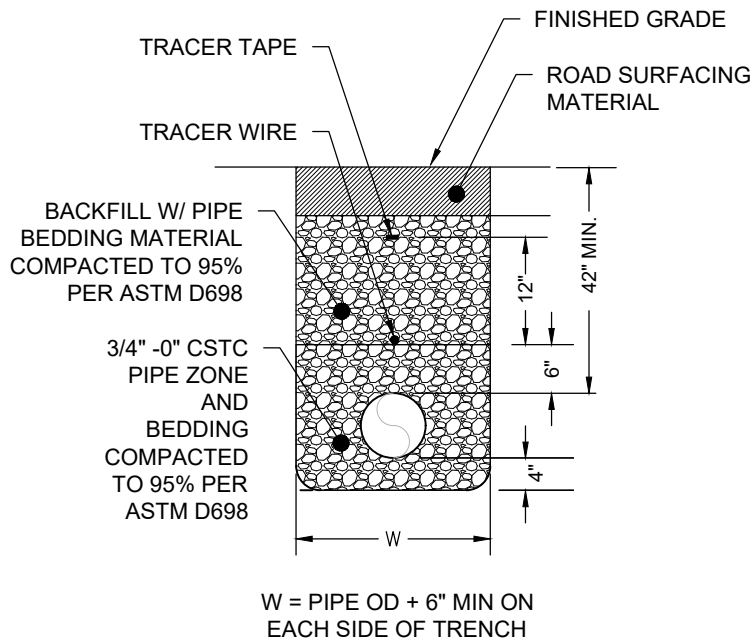


POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

CIVIL DETAILS I

DRAWN: DAN	PROJECT NO.: 2200093
DESIGN: DAN/DKL	SCALE: AS SHOWN
CHECKED: ARR	DATE: 11/26/2025
DRAWING NO.	C40
SHEET NO.	27 OF 62

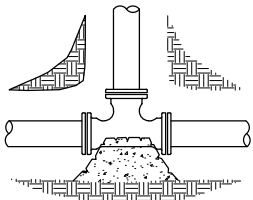
Xrefs:
KPFFB-2234xtb Pom Pom
Luneke-STAMP-WA



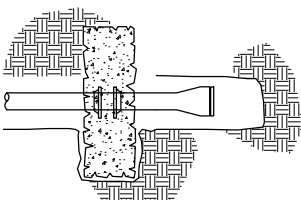
1 WATER LINE TRENCH AND BACKFILL DETAIL
C41 SCALE: NTS

(HORIZONTAL) BEARING AREA OF THRUST BLOCKS IN SQ. FT.					
FITTING SIZE	TEE	90° BEND	45° BEND	22 1/2° BEND	11 1/4° BEND
4	1.3	1.8	1.0	1.0	1.0
6	2.8	4.0	2.2	1.1	1.0
8	5.0	7.1	3.8	2.0	1.0
12	11.3	16.0	8.7	4.4	2.2
16	20.1	28.4	15.4	7.8	3.9
20	31.1	44.4	24.0	12.3	6.2
24	45.2	64.0	34.6	17.7	8.9

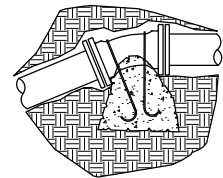
VALUES BASED ON 200 PSI WATER PRESSURE
AND 2000 PSF SOIL BEARING CAPACITY.



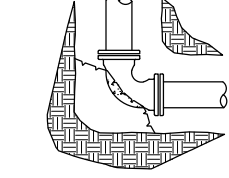
TEE



SADDLE



VERTICAL BEND



BEND

NOTES:

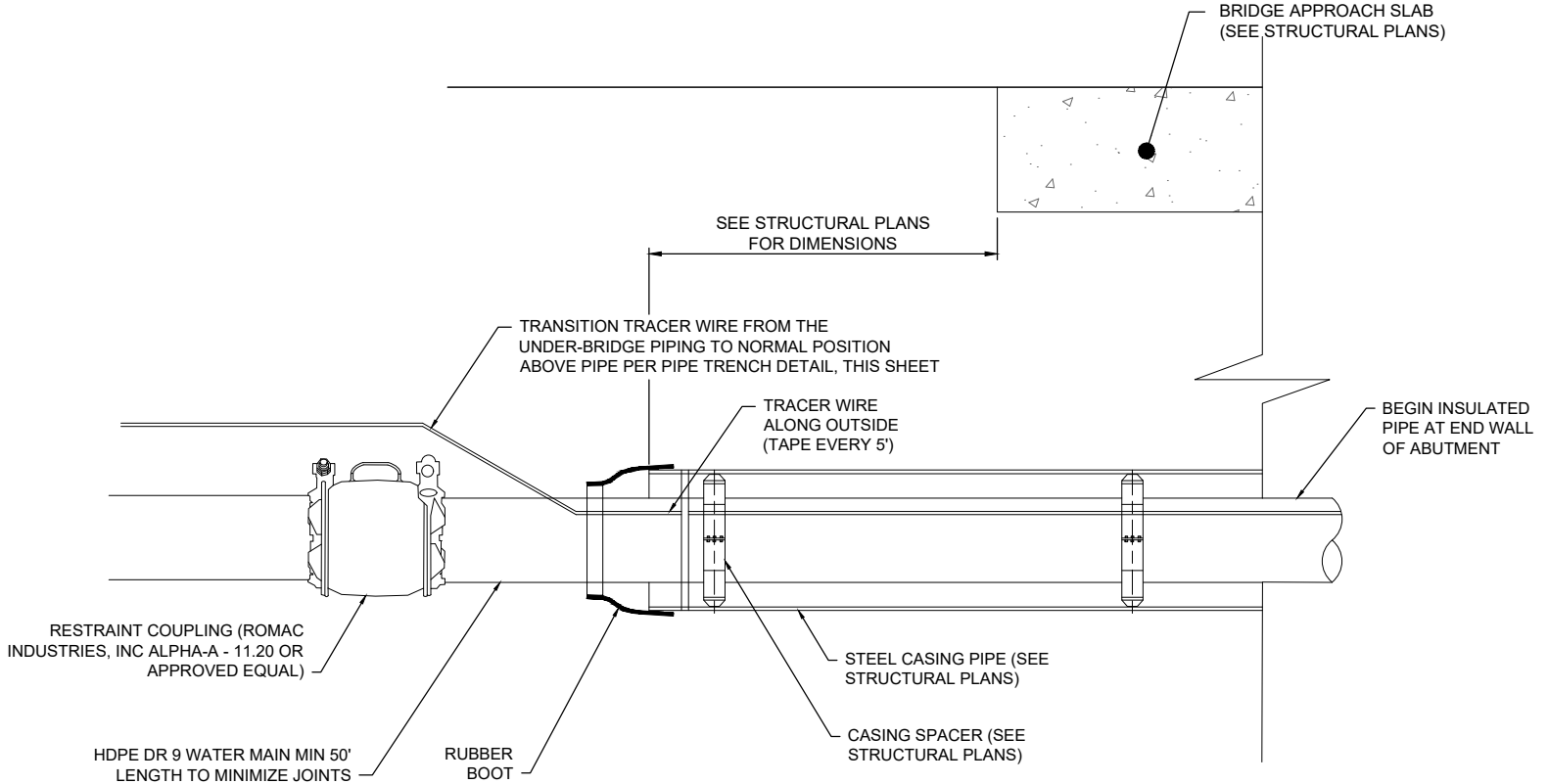
- 1) THRUST BLOCKING AT ALL TEES, BENDS AND ENDS OF PIPING.
- 2) CONCRETE BLOCKING TO BE POURED AGAINST UNDISTURBED EARTH.
- 3) ALL CONCRETE TO BE CLASS 3000.
- 4) INSTALL 12 MIL TOTAL THICKNESS POLYETHENE SHEET AROUND FITTING. SECURE SHEET ENDS TO PREVENT INFILTRATION OF DIRT BETWEEN SHEETS AND PIPE FITTING PRIOR TO POURING THRUST BLOCKING.
- 5) PROTECT MECHANICAL JOINT FOLLOWERS AND BOLTS FROM CONCRETE WITH TEMPORARY FORMS AND POLYETHENE SHEETING SEE NOTE 3.

VOLUME OF THRUST BLOCK
IN CU. YDS. (VERTICAL)

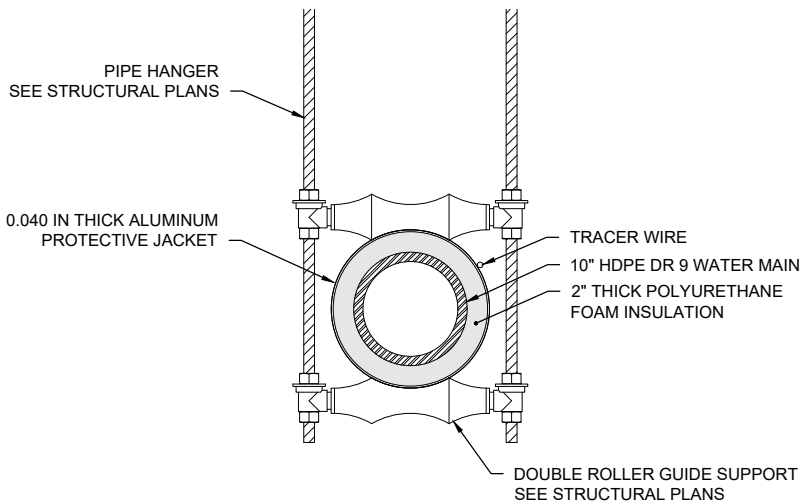
FITTING SIZE	BEND ANGLE		
	45°	22.5°	11.25°
4	1.1	0.4	0.2
6	2.7	1.0	0.4
8	4.0	1.5	0.6
12	8.5	3.2	1.3
16	14.8	5.6	2.3

FITTING SIZE	ROD SIZE	EMBEDMENT
4"-12"	#6	30"
14"-16"	#8	36"

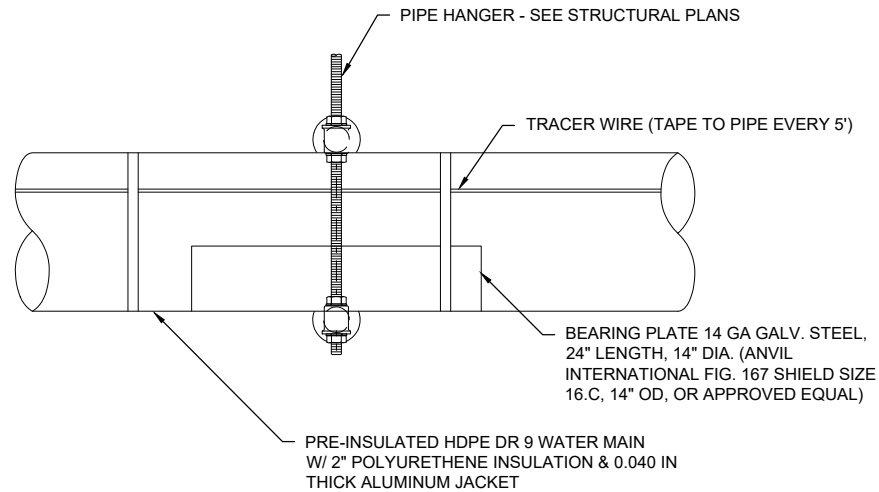
3 THRUST BLOCK DETAIL
C41 SCALE: NTS



2 PVC TO HDPE PIPE CONNECTION AT BRIDGE SLAB
C41 SCALE: NTS



4 PRE-INSULATED HDPE WATER PIPE UNDER BRIDGE
C41 SCALE: NTS



CAD USER: Dominic.Nudo PLOT DATE: Nov 26, 2025-04:30pm
PATH: P:\PDX PROJECTS\2022\22-059 KPFF Pom Pom Bridge\05_CAD\2-Sheets\Civil\C 41 - CIVIL DETAILS II.dwg

NO.	DATE	BY	REVISION

DRAWN: DAN	PROJECT NO.: 2200093
DESIGN: DAN/DKL	SCALE: AS SHOWN
CHECKED: ARR	DATE: 11/26/2025
DRAWING NO.	C41
SHEET NO.	28 OF 62

STRUCTURE GENERAL NOTES:

1. ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND MUNICIPAL CONSTRUCTION", DATED 2025 AND PROJECT SPECIAL PROVISIONS.
2. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL, UNLESS NOTED OTHERWISE.
3. THE STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS NINTH EDITION 2020 – WITH INTERIM REVISIONS.
4. SEISMIC DESIGN OF THE STRUCTURE HAS BEEN COMPLETED USING:

PGA

=

0.1467

A_s

=

0.221

S_{ps}

=

0.502

S_{p1}

=

0.249

SITE CLASS

=

D
5. DESIGN LOADS:

DEAD LOAD:

PRESTRESSED CONCRETE

–

165 PCF

CONCRETE

–

155 PCF

FUTURE OVERLAY, 3" THICK

–

140 PCF

LIVE LOAD:

VEHICLE

–

ASHTO HL93 W/IMPACT
6. UNLESS OTHERWISE SHOWN IN THE PLANS THE CONCRETE COVER MEASURED FROM THE FACE OF THE CONCRETE TO THE FACE OF ANY REINFORCING STEEL SHALL BE THREE INCHES AT THE BOTTOM OF THE SHAFT CAP, TWO INCHES AT THE TOP AND SIDES OF THE SHAFT CAP, TWO AND A HALF INCHES AT THE TOP OF THE END DIAPHRAGM AND ONE AND ONE HALF INCHES AT ALL OTHER LOCATIONS.
7. ALL CAST-IN-PLACE CONCRETE SHALL BE CLASS 4000, UNO.

SHAFTS

–

5000 P
8. REINFORCING STEEL SHALL BE ASTM A706, GRADE 60, UNO. THE SHAFT LONGITUDINAL REINFORCING STEEL SHALL BE ASTM A706, GRADE 80.
9. ALL EXTERIOR CORNERS AND EDGES SHALL HAVE A 3/4" CHAMFER AND ALL INTERIOR CORNERS SHALL HAVE A 3/4" FILLET UNO.
10. ALL EXISTING DIMENSIONS AND ELEVATIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO WORK. CONTRACTOR SHALL CONTACT PROJECT ENGINEER WITH ANY DISCREPANCIES.
11. THE GEOTECHNICAL REPORT PROVIDED BY HWA GEOSCIENCES, DATED JUNE 26, 2025 WAS THE BASIS FOR THIS DESIGN.
12. THE HYDRAULIC REPORT PROVIDED BY INDICATOR ENGINEERING, DATED APRIL 8, 2025 WAS THE BASIS FOR THIS DESIGN.
13. THE ROADWAY IS EXPECTED TO SETTLE DURING INSTALLATION OF THE FILL REQUIRED TO RAISE THE ROADWAY. HOWEVER, THE BRIDGE IS NOT EXPECTED TO SETTLE.

LEGEND

- A

S10

IDENTIFIES SECTION, VIEW OR DETAIL

A

–

TAKEN OR SHOWN ON BRIDGE SHEET NO

A

–

TAKEN OR SHOWN ON THE SAME SHEET

E

DENOTES EPOXY COATED REINF

HWA

⊕

BORING BY HWA GEOSCIENCES, FEBRUARY 2, 2023
-
- POM POM ROAD PROFILE AT BRIDGE
- CAD USER: touniep PLOT DATE: Nov 26, 2025-11:46am
PATH: V:\2200093 (Pom Pom Road Bridges)\02_Design (v2022)\PPR-S01.dwg
- k

p

p

f

f

1601 5th Avenue, Suite 1600

Seattle, WA 98101

206.622.5822

www.kpff.com
- ANNE MARCELLO-STRAUBER

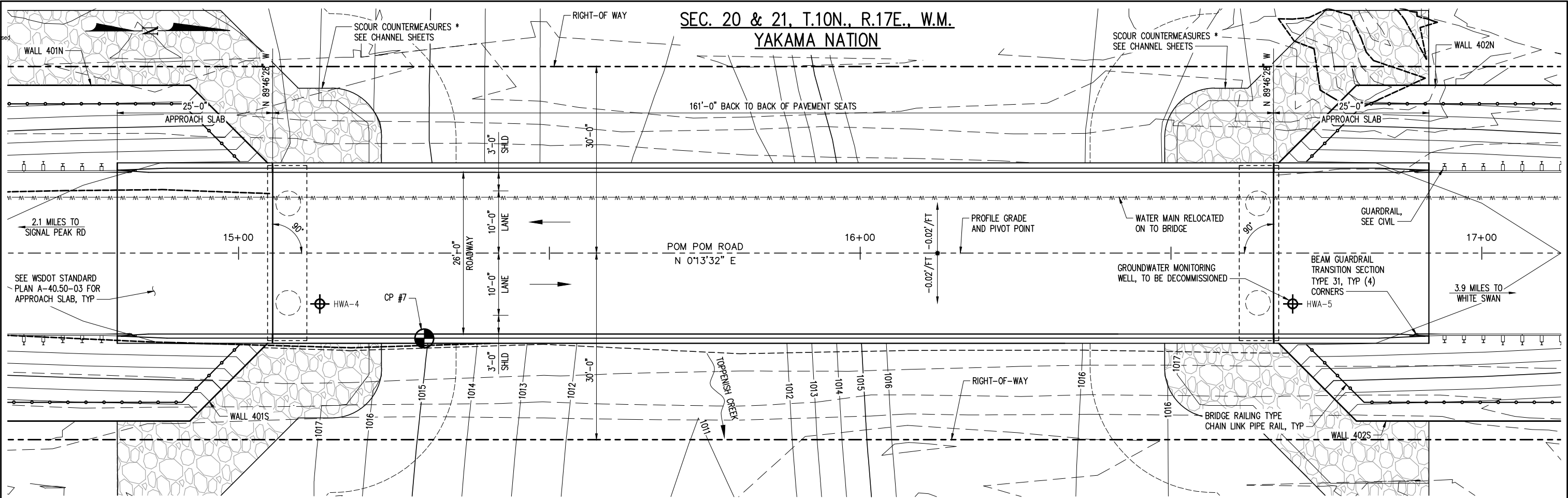
STATE OF WASHINGTON

40003

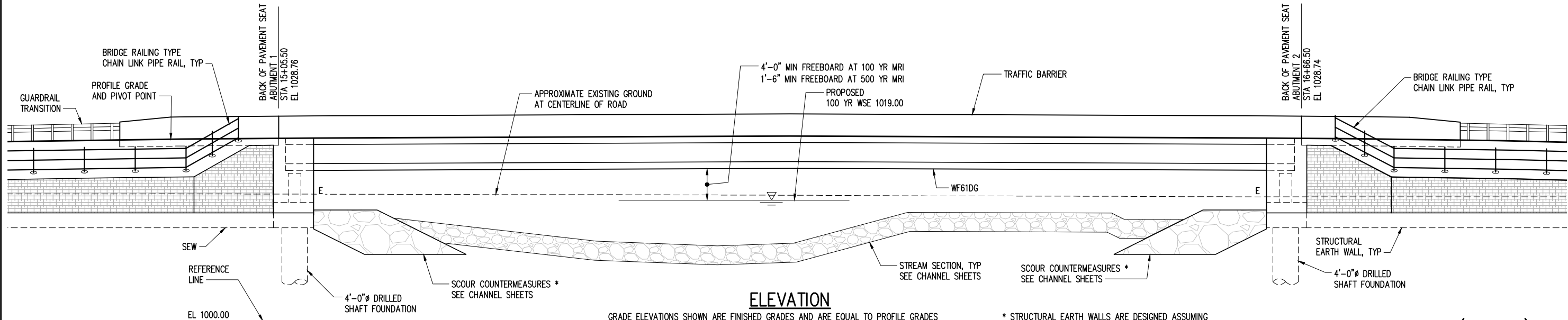
PROFESSIONAL ENGINEER

Nov. 30, 2025
- | NO. | DATE | BY | REVISION |
|-----|------|----|----------|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
-
- POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION
- BRIDGE GENERAL NOTES
- | | |
|--------------|----------------------|
| DRAWN: HT | PROJECT NO.: 2200093 |
| DESIGN: TL | SCALE: AS SHOWN |
| CHECKED: JLP | DATE: 11/26/2025 |
| DRAWING NO. | S01 |
| SHEET NO. | 29 OF 62 |

Xrefs:
KPFfb-2234x.b
xPRR_BRIDGE
220596ASE-Surf_Proposed
xSTREAM-25.05.28
xPRR_WALLS
22059EXTG
Ch_Construction_Ext
xCh_RiprapSection
xRiprap_extents
220596ASE-ex_contour



PLAN
BEARING OF ALL ABUTMENTS ARE NORMAL TO POM POM ROAD.
0 8 16 24
SCALE IN FEET



ELEVATION

GRADE ELEVATIONS SHOWN ARE FINISHED GRADES AND ARE EQUAL TO PROFILE GRADES



* STRUCTURAL EARTH WALLS ARE DESIGNED ASSUMING THE SCOUR COUNTERMEASURES REMAIN IN PLACE.

P.C. GIRDERS (WF61DG)
LOADING: HL-93

kpff

1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com



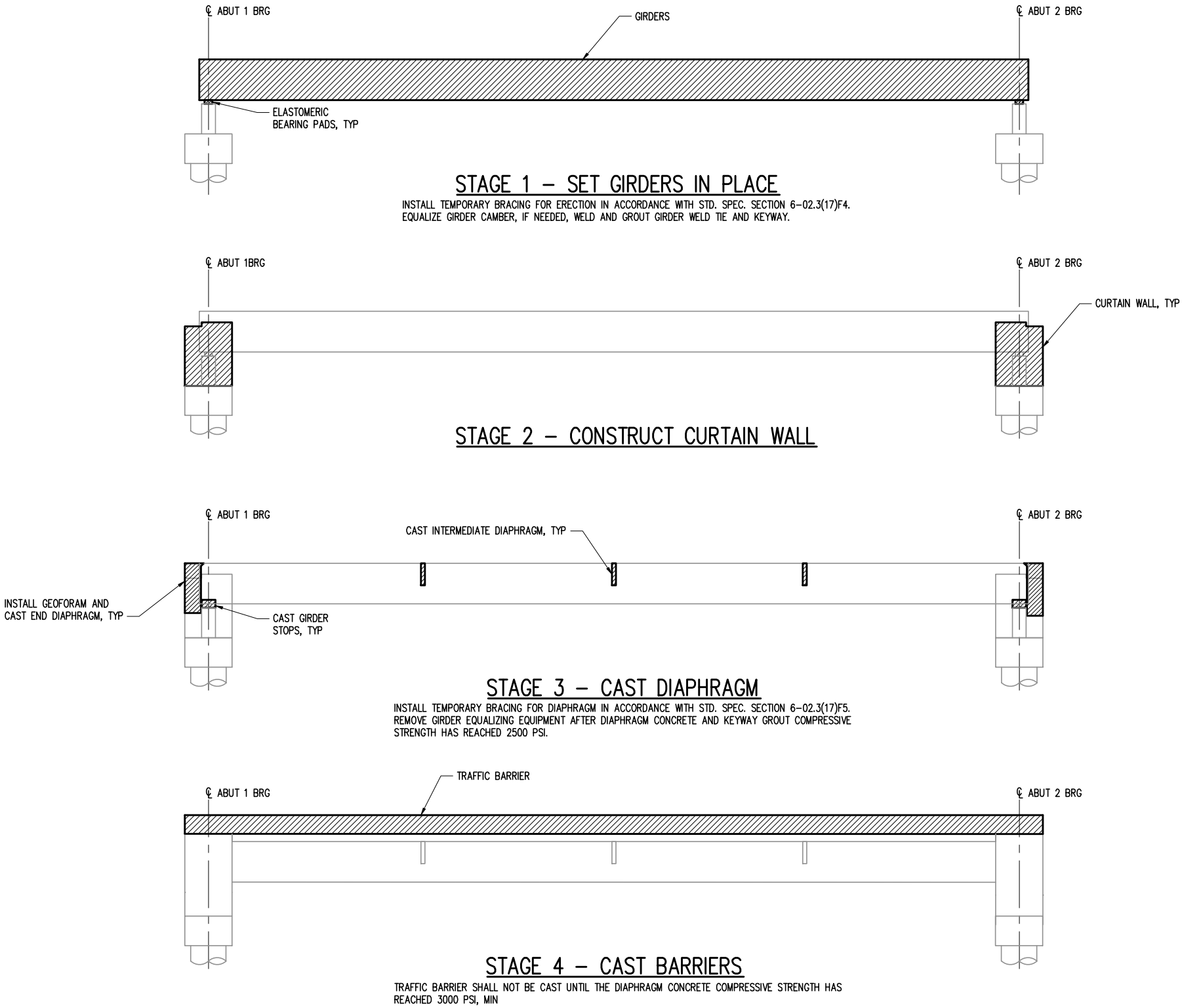
NO.	DATE	BY	REVISION



POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

BRIDGE PLAN AND ELEVATION

DRAWN: HT	PROJECT NO.: 2200093
DESIGN: TL	SCALE: AS SHOWN
CHECKED: JLP	DATE: 11/26/2025
DRAWING NO.	S02
SHEET NO.	30 of 62



CAD USER: touniep PLOT DATE: Nov 26, 2025-11:46am
PATH: V:\2200093 (Pom Pom Road Bridges)\02_Design (v2022)\PPR-S03.dwg

kpff
1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com



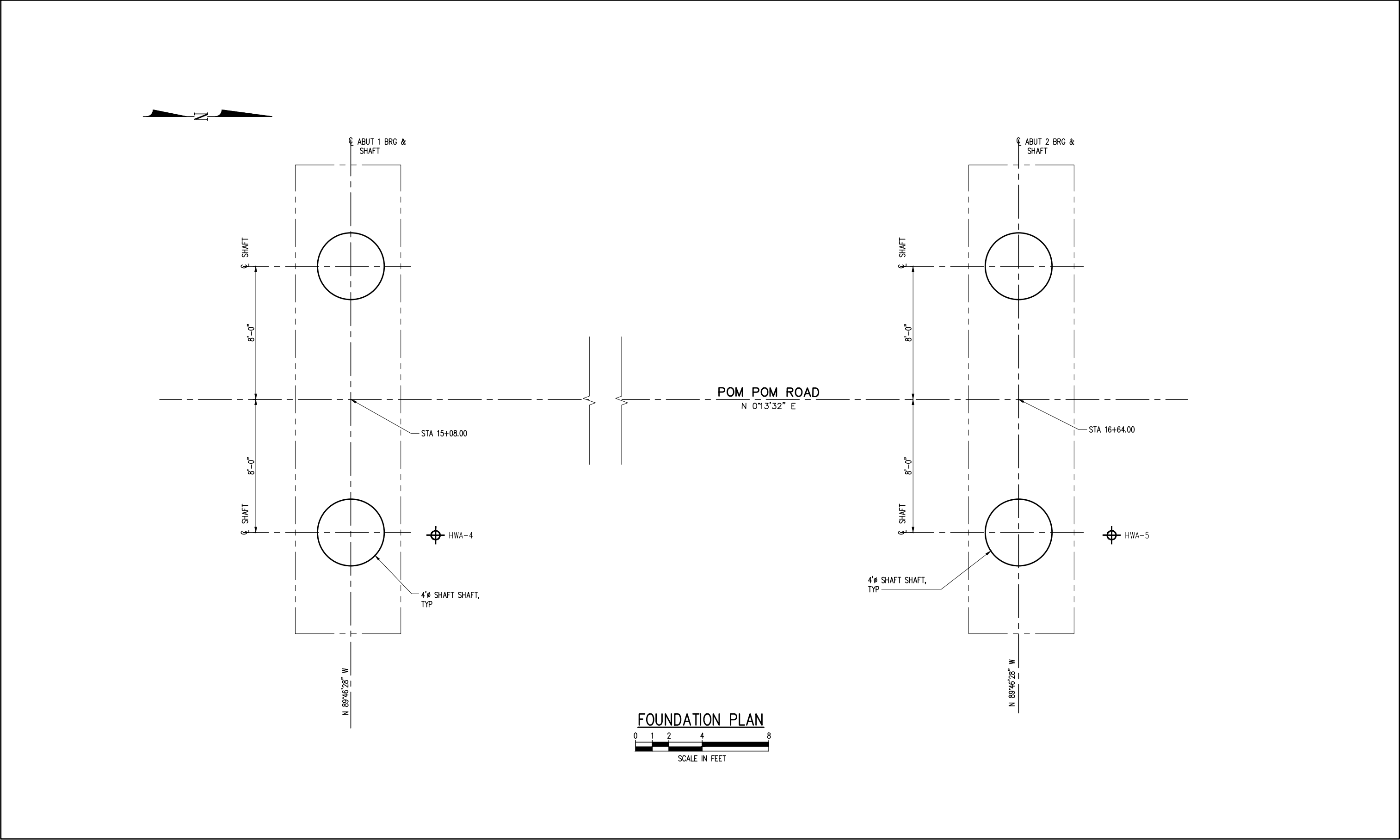
NO.	DATE	BY	REVISION



POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION
BRIDGE SUPERSTRUCTURE
CONSTRUCTION SEQUENCE

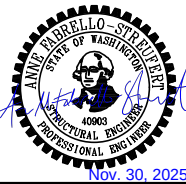
DRAWN: HT	PROJECT NO.: 2200093
DESIGN: TL	SCALE: AS SHOWN
CHECKED: JLP	DATE: 11/26/2025
DRAWING NO.	S03
SHEET NO.	31 OF 62

Xrefs:
KPFFB-2234xtb
xPPR_BRIDGE
x22059BASE
22059EXT1C
xSTREAM-23.04.13



CAD USER: touniep PLOT DATE: Nov 26, 2025-11:47am
PATH: V:\2200093 (Pom Pom Road Bridges)\02_Design (v2022)\PPR-S04.dwg

kpff
1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com



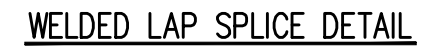
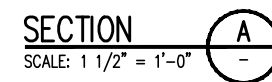
NO.	DATE	BY	REVISION



POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

BRIDGE FOUNDATION PLAN

DRAWN: HT	PROJECT NO.: 2200093
DESIGN: TL	SCALE: AS SHOWN
CHECKED: JLP	DATE: 11/26/2025
DRAWING NO.	S04
SHEET NO.	32 OF 62

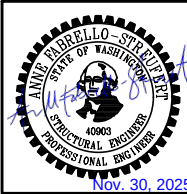


- 1 MINIMUM CONCRETE COVER MINUS 1/2".
- 2 SEE STD SPEC 6-19.3(5)b FOR SPACING REQUIREMENTS.
- 3 WELDING SHALL MEET THE REQUIREMENTS OF STD SPEC 6-02.3(24)E FOR WELD DIMENSIONS.
- 4 CENTRALIZERS SHALL BE EPOXY COATED OR PAINTED WITH PAINT CONFORMING TO STANDARD SPECIFICATION 9-08.1(2)c OR 9-08.1(2)f AFTER FABRICATION.
- 5 EACH LEG SHALL BE TIED TO TWO (2) VERTICAL BAR AND TWO (2) SPIRAL WRAPS.
- 6 CAGECASTER REBAR CAGE SPACERS BY FOUNDATION TECHNOLOGIES MAY BE USED IN LIEU OF DETAIL SHOWN. SPACING REQUIREMENTS SHALL BE PER MANUFACTURER'S RECOMMENDATIONS. EACH LEG SHALL BE TIED TO A MINIMUM OF TWO (2) SPIRAL WRAPS.
- 7 PROVIDE 1 1/2" CLEAR FROM TOP OF SPIRAL TO LOWEST POINT OF CONSTRUCTION JOINT. PROVIDE 6" VERTICAL BREAK IN SPIRAL TO ALLOW PLACEMENT OF SHAFT CAP BOTTOM MAT REINFORCEMENT.
- 8 ALL SHAFT LONGITUDINAL STEEL REINFORCEMENT SHALL BE ASTM A706, GRADE 80.
- 9 SHALL BE LENTON TERMINATOR D6 MECHANICAL ANCHORAGE OR APPROVED EQUAL.

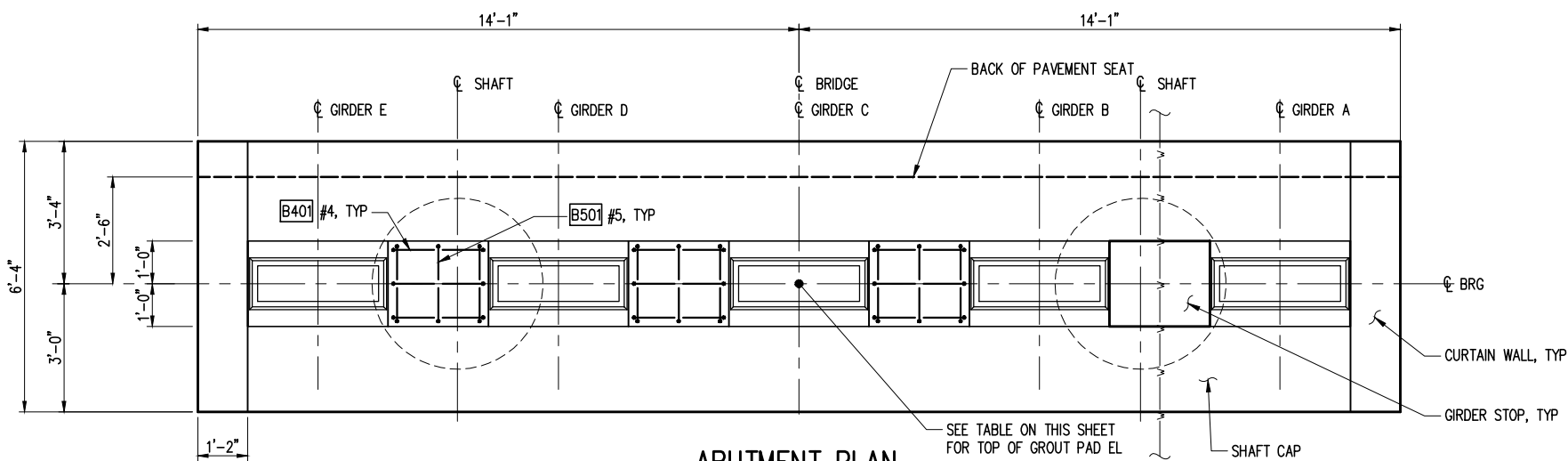
[illegible]

SHAFT DETAILS

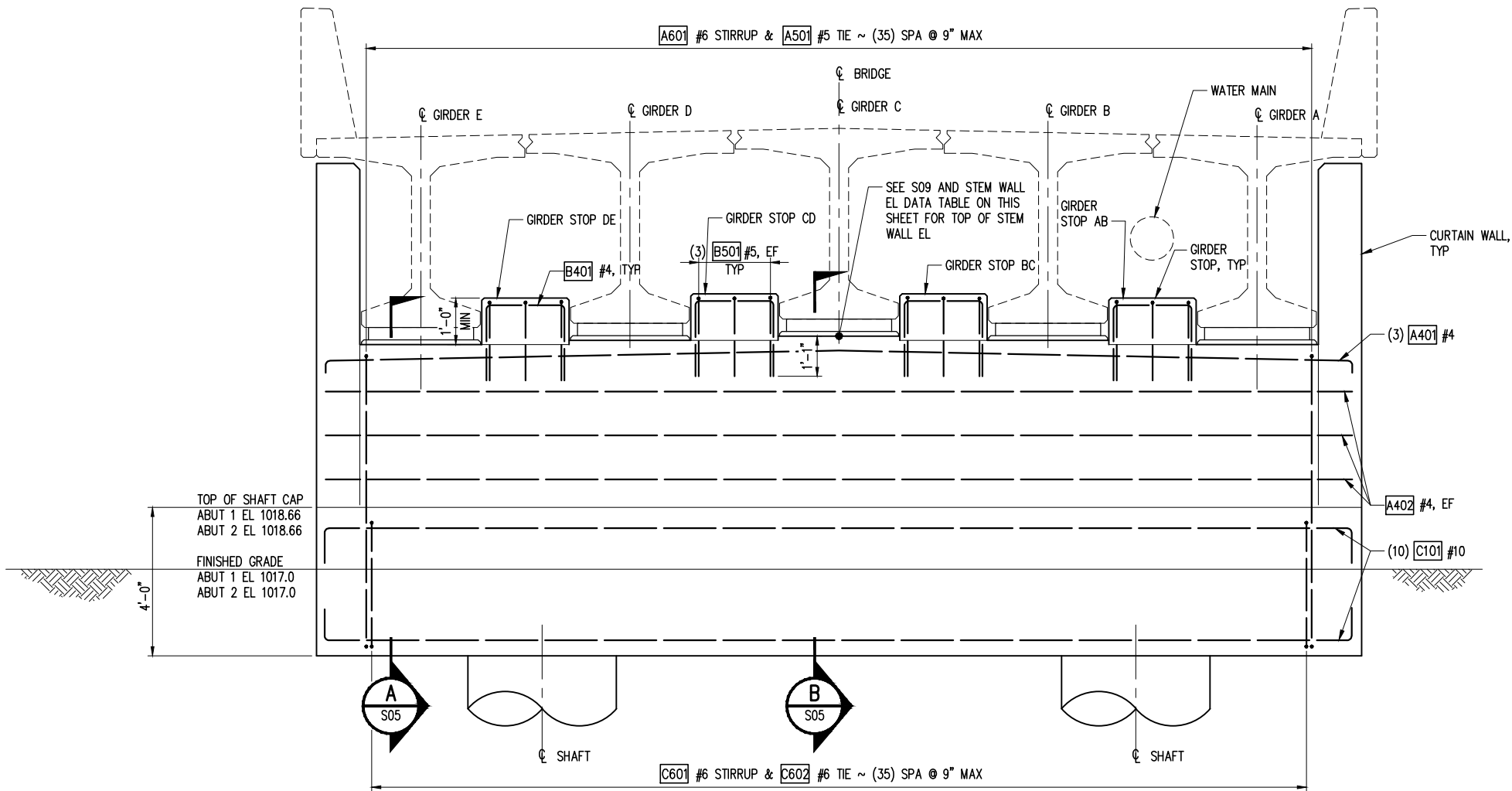
DRAWN: HT	PROJECT NO.: 2200093
DESIGN: TL	SCALE: AS SHOWN
CHECKED: JLP	DATE: 11/26/2025
DRAWING NO.	S05
SHEET NO.	33 OF 62



Xrefs:
KPFFB-2234xtb
xPPR_BRIDGE
x22059BASE - Alignment JLP



ABUTMENT PLAN
SCALE: 1/2" = 1'-0"
ABUTMENT 1 SHOWN, ABUTMENT 2 SIMILAR



ABUTMENT ELEVATION
SCALE: 1/2" = 1'-0"
ABUTMENT 1 SHOWN, LOOKING BACK ON STATIONING.
ABUTMENT 2 SIMILAR

STEM WALL & GROUT PAD ELEVATION DATA				
GIRDER	ABUTMENT 1		ABUTMENT 2	
	TOP OF STEM WALL	TOP OF GROUT PAD	TOP OF STEM WALL	TOP OF GROUT PAD
A	1022.93	1023.06	1022.93	1023.06
B	1023.05	1023.17	1023.05	1023.17
C	1023.16	1023.28	1023.16	1023.28
D	1023.05	1023.17	1023.05	1023.17
E	1022.93	1023.06	1022.93	1023.06

CAD USER: touniep PLOT DATE: Nov 26, 2025-11:50am
PATH: V:\2200093 (Pom Pom Road Bridges)\02_Design (v2022)\PPR-S06.dwg

kpff
1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com



NO.	DATE	BY	REVISION

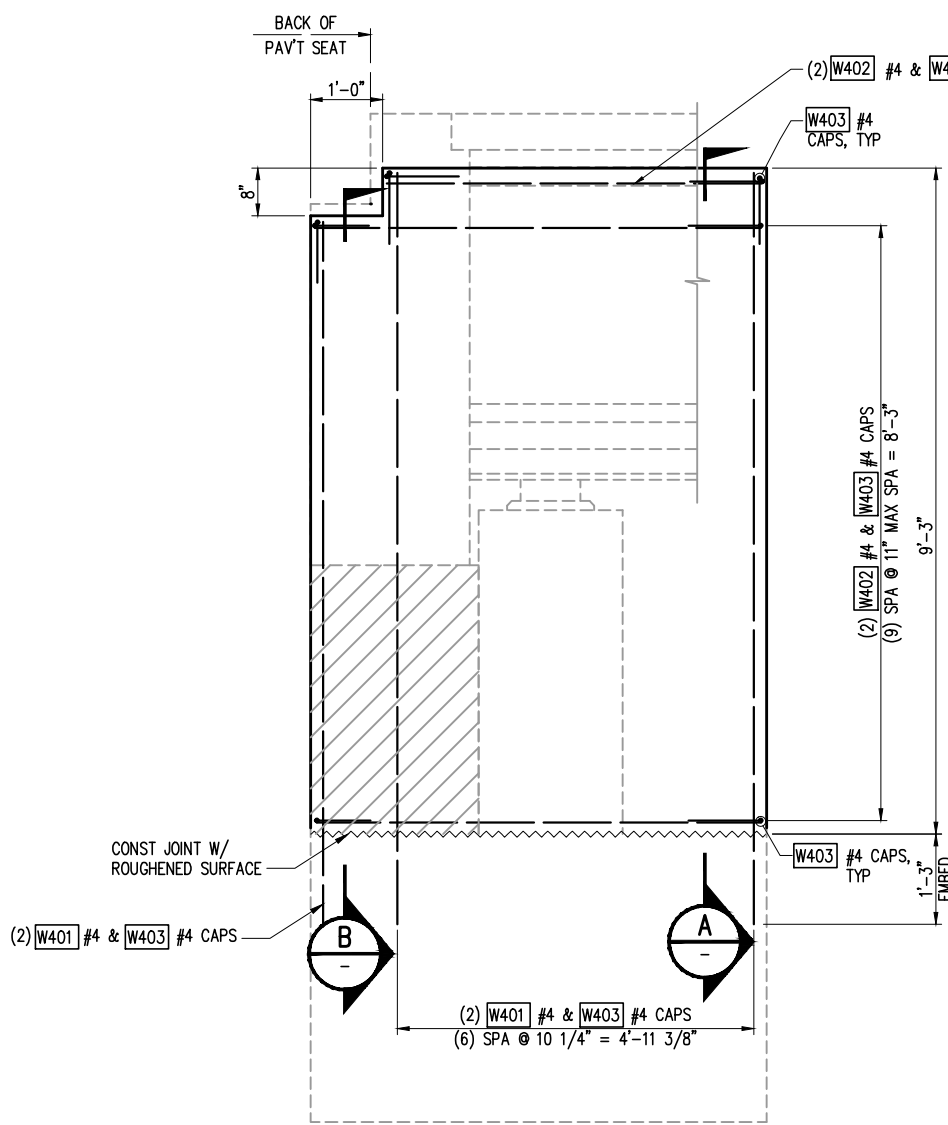


POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

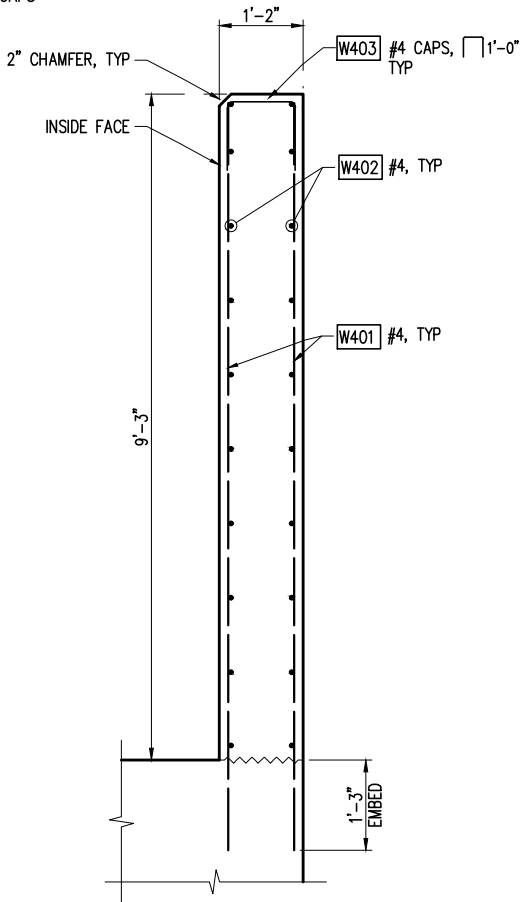
BRIDGE ABUTMENT PLAN AND ELEVATION

DRAWN: HT	PROJECT NO.: 2200093
DESIGN: TL	SCALE: AS SHOWN
CHECKED: JLP	DATE: 11/26/2025
DRAWING NO.	S06
SHEET NO.	34 OF 62

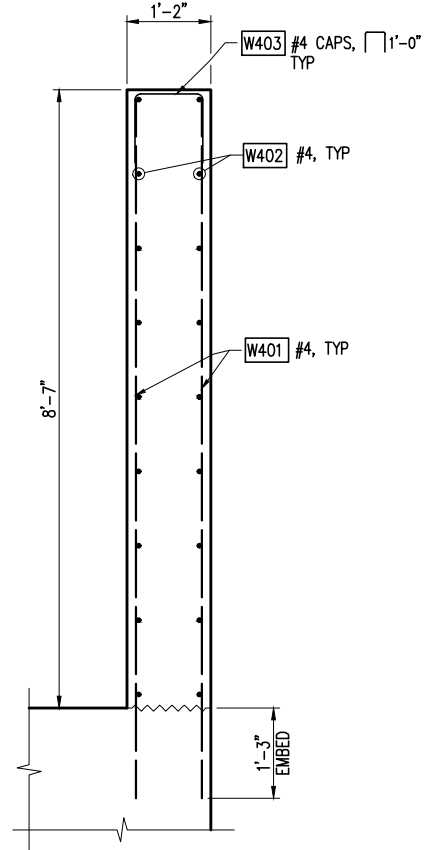




CURTAIN WALL ELEVATION



SECTION



SECTION



1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com



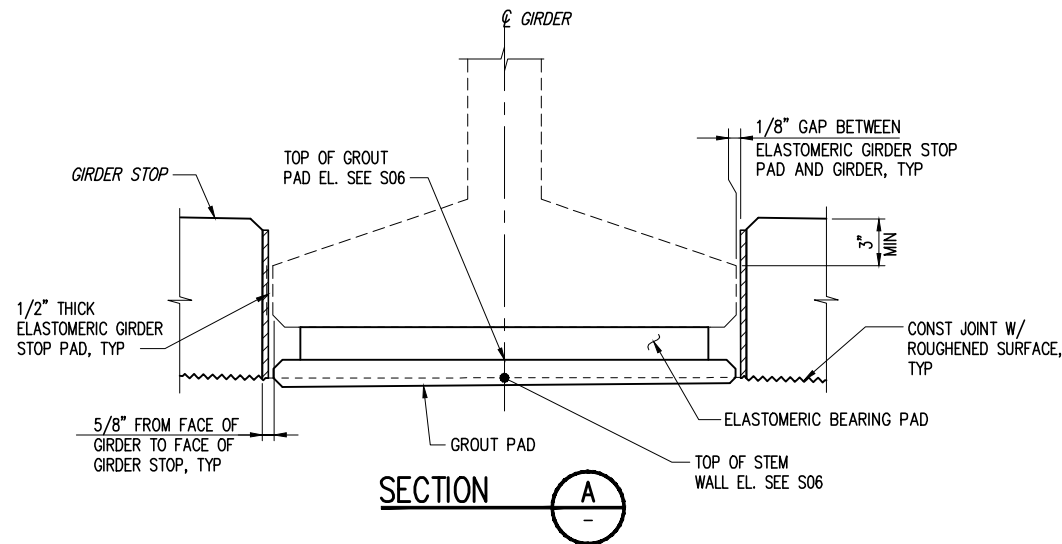
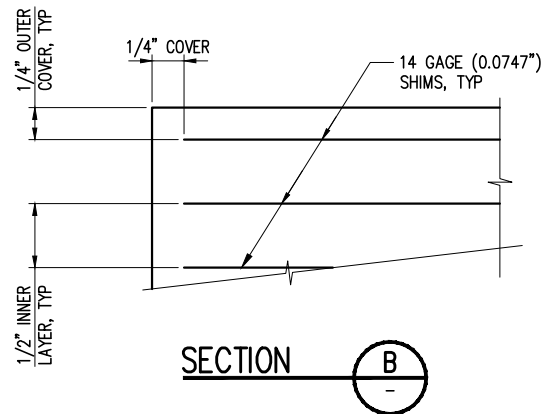
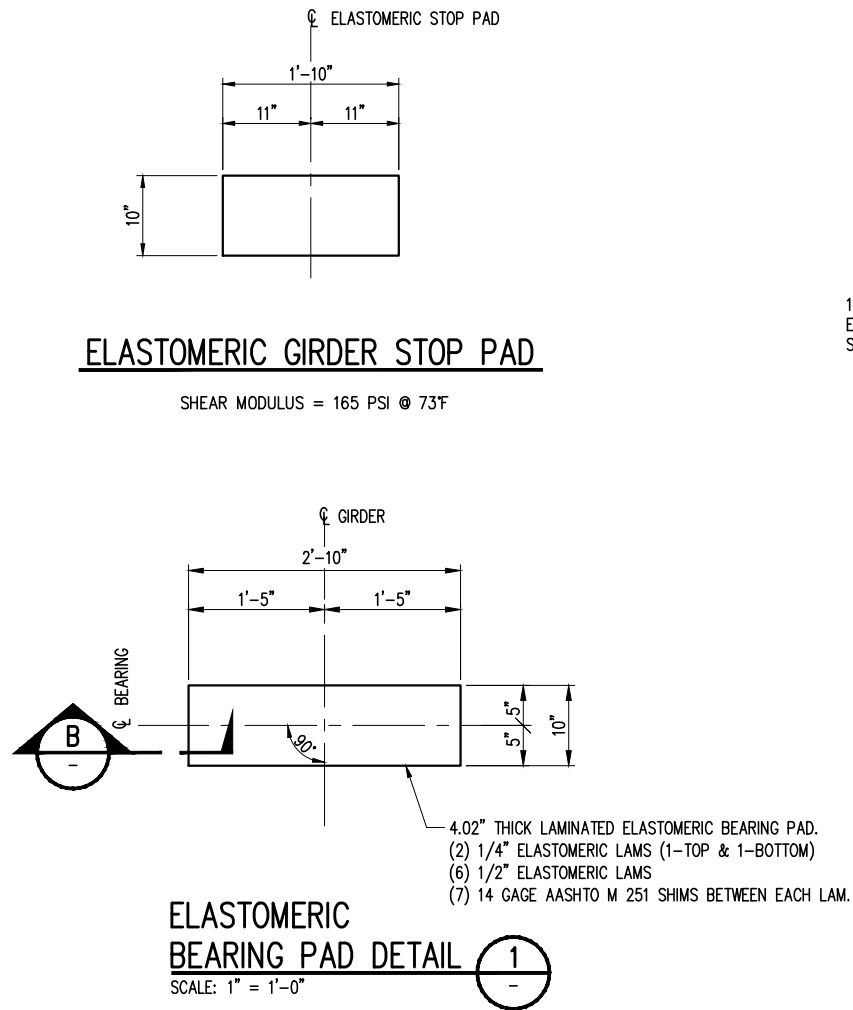
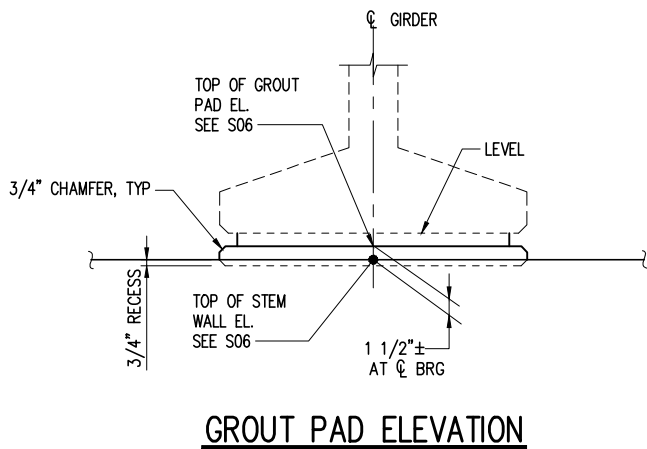
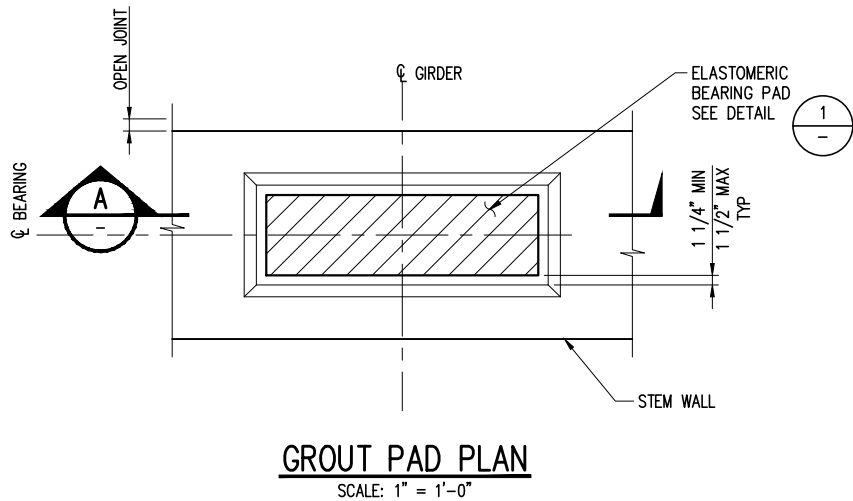
NO.	DATE	BY	REVISION



POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

BRIDGE ABUTMENT DETAILS 2

DRAWN: HT	PROJECT NO.: 2200093
DESIGN: TL	SCALE: AS SHOWN
CHECKED: JLP	DATE: 11/26/2025
DRAWING NO.	S08
SHEET NO.	36 OF 62



NOTES:

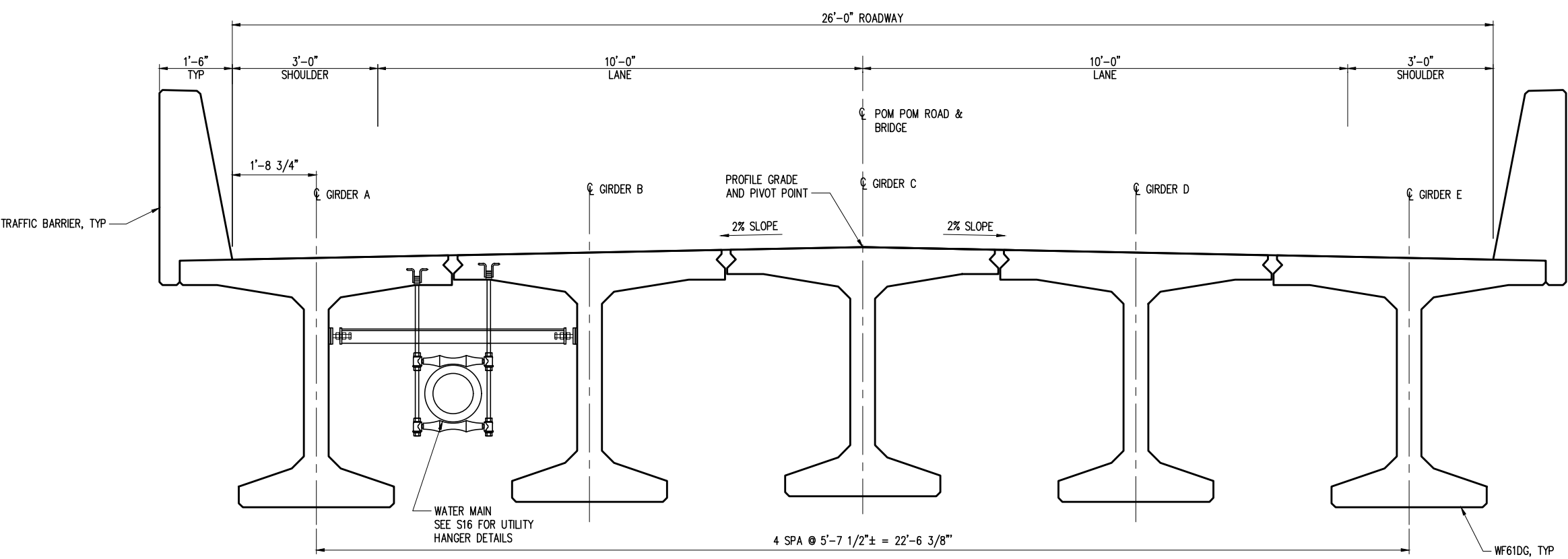
- GIRDER STOPS SHALL BE CONSTRUCTED AFTER GIRDER PLACEMENT.
- THE ELASTOMERIC STOP PADS SHALL BE BONDED TO GIRDER STOPS WITH APPROVED ADHESIVE.

BEARING DESIGN TABLE	
SERVICE 1 LIMIT STATE	
AASHTO METHOD B DESIGN	
DEAD LOAD REACTION (KIPS)	179
LIVE LOAD REACTION W/O IMPACT (KIPS)	50
UNLOADED HEIGHT (INCHES)	4.02
LOADED HEIGHT (DL) (INCHES)	4.00
ELASTOMER SHEAR MODULUS @ 73° F (PSI)	165

NO.	DATE	BY	REVISION

DRAWN: HT	PROJECT NO.: 2200093
DESIGN: TL	SCALE: AS SHOWN
CHECKED: JLP	DATE: 11/26/2025
DRAWING NO.	S09
SHEET NO.	37 OF 62

Xrefs:
KPFfb-2234xtb



TYPICAL SECTION
SCALE: 3/4" = 1'-0"

CAD USER: touniep PLOT DATE: Nov 26, 2025-11:51am
PATH: V:\2200093 (Pom Pom Road Bridges)\02_Design (v2022)\PPR-S10.dwg

kpff
1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com



NO.	DATE	BY	REVISION

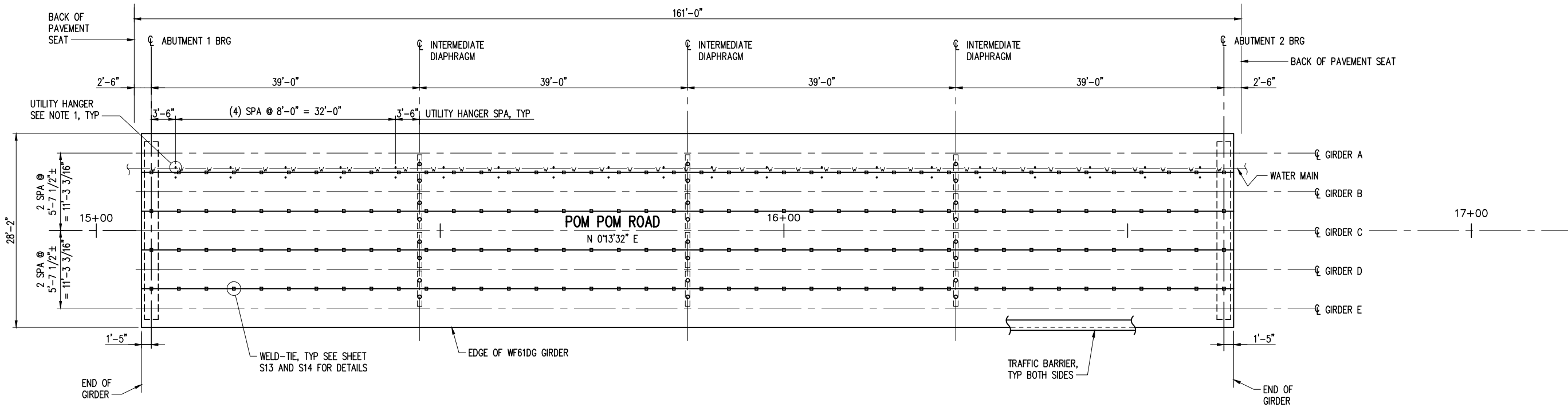


POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

BRIDGE TYPICAL SECTION

DRAWN: HT	PROJECT NO.: 2200093
DESIGN: TL	SCALE: AS SHOWN
CHECKED: JLP	DATE: 11/26/2025
DRAWING NO.	S10
SHEET NO.	38 OF 62

Xrefs:
KPFfB-2234xtb
xPPR_BRIDGE
x22059BASE



FRAMING PLAN



NOTES:

1. UTILITY HANGERS SHALL BE ORIENTED NORMAL TO THE GIRDER CENTERLINE, SEE SHEETS S13 AND S16 FOR DETAILS.

kpff
1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com



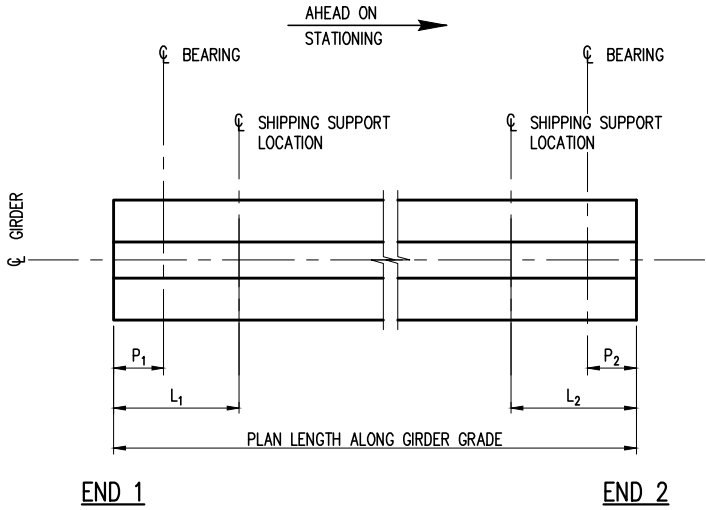
NO.	DATE	BY	REVISION



POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION
BRIDGE FRAMING PLAN

DRAWN: HT	PROJECT NO.: 2200093
DESIGN: TL	SCALE: AS SHOWN
CHECKED: JLP	DATE: 11/26/2025
DRAWING NO.	S11
SHEET NO.	39 OF 62

GIRDER SCHEDULE																																		
SPAN	GIRDER	GIRDER SERIES	TOP FLANGE WIDTH W	PLAN LENGTH (ALONG GIRDER GRADE) (SEE GIRDER NOTE 1)	GIRDER END DETAILS						MINI. CONC. COMP. STRENGTH		NUMBER OF STRANDS (SEE GIRDER NOTE 2)		LOCATION OF C.G. STRANDS			STRAIGHT STRANDS TO EXTEND		MIDSPAN VERTICAL DEFLECTION D		REINFORCEMENT DETAILS						SHIPPING AND HANDLING DETAILS						
					END 1 TYPE	END 2 TYPE	Ld	θ1	θ2	P1	P2	Ø 28-DAYS F'c (KSI)	Ø RELEASE F'ci (KSI)	STRAIGHT	HARPED	E	FCL	Fo	END 1	END 2	LOWER BOUND Ø 40 DAYS	UPPER BOUND Ø 120 DAYS	ZONE 1		ZONE 2		ZONE 3		MAXIMUM MIDSPAN VERTICAL DEFLECTION AT SHIPPING	L	L1	L2	Kθ MINIMUM SHIPPING SUPPORT ROTATIONAL SPRING CONSTANT (KIP-IN/RAD)	Wcc MINIMUM SHIPPING SUPPORT CNTR.-TO-CNTR. WHEEL SPACING
																							SPACING	LENGTH	SPACING	LENGTH	SPACING	LENGTH						
1	A-E	WF61DG	5'-7 1/2"	158'-10"	A	A	-	90°	90°	1'-5"	1'-5"	8.5	7	32	20	3"	5 1/4"	1'-0 3/8"	9,10,19,20	9,10,19,20	2 1/8"	5 1/8"	2 1/2"	1'-8"	6"	12'-0"	9"	4'-6"	7 3/8"	7'-0"	15'-0"	15'-0"	80,000	8'-0"



GIRDER SCHEDULE LEGEND
L₁ AND L₂ ARE SHIPPING SUPPORT LOCATIONS
AT LEADING AND TRAILING ENDS, RESPECTIVELY

GIRDER NOTES:

- PLAN LENGTH SHALL BE INCREASED AS NECESSARY TO COMPENSATE FOR SHORTENING DUE TO PRESTRESS AND SHRINKAGE.
- ALL PRETENSIONED AND TEMPORARY STRANDS SHALL BE 0.6"Ø AASHTO M203 GRADE 270 LOW RELAXATION STRANDS, JACKED TO 202.5 KS (43.94 KIPS PER STRAND).
- STRUCTURAL STEEL SHAPES AND ASSEMBLIES SHALL BE ASTM A36. THEY SHALL BE PAINTED WITH A PRIMER COAT IN ACCORDANCE WITH STD. SPEC. 6-07.3(9). WELD TIES SHALL BE PAINTED WITH A FIELD PRIMER COAT OF AN ORGANIC ZINC PAINT AFTER FIELD WELDING.
- ALL GIRDERS SHALL BE FABRICATED IN IDENTICAL METHODS AND WITH IDENTICAL CURING DURATION BEFORE PRESTRESSING IS RELEASED.

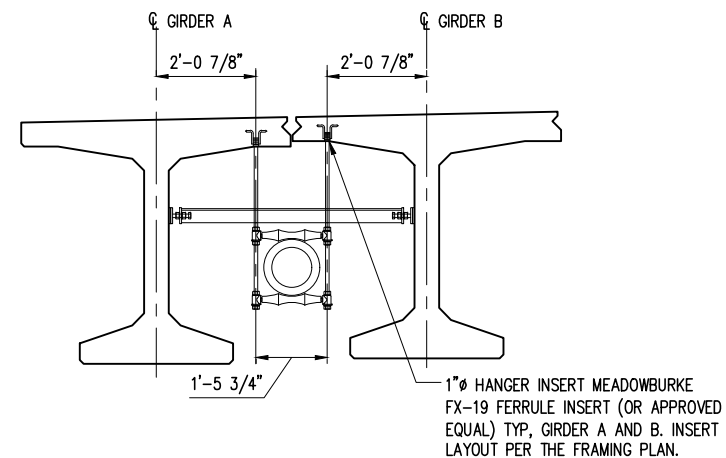
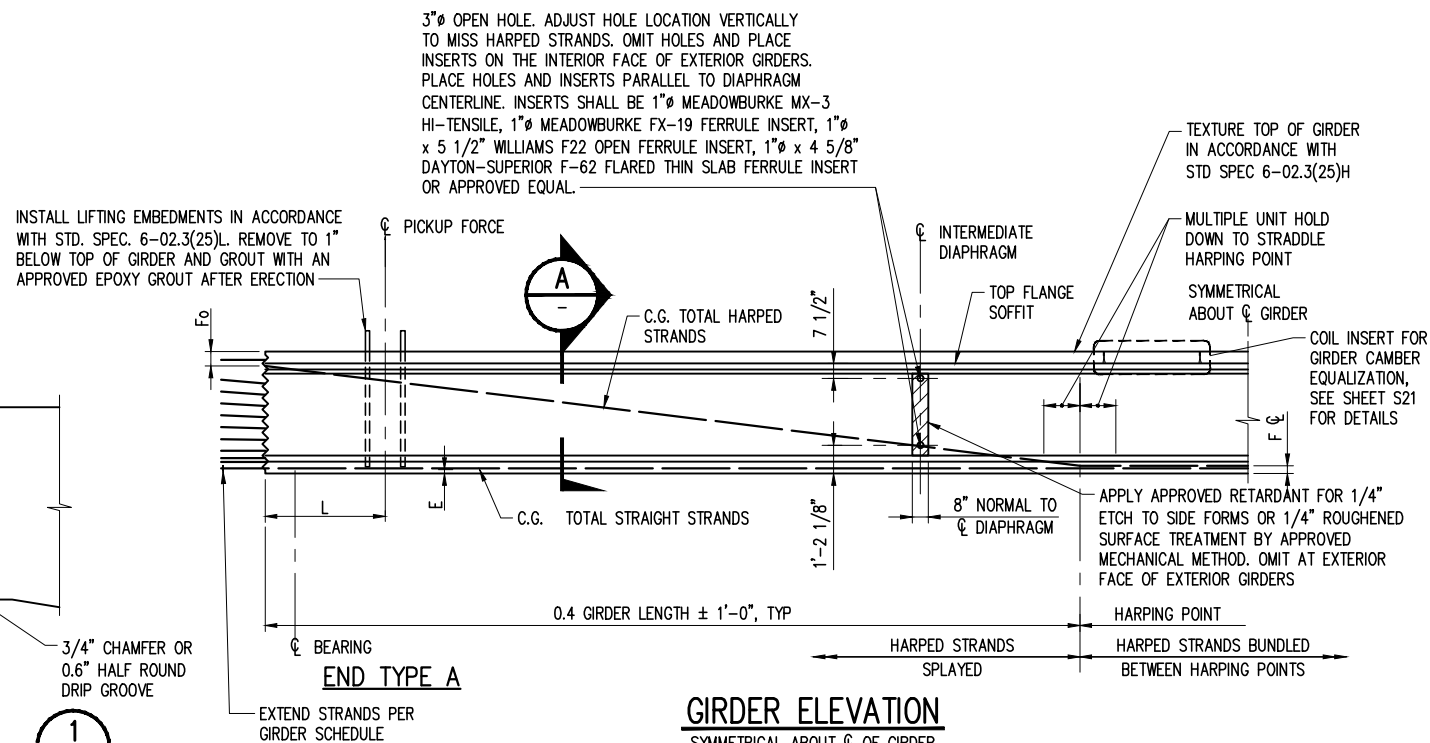
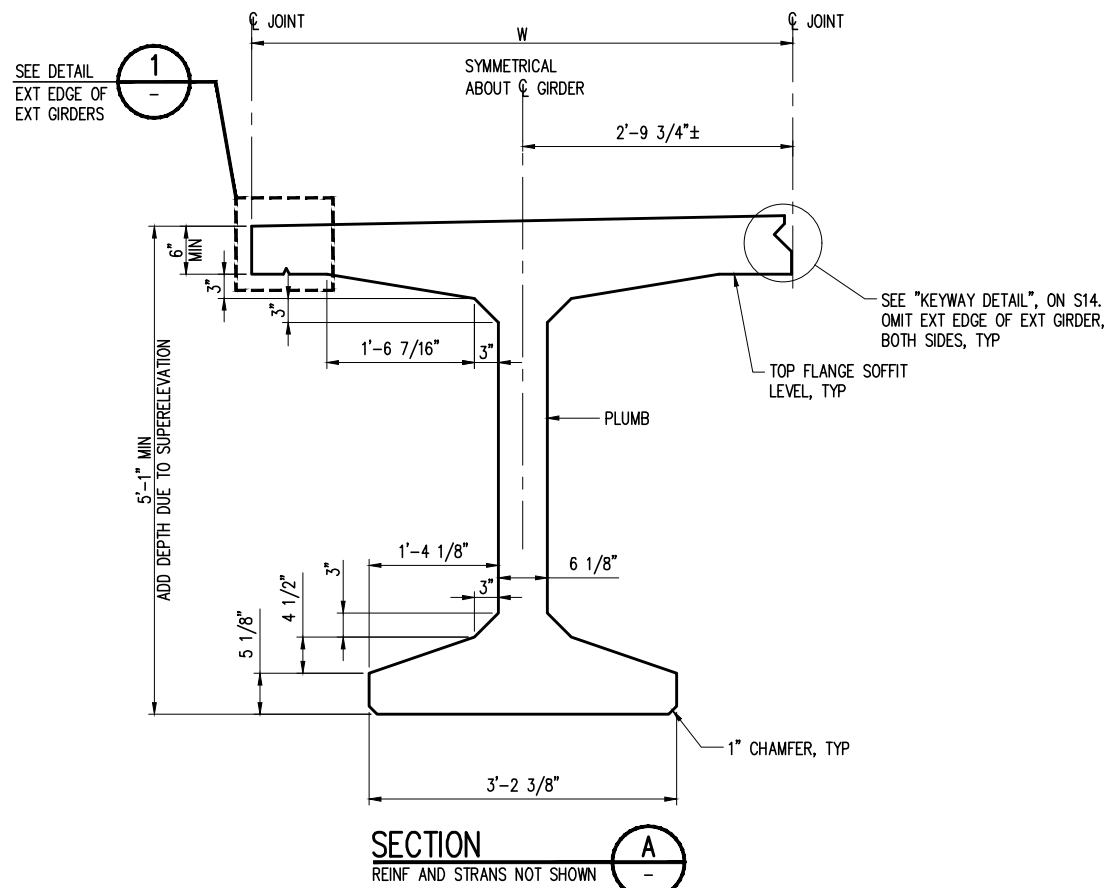
NO.	DATE	BY	REVISION



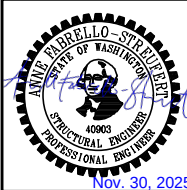
POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

BRIDGE GIRDER DETAILS 1

DRAWN: HT	PROJECT NO.: 2200093
DESIGN: TL	SCALE: AS SHOWN
CHECKED: JLP	DATE: 11/26/2025
DRAWING NO.	S12
SHEET NO.	40 of 62



INSERTS FOR UTILITY HANGERS



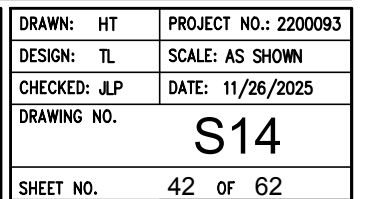
NO.	DATE	BY	REVISION

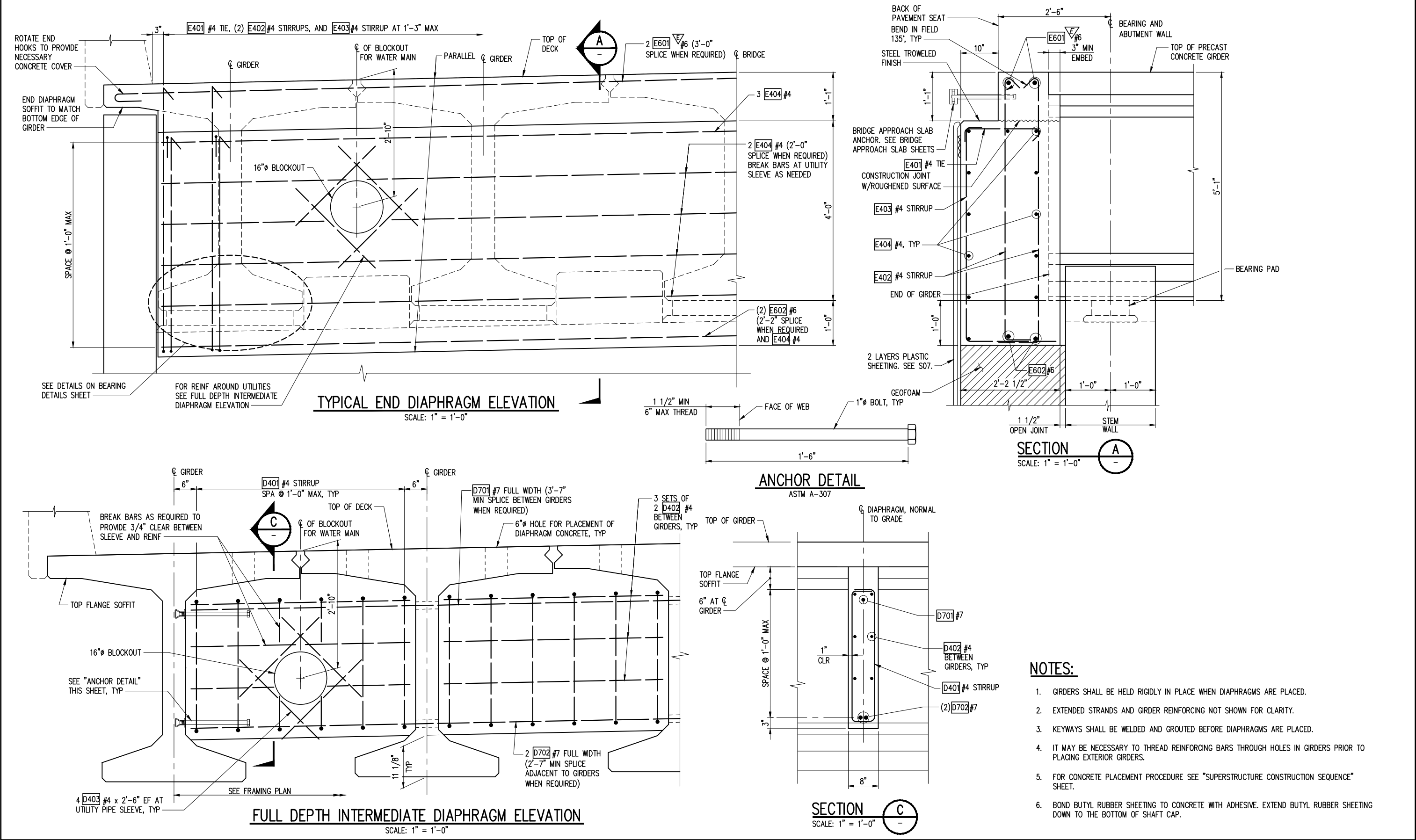


POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

BRIDGE GIRDER DETAILS 2

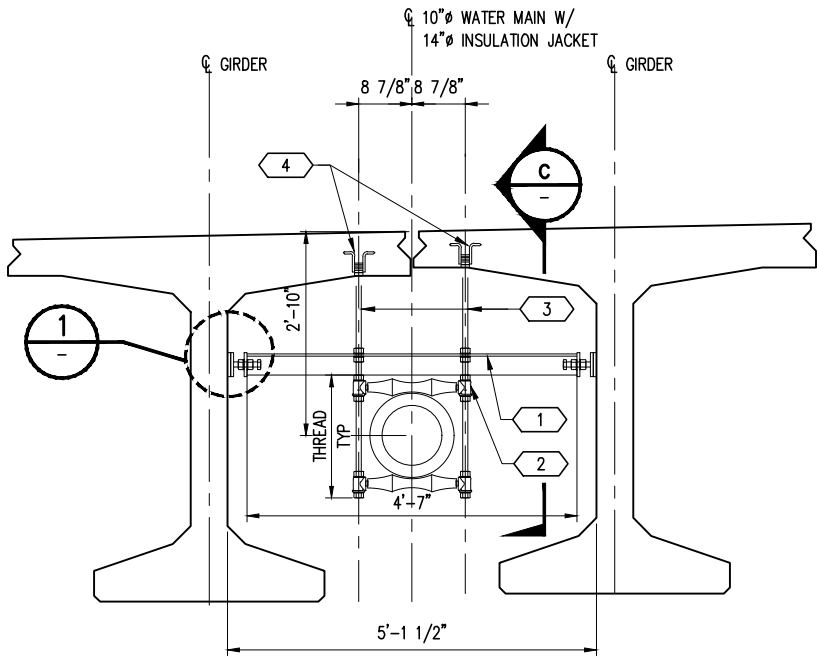
DRAWN: HT	PROJECT NO.: 2200093
DESIGN: TL	SCALE: AS SHOWN
CHECKED: JLP	DATE: 11/26/2025
DRAWING NO.	
S13	
SHEET NO. 41 OF 62	



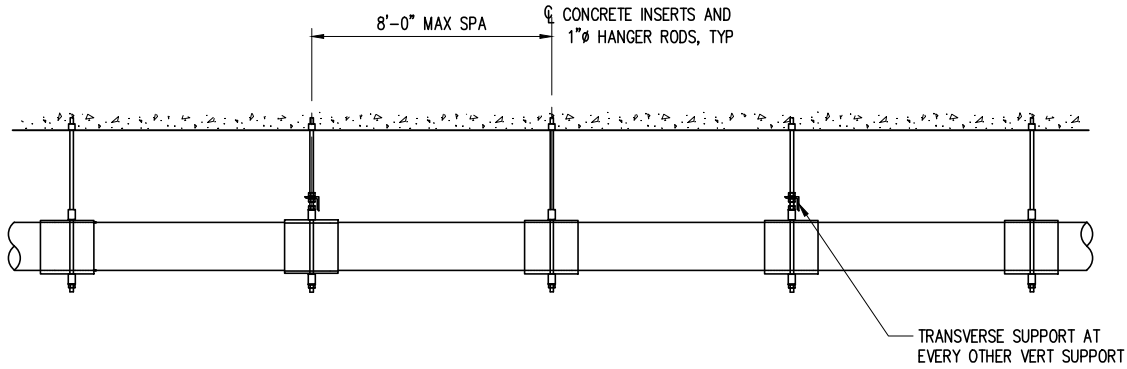


NO.	DATE	BY	REVISION

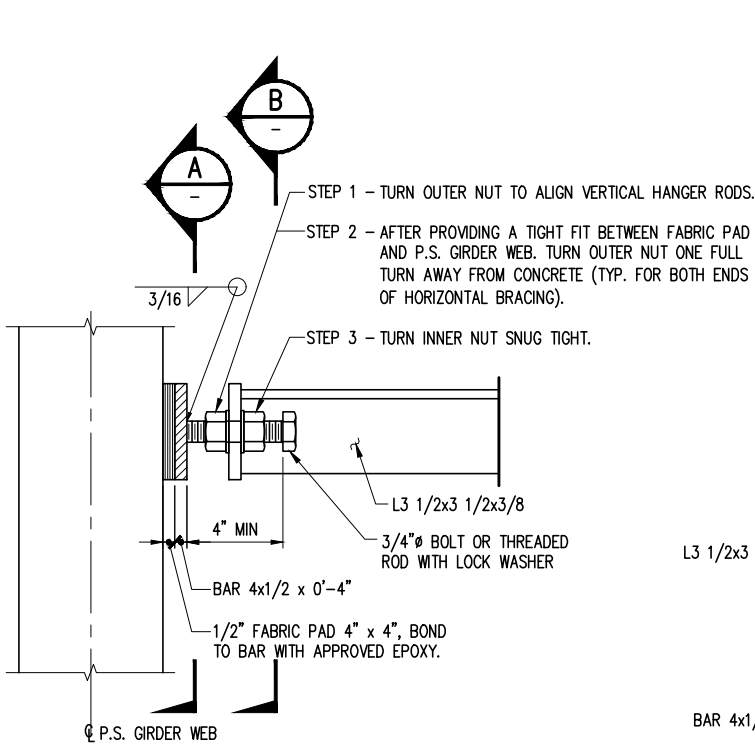
DRAWN: HT	PROJECT NO.: 2200093
DESIGN: TL	SCALE: AS SHOWN
CHECKED: JLP	DATE: 11/26/2025
DRAWING NO.	S15
SHEET NO.	43 OF 62



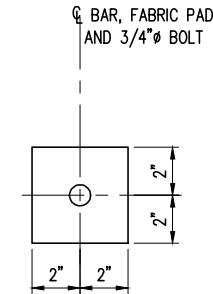
HANGER UTILITY SUPPORT



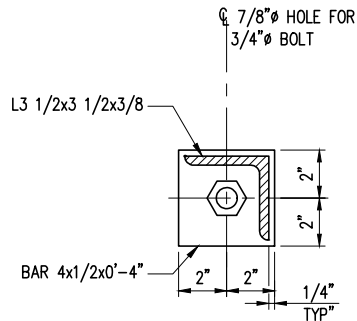
SECTION C



DETAIL 1



SECTION A



SECTION B

GENERAL NOTES:

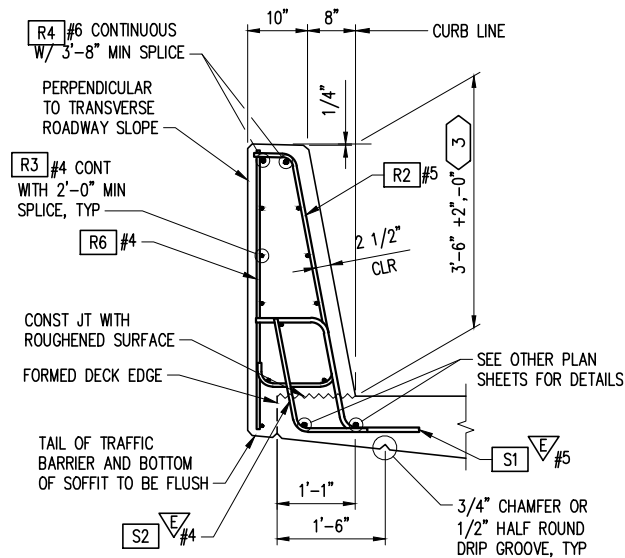
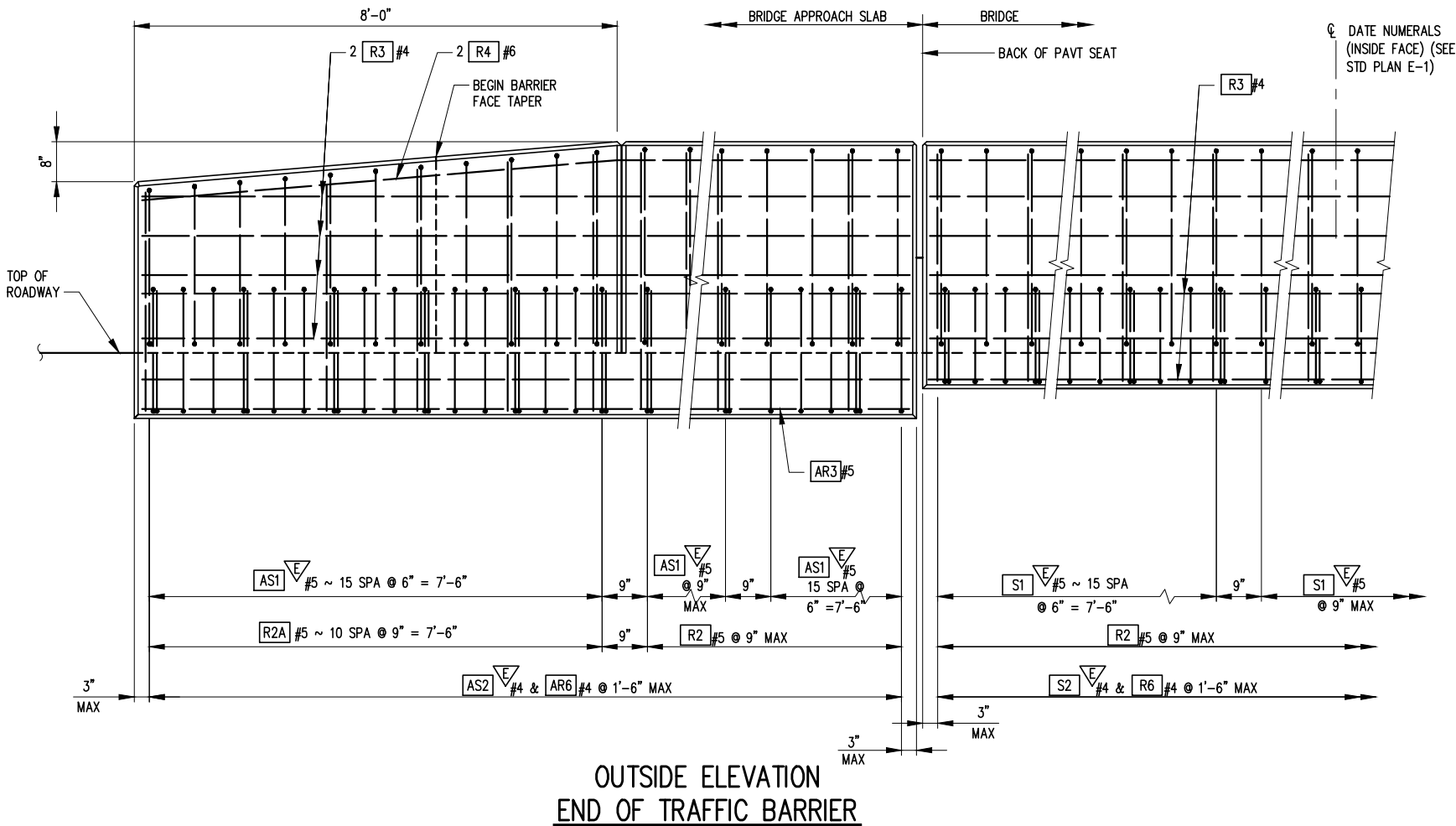
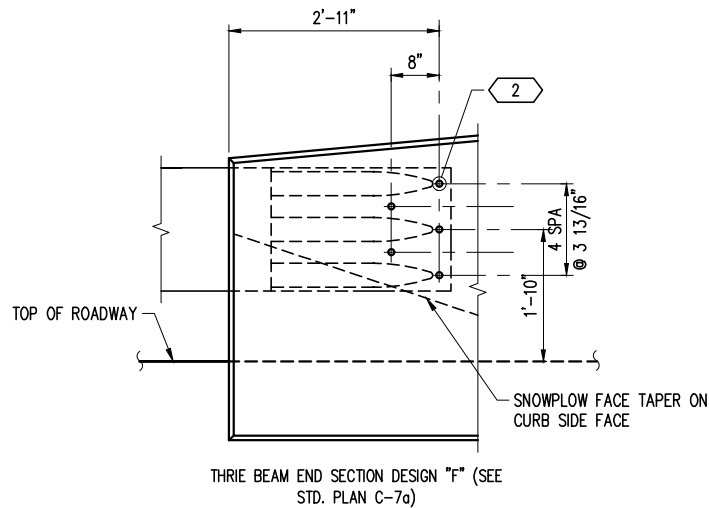
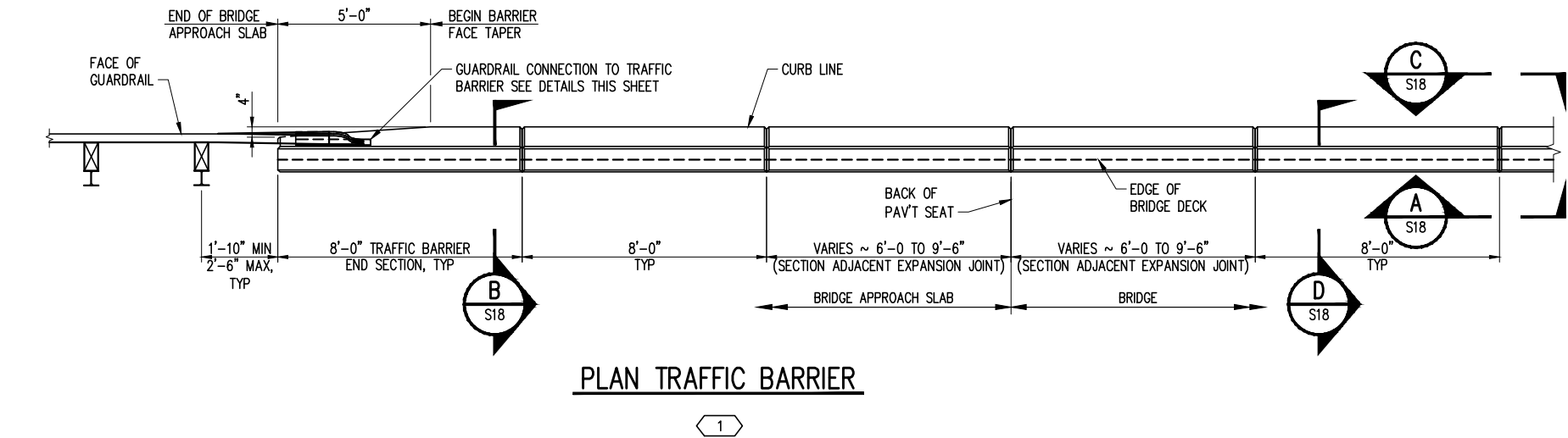
1. ALL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION PER AASHTO M 111 OR AASHTO M 232 EXCEPT PIPE ROLLERS.
2. PAINT ROLLERS WITH THREE COATS OF GALVANIZING REPAIR PAINT. SEE STD SPEC SECTION 9-08.1(2)B.

NOTES:

1. L 3 1/2x3 1/2x3/8 WITH 2 - 1 1/8" HOLES FOR 1" HANGER RODS AT EVERY OTHER VERTICAL SUPPORT, NEAR PIERS, AND AT EXPANSION JOINTS
2. ANVIL PIPE ROLL FIG 171, B-LINE B3114, CARPENTER AND PATTERSON FIG 142 OR APPROVED EQUAL
3. 1" GALV HANGER RODS WITH 6 HEX HEAD NUTS, STD WASHERS, AND LOCK WASHERS.
4. HANGER INSERT HARDWARE PER GIRDER DETAILS 2 SHEET.

NO.	DATE	BY	REVISION

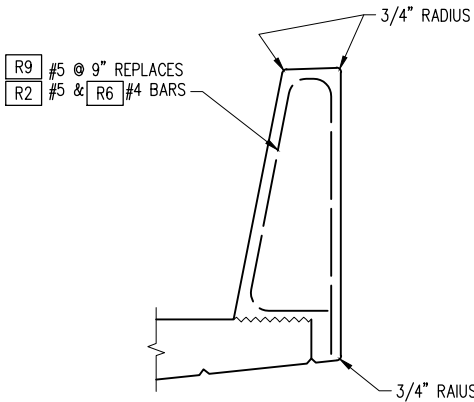
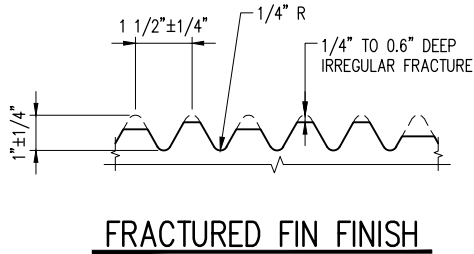
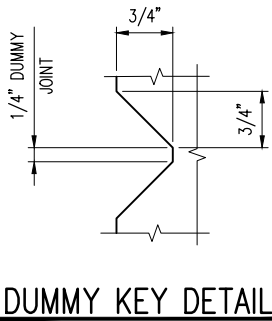
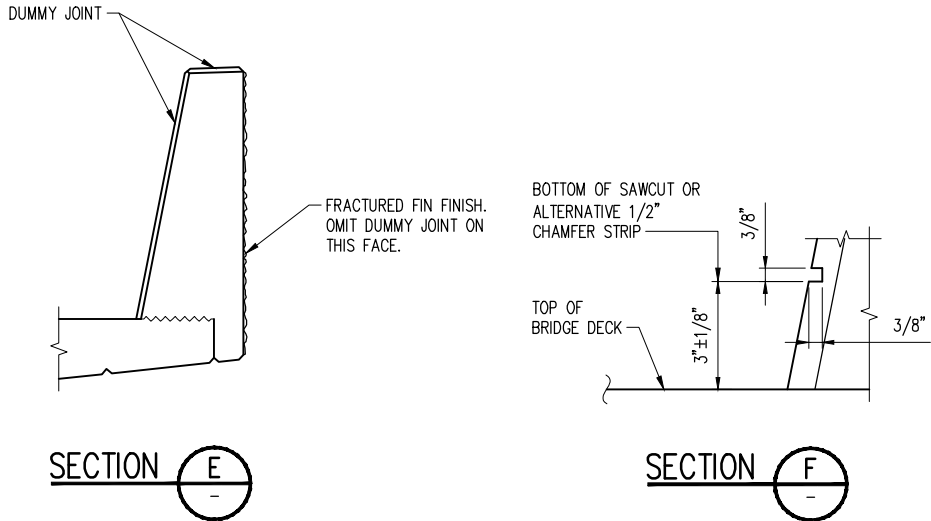
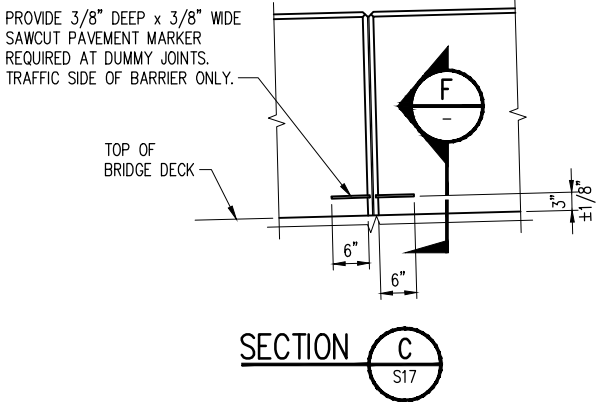
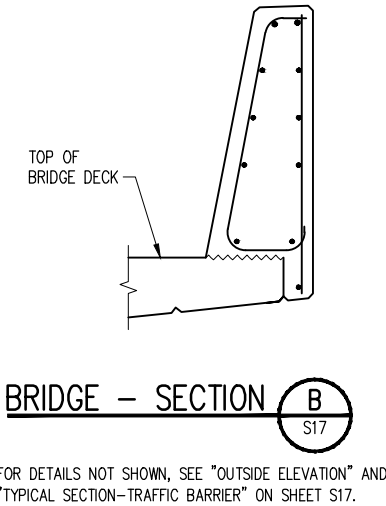
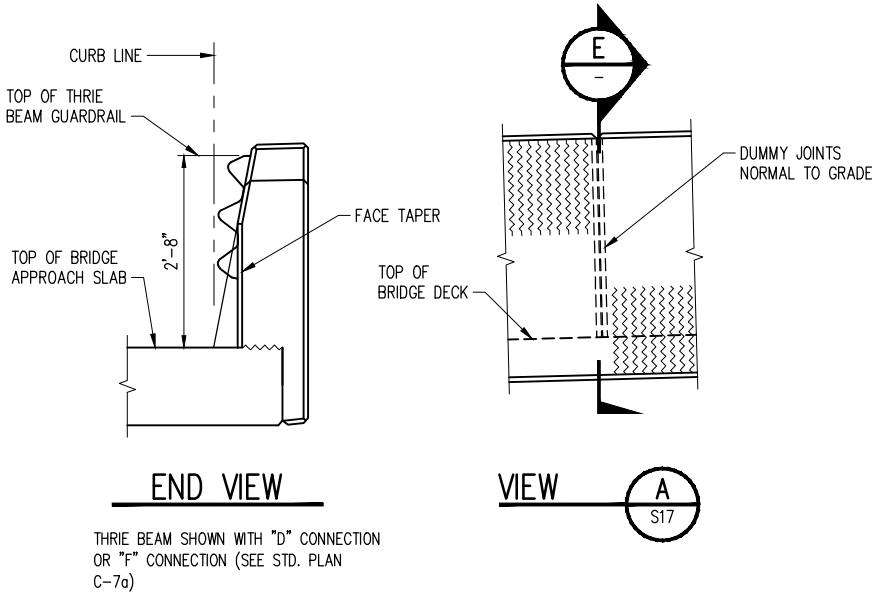
DRAWN: HT	PROJECT NO.: 2200093
DESIGN: TL	SCALE: AS SHOWN
CHECKED: JLP	DATE: 11/26/2025
DRAWING NO.	S16
SHEET NO.	44 OF 62



NOTES:

- 1 CONSTRUCTION JOINTS WITH SHEAR KEYS ARE PERMISSIBLE AT DUMMY JOINT LOCATIONS. FORM JOINTS BETWEEN DUMMY JOINTS SHALL NOT BE PERMITTED.
- 2 7/8"Ø ROCKET/KOHLER F-50, LANCASTER MALLEABLE, OR DAYTON/RICHMOND F-62 FLARED THIN SLAB FERRULE INSERTS OR APPROVED EQUAL, TYP. RESIN-BONDED ANCHORS MAY BE SUBSTITUTED.
- 3 HEIGHT MAY VARY WITHIN TOLERANCE TO PROVIDE A SMOOTH PROFILE PLEASING TO THE EYE.

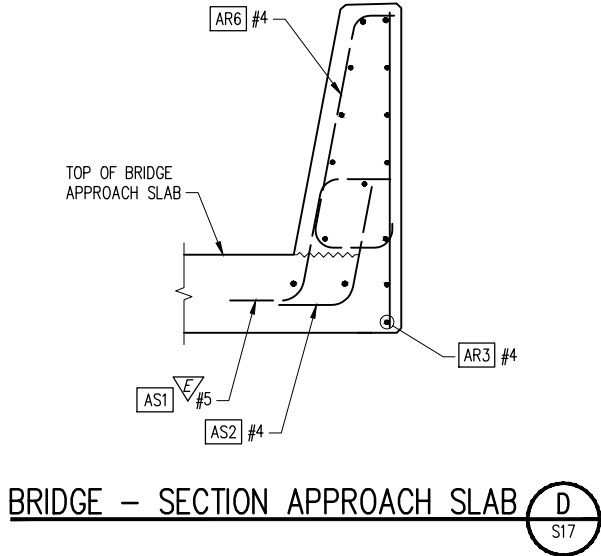
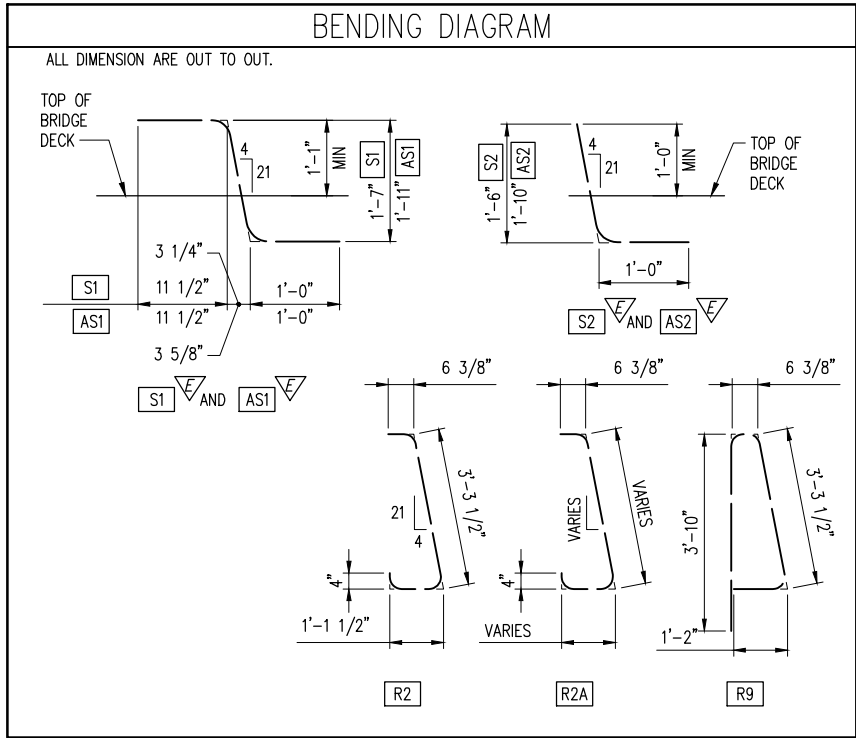
NO.	DATE	BY	REVISION



SLIPFORM ALTERNATE

SEE "TYPICAL SECTION - TRAFFIC BARRIER" FOR ADDITIONAL DETAILS.

THE CONTRACTOR IS ADVISED THAT THE SLIPFORM CONSTRUCTION METHOD IS A PATENTED PROPRIETARY PROCESS FOR BARRIERS WITH A FRACTURED FIN FINISH.



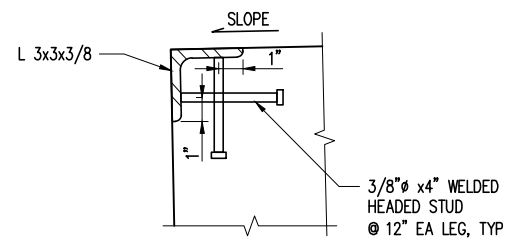
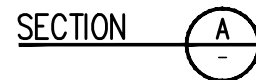
NO.	DATE	BY	REVISION



POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

BRIDGE TRAFFIC BARRIER DETAILS 2

DRAWN: HT	PROJECT NO.: 2200093
DESIGN: TL	SCALE: AS SHOWN
CHECKED: JLP	DATE: 11/26/2025
DRAWING NO.	S18
SHEET NO.	46 OF 62



SCALE: 3" = 1'-0"

PAVEMENT ARMOR ANGLE SHALL
BE GALVANIZED PER AASHTO M111.

[illegible]

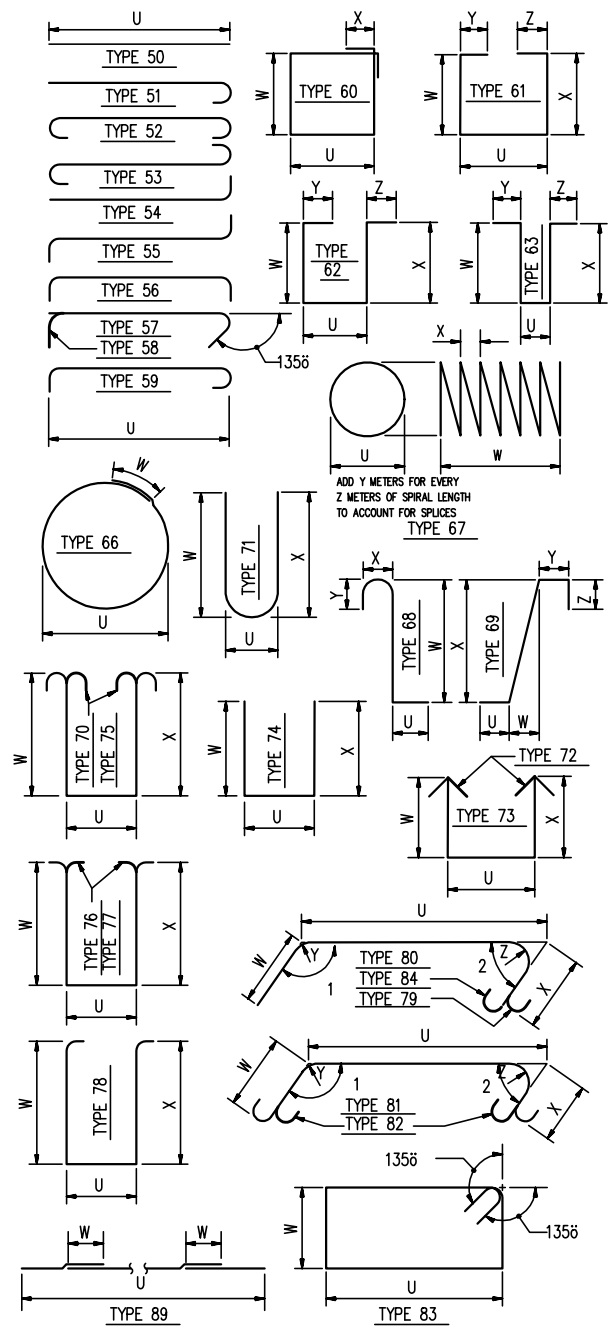
APPROACH SLAB DETAILS

DRAWN: HT	PROJECT NO.: 2200093
DESIGN: TL	SCALE: AS SHOWN
CHECKED: JLP	DATE: 11/26/2025
DRAWING NO. S19	
SHEET NO. 47 OF 62	



S = BAR IS INCLUDED
SUBSTRUCTURE QUANTITIES
L = LUMP SUM QUANTITY
T = TRANSVERSE
OR E = EARTHQUAKE

E = BAR IS TO BE EPOXY COATED
V = BAR DIMENSIONS VARY BETWEEN DIMENSIONS
SHOWN ON THIS LINE AND THE FOLLOWING LINE

[illegible]

NOTES:

1. ALL REINFORCING ON THIS SHEET SHALL BE ASTM A706, GRADE 60 UNLESS SHOWN OTHERWISE.
2. REINFORCING FOR TRAFFIC BARRIES NOT SHOWN IN THE BAR LIST, SEE TRAFFIC BARRIER SHEET.
3. BENT 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.
4. NUMBER AND LENGTH OF BARS TO BE DETERMINED BY THE CONTRACTOR FROM PLANS.

[illegible]

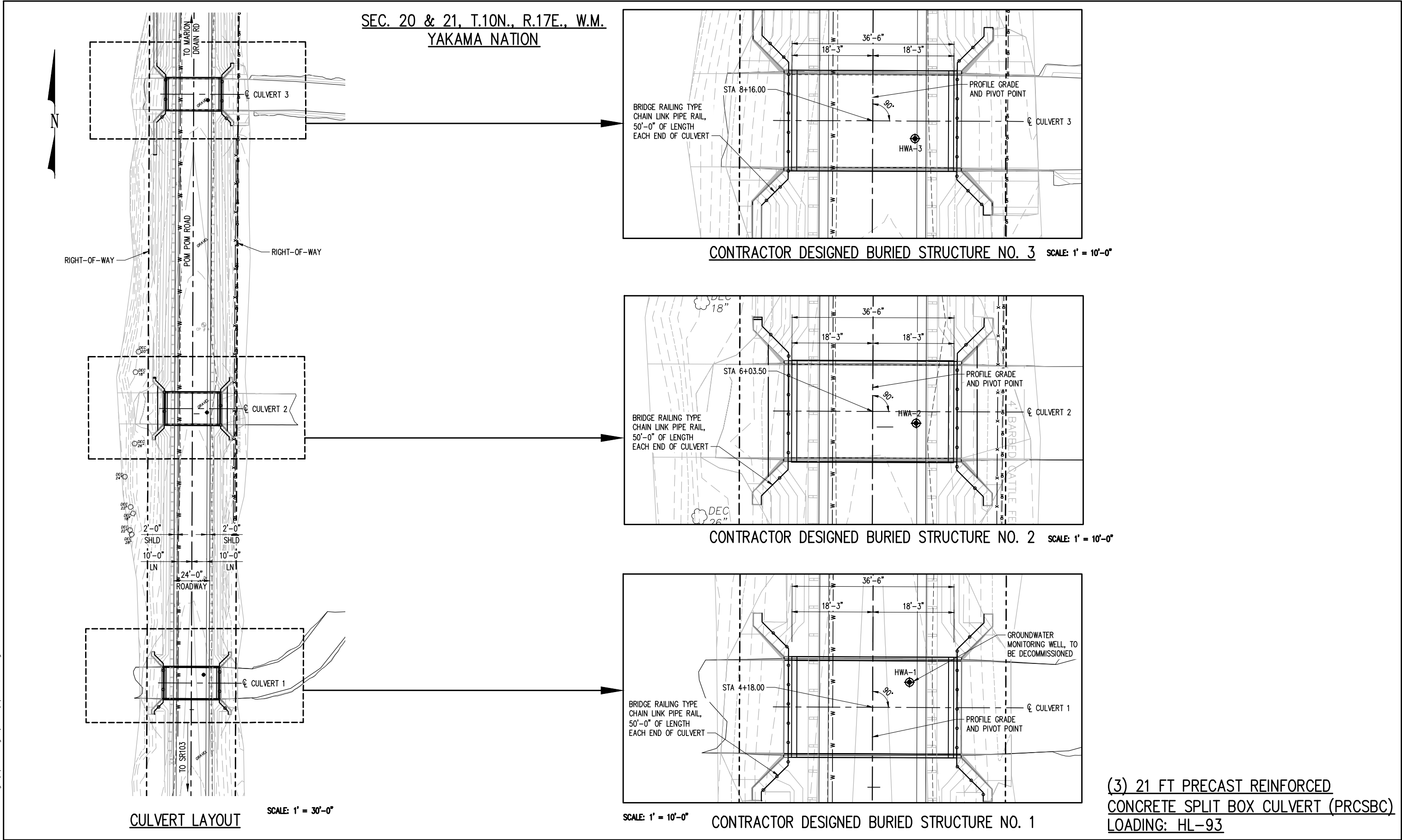
POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

BAR LIST SCHEDULE

DRAWN: HT	PROJECT NO.: 2200093
DESIGN: TL	SCALE: AS SHOWN
CHECKED: JLP	DATE: 11/26/2025
DRAWING NO.	S20
SHEET NO.	48 OF 62

Xrefs:
KPFfb-2234xtd
x22059BASE
22059EXTG

CAD USER: touniep PLOT DATE: Nov 26, 2025-12:10pm
PATH: V:\2200093 (Pom Pom Road Bridges)\02_Design (v2022)\PPR-S30.dwg



kpff
1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com



NO.	DATE	BY	REVISION



POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION
CULVERT LAYOUT

DRAWN: HT	PROJECT NO.: 2200093
DESIGN: TL	SCALE: AS SHOWN
CHECKED: JLP	DATE: 11/26/2025
DRAWING NO.	S30
SHEET NO.	49 OF 62

CULVERT GENERAL NOTES:

1.

ALL MATERIAL AND WORKMANSHIP SHALL BE ACCORDANCE WITH THE REQUIREMENTS OF THE WASHINGTON STATE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION DATED 2025 AND THE PROJECT SPECIAL PROVISIONS.
2.

CULVERTS SHALL BE CONTRACTOR DESIGNED, FOUR-SIDED BURIED STRUCTURES CONSISTENT WITH THE REQUIREMENTS OF STANDARD SPECIFICATIONS AND PROJECT SPECIAL PROVISIONS
3.

THIS STRUCTURE SHALL BE DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS NINTH EDITION, 2020 – WITH INTERIM REVISIONS.
4.

THE STRUCTURE SHALL BE DESIGNED FOR:
TOTAL SETTLEMENT OF UP TO 2 INCHES WITH DIFFERENTIAL SETTLEMENT OF UP TO 1 INCH.
DEAD LOAD INCLUDING 35 PSF ADDED WEARING SURFACE
TRAFFIC BARRIERS AND ATTACHMENTS = TL-4
5.

FOR THE BASIS OF SEISMIC, SCOUR AND GEOTECHNICAL DESIGN, SEE DRAWING S01 BRIDGE GENERAL NOTES.
6.

CONCRETE COVER MEASURED FROM THE FACE OF CONCRETE TO THE FACE OF ANY REINFORCING STEEL SHALL BE 2.0 INCHES AT ALL LOCATIONS OF THE PRECAST BURIED STRUCTURE UNITS, 3.0 INCHES AT BOTTOM OF PRECAST BURIED STRUCTURE UNITS AND 2.0 INCHES AT ALL OTHER LOCATIONS.
7.

FORMS USED FOR PRECAST UNITS SHALL BE METAL OR WOOD ONLY. THE PRECAST UNITS SHALL CONFORM WITH TOLERANCES IN ACCORDANCE WITH STD SPEC 6-20.3(3)A.
8.

ALL STEEL PLATES AND SHAPES SHALL BE ASTM A36 OR ASTM A572 GRADE 50. ALL BOLTS, NUTS, AND WASHERS SHALL BE ASTM A307 AND SHALL CONFORM TO STD SPEC 9-06.5(3). RESIN BONDED ANCHOR SYSTEMS SHALL CONFORM TO STD SPEC 9-06.4. ALL STEEL PLATES AND SHAPES SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M 111 AFTER FABRICATION, UNLESS NOTED OTHERWISE. GALVANIZING SHALL BE REMOVED AT ANY FIELD WELDED ZONES. BOLTS AND HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M232 OR ASTM F2329 AS APPLICABLE. GALVANIZING REPAIR PAINT SHALL CONFORM TO STD SPEC 9-08.1(2)B.
9.

THE CONTRACTOR SHALL IDENTIFY REINFORCEMENT FREE ZONES ON THE STRUCTURE WHEN RESIN BONDED ANCHORS, CONFORMING TO STD. SPEC. 6-02.3(18)A, ARE TO BE INSTALLED IN FIELD DRILLED HOLES.
10.

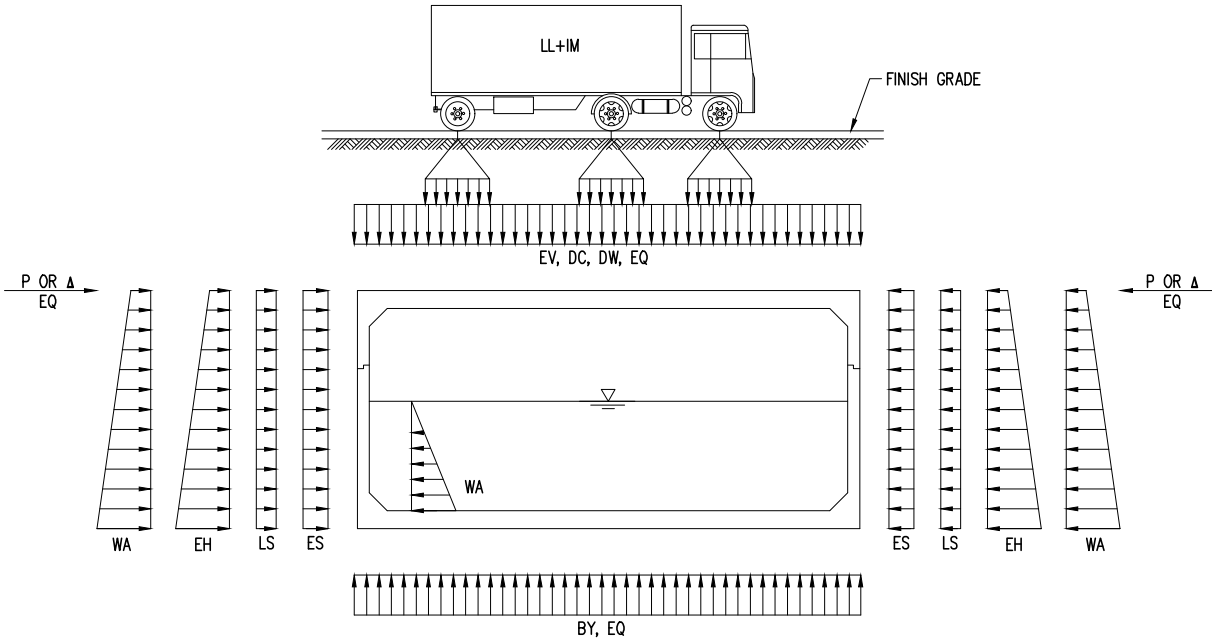
THE FABRICATOR SHALL DESIGN FOR THE MEANS OF LIFTING AND TRANSPORTING PRECAST BURIED STRUCTURE UNITS, AND WINGWALLS IN ACCORDANCE WITH WSDOT STD. SPEC. 6-20.3(2)A.
11.

ALL JOINTS SHALL BE SEALED WITH BUTYL RUBBER JOINT SEALANT AND WRAPPED WITH EXTERNAL SEALING BAND IN ACCORDANCE WITH STD. SPEC. 6-20.3(8)A.
12.

BACKFILL ON BOTH SIDES OF THE BURIED STRUCTURE SHALL BE PLACED IN SEQUENCE AND COMPACTED IN ACCORDANCE WITH STD. SPEC. 2-09.3(1)E. THE MAXIMUM FILL HEIGHT DIFFERENCE MEASURED FROM SIDE TO SIDE SHALL NOT EXCEED 2'-0".
13.

THE EXCAVATION LIMITS BELOW THE CULVERTS ARE EXPECTED TO BE BELOW GROUNDWATER LEVELS DURING CONSTRUCTION. THE CONTRACTOR SHALL SUBMIT A TYPE 2 WORKING DRAWING CONSISTING OF A DEWATERING PLAN FOR REVIEW PRIOR TO CONSTRUCTION.
14.

WELDED WIRE STRUCTURAL EARTH WALL SHALL BE DESIGNED PER 6-13.3(2) AND WITH A NOMINAL BEARING RESISTANCE, $q_n = 4.0$ KSF.



NOTES:

1.

THE BACK OF CULVERT WALL IS VERTICAL.
2.

CULVERT SHALL BE DESIGNED USING AT REST EARTH PRESSURES.
3.

THE TRAFFIC SURCHARGE (LS) IS BASED ON A VERTICAL PRESSURE OF 250 PSF.
4.

EQ LOADING INCLUDES BOTH LATERAL RACKING DEFORMATION AND VERTICAL SEISMIC.

LATERAL EARTH PRESSURES:

SLIDING COEFFICIENT FOR PRECAST CONCRETE, $\tan \delta = 0.5$

BACKFILL AROUND CULVERT ASSUMED TO MEET GRAVEL BORROW (WSDOT STD SPEC 9-03.14(1))

EFFECTIVE FRICTION ANGLE OF GRAVEL BORROW, $\phi = 36$ DEGREES

TOTAL UNIT WEIGHT OF GRAVEL BORROW, $\gamma = 135$ PCF

BUOYANT UNIT WEIGHT OF GRAVEL BORROW, $\gamma' = 72.6$ PCF

STATIC AT-REST COEFFICIENT, $K_o = 0.38$, $K_o * \gamma = 52$ PCF

SEISMIC AT-REST COEFFICIENT, $K_{oe} = 0.52$, $K_{oe} * \gamma = 70$ PCF

TRAFFIC SURCHARGE (LS), HORIZONTAL = $K_o * 250$ PSF = 95 PSF

DC = DEAD LOAD OF STRUCTURAL COMPONENTS
DW = DEAD LOAD OF WEARING SURFACE
EH = HORIZONTAL EARTH PRESSURE
ES = EARTH SURCHARGE
EQ = EARTHQUAKE
EV = VERTICAL EARTH PRESSURE
LL + IM = LIVE LOAD PLUS DYNAMIC LOAD ALLOWANCE
LS = LIVE LOAD SURCHARGE
WA = HYDRO-STATIC PRESSURE
BY = BUOYANCY

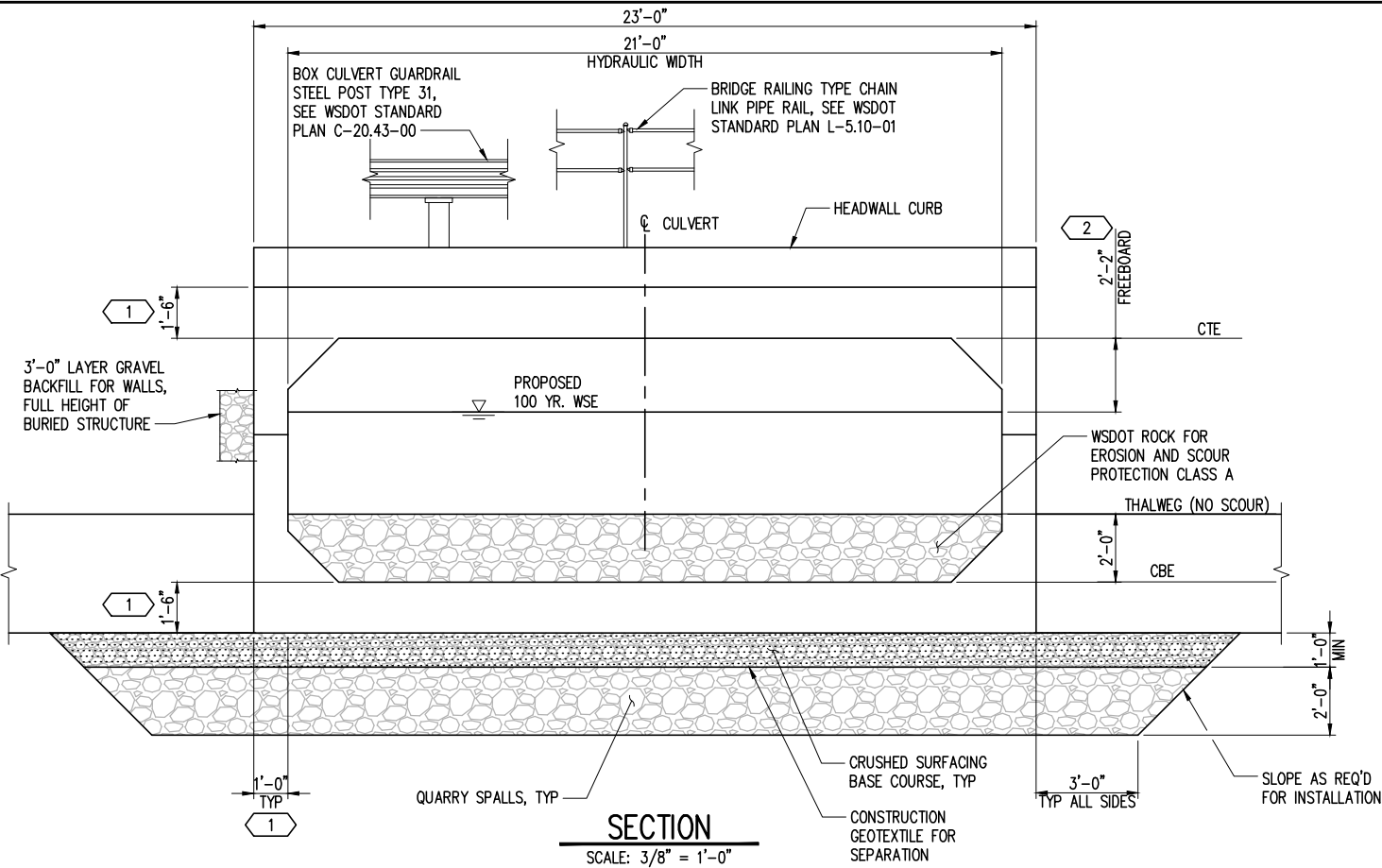
NO.	DATE	BY	REVISION



POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

CULVERT GENERAL NOTES

DRAWN: HT	PROJECT NO.: 2200093
DESIGN: TL	SCALE: AS SHOWN
CHECKED: JLP	DATE: 11/26/2025
DRAWING NO.	S31
SHEET NO.	50 of 62



GENERAL NOTES:

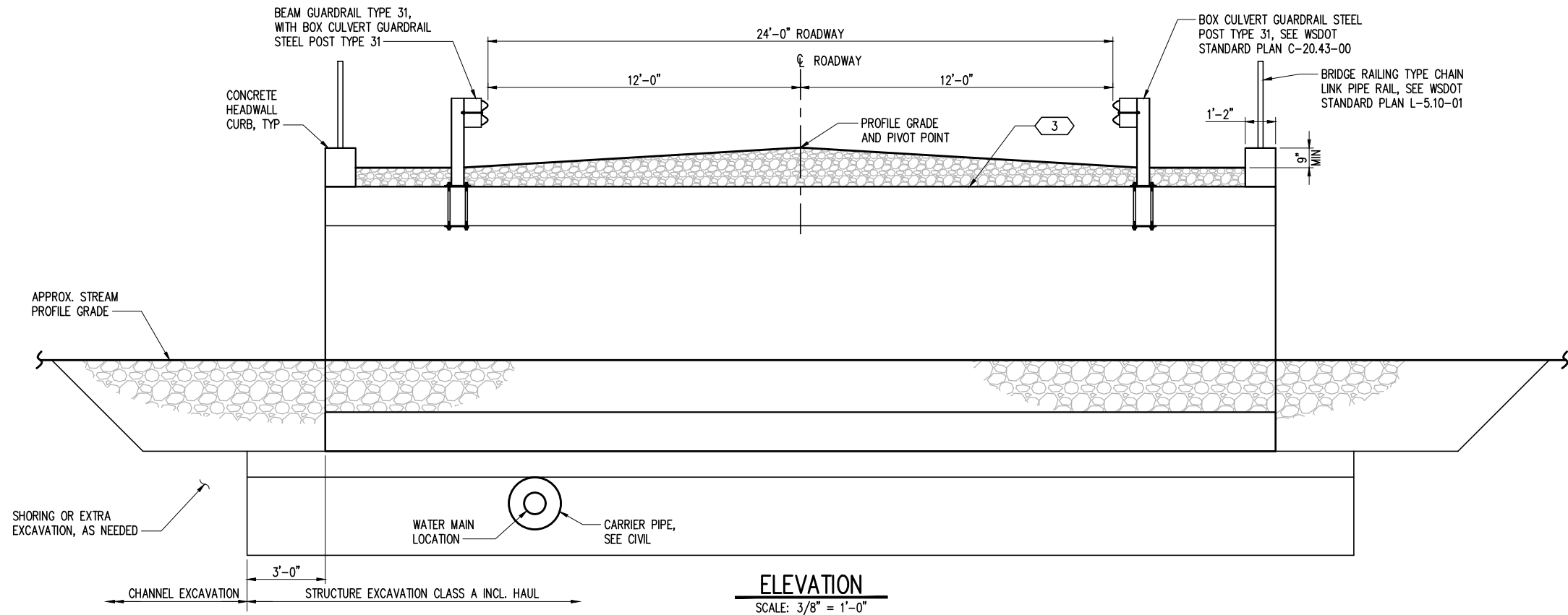
- 1 CULVERT SHALL BE CONTRACTOR DESIGNED. CULVERT FILLET SIZES AND SLAB AND WALL THICKNESS ARE SHOWN AT MAXIMUM ANTICIPATED DIMENSIONS.
- 2 2'-0" FREEBOARD IS RECOMMENDED. THE 2'-2" FREEBOARD PROVIDED INCLUDES 2 INCHES FOR EXPECTED SETTLEMENT.
- 3 THE CULVERT TOP SLAB IS LESS THAN 2 FT BELOW THE ROADWAY SURFACE. SEE WSDOT STD SPEC 6-20.3(1)H FOR ASSOCIATED REQUIREMENTS.

NOTES:

1. THE ROADWAY IS EXPECTED TO SETTLE DURING INSTALLATION OF THE FILL REQUIRED TO RAISE THE ROADWAY. ELEVATIONS LISTED ON THIS SHEET ARE FOR PRE-SETTLEMENT CONDITIONS, UNO.

KEY CULVERT ELEVATIONS

DESCRIPTION	CULVERT 1	CULVERT 2	CULVERT 3
CONTROLLING TOP EL (CTE)	1028.80	1028.41	1027.40
100YR WSE	1026.63	1026.24	1025.23
THALWEG (NO SCOUR)	1024.00	1023.00	1019.41
CONTROLLING BOTTOM EL (CBE)	1022.00	1021.00	1017.41



kpff
1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com

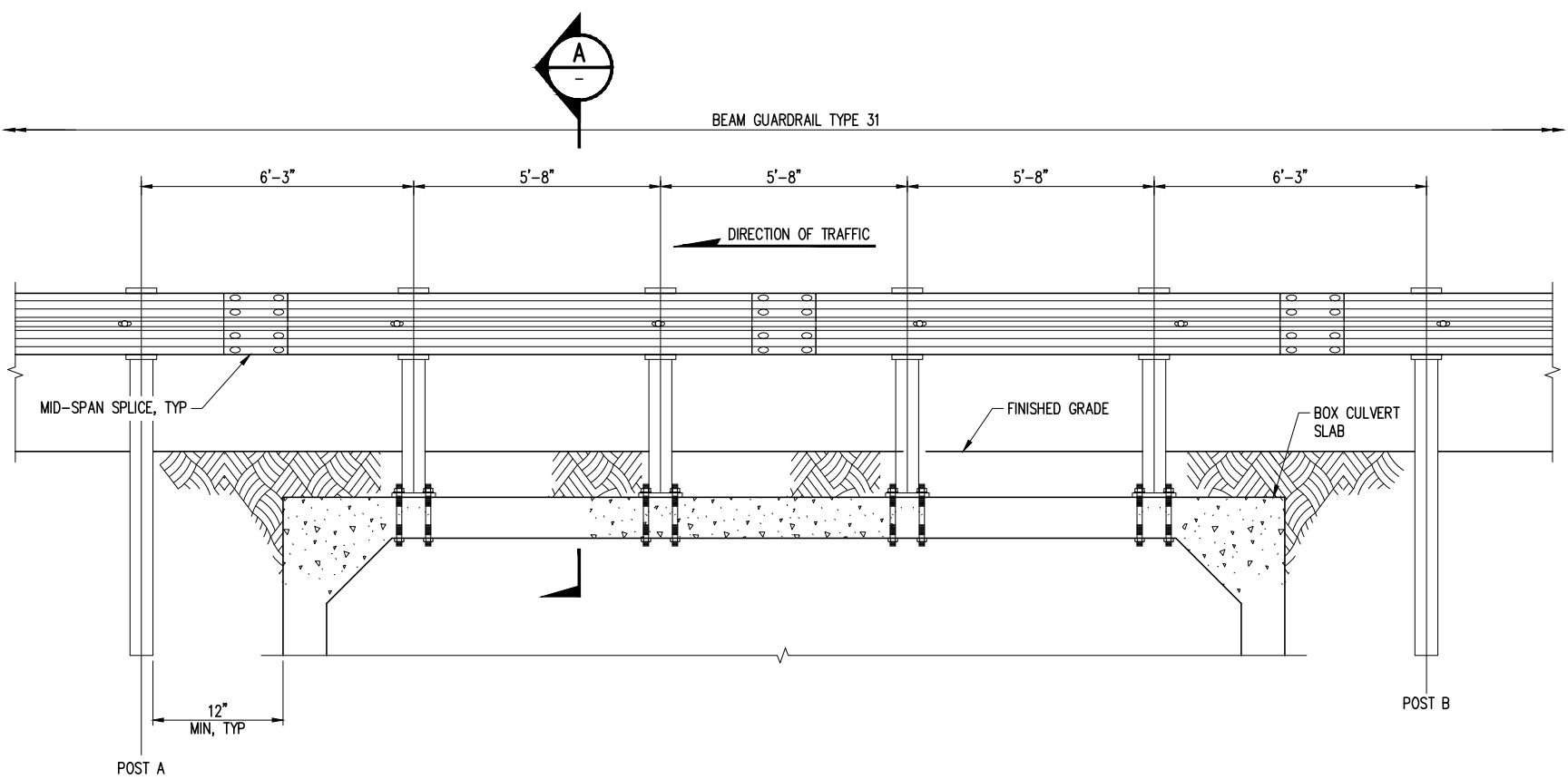


NO.	DATE	BY	REVISION

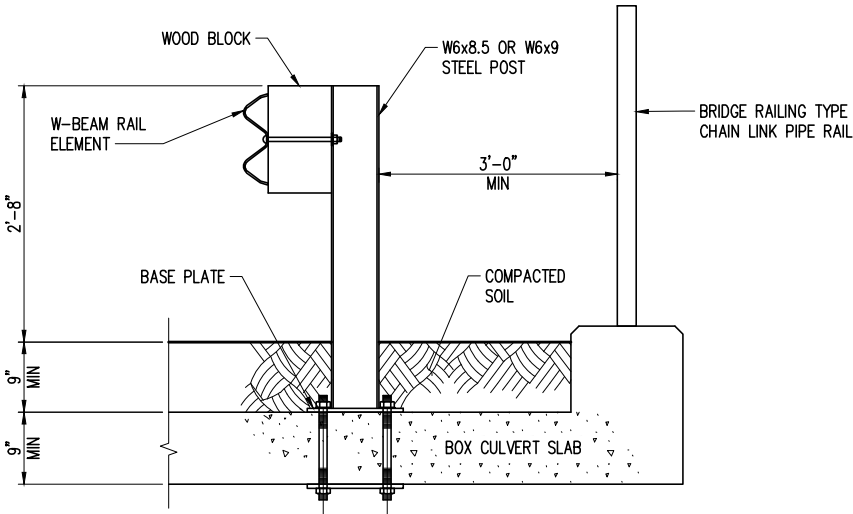


POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION
CULVERT DETAILS

DRAWN: HT	PROJECT NO.: 2200093
DESIGN: TL	SCALE: AS SHOWN
CHECKED: JLP	DATE: 11/26/2025
DRAWING NO.	S32
SHEET NO.	51 OF 62



TYPICAL ELEVATION VIEW



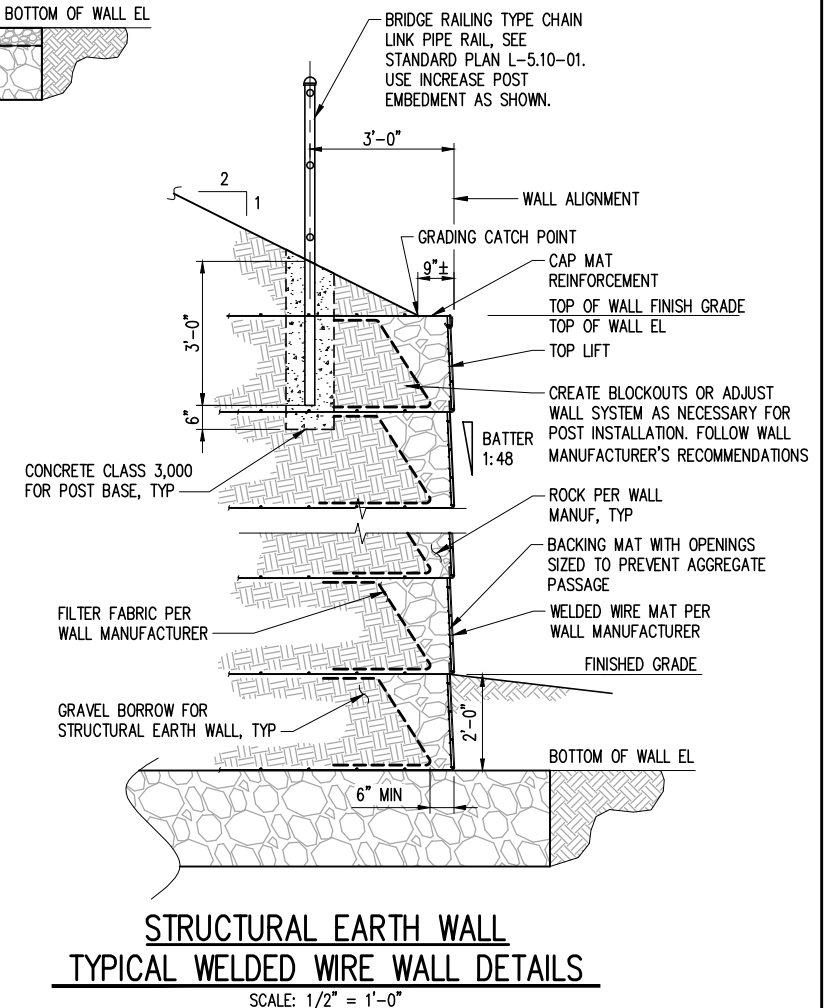
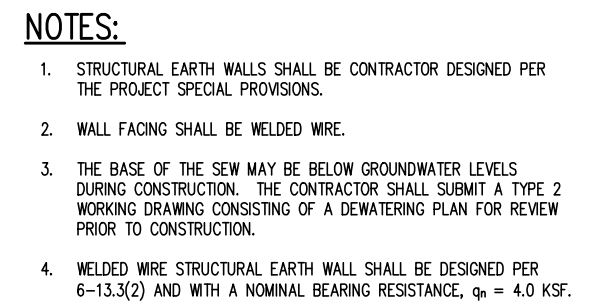
BOX CULVERT GUARDRAIL STEEL POST TYPE 31 SECTION
NTS

GENERAL NOTES:

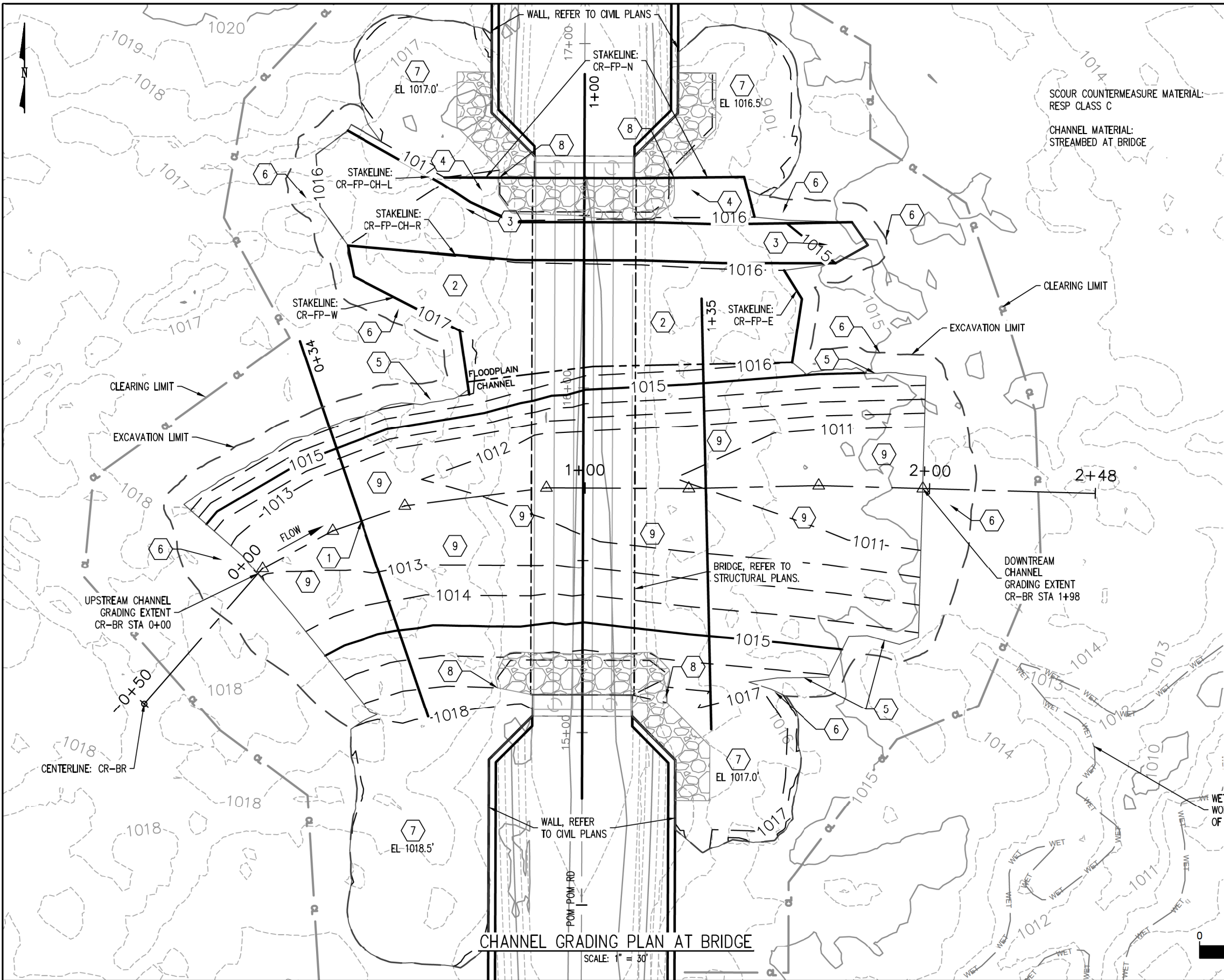
1. FOR DETAILS NOT SHOWN HERE, SEE WSDOT STANDARD PLAN C-20.43-00.

NO.	DATE	BY	REVISION

DRAWN: HT	PROJECT NO.: 2200093
DESIGN: TL	SCALE: AS SHOWN
CHECKED: JLP	DATE: 11/26/2025
DRAWING NO.	S33
SHEET NO.	52 OF 62



CAD USER: pflanaan PLOT DATE: Nov 26, 2025-08:37pm
PATH: C:\Indicator\Projects\10147_PomPomRdBr\CAD\design\PomPomRdBr\10147pct202511bid_chan_v18.dwg



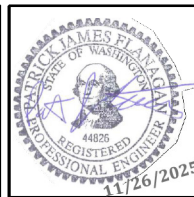
NOTES:

1. FINISHED CHANNEL GRADING SHOWN ALONG CENTERLINE CR-BR. CHANNEL SHALL BE GRADED USING TYPICAL SECTION 0+34 FROM CR-BR STA 0 TO 0+70; AND TYPICAL SECTION 1+35 FROM CR-BR STA 1+00 TO 1+98. A SMOOTH TRANSITION FROM SECTIONS SHALL BE CONSTRUCTED FROM STA 0+70 TO 1+00. REFER TO CH3 FOR SECTIONS.
2. FLOODPLAIN SHALL BE GRADED IN A CONTINUOUS AND SMOOTH MANNER FROM EL 1017.0' AT CR-FP-W TO EL 1016.0' AT CR-FP-E.
3. FLOODPLAIN CHANNEL SHALL BE CONSTRUCTED WITH LEFT TOE LINE OF CR-FP-CH-L AND RIGHT TOE LINE OF CR-FP-CH-R. THE FLOODPLAIN CHANNEL SHALL BE GRADED IN A CONTINUOUS AND SMOOTH MANNER FROM EL 1016.0' AT THE UPSTREAM/WEST END TO EL 1015.0' AT THE DOWNSTREAM/EAST END. CHANNEL SHALL BE FIELD FIT TO ADJACENT NATURAL GRADE WITHIN 10' OF THE LIMITS SHOWN AS DIRECTED.
4. CONSTRUCT SMALL FLOODPLAIN ON THE NORTH SIDE OF THE FLOODPLAIN CHANNEL TO THE LIMITS OF CR-FP-N. THE NORTH FLOODPLAIN SHALL BE GRADED TO THE CORRESPONDING ELEVATION OF THE MAIN FLOODPLAIN (BETWEEN CR-FP-W AND CR-FP-E). FLOODPLAIN SHALL BE CONSTRUCTED SUBSEQUENT TO RIPRAP SC AS RIPRAP SC SHALL EXTEND ABOVE FLOODPLAIN GRADING NEAR BRIDGE PER DESIGN SECTION.
5. GRADE CHANNEL BANKS TO EL OF ADJACENT EXISTING GRADE.
6. SMOOTHLY TIE CHANNEL AND FLOODPLAIN GRADING TO ADJACENT GRADE WITHIN THE EXCAVATION LIMITS SHOWN AND AS DIRECTED. IF CHANNEL GRADING (BY OTHERS) EXISTS UPSTREAM AND/OR DOWNSTREAM OF THE BRIDGE CHANNEL PLAN, THEN THE BRIDGE CHANNEL SHALL BE TIED SMOOTHLY INTO THE EXISTING ADJACENT CHANNEL SECTIONS WITH NO GAP IN CHANNEL GRADING.
7. AT BRIDGE CORNERS THE FINISHED GRADE ABOVE RIPRAP SCOUR COUNTERMEASURE (SC) SHALL BE CONSTRUCTED FLAT AT THE ELEVATIONS SHOWN. RIPRAP SC SHALL BE CONSTRUCTED THEN BACKFILL TO FINAL GRADE WITH COMMON BORROW AS SHOWN, FIELD FIT TIE TO ADJACENT EXISTING GRADE AND CHANNEL/FLOODPLAIN AS DIRECTED.
8. TRANSITION FROM CHANNEL GRADING TO FLOODPLAIN ABOVE RIPRAP SC AT BRIDGE CORNERS SHALL BE FIELD FIT AS DIRECTED. RIPRAP SC AT SURFACE WHERE AS SHOWN (HATCH).
9. CONSTRUCT HABITAT BOULDERS, 16 TOTAL AT BRIDGE CHANNEL. APPROXIMATE LOCATIONS SHOWN, FINAL LOCATIONS WILL BE STAKED OR LOCATED BY ENGINEER IN FIELD DURING CHANNEL CONSTRUCTION. REFER TO DETAIL ON CH8.
10. REFER TO CH8 FOR STAKING INFORMATION.

kpff
1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com

**INDICATOR
ENGINEERING
PLLC**

7511 Greenwood Ave N #605 Ph: 206-651-5103
Seattle, WA, 98103 www.indicatoreng.com



NO.	DATE	BY	REVISION

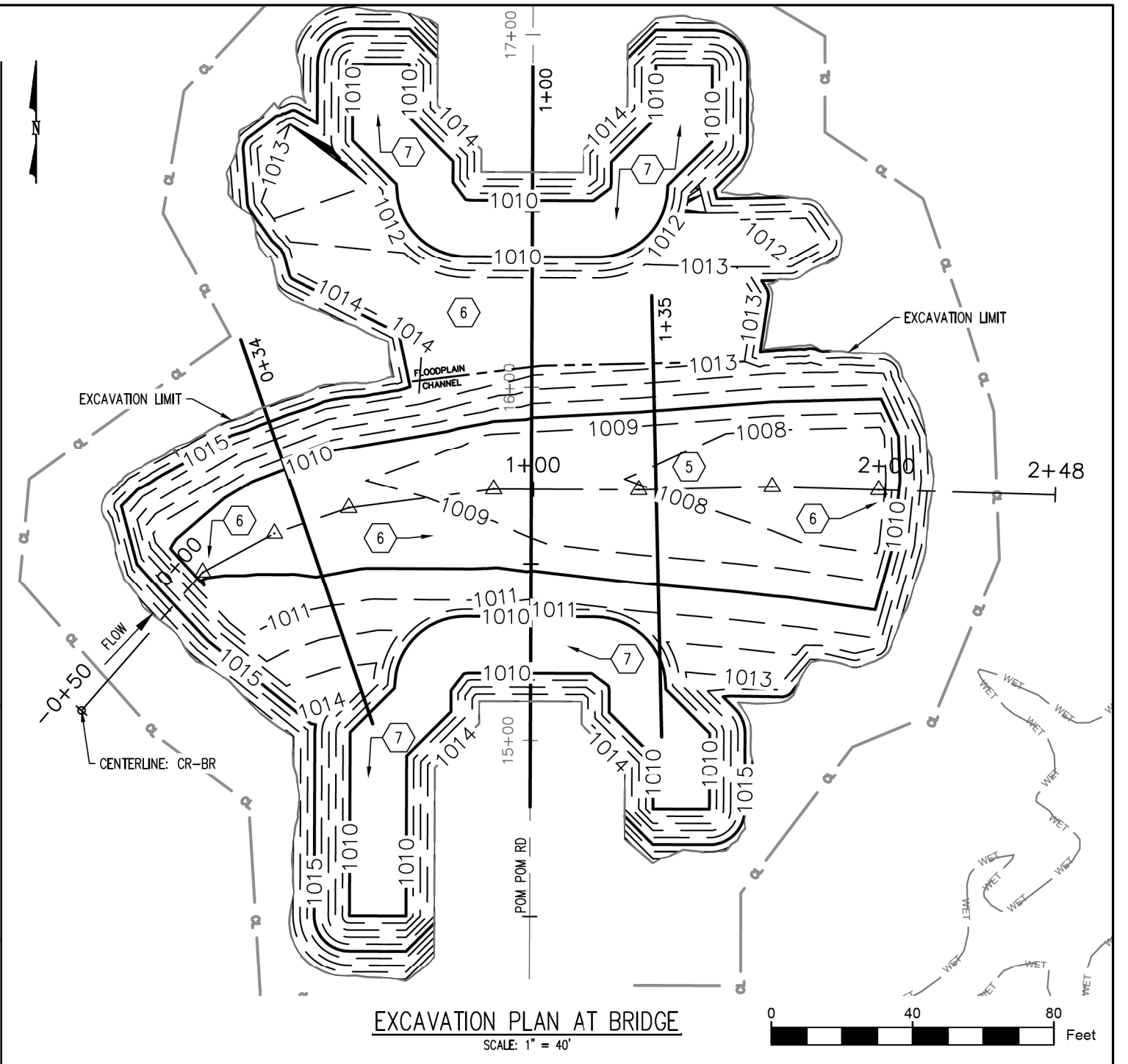
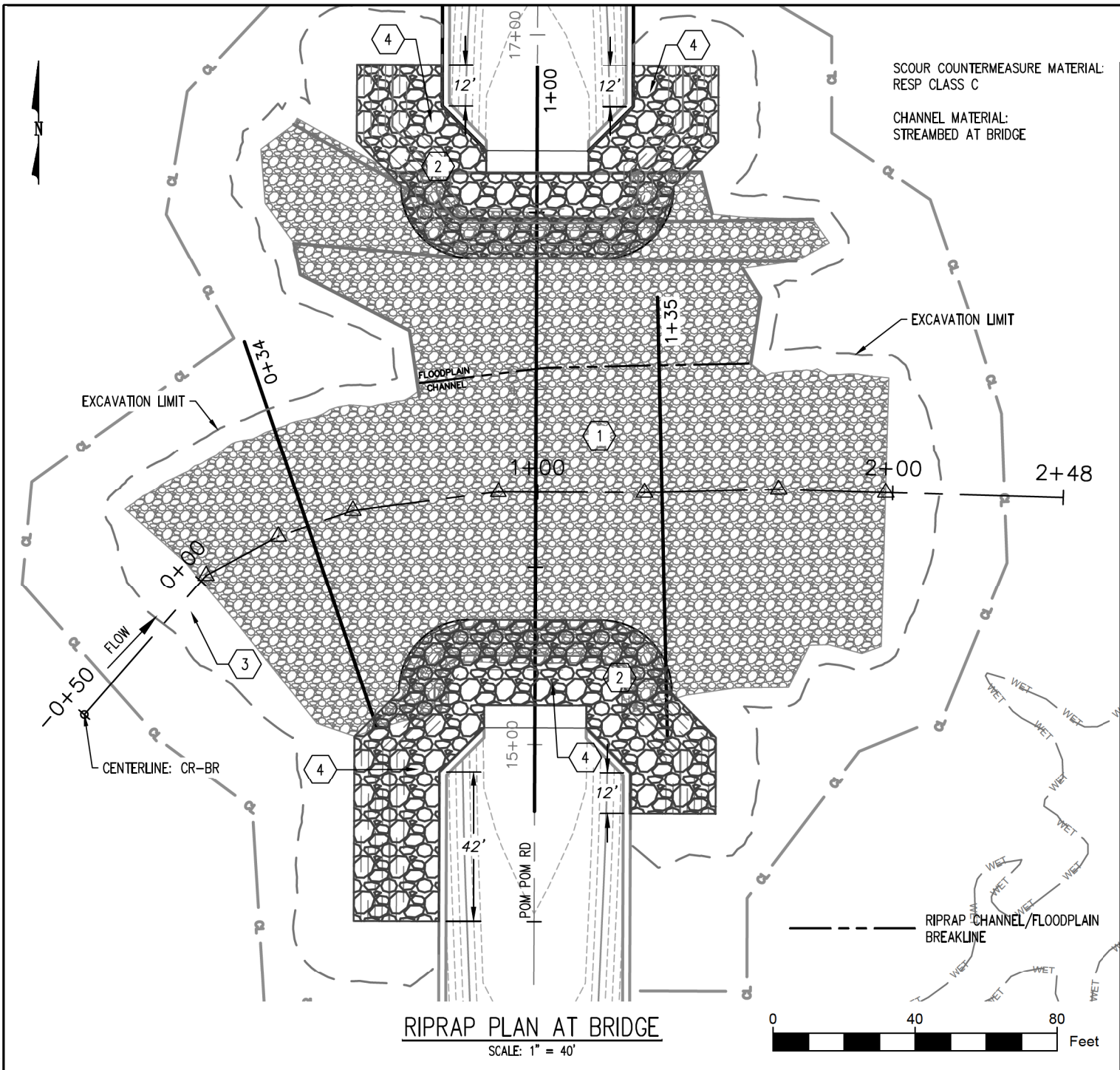


**POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION**

CHANNEL PLAN AT BRIDGE

DRAWN: PJF	PROJECT NO.: 2200093
DESIGN: PJF	SCALE: AS SHOWN
CHECKED: PJF	DATE: 11/26/2025
DRAWING NO.	CH1
SHEET NO.	54 of 62

CAD USER: pflanagan PLOT DATE: Nov 26, 2025-08:37pm
PATH: C:\Indicator\Projects\10147_PomPomRdBr\CAD\Design\PomPom_EI40pct202511bid_chan_v18.dwg

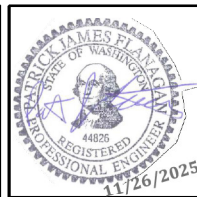


NOTES:

- 3.0-FT THICK LAYER OF "STREAMBED AT BRIDGE" SHALL BE CONSTRUCTED IN THE CHANNEL AND FLOODPLAIN AS SHOWN. REFER TO SECTIONS ON CH3 AND CH4, AND NOTES ON CH8.
- ALL ROCK RIPRAP FOR RIPRAP SC AT THE BRIDGE SHALL BE ROCK FOR EROSION AND SCOUR PROTECTION CLASS C. RIPRAP SHALL BE PLACED AS SHOWN IN THE PLANS, SECTIONS AND DETAILS AND SHALL NOT BE PLACED STEEPER THAN 2:1 (H:V). LAYER THICKNESS VARIES, REFER TO SECTION AND DETAILS ON CH4 AND NOTES ON CH8.
- INSTALL SURFACE LAYER OF 3.0-FT THICK STREAMBED AT BRIDGE ON THE CUT SLOPE UPSTREAM OF THE FINISHED CHANNEL (UPSTREAM OF STA 0+00), REFER TO PROFILE ON
- CH3. PLACEMENT IS FOR PURPOSE OF TEMPORARY STABILITY AND IS TO BE REMOVED IN FUTURE BY OTHERS (DURING CHANNEL RELOCATION/RESTORATION PROJECT).
- GEOTEXTILE FABRIC SHALL BE PLACED UNDERLYING RIPRAP SC (ON NATIVE SUBGRADE) AS SHOWN ON DETAIL RIPRAP SC AT BRIDGE ON CH4. GEOTEXTILE FABRIC SHALL BE INSTALLED ON PREPARED SURFACE CONSISTING OF WALL BASE AND/OR NATIVE SUBGRADE AS APPLICABLE. REFER TO WALL PLANS AND CH NOTES ON CH8.
- EXCAVATION LIMITS AND EL ARE SHOWN ON EXCAVATION PLAN FOR PURPOSES OF CONSTRUCTING STREAMBED AT BRIDGE AND RIPRAP SC LAYERS AT BRIDGE. GROUNDWATER VARIES SEASONALLY AND IS ANTICIPATED TO BE
- ENCOUNTERED IN THE RANGE OF EL 1008 TO 1013 AT THE SITE. EXCAVATION FOR AND INSTALLATION OF RIPRAP LAYERS AT BRIDGE MAY BE PERFORMED WITHOUT SIGNIFICANT DEWATERING. LIMITED DEWATERING, TRENCH BOX, STEEL PLATES AND/OR OTHER TEMPORARY SHORING MEASURES SHALL BE USED AS NECESSARY, REFER TO LUMP SUM BID ITEM "TEMPORARY SHORING FOR CHANNEL AT BRIDGE". REFER TO GEOTECHNICAL REPORT FOR INFORMATION ON GROUNDWATER AND NATIVE SOIL LAYERS, AND NOTES ON CH8.
- CHANNEL SHALL BE EXCAVATED TO 3.0-FT BELOW FINISHED GRADE FOR CHANNEL AND FLOODPLAIN. REFER TO PROFILE AND SECTIONS ON CH3 AND CH4.
- EXCAVATION EL SHOWN FOR RIPRAP SC. REFER TO SECTIONS/DETAILS ON CH4.

kpmf
1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpmf.com

**INDICATOR
ENGINEERING
PLLC**
7511 Greenwood Ave N #605 Ph: 206-651-5103
Seattle, WA, 98103 www.indicatoreng.com



NO.	DATE	BY	REVISION

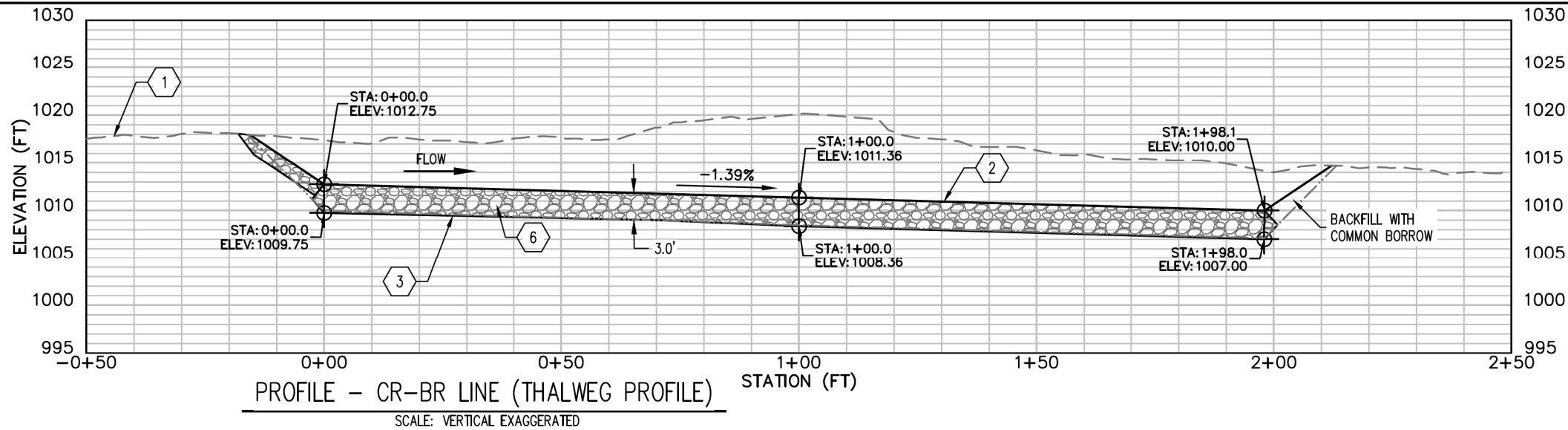


**POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION**

**CHANNEL EXCAVATION AND RIPRAP PLAN
AT BRIDGE**

DRAWN: P.J.F.	PROJECT NO.: 2200093
DESIGN: P.J.F.	SCALE: AS SHOWN
CHECKED: P.J.F.	DATE: 11/26/2025
DRAWING NO.	CH2
SHEET NO.	55 OF 62

CAD USER: pflanagan PLOT DATE: Nov 26, 2025-08:37pm
PATH: C:\Indicator\Projects\10147_PomPomRdBr\CAD\design\PomPomRdBr\CAD\design\PomPomRdBr_chan_v18.dwg



PROFILE NOTES:

FINISHED GRADE PROFILE AT THALWEG SHOWN. THALWEG IS LOWEST POINT IN CHANNEL SECTION. OFFSET FROM CENTERLINE VARIES DEPENDING ON SECTION AND STATION.

EXCAVATE CHANNEL BOTTOM FOR 3.0-FT THICK LAYER OF STREAMBED AT BRIDGE AS SHOWN.

HIGH GROUNDWATER MAY BE ENCOUNTERED AND COMPLETE DEWATERING OF THE WORK AREA IS NOT REQUIRED FOR CONSTRUCTION CHANNEL RIPRAP. REFER TO CH2 NOTE 5.

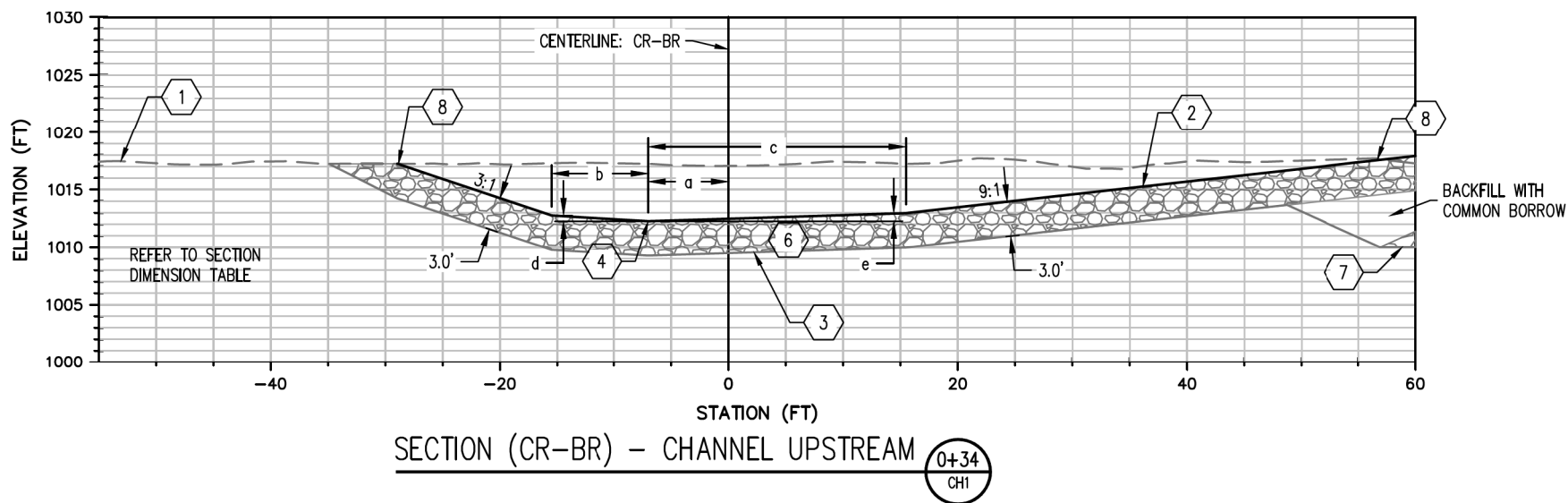
WASH AND SEAL BED, REFER TO NOTES CH8.

NOTES:

- EXISTING GRADE
- FINISHED GRADE
- EXCAVATION LIMIT
- CHANNEL THALWEG. REFER TO "PROFILE - CR-BR LINE" FOR THALWEG ELEVATIONS.
- FLOODPLAIN
- STREAMBED AT BRIDGE. CONSTRUCT 3.0-FT THICK LAYER FOR SURFACE OF CHANNEL AND FLOODPLAIN.
- RIPRAP SC REFER TO SECTION AND DETAIL ON CH4.
- GRADE CHANNEL BANKS TO THE FOLLOWING AS SHOWN ON CH1: A) ADJACENT EXISTING GRADE, OR B) RIPRAP SC AT BRIDGE, OR C) TOP OF BANK AND TIE FLAT TO FINISHED GRADE AT BRIDGE CORNERS. CHANNEL BANK GRADING SHALL BE SMOOTHLY TIED TO ALL ADJACENT GRADES WITH TRANSITIONS FIELD FIT AS DIRECTED BY ENGINEER.
- GRADE CHANNEL BANK TO FLOODPLAIN.
- RIPRAP THICKNESS SHOWN ARE PERPENDICULAR TO THE SLOPE. HORIZONTAL AND/OR VERTICAL DISTANCE OF RIPRAP LAYER DEPENDS ON SLOPE (H:V) AND THICKNESS. DISTANCES WILL BE PROVIDED TO CONTRACTOR BY ENGINEER UPON REQUEST.

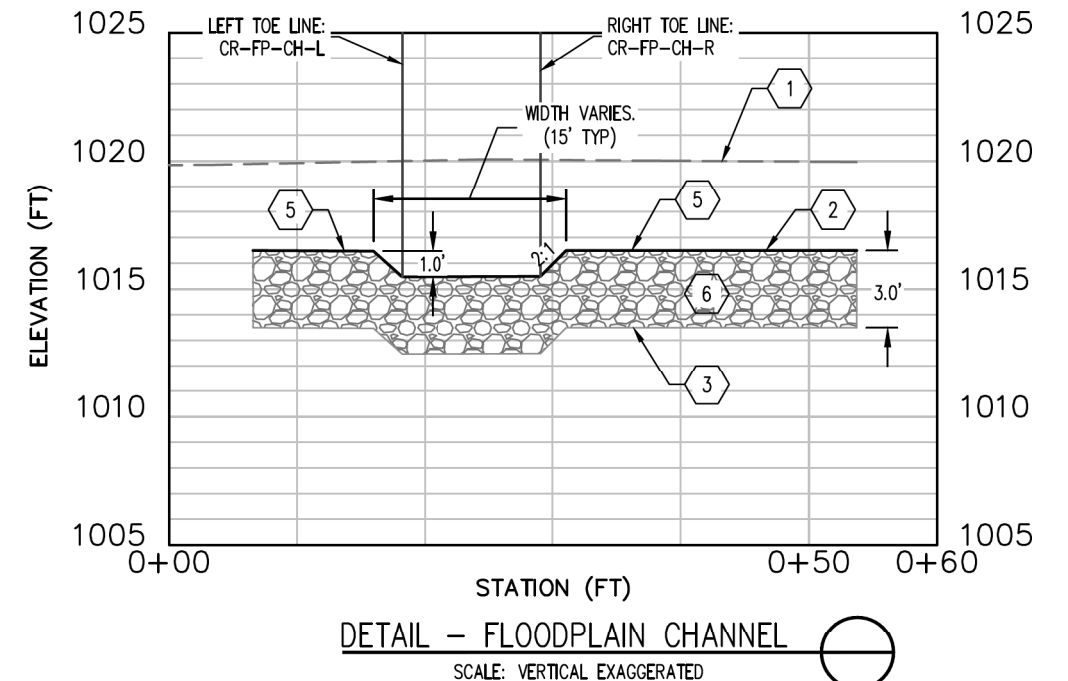
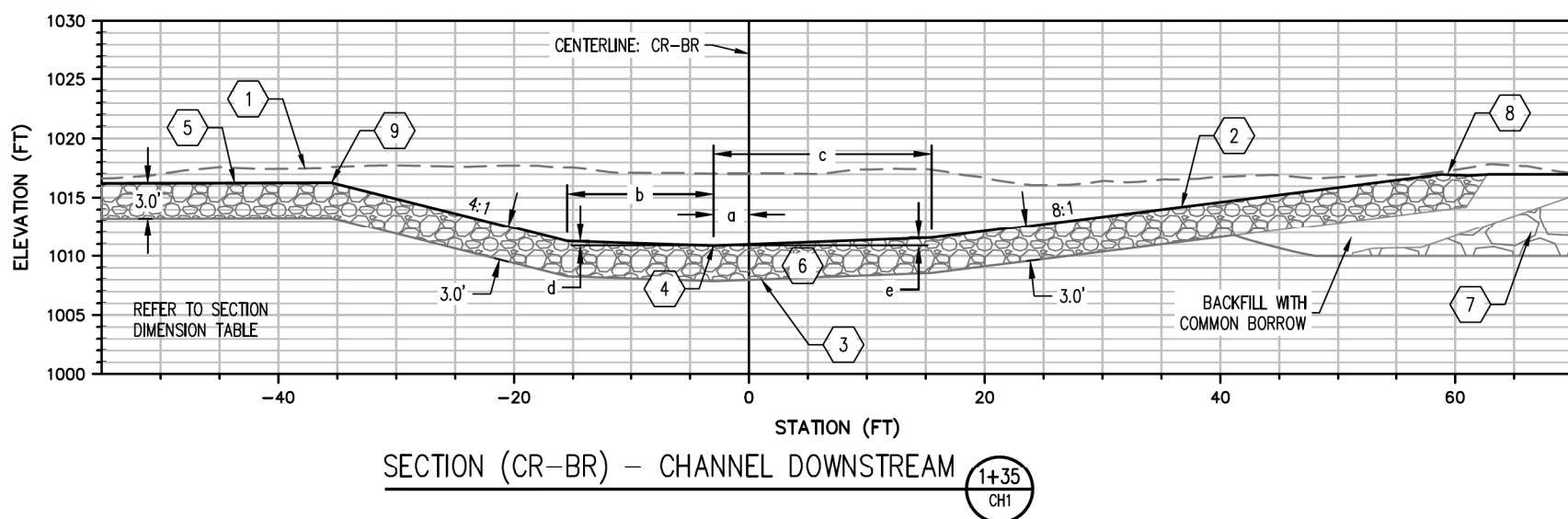
SCOUR COUNTERMEASURE MATERIAL:
RESP CLASS C

CHANNEL MATERIAL:
STREAMBED AT BRIDGE



DIMENSION	UPSTREAM CHANNEL (0+34)	DOWNSTREAM CHANNEL (1+35)
a, THALWEG OFFSET TO LEFT OF CR-BR LINE (FT)	7.0	3.0
b, OFFSET TO LEFT TOE FROM THALWEG (FT)	8.5	12.5
c, OFFSET TO RIGHT TOE FROM THALWEG (FT)	22.5	18.5
d, VERTICAL RISE TO LEFT TOE FROM THALWEG (FT)	0.5	0.4
e, VERTICAL RISE TO RIGHT TOE FROM THALWEG (FT)	0.7	0.7

SECTION DIMENSION TABLE



INDICATOR
ENGINEERING
PLLC

7511 Greenwood Ave N #605 Ph: 206-651-5103
Seattle, WA, 98103 www.indicatoreng.com



NO.	DATE	BY	REVISION



POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

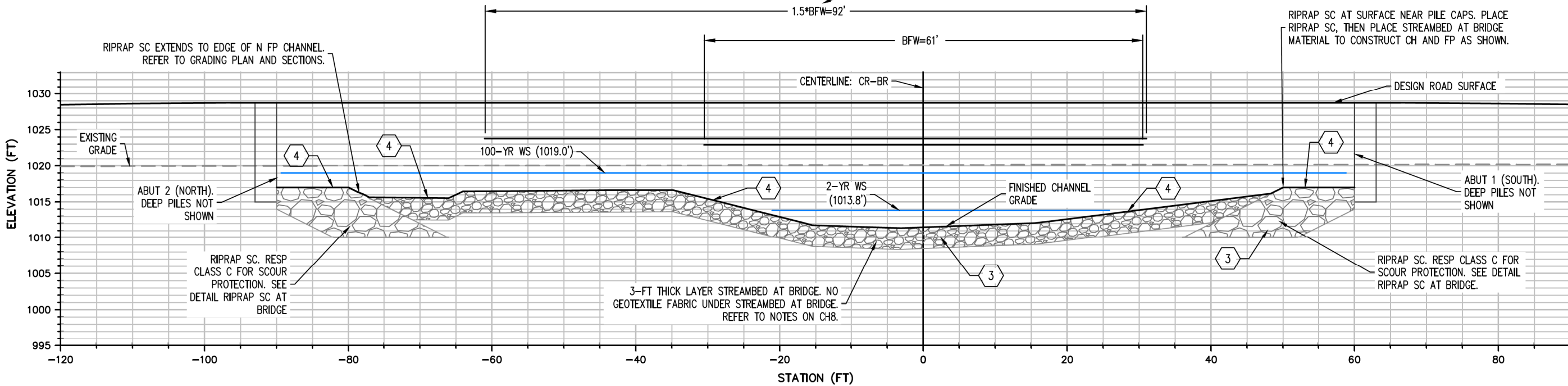
CHANNEL PROFILE AND SECTIONS
AT BRIDGE

DRAWN: P/JF	PROJECT NO.: 2200093
DESIGN: P/JF	SCALE: AS SHOWN
CHECKED: P/JF	DATE: 11/26/2025
DRAWING NO.	CH3
SHEET NO.	56 OF 62

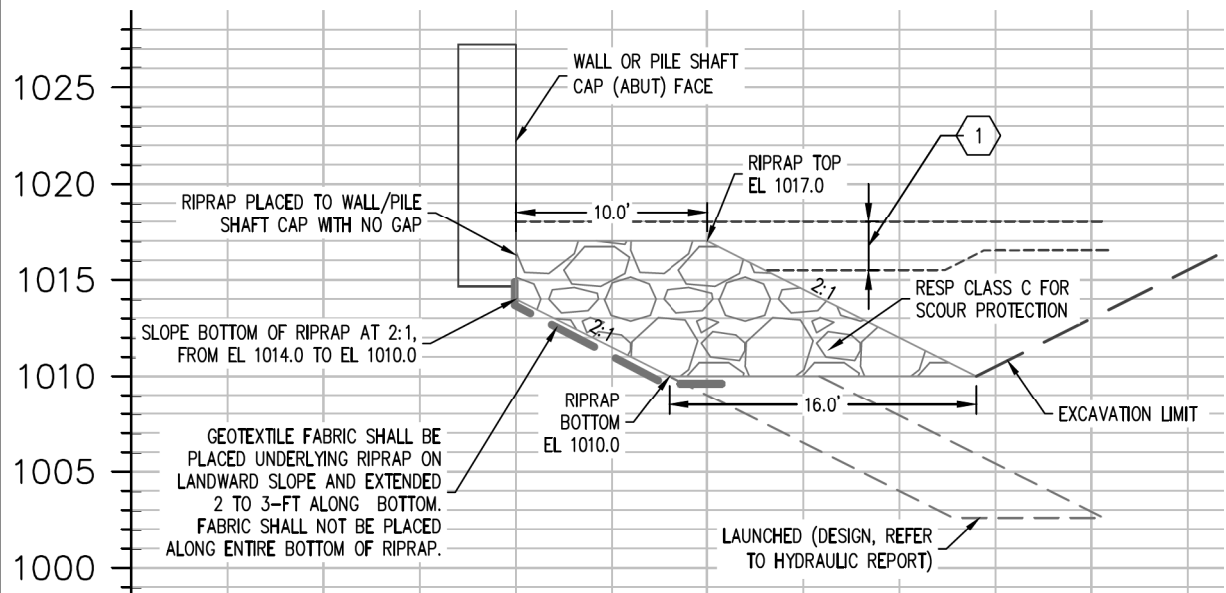
SCOUR COUNTERMEASURE MATERIAL:
RESP CLASS C

CHANNEL MATERIAL:
STREAMBED AT BRIDGE

BANKFULL WIDTH (BFW) REFER TO
NOTE 2 FOR PERMIT INFORMATION.



SECTION (CR-BR) - CHANNEL AT POM POM ROAD CL
1+00
CH1



DETAIL - RIPRAP SC AT BRIDGE
AT BRIDGE PILE SHAFT CAP AND WALLS 401/402

- NOTES:
1. FINISHED GRADE, VARIES. THE FINISHED GRADE VARIES AT THE RIPRAP SC AT EACH BRIDGE CORNER AND WITHIN THE CHANNEL/FLOODPLAIN. BACKFILL MATERIAL ABOVE RIPRAP SC VARIES (COMMON BORROW OR STREAMBED AT BRIDGE). REFER TO GRADING PLAN ON CH1 FOR FINISHED GRADE AND MATERIAL TO BE PLACED ABOVE THE RIPRAP SC.
 2. BANKFULL WIDTH (BFW) WAS CALCULATED FROM CHANNEL RESTORATION PLAN (BY OTHERS FOR YNF, DEC 2023) SECTIONS 5/20 AND 6/20 (SHEET 20 OF 27). BFW SHOWN ON SECTIONS ARE 52' AND 70'. AVERAGE BFW IS 61' AND 1.5*BFW IS 92'.
 3. BELOW CHANNEL BED ELEVATION: PLACE STREAMBED AND RIPRAP SC MATERIAL THEN BACKFILL VOIDS TO WASH AND SEAL BED. CHANNEL BED TO BE PLACED IN 2 LIFTS, WITH EACH LIFT WASHED AND SEALED AS DIRECTED. RIPRAP SC LAYER AT ABUT 1 (SOUTH) SHALL HAVE VOIDS BACKFILLED, WASHED AND SEALED BELOW ADJACENT CHANNEL BED ELEVATION; TO PREVENT SIGNIFICANT SUBSURFACE FLOW. REFER TO NOTES ON CH8 AND SP SEC 8-30.
 4. ABOVE CHANNEL BED ELEVATION: SUBSEQUENT TO PLACEMENT OF STREAMBED AT BRIDGE AND RIPRAP SC LAYERS, BACKFILL VOIDS WITH COMMON BORROW (SELECTED NATIVE FROM LOCAL STOCKPILE). MATERIAL SHALL BE PLACED PRIOR TO BACKFILL OF VOIDS AND SHALL NOT BE PLACED IN LIFTS. THE BACKFILL MATERIAL IS NOT REQUIRED TO BE WASHED AND SEALED INTO PLACE ABOVE THE CHANNEL BED ELEVATION (AS SHOWN ON FG CR-BR LINE ON CH3).

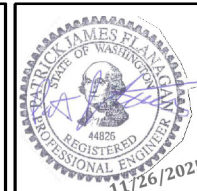
CAD USER: pflanagan PLOT DATE: Nov 26, 2025-08:37pm
PATH: C:\Indicator\Projects\10147_PomPomRdBr\CAD\design\10147_PomPomRdBr_chan_v18.dwg



1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com

**INDICATOR
ENGINEERING
PLLC**

7511 Greenwood Ave N #605 Ph: 206-651-5103
Seattle, WA, 98103 www.indicatorenrg.com



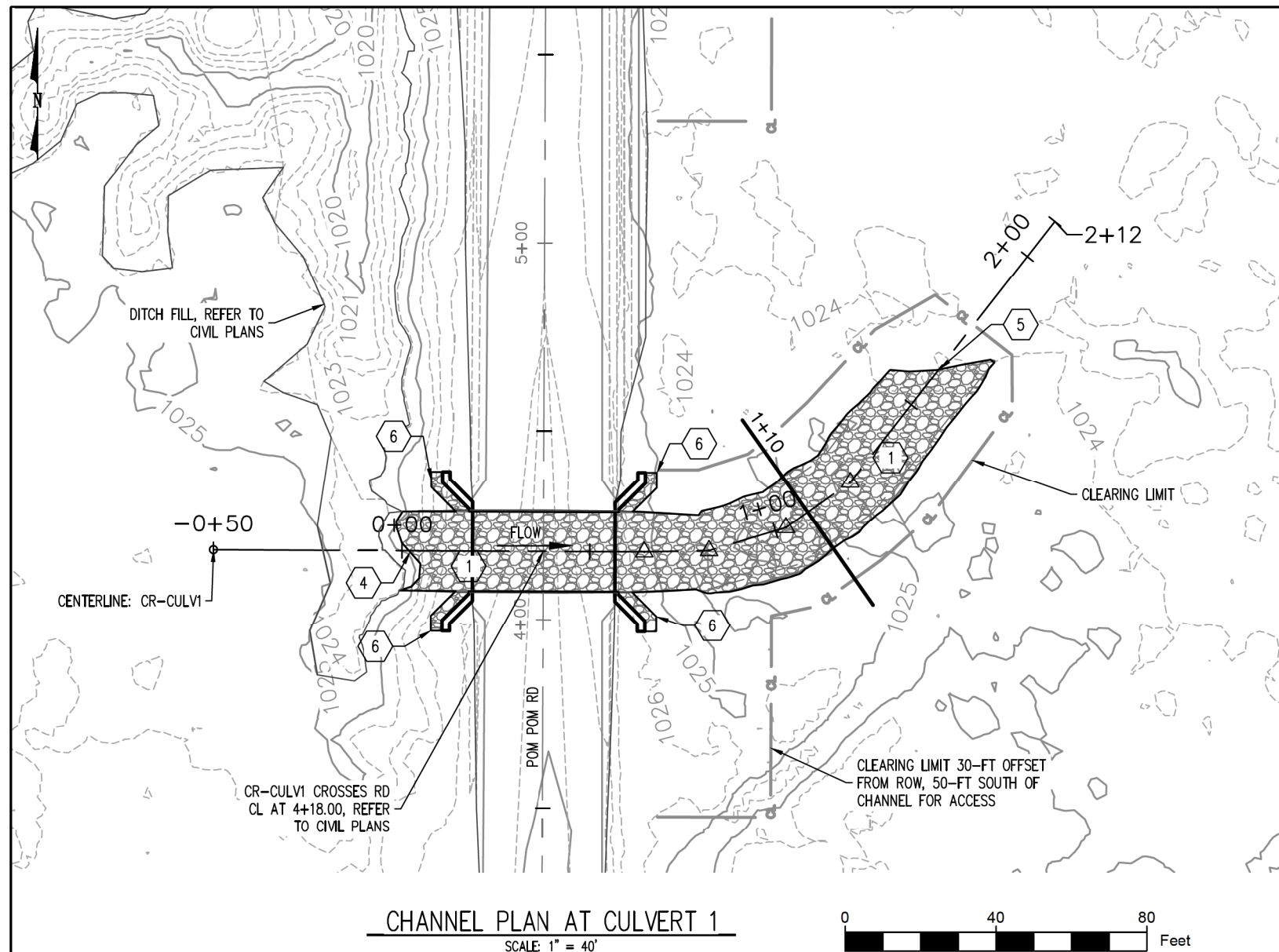
NO.	DATE	BY	REVISION



POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

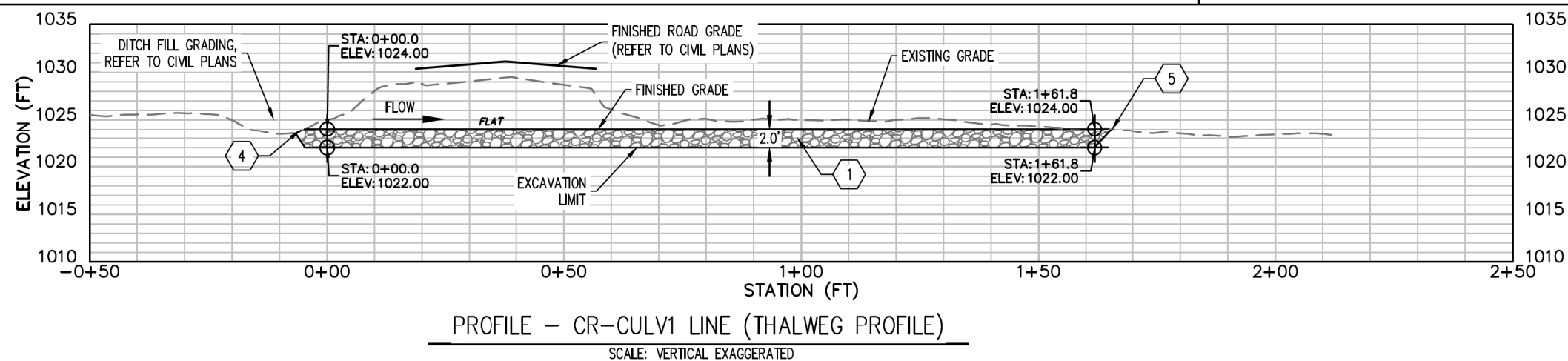
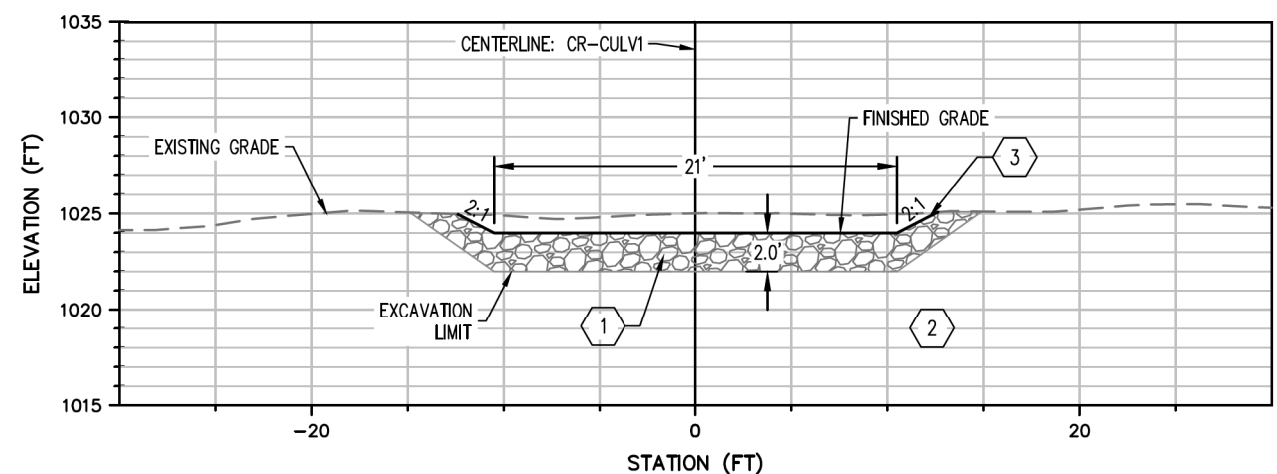
CHANNEL AND RIPRAP SC SECTIONS
AT BRIDGE

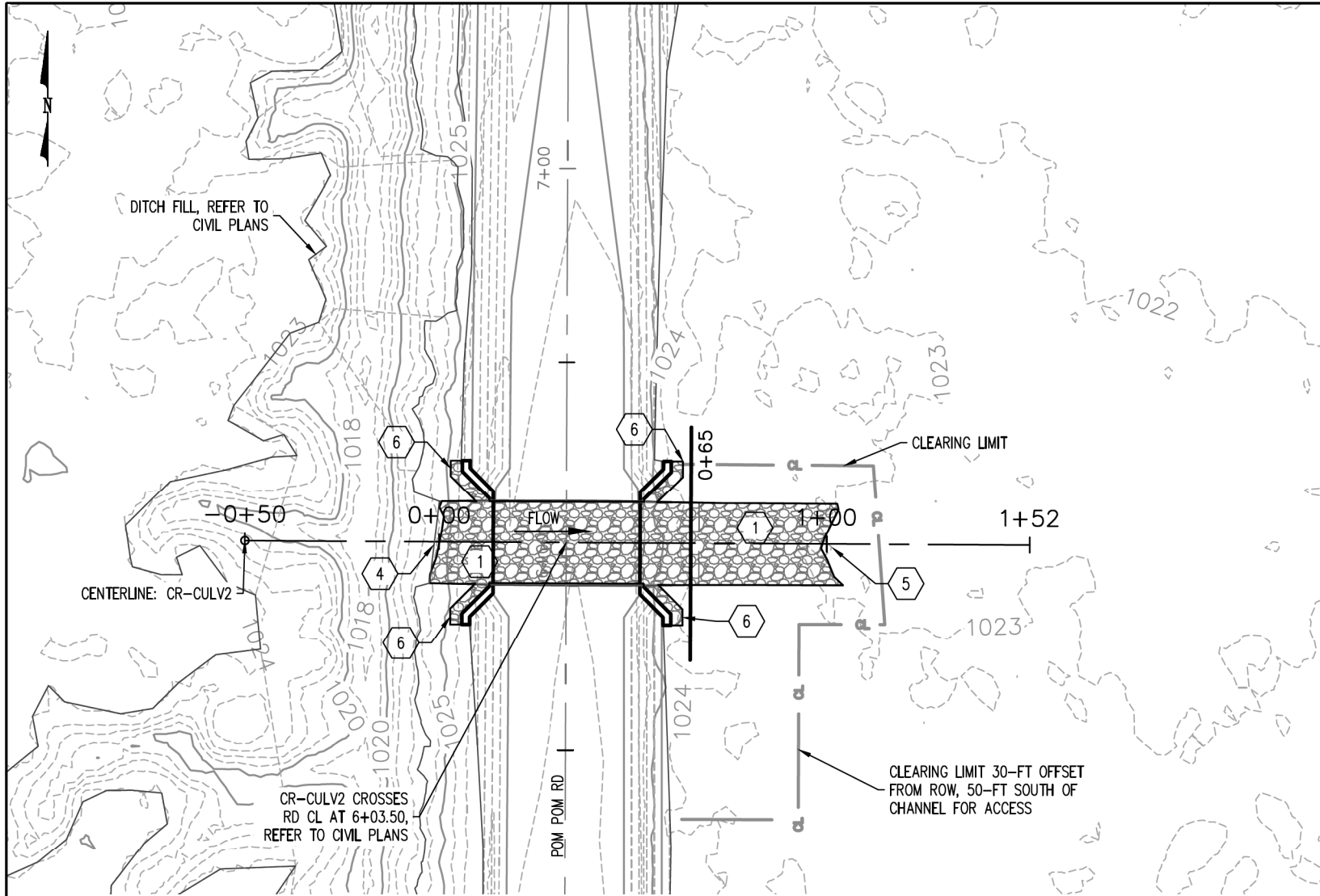
DRAWN: PJF	PROJECT NO.: 2200093
DESIGN: PJF	SCALE: AS SHOWN
CHECKED: PJF	DATE: 11/26/2025
DRAWING NO.	CH4
SHEET NO.	57 OF 62



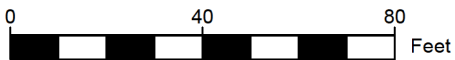
CHANNEL MATERIAL:
RESP CLASS A

- NOTES:
1. RIPRAP. ALL RIPRAP FOR CHANNEL, CULVERT BED AND WINGWALLS AT CULVERT SHOWN ON THIS SHEET SHALL BE ROCK FOR EROSION AND SCOUR PROTECTION CLASS A WITH A MINIMUM THICKNESS OF 2.0'. RIPRAP SHALL BE PLACED AT SLOPES AND AREAS AS SHOWN. BACKFILL VOIDS WITH COMMON BORROW (SELECTED NATIVE FROM LOCAL STOCKPILE). WASHING AND SEALING OF RIPRAP IS NOT REQUIRED FOR THIS CULVERT PLAN. REFER TO CH8.
 2. CHANNEL SHALL BE GRADED WITH A FLAT BED TO THE DIMENSIONS SHOWN. DEPTH VARIES DEPENDING ON THE ADJACENT EXISTING GRADE.
 3. GRADE CHANNEL BANKS AT 2:1 (H:V) TO TIE SMOOTHLY INTO ADJACENT GRADE.
 4. UPSTREAM: SMOOTHLY TIE CHANNEL GRADING TO EXISTING DITCH WEST OF ROAD AS DIRECTED.
 5. DOWNSTREAM: SMOOTHLY TIE CHANNEL GRADING TO EXISTING GRADE, FIELD FIT AS DIRECTED.
 6. CONSTRUCT WALL TOE PROTECTION AT CULVERT WINGWALLS. INSTALL 2.0' THICK LAYER OF ROCK FOR EROSION AND SCOUR PROTECTION CLASS A FOR 3-FT AT TOE OF ALL WINGWALLS/WALLS.
 7. REFER TO CIVIL AND STRUCTURAL PLANS FOR CULVERT AND ROAD DETAILS.
 8. CREEK CHANNEL GRADING SHALL BE ADJUSTED BASED ON ACTUAL CULVERT AND ROAD LOCATIONS. THE CONTRACTOR SHALL IMMEDIATELY INFORM THE ENGINEER OF ANY SIGNIFICANT DISCREPANCIES TO THE CHANNEL GRADING PLAN LOCATION.

[illegible]

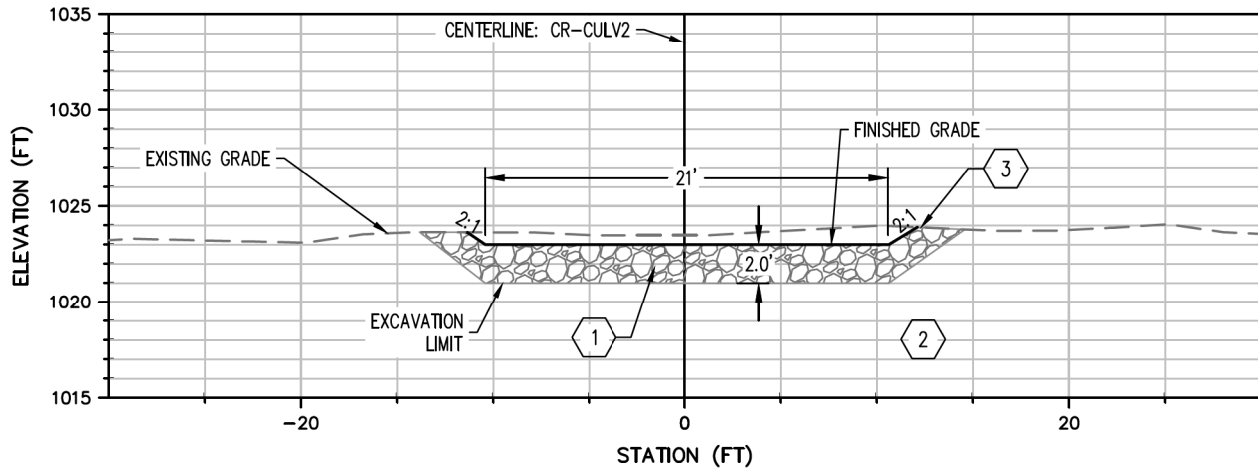


CHANNEL PLAN AT CULVERT 2
SCALE: 1" = 40'



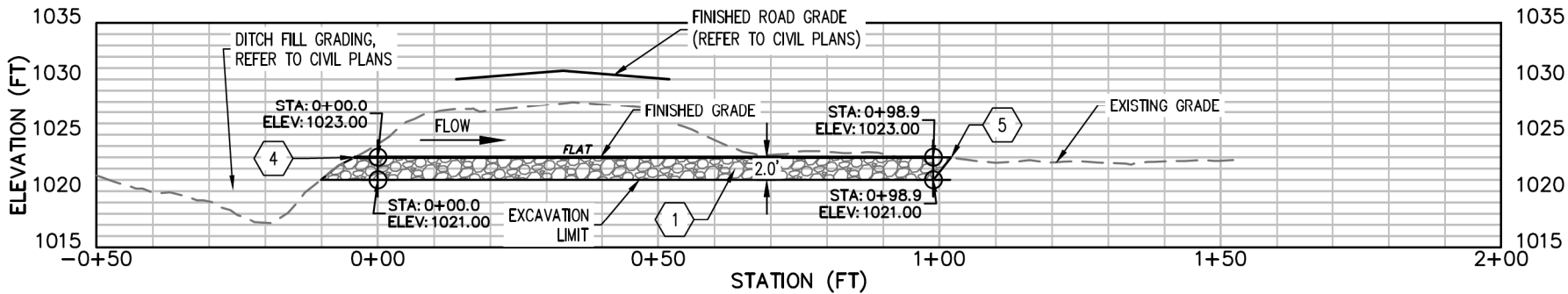
CHANNEL MATERIAL:
RESP CLASS A

- NOTES:
1. RIPRAP. ALL RIPRAP FOR CHANNEL, CULVERT BED AND WINGWALLS AT CULVERT SHOWN ON THIS SHEET SHALL BE ROCK FOR EROSION AND SCOUR PROTECTION CLASS A WITH A MINIMUM THICKNESS OF 2.0'. RIPRAP SHALL BE PLACED AT SLOPES AND AREAS AS SHOWN. BACKFILL VOIDS WITH COMMON BORROW (SELECTED NATIVE FROM LOCAL STOCKPILE). WASHING AND SEALING OF RIPRAP IS NOT REQUIRED FOR THIS CULVERT PLAN. REFER TO CH8.
 2. CHANNEL SHALL BE GRADED WITH A FLAT BED TO THE DIMENSIONS SHOWN. DEPTH VARIES DEPENDING ON THE ADJACENT EXISTING GRADE.
 3. GRADE CHANNEL BANKS AT 2:1 (H:V) TO TIE SMOOTHLY INTO ADJACENT GRADE.
 4. UPSTREAM: SMOOTHLY TIE CHANNEL GRADING TO EXISTING DITCH WEST OF ROAD AS DIRECTED.
 5. DOWNSTREAM: SMOOTHLY TIE CHANNEL GRADING TO EXISTING GRADE, FIELD FIT AS DIRECTED.
 6. CONSTRUCT WALL TOE PROTECTION AT CULVERT WINGWALLS. INSTALL 2.0' THICK LAYER OF ROCK FOR EROSION AND SCOUR PROTECTION CLASS A FOR 3-FT AT TOE OF ALL WINGWALLS/WALLS.
 7. REFER TO CIVIL AND STRUCTURAL PLANS FOR CULVERT AND ROAD DETAILS.
 8. CREEK CHANNEL GRADING SHALL BE ADJUSTED BASED ON ACTUAL CULVERT AND ROAD LOCATIONS. THE CONTRACTOR SHALL IMMEDIATELY INFORM THE ENGINEER OF ANY SIGNIFICANT DISCREPANCIES TO THE CHANNEL GRADING PLAN LOCATION.



SECTION (CR-CULV2) - TYP CHANNEL

0+65
-



PROFILE - CR-CULV2 LINE (THALWEG PROFILE)

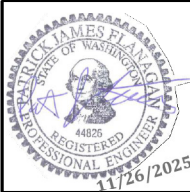
SCALE: VERTICAL EXAGGERATED

kpff

1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com

**INDICATOR
ENGINEERING
PLLC**

7511 Greenwood Ave N #605 Ph: 206-651-5103
Seattle, WA, 98103 www.indicatoreng.com



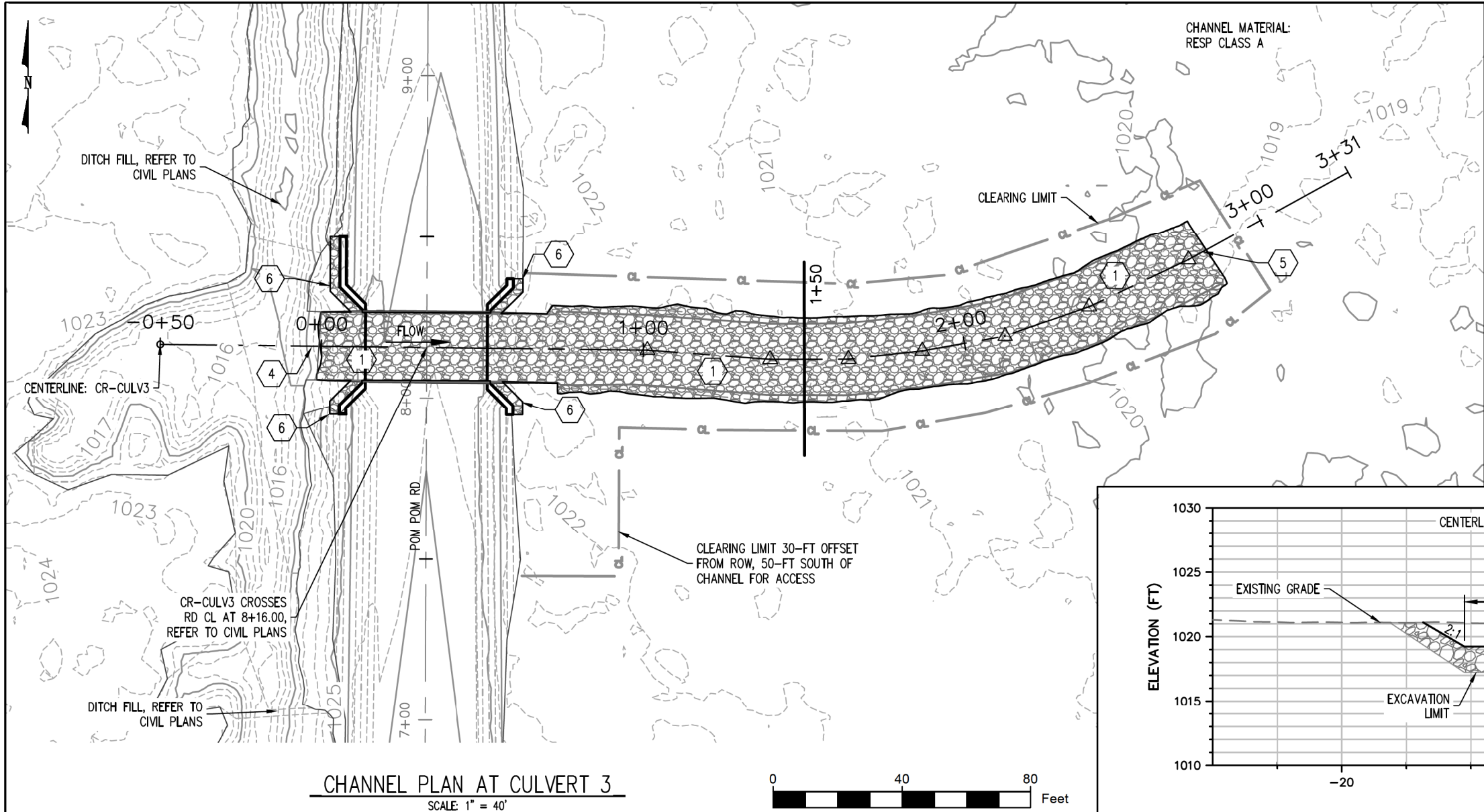
NO.	DATE	BY	REVISION



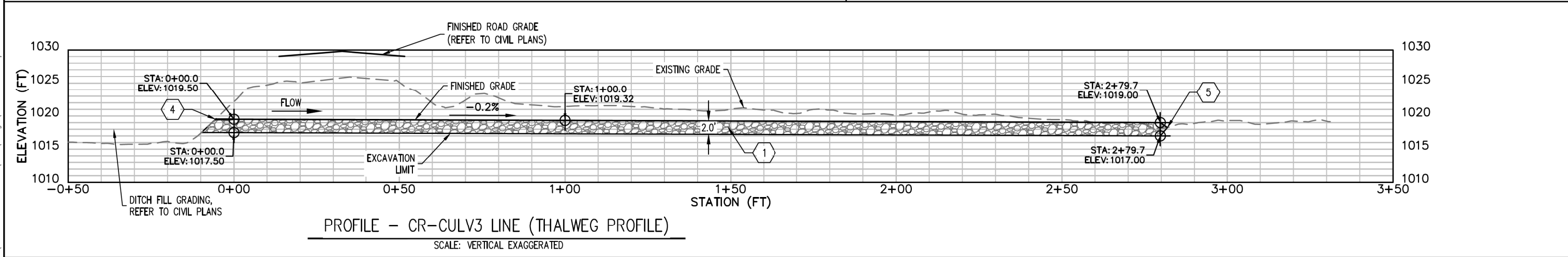
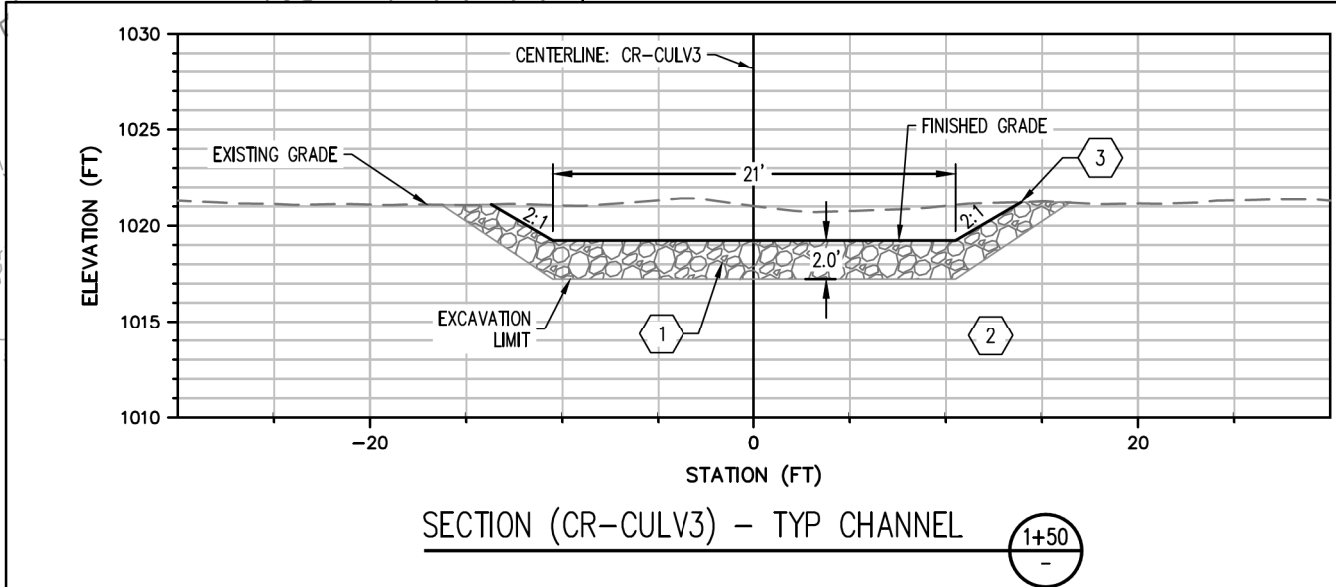
**POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION**

**CHANNEL GRADING PLAN
AT CULVERT 2**

DRAWN: P.J.F.	PROJECT NO.: 2200093
DESIGN: P.J.F.	SCALE: AS SHOWN
CHECKED: P.J.F.	DATE: 11/26/2025
DRAWING NO.	CH6
SHEET NO.	59 OF 62



- NOTES:
1. RIPRAP. ALL RIPRAP FOR CHANNEL, CULVERT BED AND WINGWALLS AT CULVERT SHOWN ON THIS SHEET SHALL BE ROCK FOR EROSION AND SCOUR PROTECTION CLASS A WITH A MINIMUM THICKNESS OF 2.0'. RIPRAP SHALL BE PLACED AT SLOPES AND AREAS AS SHOWN. BACKFILL VOIDS WITH COMMON BORROW (SELECTED NATIVE FROM LOCAL STOCKPILE). WASHING AND SEALING OF RIPRAP IS NOT REQUIRED FOR THIS CULVERT PLAN. REFER TO CH8.
 2. CHANNEL SHALL BE GRADED WITH A FLAT BED (PERPENDICULAR TO CHANNEL) TO THE DIMENSIONS SHOWN. DEPTH VARIES DEPENDING ON THE ADJACENT EXISTING GRADE. NOTE THAT THE CHANNEL BED SLOPE IS SHOWN ON THE PROFILE.
 3. GRADE CHANNEL BANKS AT 2:1 (H:V) TO TIE SMOOTHLY INTO ADJACENT GRADE.
 4. UPSTREAM: SMOOTHLY TIE CHANNEL GRADING TO EXISTING DITCH WEST OF ROAD AS DIRECTED.
 5. DOWNSTREAM: SMOOTHLY TIE CHANNEL GRADING TO EXISTING GRADE, FIELD FIT AS DIRECTED.
 6. CONSTRUCT WALL TOE PROTECTION AT CULVERT WINGWALLS. INSTALL 2.0' THICK LAYER OF ROCK FOR EROSION AND SCOUR PROTECTION CLASS A FOR 3-FT AT TOE OF ALL WINGWALLS/WALLS.
 7. REFER TO CIVIL AND STRUCTURAL PLANS FOR CULVERT AND ROAD DETAILS.
 8. CREEK CHANNEL GRADING SHALL BE ADJUSTED BASED ON ACTUAL CULVERT AND ROAD LOCATIONS. THE CONTRACTOR SHALL IMMEDIATELY INFORM THE ENGINEER OF ANY SIGNIFICANT DISCREPANCIES TO THE CHANNEL GRADING PLAN LOCATION.



1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com

**INDICATOR
ENGINEERING
PLLC**

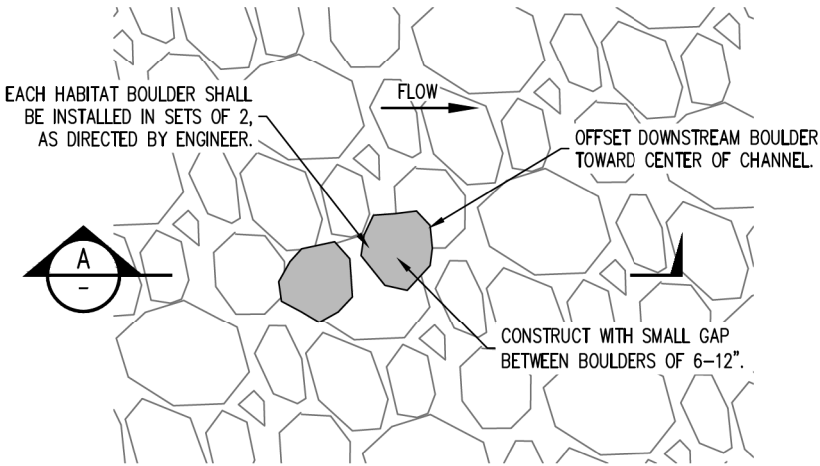
7511 Greenwood Ave N #605 Ph: 206-651-5103
Seattle, WA, 98103 www.indicatoreng.com

NO.	DATE	BY	REVISION

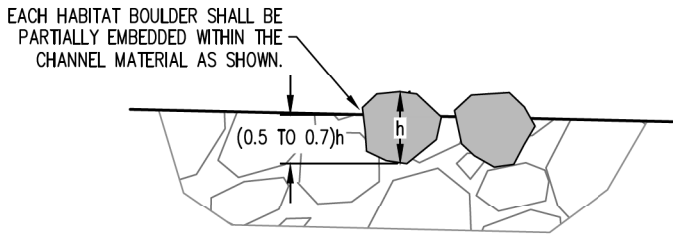
**POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION**

**CHANNEL GRADING PLAN
AT CULVERT 3**

DRAWN: PJF	PROJECT NO.: 2200093
DESIGN: PJF	SCALE: AS SHOWN
CHECKED: PJF	DATE: 11/26/2025
DRAWING NO.	CH7
SHEET NO.	60 OF 62



HABITAT BOULDER DETAIL



SECTION – HABITAT BOULDER



HABITAT BOULDER DETAIL NOTES:

- HABITAT BOULDERS SHALL BE WSDOT STREAMBED BOULDERS TYPE FOUR. REFER TO SPECIAL PROVISION SEC 8-30.
- HABITAT BOULDER LOCATIONS AND FINAL PLACEMENT SHALL BE IN THE CHANNEL AT THE BRIDGE AS DIRECTED BY THE ENGINEER.
- HABITAT BOULDERS SHALL BE PLACED DURING CONSTRUCTION OF THE FINAL LIFT OF CHANNEL BED OR AS DIRECTED.

GENERAL CHANNEL NOTES:

- EXCAVATION. EXCAVATION FOR THE CHANNEL GRADING AND PLACEMENT OF RIPRAP LAYERS SHOWN IN THE CHANNEL PLANS WILL BE PAID AS CHANNEL EXCAVATION. THE EXCAVATION SHALL BE PERFORMED AS SHOWN IN THE PLANS. THE EXCAVATED AREAS ARE SUBJECT TO INSPECTION AND FILL SHALL NOT BE PLACED UNTIL SUBGRADE SURFACE HAS BEEN APPROVED BY THE ENGINEER. REFER TO SPECIAL PROVISION SEC 8-30.
- RIPRAP AND BED MATERIAL.
 - RIPRAP AT BRIDGE. AT THE BRIDGE ALL RIPRAP SC LAYERS SHALL BE CONSTRUCTED OF "ROCK FOR EROSION AND SCOUR PROTECTION CLASS C". RIPRAP SHALL BE PLACED AT SLOPES AND THICKNESS AS SHOWN. RIPRAP SHALL BE CONSTRUCTED PRIOR TO CONSTRUCTION OF THE CHANNEL AND FLOODPLAIN SURFACE LAYERS. REFER TO SPECIAL PROVISION SEC 8-30.
 - BED MATERIAL AT BRIDGE. THE CHANNEL AND FLOODPLAIN SURFACE SHALL BE "STREAMBED AT BRIDGE", WITH "HABITAT BOULDERS" AS SHOWN. THE BED SHALL BE WASHED AND SEALED IN LIFTS AS DESCRIBED IN SPECIAL PROVISION SEC 8-30.
 - RIPRAP AT CULVERTS. AT THE CULVERTS ALL RIPRAP LAYERS SHALL BE CONSTRUCTED OF "ROCK FOR EROSION AND SCOUR PROTECTION CLASS A". RIPRAP SHALL BE PLACED AT SLOPES AND THICKNESS AS SHOWN. REFER TO SPECIAL PROVISION SEC 8-30.
- COMMON BORROW. A PORTION OF THE NATIVE MATERIAL FROM THE CHANNEL EXCAVATION AT BRIDGE SHALL BE SELECTED BY THE ENGINEER, PLACED INTO TEMPORARY STOCKPILE AND ACCEPTED FOR USE AS "COMMON BORROW" IN THE CHANNEL PLANS. THE SELECTED COMMON BORROW FOR THE CHANNEL PLANS USED TO FILL VOIDS AND WASH BED SHALL PRIMARILY (90% OR MORE) CONSIST OF NATIVE SANDS AND SILTS WITHOUT SIGNIFICANT AMOUNTS OF GRAVELS AND COBBLES. "COMMON BORROW" FOR THE CHANNEL PLANS SHALL NOT CONTAIN ANY RECYCLED MATERIAL, REFER TO DEFINITION IN 9-03.21, AND SHALL OTHERWISE MEET THE MATERIAL DESCRIPTION IN SECTION 9-03.14 AND BE INSTALLED CONSISTENT WITH SECTION 2-03. IF EXCESS STOCKPILED COMMON BORROW REMAINS SUBSEQUENT TO CONSTRUCTION OF CHANNEL PLANS, THE MATERIAL SHALL BE REMOVED AND DISPOSED OF CONSISTENT WITH THE CHANNEL EXCAVATION MATERIAL AT CONTRACTORS EXPENSE.
- UNUSED NATIVE MATERIAL FROM CHANNEL EXCAVATION SHALL BE PLACED IN AN STOCKPILE WITHIN 1-MILE OF PROJECT SITE. THE STOCKPILE LOCATION WILL BE DIRECTED BY YAKAMA NATION DESIGNATED PROJECT REPRESENTATIVE.
- COMPACTION FOR CHANNEL PLANS: ALL BACKFILL LAYERS FOR CHANNEL PLANS, INCLUDING COMMON BORROW, RESP (RIPRAP), AND STREAMBED AT BRIDGE, SHALL BE COMPACTED WITH METHOD A SUBJECT TO ENGINEER REVIEW. CHANNEL BANKS SHALL BE COMPACTED USING EXCAVATOR/MACHINE BUCKET OR, IF INACCESSIBLE, SMALL MECHANICAL OR VIBRATORY COMPACTORS. REFER TO SECTION 2-03.3(14)C.
- GEOTEXTILE FABRIC SHALL BE PLACED UNDERLYING RIPRAP LAYERS AS SHOWN IN THE PLANS. WHERE REQUIRED FOR THE CHANNEL PLANS, GEOTEXTILE FABRIC SHALL MEET THE REQUIREMENTS OF WSDOT SEC 2-12 AND 9-33 FOR "CONSTRUCTION GEOTEXTILE FOR PERMANENT EROSION CONTROL, NON WOVEN, HIGH SURVIVABILITY, CLASS B".
- TEMPORARY SHORING FOR CHANNEL AT BRIDGE: HIGH GROUNDWATER MAY BE ENCOUNTERED DURING EXCAVATION FOR THE CHANNEL AT THE BRIDGE. THE GEOTECHNICAL REPORT DESCRIBES UNDERLYING SOIL CONDITIONS AND HISTORIC GROUNDWATER LEVELS. GROUNDWATER MAY VARY SEASONALLY WITH AN ANTICIPATED RANGE FROM EL 1008 TO 1013 AT THE BRIDGE SITE. COMPLETE DEWATERING MAY NOT BE FEASIBLE WITHIN THE PROJECT CONSTRAINTS, THUS THE CHANNEL WORK AT THE BRIDGE IS ANTICIPATED TO BE CONSTRUCTED PARTIALLY IN THE WET. THE WET CONDITIONS HAVE BEEN CONSIDERED DURING DESIGN. PARTIAL DEWATERING MAY BE FEASIBLE TO PROVIDE TEMPORARY DRAWDOWN USING PUMPS, DEPENDING ON CONDITIONS ENCOUNTERED. EXCAVATION AND CONSTRUCTION OF THE CHANNEL IN CELLS USING LARGE TRENCH BOX(ES) AND/OR OTHER TEMPORARY SHORING MAY BE NECESSARY TO COMPLETE CONSTRUCTION OF THE CHANNEL. REFER TO SPECIAL PROVISION SEC 8-30 FOR INFORMATION ON "TEMPORARY SHORING FOR CHANNEL AT BRIDGE" BID ITEM THAT INCLUDES THIS WORK TO SUPPORT THE CHANNEL CONSTRUCTION.
- FLOOD RISK: THE CHANNEL AND CULVERTS ARE CONSTRUCTED OUTSIDE OF THE EXISTING ORDINARY HIGHWATER AS SHOWN (REFER TO CIVIL PLANS). TOPPENISH CREEK IS CHANNELIZED AND CROSSES POM POM ROAD SOUTH OF THE PROJECT WORK AREA. THE CHANNEL RELOCATION PROJECT (BY OTHERS) IS ANTICIPATED TO BE COMPLETED IN THE SAME OR SUBSEQUENT SEASON TO THIS PROJECT. FLOOD RISK DURING THIS PROJECT IS MOST SIGNIFICANT DURING PEAK SPRING SNOWMELT AND RUNOFF OR INTENSE FALL RAIN STORMS. THE CHANNEL WORK AREAS MAY BE FLOODED DURING EXTREME EVENTS. PEAK FLOWS MAY OVERTOP THE EXISTING TOPPENISH CREEK CHANNEL AND ENTER THE CHANNEL WORK AREA DURING EVENTS WITH A PEAK ANNUAL FLOOD OCCURENCE OF 10% OR LESS. THE WEATHER FORECAST AND WATER LEVEL IN TOPPENISH CREEK SHOULD BE MONITORED DURING CONSTRUCTION AND ALL EQUIPMENT SHOULD BE MOVED TO HIGH GROUND ALONG POM POM ROAD IF A LARGE STORM OR FLOOD IS FORECAST OR OTHERWISE ANTICIPATED.

STAKING TABLES FOR CHANNEL PLANS:

PI Station	Northing	Easting	Distance	Direction
0+50.00	367,991.80'	1,586,848.01'		
			52.102'	N41° 11' 04"E
0+02.10	368,031.01'	1,586,882.32'		
			23.084'	N61° 39' 44"E
0+25.19	368,041.97'	1,586,902.64'		
			22.240'	N71° 04' 21"E
0+47.43	368,049.19'	1,586,923.68'		
			41.368'	N82° 41' 10"E
0+88.79	368,054.45'	1,586,964.71'		
			41.286'	S89° 42' 59"E
1+30.08	368,054.25'	1,587,005.99'		
			37.800'	N88° 42' 53"E
1+67.88	368,055.10'	1,587,043.78'		
			30.178'	S88° 22' 30"E
1+98.06	368,054.24'	1,587,073.95'		
			50.000'	S88° 22' 30"E
2+48.06	368,052.82'	1,587,123.93'		

CR-BR

Northing	Easting
368,081.51'	1,586,942.33'
368,099.96'	1,586,939.62'
368,115.75'	1,586,908.84'
368,124.71'	1,586,907.10'

CR-FP-W

Northing	Easting
368,090.72'	1,587,035.92'
368,109.27'	1,587,038.75'
368,117.52'	1,587,033.61'

CR-FP-E

Northing	Easting
368,131.46'	1,587,053.40'
368,130.84'	1,587,015.36'
368,131.40'	1,586,995.82'
368,131.48'	1,586,955.01'
368,137.25'	1,586,942.66'
368,142.62'	1,586,934.53'
368,158.09'	1,586,907.01'

CR-FP-CH-L

Northing	Easting
368,119.56'	1,587,048.64'
368,119.60'	1,587,015.45'
368,120.38'	1,586,992.38'
368,120.47'	1,586,955.80'
368,124.71'	1,586,907.10'

CR-FP-CH-R

Northing	Easting
368,133.04'	1,587,025.01'
368,144.71'	1,587,022.00'
368,144.34'	1,586,990.22'
368,144.45'	1,586,961.23'
368,144.56'	1,586,935.16'

CR-FP-N

PI Station	Northing	Easting	Distance	Direction
0+50.00	366,901.87'	1,586,883.13'		
			114.449'	S89° 42' 34"E
0+64.45	366,901.29'	1,586,997.58'		
			17.176'	N88° 51' 36"E
0+81.62	366,901.63'	1,587,014.75'		
			21.292'	N73° 20' 20"E
1+02.92	366,907.73'	1,587,035.15'		
			20.910'	N54° 43' 44"E
1+23.83	366,919.81'	1,587,052.22'		
			88.016'	N38° 03' 02"E
2+11.84	366,989.12'	1,587,106.47'		

CR-CULV1

PI Station	Northing	Easting	Distance	Direction
0+50.00	367,087.29'	1,586,888.62'		
			202.243'	S89° 40' 46"E
1+52.24	367,086.16'	1,587,090.86'		

CR-CULV2

PI Station	Northing	Easting	Distance	Direction
0+50.00	367,300.06'	1,586,889.78'		
			151.233'	S89° 19' 33"E
1+01.23	367,298.28'	1,587,041.01'		
			38.145'	S85° 43' 59"E
1+39.38	367,295.45'	1,587,079.05'		
			24.295'	N89° 51' 38"E
1+63.67	367,295.51'	1,587,103.34'		
			23.035'	N83° 37' 17"E
1+86.71	367,298.06'	1,587,126.23'		
			26.179'	N79° 55' 44"E
2+12.89	367,302.64'	1,587,152.01'		
			27.709'	N70° 46' 35"E
2+40.60	367,311.77'	1,587,178.17'		
			34.072'	N64° 40' 16"E
2+74.67	367,326.34'	1,587,208.97'		
			56.424'	N61° 13' 03"E
3+31.09	367,353.51'	1,587,258.42'		

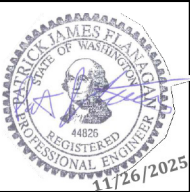
CR-CULV3



1601 5th Avenue, Suite 1600
Seattle, WA 98101
206.622.5822
www.kpff.com

INDICATOR
ENGINEERING
PLLC

7511 Greenwood Ave N #605 Ph: 206-651-5103
Seattle, WA, 98103 www.indicatoreng.com



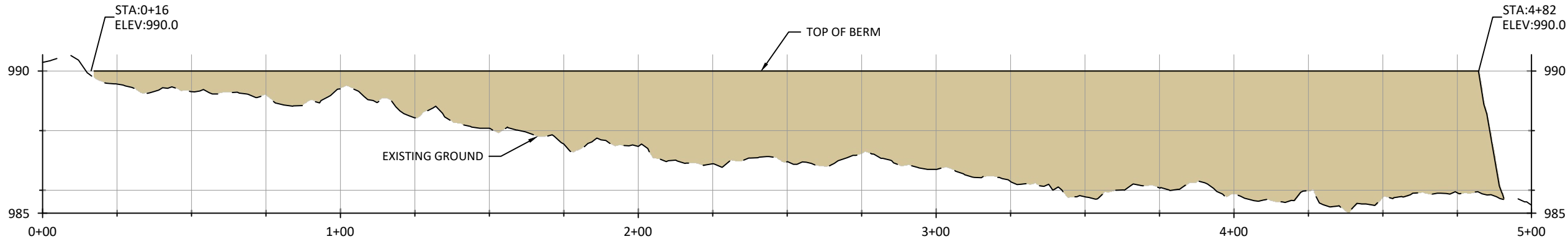
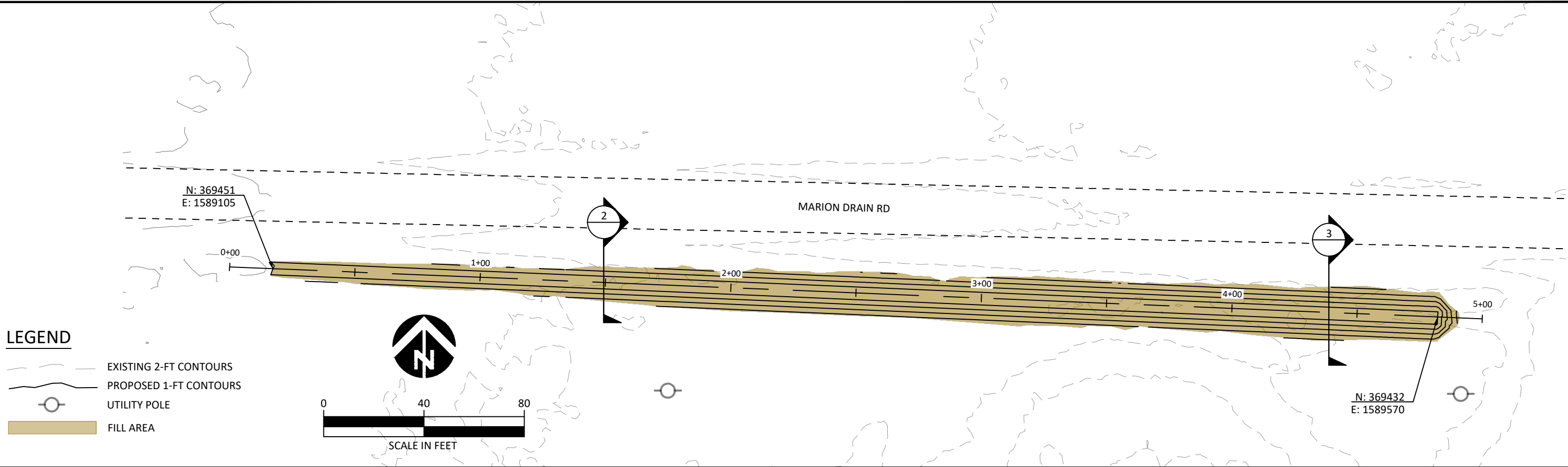
NO.	DATE	BY	REVISION



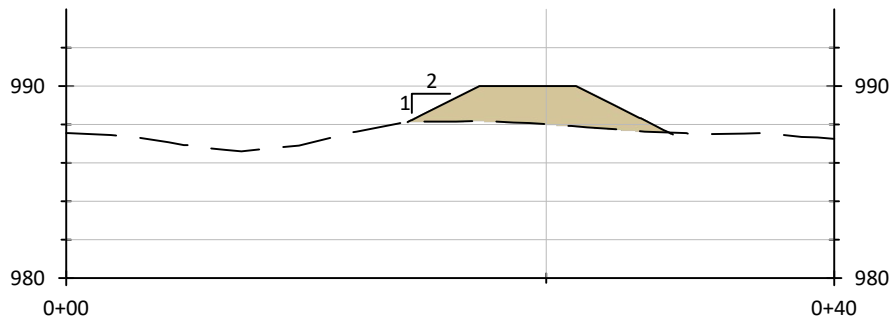
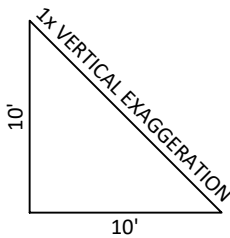
POM POM ROAD AT TOPPENISH CREEK
YAKAMA NATION

CHANNEL NOTES, DETAILS AND STAKING

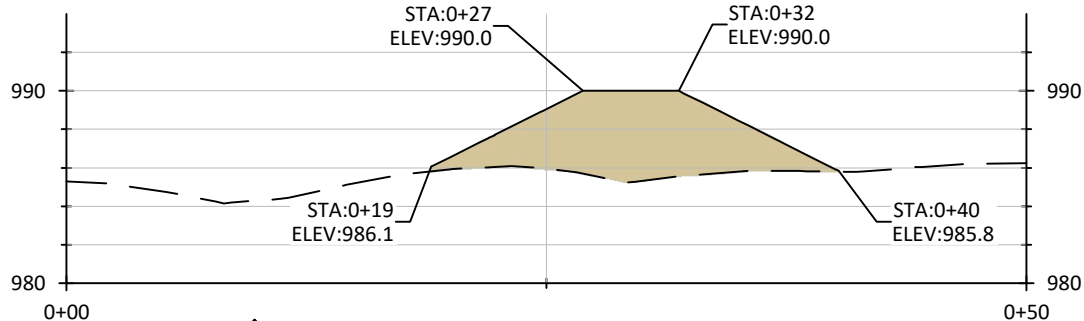
DRAWN: PJF	PROJECT NO.: 2200093
DESIGN: PJF	SCALE: AS SHOWN
CHECKED: PJF	DATE: 11/26/2025
DRAWING NO.	CH8
SHEET NO.	61 OF 62



1 PROFILE VIEW - MARION DRAIN BERM



2 SECTION - MARION DRAIN BERM



3 SECTION - MARION DRAIN BERM

NOTE:
FILL MATERIAL SHALL BE COARSE
MATERIAL FROM COMMON BORROW



				BB, NS, JRM, PL, EA, MB	PL, JG
				DRAWN	DESIGNED
				CHECKED	
				MM	MAR 2025
				APPROVED	DATE
				200203	PROJECT
NO.	BY	DATE	REVISION DESCRIPTION		

YAKAMA NATION FISHERIES
POST-FIRE POM POM, TOPPENISH CREEK RESTORATION
FINAL



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

MARION BERM GRADING & SECTION