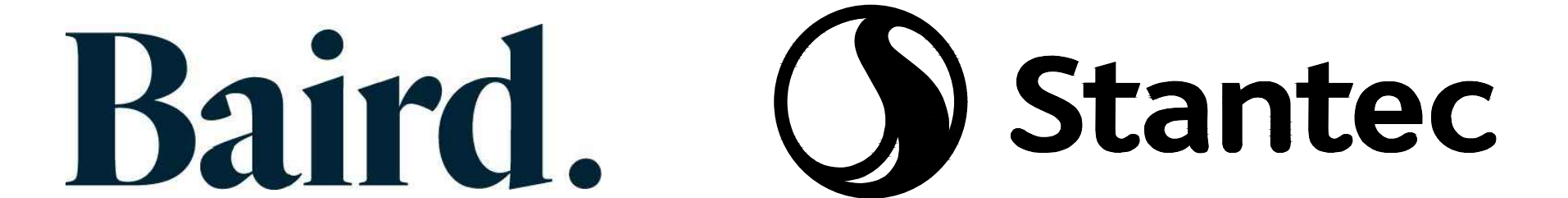


US Army Corps
of Engineers
Portland District



TDA AWS BACKUP DEBRIS MANAGEMENT
CONTRACT NO. W912EF24D0002, BAIRD-STANTEC JOINT VENTURE
PRE AWARD NO. PANNWD-24-P-0000 001448
TASK ORDER W9127N24F00XX

EVAN CLOUGH, P.E.
PROJECT TECHNICAL LEAD

CHRISTOPHER EDEN, P.E.
PROJECT ELECTRICAL ENGINEER

DATE: DECEMBER 20, 2024

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File Last Saved By: RTOLENTINO

US ARMY CORPS OF ENGINEERS
PORTLAND REGULATORY DISTRICT

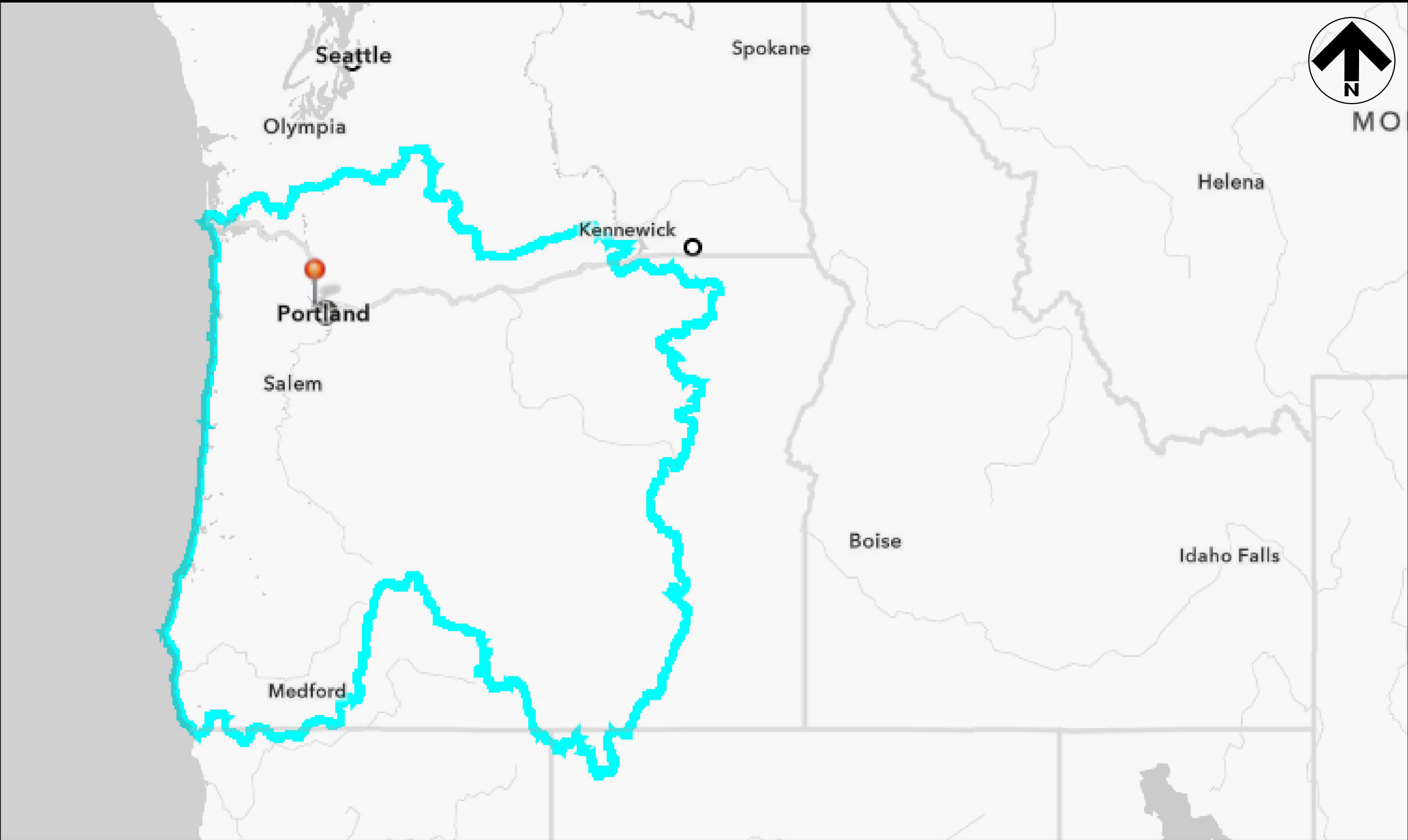
333 SW 1ST AVENUE, 10TH FLOOR
PORTLAND, OR 97204-3495

US ARMY CORPS OF ENGINEERS
THE DALLES LOCK AND DAM

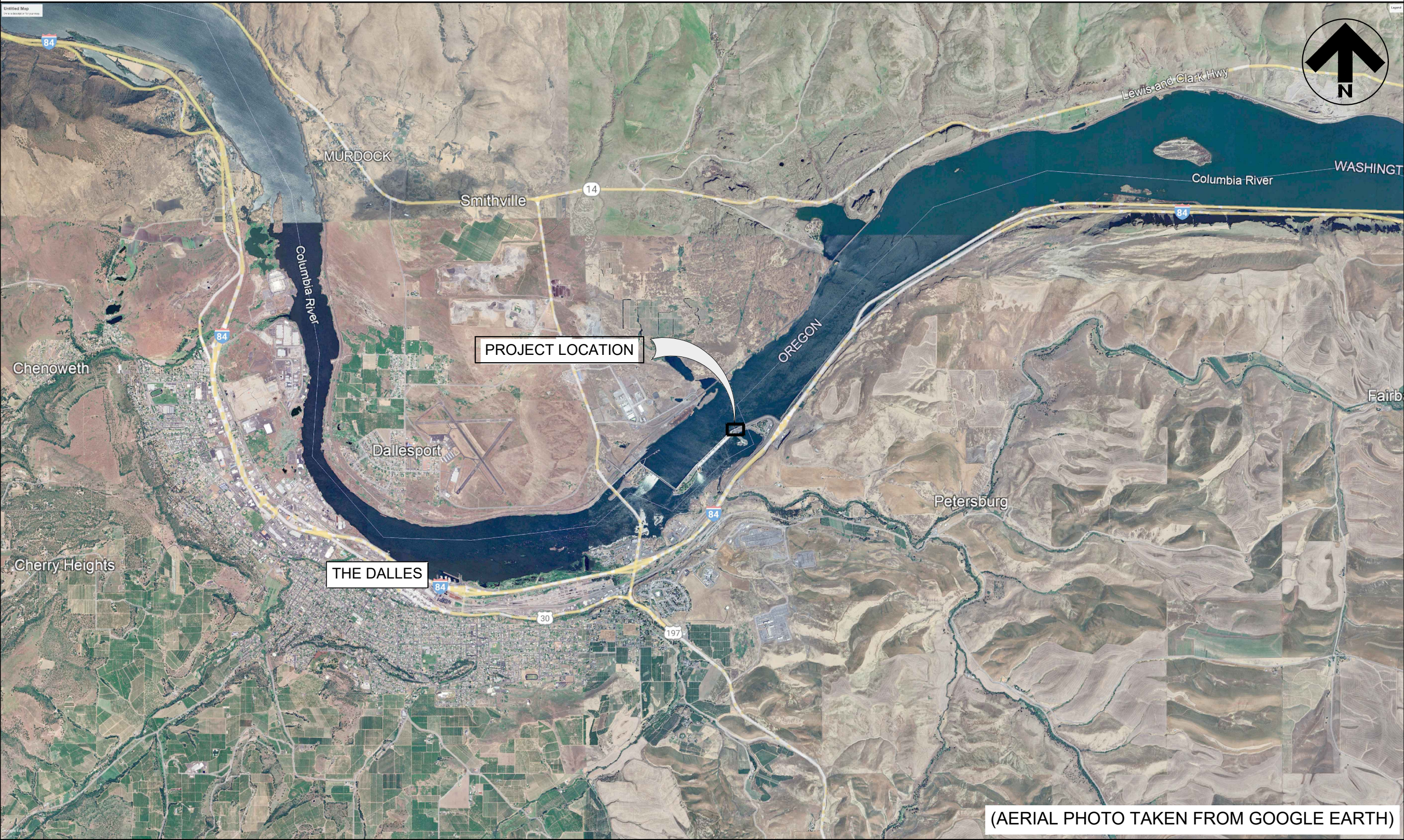
THE DALLES DAM DRIVE, US 30
THE DALLES, OR 97058

GENERAL SHEET NOTES

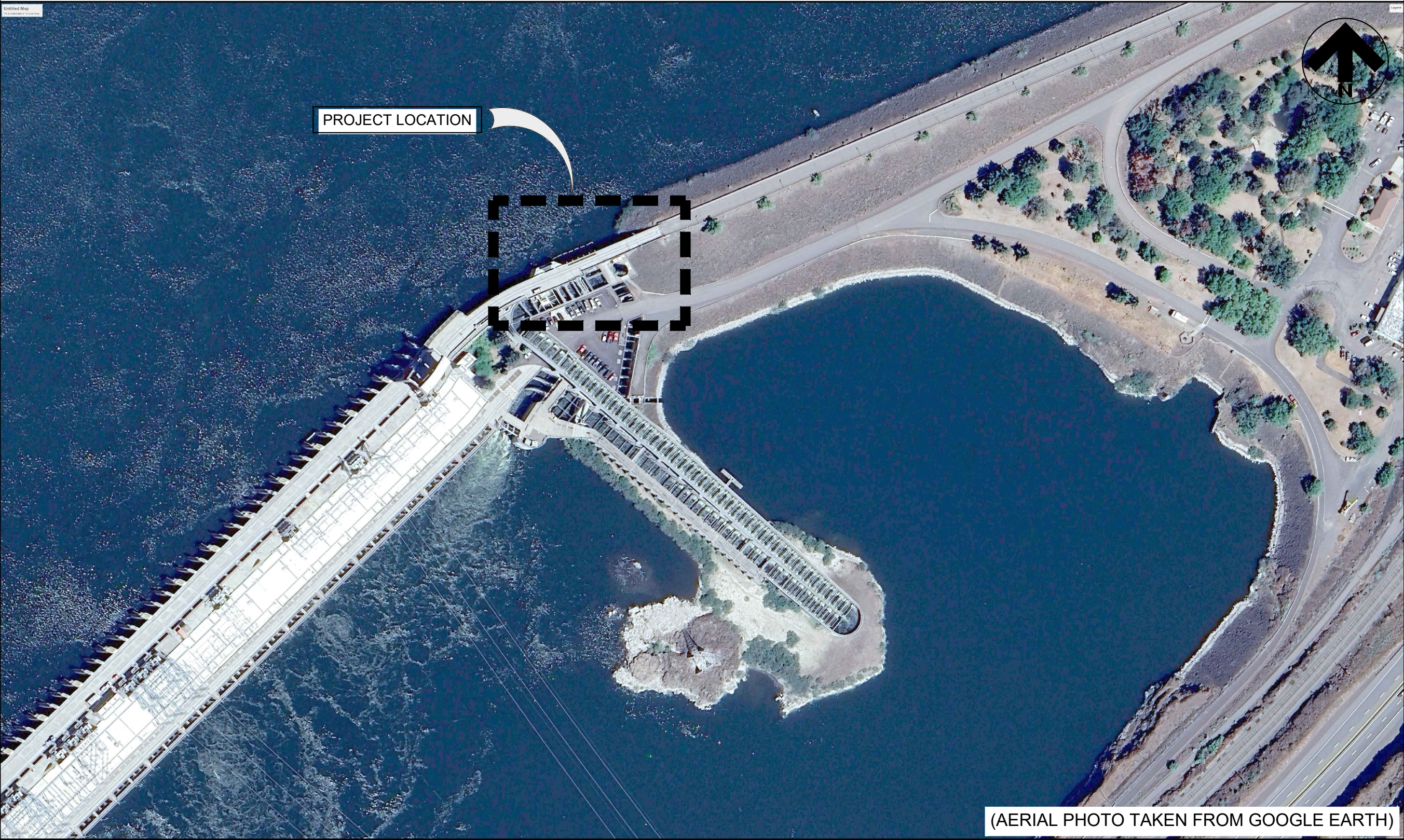
1. THE SURVEY CONTROL POINTS SHOWN ON PLANS REFER TO _____ STATE PLANE COORDINATE SYSTEM,
(US STATE PLANE COORDINATE SYSTEM 1983, NAD 1983.
2. ALL ELEVATIONS SHOWN ON THE PLANS REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88) EXCEPT AS NOTED.



DISTRICT BOUNDARY MAP



LOCAL VICINITY MAP



SITE MAP



BCOE/50 PERCENT REVIEW

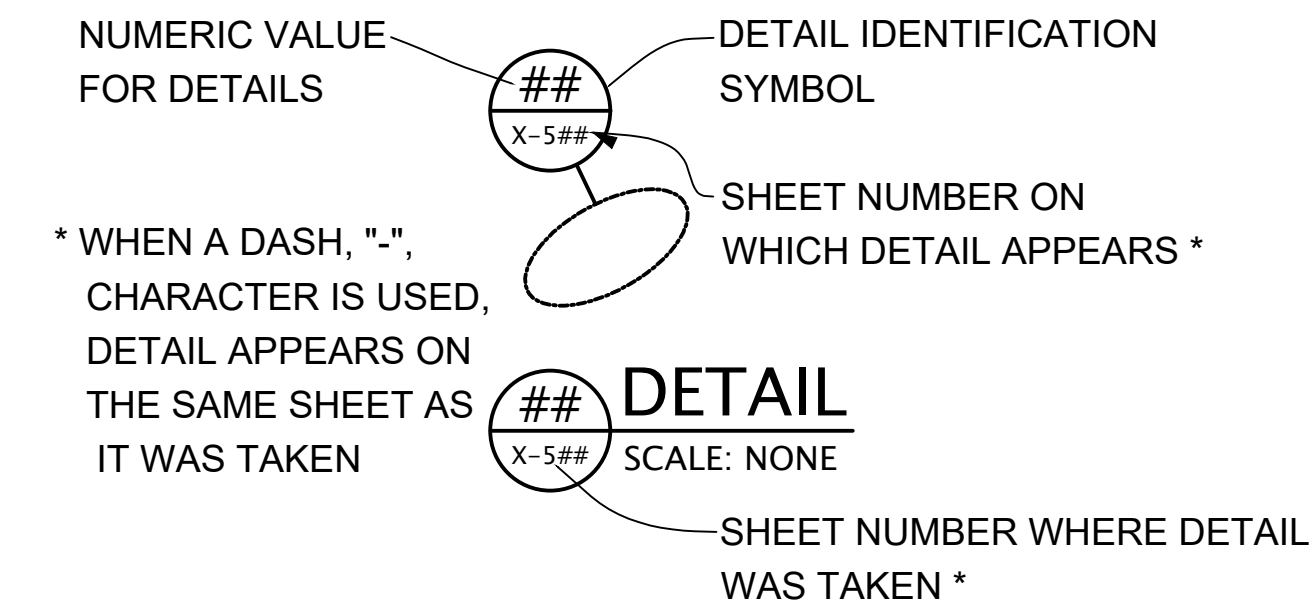
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E. CLOUGH
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THE DALLES LOCK AND DAM
TDA AWS BACKUP
DEBRIS MANAGEMENT
REGIONAL, VICINITY AND SITE MAP

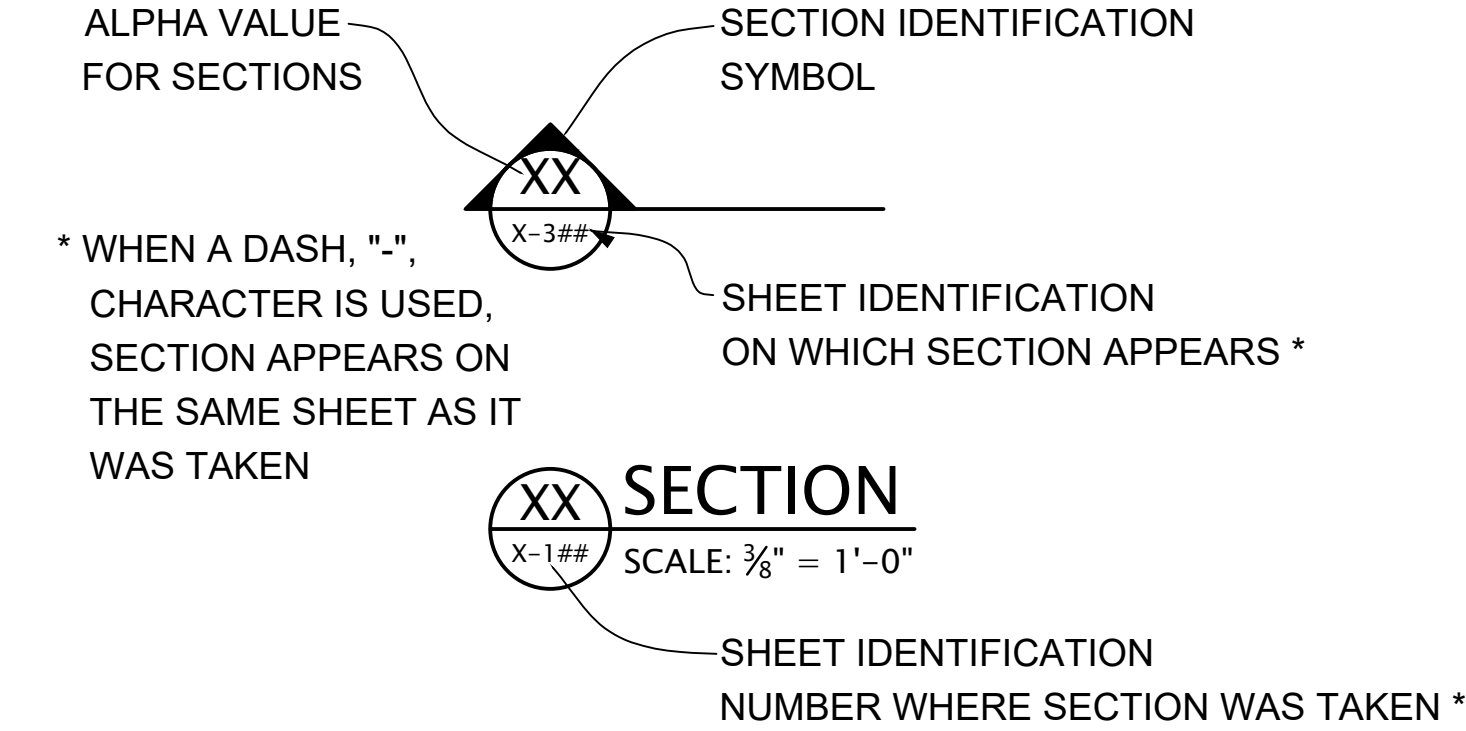
SHEET
IDENTIFICATION
G-002

LEGEND:

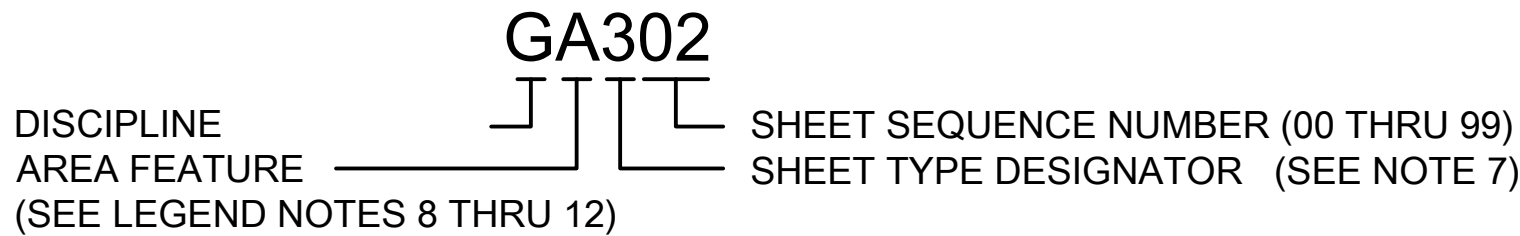
1. DETAILING CONVENTION SHALL BE INTERPRETED AS SHOWN BELOW:



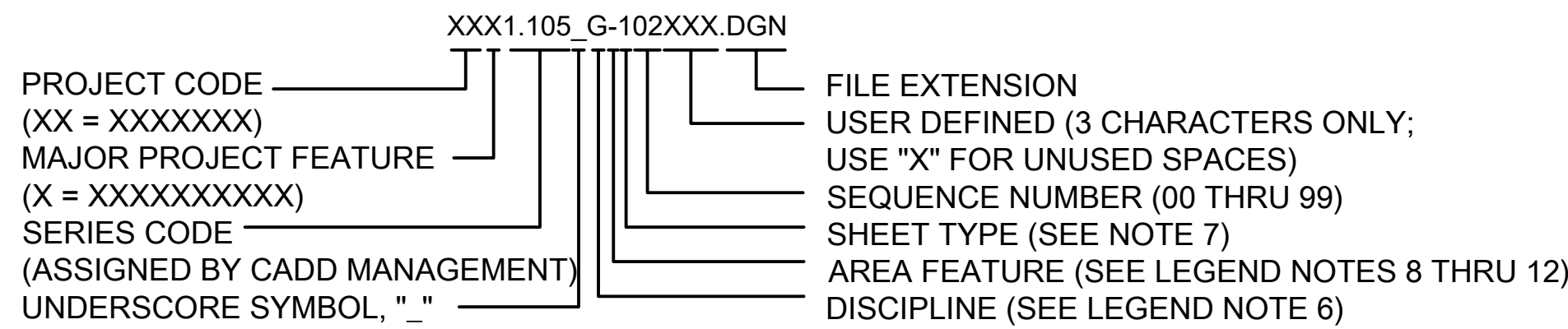
2. SECTIONING CONVENTION SHALL BE INTERPRETED AS SHOWN BELOW:



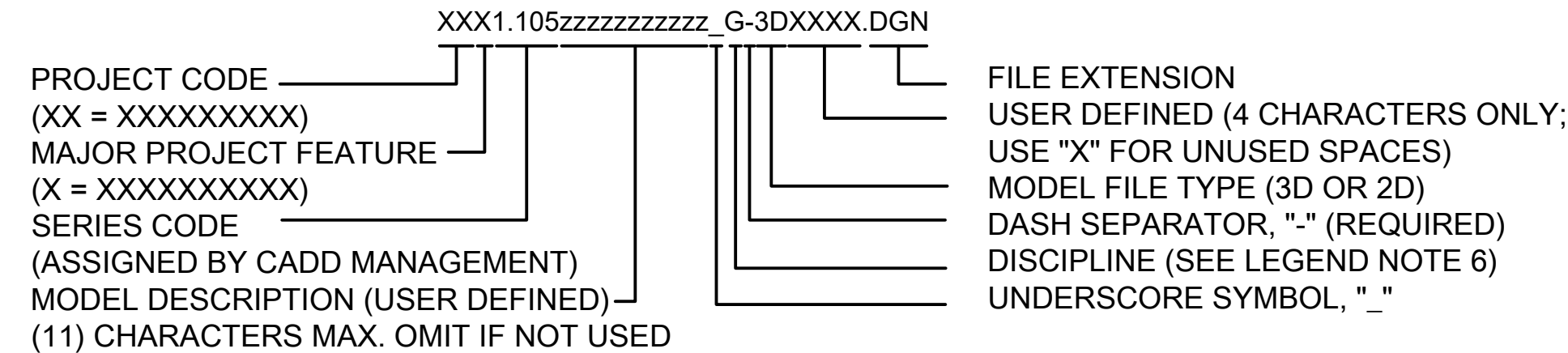
3. SHEET IDENTIFICATION CONVENTION SHALL BE INTERPRETED AS SHOWN BELOW:



4. SHEET FILE NAME CONVENTION SHALL BE INTERPRETED AS SHOWN BELOW:



5. MODEL FILE NAME CONVENTION SHALL BE INTERPRETED AS SHOWN BELOW:



6. ENGINEERING DISCIPLINE DESIGNATOR FOR SHEET IDENTIFICATION SHALL BE AS SHOWN BELOW:

- G GENERAL
B GEOTECHNICAL
C CIVIL
S STRUCTURAL
M MECHANICAL
E ELECTRICAL

7. SHEET TYPE DESIGNATOR FOR SHEET IDENTIFICATION SHALL BE AS SHOWN BELOW:

- 0 GENERAL (symbols legend, notes, ect.)
1 PLANS (horizontal views)
2 ELEVATIONS (vertical views)
3 SECTIONS (sectional views, wall sections)
4 LARGE-SCALE VIEWS (plans, elevations, stair sections, or sections that are not details)
5 DETAILS
6 SCHEDULES AND DIAGRAMS
7 USER DEFINED (for types that do not fall in other categories, including typical detail sheets)
8 USER DEFINED (for types that do not fall in other categories)
9 3D REPRESENTATIONS (isometrics, perspectives, photographs)

8. GEOTECHNICAL AREA FEATURE DESIGNATOR FOR "B" SHEETS IDENTIFICATION SHALL BE AS SHOWN BELOW:

- DENOTES GENERAL FEATURES
D DENOTES DEMOLITION

9. CIVIL AREA FEATURE DESIGNATOR FOR "C" SHEETS IDENTIFICATION SHALL BE AS SHOWN BELOW:

- DENOTES GENERAL FEATURES (OR "ALL SHEETS ARE CIVIL")
S DENOTES SITE PLANS

10. STRUCTURAL AREA FEATURE DESIGNATOR FOR "S" SHEETS IDENTIFICATION SHALL BE AS SHOWN BELOW:

- DENOTES GENERAL FEATURES
D DENOTES DEMOLITION
SV DENOTES VAULT
SB DENOTES BOAT BARRIER

- SC DENOTES CONDUIT AREA SUPPORT
SS DENOTES FISH SCREEN

11. MECHANICAL AREA FEATURE DESIGNATOR FOR "M" SHEETS IDENTIFICATION SHALL BE AS SHOWN BELOW:

- DENOTES GENERAL FEATURES
D DENOTES DEMOLITION
P DENOTES PIPING

12. ELECTRICAL AREA FEATURE DESIGNATOR FOR "E" SHEETS IDENTIFICATION SHALL BE AS SHOWN BELOW:

- DENOTES GENERAL FEATURES
D DENOTES DEMOLITION
B DENOTES
I DENOTES INSTRUMENTATION

THE FOLLOWING ABBREVIATIONS MAY BE USED ON THE DRAWINGS IN THIS VOLUME

ANCH.	= ANCHOR	GA.	= GAUGE	PTFE	=
A.B.	= ANCHOR BOLT	GAC	= GRANULAR ACTIVATED CARBON	POLYTETRAFLOURIDETHYLENE (TEFLON)	
AC	= ASPHALT CONCRETE	GALV.	= GALVANIZED	PVC	= POLYVINYL CHLORIDE
AFF	= ADULT FISH FACILITY	GV	= GATE VALVE	PVI	= POINT OF VERTICAL INTERSECTION
APPROX.	= APPROXIMATE	H	= HORIZONTAL	RAD.	= RADIUS
ARCH.	= ARCHITECTURAL	H.D.	= HEAVY DUTY	R.H.	= ROUND HEAD
ARV	= AIR RELEASE VALVE	H.M.	= HOLLOW METAL	REF	= REFERENCE
AWS	= ATTRACTION WATER SUPPLY	HOR.	= HORIZONTAL	REINF.	= REINFORCEMENT
B.B.	= BOLT CENTERS	ID	= INSIDE DIAMETER	REQ'D	= REQUIRED
B.F.	= BOTTOM FACE	I.E.	= INVERT ELEVATION	R.O.	= ROUGH OPENING
BG	= BACK GOUGE	IF	= INSIDE FACE	RT	= RIGHT
B.L.	= BOTTOM LAYER	I.E.	= INSIDE LAYER	SCH	= SCHEDULE
BLDG.	= BUILDING	IN.	= INCH, INCHES	SHT	= SHEET
BRG	= BEARING	INFO	= INFORMATION	SIM	= SIMILAR
B TO B	= BACK TO BACK	IS	= INSIDE	STAG. SPL.	= STAGGER SPLICE
C	= CHANNEL	ISO JT	= ISOLATION JOINT	STD	= STANDARD
C TO C	= CENTER TO CENTER	IWRC	= INDEPENDENT WIRE ROPE CORE	STIR.	= STIRRUP
C/E JT	= CONTRACTION JOINT/EXPANSION JOINT	JFR	= JUVENILE FISH RETURN	STL.	= STEEL
CF	= CUBIC FEET	JT.	= JOINT	S.F.	= SQUARE FOOT
CI	= CAST IRON	KSI	= KIPS PER SQUARE INCH	SHLDR	= SHOULDER
C.J.	= CONSTRUCTION JOINT	L	= ANGLE	SQ	= SQUARE
CJP	= COMPLETE JOINT PENETRATION	LF.	= LINEAR FEET	S.S.	= STAINLESS STEEL
C/L	= CENTERLINE	LG.	= LONG	STA.	= STATION
CL2	= CHLORINE	LT	= LEFT	STC	= STEEL TROWELED CONCRETE
CLR	= CLEAR	LTH	= LENGTH	SYM	= SYMMETRICAL
CONC.	= CONCRETE	LONG.	= LONGITUDINAL	T & B	= TOP AND BOTTOM
CONN	= CONNECTION	L.P.	= LOW POINT	T.B.P.	= TO BE DETERMINED
CONT	= CONTINUOUS	MAX.	= MAXIMUM	T.F.	= TOP FACE
CONT. JT.	= CONTRACTION JOINT	MIN.	= MINIMUM	T.J.	= TROWELED JOINT
C.M.P.	= CORRUGATED METAL PIPE	M.B.	= MACHINE BOLT	T.L.	= TOP LAYER
CP	= COMPLETE PENETRATION	MECH.	= MECHANICAL	T.O.	= TOP OF
CRES	= CORROSION RESISTING STEEL	MK	= MARK	TOC	= TOP OF CONCRETE
CSP	= CORNER SUPPORT PIECE	MSE	= MECHANICALLY STABILIZED EARTH	TOF	= TOP OF FOOTING
CSK	= COUNTERSINK	NAT.	= NATURAL	TOS	= TOP OF SLAB
CU	= COPPER	N.A.	= NO CHAMFER	TOW	= TOP OF WALL
DET.	= DETAIL	NF	= NEAR FACE	T.S.	= TUBULAR STEEL
D&G	= DRILL & GROUT	NO.	= NUMBER	TYP.	= TYPICAL
DIA.	= DIAMETER	NOM	= NOMINAL	UNO	= UNLESS NOTED OTHERWISE
DI	= DUCTILE IRON	NPS	= NOMINAL PIPE SIZE	U.N.O.	= UNLESS NOTED OTHERWISE
DIP	= DUCTILE IRON PIPE	NPT	= NATIONAL PIPE THREAD	U/S	= UPSTREAM
D/S	= DOWNSTREAM	NTS	= NOT TO SCALE	UW	= UNWATERING PUMP
DWG	= DRAWING	O.A.	= OVER ALL LENGTH	UWCP	= UNWATERING PUMP CONTROL PANEL
DWL'S	= DOWELS	O.C.	= ON CENTER	V	= VERTICAL
EA.	= EACH	O.D.	= OUTSIDE DIAMETER	VBS	= VERTICAL BARRIER SCREEN
EF	= EACH FACE	OF	= OUTSIDE FACE	VC	= VERTICAL CURVE
E.L.	= EACH LAYER	O.L.	= OUTSIDE LAYER	VERT.	= VERTICAL
EL OR ELEV	= ELEVATION	OPP	= OPPOSITE	W/	= WITH
E.J.	= EXPANSION JOINT	OS	= OUTSIDE	WL	= WATERLINE
EQ.SP.	= EQUALLY SPACED	OSAY	= OUTSIDE STEM AND YOKE (VALVES)	WP	= WELD PLATE
E.W.	= EACH WAY	O TO O	= OUT TO OUT	W.P.	= WORK POINT
EXAM.	= EXAMINATION	PC	= POINT OF CURVATURE	W.S.	= WATERSTOP
E.W.	= EACH WAY	PCF	= POUNDS PER CUBIC FOOT	WCJ	= WALL CONSTRUCTION JOINT
EXIST.	= EXISTING	PERF.	= PERFORATED	WWF	= WELDED WIRE FABRIC
F.B.	= FLAT BAR	PL	= PLATE		
F.D.	= FLOOR DRAIN	PLF	= POUNDS PER LINEAR FOOT		
F.F.	= FAR FACE	PRE-FAB	= PREVIOUSLY FABRICATED		
FG	= FINISH GRADE	PSF	= POUNDS PER SQUARE FOOT		
F.H.	= FLAT HEAD	PSI	= POUNDS PER SQUARE INCH		
FLG	= FLANGE	PSPD	= POST SORT POOL DRAIN		
FT.	= FOOT, FEET	PT	= POINT OF TANGENCY (CIVIL SHEETS)		
F.W.	= FLAT WASHER	PT.	= POINT		
FWS	= FACILITY WATER SUPPLY				
FWWS	= FACILITY WARM WATER SUPPLY				

DRAWING INDEX

SHEET COUNT	GENERAL	DESCRIPTION
	SHEET NUMBER	
1	G-001	TITLE/ SIGNATURE SHEET
2	G-002	REGIONAL, VICINITY AND SITE MAP
3	G-003	DRAWING INDEX, ABBREVIATIONS AND NOTES
4	GC-101	GENERAL PLANS
5	GC-102	GENERAL ELEVATIONS
6	GC-103	SECTION VIEWS
7	GC-104	CIVIL DETAILS
8	GS-101	STRUCTURAL DETAILS - SHEET 1 OF 2
9	GS-102	STRUCTURAL DETAILS - SHEET 2 OF 2
	MECHANICAL	
10	M-001	MECHANICAL NOTES, LEGENDS AND ABBREVIATIONS
11	M-101	GENERAL ARRANGEMENT
12	M-102	ELEVATION AND PLAN
13	M-103	FOREBAY INTAKE PLAN AND TRASHRAKE MACHINERY
14	M-104	MISCELLANEOUS INSTALLATION DETAILS
15	M-105	TRASHRAKE ASSEMBLY IN BRUSHING POSITION
16	M-106	SYSTEM OPERATION DETAILS
	ELECTRICAL	
17	E-001	ABBREVIATION AND SYMBOLS
18	E-002	SINGLE-LINE DIAGRAM
19	E-003	PLAN, SECTION & DETAIL - SHEET 1
20	E-004	PLAN, SECTION & DETAIL - SHEET 2
21	E-007	CONTROL PANEL LAYOUT
22	E-009	EAST EXIT FISH SCADA PLC ENCLOSURE - CONTROL SCHEMATIC
23	E-010	EAST EXIT FISH SCADA ENCLOSURE - BACK PANEL WIRING DIAGRAM

GENERAL NOTES:

- SEE SHEET G-002 FOR OVERALL PROJECT SITE BOUNDARY AND VICINITY MAP.
- SEE SHEET M-001FOR MECHANICAL GENERAL NOTES.
- SEE SHEET E-001 FOR ELECTRICAL GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
- PROJECT ELEVATION DATUM IS NGVD 29-47. THE CONVERSION BETWEEN PROJECT DATUM AND NAVD88 IS: NAVD88 = PROJECT DATUM + 3.58 FEET.
- ANCHOR ALL NEW MECHANICAL AND ELECTRICAL SYSTEMS IN ACCORDANCE WITH SECTION 13 48 00.00.
- PERFORM CONCRETE CORE DRILLING IN ACCORDANCE WITH SECTION 03 60 00.01 26. SCAN ALL RELATED CONCRETE FACES AND SUBMIT CONCRETE IMAGING REPORT TO GOVERNMENT PRIOR TO CORE DRILLING.

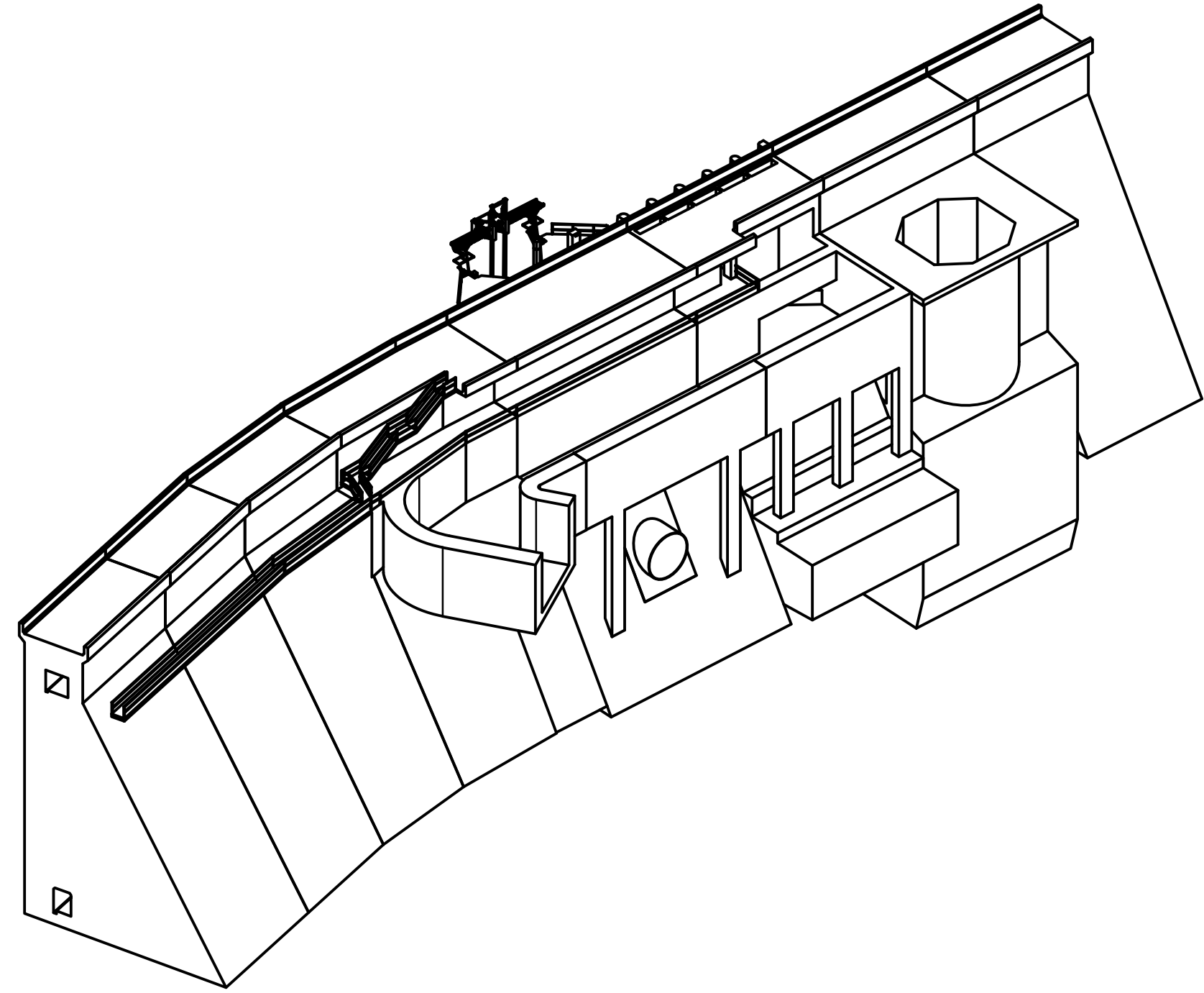


BCOE/50 PERCENT REVIEW

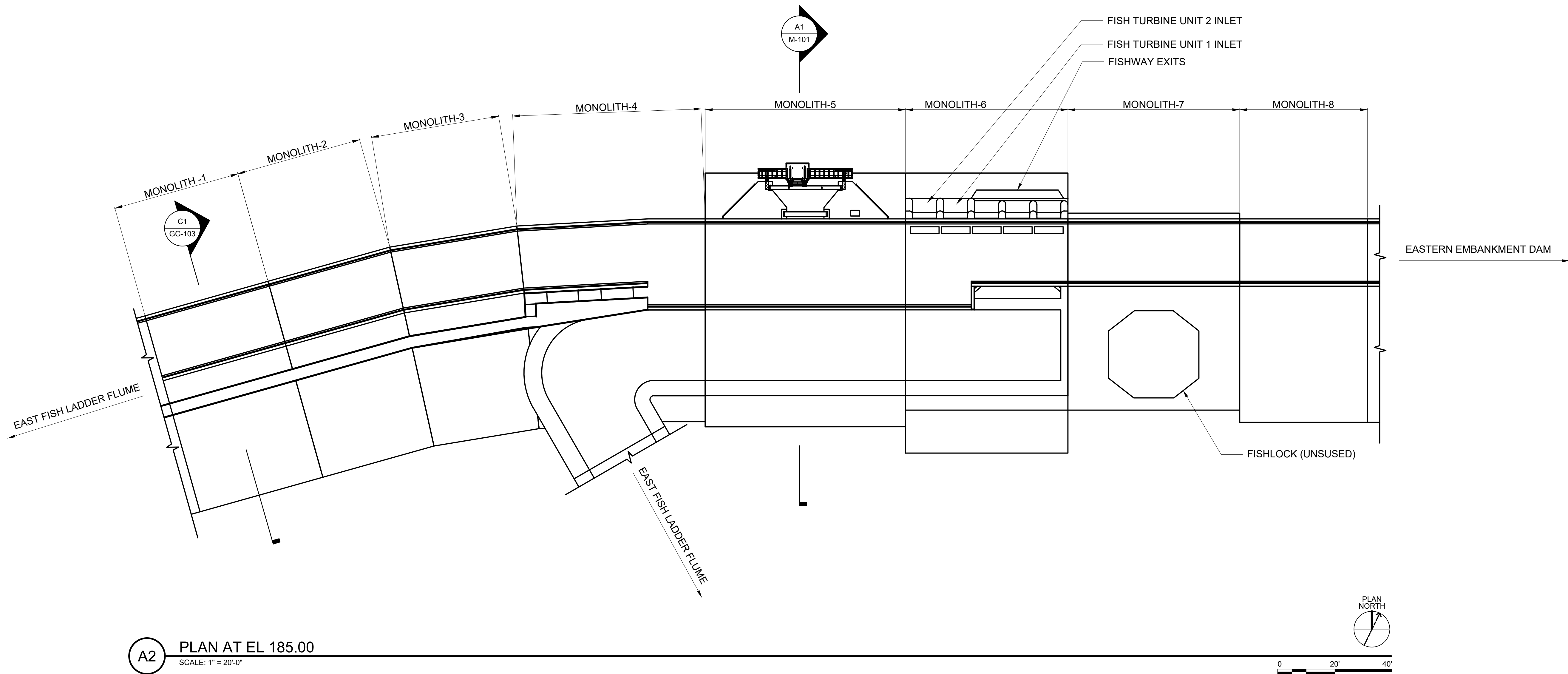
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DRAWN BY:	APPROVED BY:	12/20/2024
SUBMITTED BY:	CONTRACT NO.:	
E. CLOUGH	WH12EF240002	
PLOT SCALE:	FILE NUMBER:	
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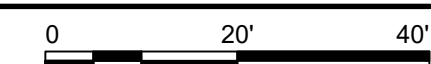
THE DALLES LOCK AND DAM
TDA AWS BACKUP
DEBRIS MANAGEMENT
DRAWING INDEX
ABBREVIATIONS AND NOTES

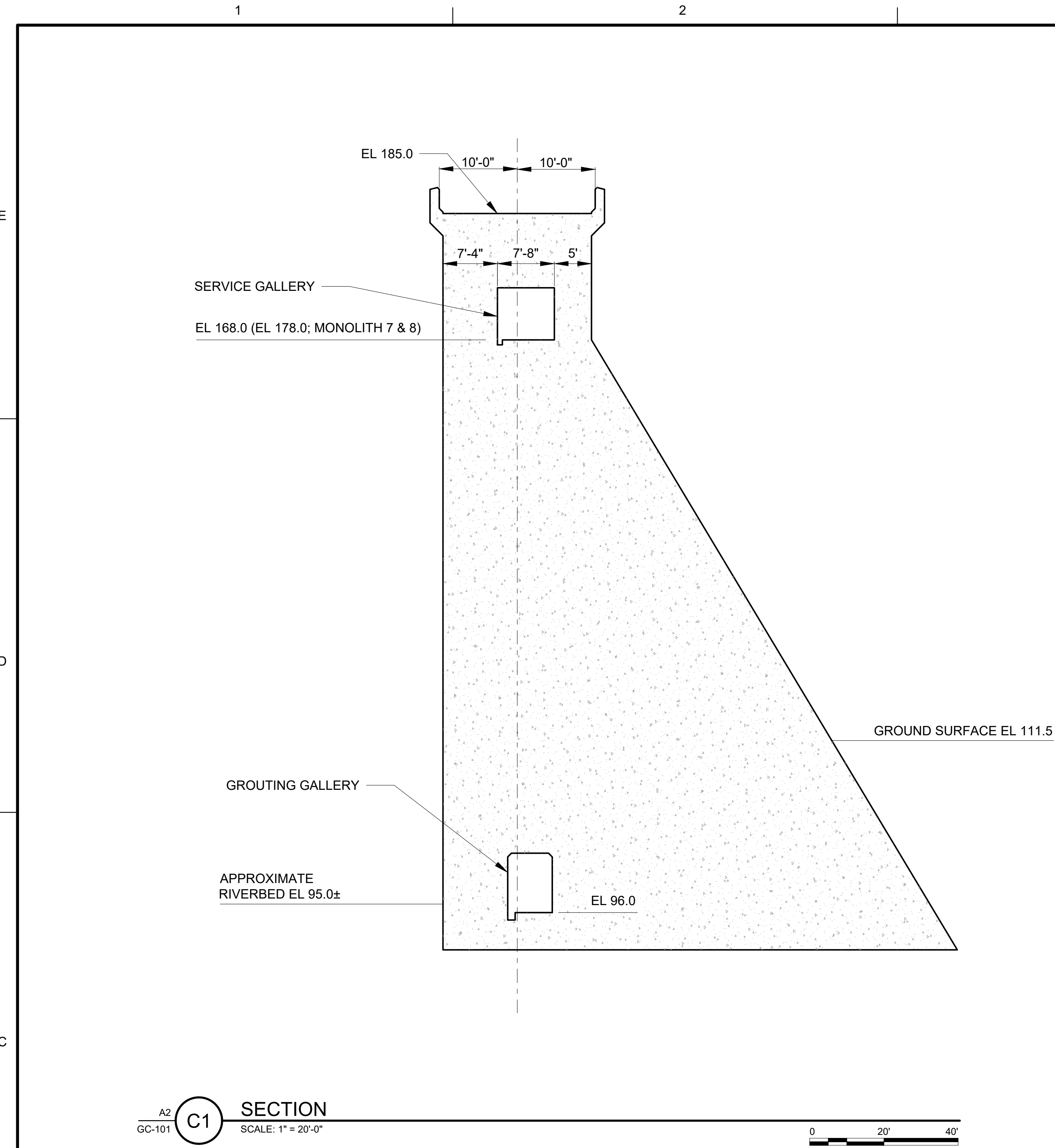
SHEET
IDENTIFICATION
G-003



ISO VIEW - EASTERN NOV-OVERFLOW DAM (INCLUDING PORTIONS OF THE EAST FISH LADDER)
SCALE: NTS







RTOLENTINO

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US Army Corps
of Engineers
PORTLAND DISTRICT

BCOE/50 PERCENT REVIEW		DATE	APPR.
MARK	DESCRIPTION	DATE	APPR.

U.S. ARMY CORPS OF ENGINEERS PORTLAND DISTRICT PORTLAND, OREGON		DATE 12/20/2024
DESIGNED BY	CHECKED BY	SOLICITATION NO.
DRAWN BY	APPROVED BY	CONTRACT NO.
SUBMITTED BY	E. CLOUGH	W012EF240002
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THE DALLAS LOCK AND DAM
TDA AWS BACKUP
DEBRIS MANAGEMENT
SECTION VIEWS

SHEET
IDENTIFICATION
GC-103

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SHEET CONTENT WILL BE INCLUDED IN LATER REVISIONS

[illegible]

U.S. ARMY CORPS OF ENGINEERS PORTLAND DISTRICT PORTLAND, OREGON	DESIGNED BY:	ISSUED DATE:
	CHECKED BY:	SOLICITATION NO.:
BAIRD - STANTEC JOINT VENTURE	DRAWN BY:	END BY:
	SUBMITTED BY:	CONTRACT NO.:
	PLOT SCALE:	PLOT DATE:
	AS SHOWN	12/19/2024
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CIVIL DETAILS

SHEET
IDENTIFICATION
GC-104

File Last Saved By: RTOLENTINO

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SHEET CONTENT WILL BE INCLUDED IN LATER REVISIONS



US Army Corps
of Engineers
PORTLAND DISTRICT

BCOE/50 PERCENT REVIEW

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ISSUED BY:	SOLICITATION NO.:
SUBMITTER'S NAME:	CONTRACT NO.:
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PLOT DATE:	DRAWING NUMBER:
SIZE:	FILE NAME:
F. SIZE:	

THE DALLIES LOCK AND DAM
TDA AWS BACKUP
DEBRIS MANAGEMENT
STRUCTURAL DETAILS
SHEET 1 OF 2

SHEET
IDENTIFICATION
GS-101

File Last Saved By: RTOLENTINO

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SHEET CONTENT WILL BE INCLUDED IN LATER REVISIONS



THE DALLES LOCK AND DAM
TDA AWS BACKUP
DEBRIS MANAGEMENT
STRUCTURAL DETAILS
SHEET 2 OF 2

SHEET
IDENTIFICATION
GS-102

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
PORTLAND, OREGON
BAIRD, STANTEC
JOINT VENTURE

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SOLICITATION NO.:
CONTRACT NO.:
FILE NUMBER:
DRAWING NUMBER:

BCOE/50 PERCENT REVIEW

MARK

DATE

APPR.

DESCRIPTION

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GENERAL NOTES

GENERAL:

- CONTRACTOR'S WORK SHALL INCLUDE FABRICATION, SHOP ASSEMBLY, SHOP TESTING, DELIVERY, INSTALLATION, COMMISSIONING AND FIELD TESTING OF ONE (1) DOUBLE TELESCOPIC BOOM AUTOMATIC TRASHRAKE MACHINERY FOR TRASH REMOVAL FROM THE EXISTING INTAKE TRASHRACKS AND ALL ACCESSORIES REQUIRED FOR THE EQUIPMENTS INTENDED FUNCTION.
- GENERAL LAYOUT OF THE TRASHRAKE MACHINERY TO BE SUPPLIED SHALL BE AS SHOWN ON DRAWINGS M-101 TO M-106. NOTES ON DRAWINGS SHALL APPLY TO ALL MECHANICAL DRAWINGS.
- BILL OF MATERIALS INCLUDING MATERIAL, SIZE, THICKNESS, WEIGHT, QUANTITIES, ETC SHALL BE SHOWN ON CONTRACTOR'S FABRICATION DRAWINGS, AND NOT ON SEPARATE SHEETS.
- ALL EQUIPMENT SHALL BE SUITABLE FOR PERFORMING ITS INTENDED FUNCTIONS AS DESCRIBED IN THESE DRAWINGS AND SPECIFICATIONS. ALL EQUIPMENT SHALL BE OF WELDED CONSTRUCTION UNLESS OTHERWISE NOTED OR SPECIFIED.
- THE CONTRACTOR SHALL ALLOW ADEQUATE CUTTING TOLERANCES ON THE RAW MATERIAL TO ENSURE ACCURATE FINISH DIMENSIONS, AND SHALL TAKE INTO CONSIDERATION PAINT THICKNESS WHEN DETERMINING THE DESIGN CLEARANCES FOR PAINTED SURFACES.
- THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS BEFORE START OF THE FABRICATION. CORRECT FIT OF PARTS SHALL BE CONTRACTOR'S RESPONSIBILITY EVEN IF THE CONTRACTOR'S DRAWINGS ARE APPROVED BY THE ENGINEER.
- ELEVATIONS ARE IN DECIMALS OF FEET AND DIMENSIONS ARE IN FEET AND INCHES.

MATERIALS:

- ALL STRUCTURAL STEEL PLATES SHALL BE A572, A36 OR EQUAL EXCEPT AS OTHERWISE NOTED. ALL STEEL PLATES SHALL CONFORM TO ASTM SPECIFICATIONS A6.
- ALL STAINLESS STEEL MATERIAL ("CRES") SHALL CONFORM TO ASTM A240 OR A276, TYPE 316, EXCEPT AS OTHERWISE NOTED OR SPECIFIED. ANY BRONZE COMPONENTS SHALL CONFORM TO ASTM B584. SELF-LUBRICATING BUSHINGS AND WASHERS/BACKING/SUBSTRATES SHALL BE OF SELF-LUBRICATING BRONZE MATERIAL, SUITABLE FOR POTABLE WATER ENVIRONMENT, AS MANUFACTURED BY LUBRITE TECHNOLOGIES, 145 WEBSTER ST., SUITE J, HANOVER, MA 02339 OR APPROVED EQUAL.

THREADED FASTENERS:

- ANCHOR BOLTS / RODS SHALL BE STAINLESS STEEL, ASTM A276, TYPE 316 OR EQUAL. CHEMICAL ANCHORS (ADHESIVE / EPOXY TYPE) FOR POST INSTALLED/DRILLED APPLICATIONS SHALL BE HILTI HIT-HY 200 OR APPROVED EQUAL. ALL OTHER BOLTS AND NUTS, INCLUDING SCREWS, SHALL BE OF ASTM F593/F594, UNLESS OTHERWISE NOTED OR SPECIFIED.
- ANCHOR BOLTS / RODS INSTALLED INTO EXISTING CONCRETE SHALL HAVE PROOF LOAD TESTING (TENSION TEST) PERFORMED. THE TEST LOAD SHALL BE TWICE THE ALLOWABLE TENSION LOAD OR 1-1/4 TIMES THE MAXIMUM DESIGN STRENGTH OF THE ANCHORS IN TENSION AS INDICATED IN THE ICC-ES OR IAPMO-UES REPORT. THE TEST LOAD NEED NOT EXCEED 80 PERCENT OF THE NOMINAL YIELD STRENGTH OF THE ANCHOR, BASED ON STEEL STRENGTH, AS DETERMINED BY ACI 318. A MINIMUM OF 3 ANCHORS SHALL BE TESTED FOR EACH INSTALLATION POSITION.
- ALL THREADED FASTENERS SHALL BE PROVIDED WITH A LOCKING DEVICE.

- AN APPROVED ANTI-SEIZE COMPOUND SHALL BE APPLIED TO THREADS OF CRES FASTENERS DURING ASSEMBLY TO PREVENT GALLING. INSULATORS SHALL BE PROVIDED BETWEEN ALL DISSIMILAR METALS IN CONTACT.
- SURFACES OF DIFFERENT MATERIALS IN CONTACT WITH EACH OTHER, SUBJECT TO CONTINUOUS IMMERSION, SHALL BE ISOLATED BY THE USE OF AN INSULATING MATERIAL TO PREVENT ANODIC CORROSION.

WELDING:

- ALL WELDS SHALL BE CONTINUOUS AND WATERTIGHT, SEALED ALL AROUND. ALL GROOVE AND BUTT WELDS SHALL BE FULL PENETRATION WELDS UNLESS OTHERWISE NOTED OR SPECIFIED. MINIMUM SIZE OF FILLET WELDS SHALL BE 5/16" MEASURED ALONG THE LEG, UNLESS OTHERWISE NOTED.
- WELDING INVOLVING CRES COMPONENTS SHALL BE DONE WITH FILLER MATERIAL OF CHEMICAL COMPOSITION EQUAL TO CRES MATERIAL.
- WELDS SHALL BE BLENDED TO REMOVE SURFACE IRREGULARITIES AND SHARP CORNERS TO AVOID STRESS RISERS AND DRESSED FOR PROPER ADHESION OF THE PAINT BEFORE PROCEEDING WITH THE OVERALL SURFACE PREPARATION FOR PAINTING. AREAS OF HIGH STRESS AND MACHINED SURFACES SHALL BE PROTECTED FROM WELD SPATTER.
- ALL CARBON STEEL MACHINED SURFACES COMING IN CONTACT WITH STAINLESS STEEL SHALL BE PROVIDED WITH CRES LAYER OF SUFFICIENT THICKNESS BY WELDING AND MACHINING.

EXAMINATION OF WELDS:

- ALL COMPLETED WELDS SHALL BE CLEANED AND CAREFULLY EXAMINED FOR INSUFFICIENT THROAT OR LEG SIZES, CRACKS, UNDERCUTTING, OVERLAP, EXCESSIVE CONVEXITY OR REINFORCEMENT AND OTHER SURFACE DEFECTS TO PROVIDE COMPLIANCE WITH THE REQUIREMENTS OF AWS D1.1, CLAUSE 8-INSPECTION, AS APPLICABLE. ALL WELDS SHALL BE EXAMINED BY DYE PENETRANT METHOD (OR OTHER APPLICABLE METHODS) TO THE EXTENT OF MINIMUM 25%. THE ENGINEER SHALL HAVE THE RIGHT TO REQUEST RANDOM SPOT CHECK EXAMINATION OF WELDS, INCLUDING RADIOGRAPHIC EXAMINATION, AS PART OF THE EQUIPMENT EXAMINATION.

STRESS RELIEF:

- BEFORE WELDING, PREHEATING OF BASE METAL SHALL BE PERFORMED AS NECESSARY TO MINIMIZE DISTORTION. THE WELDING PROCEDURES SHALL BE SUCH THAT HEAT IS CONTROLLED SO AS NOT TO ADVERSELY AFFECT THE MECHANICAL PROPERTIES OF THE BASE METAL. AFTER WELDING IS COMPLETE THE FREEBOARD EXTENSION PLATE ASSEMBLY SHALL BE STRESS RELIEVED BY HEAT TREATMENT. STRESS RELIEF SHALL BE PERFORMED IN ACCORDANCE WITH AWS D1.1. PROPER RESTRAINT AND SUPPORT SHALL BE PROVIDED IN THE FURNACE DURING HEAT TREATMENT TO MINIMIZE DISTORTION. STRESS RELIEVING MAY BE WAIVED BY THE ENGINEER AT THEIR SOLE DISCRETION IF THE WELDING PROCESS IS SHOWN TO BE ADEQUATELY BALANCED TO ELIMINATE NOTICEABLE DISTORTION AND TO MAINTAIN PARTS WITHIN REQUIRED FINISH TOLERANCES. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF HOW DISTORTION IS TO BE CONTROLLED DURING FABRICATION.

MACHINING:

- SURFACES TO BE MACHINED SHALL INCLUDE ALL SURFACES REQUIRED TO BE PRECISELY ALIGNED.
- SURFACE TEXTURE WHERE GIVEN IS ACCORDING TO ANSI B46.1. SURFACES NOT MARKED, SHALL HAVE A FINISH OF 250 MICRO-INCHES RMS OR BETTER. NO MACHINING IS REQUIRED IF OTHERWISE FINISHED (ROLLED, CAST, ETC.) SURFACE IS BETTER THAN THE INDICATED REQUIREMENTS. SURFACE FINISH IN EACH CASE SHALL BE SUBJECT TO ENGINEER'S APPROVAL.
- ROUNDING OF EDGES WHERE SHOWN SHALL BE FULL RADIUS.

PAINTING:

- SURFACE PREPARATION SHALL BE PER SP 10- WHITE METAL BLAST. CARBON STEEL PARTS SHALL BE PAINTED WITH AMERCOAT 68 AS ZINC PRIMER (3-5 MILS), AMERLOCK 2/400 AS EPOXY INTERMEDIATE COAT (6-8 MILS) AND AMER SHIELD AS POLYURETHANE COAT (3-5 MILS), AS MANUFACTURED BY PPG PROTECTIVE AND MARINE COATINGS, ONE PPG PLACE, PITTSBURGH, PA-15272 OR APPROVED EQUAL.
- ALL PAINTING INCLUDING ALL TOUCH-UP PAINTING IN THE FIELD SHALL BE DONE IN STRICT ACCORDANCE WITH PAINT MANUFACTURER'S INSTRUCTIONS. FIELD TOUCH-UP PAINTING SHALL BE PERFORMED AFTER EQUIPMENT INSTALLATION IS COMPLETE INCLUDING ALL FIELD WELDING.
- STIFFENER PLATES AND OTHER STRUCTURAL MEMBERS, WHICH WOULD INTERFERE WITH WELDS JOINING THE MAIN MEMBERS, SHALL BE CHAMFERED TO CLEAR THE WELDS AND TO PROVIDE ADEQUATE SPACE TO FACILITATE PROPER SURFACE PREPARATION AND PAINTING OF THE WELDS AND OF THE SURFACES FACING THE WELDS.
- ADEQUATE UNPAINTED SPACE SHALL BE PROVIDED IN THE SHOP ON EACH SIDE OF ALL FIELD WELDED SPLICES TO PREVENT EXTENDED DAMAGE TO THE PAINT DURING FIELD WELDING.
- STEEL SURFACES OF DIFFERENT STRUCTURAL ITEMS IN CONTACT WITH EACH OTHER SHALL BE PAINTED BEFORE ASSEMBLY. STEEL BOLTS SHALL ALSO BE PAINTED AND/ OR COATED WITH AN APPROVED ANTI-CORROSION COMPOUND.
- CRES PARTS WELDED TO CARBON STEEL, IF ANY, SHALL BE PAINTED ON THE WELD AND AN ADEQUATE DISTANCE BEYOND IN BOTH DIRECTIONS ONTO THE CRES AND CARBON STEEL TO PREVENT ANODIC REACTION BETWEEN THE DISSIMILAR METALS.

SYMBOL LEGEND:

	EXISTING CONCRETE
	EXISTING GROUT
	STEEL
	STAINLESS STEEL (CRES)
	UHMWPE
	RUBBER

ABBREVIATIONS:

@	AT	MAX	MAXIMUM
BRNZ	BRONZE OR BRASS	MIN	MINIMUM
CCW	COUNTERCLOCKWISE	NDE	NON DESTRUCTIVE EXAMINATION
CG	CENTER OF GRAVITY	NO	NUMBER
CL	CENTERLINE	OC	ON CENTERS
CLR	CLEARANCE	PL	PLATE
CONT.	CONTINUOUS	PT	POINT OF TANGENCY
CRES	CORROSION RESISTANT STEEL	R	RADIUS
CTSK	COUNTERSUNK	STIFF.	STIFFENER
CW	CLOCKWISE	SYM	SYMMETRICAL
DIA, Ø	DIAMETER	THK	THICKNESS
DEG	DEGREE	TYP	TYPICAL
DFT	DRY FILM THICKNESS	TW	TAIL WATER
D/S	DOWNSTREAM	U/S	UPSTREAM
DWG	DRAWING	WP	WORK POINT
EL.	ELEVATION	WS	WATER SURFACE
ETC	ET CETERA		FINISH MARK (MACHINED SURFACE)
HW	HEAD WATER	±	PLUS OR MINUS
UHMWPE	ULTRA HIGH MOLECULAR WEIGHT POLYETHYLENE		



BCOE/50 PERCENT REVIEW

DESIGNED BY E. CHANASEKHARAN	DATE 12/20/2024
DRAWN BY E. CLOUGH	CHECKED BY E. WEBB
SUBMITTED BY E. CLOUGH	CONTRACT NO. W12F240002
FILE NAME FILE NAME	FILE NUMBER FILE NUMBER
BAIRD - STANTEC JOINT VENTURE	

THE DALLES LOCK AND DAM
TDA AWS BACKUP
DEBRIS MANAGEMENT
MECHANICAL NOTES, LEGENDS AND
ABBREVIATIONS

SHEET
IDENTIFICATION
M-001

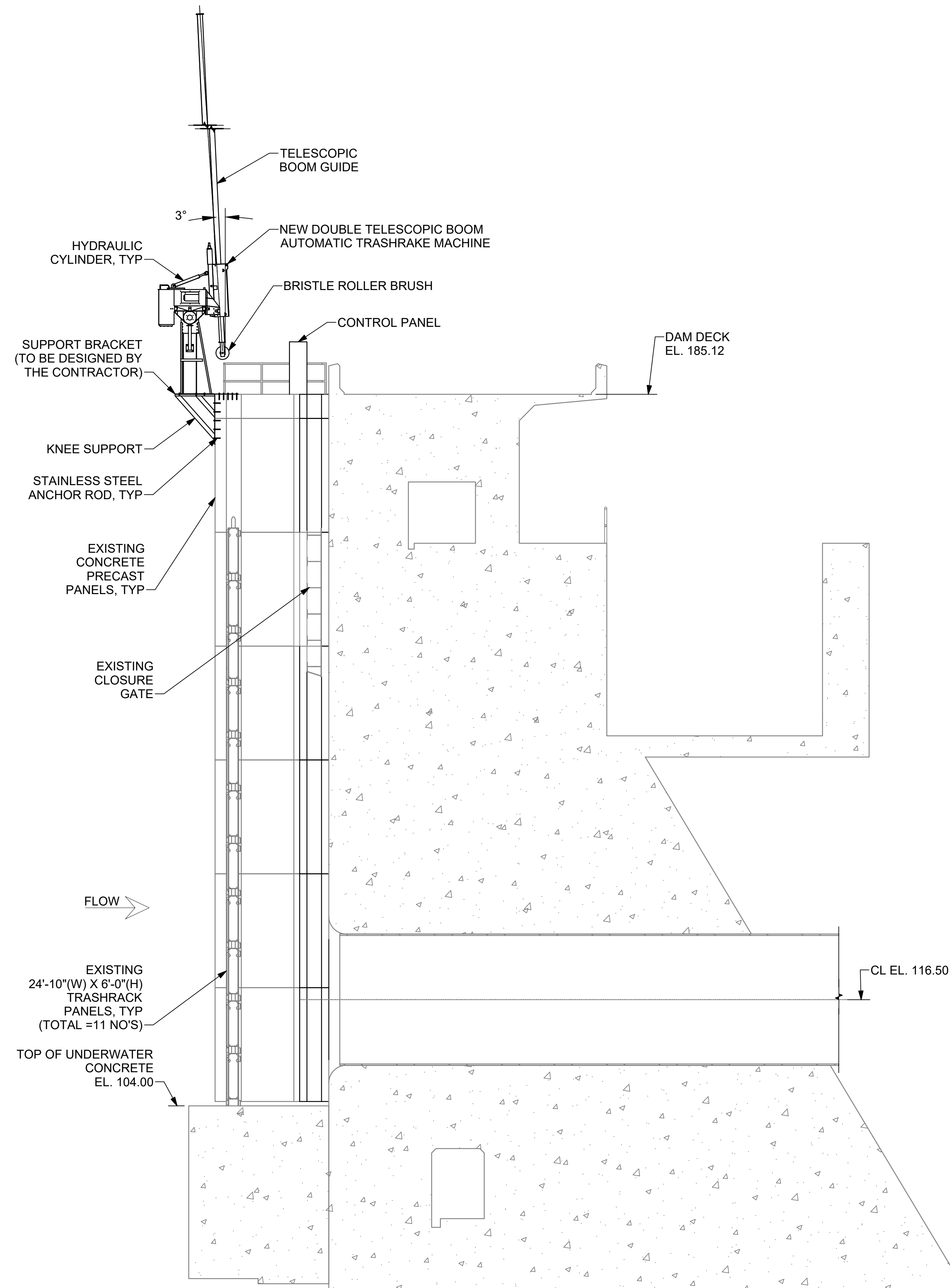
BCOE/50 PERCENT REVIEW

U.S. ARMY CORPS OF ENGINEERS PORTLAND DISTRICT PORTLAND, OREGON	DESIGNED BY: R. DHANASEKARAN	DATE: 12/20/2024
BAIRD - STANTEC JOINT VENTURE	DRAWN BY: R. TOLENTINO	CHECKED BY: V. NEGI
	SOLICITATION NO.: W9127N2AF00XX	
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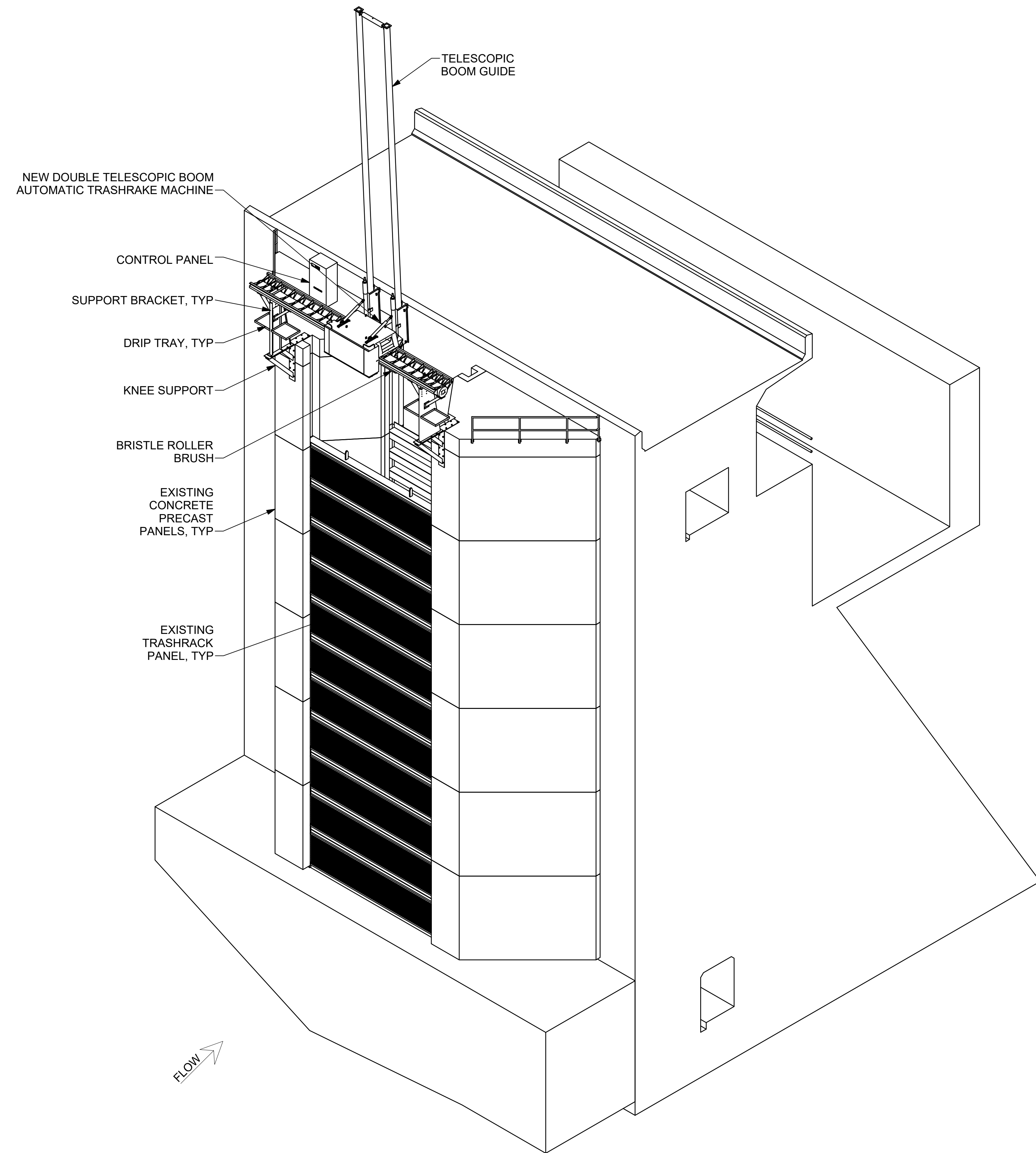
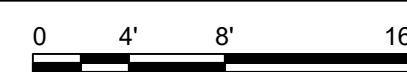
THE DALLES LOCK AND DAM
TDA AWS BACKUP
DEBRIS MANAGEMENT

MECHANICAL
NEW TRASHRAKE MACHINE
GENERAL ARRANGEMENT

SHEET
IDENTIFICATION
M-101



SECTION THROUGH FOREBAY INTAKE CL - NEW DEBRIS BRUSH MACHINE ARRANGEMENT



ISO VIEW - FOREBAY INTAKE CL - NEW DEBRIS BRUSH MACHINE ARRANGEMENT

SCALE: NTS

File Last Saved By: JMACSAYSAY

GENERAL SHEET NOTES

1. THE DRAWING SHOWS THE GENERAL LAYOUT OF THE DOUBLE TELESCOPIC BOOM AUTOMATIC TRASHRAKE CLEANING MACHINE FOR THE INTAKE TRASHRACKS.
2. TOTAL NUMBER OF TRASHRAKE CLEANING MACHINE REQUIRED FOR THE PROJECT = ONE (1).
3. MAXIMUM RAKING DEPTH SHALL BE APPROX 81.12 FT BELOW THE DAM DECK ELEVATION.
4. THE TRASHRAKE MACHINE SHALL BE SUITABLE FOR 230/460 VAC, 3-PHASE, 60 HZ POWER SUPPLY.

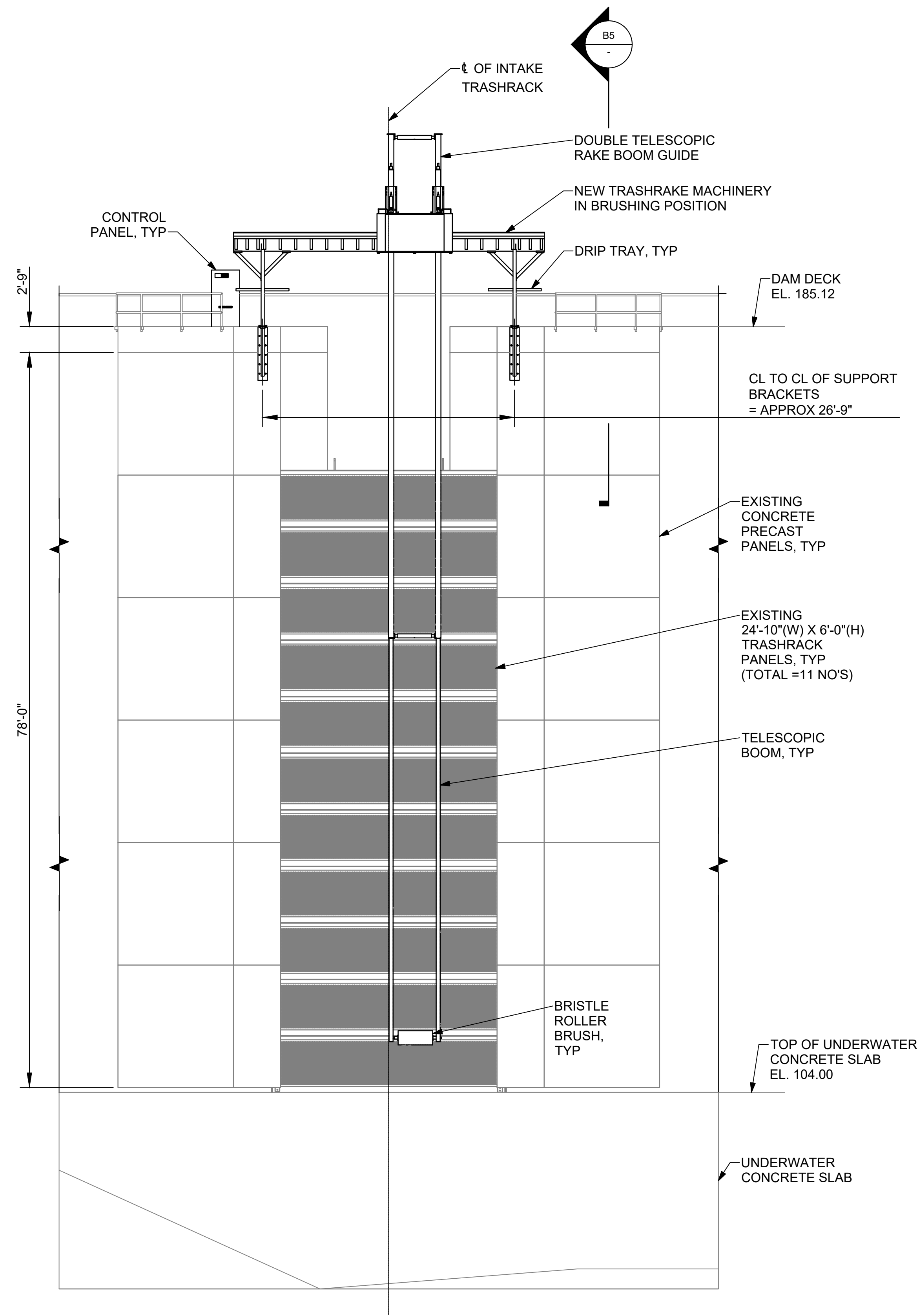


BCOE/50 PERCENT REVIEW

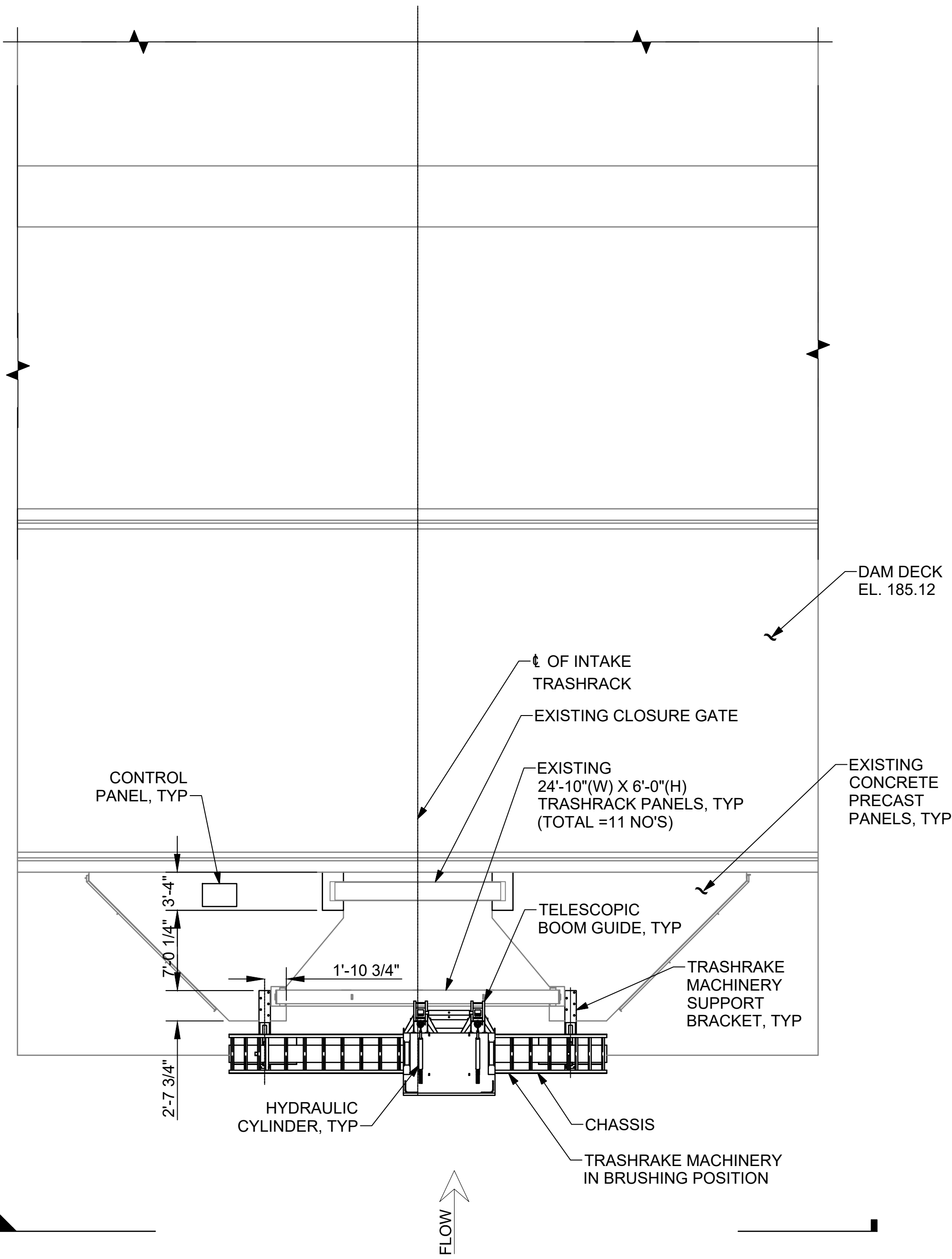
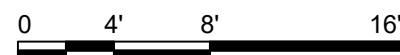
DESIGNED BY	DATE
DRAWN BY	CHECKED BY
SUBMITTED BY	CONTRACT NO.
FILE NUMBER	FILE NUMBER
FILE NAME	FILE NAME

THE DALLES LOCK AND DAM
TDA AWS BACKUP
DEBRIS MANAGEMENT
NEW TRASHRAKE MACHINE
ELEVATION AND PLAN

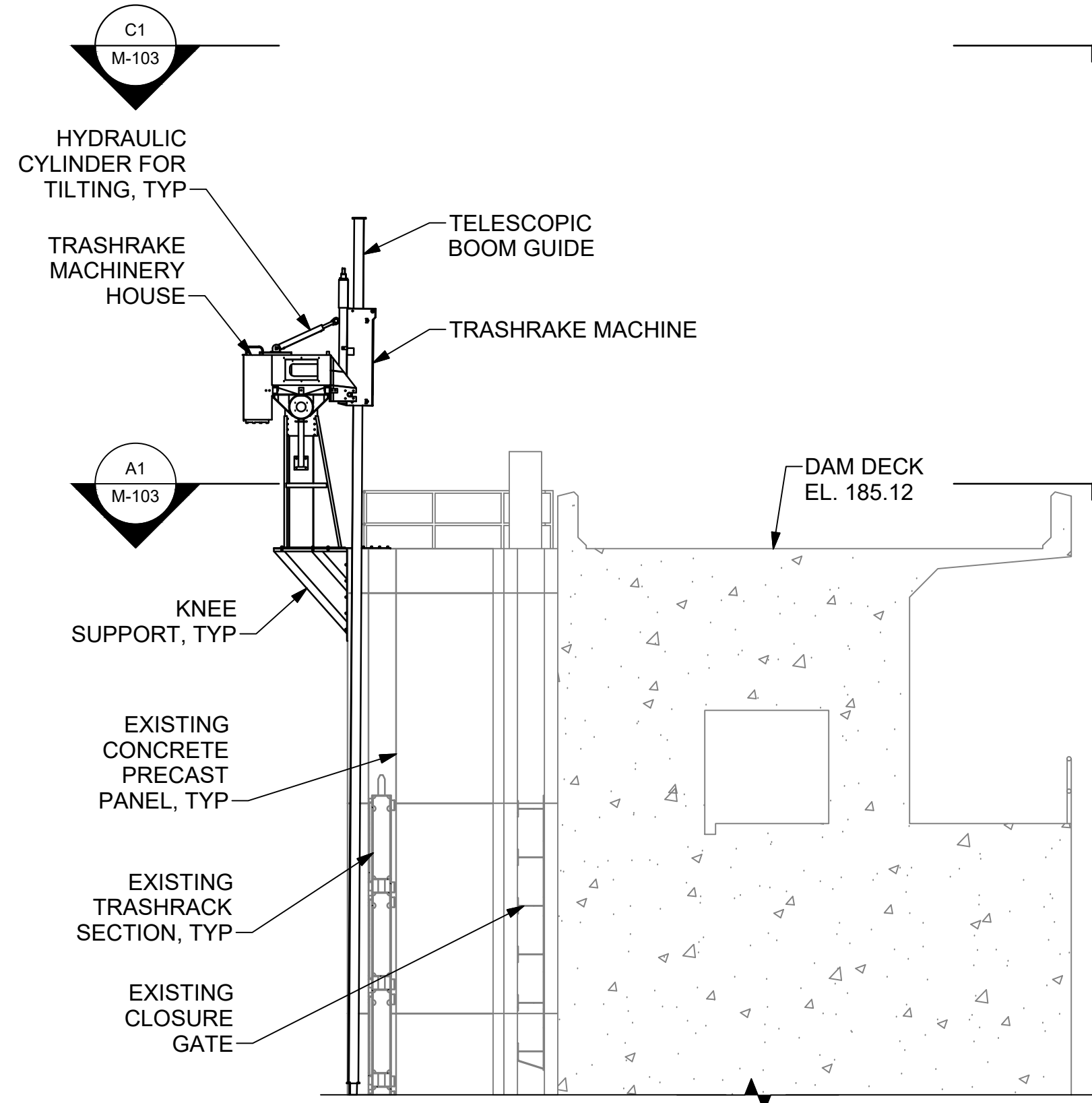
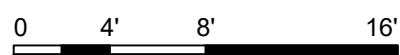
SHEET
IDENTIFICATION
M-102



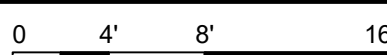
A1 ELEVATION - TRASHRAK AND DEBRIS BRUSH MACHINE
SCALE: 1/8" = 1'-0"



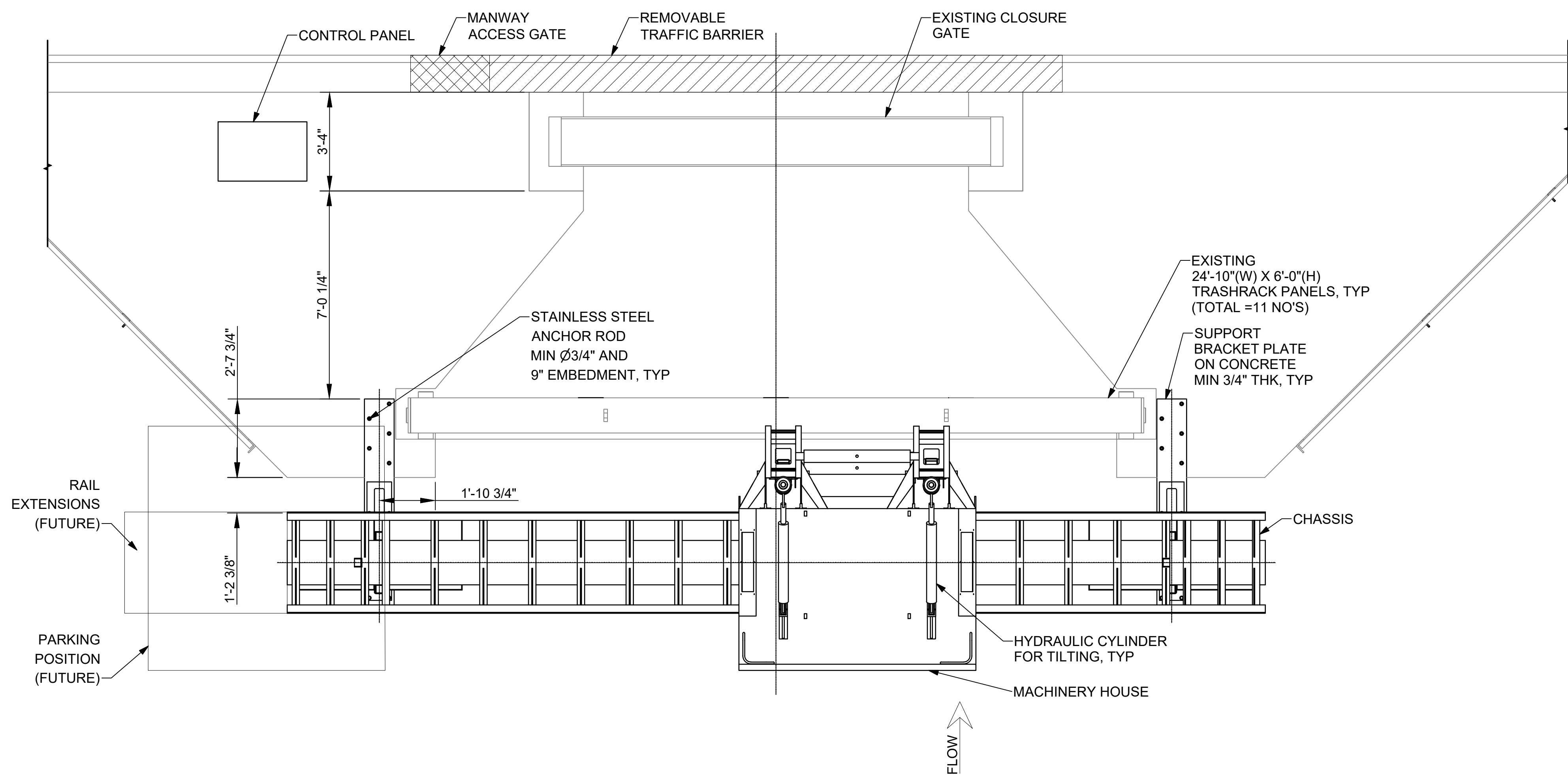
PLAN - TRASHRAK AND DEBRIS BRUSH MACHINERY
SCALE: 1/8" = 1'-0"



B5 SECTION
SCALE: 1/8" = 1'-0"

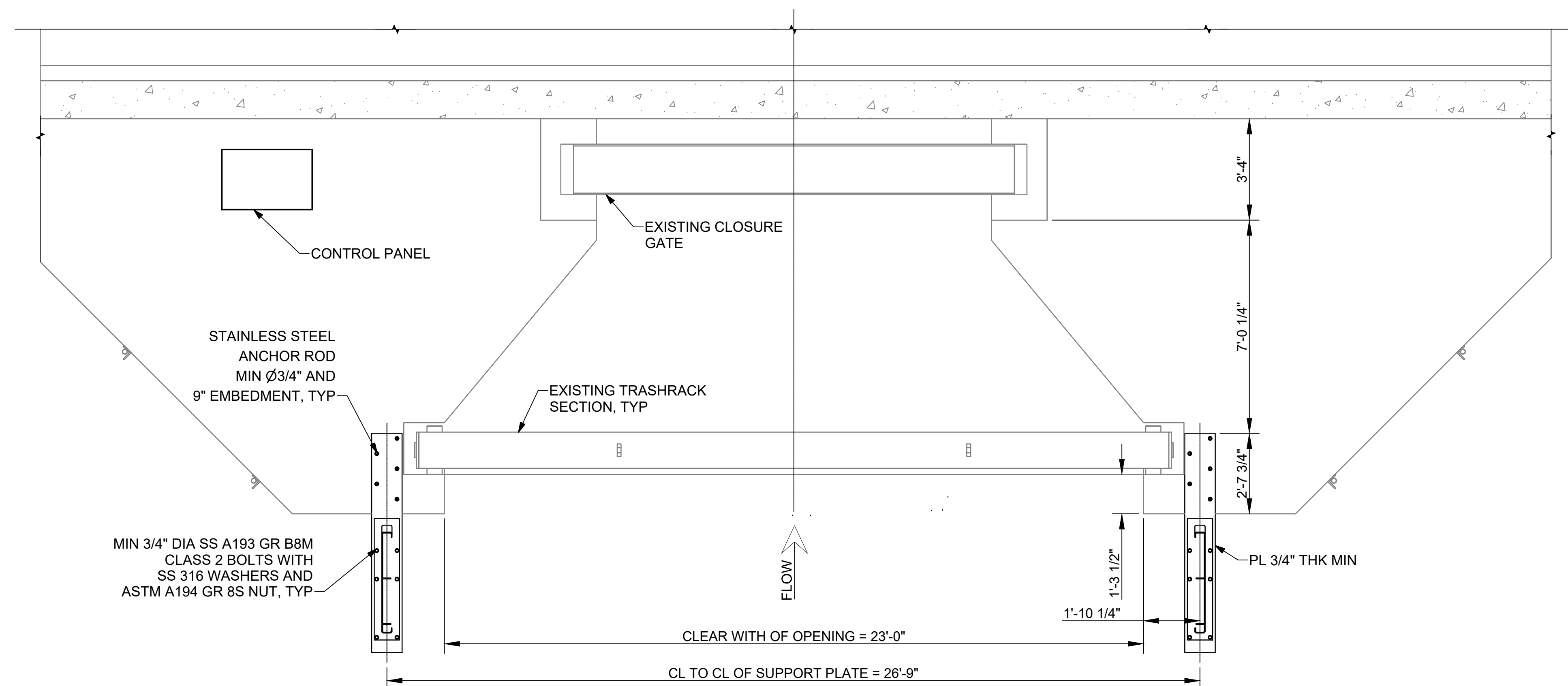
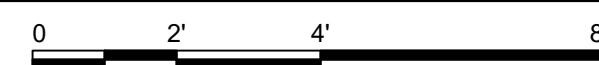


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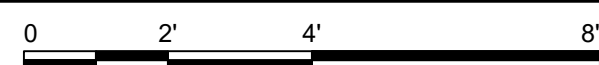
B5
M-102

C1 SECTION
SCALE: 3/8" = 1'-0"



B5
M-102

A1 SECTION
SCALE: 3/8" = 1'-0"



GENERAL SHEET NOTES

1. THE CONTRACTOR SHALL SUBMIT DESIGN OF THE SUPPORT FRAME AND ANCHORING WITH THE EXISTING INTAKE CONCRETE, WHICH SHALL BE SUBJECT TO OWNER'S APPROVAL. THE DIMENSIONS SHOWN FOR THE SUPPORT FRAME ON THE DRAWINGS ARE PRELIMINARY.
2. TRASHRAKE CHASIS LENGTH SHALL BE SUCH THAT TRASHRAKE TROLLEY WILL BE CLEAR FROM THE TRASHRACK SLOT BY AT LEAST TWO FEET IN THE PARKING POSITION.

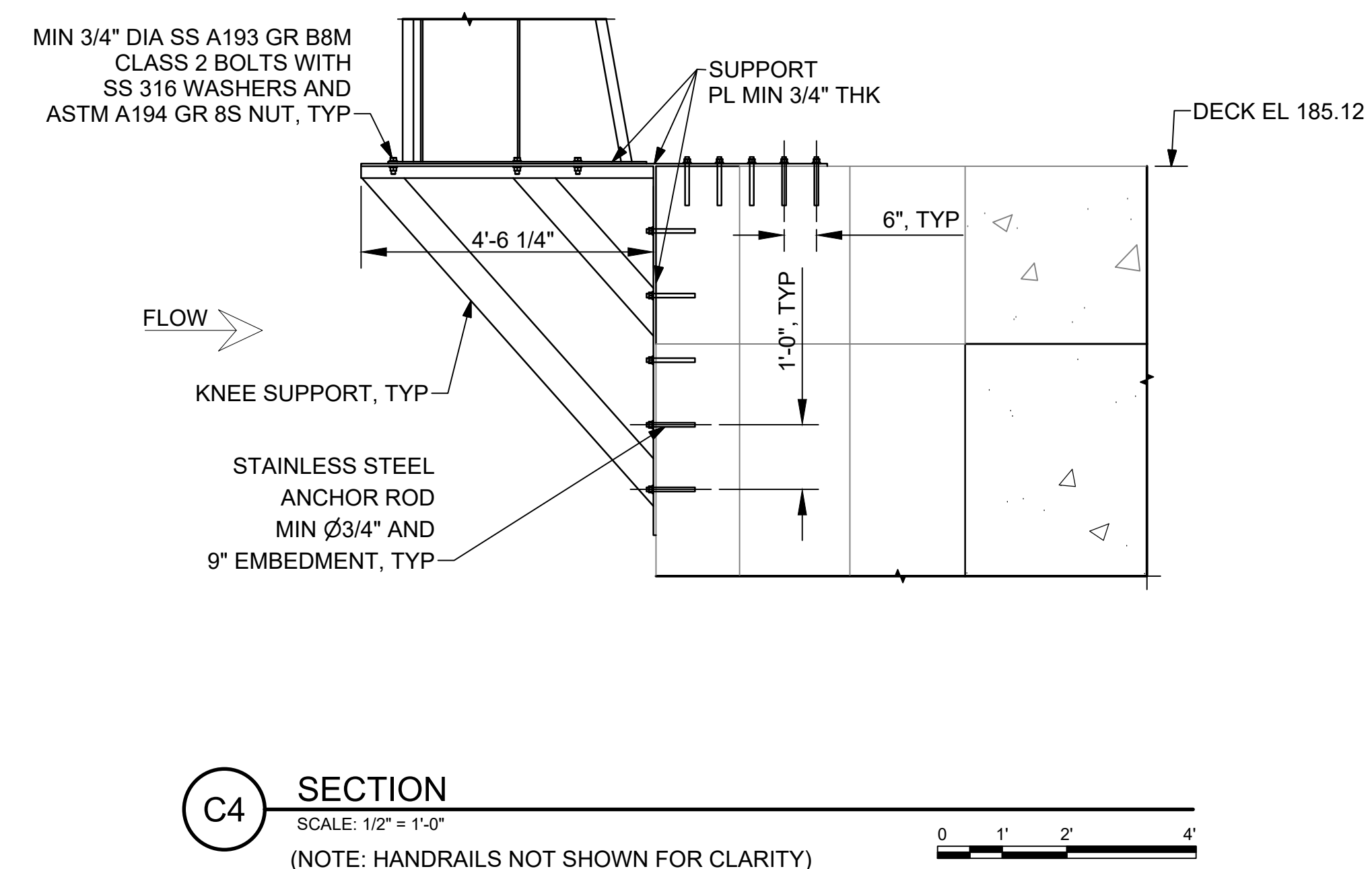


BCOE/50 PERCENT REVIEW

DESIGNED BY E. DINANSEKARAN	CHECKED BY W. WEI	SUBMITTED BY E. CLOUGH	DATE 12/20/2024	SOLICITATION NO. W12EF240002	CONTRACT NO. W12EF240002	FILE NUMBER
U.S. ARMY CORPS OF ENGINEERS PORTLAND DISTRICT PORTLAND, OREGON	BAIRD - STANTEC JOINT VENTURE	MECHANICAL NEW TRASHRAKE MACHINE FOREBAY INTAKE PLAN AND TRASHRAKE MACHINERY	FILE NAME	FILE NAME	FILE NAME	FILE NAME

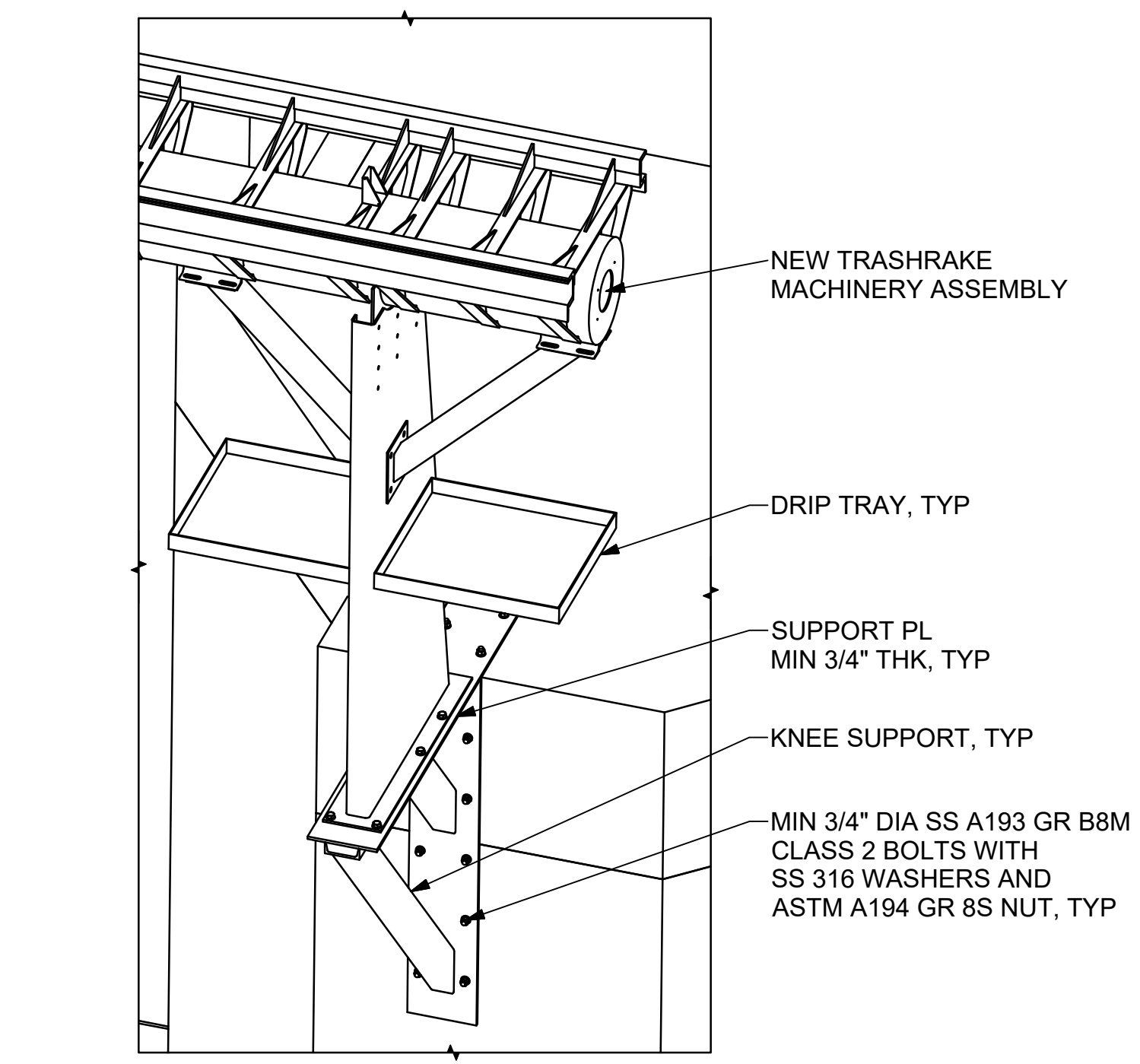
THE DALLES LOCK AND DAM
TDA AWS BACKUP
DEBRIS MANAGEMENT
MECHANICAL
NEW TRASHRAKE MACHINE
FOREBAY INTAKE PLAN AND TRASHRAKE MACHINERY

SHEET
IDENTIFICATION
M-103



SCALE: 3/8" = 1'-0"

(NOTE: HANDRAILS NOT SHOWN FOR CLARITY)



SCALE: NTS

File Last Saved By: RTOLENTINO

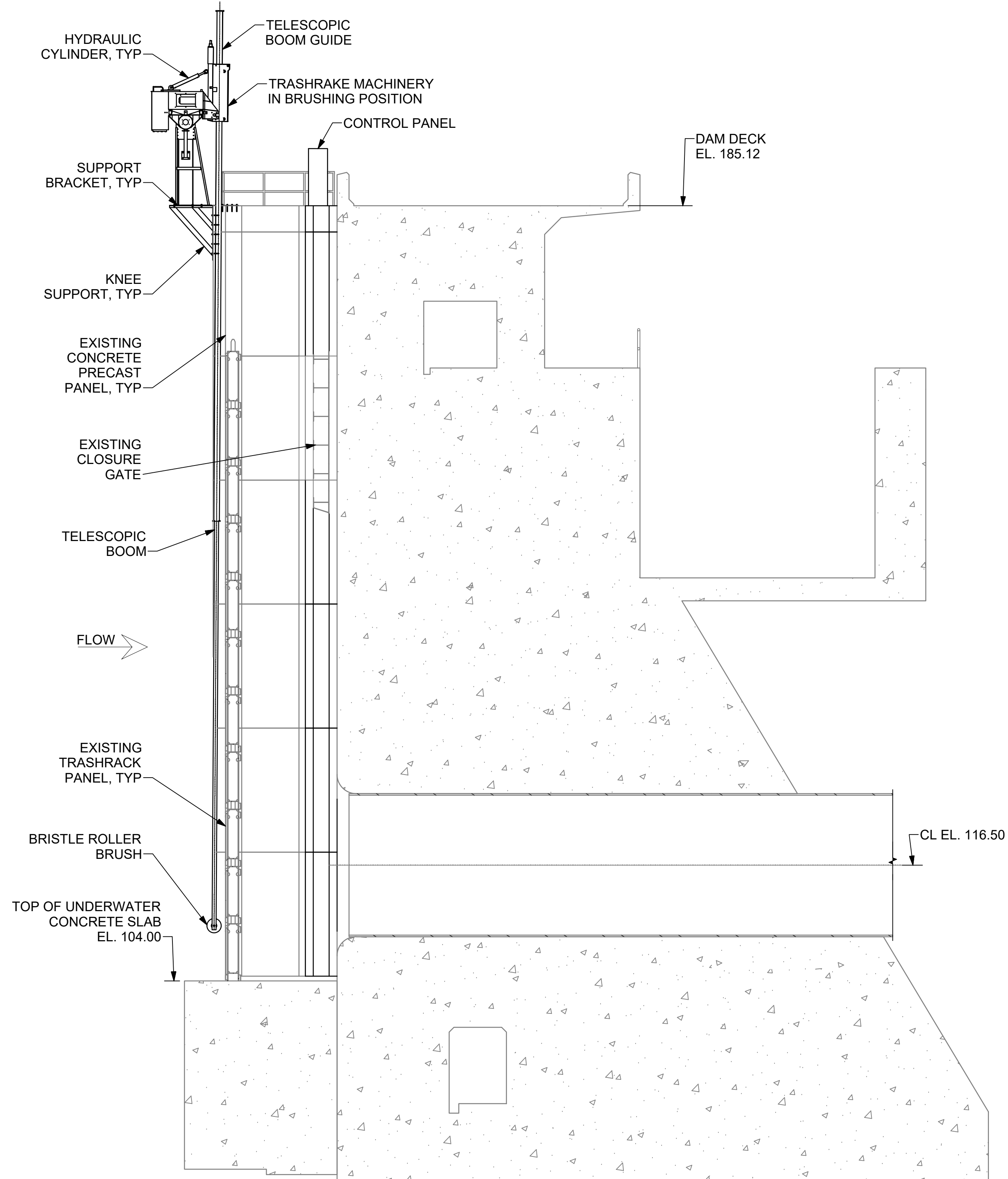
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D

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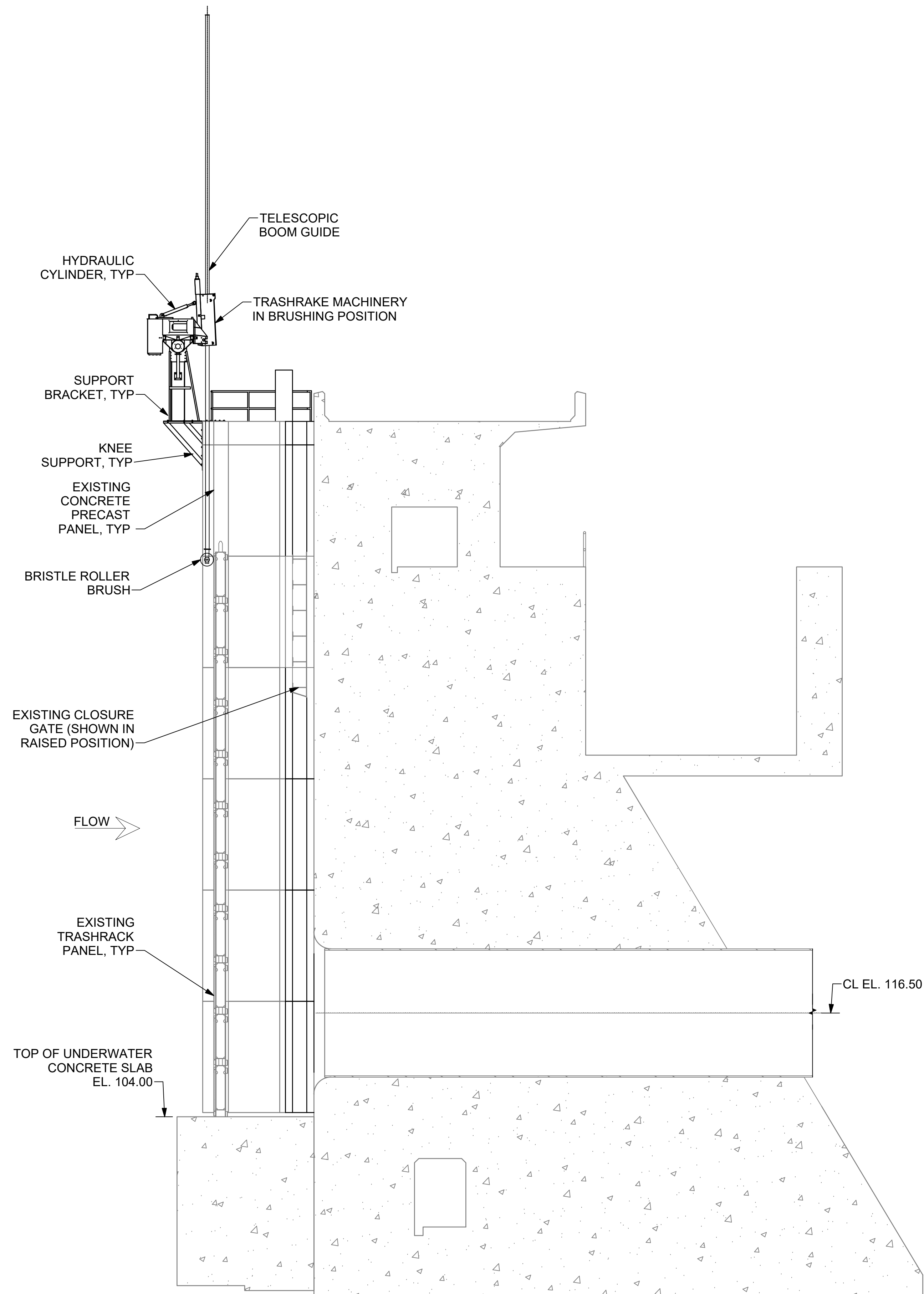
A



ELEVATION - DEBRIS BRUSH POSITION AT NEAR BOTTOM OF STROKE

SCALE: 1/8" = 1'-0"

0 4' 8' 16'



ELEVATION - DEBRIS BRUSH POSITION AT TOP OF STROKE

SCALE: 1/8" = 1'-0"

0 4' 8' 16'



US Army Corps
of Engineers
PORTLAND DISTRICT

BCOE/50 PERCENT REVIEW

DESIGNED BY: J. CHANASERAN
DRAWN BY: J. CHANASERAN
CHECKED BY: J. CHANASERAN
SUBMITTED BY: J. CHANASERAN
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SOLICITATION NO.: W12EF240002
CONTRACT NO.: W12EF240002
FILE NUMBER: W12EF240002
PLOT SCALE: 1/8" = 1'-0"
FILE NAME: W12EF240002
FILE SIZE: 1.0 MB

THE DALLES LOCK AND DAM
TDA AWS BACKUP
DEBRIS MANAGEMENT
MECHANICAL
NEW TRASHRAKE MACHINE
TRASHRAKE ASSEMBLY IN BRUSHING POSITION

SHEET
IDENTIFICATION
M-105

File Last Saved By: RTOLENTINO

GENERAL:

I. TRASHRAKE OPERATION SCHEME

A. CONTROL EQUIPMENT

1. A PROGRAMMABLE LOGIC CONTROLLER (PLC) WILL BE USED FOR CONTROL AND MONITORING OF THE TRASHRAKE OPERATION. THE PLC WILL BE LOCATED IN THE LOCAL CONTROL PANEL (LCP) ON FOREBAY INTAKE DECK. THE PLC WILL BE PROVIDED WITH INPUT/OUTPUT (I/O) MODULES FOR INTERFACING WITH THE VARIOUS SENSORS & OPERATING DEVICES INCLUDING SAFETY DEVICES MOUNTED ON THE RAKE. THE PLC WILL ALSO BE PROVIDED WITH A COMMUNICATION INTERFACE FOR COMMUNICATING WITH REMOTE DEVICES USING ETHERNET PROTOCOL, IN FUTURE.
2. A TOUCH SCREEN HUMAN MACHINE INTERFACE (HMI) PANEL WILL BE PROVIDED ON THE FRONT OF THE LCP. THE HMI WILL PROVIDE AN INTERFACE FOR MONITORING AND CONTROLLING THE TRASHRAKE. ACCESS TO THE HMI MONITORING FUNCTIONS WILL BE AVAILABLE TO ALL AUTHORIZED PERSONNEL. ACCESS TO THE HMI CONTROL FUNCTIONS WILL BE PASSWORD PROTECTED TO LIMIT ACCESS TO QUALIFIED PERSONNEL ONLY. HMI SCREENS WILL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:
 - a. OVERVIEW: THIS SCREEN WILL DISPLAY AN OVERVIEW OF THE TRASHRAKE SYSTEM. OVERALL SYSTEM DATA SUCH AS RAKING OPERATION, OPERATING MODES OF THE RAKE, ETC., WILL BE MONITORED FROM THIS SCREEN.
 - b. RAKE: HMI SCREENS WILL DISPLAY THE STATUS OF THE TRASHRAKE AND ASSOCIATED AUXILIARY EQUIPMENT. RAKE OPERATIONAL CONTROL WILL ALSO BE INITIATED VIA THIS SCREEN IN PLC MODE.
 - c. ALARM SUMMARY: THIS SCREEN(S) WILL DISPLAY ALL OF THE SYSTEM ALARMS WITH TIME, DATE, TYPE, AND STATUS DATA. THIS INFORMATION WILL BE AUTOMATICALLY BACKED UP IN A FILE.

B. MODES OF OPERATION

1. THREE MODES OF OPERATION FOR THE TRASHRAKE WILL BE PROVIDED, LOCAL-HMI, LOCAL-PENDANT AND AUTOMATIC. THE TRASHRAKE WILL HAVE THE CAPABILITY TO BE INDEPENDENTLY PLACED IN ANY OPERATING MODE BY SELECTING THE APPROPRIATE MODE OF OPERATION. TRASHRAKE OPERATING SCENARIOS WILL BE AS FOLLOWS:
 - a. **LOCAL-PENDANT:** WHEN AN TRASHRAKE CONTROL IS PLACED IN "LOCAL-PENDANT" OPERATION VIA HAND-HELD CONTROLLER, THE TRASHRAKE POSITION WILL BE MANUALLY CONTROLLED FROM THE PENDANT STATIONP USING VARIOUS COMMANDS SUCH AS "RAISE", "LOWER", "TILT" AND "STOP" BUTTONS.
 - b. **LOCAL-AUTOMATIC:** WHEN AN TRASHRAKE CONTROL IS PLACED IN "LOCAL-AUTOMATIC" OPERATION VIA THE HMI TOUCHSCREEN, THE TRASHRAKE OPERATION WILL BE AUTOMATICALLY CONTROLLED BY THE PLC. THE OPERATOR WILL SIMPLY START THE TRASHRACK MACHINE, AND MACHINE WILL MOVE THE BOOM, TILL THE BOOM FOR CLEANING POSITION, ROTATE THE BRISTLE ROLLER, RETRACT THE BOOM AND AUTOMATICALLY MOVE THE TROLLEY TO NEXT POSITION ONCE A CLEANING CYCLE IS COMPLETE. DEPENDING UPON THE PLC PROGRAMMING, TRASHRAKE WILL STOP WORKING AFTER CLEANING THE ENTIRE INTAKE, UNTILL ANOTHER AUTOMATIC CLEANING OPERATION IS INITIATED AGAIN. TRASHRAKE MAY BE PROGRAMMED TO OPERATE AUTOMATICALLY AFTER A FIXED PERIOD OF TIME OR CONTINUOUSLY FOR A GIVEN PERIOD OF TIME.
 - c. **REMOTE-AUTOMATIC:** PROVISION WILL BE IN THE TRASHRAKE CONTROL SYSTEM FOR FUTURE ADDITION OF "REMOTE-AUTOMATIC" OPERATION. WHEN PLACED IN "REMOTE-AUTOMATIC" MODE, THE OPERATION OF THE TRASHRAKE WILL BE TRIGGERED BY THE SENSORS SENSING THE BLOCKAGE OF THE TRASHRACKS TO A GIVEN SET VALUE. A TERMINAL POINT SHALL BE AVAILABLE IN THE PLC CONTROL PANEL FOR ACTIVATING THE START BASED ON THE PRESSURE DIFFERENTIAL ACROSS THE RACK BARS INDICATING THE BLOCKAGE. WHEN CONTACT IS CLOSED ALONG THIS TERMINAL POINT, THE RAKER WILL INITIATE A CLEANING CYCLE, THIS WILL CONTINUE UNTIL THE CONTACT CLOSURE IS NO LONGER THERE. A WARNING SOUND/ALARM OR LIGHT WILL BE INITIATED BEFORE TRASHRACK STARTS WORKING. ALL FEDERAL, STATE OR CITY MANDATED SAFETY PROTOCOLS WILL BE IMPLEMENTED BEFORE TRASHRACK OPERATION IN ANY OF THE ABOVE MODES.

II. OPERATION OF TRASHRAKE

A. TRASHRAKE BOOMS OPERATION

1. TRASHRAKE HAS A ROPE AND PULLEY OR HYDRAULIC BASED DOUBLE TELESCOPIC BOOM SYSTEM MOUNTED ON A TROLLEY, WHICH IS RUNNING OVER THE MAIN BEAM OR RUNNING RAILS. RAKING HEAD IS COMPRISED OF ROTATING BRISTLE ROLLER. TRASHRAKE BOOM MOVES THE RAKE HEAD OVER THE VERTICAL TRASHRACKS FOR DISLODGING OR DISTURBING THE DEBRIS- WHICH IS MOSTLY COMPRISED OF SMALL STICKS AND AQUATIC PLANT FOLIAGE. EACH OF THE TWO BOOMS HAS A TILTING CYLINDER TO MOVE THE BOOM OUTWARD OR TOWARDS THE TRASHRACK. WHEN BOOM IS EXTENDED, IT IS TILTED OUTWARD BEFORE TO PREVENT ANY COLLISION WITH TRASHRACKS. BOOM IS MOVED TOWARDS TRASHRACKS FOR ROLLER OR BRUSH ENGAGEMENT WITH TRASHRACKS/DEBRIS BEFORE THE CLEANING PROCESS STARTS. ALL OPERATIONS, SUCH AS "RAISE", "LOWER", OUTWARD TILT, INWARD TILT, BRUSH ROTATION, AND "STOP" CAN BE CARRIED OUT FROM PENDANT CONTROL OR HMI CONTROL AS STATED ABOVE.
2. INITIAL CONDITION: TRASHRAKE MOVING TROLLEY IS SET UP IN THE INTAKE OVER TRASHRACKS AND TELESCOPIC BOOM SYSTEM READY TO START THE RAKING POSITION; SELECTOR SWITCH ON THE CONTROL PANEL IN "PENDANT" POSITION; TRASHRAKE BOOM IS FULLY RETRACTED AND TILTED AWAY FROM THE TRASHRACK SURFACE. THERE IS NO FLOW THROUGH THE TRASHRACKS.
3. PRECONDITION: ALL PRE-OPERATION SAFETY PROTOCOL HAVE BEEN IMPLEMENTED AND AREA IF CLEARED FOR RAKING OPERATION.
4. TRASHRAKE MACHINE IS STARTED, BOOM LOWER BUTTON IS OPERATED TO LOWER THE MULTI-STAGE TELESCOPIC BOOM. WHEN BOOM POSITION INDICATOR INDICATES THE CORRECT LOCATION OF THE ROLLER HEAD, BOOM INWARD TILT BUTTON IS OPERATED TO PRESS THE RAKE/ROLLER HEAD AGAINST THE TRACKRACKS/DEBRIS.
5. WHILE BOOM IS IN THE LOWEST POSITION, NOW COMMAND FOR ROTATING THE ROLLER/RAKE HEAD IS GIVEN, WHICH START ROTATING THE BRISTLE ROLLER WITH THE HELP OF HYDRAULIC MOTOR. WHILE ROLLER IS ROTATING AND CLEANING THE DEBRIS FROM THE RACK BARS, TRASHRAKE BOOM IS SLOWLY RAISED SO AS TO DISLODGE OR DISTURB THE DEBRIS DOWNWARDS TO THE TRASHRACK BOTTOM SO THAT IT IS WASHED AWAY BY THE NATURAL FLOW OF THE RIVER. IT MAY BE NOTED THAT TRASHRACK PANELS HAVE PROTRUDING MEMEBRS, AND DO NOT PROVIDE A SMOOTH CONTINUOUS SURFACE FOR CLEANING, THEREFORE THE DESIGN OF THE BRISTLE ROLLER WILL BE SUCH THAT IT IS NOT AFFECTED BY IRREGULAITIES AND PROTRUSIONS OF THE RACK-BAR SURFACE. THUS, RAKE/ROLLER HEAD WILL BE KEPT AT A FIXED DISTANCE (FEW INCHES) FROM THE ONE VERTICAL PLANE OF RACK-BARS THROUGHOUT THE CLEANING OPERATION. BOOM TILTING CYLINDERS WILL HELP IN MAINTAINING THAT FIXED POSITION. THIS POSITION MAY HOWEVER BE CHANGED DEPENDING ON THE DEBRIS THICKNESS AT ANY GIVEN POSITION.
6. AFTER TRASHRAKE BOOM REACHED ITS HIGHEST POSITION DURING CLEANING, NOW TRASHRAKE TROLLEY IS COMMANDED TO MOVE BY APPROXIMATELY 4-5 FEET, DEPENDING UPON THE BRISTLE ROLLER WIDTH.
7. NOW, WHEN TRASHRAKE TROLLEY IS IN NEW POSITION, CLEANING OPERATION IS STARTED BY FIRST TILTING THE BOOM OUTWARD, LOWERING OR EXTENDING THE TELESCOPIC BOOM DOWNWARDS, BRISTLE ROLLER IS PRESSED AGAINST THE TRASHRACKS WITH THE HELP OF INWARD TILT COMMAND. AND ROTATION OF ROLLER IS STARTED TO RESUME THE CLEANING IN POSITION.
8. REPEAT THE STEPS 4-7 ABOVE FOR CLEANING THE ENTIRE 23 FEET WIDE AND 66 FEET DEEP VERTICAL TRASHRACKS.

B. BRISTLE ROLLER OPERATION

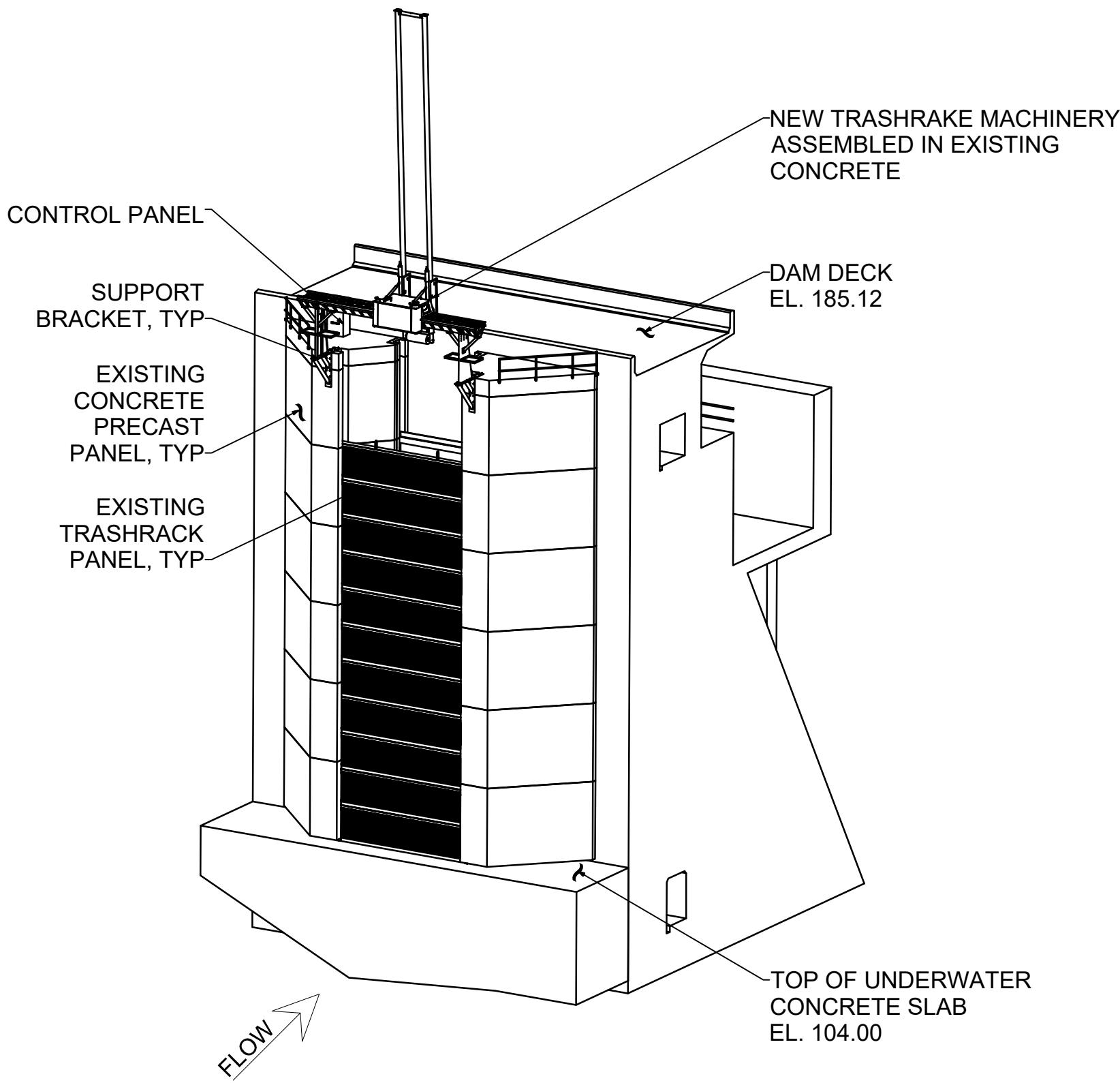
1. RAKE HEAD IS COMPOSED OF APPROX. 5 FEET LONG AND APPROX. 8" DIAMETER NYLON BRISTLE ROLLER, SUPPORTED ON THE TWIN TELESCOPIC BOOMS AND ROTATED WITH HYDRAULIC MOTOR. BRISTLE IS CAPABLE OF DISLODGING OR DISTURBING DEBRIS, INCLUDING SMALL STICKS AND AQUATIC PLANT FOLIAGE, LEAVES, ETC. TO ACCUMULATE AT THE BOTTOM OF INTAKE.
2. INITIAL POSITION: TRASHRAKE TROLLEY IS LOCKED IN POSITION IN THE FORBAY INTAKE; BOOM IS ALL THE WAY DOWN AND BRISTLE ROLLER IS FEW INCHES AWAY FROM THE TRASHRACK/DEBRIS. TRASHRAKE IS READY TO START CLEANING OPERATION.
3. CLEANING PROCESS STARTS BY INITIATING THE ROTATION OF THE BRISTLE ROLLER, THEN PRESSING THE ROLLER AGAINST THE TRASHRACKS/DEBRIS. THE DIRECTION OF ROLLER ROTATION IS SUCH THAT DEBRIS IS FREELY ALLOWED TO FALL AT THE RACK BAR BOTTOM/SILL. AS ROLLER ROTATES, PRESSES AGAINST THE TRASHRACKS, TRASHRAKE BOOM IS SLOWLY MOVED UPWARD WHILE CLEANING CONTINUES WITH THE ROLLER.
4. TRASHRAKE BOOM'S UPWARD MOVEMENT IS CONTINUED TO THE FULL STROKE, TILL THE FULL HEIGHT OF TRASHRACKS (WHICH IS 66 FEET FROM THE BOTTOM) WHILE BRISTLE ROLLER IS CONTINUOUSLY ROTATING AND CLEANING THE DEBRIS. AT THE END OF THE STROKE, BOOM RETRACTION IS STOPPED, TROLLEY IS MOVED TO NEW POSITION, BOOM IS TILTED AWAY FROM TRASHRACKS, AND BOOM IS LOWERED DOWN TO START A NEW CLEANING CYCLE.
5. FOLLOW STEPS 3-4 TO PERFORM MULTIPLE CLEANING CYCLES ON INTAKE TRASHRACKS.

C. AUTOMATIC OPERATION (INDEXING)

1. TRASHRAKE MACHINE IS CAPABLE OF AUTOMATIC OPERATION IF MACHINE IS PLACED IN "AUTOMATIC OPERATION" MODE. IN THIS MODE, MACHINE MOVES AUTOMATICALLY AFTER COMPLETING THE ONE RAKING CYCLE. ONE COMPLETE RAKING INCLUDES, LOWERING OF THE BOOMS IN RAKING POSITION, ROTATION OF BRISTLE ROLLER, TILTING OR SLEWING OF RAKE BOOMS TOWARDS THE RACH BARS FOR CLEANING, SLOWING RAISING OF BOOMS WHILE CLEANING OPERATION IS CONTINUED, AND TILTING BOOMS OUT AFTER BOOM IS FULLY RETRACTED.
2. AFTER COMPLETING ONE COMPLETE CLEANING CYCLE, TRASHRAKE TOLLEY IS INDEXED OR MOVED BY PREPROGRAMED DISTANCE (4-5 FEET) AUTOMATICALLY BEFROE THE START OF THE SECOND CYCLE. ITS IS ASSUMED THAT ONE CYCLE OF OPERATION WILL TAKE APPROXIMATELY 5 MINUTES, WITH TOTAL CLEANING TIME FOR FULL FORBAY INTAKE (23 FEET WIDE) OF 30 MINUTES (FIELD ADJUSTABLE).
3. IT IS EXPECTED THAT TRASHRAKE MAY BE PLACED IN REMOTE AUTOMATIC OPERATION, THUS INITIATING THE INTAKE CLEANING PROCESS FROM A SIGNAL GENERATED BY THE PRESSURE DIFFERENTIAL FROM THE FLOWS IN THE UPSTREAM AND DOWNSTREAM, INDICATING THE CLOGGING OF THE INTAKE TRASHRACKS.

D. OPERATING SPEEDS

1. TRASHRAK BOOM OPERATING SPEED - 20-45 FPM
2. TROLLEY TRAVEL SPEED - 20-45 FPM
3. BRISTLE ROLLER RPM - 25-30 RPM
4. APPROX. CYCLE TIME FOR 1 FULL STROKE - 5 MINUTES
5. TOTAL BRUSHING AND FULL INTAKE - 30 MINUTES (APPROX)
6. BOOM TRAVELING DISTANCE - 85 FEET
7. TROLLEY TRAVEL - 32 FEET (APPROX)



ISO VIEW - THRASHRACK AND DEBRIS BRUSH MACHINERY

SCALE: NTS



BCOE/50 PERCENT REVIEW

DESIGNED BY E. CHANASEKHARAN	DATE 12/20/2024
DRAWN BY J. WEBB	SELECTION NO. CONTRACT NO.
SUBMITTED BY E. CLOUGH	WH12EF240002
PLOT SCALE 1"=10'-0"	FILE NUMBER
FILE NAME	FILE NAME

THE DALLES LOCK AND DAM
TDA AWS BACKUP
DEBRIS MANAGEMENT
MECHANICAL
NEW TRASHRAKE MACHINE
SYSTEM OPERATION DETAILS

SHEET
IDENTIFICATION
M-106

ELECTRICAL ABBREVIATIONS:

A	AMPERE	FREQ	FREQUENCY	SI	SEAL IN
AC	ALTERNATING CURRENT	G	GROUND	SM	SERVICE MODULE
ALM	ALARM	GL	GREEN LIGHT	SOL	SOLENOID
APPL	APPLICATION	HPU	HYDRAULIC POWER UNIT	SP	SPARE
AS	AMMETER SWITCH	HR	HAND RESET	SS	STATION SERVICE
BFV	BUTTERFLY VALVE	HTR	HEATER	SW	SWITCH
BKR	BREAKER	I/O	INPUT / OUTPUT	SWYD	SWITCHYARD
BLWR	BLOWER	ISO	ISOLATION	SWGR	SWITCHGEAR
BRG	BEARING	INST	INSTANTANEOUS	TC	TRIP CIRCUIT
CC	CLOSING CIRCUIT	KV	KILOVOLT	TCO	TRIP CUTOUT
CFC	CONTACT CLOSED WHEN VALVE FULLY CLOSED	KVAR	KILOVOLT-AMPERE REACTIVE	TDC	TIME DELAY CLOSE
CFO	CONTACT CLOSED WHEN VALVE FULLY OPEN	KW	KILOWATT	TDDO	TIME DELAY DROP OUT
		NMFR	NUMERICAL MULTIFUNCTION RELAY	TDO	TIME DELAY OPEN
CKT	CIRCUIT	L	LOCAL	TDPU	TIME DELAY PICK UP
CIRC	CIRCULATION	LAN	LOCAL AREA NETWORK	TEMP	TEMPERATURE
CL	CLOSED	LIS	LOAD INTERRUPTER SWITCH	TM	TIMER
CONT	CONTACT	LT	LIGHT	TOC	TRUCK OPERATED CELL SWITCH
COMB	COMBINATION	MM	MULTI MODE	TRANF	TRANSFORMER
COMM	COMMUNICATION	SM	SINGLE MODE	TQC/TQO	TORQUE LIMIT SWITCHES (CLOSED/OPEN)
CR	CONTROL RELAY	NO	NUMBER	TS	TEST SWITCH
CS	CONTROL SWITCH	OFC	CONTACT OPEN WHEN VALVE FULLY CLOSED	TYP	TYPICAL
CT	CURRENT TRANSFORMER	OFO	CONTACT OPEN WHEN VALVE FULLY OPEN	MAX	MAXIMUM
CVTR	CONVERTER	OL	OVERLOAD	MON	MONITOR
CW	COOLING WATER	OP	OPEN	MR	MULTIRATIO
DC	DIRECT CURRENT	P	REAL POWER	MTR	MOTOR
DFD	DELTA FIELD DIVISION	PB	PUSH BUTTON	U	UNIT
DISC	DISCONNECT	PF	POWER FACTOR	UND	UNDER
DISCH	DISCHARGE	PH	PHASE	V	VOLT
DIST	DISTRIBUTION	PLC	PROGRAMMABLE LOGIC CONTROLLER	VAR	REACTIVE POWER
DWG	DRAWING	PMT	POWER MANAGEMENT TERMINAL	VARM	VARMETER
DWR	DEPARTMENT OF WATER RESOURCES	Q	REACTIVE POWER	VIB	VIBRATION
DV	DISCHARGE VALVE	R	REMOTE RECEPT RECEPTACLE	VLV	VALVE
DIV	DISCHARGE ISOLATION VALVE	RES	RESERVOIR	VM	VOLTMETER
ET	EMERGENCY TRIP	RESTR	RESISTOR	VS	VOLTMETER SWITCH
ETM	ELAPSED TIME METER	RL	RED LIGHT	VT	VOLTAGE TRANSFORMER
FD	FAULT DETECTOR	RTD	RESISTANCE TEMPERATURE DETECTOR	W	WATTS
FDU	FIBER DISTRIBUTION UNIT	RGS	RIGID GALVANIZED STEEL	WM	WATTMETER
FL	FLOW	S.A.	SURGE ARRESTOR	WL	WHITE LIGHT
FLD	FIELD	SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION	XDCR	TRANSDUCER
FM	FLOWMETER	SHT	SHEET	YL	YELLOW LIGHT
FMC	FLEXIBLE METAL CONDUIT			Z	IMPEDANCE
FOC	FIBER OPTIC CABLE				
FRCP	FIRE RELEASE CONTROL PANEL				

GENERAL ELECTRICAL NOTES:

1.

ALL RACEWAYS AND EQUIPMENT SHALL BE INSTALLED AND GROUNDED IN ACCORDANCE WITH THE 2023 EDITION OF THE NATIONAL ELECTRICAL CODE AND APPLICABLE LOCAL CODES.
2.

CONDUIT RUNS ARE SHOWN DIAGRAMATICALLY ONLY AND SHALL BE INSTALLED IN A MANNER TO PREVENT INTERFERENCES WITH EQUIPMENT OR STRUCTURAL CONDITIONS. EXPOSED CONDUIT SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO BEAMS AND WALLS. IN THE EVENT OF INTERFERENCE BETWEEN ELECTRICAL EQUIPMENT SHOWN ON THE DRAWINGS AND OTHER EQUIPMENT, THE CONTRACTOR SHALL NOTIFY USACE IN WRITING AND USACE SHALL APPROVE PROPOSED CHANGES BEFORE THEY ARE MADE.
3.

THE WORK SHALL BE PERFORMED IN ACCORDANCE WITH DETAILS WHETHER OR NOT THEY ARE REFERENCED ON THE DRAWINGS.
4.

ELECTRICAL CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING THE PROJECT TO VERIFY THE SCOPE OF WORK WITH FIELD CONDITIONS. PARTICULAR ATTENTION SHOULD BE GIVEN TO NEW CONDUIT RUNS.
5.

BIDDING CONTRACTORS SHALL VISIT THE SITE TO ASSESS THE SCOPE OF DEMOLITION, REMOVAL AND MODIFICATION WORK.
6.

ELECTRICAL CONTRACTOR AND THE OWNER SHALL DE-ENERGIZE ALL WIRING PRIOR TO REMOVAL OF EQUIPMENT, DEVICES, MOTORS INSTRUMENTATION, CONTROL PANELS, ETC. CONTRACTOR SHALL OBTAIN PRIOR APPROVAL FROM THE ENGINEER.
7.

EXPOSED RACEWAYS: PATCH TO MATCH EXISTING. FINISH-ALL OPENINGS IN WALLS AND FLOORS.

ELECTRICAL SYMBOLS:

	BELL		DWR INTERFACE POINT
	CAPACITOR		GROUND
	CABLE/BUS INTERFACE POINT		INDICATING LIGHT (GREEN)
	CIRCUIT BREAKER, MOLDED CASE THERMAL MAGNETIC		SURGE ARRESTER
	CIRCUIT BREAKER, POWER		DELTA
	COIL		METER OR RELAY
	CONTACT, NORMALLY CLOSED		OPEN DELTA, GROUNDED AT MIDDLE POINT OF ONE WINDING
	CONTACT, NORMALLY OPEN		WYE GROUNDED
	DIODE RECTIFIER		CONTACTOR AND FUSE, DRAWOUT TYPE
	DISCONNECT SWITCH		POLARITY
	DRAWOUT CONTACTS		3-NO. OF CT'S
	SOLENOID COIL		CT-CURRENT TRANSFORMER
	TEST SWITCH, P = NUMBER OF POLES		1200/5-PRIMARY TO SECONDARY RATIO
	THERMOSTAT		GROUND SENSOR CURRENT TRANSFORMER
	COMBINATION MOTOR STARTER		100/5 PRIMARY TO SECONDARY RATIO
	CIRCUIT BREAKER		2-NO. OF VT'S
	CIRCUIT BREAKER WITH ELECTRICAL OPERATOR DRAWOUT TYPE		VT-VOLTAGE TRANSFORMER
	NOTE NUMBER		4200/120V-PRIMARY TO SECONDARY VOLTS
	ITEM NUMBER		FUSE
	REVISION NUMBER		POWER TRANSFORMER
	MOTOR		PUSH BUTTON SWITCH (NORMALLY OPEN)>>
	GROUND ROD AND GROUND WELL		PUSH BUTTON SWITCH (NORMALLY CLOSED)>>
	GROUND ROD (3/4"x10'-0")		SHUNT
	GROUND CONNECTION - BOLTED TYPE		EXPOSED OR CONCEALED CONDUIT
	GROUND CONNECTION - EXOTHERMIC TYPE		CONDUIT RUN (UNDERGROUND OR IN CONCRETE)
	BARE COPPER GROUND TO GROUND WIRE IN SLAB, OR UNDERGROUND GROUND GRID, SIZE AS NOTED		CONDUIT RUN (CHANGE IN ELEVATION)
	EARTH GROUNDING		CONDUIT TURNING UP
	ELECTRICAL MOTOR OPERATED VALVE, WITH INTEGRAL REVERSING STARTER		CONDUIT TURNING DOWN
	CONTROL SWITCH		CONDUITS GROUPED TOGETHER BUT SHOWN AS A SINGLE LINE FOR CLARITY
	LOCAL START / STOP STATION		CONDUIT FROM FLOOR ABOVE TO FLOOR BELOW
			CONDUIT CAPPED, OR SEALED
			HOMERUN TO EQUIPMENT INDICATED (3/4" CONDUIT, 2 #12, 1 #12 GND UNLESS INDICATED OTHERWISE)
			RACEWAY BOX
			X = BOX TYPE
			MH MANHOLE
			HH HANDHOLE
			PB PULLBOX
			JUNCTION BOX OR FITTING

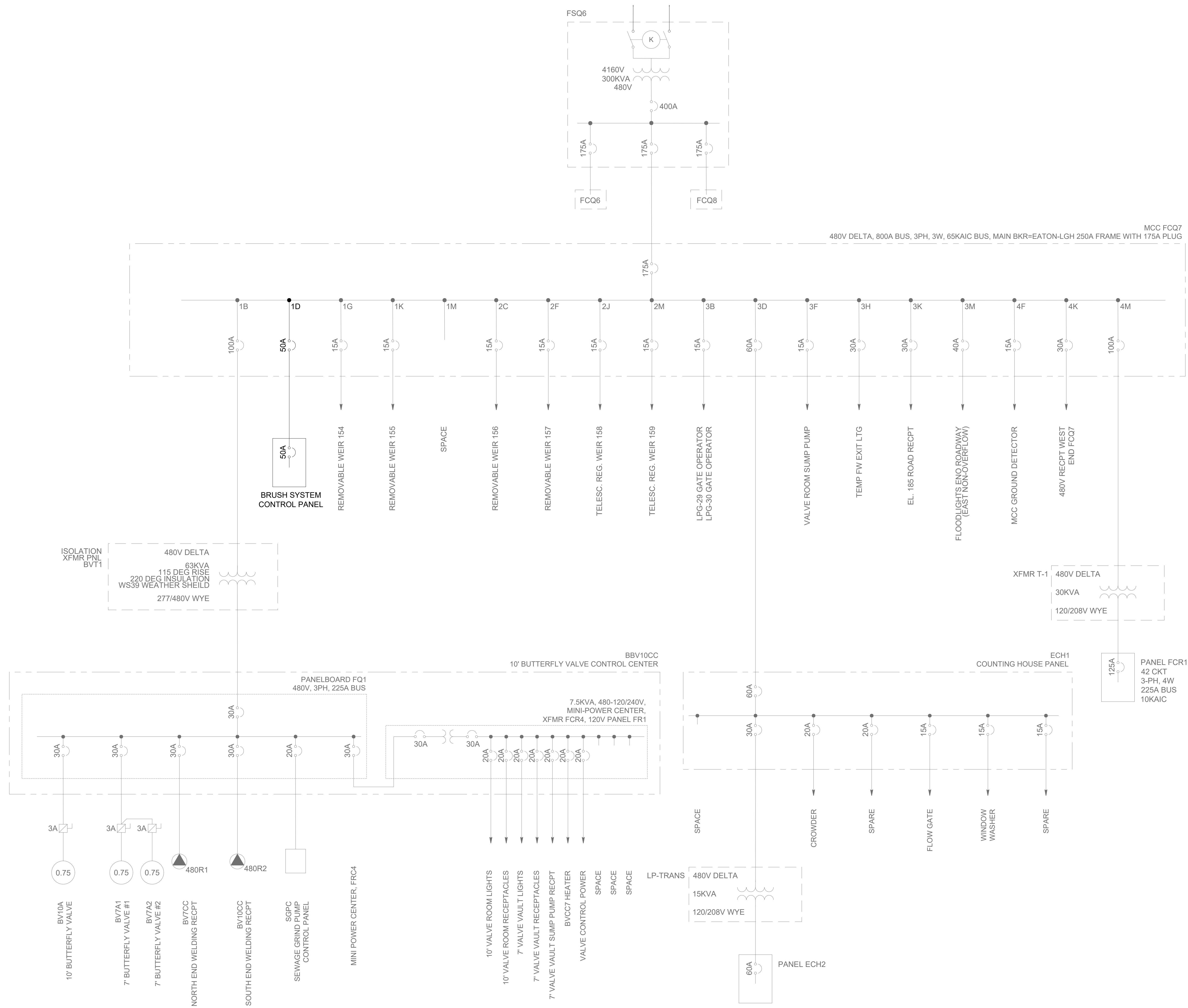


THE DALLES LOCK AND DAM
TDA AWS BACKUP
DEBRIS MANAGEMENT
ELECTRICAL
ABBREVIATIONS AND SYMBOLS

SHEET
IDENTIFICATION
E-001

BCOE/50 PERCENT REVIEW

DESIGNED BY: C. CRONE	CHECKED BY: C. CRONE	DATE: 20 DEC 2024
DRAWN BY: C. EBER	SUBMITTED BY: C. EBER	DESIGNED BY: C. CRONE
PROJECT NO.: W12EF240002	FILE NUMBER: E-001	CONTRACT NO.: W12EF240002
PLANT SCALE: AS SHOWN	FILE NAME: E-001	CONTRACT NO.: W12EF240002

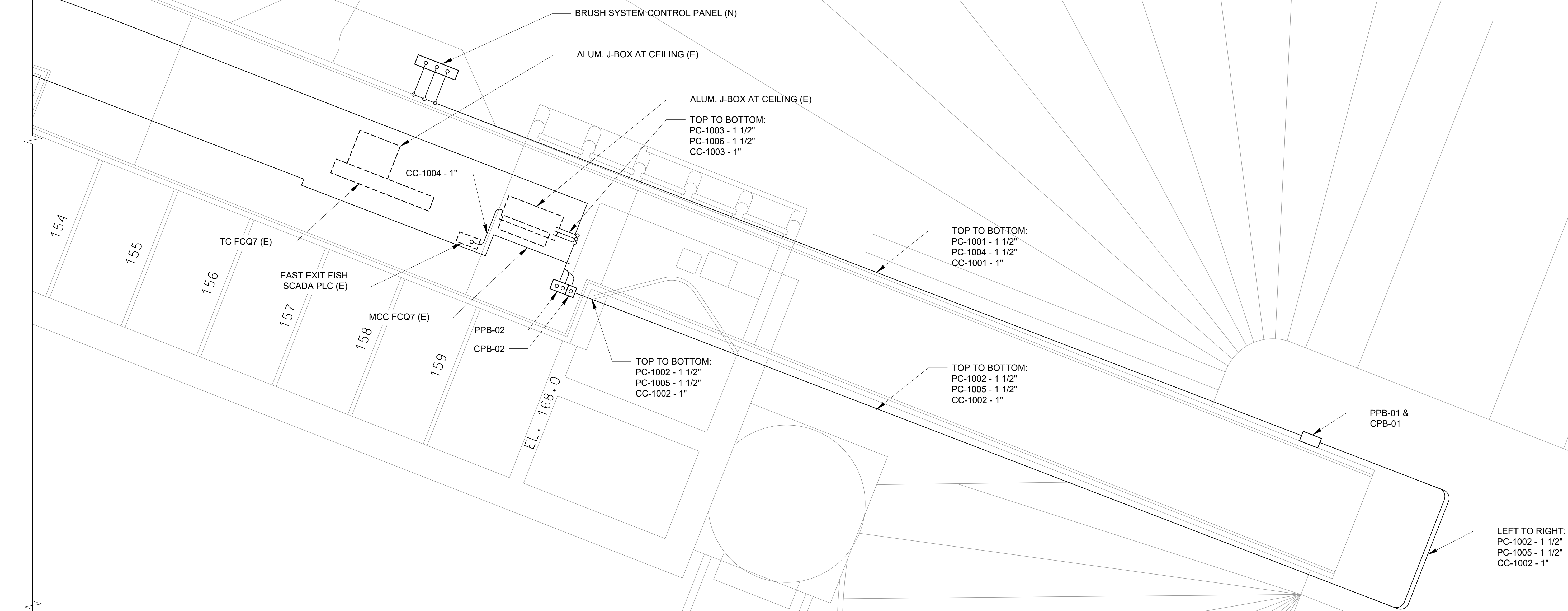


BCOE/50 PERCENT REVIEW

U.S. ARMY CORPS OF ENGINEERS PORTLAND DISTRICT PORTLAND, OREGON	DESIGNED BY:	C. CRONE	DATE:	20 DEC 2024
	DRAWN BY:	C. CRONE	CHECKED BY:	SOLUTIONIST NO.: M. MONGRAIN W912F24-000X
	SUBMITTED BY:	C. EDEN	CONTRACT NO.:	W912F24-00002
	PLOT SCALE:	N/A	FILE NUMBER:	E-003
BAIRD - STANTEC JOINT VENTURE	SIZE:	FILE NAME: 12/20/2024		

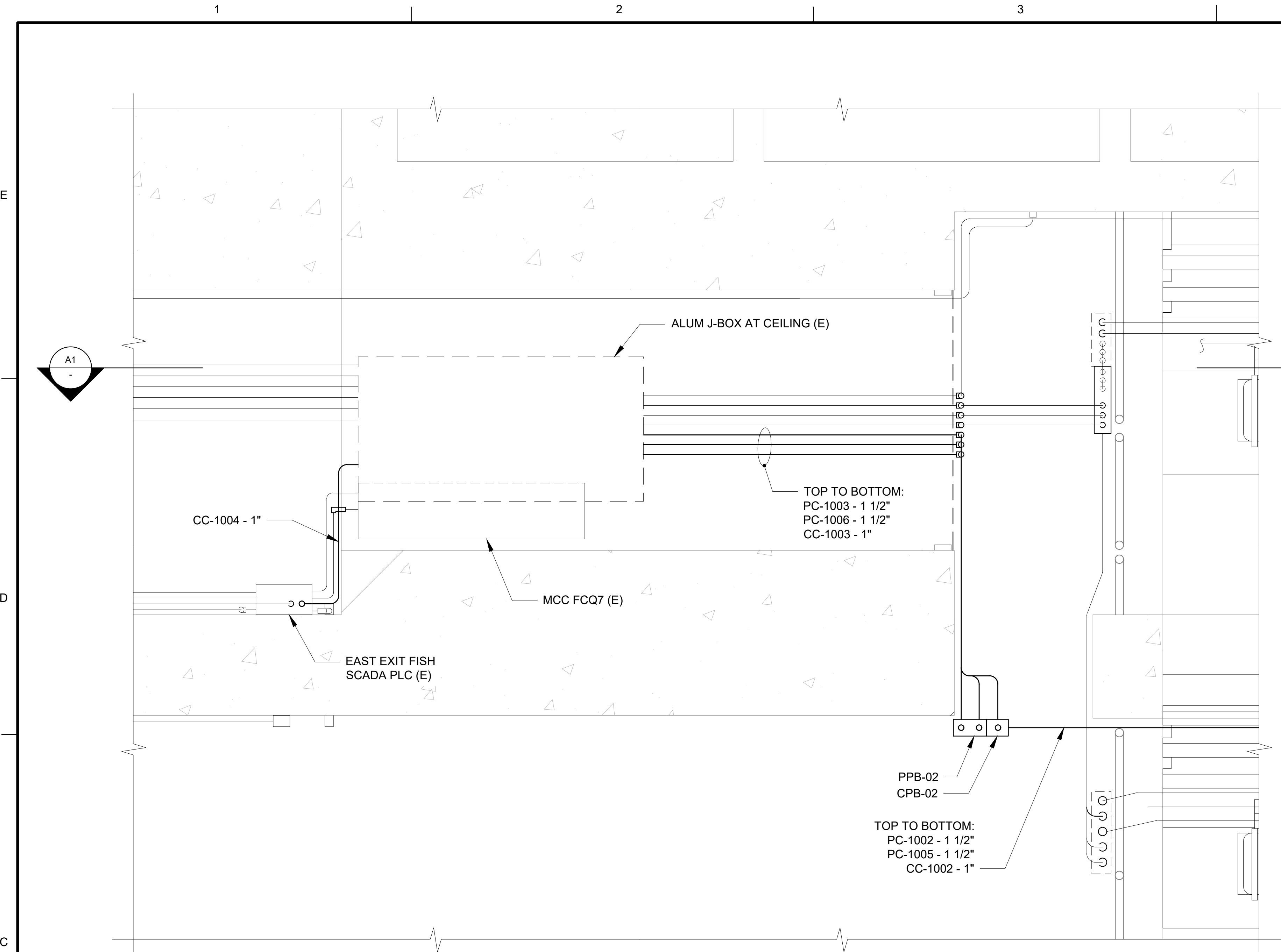
THE DALLES LOCK AND DAM
TDA AWS BACKUP
DEBRIS MANAGEMENT
ELECTRICAL
PLAN, SECTION & DETAIL SHEET 1

SHEET
IDENTIFICATION
E-003

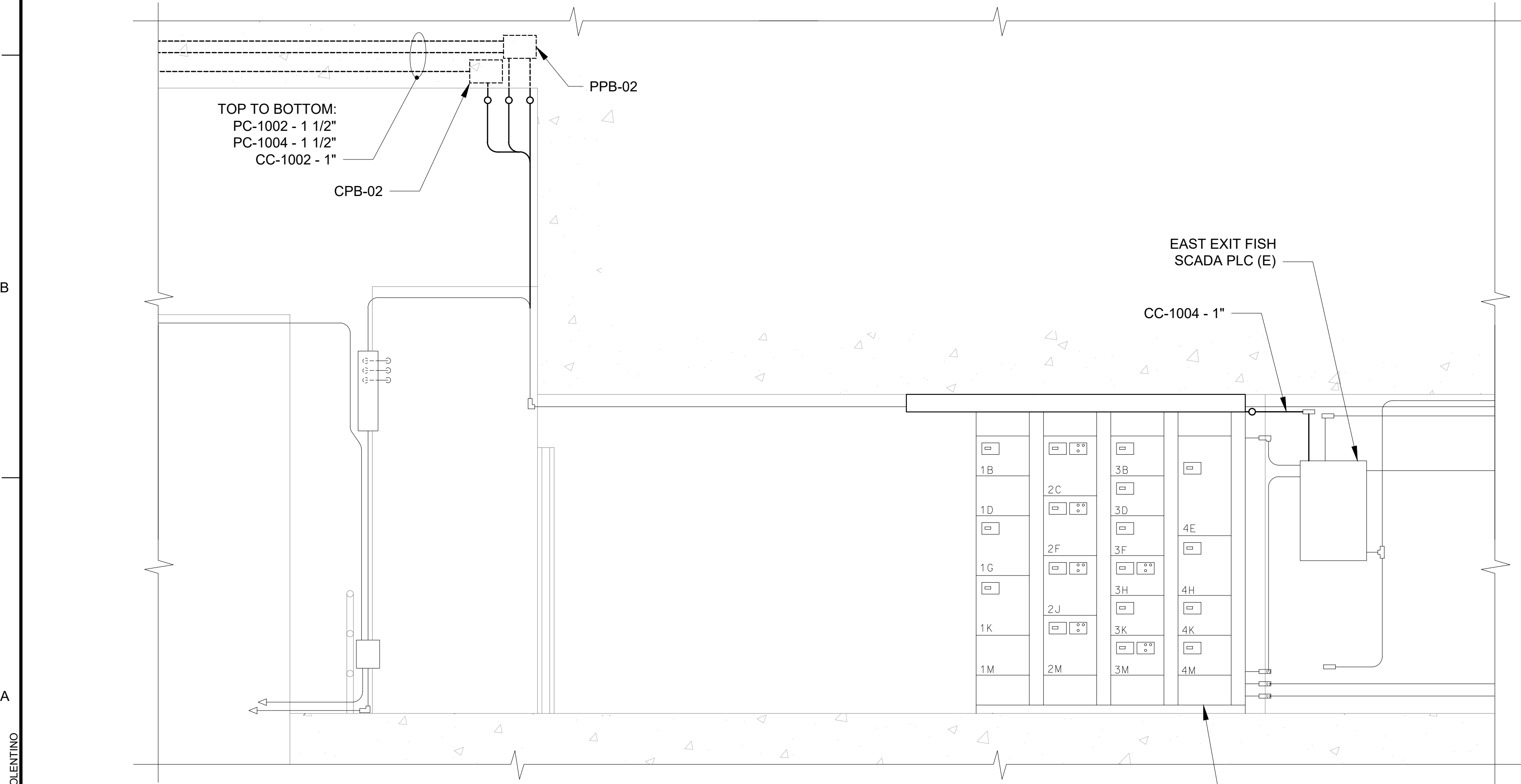


B1 PLAN - EAST FISH LADDER
SCALE: 1" = 10'-0"

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C1 DETAIL - SERVICE GALLERY @ EL 168.0
SCALE: 1/2" = 1'-0"



A1 SECTION - SERVICE GALLERY @ EL 168.0
SCALE: 1/2" = 1'-0"



US Army Corps
of Engineers
PORTLAND DISTRICT

BCOE/50 PERCENT REVIEW

DESIGNED BY: C. CRONE
DRAWN BY: C. CRONE
CHECKED BY: J. HIGGINS
SUBMITTED BY: C. EBER
DATE: 20 DEC 2024
SOLICITATION NO.: W12EF240002
CONTRACT NO.: W12EF240002
FILE NUMBER: E004
PLOT SCALE: 1/2" = 1'-0"
FILE NAME: E004

THE DALLES LOCK AND DAM
TDA AWS BACKUP
DEBRIS MANAGEMENT
ELECTRICAL
PLAN, SECTION & DETAIL SHEET 2

SHEET
IDENTIFICATION
E-004

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GENERAL SHEET NOTES

1. BRUSH SYSTEM CONTROL PANEL LAYOUT & TERMINATIONS ARE PROVIDED FOR DESIGN INTENT ONLY. FINAL DESIGN TO BE PROVIDED BY CONTROL PANEL SUPPLIER.



US Army Corps
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BCOE/50 PERCENT REVIEW

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
PORTLAND, OREGON
BAIRD, STANTEC
JOINT VENTURE

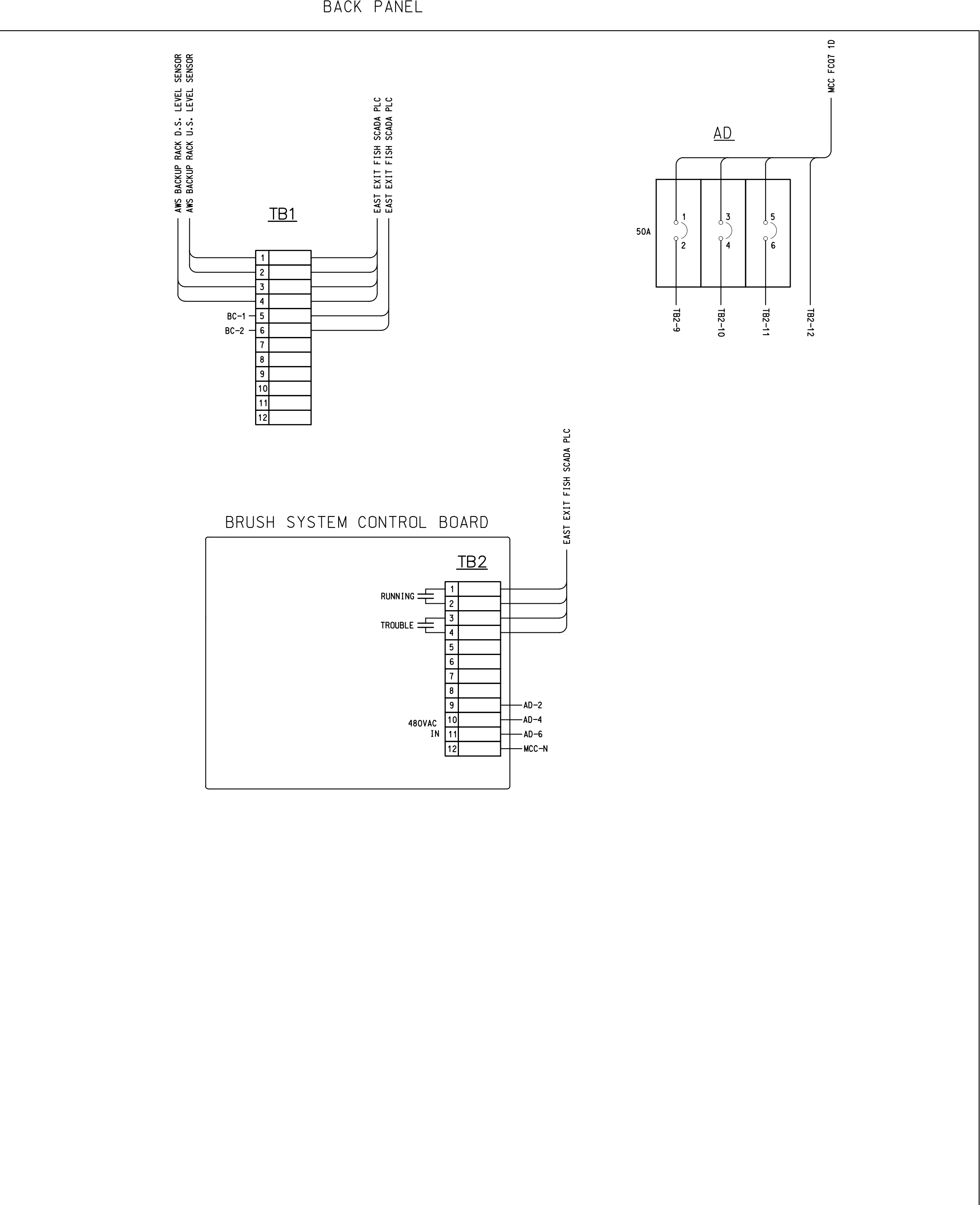
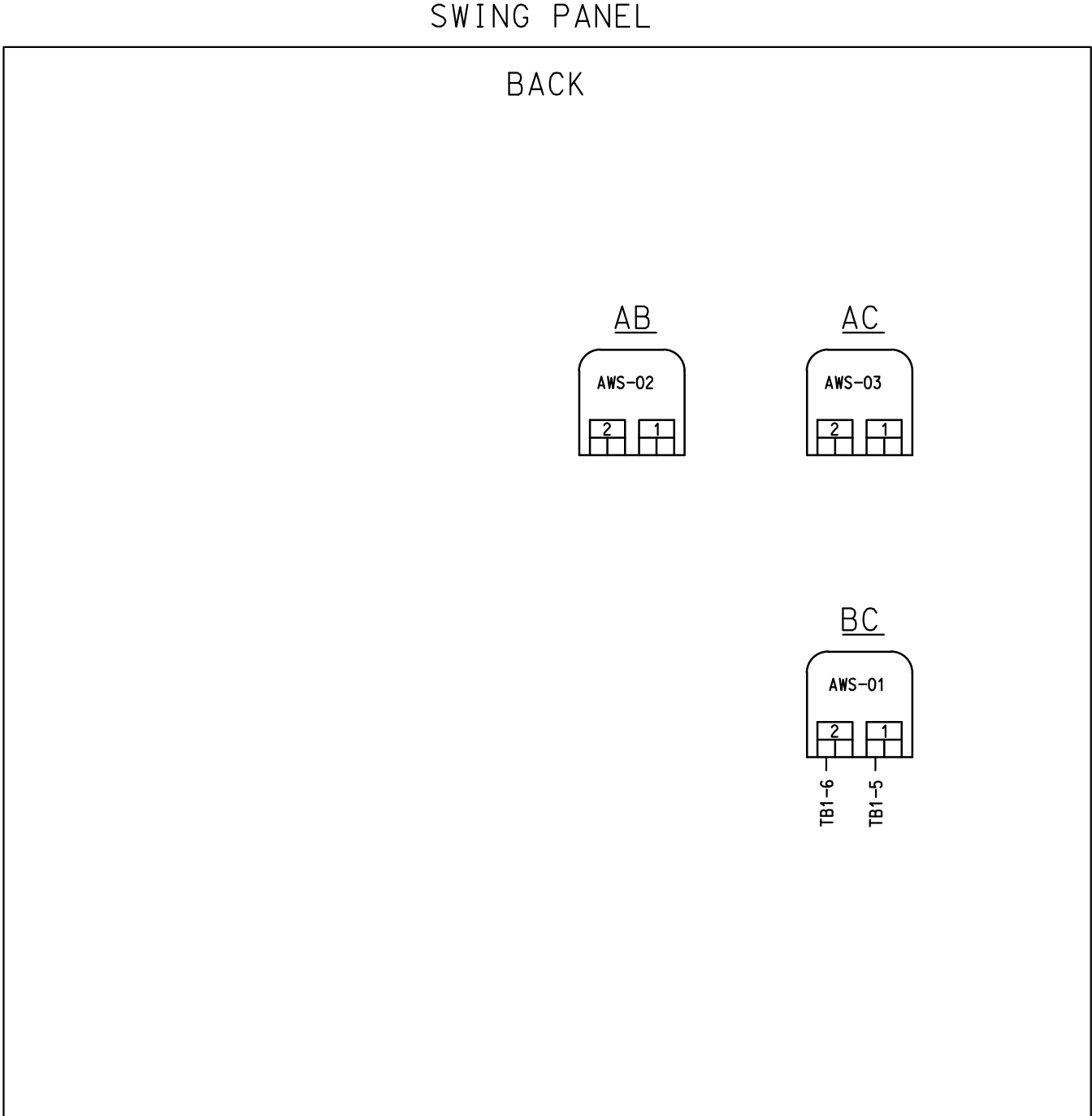
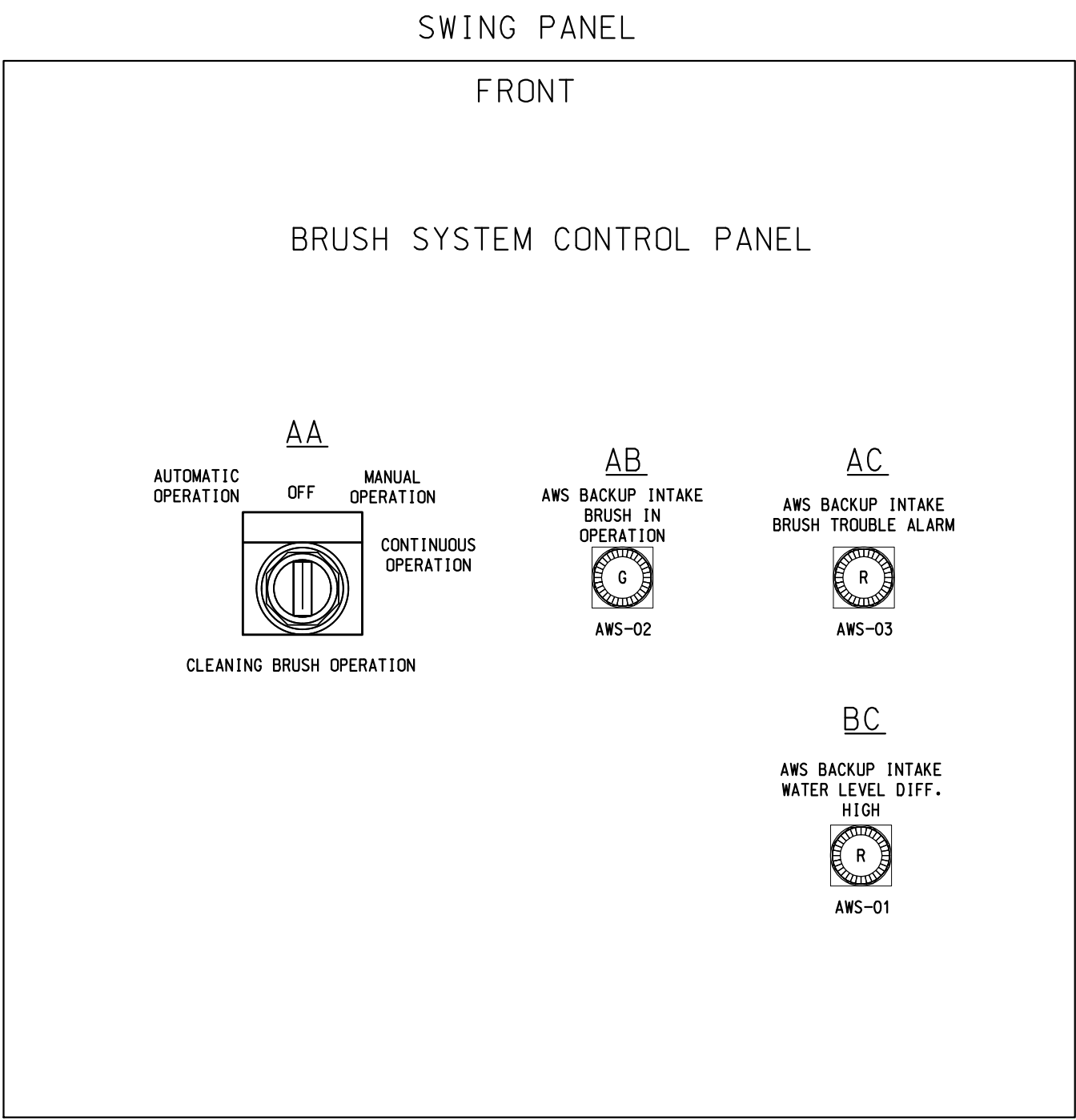
DESIGNED BY: C. CRONE
DRAWN BY: J. HUGHES
CHECKED BY: J. HUGHES
SUBMITTED BY: C. EBERN

DATE: 20 DEC 2024
SOLICITATION NO.: 10000000000000000000
CONTRACT NO.: W912EF240002
FILE NUMBER: 10000000000000000000

PLOT SCALE: 1" = 1'-0"
PLOT DATE: 20 DEC 2024
FILE NAME: E-007

THE DALLES LOCK AND DAM
TDA AWS BACKUP
DEBRIS MANAGEMENT
ELECTRICAL
AWS BACKUP INTAKE BRUSH SYSTEM
CONTROL PANEL LAYOUT

SHEET
IDENTIFICATION
E-007



1

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GENERAL SHEET NOTES

1. BRUSH SYSTEM CONTROL PANEL LAYOUT & TERMINATIONS ARE PROVIDED FOR DESIGN INTENT ONLY. FINAL DESIGN TO BE PROVIDED BY CONTROL PANEL SUPPLIER.



US Army Corps
of Engineers
PORTLAND DISTRICT

BCOE/50 PERCENT REVIEW

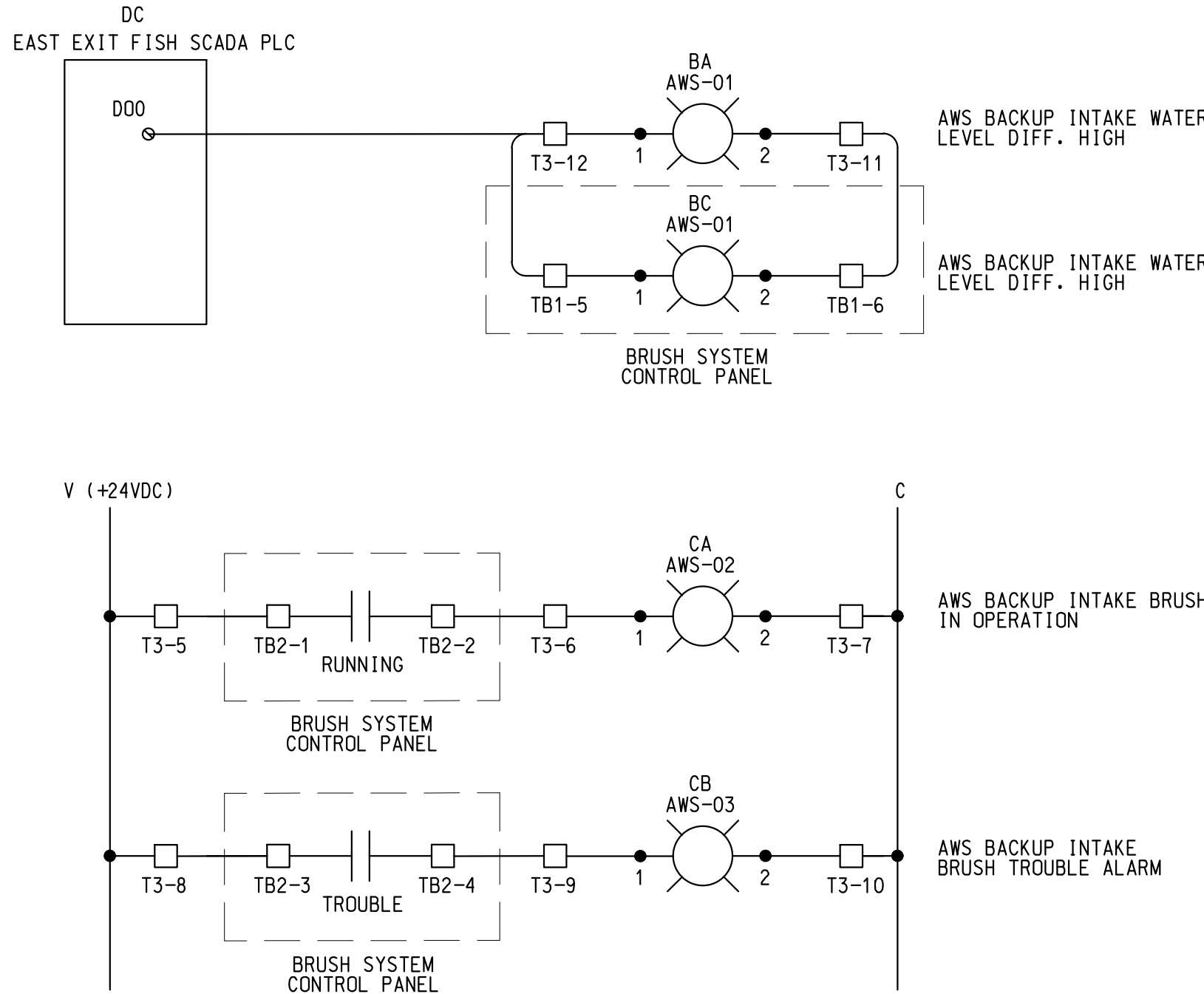
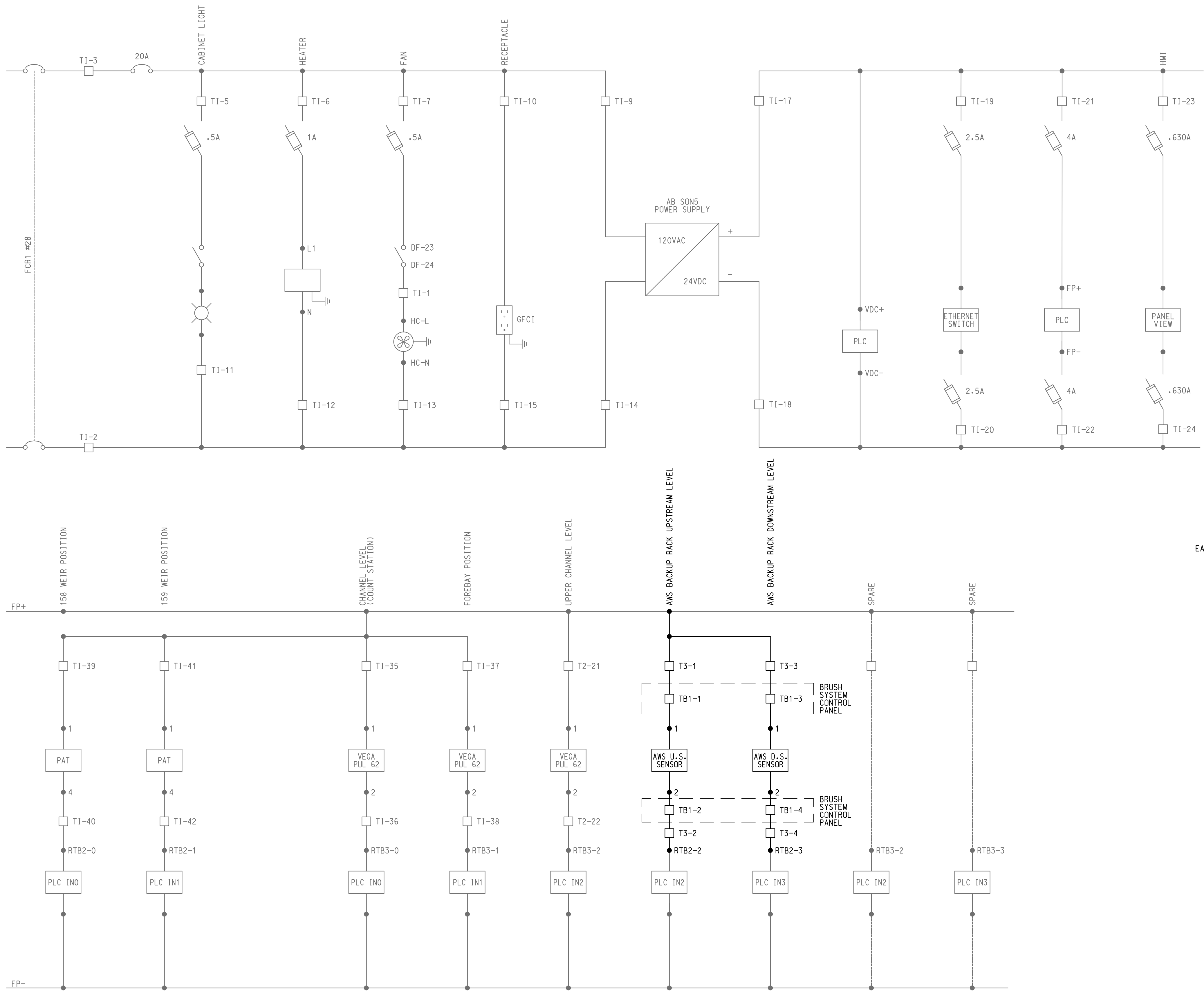
THE DALLES LOCK AND DAM
TDA AWS BACKUP
DEBRIS MANAGEMENT

ELECTRICAL
EAST EXIT FISH SCADA PLC ENCLOSURE
CONTROL SCHEMATIC

U.S. ARMY CORPS OF ENGINEERS
PORTLAND DISTRICT
PORTLAND, OREGON
BAIRD, STANTEC
JOINT VENTURE

DESIGNED BY: C. CRONE
CHECKED BY: J. HIGGINS
SUBMITTED BY: C. EBERN
PLOT SCALE: 1"=1'-0"
PLOT DATE: 20 DEC 2024
FILE NAME: E009
FILE SIZE: 1'x30"

DATE: 20 DEC 2024
SOLICITATION NO.: W12EP240002
CONTRACT NO.: W12EP240002
FILE NUMBER: E009



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File Last Saved By: CCRONE

