PETERSBURG
ALASKA

McMILLEN JACOBS ASSOCIATES

PETERSBURG BOROUGH
BLIND SLOUGH HYDROELECTRIC PROJECT
BALANCE OF PLANT CONTRACT

VOLUME 2 - CONSTRUCTION DRAWINGS
SEPTEMBER, 2022

ISSUED FOR BID

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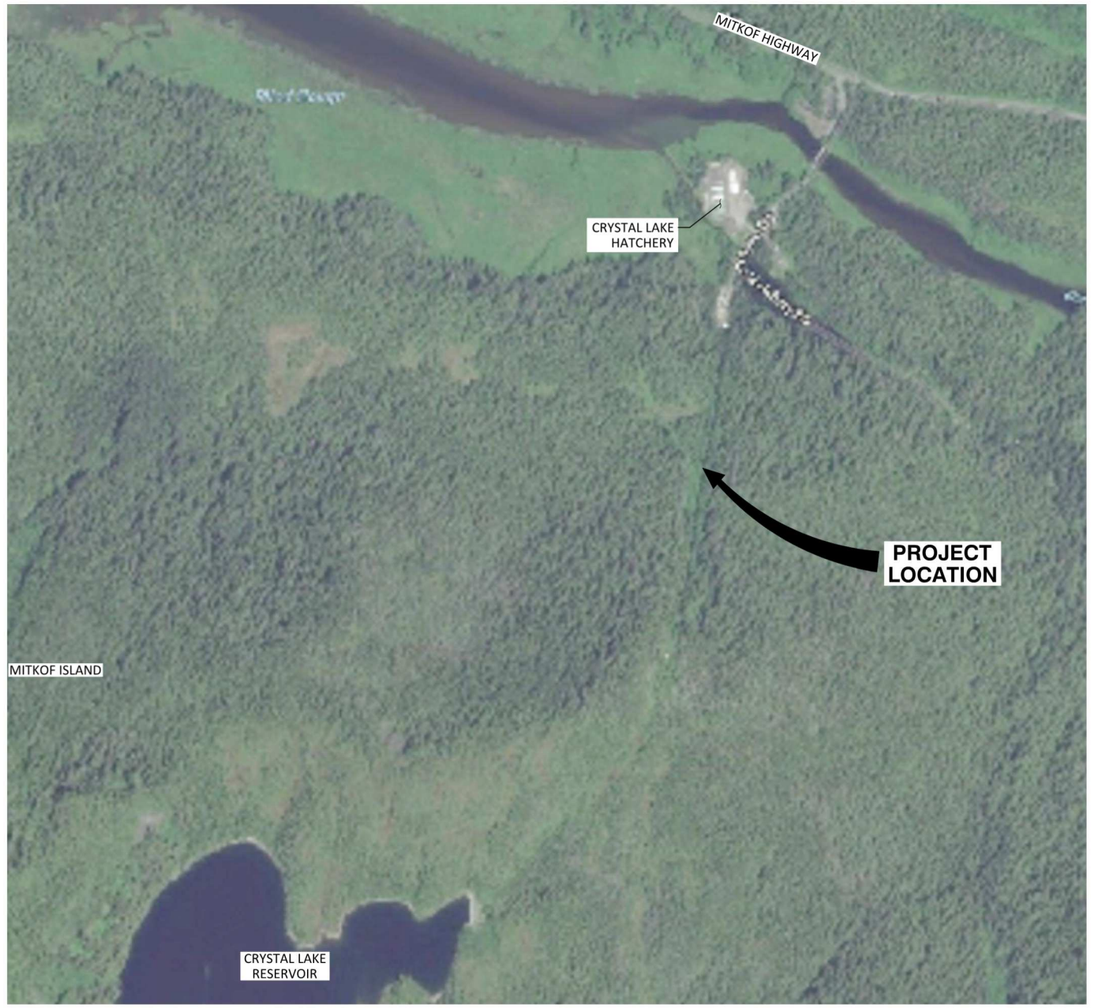
PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT
BALANCE OF PLANT CONTRACT
ISSUED FOR BID

LOCATION MAP
NTS

VICINITY MAP
NTS



SITE MAP
NTS

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49th — Ronald P. Jarrett No. ME-7393 — REGISTERED PROFESSIONAL ENGINEER — 09/20/22

WARNING
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

LOCATION MAP, VICINITY MAP AND SITE MAP

DESIGNED G. CLARK
DRAWN R. GUERRERO
CHECKED D. JARRETT
PROJECT DATE 09/19/22

DRAWING
G001

JOB NO: 000000

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DRAWING INDEX

ISSUED FOR BID	SHEET NUMBER	SHEET TITLE
		GENERAL
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X	G002	DRAWING INDEX
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X	G004	STANDARD SYMBOLS
X	G005	OVERALL SITE PLAN
X	G006	HYDRAULIC PROFILE AND DESIGN CRITERIA
X	G007	PIPE SCHEDULE
X	G008	CONTRACTOR'S STORAGE AND ADMINISTRATION AREA PLAN
X	G009	POWERHOUSE ARRANGEMENT PLAN NEW EQUIPMENT
X	G010	DAM AND SPILLWAY AREA PLAN (FOR INFORMATION ONLY)
X	G011	POWERHOUSE BUILDING CODE SUMMARY
X	G012	PROJECT BOUNDARY
		EROSION AND SEDIMENT CONTROL
X	EC001	STANDARD EROSION AND SEDIMENT CONTROL DETAILS
X	EC100	POWERHOUSE EROSION AND SEDIMENT CONTROL PLAN
X	EC101	DAM EROSION AND SEDIMENT CONTROL PLAN
		DEMOLITION
X	D101	DEMOLITION YARD PIPING PLAN 1
X	D102	DEMOLITION YARD PIPING PLAN 2
X	D103	DEMOLITION POWERHOUSE STRUCTURAL PLAN
X	D104	DEMOLITION POWERHOUSE STRUCTURAL SECTIONS 1
X	D105	DEMOLITION POWERHOUSE STRUCTURAL SECTIONS 2
X	D106	DEMOLITION POWERHOUSE STRUCTURAL SECTIONS 3
X	D107	DEMOLITION POWERHOUSE MECHANICAL PLAN
X	D108	DEMOLITION POWERHOUSE MECHANICAL SECTIONS 1
X	D109	DEMOLITION POWERHOUSE MECHANICAL SECTIONS 2
X	D110	DEMOLITION ELECTRICAL SITE PLAN
X	D111	DEMOLITION ELECTRICAL DETAILS 1
X	D112	DEMOLITION ELECTRICAL DETAILS 2
X	D113	DEMOLITION ELECTRICAL DETAILS 3
X	D114	DEMOLITION ELECTRICAL INTAKE DETAILS
		CIVIL
X	GC001	STANDARD CIVIL & PENSTOCK GENERAL NOTES
X	GC002	STANDARD CIVIL & PENSTOCK DETAILS 1
X	GC003	STANDARD CIVIL & PENSTOCK DETAILS 2
X	GC004	STANDARD CIVIL & PENSTOCK DETAILS 3
X	C100	CIVIL & PENSTOCK SITE KEY PLAN
X	C101	PENSTOCK PLAN AND PROFILE 1
X	C102	PENSTOCK PLAN AND PROFILE 2
X	C103	PENSTOCK PLAN AND PROFILE 3
X	C104	PENSTOCK PLAN AND PROFILE 4

DRAWING INDEX

ISSUED FOR BID	SHEET NUMBER	SHEET TITLE
X	C105	PENSTOCK PLAN AND PROFILE 5
X	C106	PENSTOCK PLAN AND PROFILE 6
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X	C108	PENSTOCK PLAN AND PROFILE 8
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X	C110	PENSTOCK PLAN AND PROFILE 10
X	C120	ENLARGED CIVIL SITE PLAN 1
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X	C122	NEW PENSTOCK PLAN
X	C123	NEW PENSTOCK PROFILE
X	C124	NEW BYPASS PIPING PLAN AND PROFILE
X	C125	FINISHED GRADING PLAN 1
X	C126	FINISHED GRADING PLAN 2
X	C130	VALVE HOUSE BYPASS OUTLET PIPE TO CRYSTAL CREEK PLAN AND PROFILE
X	C131	VALVE HOUSE BYPASS OUTLET PIPE TO CRYSTAL CREEK DETAILS
		STRUCTURAL
X	GS001	STANDARD STRUCTURAL NOTES
X	GS002	STRUCTURAL DESIGN CRITERIA AND SPECIAL INSPECTIONS
X	GS003	STANDARD STRUCTURAL DETAILS
X	S100	POWERHOUSE STRUCTURAL FOUNDATION PLAN
X	S101	POWERHOUSE STRUCTURAL SECTIONS AND DETAILS 1
X	S102	POWERHOUSE STRUCTURAL SECTIONS AND DETAILS 2
X	S103	POWERHOUSE STRUCTURAL SECTIONS AND DETAILS 3
X	S104	POWERHOUSE STRUCTURAL NORTH ELEVATION
X	S110	PENSTOCK THRUST BLOCK NO. 2 PLAN AND SECTIONS
X	S111	PENSTOCK THRUST BLOCK NO. 1 PLAN AND SECTIONS
X	S300	PENSTOCK STRUCTURAL KEY PLAN
X	S301	PENSTOCK STRUCTURAL PHOTOS
X	S302	PENSTOCK PEDESTAL SUPPORT DETAILS 1
		MECHANICAL
X	GM001	STANDARD MECHANICAL NOTES AND SYMBOLS
X	GM002	STANDARD MECHANICAL DETAILS
X	GM003	POWERHOUSE MECHANICAL EQUIPMENT SCHEDULES 1
X	GM004	POWERHOUSE MECHANICAL EQUIPMENT SCHEDULES 2
X	M100	POWERHOUSE MECHANICAL FOUNDATION PLAN
X	M101	POWERHOUSE MECHANICAL EQUIPMENT PLAN
X	M102	POWERHOUSE MECHANICAL SECTIONS 1
X	M103	POWERHOUSE MECHANICAL SECTIONS 2
X	M104	POWERHOUSE MECHANICAL SECTIONS 3
X	M105	POWERHOUSE PROCESS PIPING SCHEMATIC

DRAWING INDEX

ISSUED FOR BID	SHEET NUMBER	SHEET TITLE
		ELECTRICAL
X	GE001	STANDARD ELECTRICAL ABBREVIATIONS
X	GE002	STANDARD ELECTRICAL SYMBOLS 1
X	GE003	STANDARD ELECTRICAL SYMBOLS 2
X	E100	TEMPORARY DAM MONITORING PLAN
X	E101	TEMPORARY DAM MONITORING CONTROL CABINET
X	E102	ARMORED FIBER OPTIC CABLE PROFILE
X	E103	ONE-LINE DIAGRAM
X	E104	RELAY DIAGRAM
X	E106	PANELBOARD SCHEDULES AC & DC
X	E107	ELECTRICAL SITE PLAN
X	E108	POWERHOUSE CONDUIT PLAN
X	E109	480V STATION SERVICE TRANSFORMER
X	E110	FLOW METER CONDUIT AND HANDHOLE
X	E111	CONDUIT SCHEDULE
X	E112	CABLE SCHEDULE 1
X	E113	CABLE SCHEDULE 2
X	E114	CABLE SCHEDULE 3
X	E115	POWERHOUSE LIGHTING PLAN
X	E116	POWERHOUSE LIGHTING SECTION
X	E117	EXHAUST FAN CONTROL
X	E118	GROUNDING DIAGRAM
X	E200	POWERHOUSE ELECTRICAL ARRANGEMENT PLAN
X	E201	POWERHOUSE ELECTRICAL SECTIONS 1
X	E202	POWERHOUSE ELECTRICAL SECTIONS 2
X	E203	POWERHOUSE ELECTRICAL SECTIONS 3
X	E204	POWERHOUSE ELECTRICAL SECTIONS 4
X	E300	SCADA BLOCK DIAGRAM
X	E301	INTAKE CONTROL ENCLOSURE
X	E400	SWITCHYARD PLAN
X	E401	SWITCHYARD DETAILS 2.4 KV
		FIRE PROTECTION
X	FP100	FIRE ALARM AND SECURITY SYSTEMS PLAN

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Ronald P. Jarrett
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BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

DRAWING INDEX

DESIGNED G. CLARK
DRAWN R. GUERRERO
CHECKED D. JARRETT
PROJECT DATE 09/19/22

DRAWING
G002

JOB NO: 000000

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A/C	AIR CONDITIONING
A/E	ARCHITECT/ENGINEER
A	ARCHITECTURAL (DWG DISCIPLINE), AMP
AB	ANCHOR BOLT
ABC	AGGREGATE BASE COURSE
ABAN	ABANDON
AC	ALTERNATING CURRENT
ACST	ACOUSTIC
AD	ADDENDUM, AREA DRAIN
ADDL	ADDITIONAL
ADH	ADHESIVE
ADJ	ADJUSTABLE, ADJACENT
AF	AMP FRAME, AMP FUSE
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISH GRADE
AGGR	AGGREGATE
AIC	AMPS INTERRUPTING CAPACITY
ALIG	ALIGNMENT
ALUM	ALUMINUM
ALT	ALTERNATE, ALTITUDE
AMB	AMBIENT
ANC	ANCHOR
AP	ACCESS PANEL
APRX	APPROXIMATE
APVD	APPROVED ARCH ARCHITECTURAL
ASSY	ASSEMBLY
AT	AMP TRIP
ATM	ATMOSPHERE
AUTO	AUTOMATIC
AUX	AUXILIARY
AVE	AVENUE
AVG	AVERAGE
AWG	AMERICAN WIRE GAGE
B/B	BACK TO BACK
BAL	BALANCE
BBD	BULLETIN BOARD
BC	BASE CABINET, BOTTOM CHORD, BOLT CENTER, BOLT CIRCLE
BD	BOARD
BE	BOTH ENDS, BELL END
BF	BOTH FACES, BOTTOM FACE, BLIND FLANGE, BOARD FEET
BFV	BUTTERFLY VALVE
BITUM	BITUMINOUS
BKG	BACKING
BL	BASE LINE
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BENCHMARK, BEAM
BOC	BACK OF CURB
BOD	BOTTOM OF DUCT
BOG	BOTTOM OF GRILLE
BOL	BOTTOM OF LOUVER
BOP	BOTTOM OF PIPE
BOR	BOTTOM OF REGISTER
BOT	BOTTOM
BOU	BOTTOM OF UNIT
BP	BASE PLATE
BRG	BEARING
BRGP	BEARING PLATE
BRKT	BRACKET
BS	BOTH SIDES
BTU	BRITISH THERMAL UNIT
BTW	BETWEEN
BTWLD	BUTT WELD
BV	BALL VALVE
BW	BOTH WAYS
BYP	BYPASS
C TO C	CENTER TO CENTER
C&G	CURB & GUTTER
C	CHANNEL SHAPE, CENTIGRADE, CONDUIT, CIVIL (DRAWING DISCIPLINE)
CAB	CABINET
CAP	CAPACITY
CAT	CATALOG
CAV	CAVITY
CB	CATCH BASIN
CCB	CONCRETE BLOCK
CCW	COUNTER CLOCKWISE
CF	CUBIC FEET (FOOT)
CHFR	CHAMFER
CHD	CHORD
CHH	COMMUNICATION HANDHOLE
CI	CURB INLET
CIP	CAST-IN-PLACE
CIPB	CONCRETE INTERLOCKING PAVER BALLAST
CIRC	CIRCULATION, CIRCULAR
CJ	CONSTRUCTION JOINT, CONTROL JOINT
CKT	CIRCUIT
CL	CENTERLINE, CLASS, CLOSE
CLR	CLEAR

CMH	COMMUNICATION MANHOLE
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT, CONCRETE OPENING
COL	COLUMN
COM	COMMON
COMB	COMBINATION
COMM	COMMUNICATION
COMP	COMPOSITION, COMPRESSIBLE, COMPOSITE
CONC	CONCENTRIC, CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS, CONTINUED
COORD	COORDINATE
CORR	CORROSIVE, CORRUGATED
CP	CHECKER PLATE, CONTROL POINT
CPLG	COUPLING
CSK	COUNTERSINK
CTR	CENTER
CTRL	CONTROL
CU	COPPER, CUBIC
CW	CLOCKWISE
CY	CUBIC YARD
d	PENNY (NAIL MEASURE)
D	DEEP, DIFFUSER
DB	DUCT BANK, DECIBEL, DRY BULB
DBA	DEFORMED BAR ANCHOR
DBL	DOUBLE
DC	DIRECT CURRENT
DEG	DEGREE
DEG C	DEGREE CENTIGRADE
DEG F	DEGREE FAHRENHEIT
DEMO	DEMOLITION
DEP	DEPRESSED
DEPT	DEPARTMENT
DET	DETAIL
DI	DROP INLET, DUCTILE IRON
DIA	DIAMETER
DIAG	DIAGONAL, DIAGRAM
DIFF	DIFFERENTIAL, DIFFERENCE
DIM	DIMENSION
DISCH	DISCHARGE
DIST	DISTANCE, DISTRIBUTION
DIV	DIVISION
DL	DEAD LOAD
DN	DOWN
DP	DEPTH
DS	DOWN SPOUT
DT	DOUBLE TEE, DRIP TRAP ASSEMBLY
DUP	DUPLICATE
DWG	DRAWING
DWL	DOWEL
E	EAST, ELECTRICAL (DWG DISCIPLINE)
EA	EACH, EXHAUST AIR
EC	ELECTRICAL CONTRACTOR
ECC	ECCENTRIC
EDB	ELECTRICAL DUCT BANK
EE	EACH END
EF	EACH FACE
EG	EXISTING GRADE
EGL	ENERGY GRADE LINE
EFF	EFFLUENT, EFFICIENCY
EHH	ELECTRICAL HANDHOLE
EIFS	EXTERIOR INSULATION & FINISH SYSTEM
EJ	EXPANSION JOINT
EL	ELBOW, ELEVATION
ELEC	ELECTRICAL
EMBD	EMBEDDED
EMER	EMERGENCY
EMH	ELECTRICAL MANHOLE
ENCL	ENCLOSURE
ENGR	ENGINEER
ENTR	ENTRANCE
EOP	EDGE OF PAVEMENT
EOW	EDGE OF WATER
EQ	EQUAL
EQUIP	EQUIPMENT
EQUIV	EQUIVALENT
ES	EACH SIDE, EQUAL SPACE, EMERGENCY SHOWER
ESEW	EMERGENCY SHOWER AND EYE WASH
EST	ESTIMATE
EW	EACH WAY, EMERGENCY EYE/FACE WASH
EWC	ELECTRIC WATER COOLER
EWEF	EACH WAY, EACH FACE
EWTB	EACH WAY, TOP AND BOTTOM
EXC	EXCAVATION
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION, EXPOSED
EXT	EXTERIOR, EXTERNAL, EXTENSION

F TO F	FACE TO FACE
FAB	FABRICATE
FBO	FURNISHED BY OWNER
FC	FLUSHING CONNECTION
FCA	FLANGED COUPLING ADAPTER
FCV	FIXED CONE VALVE
FD	FLOOR DRAIN
FDC	FLEXIBLE DUCT CONNECTION
FDR	FEEDER
FE	FLANGED END
FEC	FIRE EXTINGUISHER CABINET
FEXT	FIRE EXTINGUISHER
FF	FAR FACE, FACTORY FINISH, FLAT FACE
FG	FINISHED GRADE
FIG	FIGURE
FH	FIRE HYDRANT
FIN	FINISH
FL	FLOW, FLOW LINE
FLEX	FLEXIBLE
FLG	FLANGE
FLOR	FLUORESCENT
FLR	FLOOR
FLS	FLASHING, FLUSH
FND	FOUNDATION
FNC	FENCE
FO	FINISHED OPENING
FOB	FLAT ON BOTTOM
FOC	FACE OF CONCRETE, FACE OF CURB, FIBER OPTIC CABLE
FOF	FACE OF FINISH
FOM	FACE OF MASONRY
FOS	FACE OF STUDS
FOT	FLAT ON TOP
FPT	FEMALE PIPE THREAD
FR	FRAME
FRP	FIBERGLASS REINFORCED PLASTIC
FS	FLOOR SINK, FAR SIDE
FT	FEET, FOOT
FTG	FOOTING, FITTING FUR FURRED, FURRING
FURN	FURNITURE, FURNISH
FUT	FUTURE
FV	FACE VELOCITY
FW	FIELD WELD, FIRE WALL
FWD	FORWARD
FWE	FURNISHED WITH EQUIPMENT
FXTR	FIXTURE
G	GRILLE, GROUND, GENERAL (DWG DISCIPLINE)
GA	GAGE (METAL THICKNESS)
GAL	GALLON
GALV	GALVANIZED
GB	GRADE BREAK
GD	GUARD
GEN	GENERAL
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GL	GLASS
GP	GUY POLE
GR	GRADE
GRND	GROUND
GRTG	GRATING
GT	GREASE TRAP
GWB	GYPSUM WALLBOARD
GYP	GYPSUM HARDBOARD
H	HIGH
HB	HOSE BIB
HBD	HARDBOARD
HC	HANDICAPPED, HOLLOW CORE, HORIZONTAL CURVE
HC	HORIZONTAL CENTERLINE
HDR	HEADER
HDW	HARDWARE
HEX	HEXAGONAL
HGL	HYDRAULIC GRADE LINE
HH	HANDHOLE
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HP	HIGH POINT, HORSEPOWER
HPC	HORIZONTAL POINT OF CURVATURE
HPS	HIGH PRESSURE SODIUM
HPT	HORIZONTAL POINT OF TANGENCY
HR	HOUR
HS	HEADED STUD, HIGH STRENGTH
HSS	HOLLOW STRUCTURAL SHAPE
HT	HEIGHT
HV	HIGH VOLTAGE
HVAC	HEATING, VENTILATION & AIR CONDITIONING
HWD	HARDWOOD
HWL	HIGH WATER LEVEL
HYD	HYDRAULIC HZ HERTZ, CYCLES PER SECOND

I	INSTRUMENTATION (DWG DISCIPLINE)
ID	INSIDE DIAMETER, INTERIOR DIMENSION
IE	INVERT ELEVATION
IF	INSIDE FACE
IH	INTAKE HOOD
IMP	IMPACT
IN	INCH
INC	INCLUDE, INCANDESCENT
INF	INFLUENT
INSTR	INSTRUMENTATION
INSUL	INSULATION
INT	INTERIOR, INTERSECTION
INTR	INTERMEDIATE, INTERIOR
INV	INVERT
IPS	IRON PIPE SIZE
IPT	INTERNAL PIPE THREAD
IRR	IRRIGATION
ISO	ISOMETRIC
JB	JUNCTION BOX
JCT	JUNCTION
JF	JOINT FILLER
JT	JOINT
K	KIP
KB	KNEE BRACE
KCMIL	THOUSAND CIRCULAR MILS
KD	KNOCK DOWN
KO	KNOCK OUT
KSI	KIPS PER SQUARE INCH
L	ANGLE, LENGTH, LAVATORY
LAM	LAMINATE
LATL	LATERAL
LB	LAG BOLT, POUND
LDR	LEADER
LF	LINEAR FOOT
LG	LONG
LH	LEFT HAND
LIN	LINEAR
LIQ	LIQUID
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LMLU	LIQUID MARKER LECTURE UNIT
LNG	LONGITUDINAL
LOC	LOCATION
LP	LOW POINT
LPS	LOW PRESSURE SODIUM
LR	LONG RADIUS
LT	LEFT
LTD	LIMITED
LTG	LIGHTING
LTL	LINTEL
LTNG	LIGHTNING
LV	LOW VOLTAGE
LVR	LOUVER
LW	LIGHTWEIGHT
LWC	LIGHTWEIGHT CONCRETE
LWL	LOW WATER LEVEL
M	MECHANICAL (DWG DISCIPLINE)
MA	MIXED AIR
MAINT	MAINTENANCE
MAN	MANUAL
MAOP	MAXIMUM ALLOWABLE OPERATING PRESSURE
MATL	MATERIAL
MAX	MAXIMUM
MB	MACHINE BOLT
MBR	MEMBER
MCJ	MASONRY CONTROL JOINT
MECH	MECHANICAL
MED	MEDIUM
MFR	MANUFACTURER
MH	MANHOLE, METAL HALIDE
MIN	MINIMUM
MIR	MIRROR
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MMB	MEMBRANE
MO	MASONRY OPENING
MOD	MODULAR, MODIFY
MON	MONUMENT
MPT	MALE PIPE THREAD
MSL	MEAN SEA LEVEL
MT	MOUNT
MU	MASONRY UNIT
MULL	MULLION
MV	MEDIUM VOLTAGE
MW	MONITORING WELL

N	NORTH, NEUTRAL
NA	NOT APPLICABLE
NAT	NATURAL
NC	NORMALLY CLOSED
NEG	NEGATIVE
NF	NEAR FACE, NON-FUSED
NG	NATURAL GAS
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN, NUMBER
NOM	NOMINAL
NPS	NOMINAL PIPE SIZE
NPT	NATIONAL PIPE THREAD
NS	NEAR SIDE
NTS	NOT TO SCALE
NWL	NORMAL WATER LEVEL
O TO O	OUT-TO-OUT
OA	OUTSIDE AIR, OVERALL
OC	ON CENTER
OCPD	OVER CURRENT PROTECTION DEVICE
OD	OUTSIDE DIAMETER
OH	OVERHEAD
OPNG	OPENING
OPP	OPPOSITE
OPT	OPTIONAL
ORD	OVERFLOW ROOF DRAIN
ORIG	ORIGINAL
OVFL	OVERFLOW
OVHG	OVERHANG
OZ	OUNCE
P	PAINT, PROCESS (DWG DISCIPLINE)
PAR	PARALLEL, PARAPET
PB	PANIC BAR, PULL BOX
PBD	PARTICLE BOARD
PC	POINT OF CURVE, PIECE, PRECAST
PCC	POINT OF COMPOUND CURVATURE
PCF	POUNDS PER CUBIC FOOT
PCT	PERCENT
PE	PLAIN END
PED	PEDESTAL
PEN	PENETRATION
PERF	PERFORATED
PERM	PERMANENT
PERP	PERPENDICULAR
PF	POWER FACTOR
PH	PHASE
PI	POINT OF INTERSECTION
PKG	PACKAGE
PL	PLATE, PROPERTY LINE
PLBG	PLUMBING
PLF	POUNDS PER LINEAR FOOT
PNEU	PNEUMATIC
POL	POLISH
POS	POSITIVE, POSITION
PP	POLYPROPYLENE, POWER POLE
PRC	POINT OF REVERSE CURVATURE
PREF	PREFINISHED
PREFAB	PREFABRICATED
PRELIM	PRELIMINARY
PREP	PREPARE
PRES	PRESSURE
PROP	PROPERTY
PROT	PROTECTION
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAGE
PT	POINT, POINT OF TANGENCY
PTN	PARTITION
PVC	POLYVINYL CHLORIDE
PVMT	PAVEMENT
PWD	PLYWOOD
PZ	PIEZOMETER
Q	RATE OF FLOW
QTR	QUARTER
QTY	QUANTITY
QUAL	QUALITY
R&R	REMOVE AND REPLACE
R&S	REMOVE AND SALVAGE
R	RADIUS, REGISTER, RISER
RA	RETURN AIR
RB	RESILIENT BASE, ROCK BERM
RCPT	RECEPTACLE
RD	ROOF DRAIN
REC	RECESS
RECD	RECEIVED
RECT	RECTANGULAR
RED	REDUCER
REF	REFERENCE
REINF	REINFORCING
REQD	REQUIRED
RESIL	RESILIENT

RET	RETAINING, RETURN
REV	REVISION, REVERSE
RFL	REFLECTED, REFLECTOR
RGS	RIGID GALVANIZED STEEL
RH	RELIEF HOOD, RIGHT HAND, RELATIVE HUMIDITY
RL	REQUIRED LAP
RND	ROUND
RNG	RENEWABLE NATURAL GAS
RO	ROUGH OPENING
ROW	RIGHT-OF-WAY
RPM	REVOLUTIONS PER MINUTE
RR	RAILROAD
RT	RIGHT
S	SOUTH, SINK, STRUCTURAL (DWG DISCIPLINE)
SA	SUPPLY AIR
SAN	SANITARY
SC	SOLID CORE
SCH	SCHEDULE
SCHEM	SCHEMATIC
SCRN	SCREEN
SE	STEEL/ALUMINUM EDGE
SEC	SECONDARY, SECONDS
SECT	SECTION
SEP	SEPARATE
SF	SQUARE FOOT
SH	SHOWER
SHT	SHEET
SHTG	SHEATHING
SIM	SIMILAR
SL	SLOPE
SLTD	SLOTTED
SLV	SLEEVE
SMLS	SEAMLESS
SOG	SLAB ON GRADE
SP	SOUNDPROOF, STANDPIPE
SPC	SPACING
SPEC	SPECIFICATION
SPLY	SUPPLY
SPT	SET POINT
SQ	SQUARE
SR	SHORT RADIUS
SS	SERVICE SINK
SST	STAINLESS STEEL
ST	STREET
STA	STATION
STD	STANDARD
STIF	STIFFENER
STIR	STIRRUP
STL	STEEL
STOR	STORAGE
STR	STRUCTURAL, STRAIGHT
SUB	SUBSTITUTE
SUC	SUCTION
SUSP	SUSPENDED
SY	SQUARE YARD
SYM	SYMBOL
SYMM	SYMMETRICAL
SYN	SYNTHETIC
SYS	SYSTEM
T&B	TOP AND BOTTOM
T&G	TONGUE AND GROOVE
T	TILE, TREAD
TA	TEMPERED AIR
TAN	TANGENT
TBM	TEMPORARY BENCHMARK
TEMP	TEMPORARY, TEMPERATURE
THK	THICK
THRD	THREAD
THRU	THROUGH
TOB	TOP OF BOLT, TOP OF BANK, TOP OF BEAM
TOC	TOP OF CURB, TOP OF CONCRETE
TOD	TOP OF DUCT
TOF	TOP OF FOOTING
TOG	TOP OF GRATING
TOL	TOLERANCE, TOP OF LEDGER
TOM	TOP OF MASONRY
TOP	TOP OF PLATE
TOPO	TOPOGRAPHY
TOS	TOP OF SLAB, TOP OF STEEL
TOW	TOP OF WALL
TP	TELEPHONE POLE, TOE PLATE, TRAP PRIMER
TPG	TOPPING
TRANS	TRANSITION
TRD	TRENCH DRAIN
TYP	TYPICAL
U	URINAL
UG	UNDERGROUND
ULT	ULTIMATE
UNFN	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
UTIL	UTILITY

V	VENT, VELOCITY, VOLT
VA	VOLT AMPERE
VAC	VACUUM
VAR	VARNISH, VARIABLE, VOLT AMPERES REACTIVE
VB	VAPOR BARRIER, VINYL BASE, VALVE BOX
VC	VERTICAL CURVE
VCT	VINYL COMPOSITION TILE, VERTICAL CENTERLINE
VEL	VELOCITY
VENT	VENTILATION
VERT	VERTICAL
VS	VERSES, VAPOR SEAL
VOL	VOLUME
VPC	VERTICAL POINT OF CURVATURE
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENCY
VTR	VENT THROUGH ROOF
VWC	VINYL WALL COVERING
W/	WITH
W/O	WITHOUT
W	WATT, WEST, WIDE, WINDOW, WIRE, WIDE FLANGE BEAM
WC	WATER CLOSET, WATER COLUMN
WD	WIDTH
WF	WIDE FLANGE, WASH FOUNTAIN
WG	WIRE GLASS, WATER GAGE
WH	WALL HYDRANT, WEEP HOLE
WL	WATER LEVEL
WLD	WELDED
WM	WIRE MESH
WP	WATERPROOF, WORKING POINT
WTHP	WEATHERPROOF
WS	WATERSTOP, WATER SURFACE
WSEL	WATER SURFACE ELEVATION
WT	WEIGHT, WATER TIGHT
WWF	WELDED WIRE FABRIC
XS	EXTRA STRONG
XXS	DOUBLE EXTRA STRONG
XSECT	CROSS SECTION
YH	YARD HYDRANT
YS	YIELD STRENGTH

AGENCY & PROJECT SPECIFIC ABBREVIATIONS:

ATV	ALL-TERRAIN VEHICLE
BMP	BEST MANAGEMENT PRACTICES
EPD	EQUIPMENT PROCUREMENT DOCUMENTS
FERC	FEDERAL ENERGY & REGULATORY COMM
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
PMPL	PETERSBURG MUNICIPAL POWER AND LIGHT
TGSM	TURBINE GENERATOR SYSTEM MANUFACTURER

GENERAL NOTES:

1. THESE ABBREVIATIONS APPLY TO THE ENTIRE SET OF CONTRACT DRAWINGS.
2. LISTING OF ABBREVIATIONS DOES NOT IMPLY ALL ABBREVIATIONS ARE USED IN THE CONTRACT DRAWINGS.
3. ABBREVIATIONS SHOWN ON THIS SHEET INCLUDE VARIATIONS OF THE WORD. FOR EXAMPLE, "MOD" MAY MEAN MODIFY OR MODIFICATION; "INC" MAY MEAN INCLUDED OR INCLUDING; "REINF" MAY MEAN EITHER REINFORCE OR REINFORCING.
4. SCREENING OR SHADING OF WORK IS USED TO INDICATE EXISTING COMPONENTS OR TO DE-EMPHASIZE PROPOSED IMPROVEMENTS TO HIGHLIGHT SELECTED TRADE WORK. REFER TO CONTEXT OF EACH SHEET FOR USAGE.
5. SEE SHEET PF001 FOR PROJECT SPECIFIC EQUIPMENT SYMBOLS, EQUIPMENT ABBREVIATIONS AND PIPING SYSTEM ABBREVIATIONS.

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA — 49th — Rheland P. Jarrett — No. ME-7393 — REGISTERED PROFESSIONAL ENGINEER — 09/20/22

WARNING

0 1/2 1

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

McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

STANDARD ABBREVIATIONS

DESIGNED G. CLARK

DRAWN R. GUERRERO

CHECKED D. JARRETT

PROJECT DATE 09/19/22

DRAWING

G003

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\G003.dwg Plot date: Sep 19, 2022 03:55pm, CAD User: Guerrero

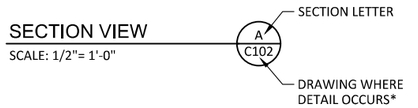
SHEET SYMBOLS

PLAN
SCALE: 1/2"= 1'-0"
0' 2' 4'
N

SECTION IDENTIFICATION

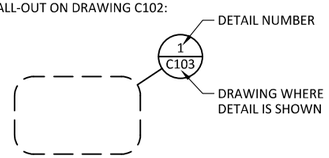
(1) SECTION CUT ON DRAWING C102:

(2) ON DRAWING C103 THIS SECTION IS IDENTIFIED AS:

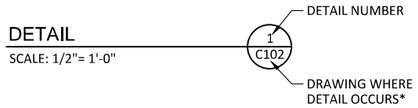


DETAIL IDENTIFICATION

(1) DETAIL CALL-OUT ON DRAWING C102:



(2) ON DRAWING C103 THIS SECTION IS IDENTIFIED AS:

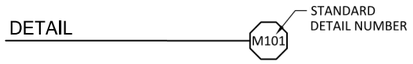


*NOTE: IF PLAN AND SECTION (OR DETAIL CALL-OUT AND DETAIL) ARE SHOWN ON SAME DRAWING. DRAWING NUMBER IS REPLACED BY A LINE.

STANDARD DETAIL IDENTIFICATION

(1) DETAIL CALL-OUT ON PLAN OR SECTION:

(2) ON DETAIL DRAWINGS, IDENTIFIED AS:



ELEVATION/IMAGE IDENTIFICATION

SITE PLAN LINE TYPES

X X	FENCE LINE
P P	OVERHEAD POWER
455	MAJOR CONTOUR
456	MINOR CONTOUR
· · ·	EDGE OF WATERLINE
TOE	TOE OF SLOPE
TOB	TOP OF BANK
SS SS	SANITARY SEWER
SD SD	STORM DRAIN
EP EP	EDGE OF PAVEMENT
EG EG	EDGE OF GRAVEL
W	WATTLE
SF SF	SILT FENCE
CF CF	CONSTRUCTION FENCE
GAS	GAS LINE
IRR IRR	IRRIGATION LINE
WTR	WATER LINE
TEL	TELEPHONE LINE
COM	COMMUNICATION LINE
OHP	OVERHEAD ELECTRICAL/POWER
EUG	UNDERGROUND ELECTRICAL
P/L	PROPERTY LINE
OHP	EXISTING OVERHEAD POWER LINE
OHP&T	EXISTING OVERHEAD POWER & TELEPHONE LINE
T	EXISTING OVERHEAD TELEPHONE LINE
BT	EXISTING BURIED TELEPHONE LINE EVIDENCED BY PEDESTALS & WARNING PADDLES
	EXISTING FENCE LINE
	PROJECT BOUNDARY
	TREE PROTECTION FENCE
TC	TURBIDITY CURTAIN
SF SF	SILT FENCING
CL	CONSTRUCTION LIMITS

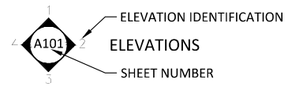
SITE PLAN SYMBOLS

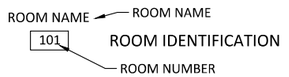
- ARROW INDICATES DIRECTION OF PLAN NORTH
- CONIFER TREE: FIR, SPRUCE, LARCH OR PINE, 8" DIAMETER OR LARGER.
- DECIDUOUS TREE: COTTONWOOD, HAWTHORN, ASPEN, 8" DIAMETER OR LARGER.
- MH — MANHOLE
- EB — ELECTRIC BOX
- STORM DRAIN MANHOLE
- FH — FIRE HYDRANT
- YH-X — YARD HYDRANT
- SURVEY CONTROL POINT, AS NOTED.
- POLE ANCHOR
- POWER POLE
- LIGHT POLE
- SIGN
- SURVEY HUB
- SECTION CORNER
- BENCH MARK
- EXISTING HEADWALL
- EXISTING MONITORING STATION
- X X — EXISTING FENCE
- STATE PLANE COORDINATE MARKER
- EXISTING TREE LINE
- EXISTING BUILDING, STRUCTURES
- EXISTING SECTION CORNER MONUMENT FOUND AS DESCRIBED
- EXISTING 5/8" REBAR CONTROL POINT MONUMENT, BORING LOCATION
- W — EXISTING HOSE BIB
- EXISTING PORTABLE IRRIGATION WATER PUMP
- WELL — EXISTING 6" WATER WELL
- EXISTING ELECTRICAL OUTLET
- P — EXISTING POWER POLE
- T — EXISTING TELEPHONE PEDESTAL
- CONTROL POINT
- PUMP
- PUMP
- TP — TEST PIT LOCATION

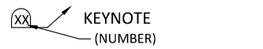
MISCELLANEOUS SYMBOLS

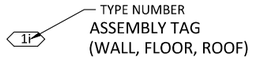
- CHANGE OF PIPE MTL
- OR — END OF PIPE
- ℄ — CENTERLINE
- Ø — DIAMETER
- ∠ — ANGLE
- PL — PLATE
- ± — PLUS/MINUS

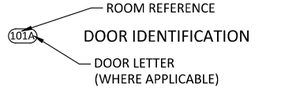
ARCHITECTURAL SYMBOLS

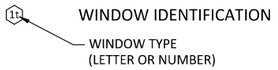


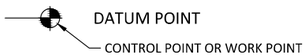












HATCH SYMBOLS

- ROCK, TYPE AS NOTED (PLAN/SECTION)
- BED ROCK
- EXISTING GRADE (SECTION)
- NEW SOIL (SECTION)
- CONCRETE (SECTION/PLAN)
- SAND, GROUT (PLAN/SECTION)
- STEEL (SECTION)
- GRATING (PLAN)
- MASONRY (PLAN)
- WOOD, SIZE/TYPE AS NOTED (PLAN)
- WOOD, SIZE/TYPE AS NOTED (SECTION)
- RIP RAP (PLAN/SECTION)
- RIGID INSULATION (SECTION)
- ASPHALT CONCRETE PAVEMENT SURFACE (PLAN/SECTION)
- GRASS/VEGETATION (PLAN)
- BATT INSULATION (SECTION)
- NEW CONSTRUCTION
- EXISTING
- EXISTING TO BE REMOVED OR DEMOLISHED
- CLEARING AND GRUBBING
- ASPHALT
- GRASS/VEGETATION
- GRAVEL

GENERAL NOTES:

1. ALL SYMBOLS ARE NOT NECESSARILY USED. THIS IS A STANDARD DRAWING SHOWING COMMON SYMBOLS ON THIS PROJECT.
2. SCREENING OR SHADING OF WORK IS USED TO INDICATE EXISTING COMPONENTS OR TO DE-EMPHASIZE PROPOSED IMPROVEMENTS TO HIGHLIGHT SELECTED TRADE WORK. REFER TO CONTEXT OF EACH DRAWING FOR USAGE.

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49th — Donald P. Jarrett No. ME-7393 — REGISTERED PROFESSIONAL ENGINEER — 09/20/22

WARNING
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH
BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT
STANDARD SYMBOLS

DESIGNED G. CLARK
DRAWN R. GUERRERO
CHECKED D. JARRETT
PROJECT DATE 09/19/22

DRAWING
G004

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\G004.dwg Plot date: Sep 19, 2022 03:55pm, CAD User: Guerrero

SHEET NOTES:

1. INFORMATION PERTAINING TO HORIZONTAL AND VERTICAL DATUM, INCLUDING SURVEY CONTROL POINTS ARE SHOWN ON C120. ADDITIONAL SURVEY INFORMATION IS ALSO PROVIDED IN SPEC 01 32 23 SURVEYING.

OVERALL SITE PLAN
SCALE: 1"= 150'

0" 150' 300'

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49th — Ronald P. Jarrett No. ME-7393 — REGISTERED PROFESSIONAL ENGINEER — 09/20/22

WARNING
0 1/2 1
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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH
BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT
OVERALL SITE PLAN

DESIGNED G. CLARK
DRAWN R. GUERRERO
CHECKED J. BOAG
PROJECT DATE 09/19/22

DRAWING
G005

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\G005.dwg Plot date: Sep 19, 2022 03:55pm, CAD User: Guerrero

PROJECT DESIGN CRITERIA (SEE NOTE 1)			
CRITERIA	VALUE	CRITERIA	VALUE
DRAINAGE BASIN		POWERHOUSE TURBINE UNIT	
WATERSHED AT DAM	1.5 SQUARE MILES	NO OF TURBINES	1
CRYSTAL LAKE MAXIMUM WSEL (100 YR FLOOD)	1295.8 FT MSL	TURBINE TYPE	PELTON
CRYSTAL LAKE MINIMUM WSEL	1270 FT MSL	MINIMUM FLOW	5 CFS
CRYSTAL LAKE SPILLWAY ELEV	1292	MAXIMUM FLOW	25 CFS
CRYSTAL LAKE HATCHERY		RATING	2.1 MW
MINIMUM FLOW	8 CFS		
MAXIMUM FLOW	14 CFS	SPEED	900 RPM
		INTAKE DAM NORMAL WSEL	1292
		TURBINE CENTERLINE	37.92 FT

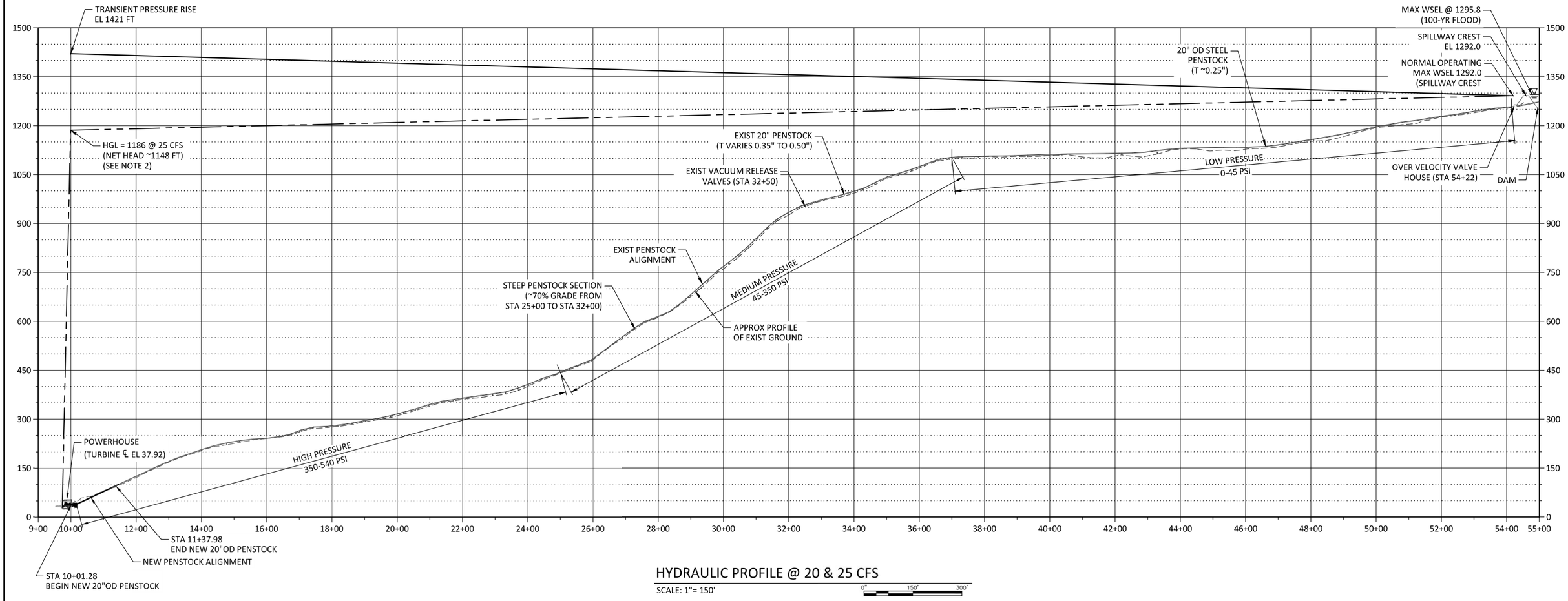
SHEET NOTES:

1. INFORMATION PERTAINING TO HORIZONTAL AND VERTICAL DATUM, INCLUDING SURVEY CONTROL POINTS ARE SHOWN ON C120. ADDITIONAL SURVEY INFORMATION IS ALSO PROVIDED IN SPEC 01 32 23 SURVEYING.
2. NET HEAD CALCULATED VALUES BASED ON AN ASSUMED HAZEN WILLIAMS COEF. OF 130, AN AVERAGE PIPE WALL THICKNESS OF 0.34" AND A CRYSTAL LAKE OPERATIONAL LEVEL OF 1292.0.

LEGEND:

HYDRAULIC GRADE LINE FOR 25 CFS DESIGN FLOW

HYDRAULIC GRADE LINE FOR TRANSIENT FLOW CONDITIONS



HYDRAULIC PROFILE @ 20 & 25 CFS

SCALE: 1"= 150'

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA — 49th — Donald P. Jarrett — No. ME-7393 — REGISTERED PROFESSIONAL ENGINEER — 09/20/22

WARNING

0 1/2 1

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

HYDRAULIC PROFILE
AND DESIGN CRITERIA

DESIGNED G. CLARK

DRAWN R. GUERRERO

CHECKED D. JARRETT

PROJECT DATE 09/19/22

DRAWING

G006

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\G006.dwg Plot date: Sep 19, 2022 03:55pm, CAD User: Guerrero

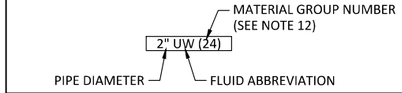
FLUID ABBREVIATION	FUNCTION	ALLOWABLE PIPING MATERIAL GROUP NO. (SEE NOTE 1 AND 4)				FIELD TEST REQUIREMENTS (SEE NOTE 3 AND NOTE 4)		
	THIS LIST MAY INCLUDE FLUIDS NOT USED IN THIS PROJECT	EXPOSED PIPING (SEE NOTE 14)		BURIED PIPING (SEE NOTE 13)		MINIMUM TEST PRESSURE PSIG	TEST MEDIUM	LEAKAGE ALLOWANCE (SEE NOTE 2)
	(* SEE NOTE 5)	3" DIA AND SMALLER	4" DIA AND LARGER	3" DIA AND SMALLER	4" DIA AND LARGER			
COMMONLY USED FUNCTIONS								
BP	BYPASS (TO HATCHERY)	2	7	--	7	600 (N01)	WATER	(A)
CA	COMPRESSED AIR	24,37	--	--	--	150	AIR	(A)
DR	DRAIN	2	--	2	--	40	WATER	(A)
HO	HYDRAULIC OIL	37	--	--	--	SEE SPECS	PROCESS OIL	(A)
LO	LUBE OIL	15	15	--	--	SEE SPECS	PROCESS OIL	(A)
PSW	PENSTOCK WATER	2,37	7,8	--	7,8	HYDRO-STATIC HEAD	WATER	(A)
SWD	STORM WATER DRAIN	--	--	--	20	4.0	WATER	(B)
TW	TAILRACE WATER	--	31	--	31	40	WATER	(A)
UW	UTILITY WATER	2	--	--	--	50	WATER	(A)
VT	VENT	2,16	2	--	--	0.5	VACUUM	(A) (D)

* EXCLUDES EXISTING AND NEW TAILRACE PIPE, WHOSE TEST PRESSURE SHALL NOT EXCEED 25 PSIG.

PIPING MATERIAL SCHEDULE (SEE NOTE 1)

GROUP NO.	PIPE MATERIAL	FITTINGS / JOINTS	LININGS AND COATINGS (SEE NOTE 14)
2	STEEL, ASTM A53, SCHEDULE 40, BLACK WELDED, GALVANIZED	3" AND SMALLER, MALLEABLE IRON, ASME B16.3, THREADED, BANDED, GALVANIZED CLASS 300. 4" AND LARGER, CAST IRON, ASME B16.1, CLASS 250 FLANGED OR MECHANICAL COUPLING.	SEE SECTION 43 10 53
7	STEEL, ASTM A106 OR A53 SCHEDULE 20 OR 30 (PIPE CALLOUT DIMENSIONS ARE STD IPS PIPE DIMENSIONS)	PLAIN END JOINTS W/ FACTORY GROOVED ENDS FITTINGS PER AWWA C208 MODIFIED PER SECTION 331111, FABRICATED, OR ASME B16.5, CLASS 300 FLANGED JOINTS.	FUSION BONDED EPOXY PER AWWC C213, SEE SECTION 311111
8	WELDED STEEL PIPE (AWWA C200 MODIFIED PER SECTION 331111) (ALL PIPE CALLOUT DIAMETERS ARE STD IPS PIPE OD DIMENSIONS)	FITTINGS PER AWWA C208 MODIFIED PER SECTION 331111, ASME B16.5, CLASS 300 FLANGED JOINTS WHERE REQD.	SEE SECTION 331111
15	STAINLESS STEEL, TYPE 304, ASTM A312, SCHEDULE 20 OR 40.	STAINLESS STEEL, TYPE 304 NPT THREADED ENDS, SCHEDULE 40S, SEE SPEC 402316	NOT APPLICABLE
16	POLYVINYL CHLORIDE, SCHEDULE 80, NORMAL IMPACT. ASTM D1785. (TYP SERVICE - INDOORS/COVERED WWS & CTE)	POLYVINYL CHLORIDE, SCHEDULE 80, NORMAL IMPACT, SOCKET SOLVENT WELD JOINTS, ASTM D2467. (SOLVENT & GLUE SHALL BE COMPATIBLE WITH FLUID SERVICE)	NOT APPLICABLE
20	HIGH DENSITY POLYETHYLENE CORRUGATED NON-PERFORATED, ASTM F40 (ADS N-12 "WATER-TIGHT" PIPE OR EQUAL; PERFORATE WHERE INDICATED. (TYP SERVICE - DRAINAGE & UC)	HIGH DENSITY POLYETHYLENE CORRUGATED. FABRICATED WITH SS CLAMPED CONNECTIONS; FOR WATER-TIGHT SERVICE.	NOT APPLICABLE
24	COPPER, ASTM B88, TYPE K, SOFT TEMPERED WHERE BURIED, HARD TEMPERED WHERE EXPOSED. (TYP SERVICE - COMPRESSED AIR, POTABLE WATER)	WROUGHT COPPER OR CAST BRONZE, ASME B16.22, SOLDER JOINT, 150 PSI, OR COMPRESSION FITTINGS. (FOR OXYGEN PIPING USE SILVER SOLDER, FOR COMPRESSED AIR PIPING USE 95-5 TIN-ANTIMONY SOLDER)	NOT APPLICABLE
31	HIGH DENSITY POLYETHYLENE (HDPE) ASTM D3350 - DR AS INDICATED (NOTE 17)	HDPE THERMAL BUTT WELD; FLANGE CONNECTIONS AT ALL VALVES AND TRANSITIONS.	NOT APPLICABLE
37	STAINLESS STEEL SEAMLESS ANNEALED TUBING, TYPE 316L, ASTMA213, MIN. WALL THICKNESS OF 0.065 INCHES	1" AND UNDER, STAINLESS STEEL, TYPE 316L, COMPRESSION FITTINGS AS MANUFACTURED BY SWAGELOCK OR EQUAL (NPT FITTINGS ALLOWED ON WATER LINES ONLY)	NOT APPLICABLE

TYPICAL PIPE DESIGNATION:



NOTES:

NOTE 1
ALTHOUGH SEVERAL PIPE MATERIAL GROUPS MAY BE LISTED ON THIS SHEET FOR A GIVEN FLUID SERVICE, CONTRACTOR SHALL PROVIDE ONLY THE PIPE MATERIAL GROUP SHOWN ON THE DRAWINGS AND SPECIFIED FOR THAT FLUID SERVICE.

NOTE 2
LEAKAGE ALLOWANCE IS AS FOLLOWS
A. PIPES SO DESIGNATED SHALL SHOW ZERO LEAKAGE.
B. PIPES SO DESIGNATED SHALL SHOW ZERO LEAKAGE FOR UNBURIED PIPE AND NOT MORE THAN 0.02 GALLON PER HOUR PER INCH DIAMETER PER 100 FEET OF BURIED PIPE.
C. PIPES SO DESIGNATED SHALL NOT SHOW A LEAKAGE OF MORE THAN 0.15 GALLON PER HOUR PER INCH OF DIAMETER PER 100 FEET OF PIPE.
D. PIPES SO DESIGNATED SHALL NOT SHOW A LOSS OF PRESSURE OF MORE THAN 5 PERCENT.
E. PIPE SO DESIGNATED SHALL NOT SHOW A LOSS OF VACUUM OF MORE THAN 4 INCHES MERCURY COLUMN.

NOTE 3
NO SUBSTITUTIONS U.N.O. IN THE SPECIFICATIONS.

NOTE 4
FOR FIELD TEST PROCEDURES AND ADDITIONAL TEST REQUIREMENTS, SEE PIPING SECTION OF SPECIFICATIONS.

NOTE 5
NOT USED.

NOTE 6
STATIC WATER TEST WITH SURFACE 5 FEET ABOVE HIGH POINT OF PIPE.

NOTE 7
INSPECTION AND TESTING SHALL BE IN ACCORDANCE WITH APPLICABLE PLUMBING CODE.

NOTE 8
NO APPARENT LEAKS UNDER NORMAL OPERATING CONDITIONS.

NOTE 9
NOT USED

NOTE 10
PIPING 1" AND SMALLER SHALL BE STAINLESS STEEL TUBING UTILIZING NON-NPT FITTINGS TO THE EXTENT PRACTICABLE

NOTE 11
FOR VALVES3" AND LARGER SEE VALVE SCHEDULE.

NOTE 12
CHANGE IN PIPING MATERIAL GROUP NUMBER IS INDICATED THUS: ——◆

NOTE 13
NOT USED.

NOTE 14
EXPOSED OUTDOOR PIPING SHALL BE PAINTED IN ACCORDANCE WITH SPECIFICATIONS.

NOTE 15
NOT USED.

NOTE 16
NOT USED.

NOTE 17
WHEN UTILIZED FOR HDPE PIPING THE SIZE OF PIPE SHOWN ON DRAWING CALL-OUTS SHALL BE THE NOMINAL OUTSIDE DIAMETER. PIPE WALL THICKNESS SHALL BE PER DR RATING REQUIREMENT.

REV	DATE	BY	DESCRIPTION
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STATE OF ALASKA 49th — Donald P. Jarrett No. ME-7393 — REGISTERED PROFESSIONAL ENGINEER — 09/20/22

WARNING
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

PIPE SCHEDULE

DESIGNED G. CLARK
DRAWN R. GUERRERO
CHECKED D. JARRETT
PROJECT DATE 09/19/22

DRAWING
G007

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\G007.dwg Plot date: Sep 19, 2022 03:55pm, CAD User: Guerrero

SHEET NOTES:

1. STAGING AREA SHALL BE FOR CONTRACTOR'S EMPLOYEE PARKING, CONTRACTOR'S TRAILERS AND ONSITE STORAGE OF MATERIALS. LOCATION OF STAGING AREA AND ACCESS TO SITE MUST BE APPROVED BY OWNER.
2. CONTRACTOR SHALL PROVIDE TEMPORARY 6-FT TALL CHAIN LINK FENCING SUFFICIENT TO DETER WILDLIFE ENTRY AND MAINTAIN SECURITY AT ALL TIMES.
3. THE FINAL LOCATION OF THE HELICOPTER DEBRIS STAGING AREA WILL BE DETERMINED IN THE FIELD BASED ON SITE CONDITIONS AND OWNER PREFERENCE.

CONSTRUCTION ACCESS
~16' WIDE CHAIN LINK SWING GATE, SEE NOTE 2
TO MITKOF HWY
TEMPORARY CHAIN LINK CONST FENCING, SEE NOTE 2
REFUSE CONTAINER
SPILL KIT
HAZARDOUS MATERIALS STORAGE
~70'X50' CONTRACTOR'S STAGING/ STORAGE AREA
DO NOT DISTURB OR DAMAGE EXIST PERMANENT CHAIN LINK FENCE AROUND SUBSTATION
8'
TEMPORARY CHAIN LINK CONST FENCING, SEE NOTE 2
~16' WIDE CHAIN LINK SWING GATE (AT CONTRACTOR'S OPTION)
EXISTING SUBSTATION
EXIST OVERHEAD FIBER OPTIC (OHFO) LINE
CONTRACTOR TRAILER/ ADMINISTRATION AREA
CONCRETE WASHOUT
EXIST EXPOSED TAILRACE PIPE
DEMOLISH TURBINE OUTLET TAILRACE PIPES
TEMPORARY CHAIN LINK CONST FENCING, SEE NOTE 2
OLD POWERHOUSE
CP #1
N 1745547.81
E 2856138.44
EL 31.617
EXIST PENSTOCK ACCESS TRAIL
EXIST BURIED TAILRACE PIPE
CP #105
N 1745468.89
E 2856125.64
EL 35.340
CONTRACTOR PARKING
SPILL KIT
SANITARY FACILITIES
OPERATIONAL POWERHOUSE
PROPERTY BOUNDARY/ FERC BOUNDARY

CONTRACTOR'S STORAGE AND ADMINISTRATION AREA PLAN

SCALE: 1"= 10'

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA — 49th — Donald P. Jarrett No. ME-7393 — LICENSED PROFESSIONAL ENGINEER — 09/20/22

WARNING
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH
BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT
CONTRACTOR'S STORAGE AND ADMINISTRATION AREA PLAN

DESIGNED G. CLARK
DRAWN R. GUERRERO
CHECKED D. JARRETT
PROJECT DATE 09/19/22

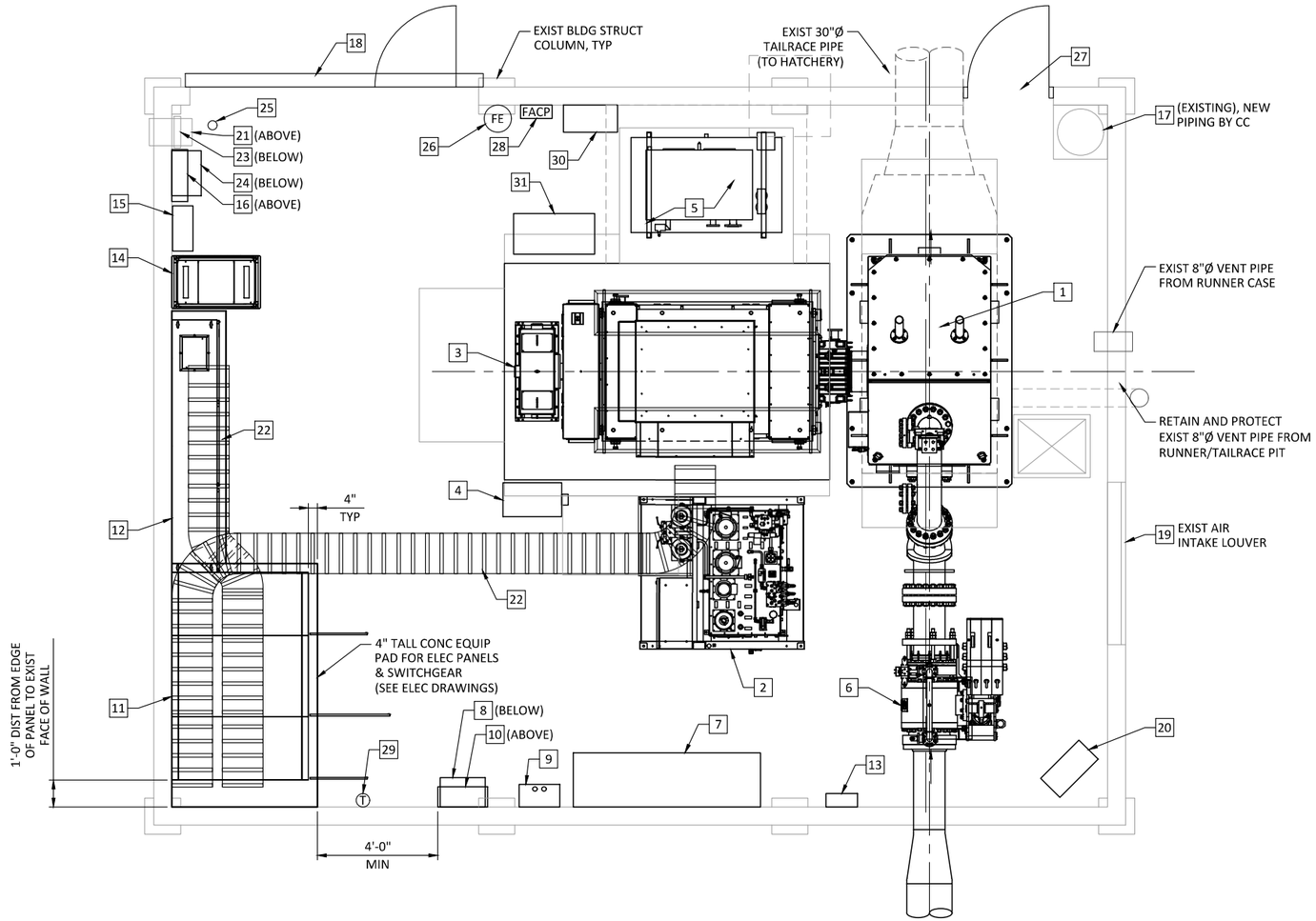
DRAWING
G008

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\G008.dwg Plot date: Sep 19, 2022 03:56pm, CAD User: Guerrero

SHEET NOTES:

1. SCHEDULE OF EQUIPMENT TABLE PROVIDES EQUIPMENT DESCRIPTION AND EQUIPMENT SUPPLIER. ALL EQUIPMENT IS INSTALLED BY CONSTRUCTION CONTRACTOR.
2. EQUIPMENT TO BE PROCURED BY OWNER AND SUPPLIED TO CONSTRUCTION CONTRACTOR FOR INSTALLATION.
3. EQUIPMENT IS EXISTING AND TO BE REUSED AND REWIRED BY CONSTRUCTION CONTRACTOR.



POWERHOUSE ARRANGEMENT PLAN

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

SCHEDULE OF EQUIPMENT (SEE NOTE 1)				
ITEM	EQUIPMENT IDENTIFIER	DESCRIPTION	SUPPLIED BY EP CONTRACT/ OWNER (SEE NOTE 2)	SUPPLIED BY CONSTRUCTION CONTRACTOR
1	TUR-100	HYDROELECTRIC TURBINE	X	
2	HPU-105	HYDRAULIC POWER UNIT (HPU)	X	
3	GEN-100	GENERATOR, 2400V, 2100KW, 85% PF	X	
4		LINE/NEUTRAL TERMINAL CABINET LTC/NTC	X	
5	LPU-101	LUBE OIL UNIT	X	
6	TIV-110	TURBINE ISOLATION VALVE (TIV)	X	
7		DC BATTERY BANK & RACK, TEN-12VDC BATTERIES		X
8		DC BATTERY CHARGER		X
9		EYE WASH STATION, WALL MOUNT		X
10	DCDP-1	125VDC PANELBOARD		X
11		GENERATOR & SS SWITCHGEAR LINE-UP, 5KV	X	
12		UNIT CONTROL & PROTECTION CABINET	X	
13	FIT-200	MAGMETER FLOW TRANSMITTER	X	
14	MCP-100	COMMUNICATION/SCADA RACK	X	
15	PB-101	PANELBOARD, 480V, 3-PHASE		X
16	PB-102	PANELBOARD, 208/120V, 3-PHASE		X
17	ME-180	STATION AIR COMPRESSOR (EXISTING)	-	PIPING & AIR OUTLETS
18		PANEL DOOR		X
19	L-184	AIR INTAKE LOUVER		
20	EUH-183	RESISTANCE ELECTRIC UNIT HEATER		X
21	EF-185	EXHAUST FAN (EXISTING)	SEE NOTE 3	
22		OVERHEAD CABLE TRAY		X
23	LCP-185	EXHAUST FAN CONTROL PANEL (EXISTING)	SEE NOTE 3	X
24		LIGHTING TRANSFORMER, 45 KVA		X
25		STEEL BOLLARD		X
26	FE-01	FIRE EXTINGUISHER (SEE CODE SUMMARY DWG G-011)		X
27		MAN DOOR		X
28	FACP	FIRE ALARM CONTROL PANEL		X
29		EXHAUST/COOLING FAN THERMOSTAT		X
30		PANEL DOOR HPU		
31		LUBE OIL UNIT CONTROL PANEL		

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49th Ronald P. Jarrett No. ME-7393 REGISTERED PROFESSIONAL ENGINEER 09/20/22

WARNING
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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

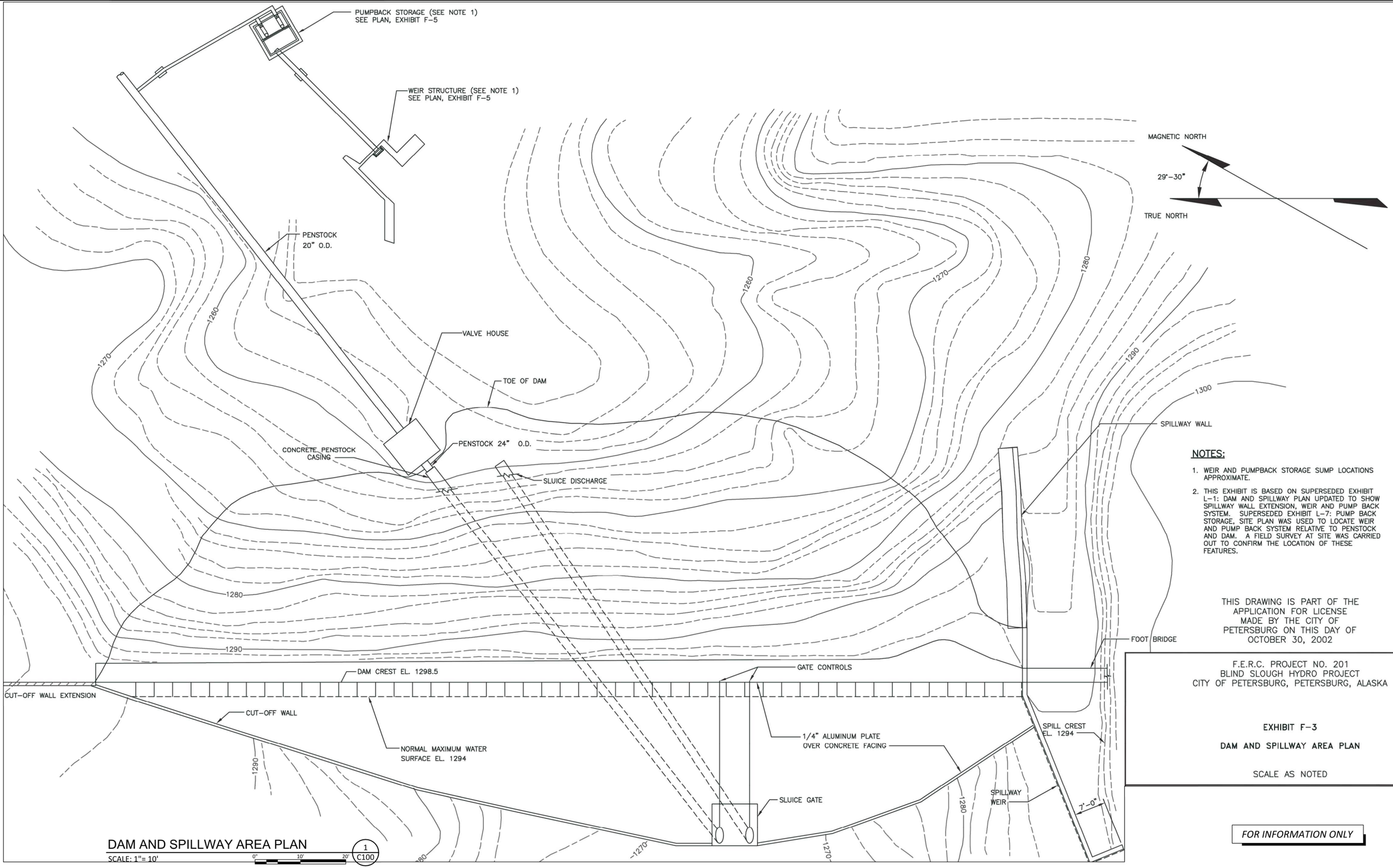
POWERHOUSE ARRANGEMENT PLAN
NEW EQUIPMENT

DESIGNED G. CLARK
DRAWN R. GUERRERO
CHECKED D. JARRET
PROJECT DATE 09/19/22

DRAWING
G009

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\G009.dwg Plot date: Sep 19, 2022 03:56pm, CAD User: Guerrero



DAM AND SPILLWAY AREA PLAN
SCALE: 1"= 10'
0' 10' 20'
1 C100

NOTES:

1. WEIR AND PUMPBACK STORAGE SUMP LOCATIONS APPROXIMATE.
2. THIS EXHIBIT IS BASED ON SUPERSEDED EXHIBIT L-1: DAM AND SPILLWAY PLAN UPDATED TO SHOW SPILLWAY WALL EXTENSION, WEIR AND PUMP BACK SYSTEM. SUPERSEDED EXHIBIT L-7: PUMP BACK STORAGE, SITE PLAN WAS USED TO LOCATE WEIR AND PUMP BACK SYSTEM RELATIVE TO PENSTOCK AND DAM. A FIELD SURVEY AT SITE WAS CARRIED OUT TO CONFIRM THE LOCATION OF THESE FEATURES.

THIS DRAWING IS PART OF THE APPLICATION FOR LICENSE MADE BY THE CITY OF PETERSBURG ON THIS DAY OF OCTOBER 30, 2002

F.E.R.C. PROJECT NO. 201
BLIND SLOUGH HYDRO PROJECT
CITY OF PETERSBURG, PETERSBURG, ALASKA

EXHIBIT F-3

DAM AND SPILLWAY AREA PLAN

SCALE AS NOTED

FOR INFORMATION ONLY

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49th — Ronald P. Jarrett No. ME-7393 — REGISTERED PROFESSIONAL ENGINEER — 09/20/22

WARNING
0 1/2 1
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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

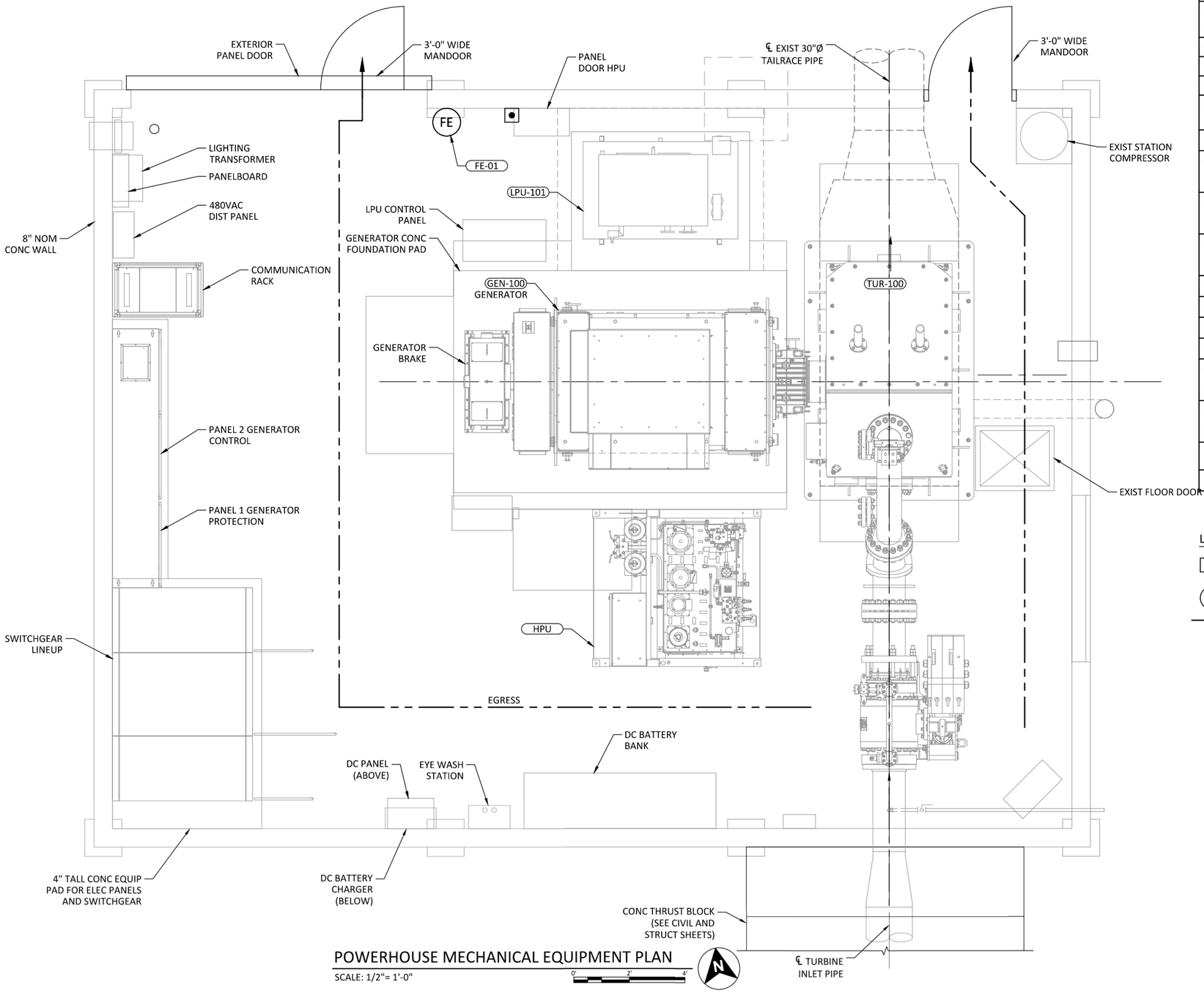
PETERSBURG BOROUGH
BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT
DAM AND SPILLWAY AREA PLAN
(FOR INFORMATION ONLY)

DESIGNED G. CLARK
DRAWN R. GUERRERO
CHECKED D. JARRETT
PROJECT DATE 09/19/22

DRAWING
G010

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\G010.dwg Plot date: Sep 19, 2022 03:56pm, CAD User: Guerrero



POWERHOUSE MECHANICAL EQUIPMENT PLAN

SCALE: 1/2"= 1'-0"

0' 2' 4'

CODE SUMMARY	
IBC-2012	
POWERHOUSE BUILDING	
POWERHOUSE IS FOR OPERATIONS AND MAINTENANCE OF HYDROELECTRIC TURBINE AND GENERATOR EQUIPMENT BY PETERSBURG MUNICIPAL POWER & LIGHT STAFF.	
OCCUPANCY:	F-1
ZONING:	UNZONED
CONSTRUCTION TYPE:	V-B NON RATED WITHOUT SPRINKLERS
MAXIMUM TRAVEL DISTANCE ALLOWED BY TABLE 1021.2(2) FOR F-1 OCCUPANCY:	75 FEET
ACTUAL TRAVEL DISTANCE:	61 FEET
BUILDING HEIGHT:	26 FEET
ALLOWED:	50 FEET
BUILDING GROSS SQUARE FOOTAGE:	700 SF
ALLOWED:	8500 SF
NUMBER OF STORIES:	1
ALLOWED:	1
OCCUPANT LOAD:	7 (NORMALLY UNOCCUPIED)
OCCUPANT LOAD FACTOR:	100 SF PER PERSON
MAXIMUM OCCUPANCY PER TABLE 1021.2(2):	49
NUMBER OF EXITS REQUIRED PER SECTION 1021.2	
NUMBER OF EXITS PROVIDED:	1
REQUIRED:	1
EXIT WIDTH:	36"
MIN REQUIRED WIDTH:	36"

GENERAL NOTES

1. FIRE EXTINGUISHERS SHALL BE 5 LB. ABC PORTABLE, MINIMUM SIZE OF 2A-10BC RATED UNIT

LEGEND:

- FIRE ALARM MANUAL PULL STATION
- FE — FIRE EXTINGUISHER
- EGRESS

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49th — Donald P. Jarrett No. ME-7393 — REGISTERED PROFESSIONAL ENGINEER — 09/20/22

WARNING

0 1/2 1

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

POWERHOUSE
BUILDING CODE SUMMARY

DESIGNED D. JARRETT
DRAWN R. GUERRERO
CHECKED J. CARSON
PROJECT DATE 09/19/22

DRAWING

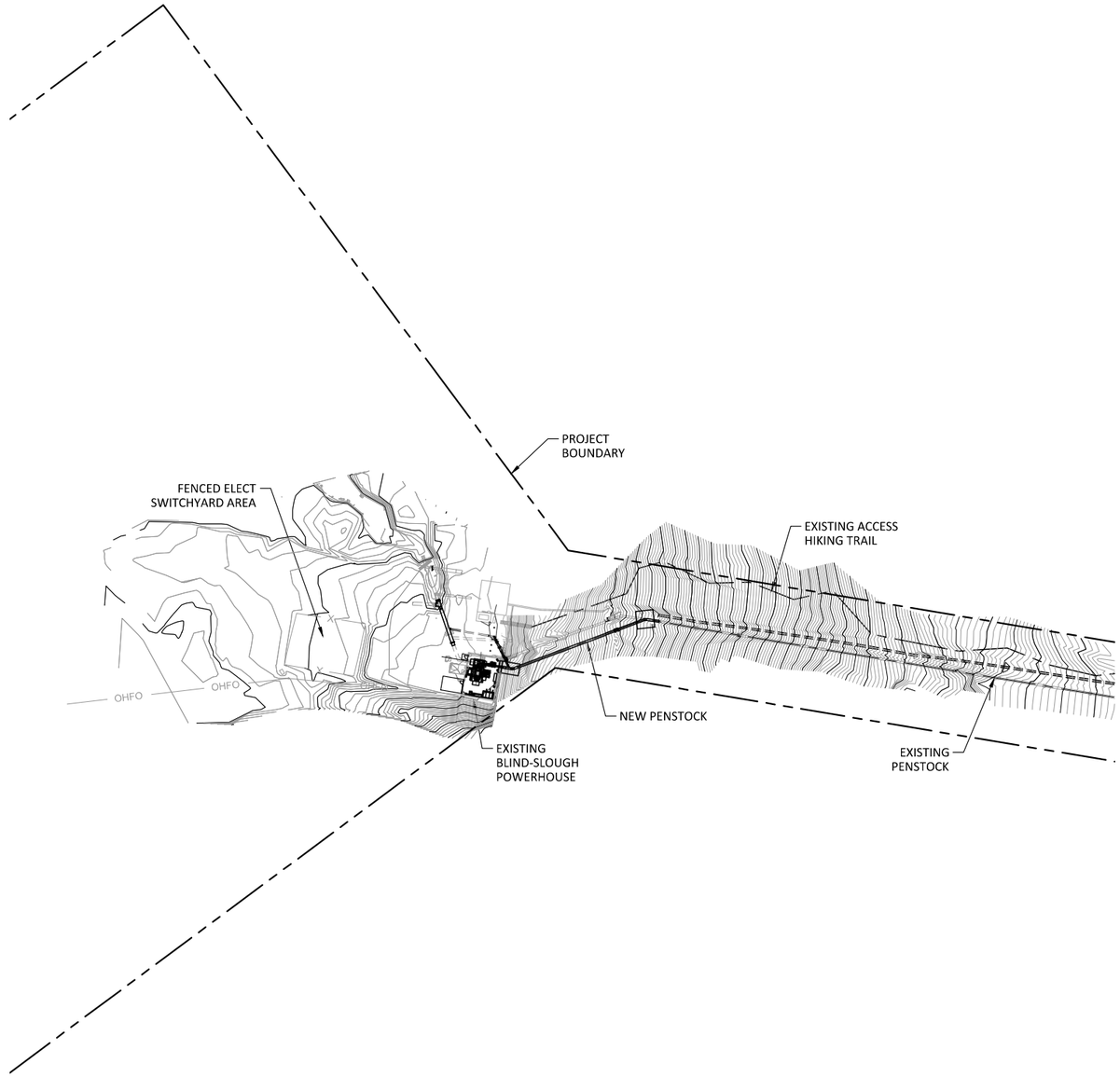
G011

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\G011.dwg Plot date: Sep 19, 2022 03:56pm, CAD User: Guerrero

SHEET NOTES:

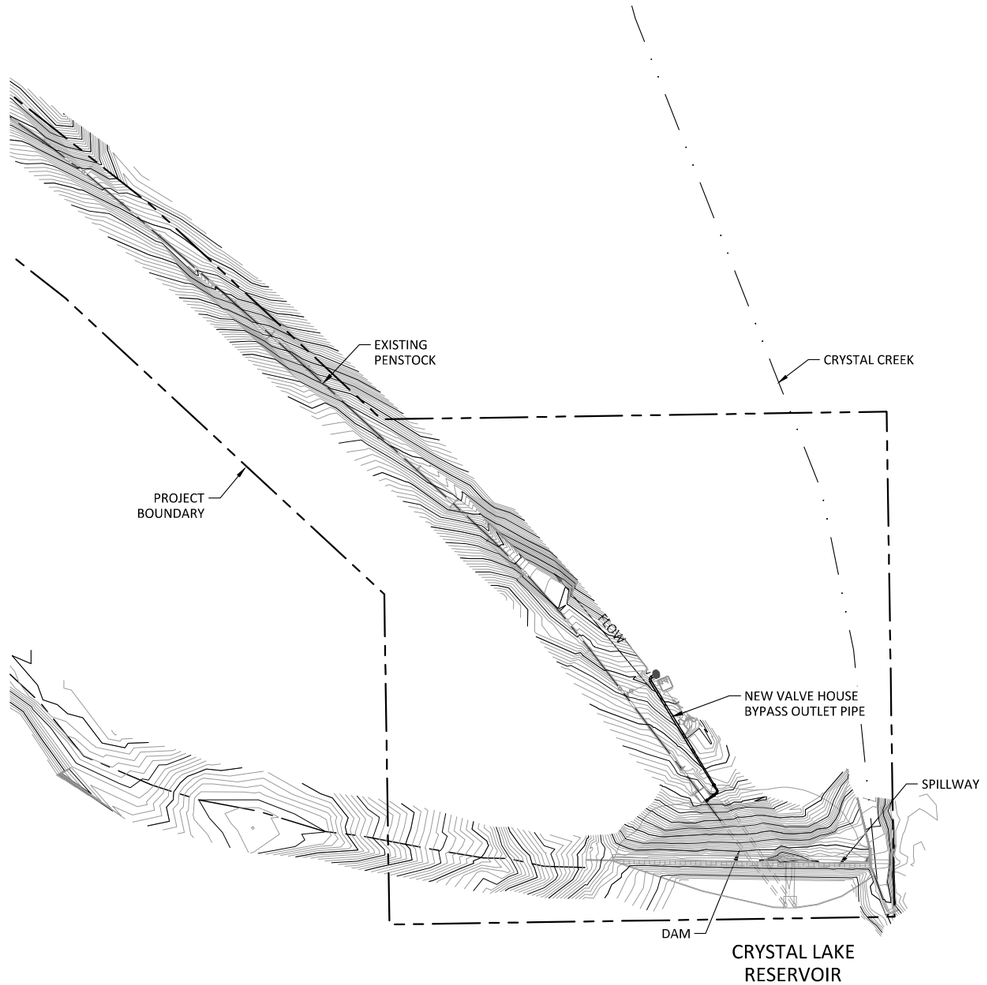
1. INFORMATION PERTAINING TO HORIZONTAL AND VERTICAL DATUM, INCLUDING SURVEY CONTROL POINTS ARE SHOWN ON C120. ADDITIONAL SURVEY INFORMATION IS ALSO PROVIDED IN SPEC 01 32 23 SURVEYING.



PROJECT BOUNDARY AT POWERHOUSE

SCALE: 1"= 60'

0' 60' 120'



PROJECT BOUNDARY AT DAM

SCALE: 1"= 60'

0' 60' 120'

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49th Ronald P. Jarrett No. ME-7393 REGISTERED PROFESSIONAL ENGINEER 09/20/22

WARNING

0 1/2 1

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

PROJECT BOUNDARY

DESIGNED G. CLARK

DRAWN R. GUERRERO

CHECKED D. JARRETT

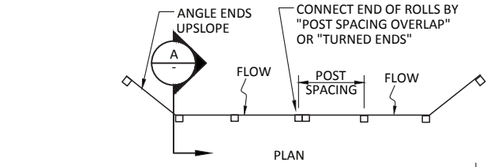
PROJECT DATE 09/19/22

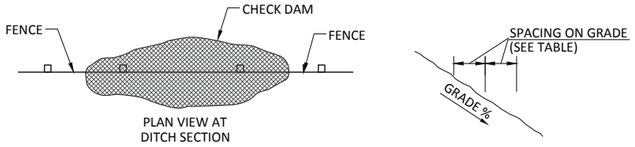
DRAWING

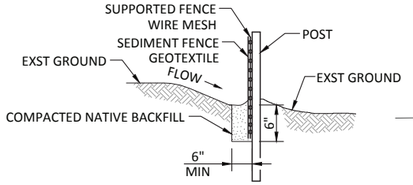
G012

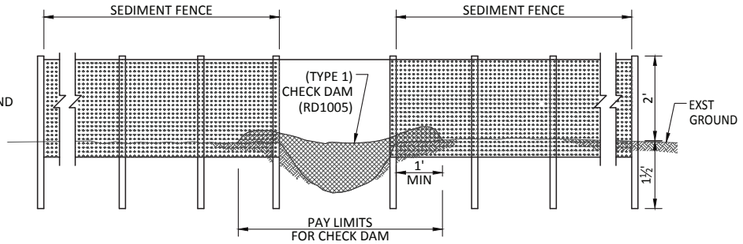
JOB NO: 000000

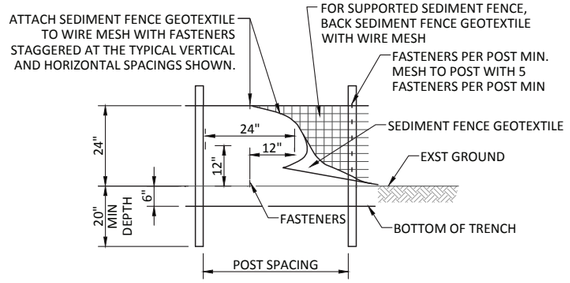
Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\G012.dwg Plot date: Sep 19, 2022 03:57pm, CAD User: Guerrero

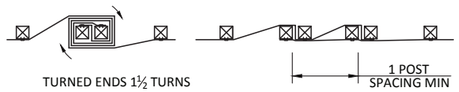










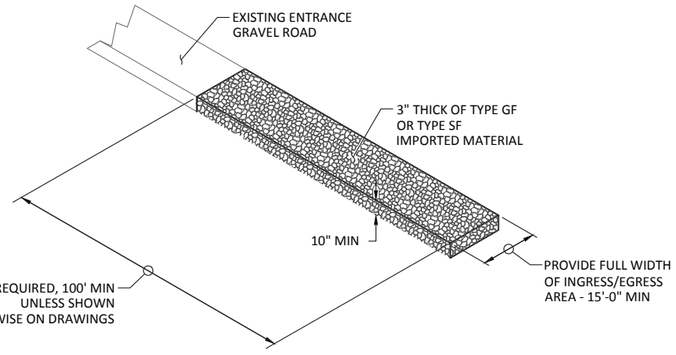


GEOTEXTILE END CONNECTIONS

SILT FENCE DETAIL

SCALE: NTS (SIMILAR TO ALASKA BMP-20.00)

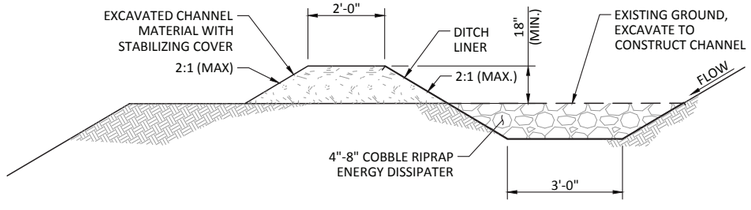
EC101



TEMPORARY ENTRANCE

SCALE: NTS (SIMILAR TO ALASKA BMP-23.00)

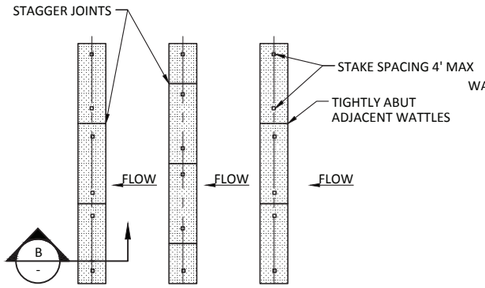
EC103

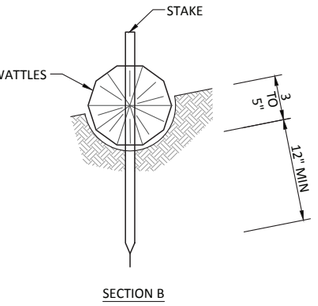


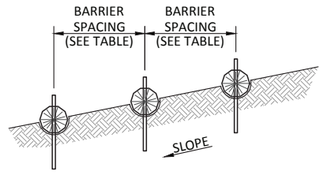
INTERCEPTION DITCH

SCALE: NTS (SIMILAR TO ALASKA BMP-11.00)

EC104







PLACE WATTLES ALONG SLOPE CONTOURS.

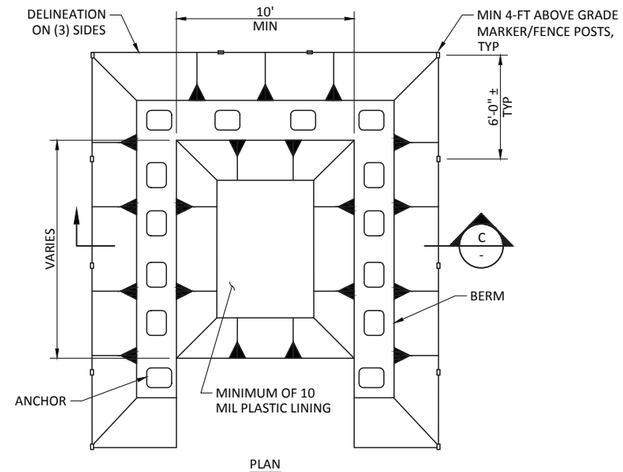
BARRIER SPACING FOR GENERAL APPLICATION

INSTALL PARALLEL ALONG CONTOURS AS FOLLOWS		
% SLOPE	% SLOPE	MAXIMUM SPACING ON SLOPE
10% FLATTER	1:10 OR FLATTER	300'
10 >% ≥15	10> X ≥7.5	150'
15 >% ≥ 20	7.5 > X ≥ 5	100'
20 > % ≥ 30	5> X ≥ 3	50'
STEEPER THAN 30%	STEEPER THAN 1:3	25'

SEDIMENT BARRIER

SCALE: NTS (SIMILAR TO ALASKA BMP-10.01)

EC102



BELOW-GRADE CONCRETE WASHOUT FABRICATED ON-SITE

SCALE: NTS (SIMILAR TO ALASKA BMP-06.00)

EC105

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA — JOHN D. HAMILTON — MATTHEW S. MOUGHAMIAN — No. CE13983 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

STANDARD EROSION AND SEDIMENT CONTROL DETAILS

DESIGNED M. MOUGHAMIAN
DRAWN R. GUERRERO
CHECKED G. CLARK
PROJECT DATE 09/19/22

DRAWING
EC001

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\EC001.dwg Plot date: Sep 19, 2022 03:57pm, CAD User: Guerrero

GENERAL NOTES:

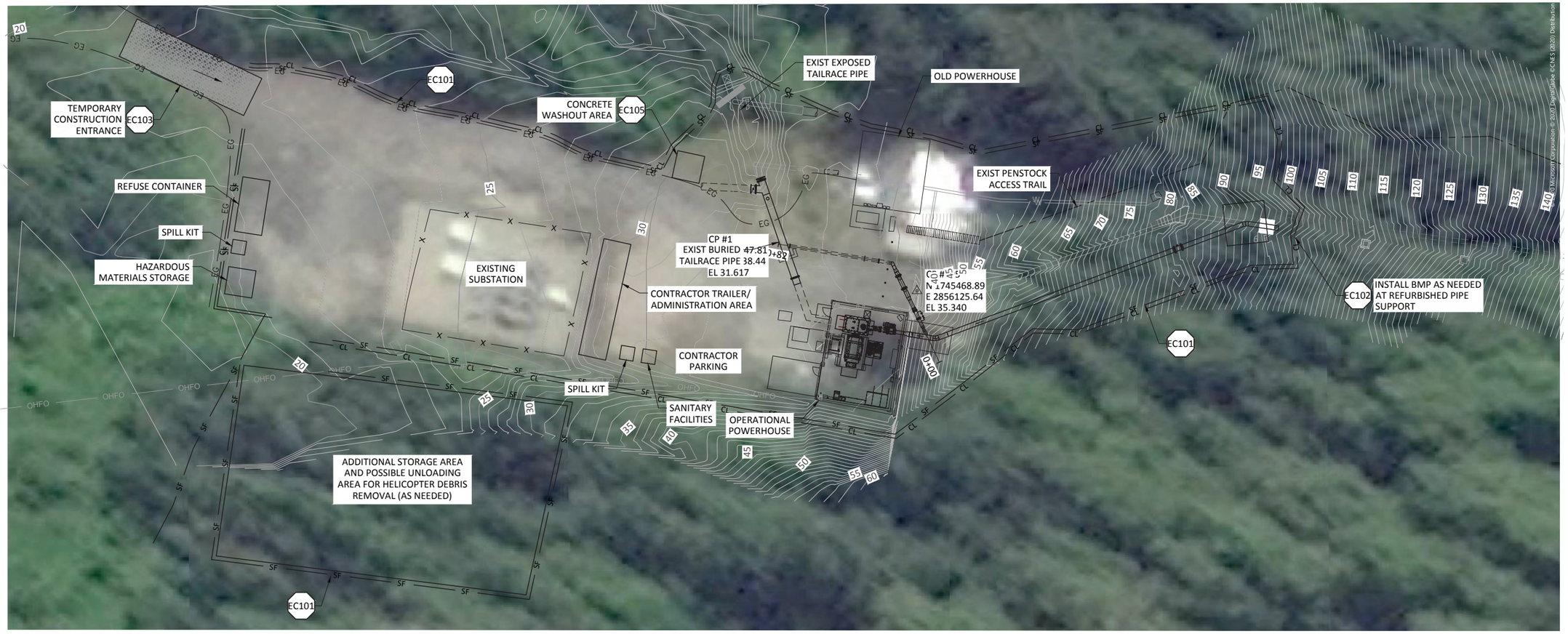
1. THE CONTRACTOR SHALL SUBMIT AN EROSION AND SEDIMENT CONTROL PLAN FOR WORK DURING CONSTRUCTION THAT MEETS ALL FEDERAL, STATE AND LOCAL REQUIREMENTS.
   A. THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTATION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROL MEASURES CONTAINED WITHIN THE CONTRACT. THE CONTRACTOR SHALL ALSO PROVIDE ANY ADDITIONAL EROSION CONTROL MEASURES (HYDROSEEDING, MULCHING OF STRAW, SAND DIVERSION DITCHES, ETC.) DICTATED BY FIELD CONDITIONS TO PREVENT EROSION OR THE INTRODUCTION OF DIRT, MUD, OR DEBRIS TO EXISTING PUBLIC OR PRIVATE ROADWAY OR ONTO ADJACENT PROPERTIES DURING ANY PHASE OF CONSTRUCTION OPERATIONS. SPECIAL ATTENTION SHALL BE GIVEN TO ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES NOTED ABOVE.
   B. THE GENERAL EROSION AND SEDIMENT CONTROL PLAN ON THIS DRAWING IS PROVIDED TO AID THE CONTRACTOR IN DEVELOPING THE EROSION AND SEDIMENT CONTROL PLAN ACCORDING TO CONTRACTOR SCHEDULE AND PHASING OF THE PROJECT.
2. CONTRACTOR SHALL INSTALL SILT FENCE AS INDICATED AND IN ANY ADDITIONAL LOCATIONS WHERE MATERIAL COULD LEAVE THE CONSTRUCTION SITE, AT CONTRACTORS EXPENSE.
3. THE CONTRACTOR IS RESPONSIBLE FOR INSPECTING AND MAINTAINING ALL EROSION AND SEDIMENT CONTROL MEASURES THROUGHOUT THE DURATION OF THE PROJECT.
4. CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL FACILITIES, FENCING, AND STAGING AREA MATERIALS WHEN CONSTRUCTION IS COMPLETE. NO CONSTRUCTION DEBRIS, DEMOLITION MATERIALS, OR EXCESS EQUIPMENT SHALL BE LEFT ON SITE.
5. CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO PREVENT:
   A. ACCUMULATION OF CONSTRUCTION WASTE AND LITTER ON SITE.
   B. NO GRADING OR CONSTRUCTION ACTIVITIES SHALL OCCUR OUTSIDE OF THE PROPOSED IMPROVEMENTS SHOWN ON THE FINAL DESIGN PLANS FOR THE PROJECT.
6. MINIMIZE CLEARING AND DISTURBANCES TO EXISTING VEGETATION OUTSIDE CONSTRUCTION LIMITS - UTILIZE AS NATURAL BUFFER STRIPS.
7. CONTRACTOR SHALL HAVE ONSITE AT ALL TIMES SPILL PREVENTION AND CONTROL MEASURES.
8. REMOVE ANY SNOW ACCUMULATION ADJACENT TO THE WORK AREA TO REDUCE THE VOLUME OF RUNOFF.
9. ALL BMP REQUIRED MATERIALS SHALL MEET OR EXCEED STATE OF ALASKA REQUIREMENTS.

EROSION CONTROL NOTES:

1. ENSURE ALL EQUIPMENT IS CLEAN AND FREE OF OIL/FUEL LEAKS, DIRT, PLANTS AND ANIMALS OR FRAGMENTS OF PLANTS, ANIMALS, AQUATIC INVASIVE SPECIES, AND OTHER VEGETATIVE MATTER PRIOR TO BEGINNING WORK.
2. INSTALL TEMPORARY CONCRETE WASHOUT FACILITY AND SIGNAGE (BMP 6.0) MINIMUM 50-FT FROM OPEN DITCHES AND WATER BODIES.
3. VEHICLE AND EQUIPMENT MAINTENANCE SHALL FOLLOW BMP 42.0. RE-FUELING SHALL OCCUR AS FAR AWAY FROM WATER BODIES AS POSSIBLE. SECONDARY CATCHMENT PROCEDURES ARE REQUIRED FOR RE-FUELING.
4. BULK STORAGE OF HAZARDOUS MATERIALS, INCLUDING PAINTS, CHEMICALS, FERTILIZERS, PESTICIDES, FUEL, OIL AND GREASE, ETC. IS NOT ALLOWED AT THE POWERHOUSE AND SUBSTATION AREA. ONLY MINIMUM QUANTITIES NECESSARY FOR THE CURRENT WORK EFFORTS SHALL BE STORED AT THE POWERHOUSE AND SUBSTATION AREA.
5. ALL EXCAVATED MATERIALS SHALL BE STOCKPILED ON SITE WITHIN THE LIMITS OF CONSTRUCTION AREA. LARGE COBBLES AND BOULDERS SHALL BE RE-USED FOR RIPRAP AND BANK PROTECTION WHERE REQUIRED. REMAINING MATERIAL SHALL BE GRADED ON SITE AND USED FOR BACKFILL WHERE SUITABLE.
6. ALL TOPSOIL SHALL BE REMOVED AND PLACED IN A STOCKPILE. UPON COMPLETION OF CONSTRUCTION, THE BANKS WILL BE GRADED TO FINISH GRADE ELEV. TOPSOIL SHALL BE PLACED ON THE FINISHED SLOPES, AND RE-SEEDED.
7. NATURAL VEGETATION BUFFERS, A MINIMUM OF 25-FT IN WIDTH, SHOULD BE MAINTAINED WHEREVER POSSIBLE, ESPECIALLY WHEN NEAR SENSITIVE AREAS SUCH AS WETLANDS (BMP 38.00). BUFFER WIDTH MAY VARY DEPENDING ON SLOPE PER BMP 38.00.
8. THE CONTRACTOR SHALL PREPARE A CONSTRUCTION SPECIFIC SWPPP BASED ON THE CONSTRUCTION DOCUMENTS AND SUBMIT FOR REVIEW AND APPROVAL PRIOR TO STARTING FIELD CONSTRUCTION ACTIVITIES.
9. EROSION CONTROL DETAILS ARE FOR INFORMATION ONLY TO AID THE CONTRACTOR. THE FINAL LOCATIONS AND DETAIL SHALL BE SHOWN ON THE CONTRACTORS SWPPP DOCUMENT.
10. CLEARING, GRUBBING AND GROUND DISTURBING ACTIVITIES SHALL BE CONFINED TO WITHIN THE CLEARING LIMITS (CL). CL 30-FT MAXIMUM WIDTH ON EITHER SIDE OF THE PENSTOCK CENTERLINE. PRESERVE EXISTING VEGETATION WHEREVER POSSIBLE WITHIN CL.
11. CONTRACTOR WILL DELINEATE CL AND AVOIDANCE AREAS PER BMP 54.00 PRIOR TO CONSTRUCTION.

FINAL STABILIZATION NOTES:

1. FINAL SITE STABILIZATION IS PROVIDED TO AID THE CONTRACTOR IN DEVELOPING THE EROSION AND SEDIMENT CONTROL PLAN ACCORDING TO CONTRACTOR SCHEDULE AND PHASING OF THE PROJECT.
2. CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL FACILITIES, FENCING, AND STAGING AREA MATERIALS WHEN CONSTRUCTION IS COMPLETE. NO CONSTRUCTION DEBRIS, DEMOLITION MATERIALS, OR EXCESS EQUIPMENT SHALL BE LEFT ON SITE.
3. ESTABLISH A TEMPORARY VEGETATIVE COVER ON ALL DISTURBED AREAS AS SOON AS PRACTICAL AFTER THE LAST GROUND DISTURBING ACTIVITIES IN THE AREA.



POWERHOUSE EROSION AND SEDIMENT CONTROL PLAN

SCALE: 1"= 20'

0' 20' 40'

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA — MATTHEW S. MOUGHAMIAN — No. CE13953 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING

0 1/2 1

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

McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

POWERHOUSE EROSION AND SEDIMENT CONTROL PLAN

DESIGNED M. MOUGHAMIAN
DRAWN R. GUERRERO
CHECKED G. CLARK
PROJECT DATE 09/19/22

DRAWING

EC100

JOB NO: 0000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\EC100.dwg Plot date: Sep 19, 2022 03:58pm, CAD User: Guerrero

GENERAL NOTES:

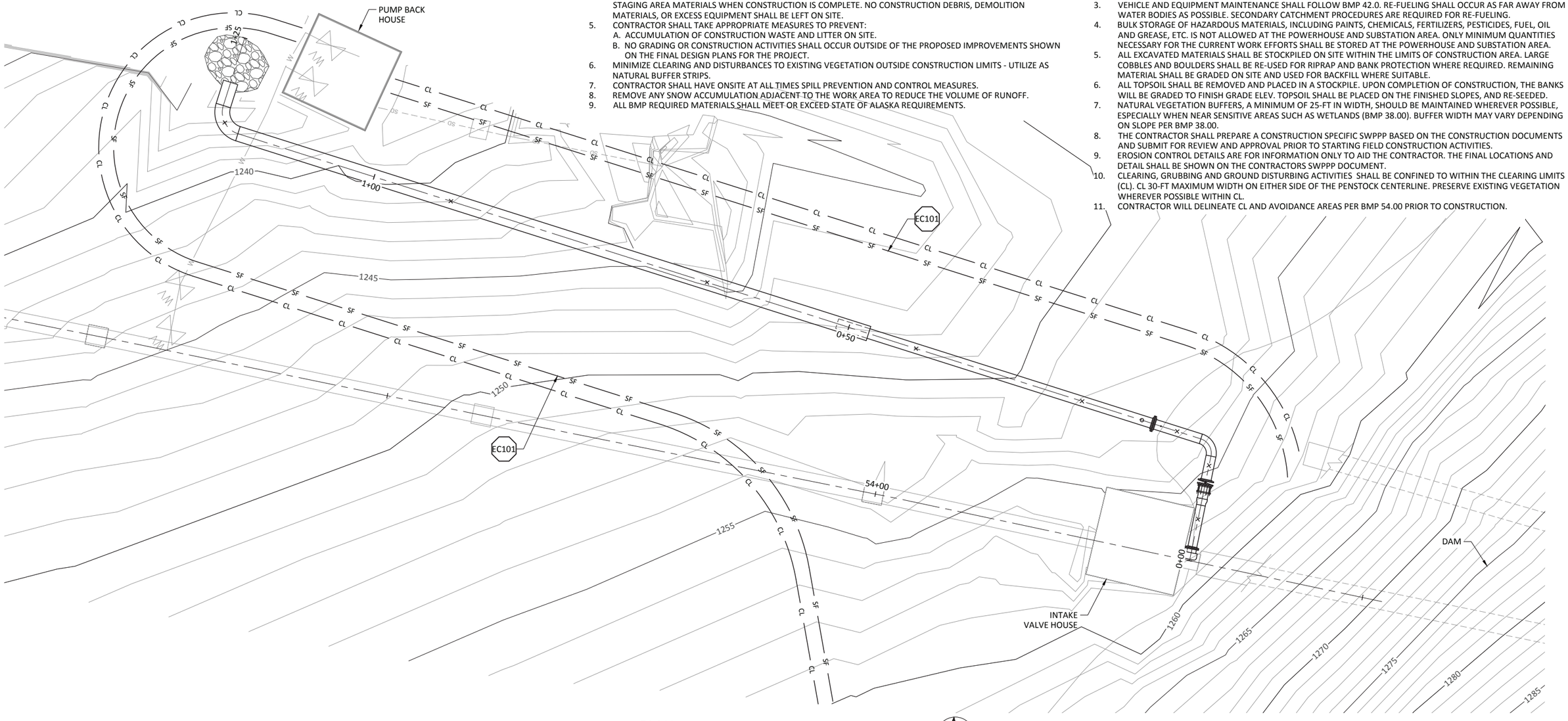
1. THE CONTRACTOR SHALL SUBMIT AN EROSION AND SEDIMENT CONTROL PLAN FOR WORK DURING CONSTRUCTION THAT MEETS ALL FEDERAL, STATE AND LOCAL REQUIREMENTS.
   A. THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTATION AND MAINTENANCE OF EROSION AND SEDIMENT CONTROL MEASURES CONTAINED WITHIN THE CONTRACT. THE CONTRACTOR SHALL ALSO PROVIDE ANY ADDITIONAL EROSION CONTROL MEASURES (HYDROSEEDING, MULCHING OF STRAW, SAND DIVERSION DITCHES, ETC.) DICTATED BY FIELD CONDITIONS TO PREVENT EROSION OR THE INTRODUCTION OF DIRT, MUD, OR DEBRIS TO EXISTING PUBLIC OR PRIVATE ROADWAY OR ONTO ADJACENT PROPERTIES DURING ANY PHASE OF CONSTRUCTION OPERATIONS. SPECIAL ATTENTION SHALL BE GIVEN TO ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES NOTED ABOVE.
   B. THE GENERAL EROSION AND SEDIMENT CONTROL PLAN ON THIS DRAWING IS PROVIDED TO AID THE CONTRACTOR IN DEVELOPING THE EROSION AND SEDIMENT CONTROL PLAN ACCORDING TO CONTRACTOR SCHEDULE AND PHASING OF THE PROJECT.
2. CONTRACTOR SHALL INSTALL SILT FENCE AS INDICATED AND IN ANY ADDITIONAL LOCATIONS WHERE MATERIAL COULD LEAVE THE CONSTRUCTION SITE, AT CONTRACTORS EXPENSE.
3. THE CONTRACTOR IS RESPONSIBLE FOR INSPECTING AND MAINTAINING ALL EROSION AND SEDIMENT CONTROL MEASURES THROUGHOUT THE DURATION OF THE PROJECT.
4. CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL FACILITIES, FENCING, AND STAGING AREA MATERIALS WHEN CONSTRUCTION IS COMPLETE. NO CONSTRUCTION DEBRIS, DEMOLITION MATERIALS, OR EXCESS EQUIPMENT SHALL BE LEFT ON SITE.
5. CONTRACTOR SHALL TAKE APPROPRIATE MEASURES TO PREVENT:
   A. ACCUMULATION OF CONSTRUCTION WASTE AND LITTER ON SITE.
   B. NO GRADING OR CONSTRUCTION ACTIVITIES SHALL OCCUR OUTSIDE OF THE PROPOSED IMPROVEMENTS SHOWN ON THE FINAL DESIGN PLANS FOR THE PROJECT.
6. MINIMIZE CLEARING AND DISTURBANCES TO EXISTING VEGETATION OUTSIDE CONSTRUCTION LIMITS - UTILIZE AS NATURAL BUFFER STRIPS.
7. CONTRACTOR SHALL HAVE ONSITE AT ALL TIMES SPILL PREVENTION AND CONTROL MEASURES.
8. REMOVE ANY SNOW ACCUMULATION ADJACENT TO THE WORK AREA TO REDUCE THE VOLUME OF RUNOFF.
9. ALL BMP REQUIRED MATERIALS SHALL MEET OR EXCEED STATE OF ALASKA REQUIREMENTS.

FINAL STABILIZATION NOTES:

1. FINAL SITE STABILIZATION IS PROVIDED TO AID THE CONTRACTOR IN DEVELOPING THE EROSION AND SEDIMENT CONTROL PLAN ACCORDING TO CONTRACTOR SCHEDULE AND PHASING OF THE PROJECT.
2. CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION AND SEDIMENT CONTROL FACILITIES, FENCING, AND STAGING AREA MATERIALS WHEN CONSTRUCTION IS COMPLETE. NO CONSTRUCTION DEBRIS, DEMOLITION MATERIALS, OR EXCESS EQUIPMENT SHALL BE LEFT ON SITE.
3. ESTABLISH A TEMPORARY VEGETATIVE COVER ON ALL DISTURBED AREAS AS SOON AS PRACTICAL AFTER THE LAST GROUND DISTURBING ACTIVITIES IN THE AREA.

EROSION CONTROL NOTES:

1. ENSURE ALL EQUIPMENT IS CLEAN AND FREE OF OIL/FUEL LEAKS, DIRT, PLANTS AND ANIMALS OR FRAGMENTS OF PLANTS, ANIMALS, AQUATIC INVASIVE SPECIES, AND OTHER VEGETATIVE MATTER PRIOR TO BEGINNING WORK.
2. INSTALL TEMPORARY CONCRETE WASHOUT FACILITY AND SIGNAGE (BMP 6.0) MINIMUM 50-FT FROM OPEN DITCHES AND WATER BODIES.
3. VEHICLE AND EQUIPMENT MAINTENANCE SHALL FOLLOW BMP 42.0. RE-FUELING SHALL OCCUR AS FAR AWAY FROM WATER BODIES AS POSSIBLE. SECONDARY CATCHMENT PROCEDURES ARE REQUIRED FOR RE-FUELING.
4. BULK STORAGE OF HAZARDOUS MATERIALS, INCLUDING PAINTS, CHEMICALS, FERTILIZERS, PESTICIDES, FUEL, OIL AND GREASE, ETC. IS NOT ALLOWED AT THE POWERHOUSE AND SUBSTATION AREA. ONLY MINIMUM QUANTITIES NECESSARY FOR THE CURRENT WORK EFFORTS SHALL BE STORED AT THE POWERHOUSE AND SUBSTATION AREA.
5. ALL EXCAVATED MATERIALS SHALL BE STOCKPILED ON SITE WITHIN THE LIMITS OF CONSTRUCTION AREA. LARGE COBBLES AND BOULDERS SHALL BE RE-USED FOR RIPRAP AND BANK PROTECTION WHERE REQUIRED. REMAINING MATERIAL SHALL BE GRADED ON SITE AND USED FOR BACKFILL WHERE SUITABLE.
6. ALL TOPSOIL SHALL BE REMOVED AND PLACED IN A STOCKPILE. UPON COMPLETION OF CONSTRUCTION, THE BANKS WILL BE GRADED TO FINISH GRADE ELEV. TOPSOIL SHALL BE PLACED ON THE FINISHED SLOPES, AND RE-SEEDED.
7. NATURAL VEGETATION BUFFERS, A MINIMUM OF 25-FT IN WIDTH, SHOULD BE MAINTAINED WHEREVER POSSIBLE, ESPECIALLY WHEN NEAR SENSITIVE AREAS SUCH AS WETLANDS (BMP 38.00). BUFFER WIDTH MAY VARY DEPENDING ON SLOPE PER BMP 38.00.
8. THE CONTRACTOR SHALL PREPARE A CONSTRUCTION SPECIFIC SWPPP BASED ON THE CONSTRUCTION DOCUMENTS AND SUBMIT FOR REVIEW AND APPROVAL PRIOR TO STARTING FIELD CONSTRUCTION ACTIVITIES.
9. EROSION CONTROL DETAILS ARE FOR INFORMATION ONLY TO AID THE CONTRACTOR. THE FINAL LOCATIONS AND DETAIL SHALL BE SHOWN ON THE CONTRACTORS SWPPP DOCUMENT.
10. CLEARING, GRUBBING AND GROUND DISTURBING ACTIVITIES SHALL BE CONFINED TO WITHIN THE CLEARING LIMITS (CL). CL 30-FT MAXIMUM WIDTH ON EITHER SIDE OF THE PENSTOCK CENTERLINE. PRESERVE EXISTING VEGETATION WHEREVER POSSIBLE WITHIN CL.
11. CONTRACTOR WILL DELINEATE CL AND AVOIDANCE AREAS PER BMP 54.00 PRIOR TO CONSTRUCTION.



PLAN
SCALE: 1"= 5'

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA — MATTHEW S. MOUGHAMIAN — No. CE13953 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING
0 1/2 1
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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

DAM EROSION AND SEDIMENT CONTROL PLAN

DESIGNED M. MOUGHAMIAN
DRAWN R. GUERRERO
CHECKED G. CLARK
PROJECT DATE 09/19/22

DRAWING
EC101

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\EC101.dwg Plot date: Sep 19, 2022 03:58pm, CAD User: Guerrero

SHEET KEY NOTES:

A EXISTING BUTTERFLY VALVE AND ACTUATOR SHALL BE SALVAGED AND PROVIDED TO OWNER. FOR REUSE ON END OF NEW TAILRACE PIPE.

B DEMO AND REMOVE EXIST TAILRACE PIPE.

C SAWCUT AND PLUG PIPE END W/ MORTAR.

D DEMO AND REMOVE EXIST TAILRACE PIPE.

E SAWCUT AND PLUG PIPE END W/ MORTAR.

F ABANDON EXIST TAILRACE PIPE.

G DEMO EXIST BYPASS PIPE TO THE EXTENT OF THE EXIST BUTTERFLY VALVE.

H SALVAGE EXIST VALVE AND ACTUATOR.

I DEMO AND REMOVE EXIST STANDPIPE (MEASURE ELEV OF TOP OF PIPE PRIOR TO DEMO WORK).

J DEMO AND REMOVE EXIST 30" STL PIPE.

K DEMO AND REMOVE EXIST CONCRETE HEADWALL.

L SAWCUT EXIST 30" REINF CONC PIPE. CONTRACTOR SHALL MAINTAIN NEST SAWCUT TO ACCEPT WELDMENT OF PROPOSED PIPE.

M DEMO AND REMOVE EXIST BYPASS PIPE.

N REMOVE AND DEMO EXIST WATER PIPE FROM SITE.

O SAWCUT EXIST RETAINING WALL AND DEMO ALL WAY TO SEE CORNER OF BLDG, SEE DETAIL 3.

P DEMO EXIST PENSTOCK FROM INSIDE PH UP TO LOCATION SHOWN ON DWG D102.

Q DEMO PIPES BACK UP TO NEW THRUST BLOCK #1, SEE SHEET D102.

R SEE DWG D110 FOR DEMOLITION OF EXIST YARD EQUIPMENT.

S CUT OFF BOLTS ON EXIST FLANGE AND DEMO EXIST 18" DIA OLD POWERHOUSE TAILRACE PIPE INCLUDING TOP FLG.

TO OUTLET AND BUTTERFLY VALVE

25.00' MIN DEMO LENGTH TYP OF 2

MAINTAIN AND PROTECT EXISTING 30" DIA PIPE TO HATCHERY

OLD POWERHOUSE (NOT-IN-USE)

EXIST ACCESS STAIRS TO PENSTOCK TRAIL, PROTECT AND PRESERVE

STANDBY DIESEL ENG. GENERATOR, PROTECT AND PRESERVE

8" PIPE

MATCHLINE - SEE DRAWING D102

CP #1
N 1745547.81
E 2856138.44
EL 31.617

30" HS ( )
EXIST TAILRACE

10.00'

MAINTAIN AND PROTECT EXIST 30" CONVEYANCE PIPE

EXIST OPERATIONAL POWERHOUSE

CP #105
N 1745468.89
E 2856125.64
EL 35.340

5.00'±

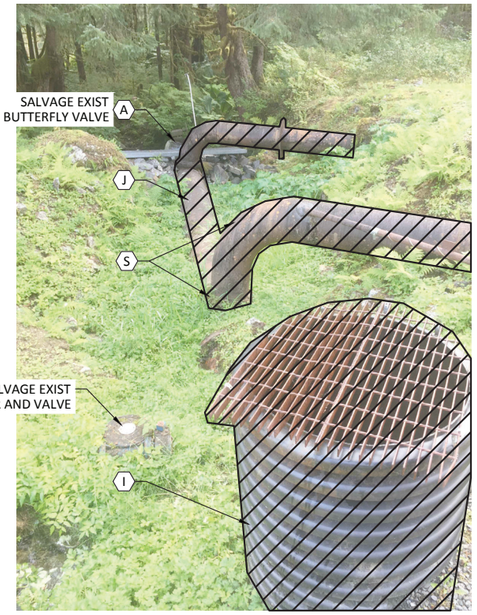
MAINTAIN AND PROTECT EXISTING POWERHOUSE WALL

DEMOLISH AND REMOVE RETAINING WALL

DEMOLISH AND REMOVE RETAINING WALL

DETAIL 3
SCALE: NTS

DEMOLITION YARD PIPING PLAN 1
SCALE: 1"= 5'



30 INCH TAILRACE PIPE OUTLET 2
SCALE: NTS

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA — MATTHEW S. MOUGHAMIAN — No. CE13953 — PROFESSIONAL ENGINEER — 09/19/2022

WARNING
0 1/2 1
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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

DEMOLITION
YARD PIPING PLAN 1

DESIGNED G. CLARK
DRAWN R. GUERRERO
CHECKED D. JARRETT
PROJECT DATE 04/18/22

DRAWING
D101

JOB NO: 0000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\D101.dwg Plot date: Sep 19, 2022 03:59pm, CAD User: Guerrero

SHEET KEY NOTES:

A DEMO PIPES BACK UP TO NEW PEDESTAL.

B DEMO EXIST PIPING AND VALVES.

C DEMO EXIST PEDESTAL.

D DEMO AND REMOVE EXIST CONCRETE PEDESTAL.

E DEMO EXIST PENSTOCK FROM INSIDE PH UP TO SAWCUT IDENTIFIED.

DEMOLITION YARD PIPING PLAN 2

SCALE: 1"= 5'

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

WARNING

0 1/2 1

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

DEMOLITION
YARD PIPING PLAN 2

DESIGNED G. CLARK

DRAWN R. GUERRERO

CHECKED D. JARRETT

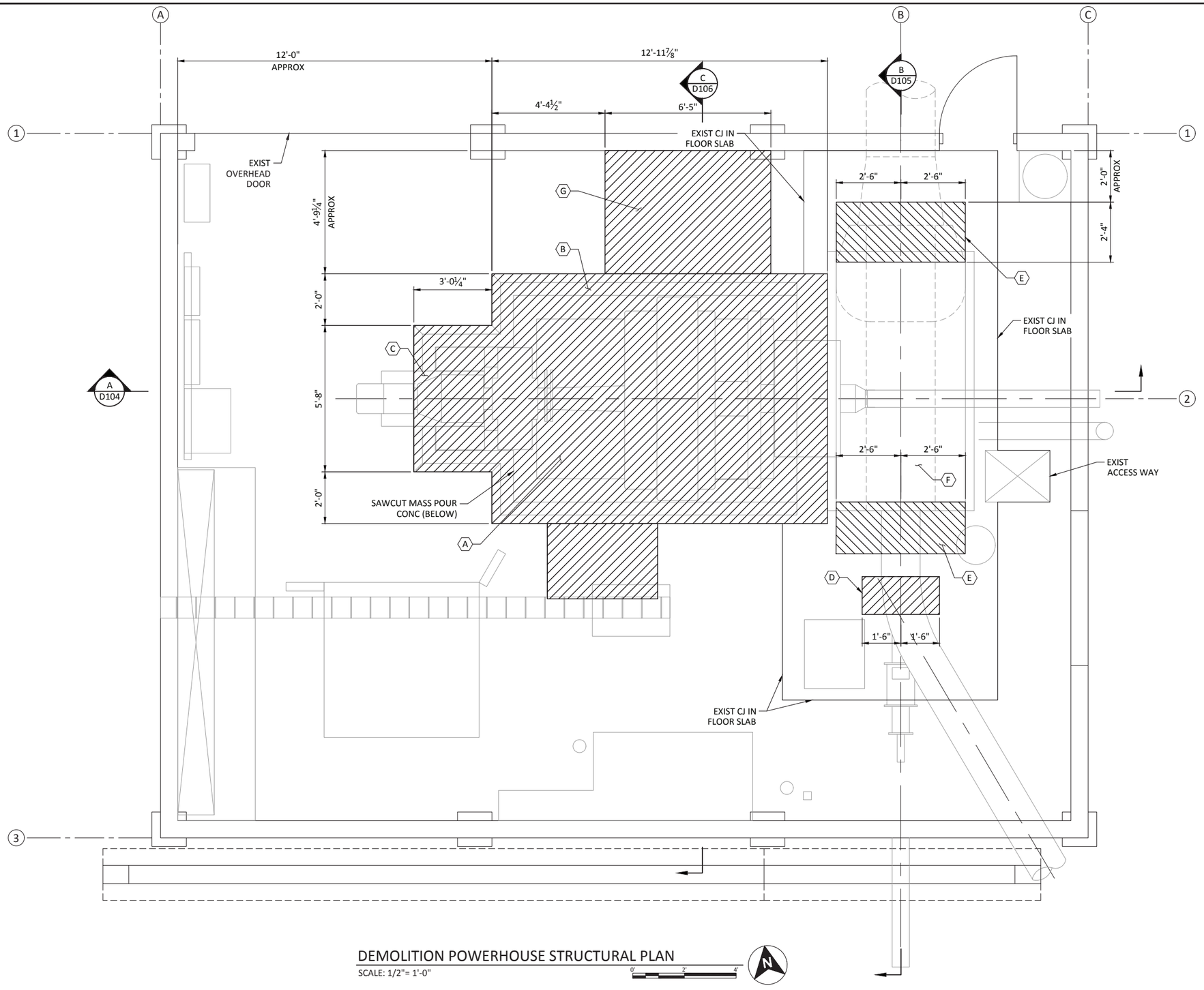
PROJECT DATE 04/18/22

DRAWING

D102

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\D102.dwg Plot date: Sep 19, 2022 03:59pm, CAD User: Guerrero



SHEET NOTES:

1. SEE MECHANICAL DEMOLITION SHEETS FOR EQUIPMENT DEMOLITION REQUIREMENTS.

KEY NOTES:

- A DEMOLISH AND REMOVE FOUNDATION SLAB AT GENERATOR PIT.
- B DEMOLISH AND REMOVE CONCRETE CURBING AND WALLS OF GENERATOR PIT.
- C DEMOLISH AND REMOVE CONCRETE FLOOR INCLUDING MASS POUR CONCRETE (BELOW).
- D CONTRACTOR SHALL REMOVE EXISTING PIPE SUPPORT. EMBED BOLTS SHALL BE CUT AND BURNED/TORCHED TO A DEPTH OF 2-INCH AND INFILLED WITH EPOXY GROUT. REMOVE EXISTING SOLE PLATE.
- E SAWCUT AND REMOVE CONCRETE AND STEEL PLATE LINER AT LOCATION INDICATED ON DRAWING. SAWCUT 3/4"-INCH (MIN) LIP FOR NEW BEAM.
- F EXISTING DRAIN PIT SHALL BE CLEANED AND DEGREASED. DEMOLISH AND REMOVE CONCRETE, INCLUDING STEEL LINER.
- G DEMOLISH AND REMOVE FLOOR SLAB. REMOVE FOUNDATION MATERIAL AS REQUIRED ON DRAWINGS.

DEMOLITION POWERHOUSE STRUCTURAL PLAN

SCALE: 1/2"= 1'-0"

0' 2' 4'

N

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA — 49th — MARK MERKLEIN — No. 185381 — REGISTERED PROFESSIONAL ENGINEER — 9-19-22

WARNING

0 1/2 1

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

DEMOLITION POWERHOUSE STRUCTURAL PLAN

DESIGNED G. CLARK

DRAWN R. GUERRERO

CHECKED M. MERKLEIN

PROJECT DATE 09/19/22

DRAWING

D103

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\D103.dwg Plot date: Sep 19, 2022 03:59pm, CAD User: Guerrero

SHEET NOTES:

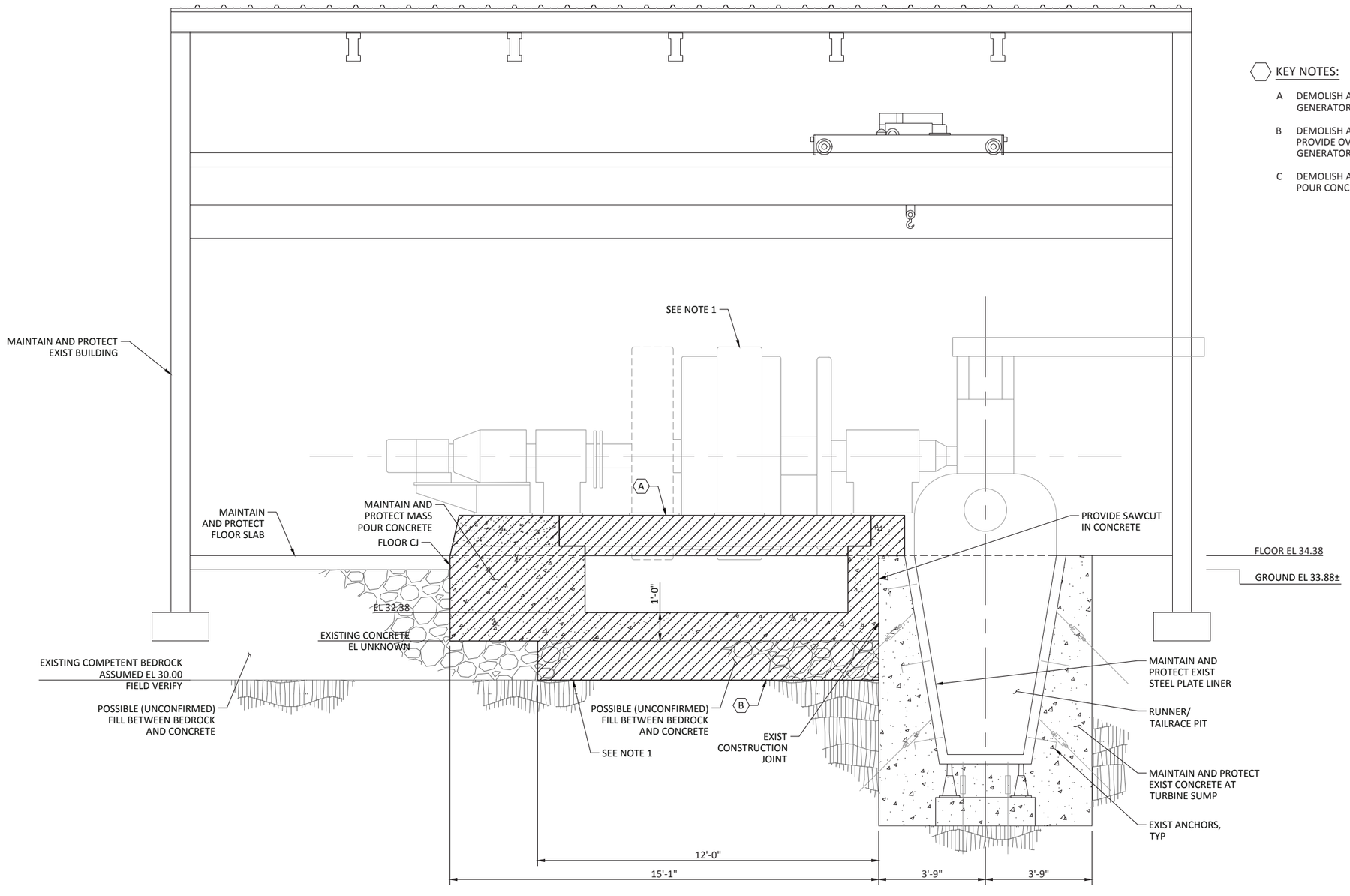
1. SEE MECHANICAL DEMOLITION SHEETS FOR EQUIPMENT DEMOLITION REQUIREMENTS.
2. CONTRACTOR SHALL PROVIDE INFORMATION PERTAINING TO EXPOSED EXCAVATION FOR REVIEW AND APPROVED BY ENGINEER.

KEY NOTES:

A DEMOLISH AND REMOVE CONCRETE CURBING AND WALLS OF GENERATOR PIT (BEYOND).

B DEMOLISH AND REMOVE FOUNDATION SLAB AT GENERATOR PIT. PROVIDE OVER-EXCAVATION TO ACCOMMODATE NEW GENERATOR SLAB AND ROCK BASE.

C DEMOLISH AND REMOVE CONCRETE FLOOR, INCLUDING MASS POUR CONCRETE.



SECTION
SCALE: 1/2"= 1'-0"
0' 2' 4'
A D103

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49th MARK MERKLEIN No. 185381 REGISTERED PROFESSIONAL ENGINEER 9-19-22

WARNING
0 1/2 1
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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

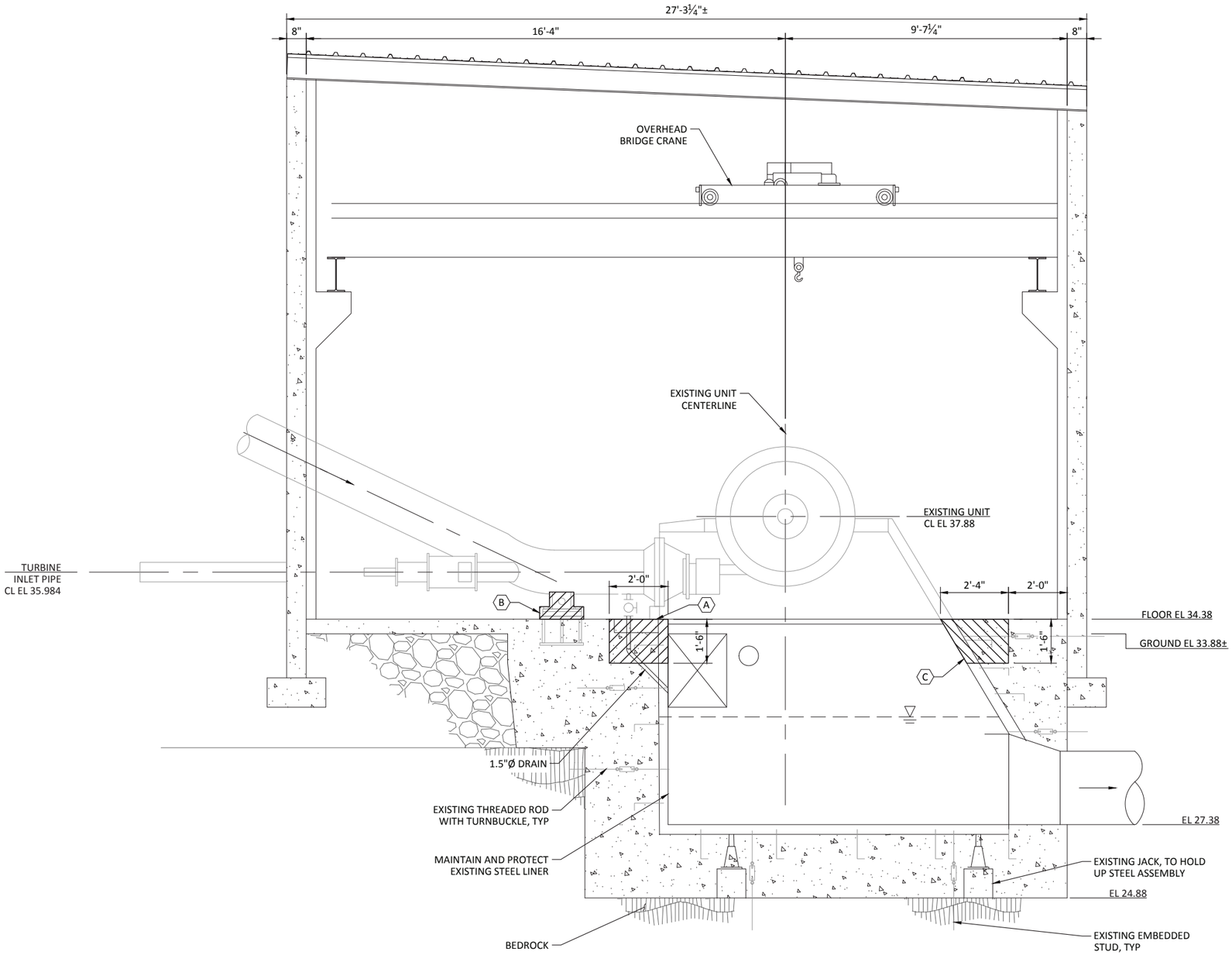
PETERSBURG BOROUGH
BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT
DEMOLITION
POWERHOUSE
STRUCTURAL SECTIONS 1

DESIGNED G. CLARK
DRAWN R. GUERRERO
CHECKED M. MERKLEIN
PROJECT DATE 09/19/22

DRAWING
D104

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\D104.dwg Plot date: Sep 19, 2022 03:59pm, CAD User: Guerrero



SECTION
SCALE: 1/2"= 1'-0"

B
D103

SHEET NOTES:

1. SEE MECHANICAL DEMOLITION SHEETS FOR EQUIPMENT DEMOLITION REQUIREMENTS.

KEY NOTES:

A EXISTING DRAIN PIT SHALL BE CLEANED AND DEGREASED. DEMOLISH AND REMOVAL CONCRETE, INCLUDING STEEL LINER.

B CONTRACTOR SHALL REMOVE EXISTING PIPE SUPPORT. EMBED BOLTS SHALL BE CUT AND BURNED/TORCHED TO A DEPTH OF 2-INCH AND INFILLED WITH EPOXY GROUT. REMOVE EXISTING SOLE PLATE.

C SAWCUT AND REMOVE CONCRETE AND STEEL PLATE LINER AT LOCATION INDICATED ON DRAWING.

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49th MARK MERKLEIN No. 185381 REGISTERED PROFESSIONAL ENGINEER 9-19-22

WARNING
0 1/2 1
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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

DEMOLITION
POWERHOUSE
STRUCTURAL SECTIONS 2

DESIGNED G. CLARK
DRAWN R. GUERRERO
CHECKED M. MERKLEIN
PROJECT DATE 09/19/22

DRAWING
D105

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\D105.dwg Plot date: Sep 19, 2022 04:00pm, CAD User: Guerrero

SHEET NOTES:

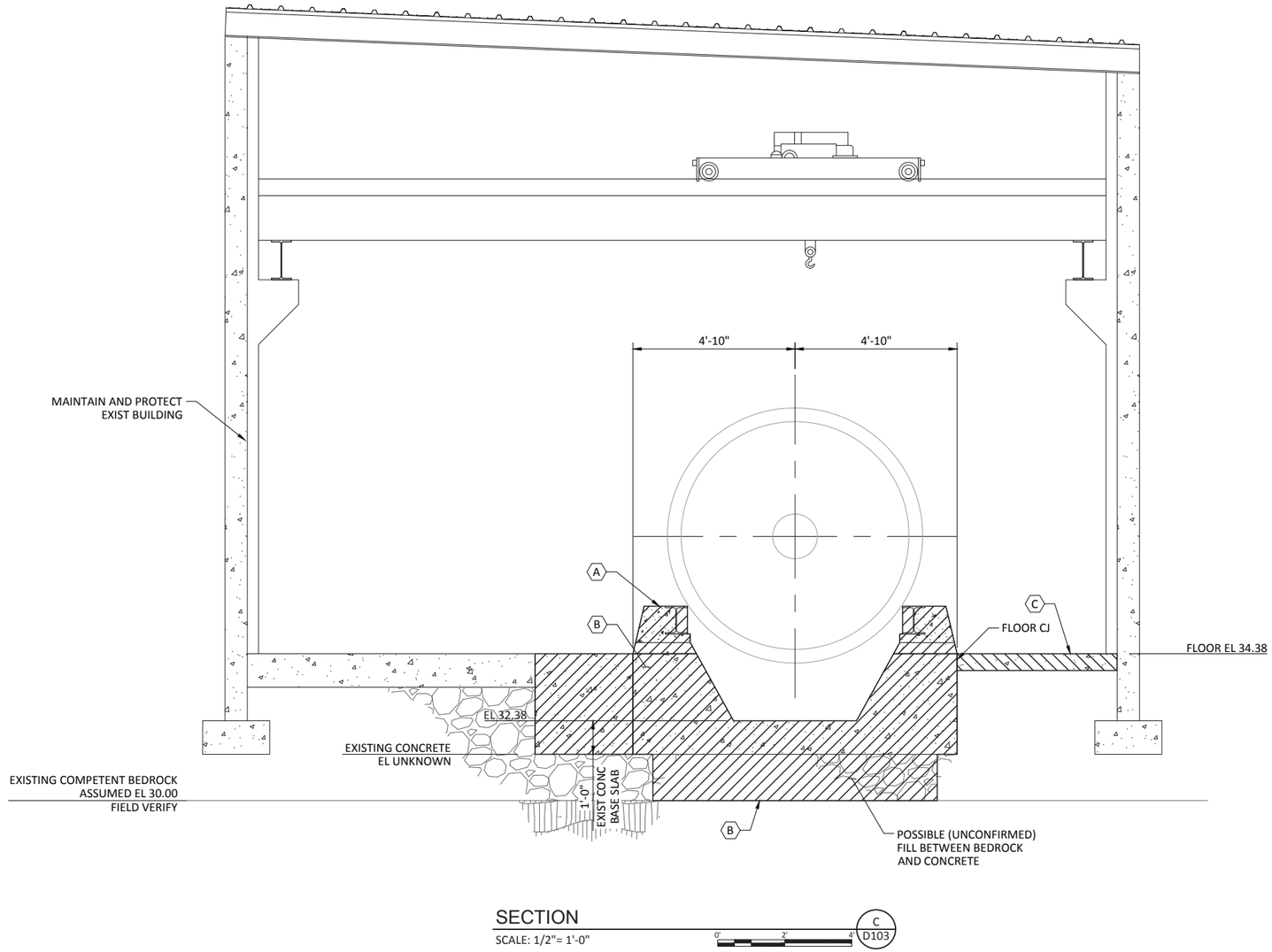
1. SEE MECHANICAL DEMOLITION SHEETS FOR EQUIPMENT DEMOLITION REQUIREMENTS.

KEY NOTES:

A DEMOLISH AND REMOVE CONCRETE CURBING AND WALLS OF GENERATOR PIT.

B DEMOLISH AND REMOVE FOUNDATION SLAB AT GENERATOR PIT. PROVIDE OVER-EXCAVATION TO ACCOMMODATE NEW GENERATOR SLAB AND ROCK BASE.

C DEMOLISH AND REMOVE FLOOR SLAB.



SECTION
SCALE: 1/2"= 1'-0"

C / D103

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49th — MARK MERKLEIN — No. 185381 — REGISTERED PROFESSIONAL ENGINEER — 9-19-22

WARNING
0 1/2 1
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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

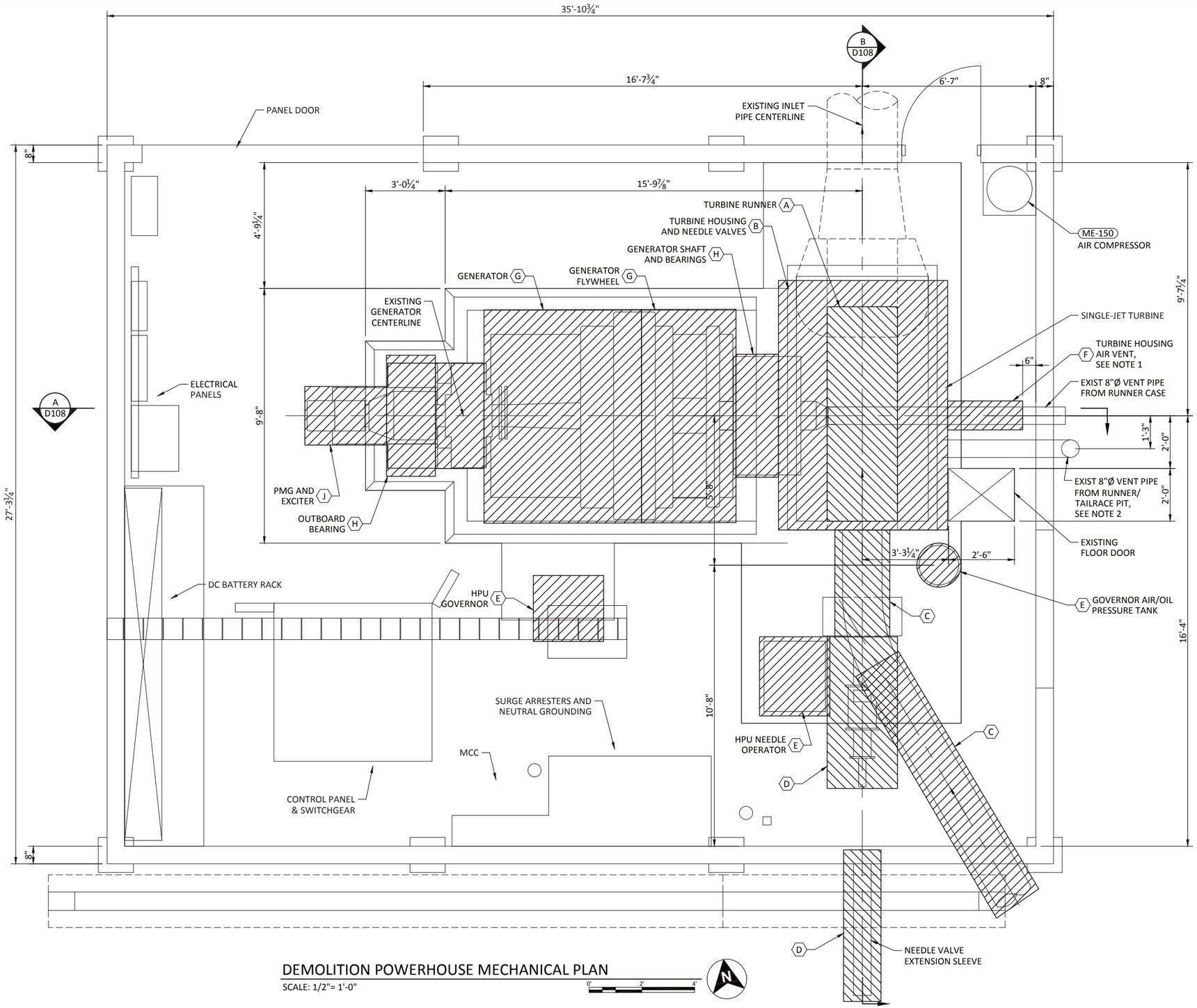
DEMOLITION
POWERHOUSE
STRUCTURAL SECTIONS 3

DESIGNED G. CLARK
DRAWN R. GUERRERO
CHECKED M. MERKLEIN
PROJECT DATE 09/19/22

DRAWING
D106

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\D106.dwg Plot date: Sep 19, 2022 04:00pm, CAD User: Guerrero



DEMOLITION POWERHOUSE MECHANICAL PLAN

SCALE: 1/2"= 1'-0"

0' 2' 4'

N

SHEET NOTES:

1. VENT PIPE FROM TURBINE CASE IS NOT NEEDED FOR GILKES TURBINE; CUT THE PIPE NEAR THE WALL AND FILL WALL-EMBEDDED SEGMENT WITH GROUT.
2. VENT PIPE FROM TAILRACE PIT IS NEEDED FOR GILKES TURBINE; DO NOT PLUG OR OBSTRUCT THIS PIPE.
3. SEE REFERENCE DRAWINGS FOR DETAILS OF EXISTING TURBINE, GENERATOR, AND ACCESSORIES.
4. SUBMIT DEMOLITION PLAN IN ACCORDANCE WITH SPECIFICATION SECTION 02 41 00.

KEY NOTES:

A TURBINE RUNNER. UNBOLT AND REMOVE TOP OF TURBINE HOUSING. UNBOLT TURBINE RUNNER FROM GENERATOR SHAFT AND LIFT OUT OF TURBINE USING POWERHOUSE CRANE. SALVAGE RUNNER, PROTECT AND TRANSPORT TO LOCATION IDENTIFIED BY OWNER IN PETERSBURG.

B TURBINE HOUSING AND NEEDLE VALVE. DISCONNECT TURBINE HOUSING FROM ABOVE-GRADE AIR VENT PIPING. REMOVE TURBINE HOUSING ANCHOR BOLTS. DISCONNECT TURBINE HOUSING FROM INLET PIPE. REMOVE AND DISPOSE OF TURBINE HOUSING, AND ANCHOR BOLTS. REMOVE AND PRESERVE NEEDLE VALVE FOR OWNER'S COLLECTION. IF ANY ANCHOR BOLTS ARE STUCK IN CONCRETE AND CANNOT BE REMOVED, CUT BOLTS AND GRIND FLUSH WITH TOP OF CONCRETE FLOOR. PRESERVE TAILRACE METAL PLATE LINER BELOW CONCRETE FLOOR.

C TURBINE INLET PIPE. REMOVE DRESSER COUPLING. UNBOLT NEEDLE OPERATOR FLANGE. REMOVE AND DISPOSE OF TURBINE INLET PIPE SECTION INSIDE POWERHOUSE. EXCAVATE INLET PIPE OUTSIDE POWERHOUSE, CUT WITH A SCRAPPER'S TORCH, AND REMOVE THE SECTION OF INLET PIPE THAT EXTENDS THROUGH THE POWERHOUSE WALL. FORM BOTH SIDES OF POWERHOUSE WALL OPENING AND FILL WITH GROUT.

D TURBINE NEEDLE VALVE OPERATOR. CLOSE HYDRAULIC OIL VALVES ON HPU GOVERNOR, HPU NEEDLE OPERATOR, AND GOVERNOR AIR/OIL PRESSURE TANK. DISCONNECT HYDRAULIC OIL PIPING AND DRAIN INTO A BUCKET. REMOVE AND DISPOSE OF HYDRAULIC PIPING. REMOVE AND DISPOSE OF NEEDLE OPERATOR. REMOVE AND DISPOSE OF NEEDLE VALVE EXTENSION SLEEVE (OUTSIDE POWERHOUSE).

E TURBINE GOVERNOR. IF NOT ALREADY DONE, CLOSE HYDRAULIC OIL VALVES, BLEED PRESSURE FROM ACCUMULATOR TANK, DISCONNECT HYDRAULIC OIL PIPING, AND DRAIN PIPING TO BUCKET. REMOVE ANCHOR BOLTS FROM HPU GOVERNOR, HPU NEEDLE OPERATOR, AND GOVERNOR AIR/OIL PRESSURE TANK AND REMOVE THOSE ITEMS FROM POWERHOUSE. IF ANCHOR BOLTS ARE STUCK AND CANNOT BE REMOVED, CUT BOLTS AND GRIND FLUSH WITH TOP OF CONCRETE FLOOR. DRAIN OIL FROM THOSE ITEMS AND DISPOSE OF OIL IN ACCORDANCE WITH LOCAL CODES. AFTER DRAINING, SALVAGE GOVERNOR, PROTECT AND TRANSPORT TO LOCATION IDENTIFIED BY OWNER IN PETERSBURG., NEEDLE OPERATOR, AND AIR/OIL PRESSURE TANK.

F TURBINE HOUSING AIR VENT. CUT TURBINE HOUSING AIR VENT INSIDE POWERHOUSE AT THE OFFSET DISTANCE SHOWN. RETAIN AND PROTECT VENT PIPING PASSING THROUGH POWERHOUSE WALL. REMOVE AND DISPOSE OF VENT PIPING INSIDE POWERHOUSE.

G GENERATOR SHAFT AND BEARINGS. CLOSE BEARING LUBE OIL VALVES, REMOVE GENERATOR LUBE OIL PIPING AND DRAIN OIL FROM PIPING. REMOVE GENERATOR BEARING HOUSING TOPS, TO EXPOSE GENERATOR SHAFT. DISPOSE OF GENERATOR SHAFT AND BEARINGS.

H GENERATOR. REMOVE GENERATOR ACCESSORIES (KEYNOTE J). REMOVE GENERATOR ANCHOR BOLTS. LIFT GENERATOR HOUSING, FLYWHEEL, AND SHAFT OUT OF GENERATOR PIT. REMOVE ANCHORS AND ATTACHMENT HARDWARE FROM GENERATOR PIT. REMOVE BEARING HOUSING BOTTOMS. DISPOSE OF GENERATOR.

J GENERATOR ACCESSORIES. REMOVE ACCESSORIES' ANCHOR BOLTS. DISASSEMBLE ACCESSORIES' HOUSINGS

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49TH JOSEPH CARSON No. ME-14630 REGISTERED PROFESSIONAL ENGINEER Sept 19, 2022

WARNING
0 1/2 1
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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

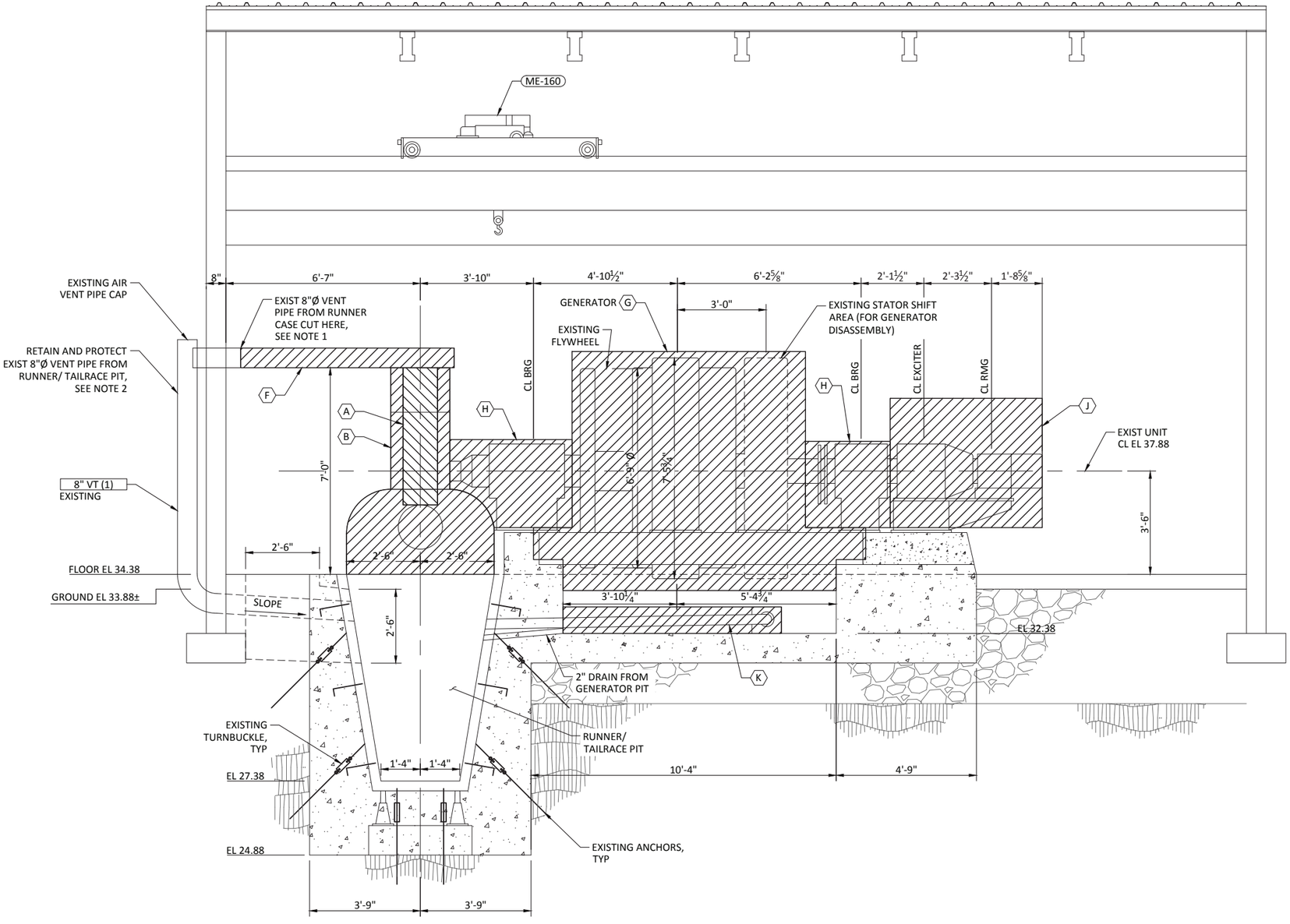
DEMOLITION POWERHOUSE MECHANICAL PLAN

DESIGNED J. CARSON
DRAWN R. GUERRERO
CHECKED D. JARRETT
PROJECT DATE 09/19/22

DRAWING D107

JOB NO: 0000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\D107.dwg Plot date: Sep 19, 2022 04:00pm, CAD User: Guerrero



SECTION

SCALE: 1/2"= 1'-0"

A D107

SHEET NOTES:

1. VENT PIPE FROM TURBINE CASE IS NOT NEEDED FOR GILKES TURBINE; CUT THE PIPE NEAR THE WALL AND FILL WALL-EMBEDDED SEGMENT WITH GROUT.
2. VENT PIPE FROM TAILRACE PIT IS NEEDED FOR GILKES TURBINE; DO NOT PLUG OR OBSTRUCT THIS PIPE.
3. SEE REFERENCE DRAWINGS FOR DETAILS OF EXISTING TURBINE, GENERATOR, AND ACCESSORIES.
4. SUBMIT DEMOLITION PLAN IN ACCORDANCE WITH SPECIFICATION SECTION 02 41 00.

KEY NOTES:

A TURBINE RUNNER. UNBOLT AND REMOVE TOP OF TURBINE HOUSING. UNBOLT TURBINE RUNNER FROM GENERATOR SHAFT AND LIFT OUT OF TURBINE USING POWERHOUSE CRANE. SALVAGE RUNNER, PROTECT AND TRANSPORT TO LOCATION IDENTIFIED BY OWNER IN PETERSBURG.

B TURBINE HOUSING AND NEEDLE VALVE. DISCONNECT TURBINE HOUSING FROM ABOVE-GRADE AIR VENT PIPING. REMOVE TURBINE HOUSING ANCHOR BOLTS. DISCONNECT TURBINE HOUSING FROM INLET PIPE. REMOVE AND DISPOSE OF TURBINE HOUSING, AND ANCHOR BOLTS. REMOVE AND PRESERVE NEEDLE VALVE FOR OWNER'S COLLECTION. IF ANY ANCHOR BOLTS ARE STUCK IN CONCRETE AND CANNOT BE REMOVED, CUT BOLTS AND GRIND FLUSH WITH TOP OF CONCRETE FLOOR. PRESERVE TAILRACE METAL PLATE LINER BELOW CONCRETE FLOOR.

C TURBINE INLET PIPE. REMOVE DRESSER COUPLING. UNBOLT NEEDLE OPERATOR FLANGE. REMOVE AND DISPOSE OF TURBINE INLET PIPE SECTION INSIDE POWERHOUSE. EXCAVATE INLET PIPE OUTSIDE POWERHOUSE, CUT WITH A SCRAPPER'S TORCH, AND REMOVE THE SECTION OF INLET PIPE THAT EXTENDS THROUGH THE POWERHOUSE WALL. FORM BOTH SIDES OF POWERHOUSE WALL OPENING AND FILL WITH GROUT.

D TURBINE NEEDLE VALVE OPERATOR. CLOSE HYDRAULIC OIL VALVES ON HPU GOVERNOR, HPU NEEDLE OPERATOR, AND GOVERNOR AIR/OIL PRESSURE TANK. DISCONNECT HYDRAULIC OIL PIPING AND DRAIN INTO A BUCKET. REMOVE AND DISPOSE OF HYDRAULIC PIPING. REMOVE AND DISPOSE OF NEEDLE OPERATOR. REMOVE AND DISPOSE OF NEEDLE VALVE EXTENSION SLEEVE (OUTSIDE POWERHOUSE).

E TURBINE GOVERNOR. IF NOT ALREADY DONE, CLOSE HYDRAULIC OIL VALVES, BLEED PRESSURE FROM ACCUMULATOR TANK, DISCONNECT HYDRAULIC OIL PIPING, AND DRAIN PIPING TO BUCKET. REMOVE ANCHOR BOLTS FROM HPU GOVERNOR, HPU NEEDLE OPERATOR, AND GOVERNOR AIR/OIL PRESSURE TANK AND REMOVE THOSE ITEMS FROM POWERHOUSE. IF ANCHOR BOLTS ARE STUCK AND CANNOT BE REMOVED, CUT BOLTS AND GRIND FLUSH WITH TOP OF CONCRETE FLOOR. DRAIN OIL FROM THOSE ITEMS AND DISPOSE OF OIL IN ACCORDANCE WITH LOCAL CODES. AFTER DRAINING, SALVAGE GOVERNOR, PROTECT AND TRANSPORT TO LOCATION IDENTIFIED BY OWNER IN PETERSBURG., NEEDLE OPERATOR, AND AIR/OIL PRESSURE TANK.

F TURBINE HOUSING AIR VENT. CUT TURBINE HOUSING AIR VENT INSIDE POWERHOUSE AT THE OFFSET DISTANCE SHOWN. RETAIN AND PROTECT VENT PIPING PASSING THROUGH POWERHOUSE WALL. REMOVE AND DISPOSE OF VENT PIPING INSIDE POWERHOUSE.

G GENERATOR SHAFT AND BEARINGS. CLOSE BEARING LUBE OIL VALVES, REMOVE GENERATOR LUBE OIL PIPING AND DRAIN OIL FROM PIPING. REMOVE GENERATOR BEARING HOUSING TOPS, TO EXPOSE GENERATOR SHAFT. DISPOSE OF GENERATOR SHAFT AND BEARINGS.

H GENERATOR. REMOVE GENERATOR ACCESSORIES (KEYNOTE J). REMOVE GENERATOR ANCHOR BOLTS. LIFT GENERATOR HOUSING, FLYWHEEL, AND SHAFT OUT OF GENERATOR PIT. REMOVE ANCHORS AND ATTACHMENT HARDWARE FROM GENERATOR PIT. REMOVE BEARING HOUSING BOTTOMS. DISPOSE OF GENERATOR.

J GENERATOR ACCESSORIES. REMOVE ACCESSORIES' ANCHOR BOLTS. DISASSEMBLE ACCESSORIES' HOUSINGS

K GENERATOR PIT DRAIN PIPES. CUT PIPES NEAR CONCRETE WALLS AND REMOVE PIPES FROM GENERATOR PIT. FILL REMAINING, EMBEDDED PIPE SEGMENTS WITH GROUT.

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49TH — JOSEPH CARSON No. ME-14630 — REGISTERED PROFESSIONAL ENGINEER — Sept 19, 2022

WARNING

0 1/2 1

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

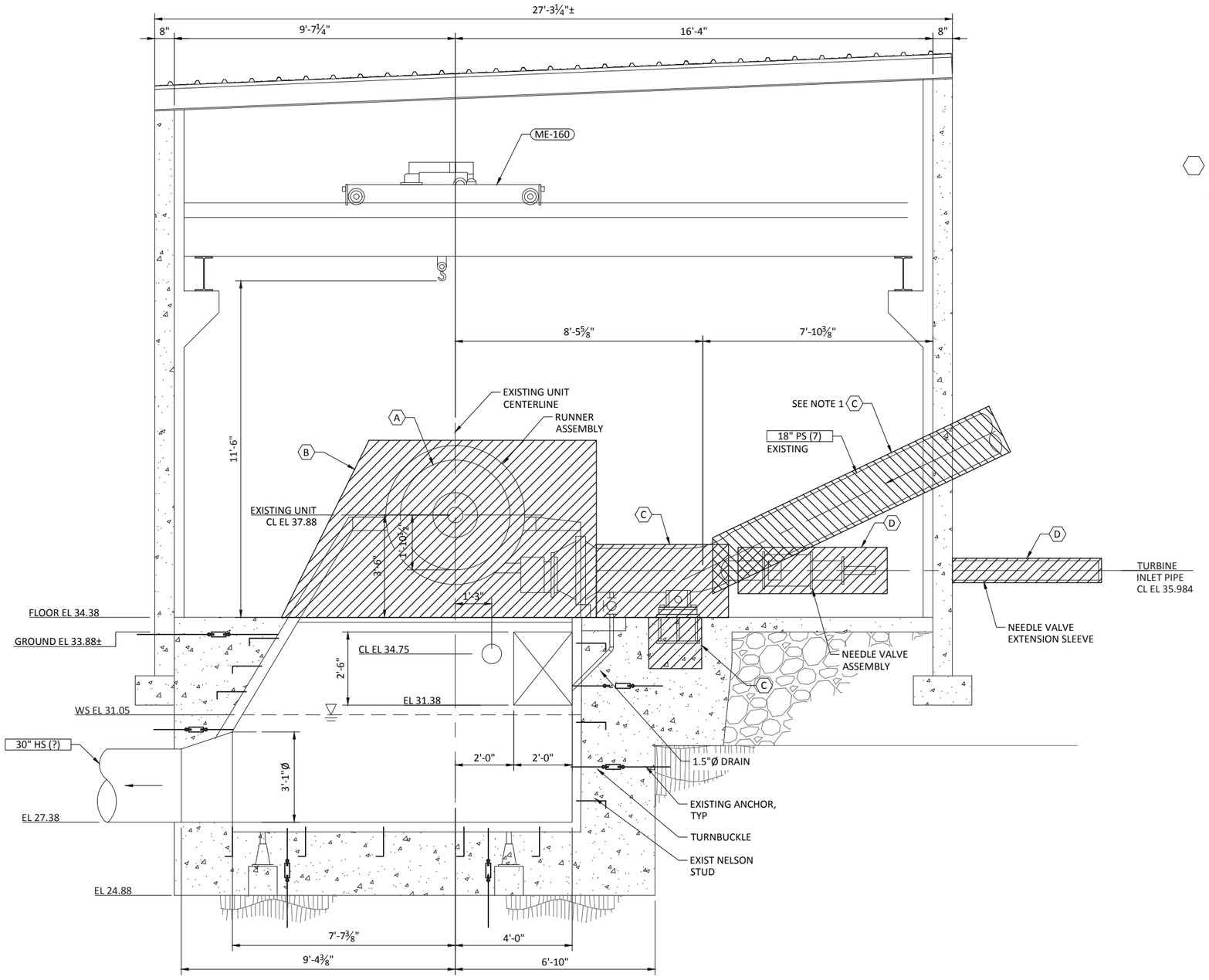
DEMOLITION
POWERHOUSE
MECHANICAL SECTIONS 1

DESIGNED J. CARSON
DRAWN R. GUERRERO
CHECKED D. JARRETT
PROJECT DATE 09/19/22

DRAWING

D108

JOB NO: 000000



SECTION

SCALE: 1/2"= 1'-0"

B
D107

SHEET NOTES:

1. DEMO PENSTOCK UPSTREAM OF POWERHOUSE TO THE EXTENT SHOWN ON CIVIL DRAWINGS.

KEY NOTES:

A TURBINE RUNNER. UNBOLT AND REMOVE TOP OF TURBINE HOUSING. UNBOLT TURBINE RUNNER FROM GENERATOR SHAFT AND LIFT OUT OF TURBINE USING POWERHOUSE CRANE. SALVAGE RUNNER, PROTECT AND TRANSPORT TO LOCATION IDENTIFIED BY OWNER IN PETERSBURG.

B TURBINE HOUSING AND NEEDLE VALVE. DISCONNECT TURBINE HOUSING FROM ABOVE-GRADE AIR VENT PIPING. REMOVE TURBINE HOUSING ANCHOR BOLTS. DISCONNECT TURBINE HOUSING FROM INLET PIPE. REMOVE AND DISPOSE OF TURBINE HOUSING, AND ANCHOR BOLTS. REMOVE AND PRESERVE NEEDLE VALVE FOR OWNER'S COLLECTION. IF ANY ANCHOR BOLTS ARE STUCK IN CONCRETE AND CANNOT BE REMOVED, CUT BOLTS AND GRIND FLUSH WITH TOP OF CONCRETE FLOOR. PRESERVE TAILRACE METAL PLATE LINER BELOW CONCRETE FLOOR.

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J GENERATOR ACCESSORIES. REMOVE ACCESSORIES' ANCHOR BOLTS. DISASSEMBLE ACCESSORIES' HOUSINGS

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STATE OF ALASKA 49TH JOSEPH CARSON No. ME-14630 REGISTERED PROFESSIONAL ENGINEER
Sept 19, 2022

WARNING
0 1/2 1
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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

DEMOLITION
POWERHOUSE
MECHANICAL SECTIONS 2

DESIGNED J. CARSON
DRAWN R. GUERRERO
CHECKED D. JARRETT
PROJECT DATE 09/19/22

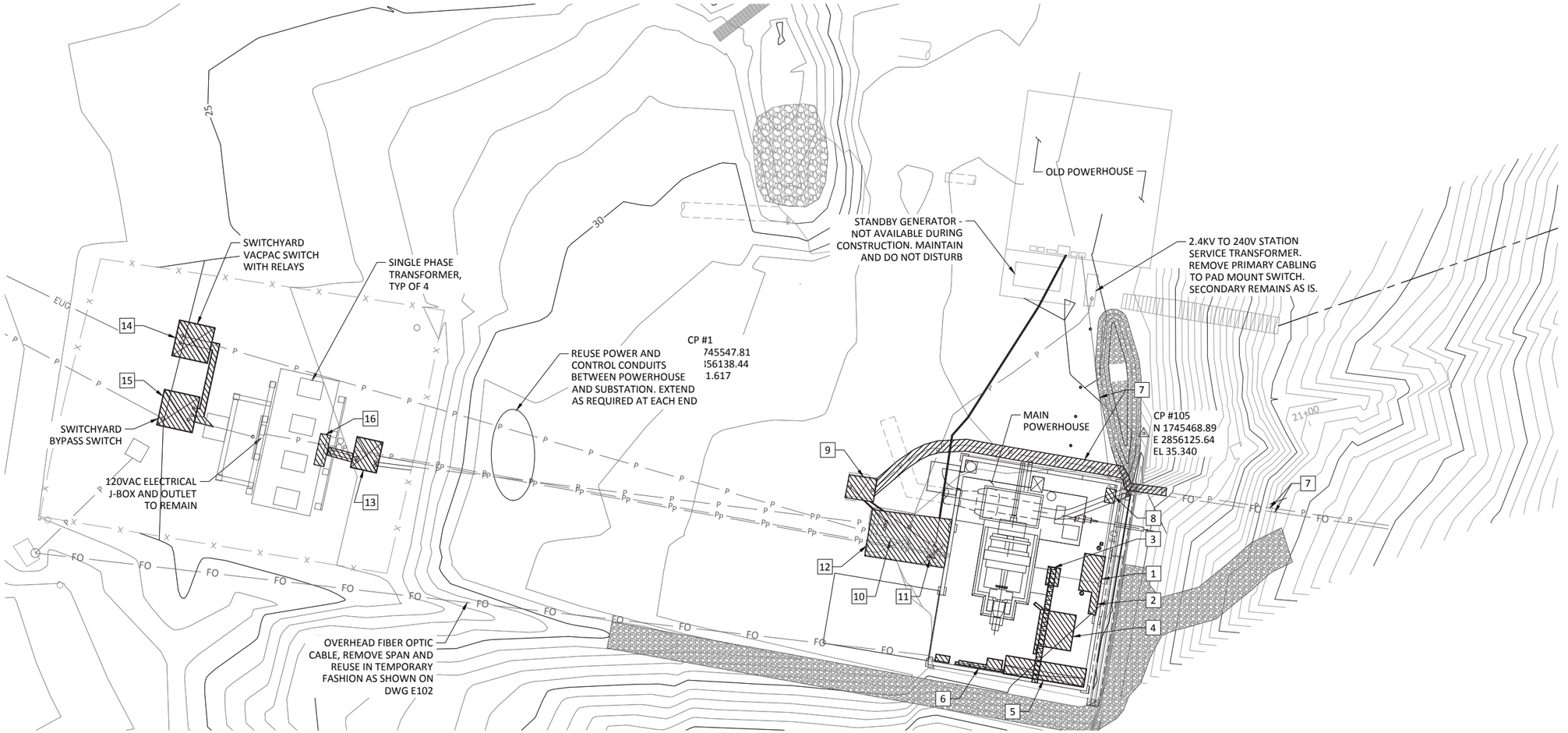
DRAWING
D109

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\D109.dwg Plot date: Sep 19, 2022 04:00pm, CAD User: Guerrero

SHEET NOTES:

1. SEE DEMO SHEETS D111 THROUGH D113 FOR DETAILS OF DEMO ITEMS [#].
2. CONTRACTOR TO LOCATE UNDERGROUND CONDUITS AND MAINTAIN IN GOOD CONDITION CONDUITS TO BE REUSED.
3. REMOVE SURFACE GRAVEL AT SWITCHYARD, TO BE REPLACED WITH NEW UPON COMPLETION OF SWITCHYARD MODIFICATIONS.
4. DISCONNECT AND PULL BACK DAM 2.5kV FEEDER CABLE AND PROTECT. TO BE REROUTED AND USED.
5. ITEMS IDENTIFIED TO BE REUSED MAY BE REPLACED AT CONTRACTOR'S DISCRETION WITH LIKE MATERIAL AND EQUIPMENT.



DEMOLITION ELECTRICAL SITE PLAN

SCALE: 1"= 10'

REV	DATE	BY	DESCRIPTION
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STATE OF ALASKA — 49th — MATHEW L. LAWSON — No. AELE11874 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

DEMOLITION ELECTRICAL SITE PLAN

DESIGNED M. LAWSON
DRAWN R. GUERRERO
CHECKED J. BAKKEN
PROJECT DATE 09/19/22

DRAWING

D110

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\D110.dwg Plot date: Sep 19, 2022 04:00pm, CAD User: Guerrero

NOTE:
1. REMOVE GENERATOR SURGE PROTECTION (CAPACITOR AND SURGE ARRESTER), GROUNDING TRANSFORMER, DISCONNECT, AND ALL OTHER ELECTRICAL EQUIPMENT WITHIN THE METAL CAGE. REMOVE METAL CAGE. REMOVE AC RECEPTACLE AND CABLE TO THE LEFT OF CAGE AND CAP. REMOVE VERTICAL CONDUIT LEFT OF CAGE. REMOVE CONCRETE APRON AND FINISH FLUSH WITH FLOOR. CAP AND SEAL CONDUITS FLUSH WITH FLOOR.

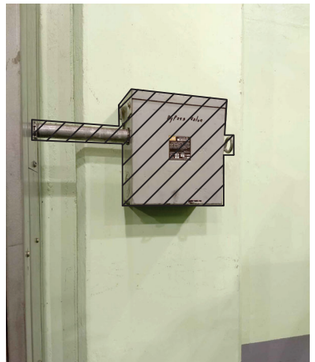
1 GENERATOR SURGE PROTECTION

SCALE: NTS

NOTE:
1. COMPLETELY REMOVE MCC ENCLOSURE AND CAP FLOOR PENETRATING CONDUITS FLUSH WITH POWERHOUSE FLOOR. SAVE AND PROTECT MAIN STATION SERVICE CONDUIT AND CABLE ENTERING MCC FROM ABOVE, TO BE REUSED. REMOVE ALL OTHER CABLING. REMOVE BYPASS VALVE SWITCH RIGHT OF MCC AND ASSOCIATED CONDUIT AND CABLE. REMOVE CONCRETE APRON FINISH FLUSH WITH FLOOR.

2 MCC ENCLOSURE

SCALE: NTS



NOTE:
1. REMOVE CONTROL CABINET AND ASSOCIATED WIRING/CABLING, AS WELL AS OVERHEAD CONDUIT AND CABLE TRAY AS REQUIRED.

3 CONTROL CABINET

SCALE: NTS

NOTE:
1. REMOVE SWITCHGEAR AND PULL/REMOVE ALL CABLING EMANATING FROM SWITCHGEAR TO REMOTE CABLE END POINT. CAP AND SEAL ALL FLOOR CONDUITS BELOW SWITCHGEAR, FINISH FLUSH WITH POWERHOUSE FLOOR. REMOVE CONDUITS AND CABLE TRAY ON TOP OF SWITCHGEAR. CUT AND REMOVE VERTICAL WALL CONDUITS EXTENDING BELOW CRANE RAIL. HORIZONTAL CONDUITS TO BE MODIFIED AND REUSED.

4 SWITCHGEAR

SCALE: NTS

NOTE:
1. REMOVE STATION SERVICE BATTERIES, RACK, CABLING, AND WOODEN PLATFORM.

5 STATION SERVICE BATTERIES

SCALE: NTS

NOTE:
1. REMOVE ALL ELECTRICAL PANELS, CABLE TROUGH, AND FLOOR PENETRATING CONDUITS ON INTERIOR WEST POWERHOUSE WALL, EXCEPT EXHAUST FAN CONTROLLER AND CONDUIT. MAINTAIN HORIZONTAL CONDUITS 8 FEET ABOVE OF FLOOR TO BE REUSED. THIS INCLUDES BATTERY CHARGER, DC PANEL, AC PANEL, AND TRANSFORMER. MAINTAIN EXHAUST FAN. SALVAGE AND SAVE HVAC CONTROL PANEL AND THERMOSTAT ON SOUTH WALL. MAINTAIN EXISTING EXHAUST FAN THERMOSTAT LOCATED ON SOUTH WALL. HOWEVER, SLIDE EASTWARD TO NOT CONFLICT WITH NEW SWITCHGEAR ASSEMBLY.

6 STATION SERVICE PANELS AND CONDUITS

SCALE: NTS

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STATE OF ALASKA 49th — MATHEW L. LAWSON No. AELE11874 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

DEMOLITION
ELECTRICAL
DETAILS 1

DESIGNED M. LAWSON
DRAWN R. GUERRERO
CHECKED J. BAKKEN
PROJECT DATE 09/19/22

DRAWING
D111

JOB NO: 000000

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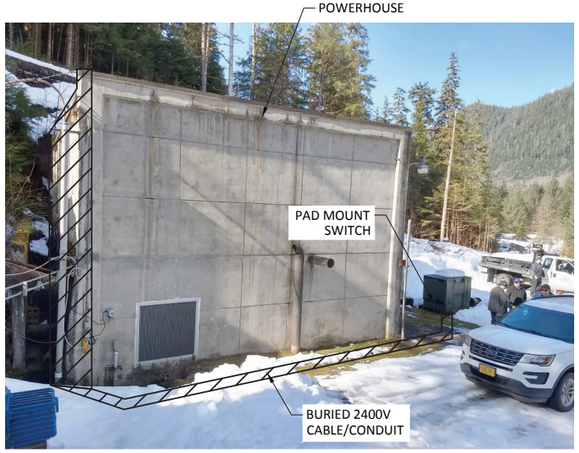
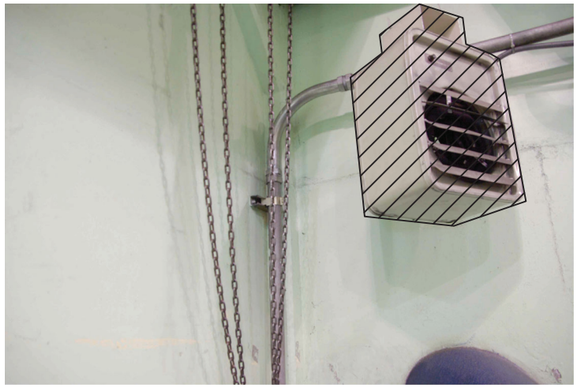


NOTE:
1. CAREFULLY DISCONNECT AND PULL BACK DAM 2400VAC CABLE FROM PAD MOUNT SWITCH, AND FIBER OPTIC CABLE FROM INSIDE POWERHOUSE, TO ABOVE PENSTOCK AND PROTECT. CABLES WILL BE REUSED. WHEN DIGGING MAINTAIN AND PROTECT EXISTING CONDUITS FROM SMALL/OLD POWERHOUSE TO NEW/LARGE POWERHOUSE. CONTRACTOR TO VERIFY CONDUIT LOCATIONS/PATHWAYS AS INDICATED ON THE DRAWINGS.

7 DAM STATION SERVICE AND FIBER OPTIC CABLES

SCALE: NTS



NOTE:
1. REMOVE EXISTING UNIT HEATER AND REPLACE WITH NEW. USE EXISTING CABLING AND CONDUIT AS MAY BE CONVENIENT.

8 UNIT HEATER

SCALE: NTS

NOTE:
1. REMOVE ENTIRELY THE PAD MOUNT VACUUM SWITCH, INCLUDING FOUNDATION, CABLING, AND CONDUITS. MAINTAIN DAM STATION/SERVICE 2400V STATION SERVICE CABLE AS INDICATED IN DEMO #7

9 DAM STATION SERVICE VACUUM SWITCH

SCALE: NTS

NOTE:
REMOVE DOGHOUSE ENCLOSURE ALONG WITH CABLES, FOUR POINT JUNCTION BUSHINGS AND BRACKETS, SUPPORT AND FOUNDATION. REMOVE ALL CABLES COMPLETELY BEFORE DEMOLITION. MAINTAIN BURIED CONDUITS ROUTED TO SWITCHYARD AND OLD STATION SERVICE TRANSFORMER. TO BE REUSED.

10 2400V GENERATOR ELBOW SPLICE ENCLOSURE

SCALE: NTS

NOTE:
1. REMOVE OUTDOOR CONTROL/SIGNAL CONDUIT ENCLOSURE, INCLUDING ALL CABLING, CONDUITS, AND FOUNDATION. MAINTAIN WALL MOUNT CONDUITS ON POWERHOUSE NORTH WALL, TO BE REUSED.

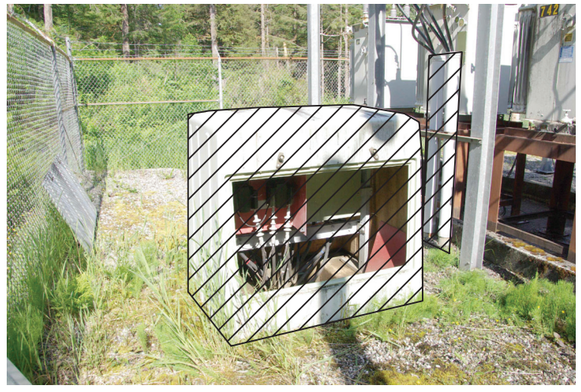
11 OUTDOOR CONTROL/SIGNAL CONDUIT ENCLOSURE

SCALE: NTS

NOTE:
1. REMOVE CONCRETE FOUNDATION FOR SPLICE AND CONDUIT BOXES SHOWN IN DEMO ITEMS #10 & #11. MAINTAIN BURIED POWER AND CONTROL CONDUITS TO SWITCHYARD AND OLD POWERHOUSE, TO BE REUSED.

12 CONCRETE FOUNDATION

SCALE: NTS



NOTE:
1. REMOVE ELBOW SPLICE JUNCTION BOX ENCLOSURE AND MATERIAL, INCLUDING MV CABLE, CTS, CT CABLE, CONDUITS AND FOUNDATION. MAINTAIN EXISTING RISER TO BUS WORK, TO BE REUSED. MAINTAIN CONDUITS COMING INTO SWITCHYARD. TO BE REUSED.

13 SWITCHYARD 2400V ELBOW SPLICE JUNCTION BOX ENCLOSURE

SCALE: NTS

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STATE OF ALASKA 49th — MATHEW L. LAWSON No. AELE11874 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

DEMOLITION
ELECTRICAL
DETAILS 2

DESIGNED M. LAWSON
DRAWN R. GUERRERO
CHECKED J. BAKKEN
PROJECT DATE 09/19/22

DRAWING
D112

JOB NO: 0000000

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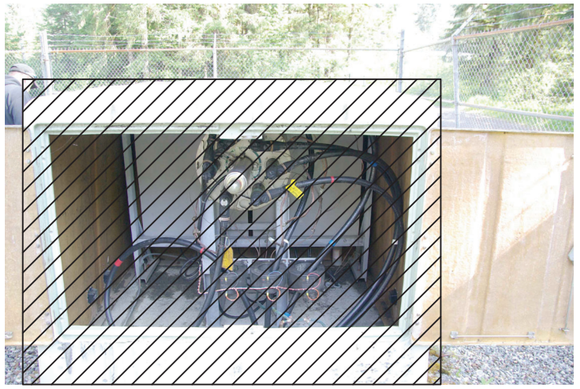
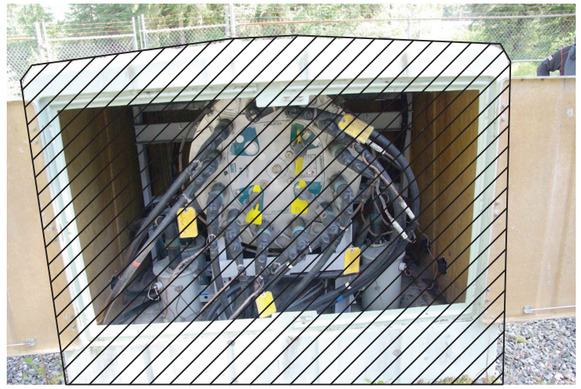


NOTE:
1. REMOVE VACPAC SWITCH, ENCLOSURE, CTS, WIRING, AND FOUNDATION. MAINTAIN BURIED CONTROL CONDUITS TO BE REROUTED. REMOVE POWER CONDUITS BETWEEN VACPAK AND BYPASS SWITCH HANDHOLE.

14 SWITCHYARD VACPAC SWITCH

SCALE: NTS



NOTE:
1. REMOVE BYPASS SWITCH, ENCLOSURE SWITCH, PTS, AND WIRING. RISER TO 25KV BUS TO BE REUSED.

15 SWITCHYARD BYPASS SWITCH

SCALE: NTS

NOTE:
1. REMOVE 2400V CERAMIC CABLE TERMINATIONS AND CABLE. MAINTAIN BUS EXTENSIONS AND CONNECTORS, TO BE REUSED. EXISTING FASTENERS SHALL NOT BE REUSED.

16 SWITCHYARD 2400V CERAMIC CABLE TERMINATIONS

SCALE: NTS

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PETERSBURG ALASKA

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BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

DEMOLITION
ELECTRICAL
DETAILS 3

DESIGNED M. LAWSON
DRAWN R. GUERRERO
CHECKED J. BAKKEN
PROJECT DATE 09/19/22

DRAWING
D113

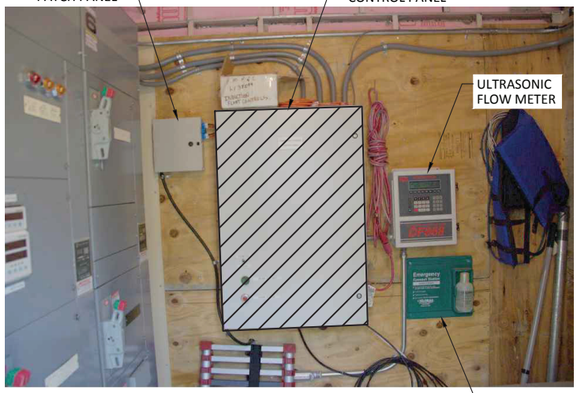
JOB NO: 0000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\D113.dwg Plot date: Sep 19, 2022 04:00pm, CAD User: Guerrero

NOTE:
1. REMOVE EXISTING FIBER ATTACHED TO PENSTOCK BETWEEN POWERHOUSE AND INTAKE CONTROL BUILDING, SETTING IT ON THE GROUND. MAINTAIN OPERATION UNTIL NEW FIBER CABLE INSTALLES. NEW OWNER FURNISHED FIBER TO BE PULLED IN USING EXISTING SUPPORTS ON PENSTOCK. SEE E100.

1 TEMPORARY FIBER MOVE

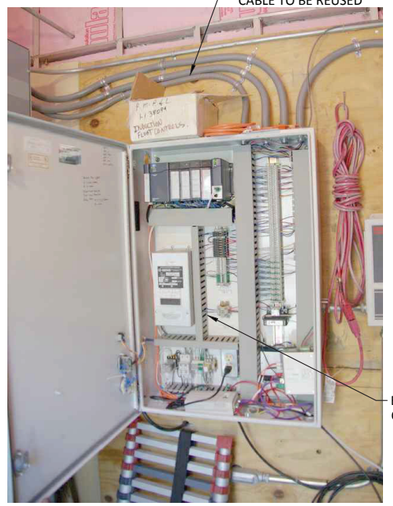
SCALE: NTS



NOTE:
1. REMOVE EXISTING CONTROL PANEL AND PROVIDE TO OWNER. RELOCATE FIBER PATCH PANEL, ULTRASONIC FLOW METER, AND EYE WASH TO MAKE SPACE FOR THE NEW CONTROL CABINET (OWNER FURNISHED). REMOVE CONDUIT AND WIRE AS REQUIRED.

2 REMOVE EXISTING INTAKE CONTROL PANEL

SCALE: NTS



NOTE:
1. DISCONNECT FLEX CONDUIT AND WIRING TO EXISTING CONTROL PANEL AND PULL BACK, MAINTAIN FOR REUSE. RE-ROUTE FIBER CABLE AND CONDUIT AS NECESSARY TO MAKE SPACE FOR NEW CONTROL CABINET.

3 MAINTAIN EXISTING CONTROL WIRING

SCALE: NTS

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49th — MATHEW L. LAWSON No. AELE11874 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

DEMOLITION
ELECTRICAL INTAKE
DETAILS

DESIGNED M. LAWSON
DRAWN R. GUERRERO
CHECKED J. BAKKEN
PROJECT DATE 09/19/22

DRAWING
D114

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\D114.dwg Plot date: Sep 19, 2022 04:00pm, CAD User: Guerrero

CIVIL & PENSTOCK GENERAL NOTES:

1. INFORMATION PERTAINING TO HORIZONTAL AND VERTICAL DATUM, INCLUDING SURVEY CONTROL POINTS, ARE SHOWN ON SHEET C121. ADDITIONAL SURVEY INFORMATION IS ALSO PROVIDED IN SPECIFICATION 01 32 33 - SURVEYING.
2. PRIOR TO THE START OF ANY TRENCH OR FOUNDATIONAL CONSTRUCTION, LOCATE ALL EXISTING UTILITIES. PROTECT ALL EXISTING UTILITIES ABOVE AND BELOW GRADE.
3. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONARY MEASURES NECESSARY TO PROTECT EXISTING IMPROVEMENTS WHICH ARE TO REMAIN IN PLACE FROM DAMAGE. ALL IMPROVEMENTS DAMAGED BY THE CONTRACTOR'S OPERATIONS SHALL BE EXPEDITIOUSLY REPAIRED OR RECONSTRUCTED AT THE CONTRACTOR'S EXPENSE WITHOUT ADDITIONAL COMPENSATION.
4. ELEVATIONS SHOWN IN PIPELINE PROFILE ARE TO INVERT (FLOWLINE) OF PIPELINE. UNLESS OTHERWISE NOTED.
5. STRAIGHT SLOPES SHALL BE MAINTAINED BETWEEN PIPE INVERTS SHOWN OR SPECIFIED.
6. FOR TYPICAL TRENCHING AND BACKFILL REQUIREMENTS, SEE DETAIL C601
7. RESTORE ALL SURVEY MONUMENTS THAT ARE DAMAGED OR DESTROYED DURING CONSTRUCTION.
8. ELEVATIONS GIVEN ARE TO FINISH GRADE UNLESS OTHERWISE SHOWN.
9. SLOPE UNIFORMLY BETWEEN CONTOURS AND SPOT ELEVATIONS SHOWN.
10. NORTHING AND EASTING CALLOUTS ON HORIZONTAL BENDS REPRESENT THE LOCATION OF STRAIGHT LINE INTERSECTION BETWEEN PIPELINE CENTERLINES. ALL FITTINGS SHALL HAVE A MINIMUM BEND RADIUS NO LESS THAN 2.0 TIMES THE OUTER DIAMETER OF THE PIPE PER PIPE SCHEDULE AND SPECIFICATIONS SECTION 33 11 11.
11. ALL VERTICAL BENDS SHOWN ON PROFILES ARE APPROXIMATES ONLY AND SHOULD NOT BE CONSIDERED EXACT FOR CONSTRUCTION. SEE NOTE 14.
12. PIPELINE PLAN AND PROFILES SHOWN ARE APPROXIMATE ONLY AND ARE NOT PIPE LAYING OR FABRICATION DRAWINGS. CONTRACTOR SHALL SUBMIT FABRICATION DRAWINGS FOR STEEL PIPE AND BENDS FOR ENGINEER'S REVIEW PRIOR TO FABRICATION AND INSTALLATION. CONTRACTOR'S PIPE SUPPLIER SHALL VERIFY EXACT STATION VALUES AS INDICATED ON PLAN/PROFILE AND PROVIDE EXACT LENGTHS AS REQUIRED.
13. CONTRACTOR SHALL COORDINATE LAYDOWN AND STAGING AREA LOCATION WITH OWNER.
14. THE CONTRACTOR SHALL PROPERLY DISPOSE OF ALL DEBRIS FROM DEMOLITION WORK AT AN APPROVED OFF-SITE DISPOSAL LOCATION AT CONTRACTORS EXPENSE.
15. ALL PIPE HANDLING AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. CONTRACTOR SHALL PROVIDE TEMP WOODEN CRIBS ON ALL PIPE WHEN STORED IN BOTH PIPE YARD AND ON INCLINED HILLSIDE.
16. THE CONTRACTOR SHALL DISPOSE OF ALL NON-ORGANIC WASTES SUCH AS OLD GUNITE, PIPING, PIPE STRAPS, OLD ELECTRICAL CONDUIT, AND MISC METAL, ETC. AT AN OWNER APPROVED LANDFILL OR OTHER SUITABLE OFF-SITE DISPOSAL AT THE CONTRACTOR'S EXPENSE.
17. EXISTING SURFACE FEATURES SHOWN ON ALL SHEETS HEREIN ARE BASED ON 2019 TOPOGRAPHIC SURVEY OF LIMITED EXTENTS. THE CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF ALL EXISTING SURFACE FEATURES WHETHER SHOWN OR NOT ON CIVIL AND DEMOLITION SHEETS. REFER TO GENERAL SHEET FOR MAPPING INFORMATION.
18. NEW STEEL PIPE WALL THICKNESSES TO MEET ALL REQUIREMENTS OF SPEC SECTION 33 11 11. WALL THICKNESSES SHALL NOT BE LESS THAN THOSE SHOWN ON CIVIL DRAWINGS.
19. SEE SHEET C101 FOR PROJECT SURVEY CONTROL INFORMATION.

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA — MATTHEW S. MOUGHAMIAN — No. CIE13953 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING
0 1/2 1
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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

STANDARD CIVIL & PENSTOCK GENERAL NOTES

DESIGNED M. MOUGHAMIAN
DRAWN R. GUERRERO
CHECKED G. CALRK
PROJECT DATE 09/19/22

DRAWING
GC001

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\GC001.dwg Plot date: Sep 19, 2022 04:01pm, CAD User: Guerrero

A. FLEXIBLE PIPE REFERS TO ALL STEEL AND HDPE PIPES.

B. TYPICAL TRENCH SECTIONS (I AND II) ARE TO BE USED ONLY WHERE STABLE, COMPACT SOIL CONDITIONS EXIST. IF BOULDERS OR LARGE OBSTRUCTIONS ARE ENCOUNTERED, TRENCH SECTIONS MAY BE DEEPER OR WIDER THAN SHOWN. THE ENGINEER SHALL BE ADVISED SHOULD THIS OCCUR.

C. THE NEED FOR PROTECTIVE SYSTEMS AND EXCAVATION SLOPES SHALL BE DETERMINED CONSIDERING APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS, AND GEOTECHNICAL CONSULTANTS' RECOMMENDATIONS.

D. PROTECTIVE SYSTEMS SHALL BE DESIGNED AND BUILT IN ACCORDANCE WITH THE APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS.

E. SUPPORTING DOCUMENTATION SHALL BE SUBMITTED TO THE ENGINEER REGARDING PIPE DESIGN AND COMPLIANCE WITH APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS.

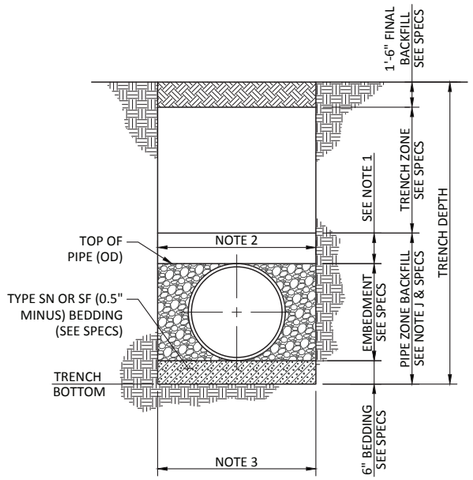
F. UNSUPPORTED VERTICAL AND/OR SLOPING TRENCH WALL SLOPES SHALL NOT BE STEEPER THAN ALLOWED BY APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS, UNLESS SUPPORTING DOCUMENTATION IS SUBMITTED, ACCORDING TO AFOREMENTIONED SAFETY STANDARDS.

G. TRENCH SECTIONS OTHER THAN THE TYPICAL SECTIONS SHOWN MAY BE UTILIZED PROVIDED THEY COMPLY WITH APPLICABLE LOCAL, STATE AND FEDERAL (OSHA) SAFETY STANDARDS AND REGULATIONS. DOCUMENTATION SUPPORTING THIS COMPLIANCE AND PIPE DESIGN CALCULATIONS SHALL BE SUBMITTED TO THE ENGINEER.

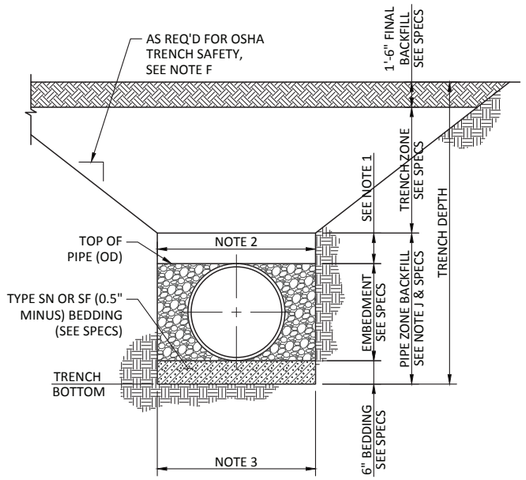
H. IF OVER-EXCAVATION DUE TO POOR FOUNDATION MATERIAL IS ORDERED BY THE ENGINEER, THE BACKFILL MATERIAL SHALL BE ACCORDING TO THE EARTHWORK SECTION OF THE SPECIFICATIONS ARTICLE ENTITLED, "FILL AND BACKFILL MATERIAL REQUIREMENTS."

I. IF DURING CONSTRUCTION, THE WATER TABLE IS DISCOVERED TO BE ABOVE THE TRENCH BOTTOM, THE ENGINEER SHALL BE NOTIFIED, AND APPROPRIATE DEWATERING SHALL BE IMPLEMENTED TO LOWER THE WATER LEVEL BELOW THE TRENCH BOTTOM. THE BACKFILL MATERIAL SHALL BE ACCORDING TO THE EARTHWORK SECTIONS OF THE SPECIFICATIONS, OR AS ORDERED BY THE ENGINEER.

J. CONTRACTOR MAY USE CLSM MATERIAL IN PIPE BEDDING ZONE AND PIPE ZONE BACKFILL, AS ALTERNATE OPTION TO REQUIRED IMPORTED FILL MATERIAL SHOWN.



TRENCH SECTION - TYPE I



TRENCH SECTION - TYPE II

NOTES:
1. 6" MIN FOR PIPE DIAMETER < 24"
2. MAX TRENCH WIDTH @ TOP OF PIPE: O.D. + 36" FOR, 18" & LARGER PIPE O.D.
3. MIN TRENCH BOTTOM WIDTH = O.D. + 36" FOR MECHANICAL COMPACTION

TRENCH SECTION FLEXIBLE PIPE

SCALE: NTS

C601

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA — JOHN M. MATTHEW S. MOUGHAMIAN — No. CE13953 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING
0 1/2 1
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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

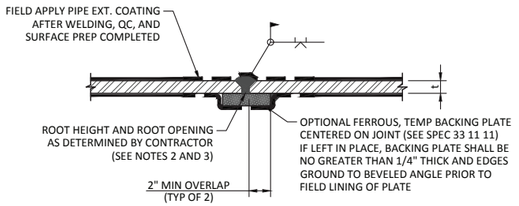
STANDARD CIVIL & PENSTOCK DETAILS 1

DESIGNED M. MOUGHAMIAN
DRAWN R. GUERRERO
CHECKED G. CLARK
PROJECT DATE 09/19/22

DRAWING
GC002

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\GC002.dwg Plot date: Sep 19, 2022 04:01pm, CAD User: Guerrero



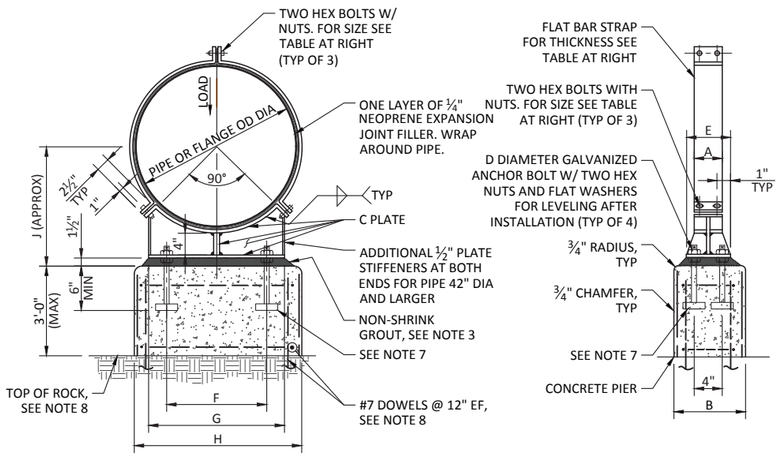
SINGLE BEVEL - BUTT WELD JOINT (FOR t ≤ 0.625") EXTERIOR WELD (W/OPTIONAL BACKING PLATE)

NOTES:
1. FIELD APPLIED JOINT LINING PROTECTION REQUIRED FOR SHOP-LINED PIPE.
2. CONTRACTOR SHALL DEVELOP DETAILS OF CJP WELDS IN ACCORDANCE W/ SPEC 33 11 11. PRE-QUALIFIED CJP WELDS IN ACCORDANCE W/ SECTION VIII OF THE ASME BOILER AND PRESSURE VESSEL CODE OR TABLE 8-2 OF THE AISC STEEL CONSTRUCTION MANUAL MAY BE UTILIZED.
3. INTERIOR OR EXTERIOR BACK-GOUGING OF BUTT WELD NOT REQUIRED UNLESS SPECIFICALLY CALLED FOR IN SECTION 33 11 11.

STEEL PIPE - BUTT WELD JOINT (SINGLE OUTSIDE BEVEL)

C704

SCALE: NTS



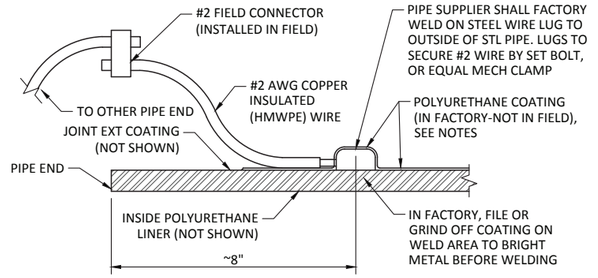
NOTES:
1. WHEN SUPPORTING PIPE AND FLANGE ALTERNATELY ON THE SAME LINE, CONCRETE PIERS FOR PIPE SUPPORTS SHALL ALL HAVE THE SAME DIMENSION 'H' FOR FLANGE SUPPORT
2. PIPE SUPPORTS SHALL BE LOCATED IN PLAN AT POINTS MARKED THUS: (X)
3. WHERE DIFFERENTIAL SETTLEMENT IS LIKELY TO OCCUR, OMIT GROUT AS DIRECTED BY THE ENGINEER.
4. GALVANIZE ALL PARTS AFTER FABRICATION.
5. WHERE DIRECTED BY THE STRUCTURAL ENGINEER, BOTTOM OF PIERS SHALL EXTEND BELOW BOTTOM OF SLAB
6. WHERE PIPE SUPPORT OCCURS ON GRADE REFER TO STRUCTURAL DRAWINGS FOR DETAILS.
7. GALVANIZED ANCHOR BOLT OR CONCRETE ANCHOR WITH TWO NUTS AND ONE LOCKWASHER. PROVIDE BAR 4x½x4" WELDED TO BOLT. (TYP OF 4) SEE SPECIFICATIONS.
8. EXTEND STEEL DOWELS MIN OF 18-INCHES INTO FOUNDATION BEDROCK OR CONCRETE MASS BLOCK.

PIPE SUPPORT WITH STRAP

C901

SCALE: NTS

NOMINAL PIPE SIZE	A	B	C	D	E	STRAP		SUPPORTING			
						BOLT SIZE	FLAT BAR	PIPE			
								F	G	H	J
6	4	12	⅜	⅝	6	½	¼	4½	8	14	10
8	4	12	⅜	⅝	6	½	¼	5	9½	14	11
10	4	12	⅜	⅝	6	½	¼	6	11	16	12
12	4	12	⅜	⅝	6	½	¼	7	13	18	13
14	4	12	⅜	⅝	6	½	¼	8	13	18	14
16	4	12	⅜	⅝	6	½	¼	9	15	21	15
18	4	12	⅜	⅝	6	½	¼	10	16	22	16
20	5	15	⅜	⅝	6	⅝	⅜	10	18	24	17
22	5	15	⅜	⅝	6	⅝	⅜	12	19	24	18
24	5	15	⅜	⅝	6	⅝	⅜	13	21	26	19
26	5	15	⅜	¾	6	⅝	⅜	14	22	28	20
30	5	15	⅜	¾	6	⅝	⅜	16	25	30	22
34	5	15	⅜	¾	6	⅝	⅜	18	28	33	24
36	6	15	⅜	¾	6	¾	⅜	19	29	34	25
42	6	18	½	1	8	¾	⅜	21	33	39	28
48	6	18	½	1	8	¾	⅜	24	38	44	31
54	6	18	½	1	8	¾	⅜	28	42	48	34
60	6	18	½	1⅛	8	¾	⅜	32	46	52	37
66	6	18	½	1⅛	8	¾	⅜	33	51	58	40
72	6	18	½	1⅛	8	¾	⅜	36	55	62	43



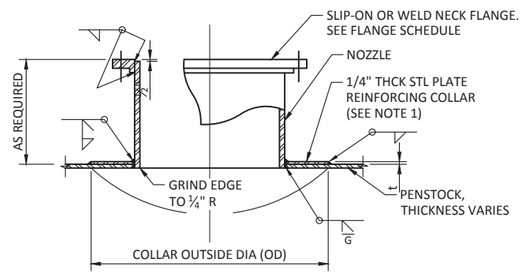
(OPTIONAL - IF REQUIRED AT ISOLATED COUPLING)

NOTES:
1. IF POSSIBLE, MAKE WIRE CONNECTION TO STEEL PIPE AT FIELD JOINT AT HOLDBACK OF PIPELINE COATING.
2. MAINTAIN SEPARATION BETWEEN MULTIPLE TEST WIRE CONNECTIONS OF ONE PIPE DIA OR 12", WHICHEVER IS LESS.
3. COPPER SLEEVE REQUIRED FOR #2 AWG JOINT BONDS OR FOR #12 AWG OR SMALLER TEST WIRES.
4. WELDER AND CARTRIDGE SIZE VARIES ACCORDING TO PIPE SIZE AND PIPE MATERIAL, CONSULT WELDER MANUFACTURER FOR RECOMMENDED WELDER AND CARTRIDGE.
5. COAT COMPLETED CONNECTIONS WITH DIELECTRIC COATING AS SPECIFIED IN FACTORY.
6. PIPELINE JOINT, LINING AND COATING NOT SHOWN FOR CLARITY.

PIPE WIRE CONNECTION DETAIL

C902

SCALE: NTS

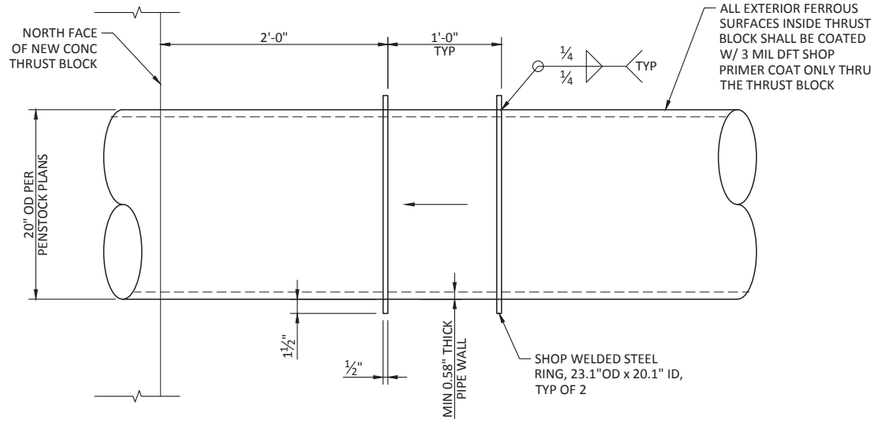


NOTE:
1. STL PLATE REINFORCING COLLAR REQUIRED WHEN NOZZLE DIA IS 12" OR LARGER AND HYDROSTATIC PRESSURE EXCEEDS 125 PSIG.

NOZZLE DETAIL

C903

SCALE: NTS

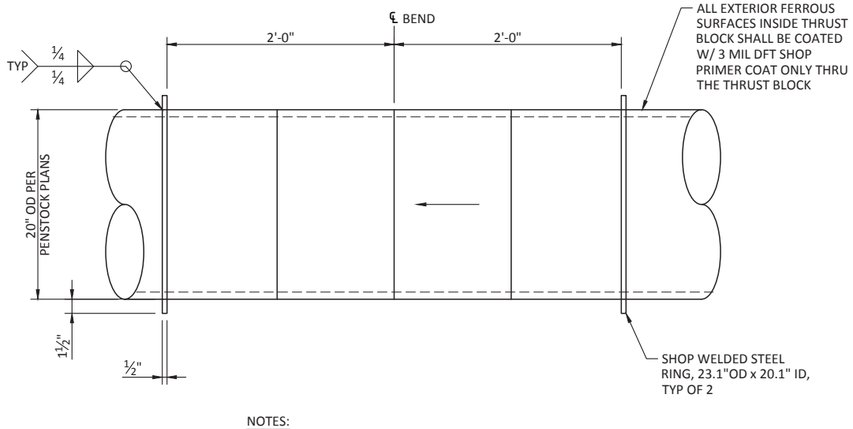


PENSTOCK THRUST RING DETAIL @ THRUST BLOCK NO. 2

C905

SCALE: 1 1/2"= 1'-0"

0" 8" 16"



NOTES:
1. CENTERLINE OF PIPE BEND SHALL ALIGN WITH CENTERLINE OF THRUST BLOCK.

PENSTOCK THRUST RING DETAIL @ THRUST BLOCK NO. 1

C906

SCALE: 1 1/2"= 1'-0"

0" 8" 16"

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA — MATTHEW S. MOUGHAMIAN — No. CE13953 — PROFESSIONAL ENGINEER — 09/19/2022

WARNING
0 1/2 1
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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

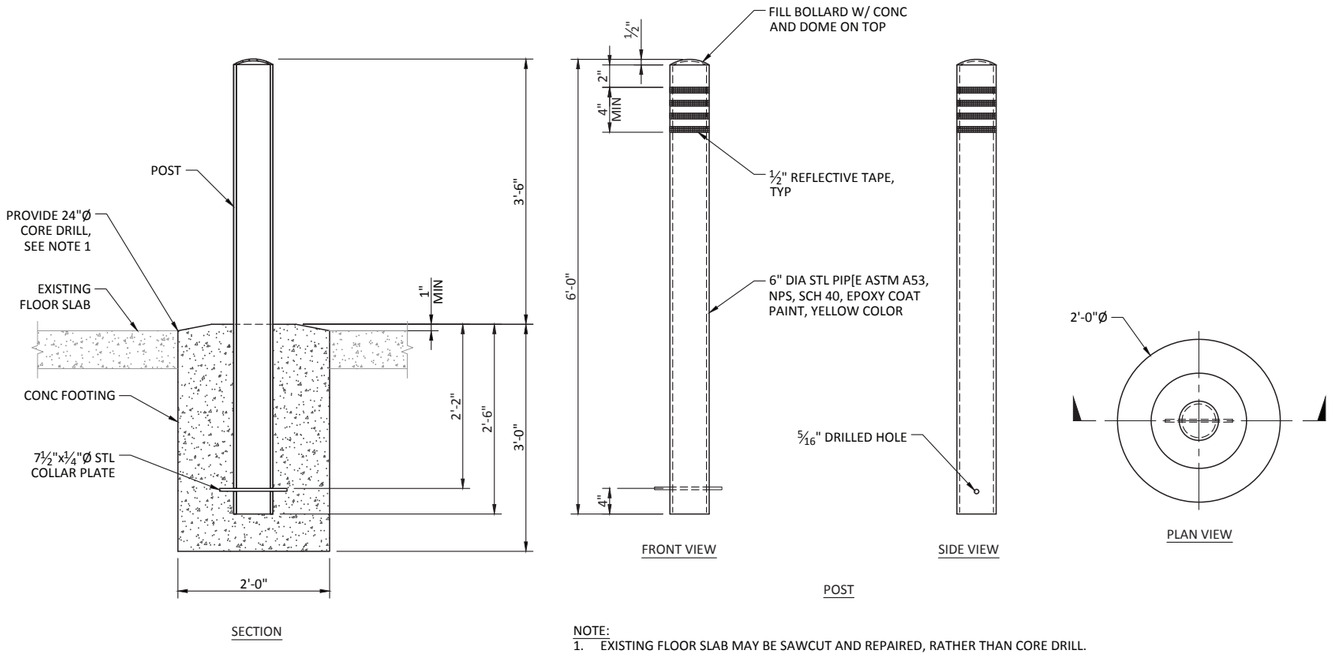
STANDARD CIVIL & PENSTOCK DETAILS 2

DESIGNED M. MOUGHAMIAN
DRAWN R. GUERRERO
CHECKED G. CLARK
PROJECT DATE 09/19/22

DRAWING GC003

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\GC003.dwg Plot date: Sep 19, 2022 04:01pm, CAD User: Guerrero

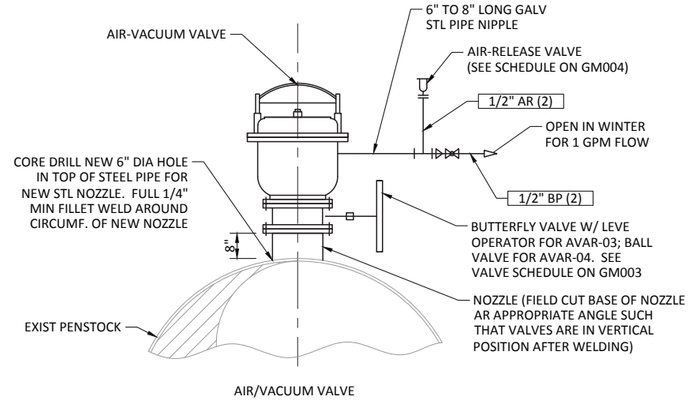


NOTE:
1. EXISTING FLOOR SLAB MAY BE SAWCUT AND REPAIRED, RATHER THAN CORE DRILL.

NON-REMOVABLE BOLLARD

SCALE: NTS

C907



AIR/VACUUM VALVE

VACUUM AND AIR RELIEF VALVE

SCALE: NTS

C908

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA — MATTHEW S. MOUGHAMIAN — No. CE13953 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING
0 1/2 1
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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

STANDARD CIVIL & PENSTOCK DETAILS 3

DESIGNED M. MOUGHAMIAN
DRAWN R. GUERRERO
CHECKED G. CLARK
PROJECT DATE 09/19/22

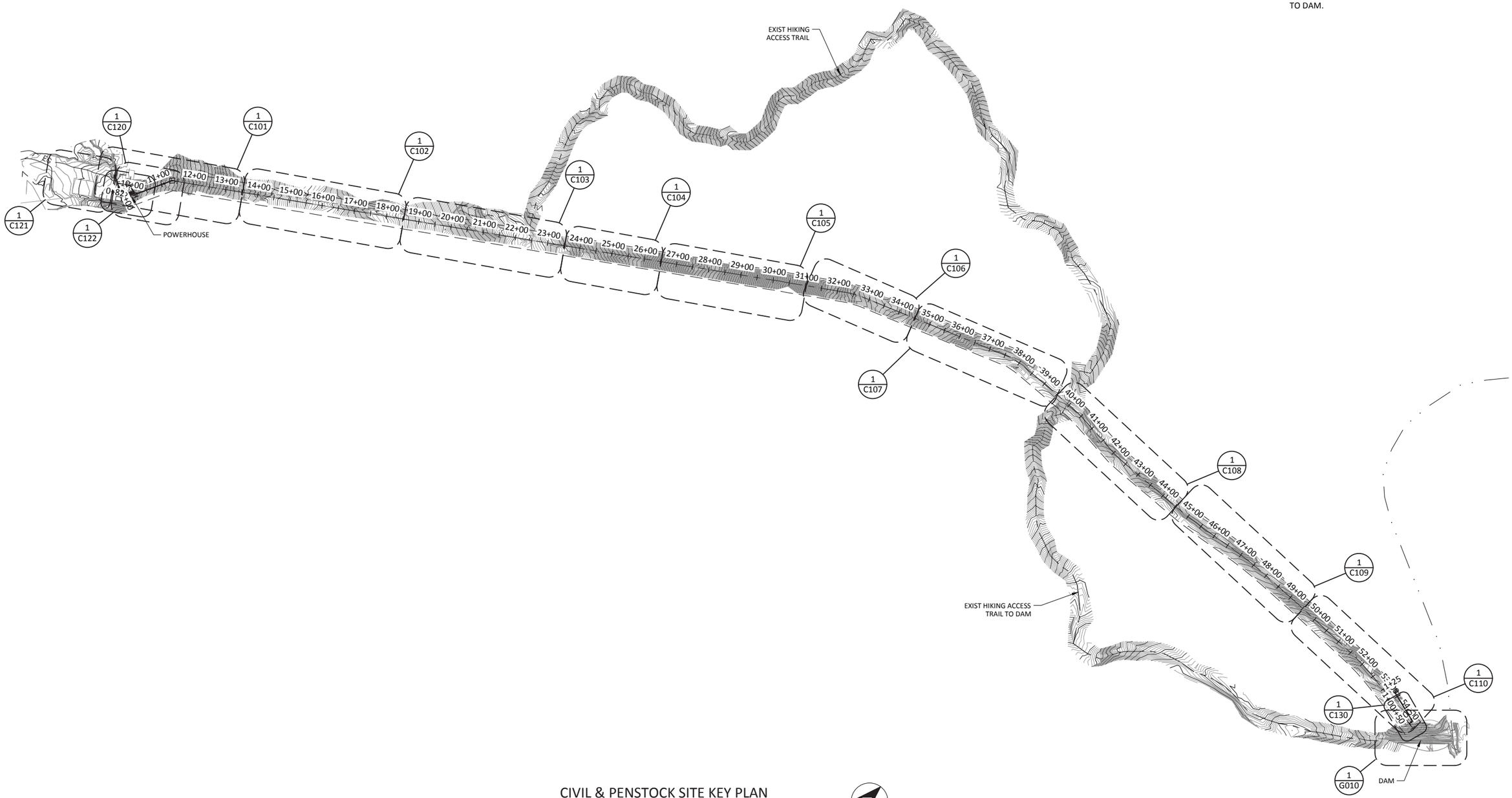
DRAWING
GC004

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\GC004.dwg Plot date: Sep 19, 2022 04:01pm, CAD User: Guerrero

SHEET NOTES:

1. KEY MAP IDENTIFYING PROJECT WORK LOCATIONS.
2. SEE SHEETS CALLED OUT FOR WORK IN EACH AREA OF PROJECT.
3. NO ACCESS ROADS CAN BE CONSTRUCTED ALONG PENSTOCK OR TO DAM.



CIVIL & PENSTOCK SITE KEY PLAN

SCALE: 1"= 150'

0" 150' 300'

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA — MATTHEW S. MOUGHAMIAN — No. CE13953 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING

0 1/2 1

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

CIVIL & PENSTOCK SITE KEY PLAN

DESIGNED M. MOUGHAMIAN

DRAWN J. LAHMON

CHECKED G. CLARK

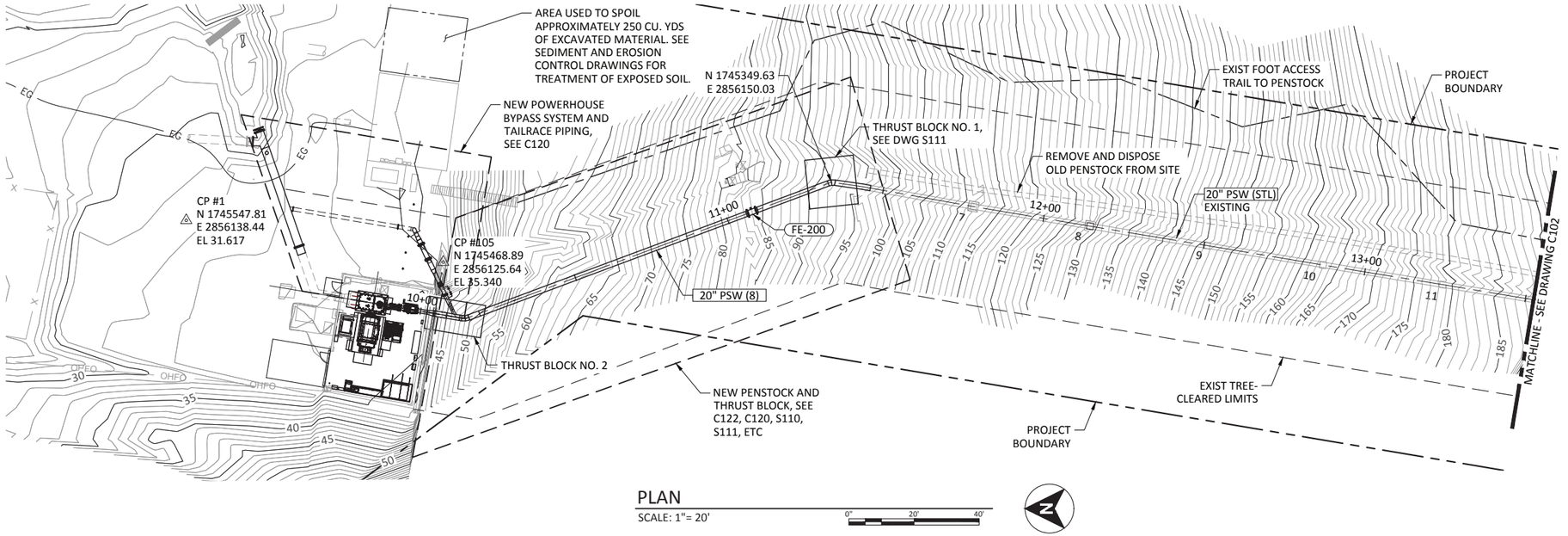
PROJECT DATE 09/19/22

DRAWING

C100

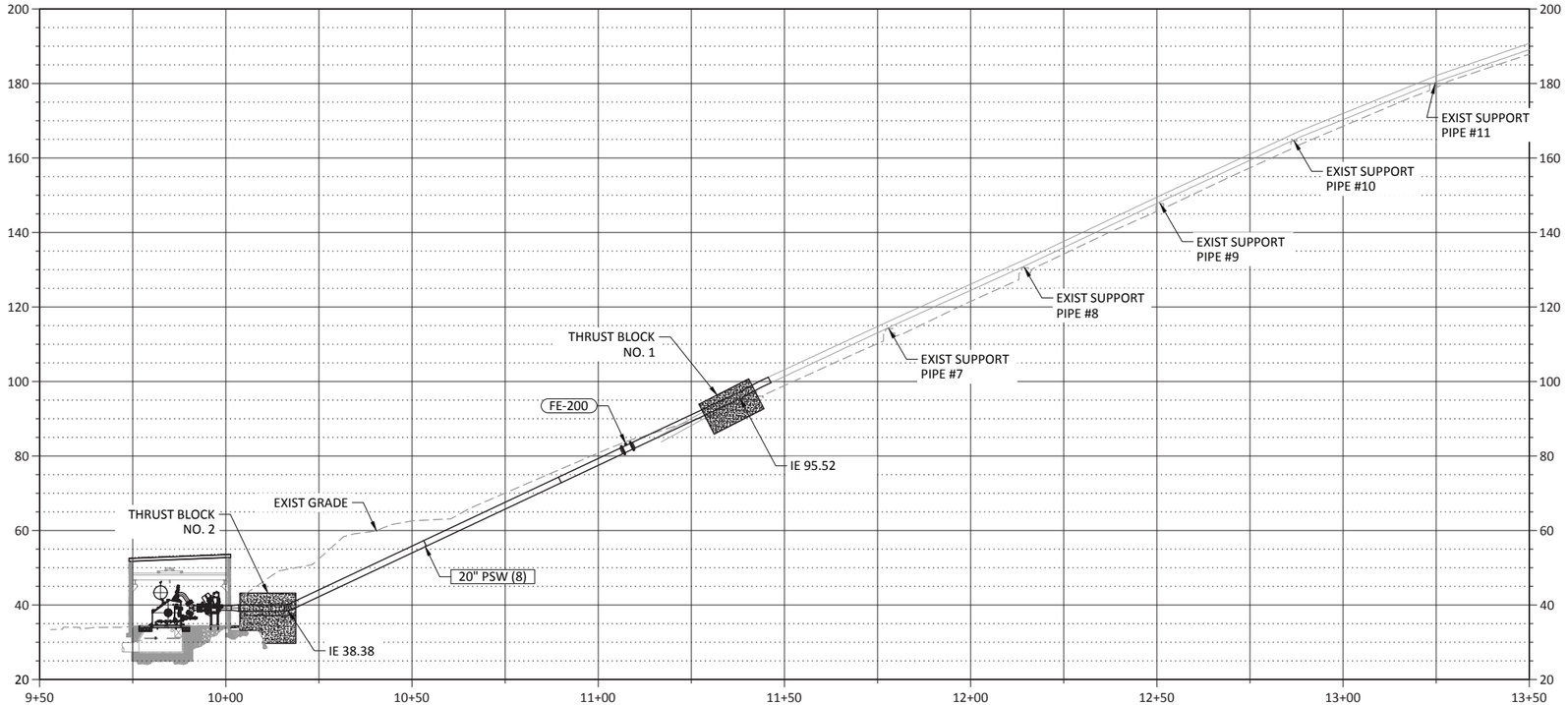
JOB NO: 0000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\C100.dwg Plot date: Sep 19, 2022 04:01pm, CAD User: Guerrero



PLAN

SCALE: 1"= 20'



NEW 20" DIA PENSTOCK PROFILE

SCALE: 1"= 20'

SHEET NOTES:

1. SEE DRAWING ESC100 FOR STANDARD EROSION AND SEDIMENT CONTROL NOTES.
2. SEE DRAWINGS GC006 THRU GC008 FOR PENSTOCK PIPE SUPPORT REQUIREMENTS.
3. CONTRACTOR SHALL MAINTAIN AND PROTECT ESTABLISHED SURVEY CONTROL POINTS THROUGHOUT PERIOD OF CONSTRUCTION.
4. SITE SURVEY AND ESTABLISHED CONTROL POINTS WERE CONDUCTED BY CENTRAL SOUTHEAST SURVEYORS ON 07/15/2022.
5. SEE ##### FOR PENSTOCK REPAIR REQUIREMENTS.

LEGEND:

— — — — CLEARED LIMITS

—— – —— EXIST FOOT ACCESS TRAIL

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA — MATTHEW S. MOUGHAMIAN — No. CE15953 — PROFESSIONAL ENGINEER — 09/19/2022

WARNING

0 1/2 1

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

PENSTOCK PLAN AND PROFILE 1

DESIGNED M. MOUGHAMIAN

DRAWN J. LAHMON

CHECKED G. CLARK

PROJECT DATE 09/19/22

DRAWING

C101

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\C101.dwg Plot date: Sep 19, 2022 04:02pm, CAD User: Guerrero

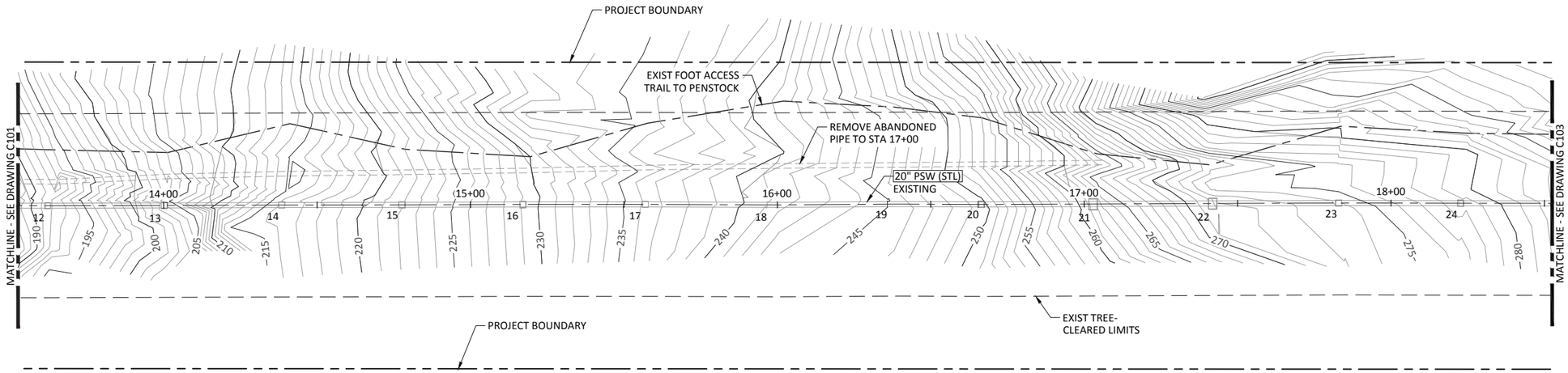
SHEET NOTES:

1. SEE DRAWING ESC100 FOR STANDARD EROSION AND SEDIMENT CONTROL NOTES.
2. SEE DRAWINGS GC006 THRU GC008 FOR PENSTOCK PIPE REPAIR REQUIREMENTS.

LEGEND:

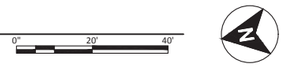
— — — — CLEARED LIMITS

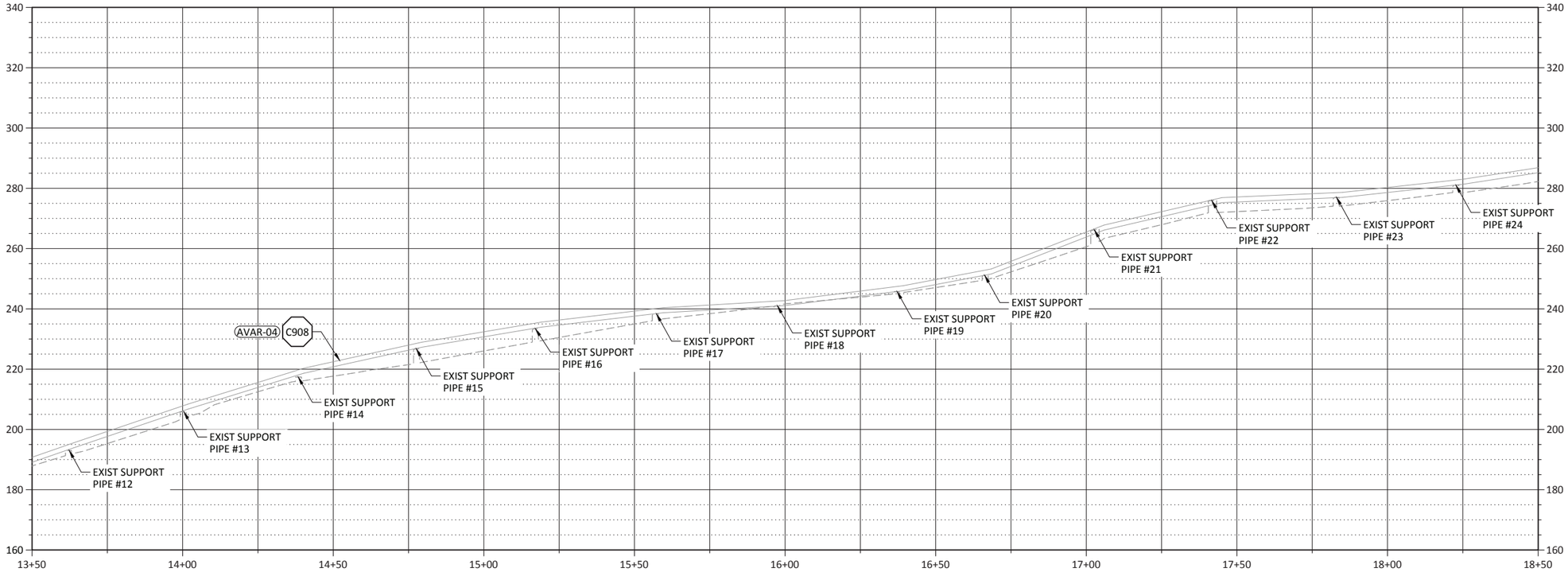
—— – —— EXIST FOOT ACCESS TRAIL



PLAN

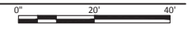
SCALE: 1"= 20'





PROFILE

SCALE: 1"= 20'



REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA — MATTHEW S. MOUGHAMIAN — No. CE13953 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING

0 1/2 1

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

McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

PENSTOCK PLAN AND PROFILE 2

DESIGNED M. MOUGHAMIAN

DRAWN J. LAHMON

CHECKED G. CLARK

PROJECT DATE 09/19/22

DRAWING

C102

JOB NO: 000000

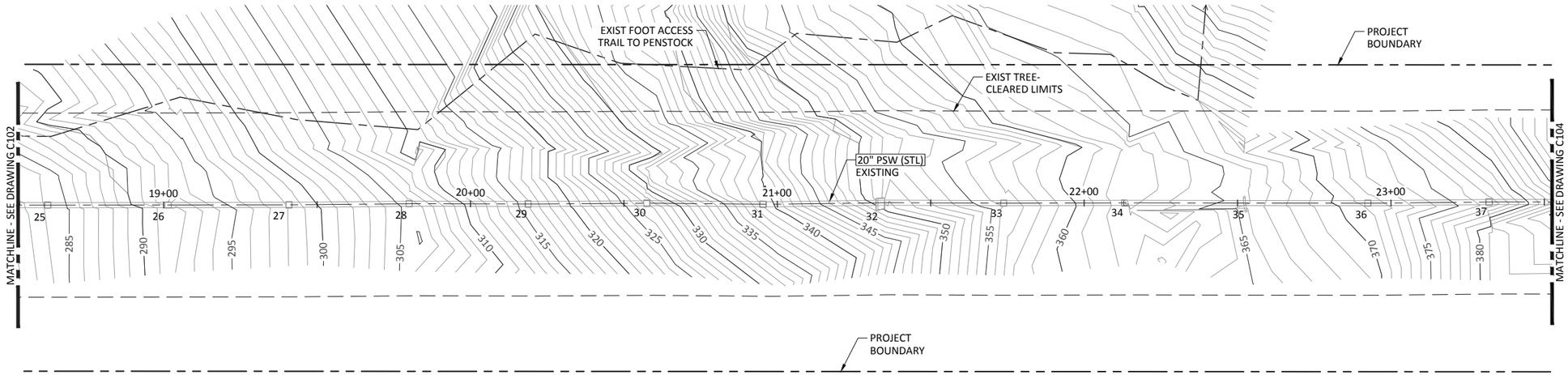
Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\C102.dwg Plot date: Sep 19, 2022 04:02pm, CAD User: Guerrero

SHEET NOTES:

1. SEE DRAWING ESC100 FOR STANDARD EROSION AND SEDIMENT CONTROL NOTES.
2. SEE DRAWINGS GC006 THRU GC008 FOR PENSTOCK PIPE REPAIR REQUIREMENTS.

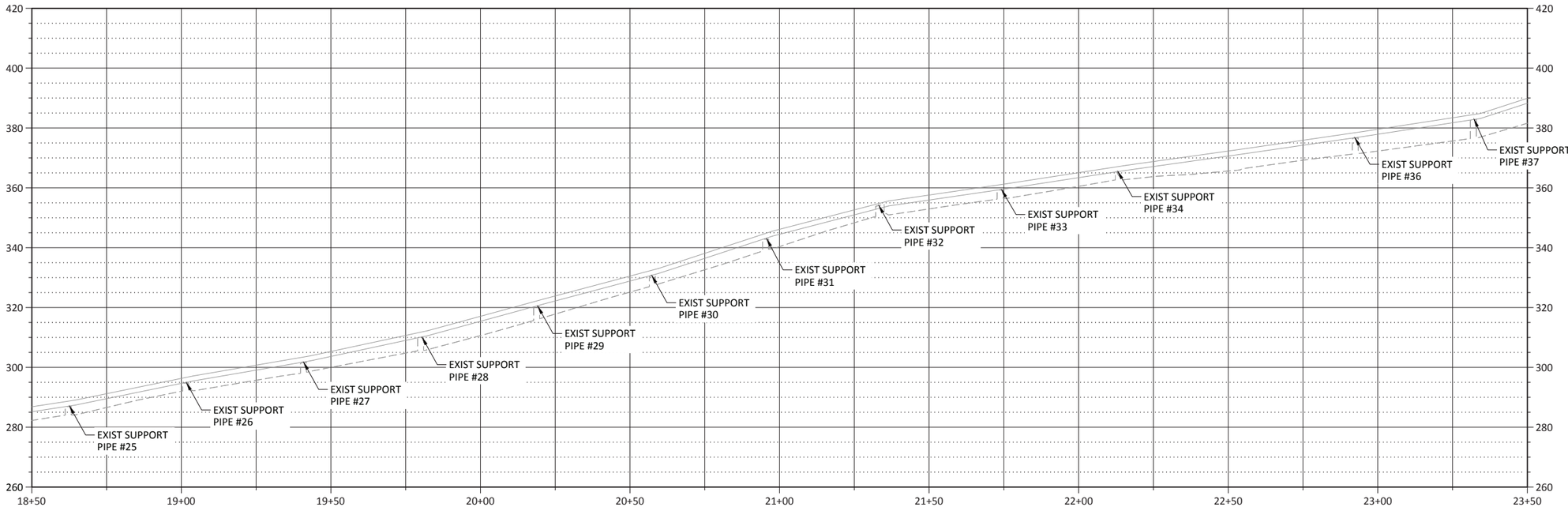
LEGEND:

- CLEARED LIMITS
- EXIST FOOT ACCESS TRAIL



PLAN

SCALE: 1"= 20'



PROFILE

SCALE: 1"= 20'

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA — MATTHEW S. MOUGHAMIAN — No. CE13953 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING

0 1/2 1

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

PENSTOCK PLAN AND PROFILE 3

DESIGNED M. MOUGHAMIAN

DRAWN J. LAHMON

CHECKED G. CLARK

PROJECT DATE 09/19/22

DRAWING

C103

JOB NO: 000000

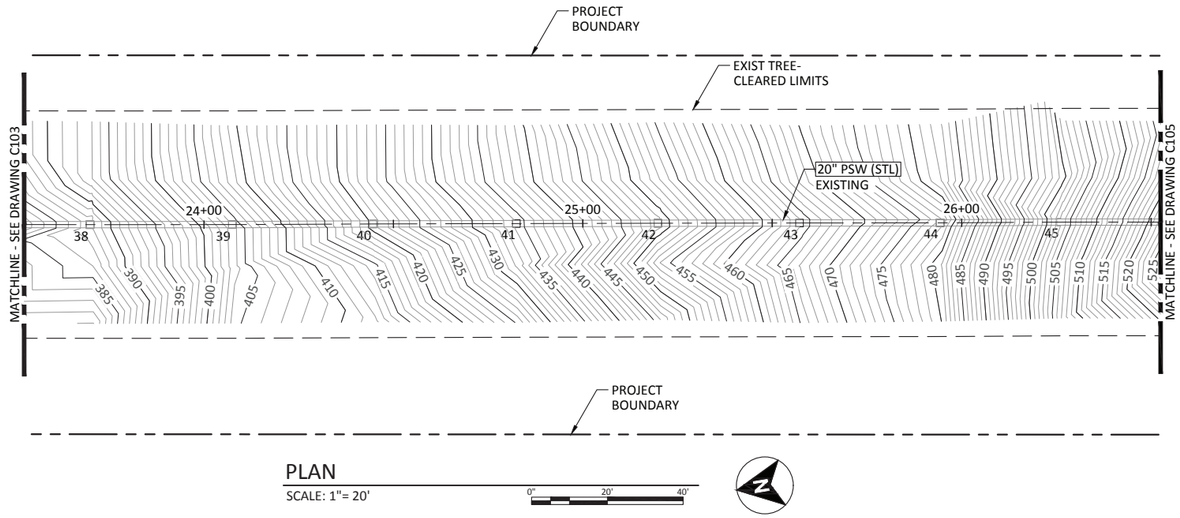
Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\C103.dwg Plot date: Sep 19, 2022 04:03pm, CAD User: Guerrero

SHEET NOTES:

1. SEE DRAWING ESC100 FOR STANDARD EROSION AND SEDIMENT CONTROL NOTES.
2. SEE DRAWINGS GC006 THRU GC008 FOR PENSTOCK PIPE REPAIR REQUIREMENTS.

LEGEND:

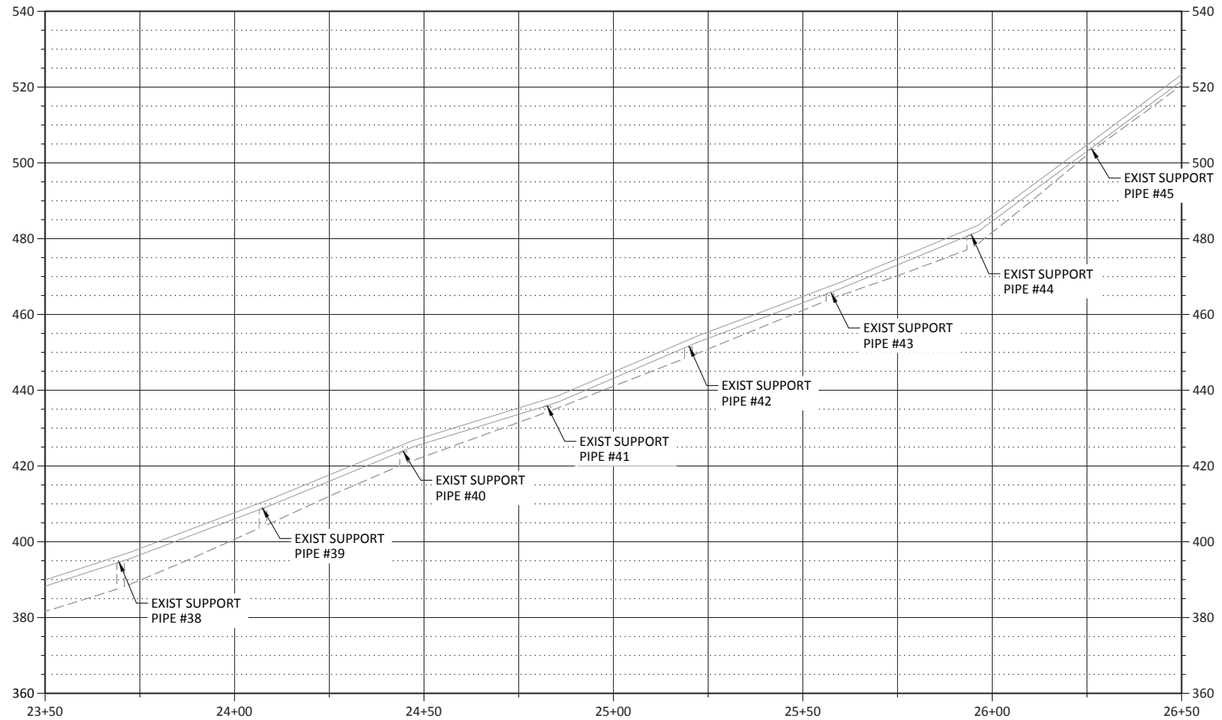
— — — — CLEARED LIMITS



PLAN

SCALE: 1"= 20'

0" 20' 40'



PROFILE

SCALE: 1"= 20'

0" 20' 40'

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA — MATTHEW S. MOUGHAMIAN — No. CE13953 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING

0 1/2 1

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

McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

PENSTOCK PLAN AND PROFILE 4

DESIGNED M. MOUGHAMIAN

DRAWN J. LAHMON

CHECKED G. CLARK

PROJECT DATE 09/19/22

DRAWING

C104

JOB NO: 000000

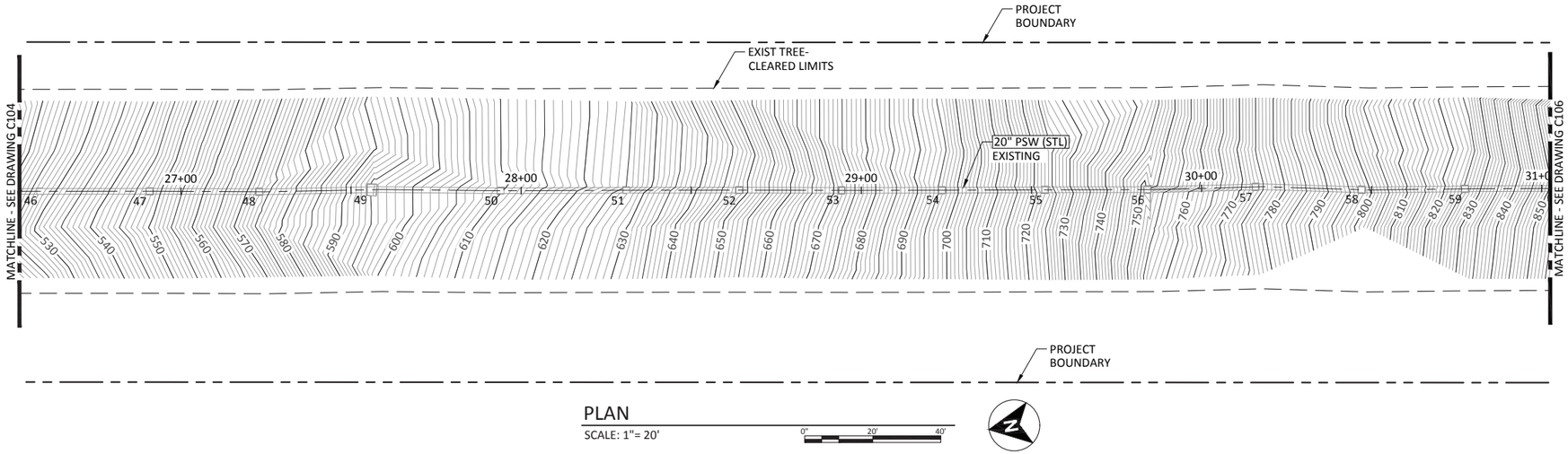
Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\C104.dwg Plot date: Sep 19, 2022 04:03pm, CAD User: Guerrero

SHEET NOTES:

1. SEE DRAWING ESC100 FOR STANDARD EROSION AND SEDIMENT CONTROL NOTES.
2. SEE DRAWINGS GC006 THRU GC008 FOR PENSTOCK PIPE REPAIR REQUIREMENTS.

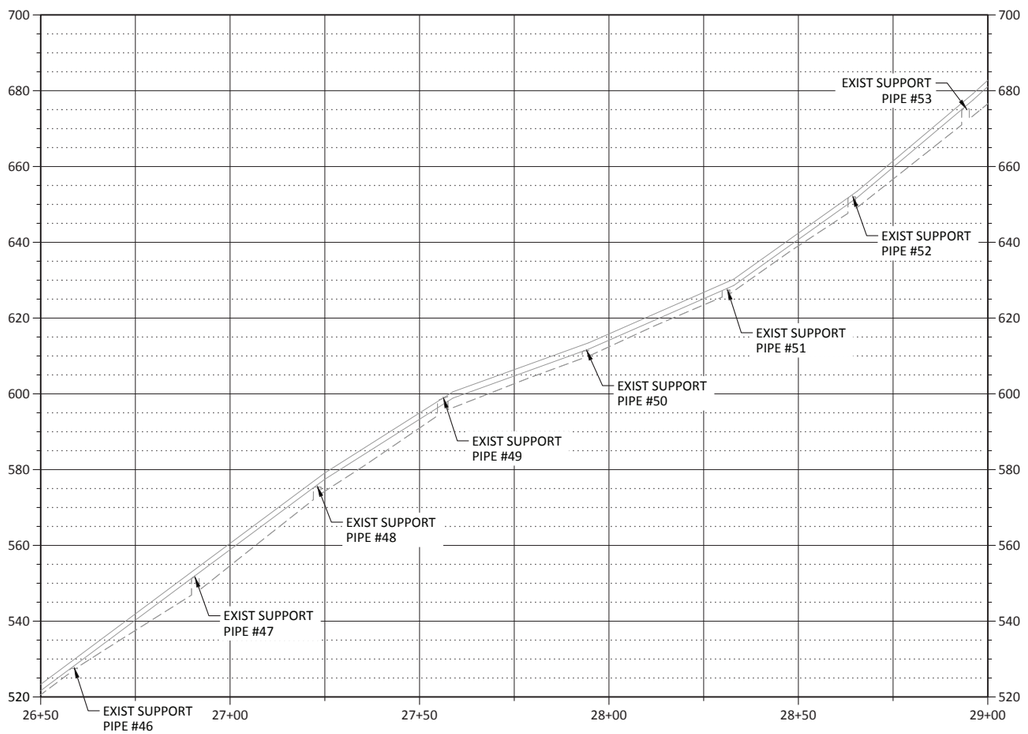
LEGEND:

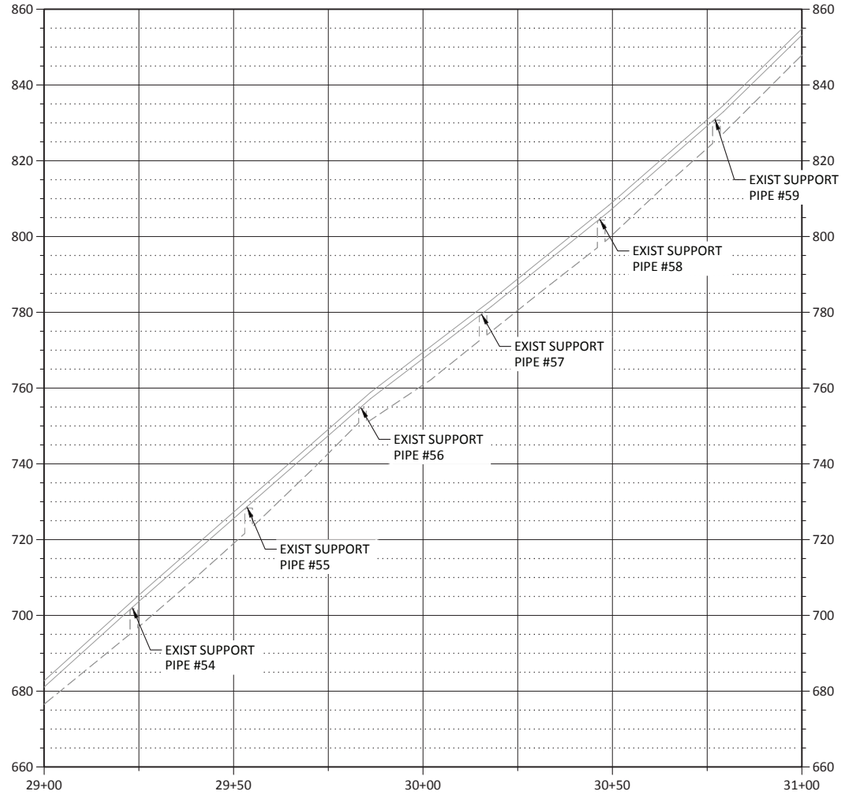
— — — — CLEARED LIMITS



PLAN

SCALE: 1"= 20'





PROFILE

SCALE: 1"= 20'

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

WARNING

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

McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

PENSTOCK PLAN AND PROFILE 5

DESIGNED M. MOUGHAMIAN

DRAWN J. LAHMON

CHECKED G. CLARK

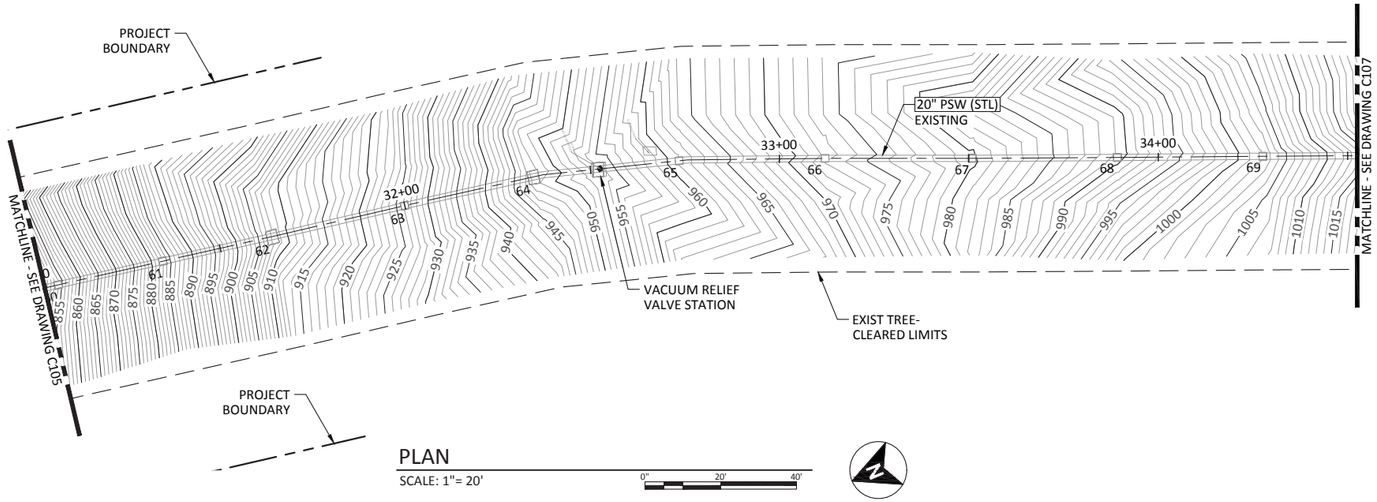
PROJECT DATE 09/19/22

DRAWING

C105

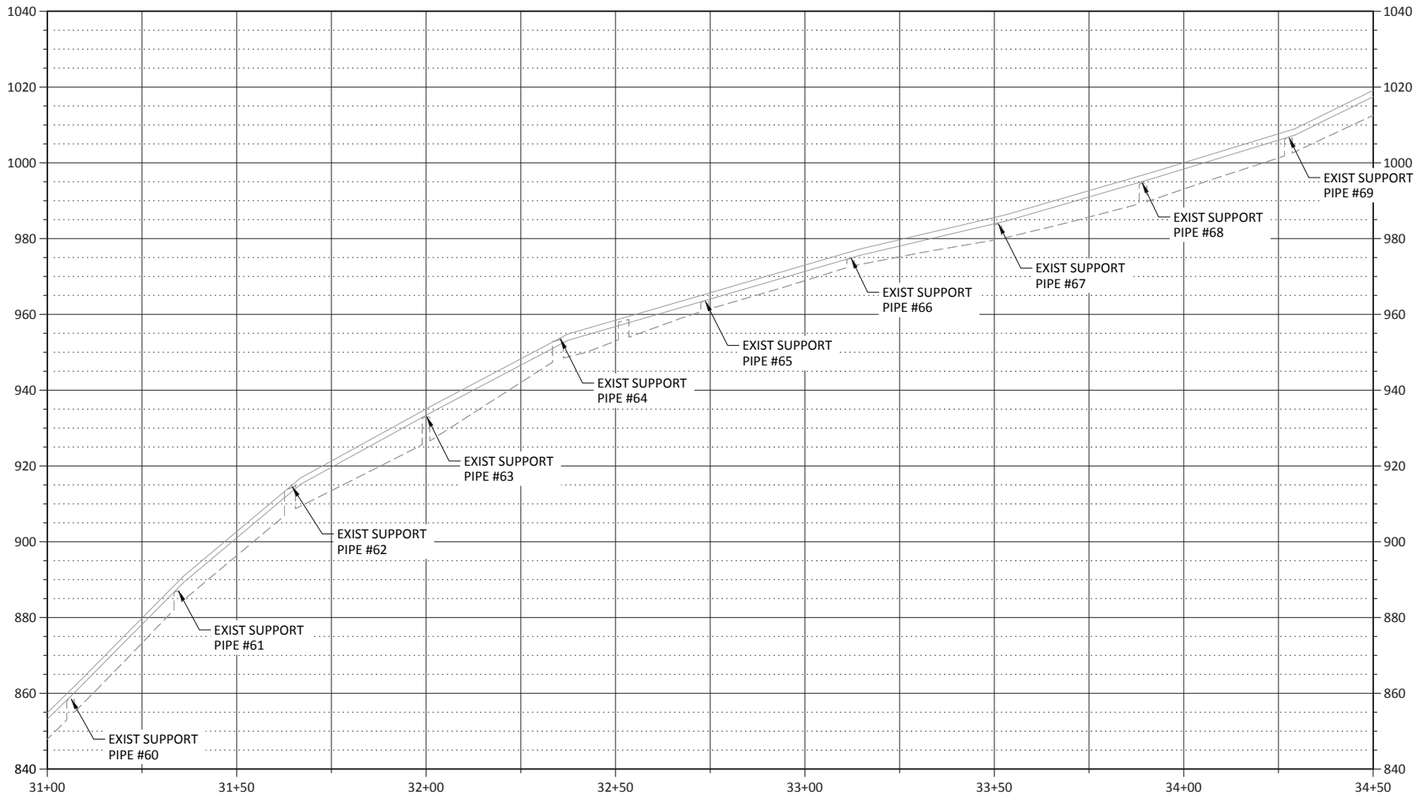
JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\C105.dwg Plot date: Sep 19, 2022 04:04pm, CAD User: Guerrero



PLAN

SCALE: 1"= 20'



PROFILE

SCALE: 1"= 20'

SHEET NOTES:

1. SEE DRAWING ESC100 FOR STANDARD EROSION AND SEDIMENT CONTROL NOTES.
2. SEE DRAWINGS GC006 THRU GC008 FOR PENSTOCK PIPE REAPIR REQUIREMENTS.

LEGEND:

— — — — CLEARED LIMITS

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA · MATTHEW S. MOUGHAMIAN · No. CE13953 · REGISTERED PROFESSIONAL ENGINEER · 09/19/2022

WARNING

0 1/2 1

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

McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

PENSTOCK PLAN AND PROFILE 6

DESIGNED M. MOUGHAMIAN

DRAWN J. LAHMON

CHECKED G. CLARK

PROJECT DATE 09/19/22

DRAWING

C106

JOB NO: 1000000

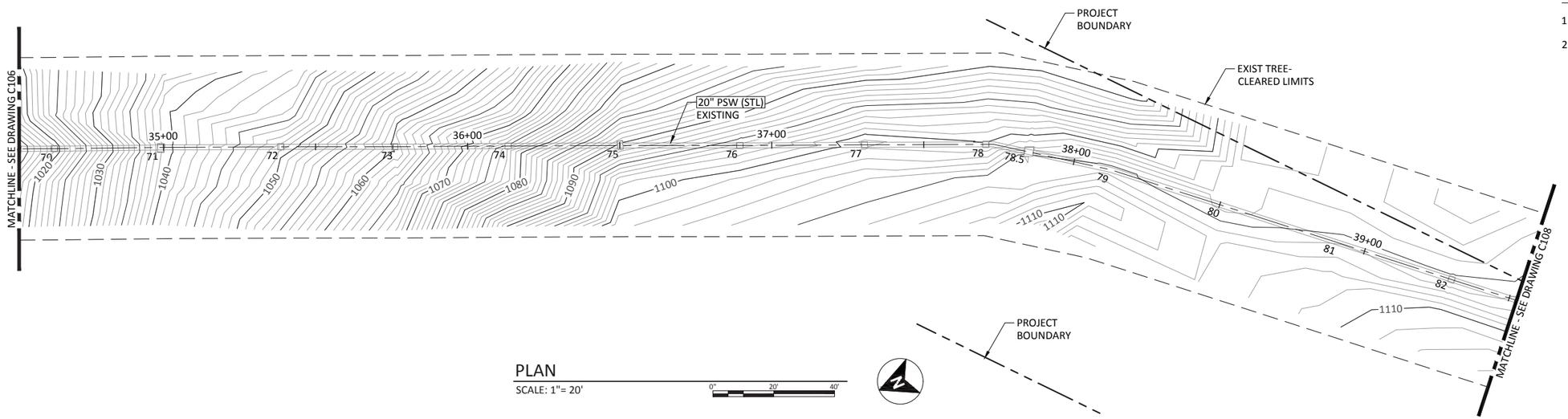
Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\C106.dwg Plot date: Sep 19, 2022 04:04pm, CAD User: Guerrero

SHEET NOTES:

1. SEE DRAWING ESC100 FOR STANDARD EROSION AND SEDIMENT CONTROL NOTES.
2. SEE DRAWINGS GC006 THRU GC008 FOR PENSTOCK PIPE REPAIR REQUIREMENTS.

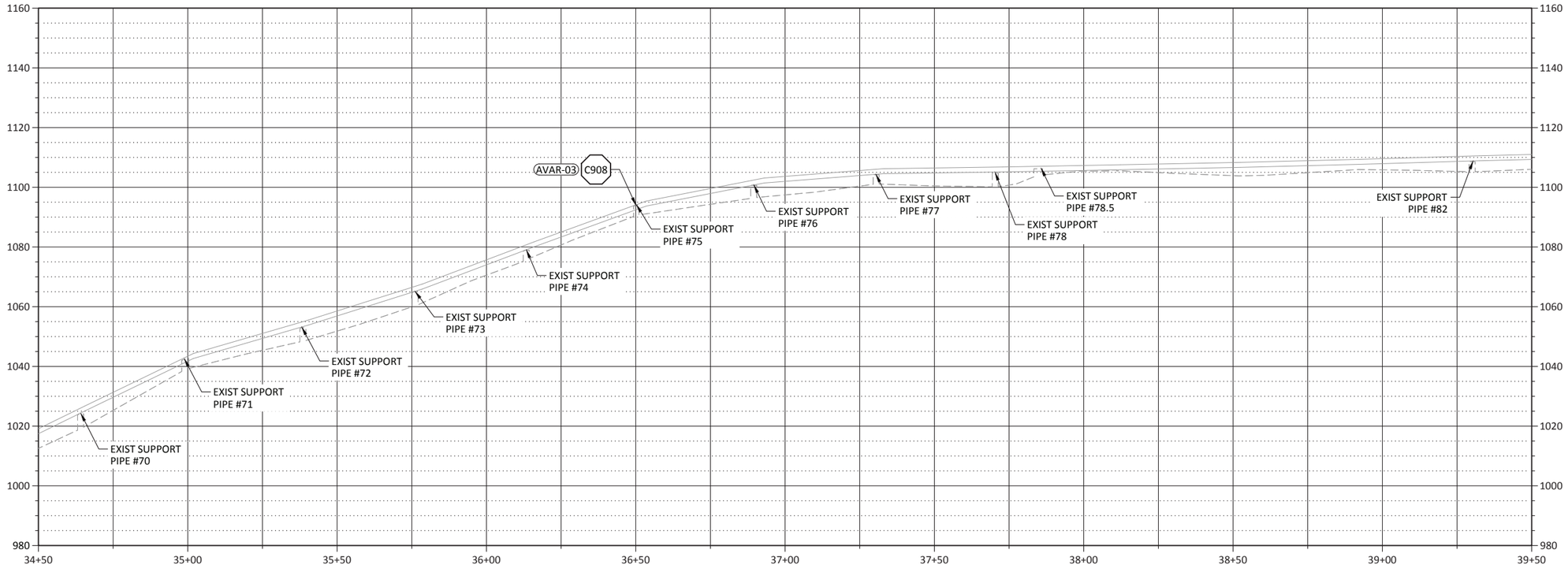
LEGEND:

— — — — CLEARED LIMITS



PLAN

SCALE: 1"= 20'



PROFILE

SCALE: 1"= 20'

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA — MATTHEW S. MOUGHAMIAN — No. CE13953 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING

0 1/2 1

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

PENSTOCK PLAN AND PROFILE 7

DESIGNED M. MOUGHAMIAN

DRAWN J. LAHMON

CHECKED G. CLARK

PROJECT DATE 09/19/22

DRAWING

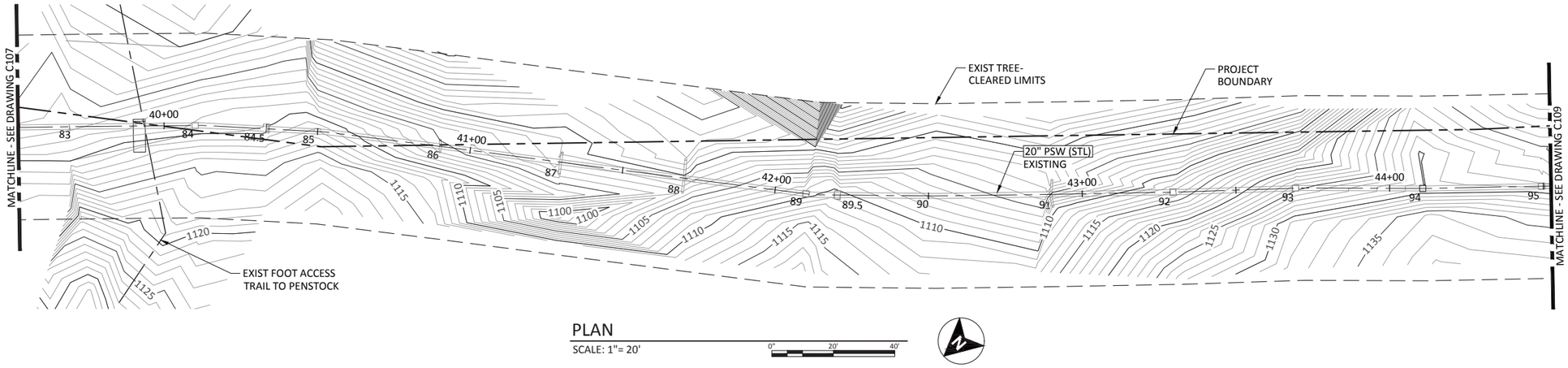
C107

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\C107.dwg Plot date: Sep 19, 2022 04:05pm, CAD User: Guerrero

SHEET NOTES:

1. SEE DRAWING ESC100 FOR STANDARD EROSION AND SEDIMENT CONTROL NOTES.
2. SEE DRAWINGS GC006 THRU GC008 FOR PENSTOCK PIPE REPAIR REQUIREMENTS.

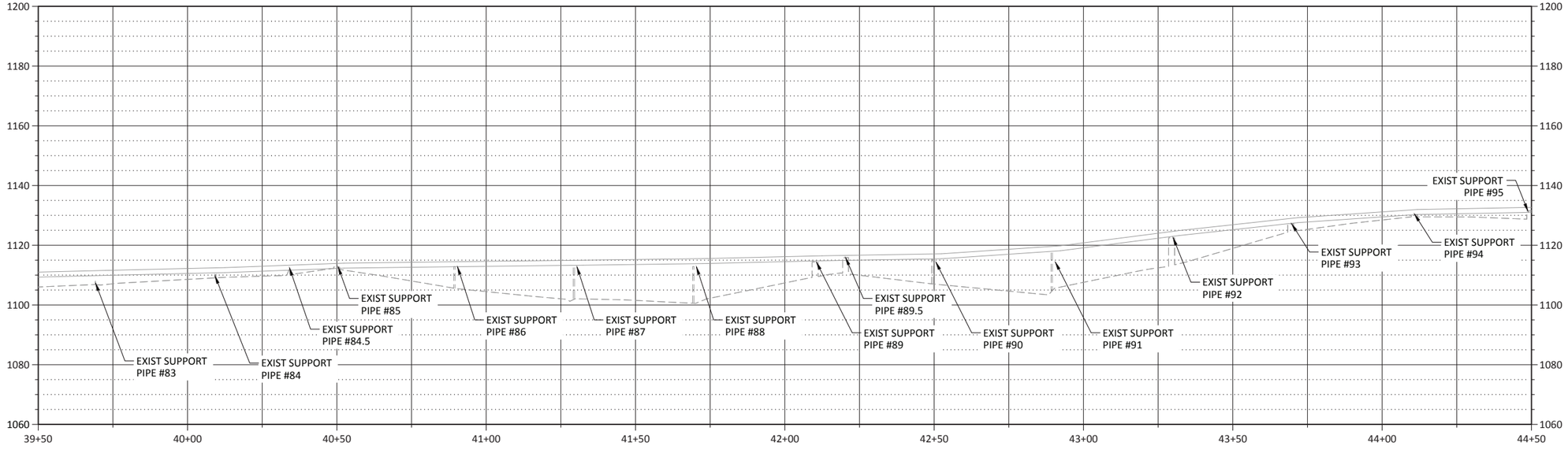


LEGEND:

- CLEARED LIMITS
- EXIST FOOT ACCESS TRAIL

PLAN

SCALE: 1"= 20'



PROFILE

SCALE: 1"= 20'

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA — MATTHEW S. MOUGHAMIAN — No. CE13953 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING

0 1/2 1

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

PENSTOCK PLAN AND PROFILE 8

DESIGNED M. MOUGHAMIAN
DRAWN J. LAHMON
CHECKED G. CLARK
PROJECT DATE 09/19/22

DRAWING

C108

JOB NO: 000000

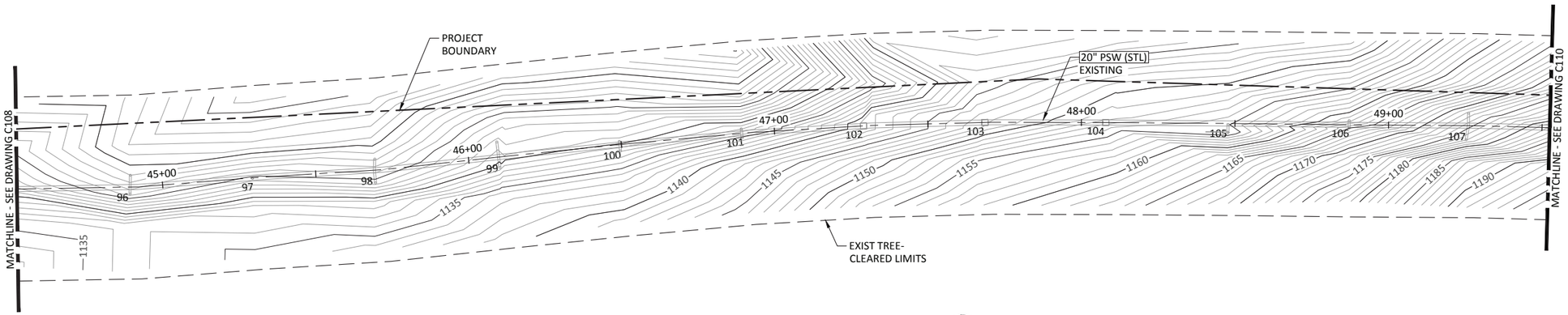
Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\C108.dwg Plot date: Sep 19, 2022 04:05pm, CAD User: Guerrero

SHEET NOTES:

1. SEE DRAWING ESC100 FOR STANDARD EROSION AND SEDIMENT CONTROL NOTES.
2. SEE DRAWINGS GC006 THRU GC008 FOR PENSTOCK PIPE REPAIR REQUIREMENTS.

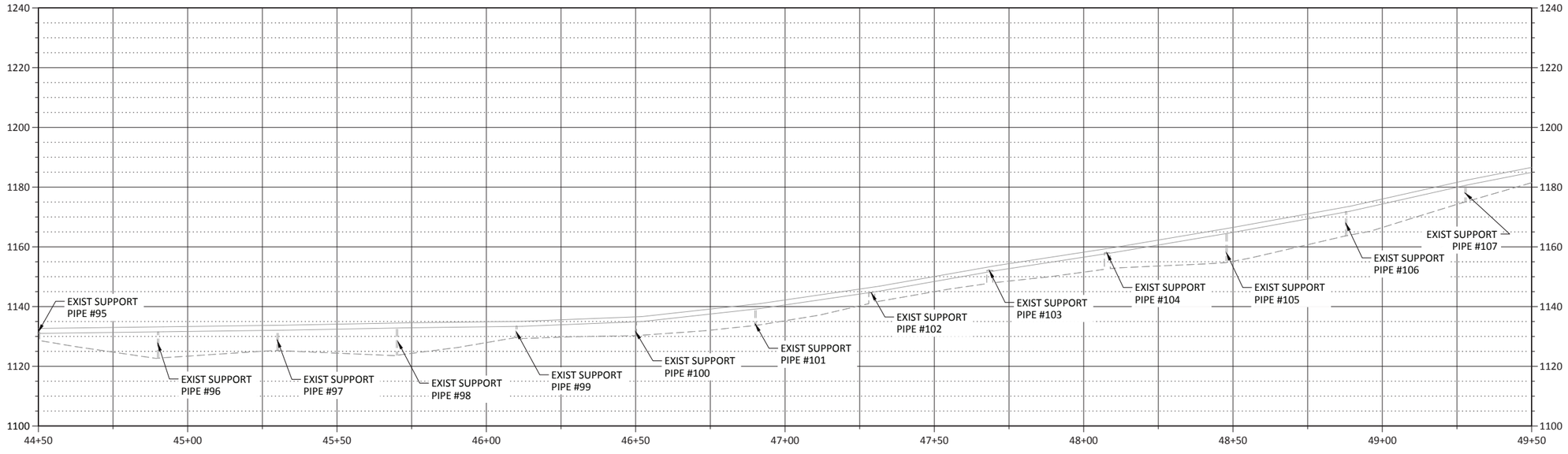
LEGEND:

— — — — CLEARED LIMITS



PLAN

SCALE: 1"= 20'



PROFILE

SCALE: 1"= 20'

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA — MATTHEW S. MOUGHAMIAN — No. CE13953 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING

0 1/2 1

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

PENSTOCK PLAN AND PROFILE 9

DESIGNED M. MOUGHAMIAN

DRAWN J. LAHMON

CHECKED G. CLARK

PROJECT DATE 09/19/22

DRAWING

C109

JOB NO: 000000

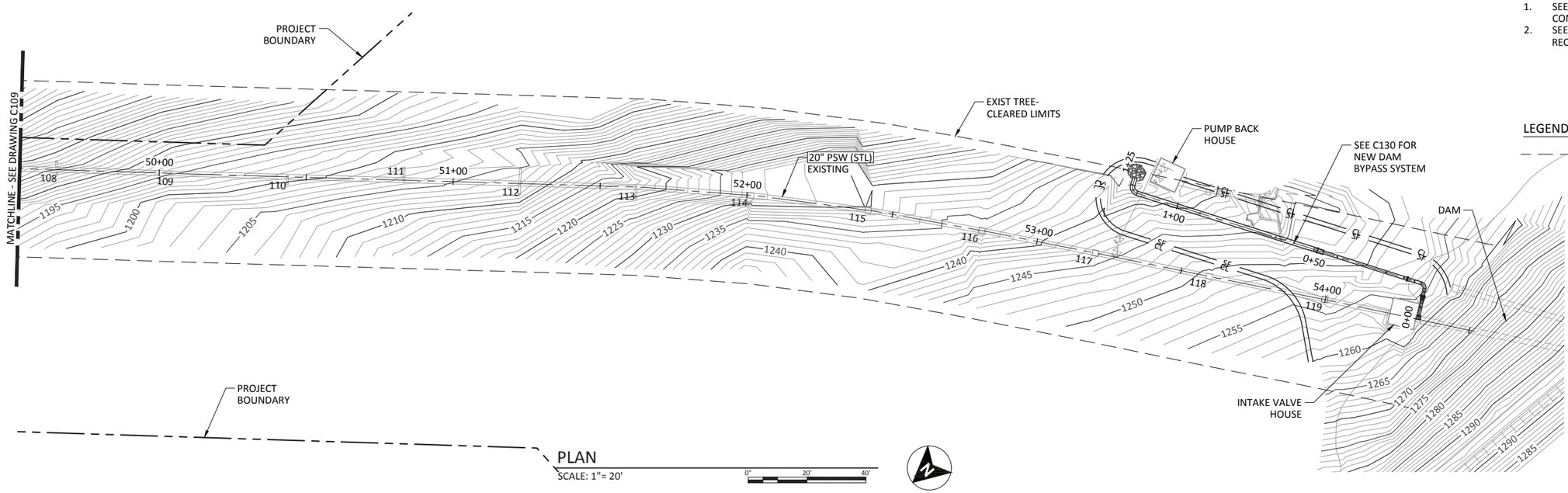
Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\C109.dwg Plot date: Sep 19, 2022 04:06pm, CAD User: Guerrero

SHEET NOTES:

1. SEE DRAWING ESC100 FOR STANDARD EROSION AND SEDIMENT CONTROL NOTES.
2. SEE DRAWINGS GC006 THRU GC008 FOR PENSTOCK PIPE REPAIR REQUIREMENTS.

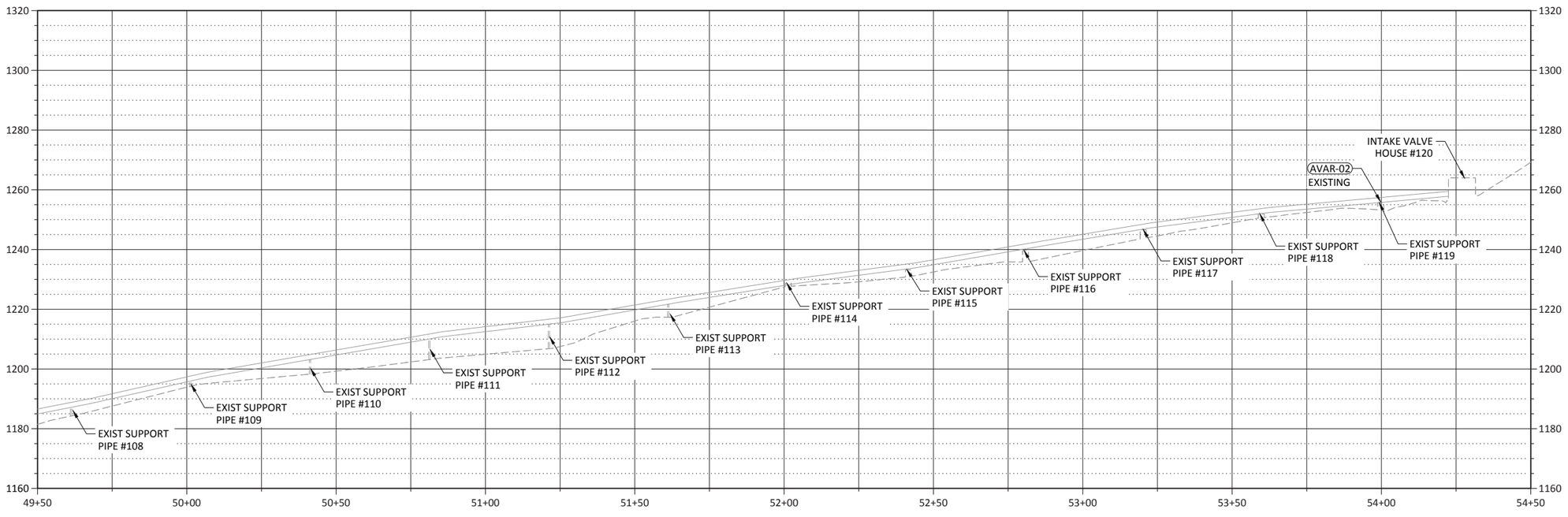
LEGEND:

— — — — CLEARED LIMITS



PLAN

SCALE: 1"= 20'



PROFILE

SCALE: 1"= 20'

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

WARNING

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

McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

PENSTOCK PLAN AND PROFILE 10

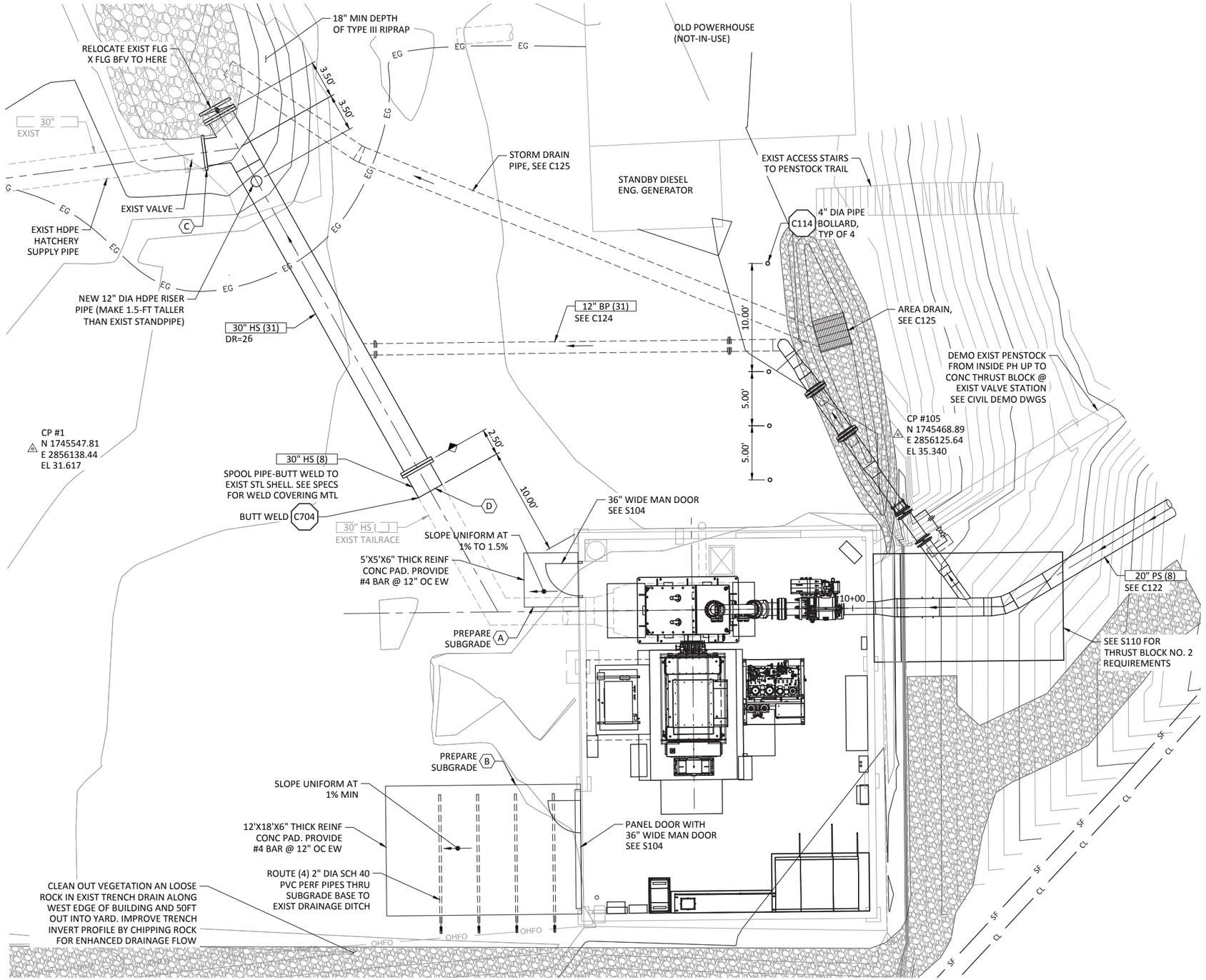
DESIGNED M. MOUGHAMIAN
DRAWN J. LAHMON
CHECKED G. CLARK
PROJECT DATE 09/19/22

DRAWING

C110

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\C110.dwg Plot date: Sep 19, 2022 04:06pm, CAD User: Guerrero



ENLARGED CIVIL SITE PLAN 1

SCALE: 1"= 5'

1 / C100

0" 5' 10'

N

SHEET NOTES:

1. CONTOURS SHOWN ON THIS SHEET ARE EXISTING GRADE. SEE SHEET C125 FOR FINISH GRADE INFORMATION.

SHEET KEY NOTES:

A EXCAVATE MIN OF 12" OF NATIVE SUBGRADE BENEATH SLAB. IMPORT TYPE DRG MATERIAL AND COMPACT IN 6" LIFTS TO MINIMUM 92% MOD. PROCTOR.

B INSULATE AND HEAT TRACE EXPOSED PIPE IN THIS AREA. SEE SPECIFICATIONS FOR INSULATION AND HEAT TRACE REQUIREMENTS.

C CONTRACTOR SHALL VERIFY BOLT PATTER OF EXISTING BUTTERFLY VALVE TO MATCH PROPOSED FLANGE OF HDPE PIPE.

D CONCRETE COATING SHALL BE REMOVED TO EXPOSE STEEL LINER FOR PURPOSES OF WELDING.

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA — 49th — MATTHEW B. MOUGHAMIAN — No. CE13953 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING

0 1/2 1

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

McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

ENLARGED CIVIL SITE PLAN 1

DESIGNED M. MOUGHAMIAN

DRAWN R. GUERRERO

CHECKED G. CLARK

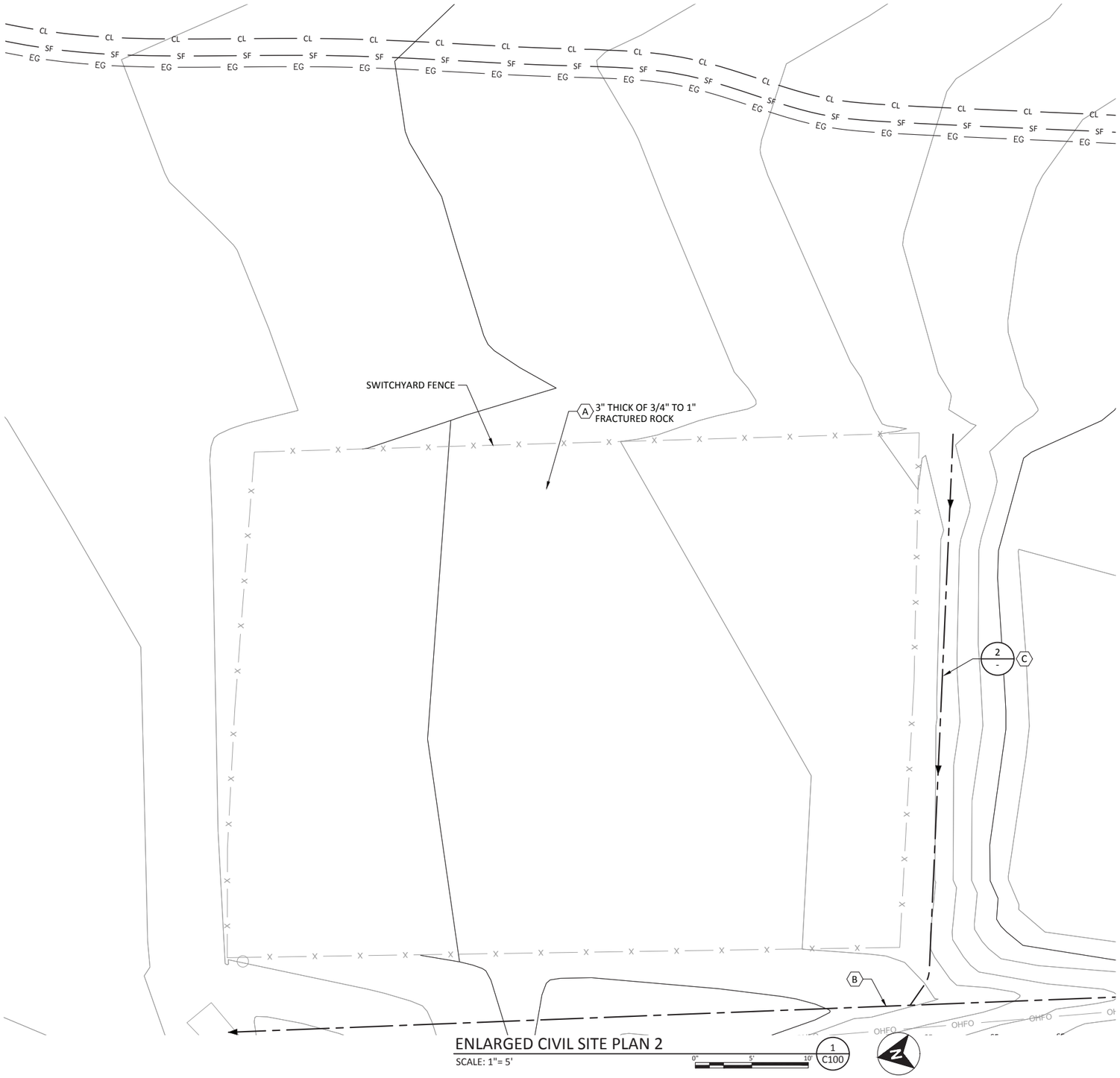
PROJECT DATE 04/18/22

DRAWING

C120

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\C120.dwg Plot date: Sep 19, 2022 04:07pm, CAD User: Guerrero



ENLARGED CIVIL SITE PLAN 2

SCALE: 1"= 5'

0" 5' 10'

1 C100

SHEET NOTES:

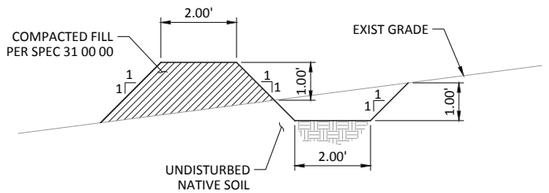
1. CONTOURS SHOWN ON THIS SHEET ARE EXISTING GRADE. SEE SHEET C125 FOR FINISH GRADE INFORMATION.

SHEET KEY NOTES:

A PROVIDE 3" THICK LAYER OF 3/4" TO 1" SIZE FRACTURED ROCK INSIDE THE ENTIRE FENCED AREA OF THE SWITCHYARD. MATERIAL SHALL BE SUPPLIED BY ROCK & ROAD CONSTRUCTION (907-772-3308) OR EQUAL. ANY MATERIAL PROPOSED FROM ALTERNATE SUPPLIER SHALL BE SUBMITTED UPON WITH SIEVE ANALYSIS / GRADATION REPORT AND INFO ON ROCK HARDNESS AND COMPOSITION.

B EXISTING DRAIN CHANNEL SHALL BE CLEARED AND RE-ALIGNED.

C DRAINAGE SWALE. PROVIDE 1% MINIMUM SLOPE TO THE WEST AND JOIN INTO EXISTING DRAIN CHANNEL.



DETAIL

SCALE: 1"= 2'

0" 2' 4'

2 -

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA — MATTHEW S. MOUGHAMIAN — No. CE13953 — PROFESSIONAL ENGINEER — 09/19/2022

WARNING

0 1/2 1

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

ENLARGED CIVIL SITE PLAN 2

DESIGNED M. MOUGHAMIAN

DRAWN R. GUERRERO

CHECKED G. CLARK

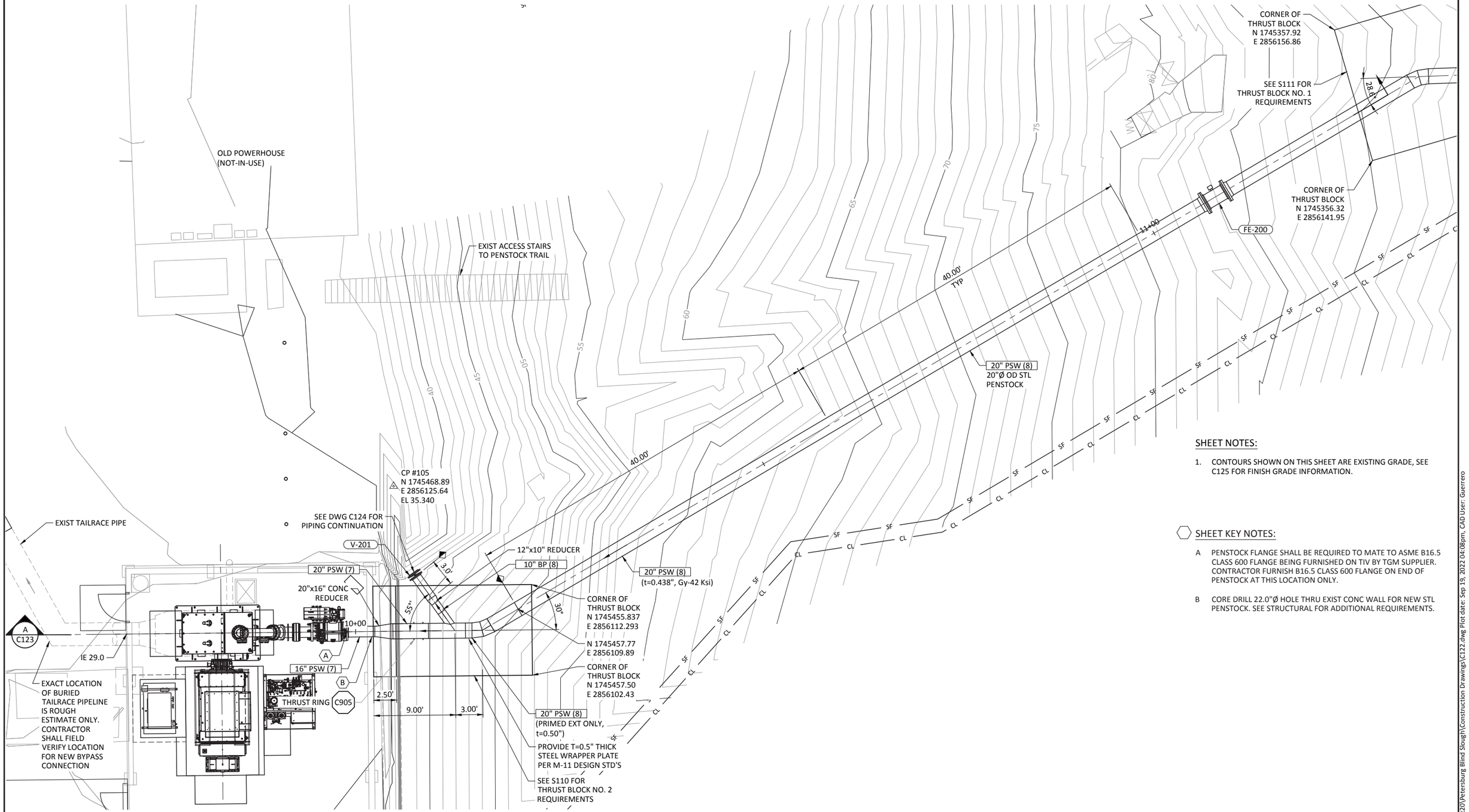
PROJECT DATE 04/18/22

DRAWING

C121

JOB NO: 0000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\C121.dwg Plot date: Sep 19, 2022 04:07pm, CAD User: Guerrero



SHEET NOTES:

1. CONTOURS SHOWN ON THIS SHEET ARE EXISTING GRADE, SEE C125 FOR FINISH GRADE INFORMATION.

SHEET KEY NOTES:

A PENSTOCK FLANGE SHALL BE REQUIRED TO MATE TO ASME B16.5 CLASS 600 FLANGE BEING FURNISHED ON TIV BY TGM SUPPLIER. CONTRACTOR FURNISH B16.5 CLASS 600 FLANGE ON END OF PENSTOCK AT THIS LOCATION ONLY.

B CORE DRILL 22.0"Ø HOLE THRU EXIST CONC WALL FOR NEW STL PENSTOCK. SEE STRUCTURAL FOR ADDITIONAL REQUIREMENTS.

NEW PENSTOCK PLAN

SCALE: 1"= 5'

1 / C100

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA — MATTHEW S. MOUGHAMIAN — No. CE13953 — PROFESSIONAL ENGINEER — 09/19/2022

WARNING
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

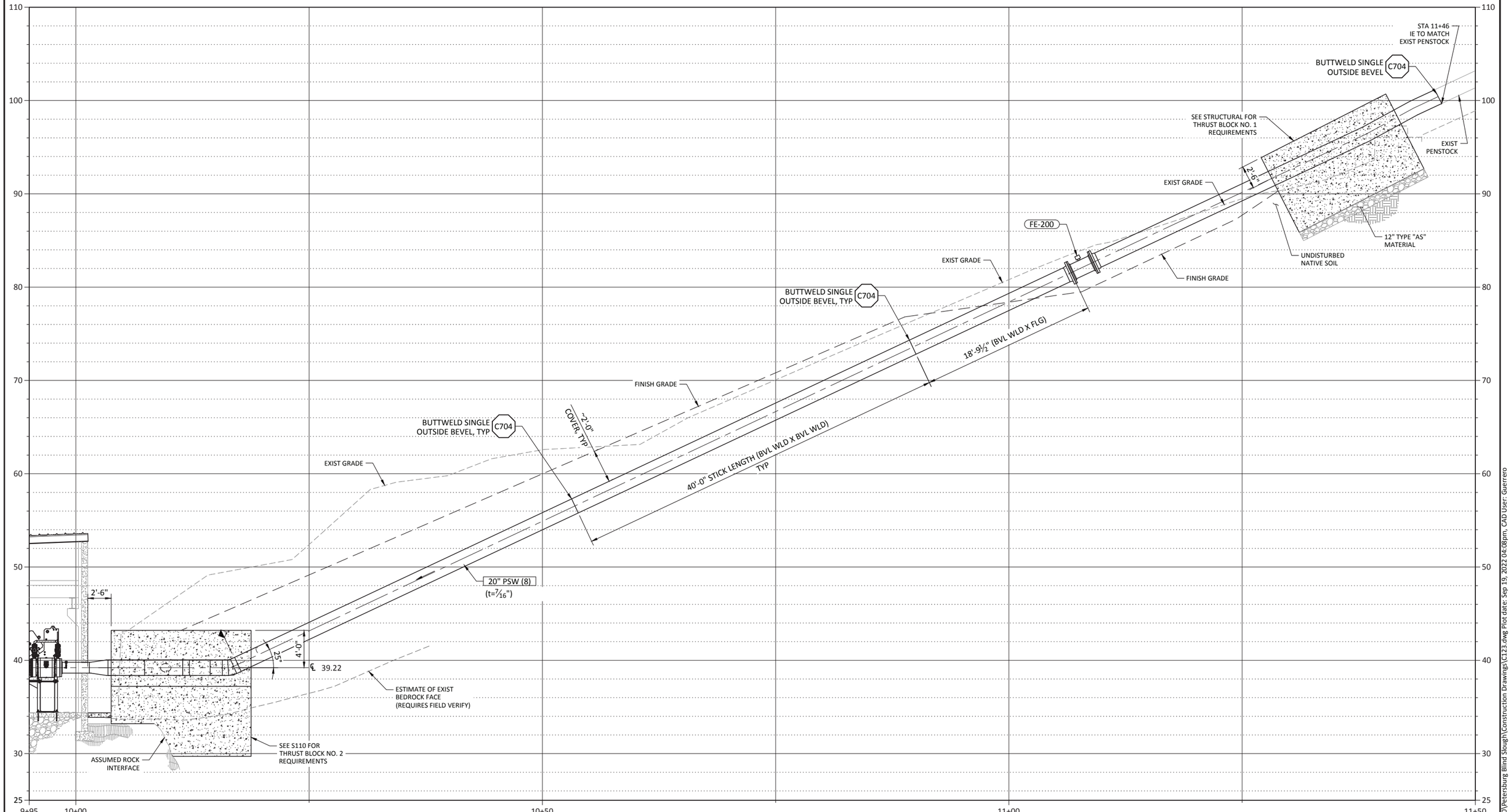
NEW PENSTOCK
PLAN

DESIGNED M. MOUGHAMIAN
DRAWN R. GUERRERO
CHECKED G. CLARK
PROJECT DATE 09/19/22

DRAWING
C122

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\C122.dwg Plot date: Sep 19, 2022 04:08pm, CAD User: Guerrero



PENSTOCK PROFILE

SCALE: 1"= 5'

A C122

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA — MATTHEW S. MOUGHAMIAN — No. CE13953 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING

0 1/2 1

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

NEW PENSTOCK
PROFILE

DESIGNED M. MOUGHAMIAN

DRAWN R. GUERRERO

CHECKED G. CLARK

PROJECT DATE 09/19/22

DRAWING

C123

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\C123.dwg Plot date: Sep 19, 2022 04:08pm, CAD User: Guerrero

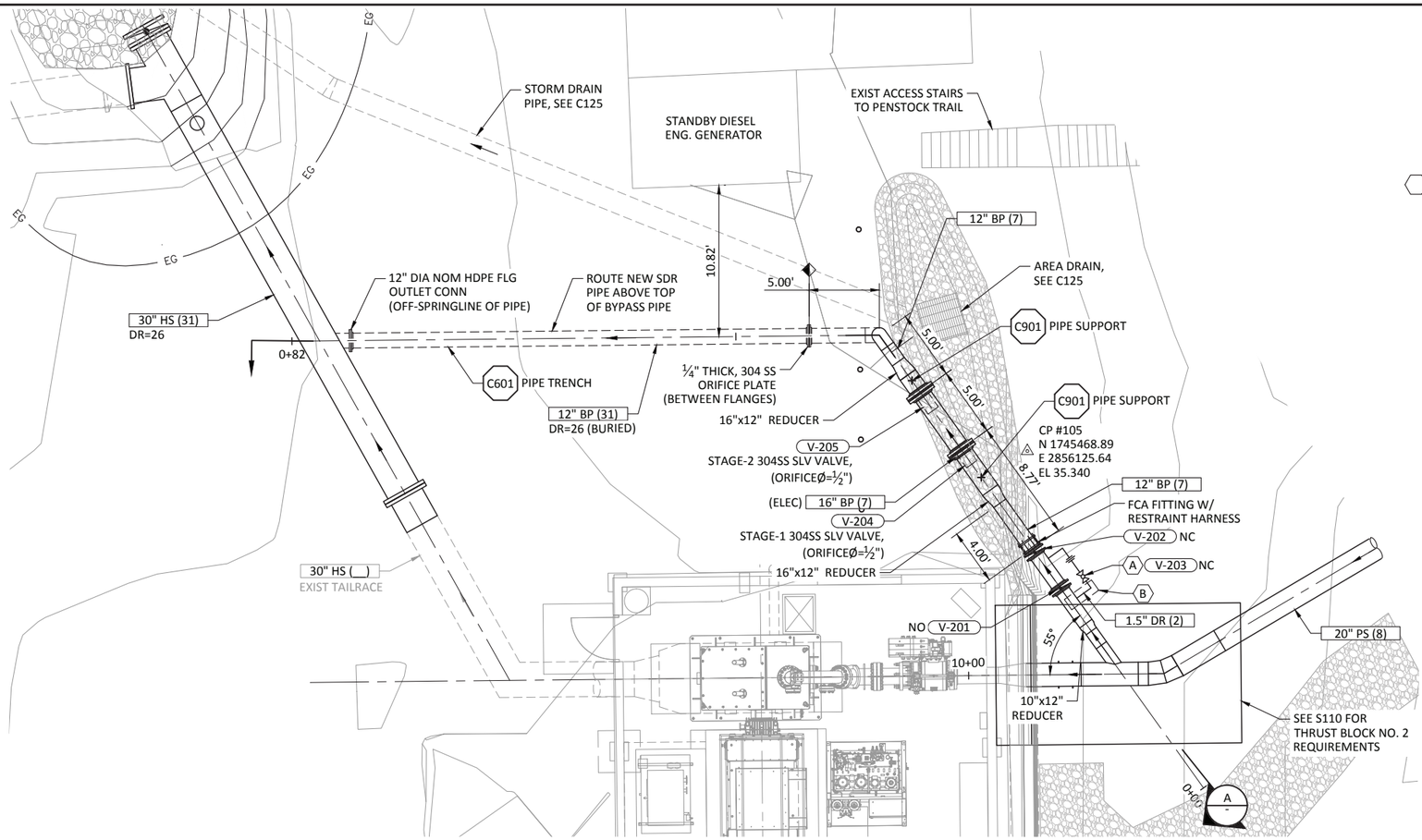
SHEET NOTES:

1. CONTOURS SHOWN ON THIS SHEET ARE EXISTING GRADE. SEE SHEET C125 FOR FINISH GRADE INFORMATION.

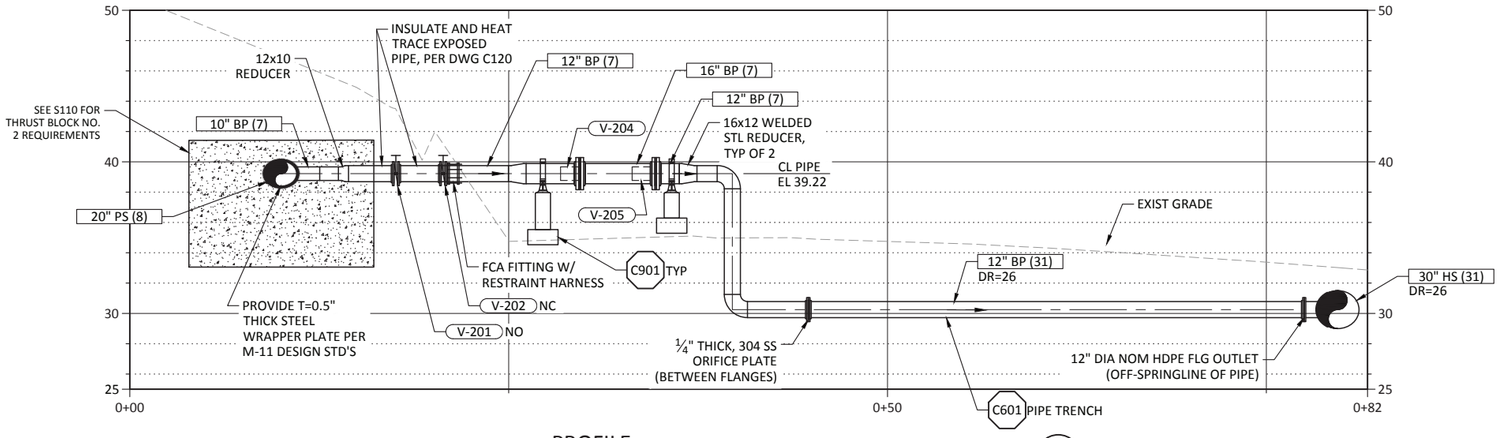
SHEET KEY NOTES:

A SMALL BYPASS PIPE SHALL NEVER BE USED AS A DRAIN PIPE. THE BYPASS PIPE HAS NO PRESSURE REDUCTION DEVICE DESIGNED IN IT. THE PENSTOCK MAIN DRAIN MUST OCCUR THRU BOTH V-201 AND V-202 BEING IN A FULL OPEN STATE, AND DRAINING THE PENSTOCK AT 14 CFS.

B INSULATE AND HEAT TRACE EXPOSED PIPE IN THIS AREA. SEE SPECIFICATIONS FOR INSULATION AND HEAT TRACE REQUIREMENTS.



BYPASS PIPING PLAN
SCALE: 1"= 5'
1 C100



PROFILE
SCALE: 1"= 5'
A -

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STATE OF ALASKA — MATTHEW S. MOUGHAMIAN — No. CE13953 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING
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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

NEW BYPASS PIPING
PLAN AND PROFILE

DESIGNED M. MOUGHAMIAN
DRAWN R. GUERRERO
CHECKED G. CLARK
PROJECT DATE 09/19/22

DRAWING
C124

JOB NO: 0000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\C124.dwg Plot date: Sep 19, 2022 04:09pm, CAD User: Guerrero

11.25 DEG BEND

EXIST ACCESS STAIRS TO PENSTOCK TRAIL

MATCHLINE - SEE DRAWING C126

18" SWD (20) (SLOPE PIPE AT MIN 1% GRADE)

TYPE II RIPRAP

3'X3' TYPE A INLET BOX PER ALASKA DOT

RIM EL 32.00
IE 29.50

DEPRESSION AREA TO COLLECT DRAINAGE

2'X2'X2' CONC PIPELINE FOOTING, TYP OF 2

CP #105
N 1745468.89
E 2856125.64
EL 35.340

CP #1
N 1745547.81
E 2856138.44
EL 31.617

FOOTING FOR PIPELINE SHALL EXTEND BELOW GRADE AND NOT INTERFERE WITH DRAINAGE PATH

30" HS ( )
EXIST TAILRACE

10+00

PROPERTY BOUNDARY

DEMO RETAINING WALL (15' WIDTH) TO CONSTRUCT TB#2

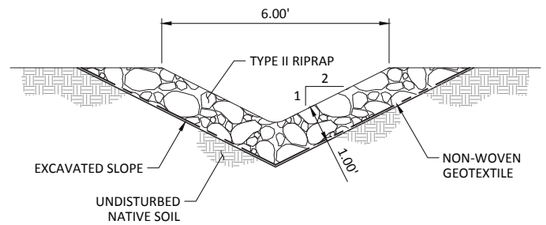
1 - DRAINAGE SWALE

℄ OF EXISTING SWALE

MATCH EXISTING DRAIN SWALE

FINISHED GRADING PLAN

SCALE: 1"= 5'



DRAINAGE SWALE DETAIL

SCALE: NTS

1 -

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STATE OF ALASKA · JOHN D. JACOBS · MATTHEW S. MOUGHAMIAN · No. CE13953 · REGISTERED PROFESSIONAL ENGINEER · 09/19/2022

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PETERSBURG ALASKA

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BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

FINISHED GRADING PLAN 1

DESIGNED M. MOUGHAMIAN
DRAWN R. GUERRERO
CHECKED G. CALRK
PROJECT DATE 09/19/22

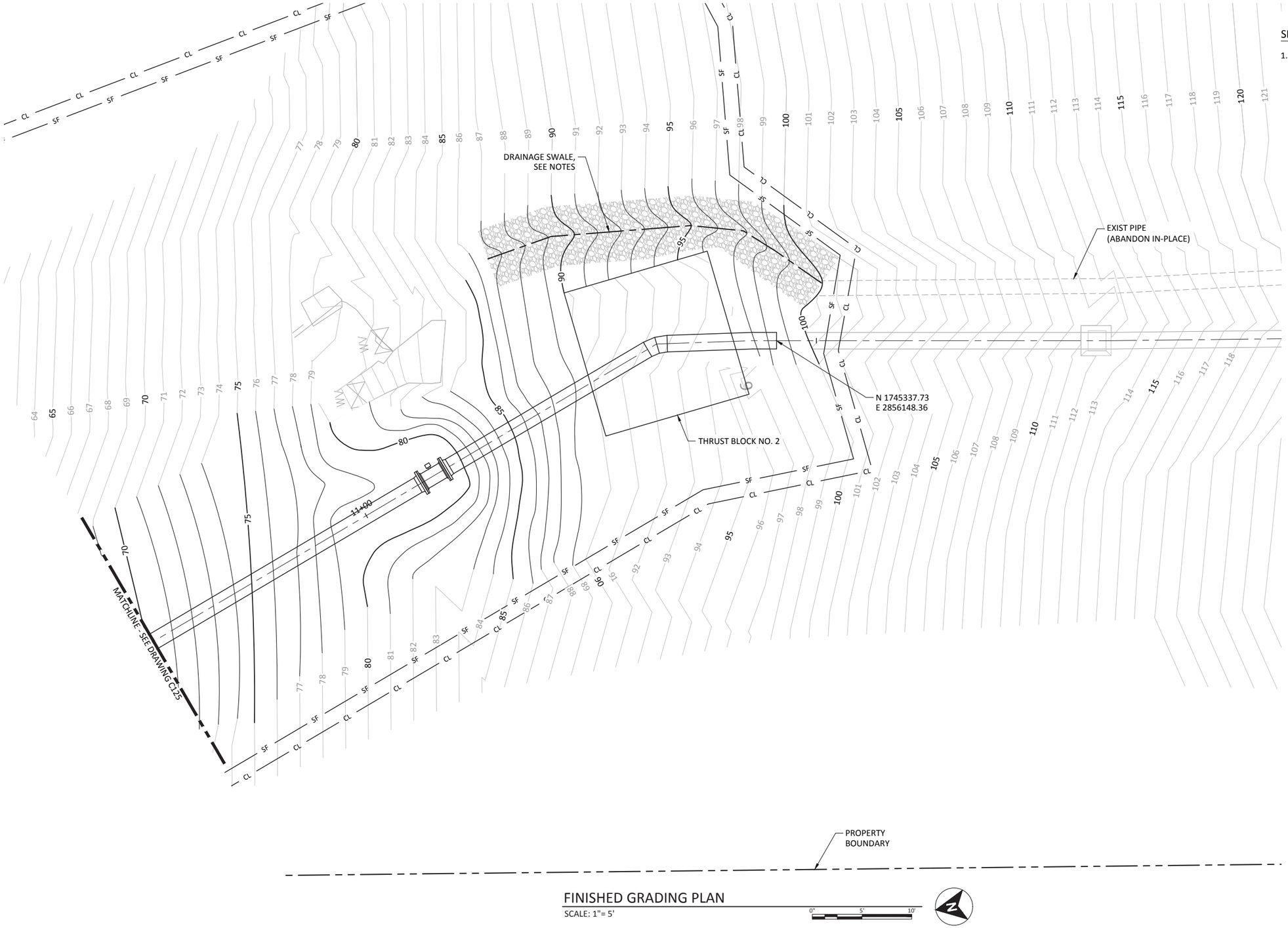
DRAWING
C125

JOB NO: 0000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\C125.dwg Plot date: Sep 19, 2022 04:09pm, CAD User: Guerrero

SHEET NOTES:

1. PROVIDE DRAINAGE SWALE AROUND EAST SIDE OF THRUST BLOCK NO. 2. SEE DETAIL 1/C125.



FINISHED GRADING PLAN

SCALE: 1"= 5'

0" 5' 10'

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WARNING

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

FINISHED GRADING PLAN 2

DESIGNED M. MOUGHAMIAN

DRAWN R. GUERRERO

CHECKED G. CALRK

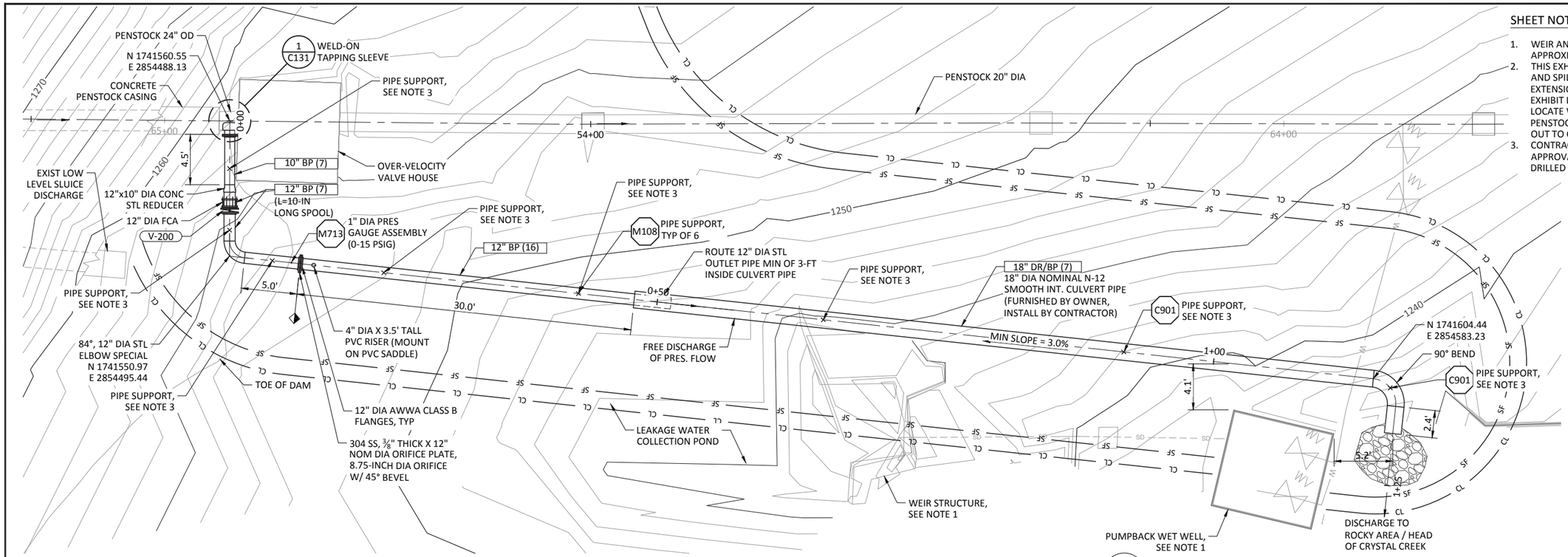
PROJECT DATE 09/19/22

DRAWING

C126

JOB NO: 0000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\C126.dwg Plot date: Sep 19, 2022 04:10pm, CAD User: Guerrero



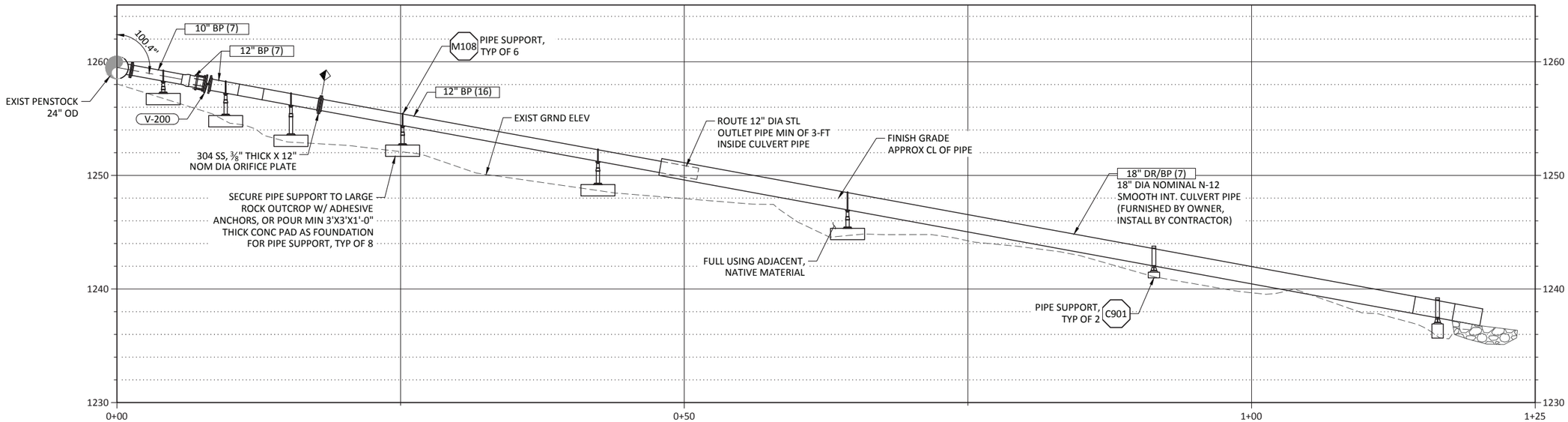
SHEET NOTES:

1. WEIR AND PUMPBACK WET WELL SUMP LOCATIONS APPROXIMATE.
2. THIS EXHIBIT IS BASED ON SUPERSEDED EXHIBIT L-1: DAM AND SPILLWAY PLAN UPDATED TO SHOW SPILLWAY WALL EXTENSION, WEIR AND PUMP BACK SYSTEM. SUPERSEDED EXHIBIT L-7: PUMP BACK STORAGE, SITE PLAN WAS USED TO LOCATE WEIR AND PUMP BACK SYSTEM RELATIVE TO PENSTOCK AND DAM. A FIELD SURVEY AT SITE WAS CARRIED OUT TO CONFIRM THE LOCATION OF THESE FEATURES.
3. CONTRACTOR SHALL FIELD LOCATE ALL PIPE SUPPORTS WITH APPROVAL FROM ENGINEER. ALL SUPPORTS SHALL BE DRILLED EPOXY INTO EXISTING ROCK.

VALVE HOUSE BYPASS OUTLET PIPE TO CRYSTAL CREEK PLAN

SCALE: 1"= 5'

1 C100



VALVE HOUSE BYPASS OUTLET PIPE PROFILE

SCALE: 1"= 5'

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STATE OF ALASKA — MATTHEW S. MOUGHAMIAN — No. CE13953 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

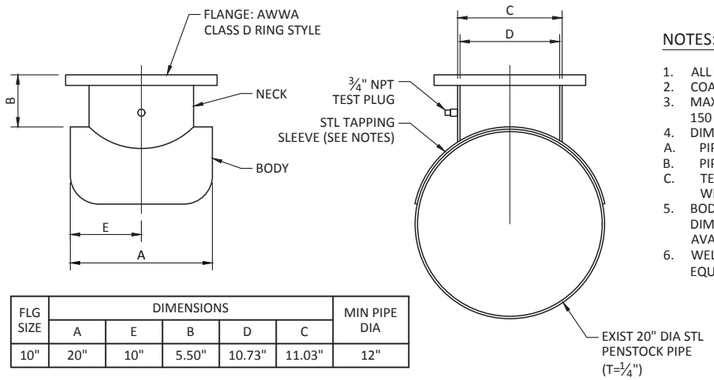
VALVE HOUSE BYPASS OUTLET PIPE TO CRYSTAL CREEK PLAN AND PROFILE

DESIGNED M. MOUGHAMIAN
DRAWN R. GUERRERO
CHECKED G. CLARK
PROJECT DATE 09/19/22

DRAWING C130

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\C130.dwg Plot date: Sep 19, 2022 04:10pm, CAD User: Guerrero



FLG SIZE	DIMENSIONS					MIN PIPE DIA
	A	E	B	D	C	
10"	20"	10"	5.50"	10.73"	11.03"	12"

NOTES:

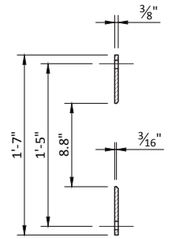
1. ALL MATERIAL ASTM A36 OR EQUAL.
2. COATING PER CUSTOMER ORDER.
3. MAX WORKING PRESSURE 175 PSI FOR FLANGE SIZES 12" AND SMALLER; 150 PSI FOR 14" AND LARGER.
4. DIMENSIONS SHOWN ARE SUITABLE FOR THE FOLLOWING CONDITIONS:
   A. PIPE WALL: 0.25
   B. PIPE YIELD STRENGTH: 36,000 PSI
   C. TEMPERATURE LESS THAN 150° F.
   WHERE OTHER CONDITIONS APPLY, CONSULT YOUR REPRESENTATIVE.
5. BODY EDGE WIDTH IN CIRCUMFERENTIAL DIRECTION WILL BE EQUAL TO DIMENSION 'A' SAVE FOR SIZE ON SIZE TAPPING SLEEVES. BACK HALVES AVAILABLE ON REQUEST.
6. WELDED STL TAPPING SLEEVE (MODEL FTS445 FROM ROMAC IND. OR EQUAL).

WELD-ON TAPPING SLEEVE - DETAIL

SCALE: 1 1/2"= 1'-0"

0" 8" 16"

1 C130



NOTES:
$Q = 0.086P^2 + 2.065P + 3.95P$
WHERE Q = FLOW IN CFS
P = PRESSURE UPSTREAM OF ORIFICE PLATE (PSIG)

ORIFICE PLATE DETAIL

SCALE: 1 1/2"= 1'-0"

0" 8" 16"

2 C130

REV	DATE	BY	DESCRIPTION
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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

VALVE HOUSE BYPASS OUTLET PIPE TO CRYSTAL CREEK
DETAILS

DESIGNED M. MOUGHAMIAN
DRAWN R. GUERRERO
CHECKED G. CLARK
PROJECT DATE 09/19/22

DRAWING
C131

JOB NO: 000000

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GENERAL STRUCTURAL NOTES:

THE FOLLOWING NOTES ARE GENERAL AND APPLY TO THE ENTIRE PROJECT, UNLESS SPECIFICALLY NOTED OTHERWISE (UNO)

1) GENERAL:

A. CODE = 2018 INTERNATIONAL BUILDING CODE (IBC).
B. CONSTRUCTION DOCUMENTS:
   1. THE CONTRACTOR SHALL REVIEW THE APPROVED CONTRACT DOCUMENTS AND NOTIFY THE ENGINEER OF ANY ERRORS OR DISCREPANCIES PRIOR TO THE START OF CONSTRUCTION.
   2. THE CONTRACTOR SHALL FURNISH AND INSTALL EVERYTHING REQUIRED TO PROVIDE A COMPLETE STRUCTURE AS SHOWN HEREIN. IF THERE IS AN OMISSION ON THE PLANS, SUCH OMISSION SHALL NOT BE CONSTRUED TO MEAN THAT THE CONTRACTOR IS NOT REQUIRED TO FURNISH OR PROVIDE EVERYTHING THAT IS NECESSARY TO COMPLETE THE PROJECT TO THE MINIMUM REQUIREMENTS OF THE IBC AND ALL OTHER SPECIFICATIONS, CODES AND STANDARDS NOTED ON THE APPROVED CONTRACT DOCUMENTS.
   3. THE CONTRACTOR SHALL NOTIFY THE OWNER IMMEDIATELY IF ANY UNIDENTIFIED EXIST UNDERGROUND UTILITIES ARE DISCOVERED. THE ENGINEER IS NOT RESPONSIBLE FOR THE LOCATIONS OF EXIST UNDERGROUND UTILITIES WHETHER OR NOT SHOWN ON THE DRAWINGS.
   4. THE STRUCTURAL CONTRACT DOCUMENTS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT ARE NOT LIMITED TO, BRACING AND/OR SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. CONTRACTOR AT HIS/HER OWN EXPENSE SHALL ENGAGE PROPERLY QUALIFIED PERSONS TO DESIGN BRACING, SHORING, ETC. OBSERVATION VISITS TO THE SITE BY THE ENGINEER SHALL NOT INCLUDE OBSERVATION OF THE ABOVE NOTED ITEMS.
   5. UNDER NO CIRCUMSTANCES CAN STRUCTURAL COMPONENTS BE SUBSTITUTED, OMITTED, OR ALTERED FROM THE APPROVED SET OF CONSTRUCTION DOCUMENTS WITHOUT WRITTEN APPROVAL FROM THE ENGINEER.
B. DIMENSIONS AND NOTATIONS:
   1. WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALED DIMENSIONS. DO NOT SCALE DRAWINGS.
   2. ABBREVIATIONS USED ON THE APPROVED CONTRACT DOCUMENTS SHALL BE CONSIDERED TYPICAL ABBREVIATIONS FOR THE INDUSTRY. THE CONTRACTOR SHALL BE RESPONSIBLE TO NOTIFY THE ENGINEER IMMEDIATELY OF ANY ABBREVIATIONS THAT ARE UNKNOWN TO THE CONTRACTOR.
C. SHOP DRAWINGS:
   1. SHOP DRAWINGS, AS REQUIRED PER THESE STRUCTURAL NOTES, SHALL BE SUBMITTED TO THE ARCHITECT AND ENGINEER IN A TIMELY FASHION PRIOR TO FABRICATION TO ALLOW FOR PROPER REVIEW AS REQUIRED PER SECTION 107.3 OF THE IBC AND PROJECT SPECIFICATIONS.
   2. SHOP DRAWING ITEMS SHALL NOT BE INSTALLED UNTIL THE CONSTRUCTION DOCUMENTS HAVE BEEN APPROVED BY THE BUILDING OFFICIAL AND SHOP DRAWINGS HAVE BEEN APPROVED BY THE ENGINEER PER SECTION 107.3 OF THE IBC.
   3. DURING SHOP DRAWING REVIEW, DIMENSIONS AND QUANTITIES ARE NOT REVIEWED BY THE ENGINEER AND MUST BE VERIFIED BY THE CONTRACTOR. THE CONTRACTOR SHALL REVIEW AND STAMP SHOP DRAWINGS PRIOR TO REVIEW BY ENGINEER.
D. TYPICAL NOTES AND DETAILS:
   1. SPECIFIC NOTES AND DETAILS SHALL TAKE PRECEDENCE OVER STANDARD TYPICAL NOTES AND DETAILS.
   2. STANDARD TYPICAL NOTES AND DETAILS ARE TO BE USED WHEN REFERRED TO OR WHEN NO OTHER MORE RESTRICTIVE OR DIFFERENT DETAILS ARE SHOWN ON THE DRAWINGS.
   3. WORK NOT PARTICULARLY SHOWN OR SPECIFIED SHALL BE THE SAME AS SIMILAR PARTS THAT ARE SHOWN OR SPECIFIED.
E. CODE REQUIREMENTS:
   1. ALL WORK SHALL CONFORM TO THE MINIMUM STANDARDS OF THE FOLLOWING CODES:
      - IBC
      - ANY OTHER REGULATING AGENCIES WHICH MAY HAVE AUTHORITY OVER ANY PORTION OF THE WORK.
   2. SPECIFICATIONS, CODES AND STANDARDS NOTED SHALL BE OF THE LATEST APPROVED ISSUE, INCLUDING SUPPLEMENTS, UNLESS NOTED OTHERWISE.

2) FOUNDATIONS AND GEOTECHNICAL:

A. CONTRACTOR SHALL REFER TO TECHNICAL MEMORANDUM, "GEOTECHNICAL EXPLORATION SUMMARY AT EXISTING POWERHOUSE", DATED 1-8-2022 FOR SUBSURFACE INFORMATION.

   - COEFFICIENT OF FRICTION = 0.45
   - AT-REST LATERAL PRESSURE = 50 PCF

3) CONCRETE:

A. ALL CONCRETE WORK SHALL CONFORM TO THE LATEST EDITION OF ACI 301 AND ACI 117, EXCEPT AS MODIFIED BY THE FOLLOWING SUPPLEMENTAL REQUIREMENTS:
B. ALL FOUNDATION CONCRETE SHALL BE NORMAL WEIGHT CONCRETE.
C. CONCRETE MIX DESIGN SHALL BE ESTABLISHED IN ACCORDANCE WITH CHAPTER 5 OF ACI 318.
D. APPROVED ADMIXTURES:
   1. FLYASH PER ASTM C-618
   2. AIR ENTRAINING PER ASTM C-260
   3. WATER REDUCING PER ASTM C-494
E. REINFORCEMENT FOR CONCRETE:
   1. ALL REINFORCING SHALL BE SUPPORTED IN FORMS SPACED WITH NECESSARY ACCESSORIES AND SHALL BE SECURELY WIRED TOGETHER IN ACCORDANCE WITH THE LATEST EDITION OF THE CRSI "MANUAL OF STANDARD PRACTICE"
      a) DEFORMED BARS - ASTM A615, GRADE 60
      b) WELDED WIRE REINFORCEMENT (WWR):
         - SMOOTH WIRE - ASTM A185
         - DEFORMED WIRE - ASTM A497
         - USE FLAT MATS ONLY. NO ROLLED WWR IS PERMITTED.
F. MINIMUM CONCRETE COVER OVER REINFORCEMENT:
   1. CAST-IN-PLACE CONCRETE
      a) CONCRETE CAST AGAINST EARTH = 3"
      b) ALL OTHER CONCRETE = 2"
G. SLAB-ON-GRADE REINFORCEMENT SHALL BE PLACED AT THE MID-DEPTH OF THE SLAB, UNO.
H. FORMWORK: DESIGN, ERECT, SUPPORT, BRACE AND MAINTAIN FORMWORK TO SUPPORT VERTICAL, LATERAL, STATIC AND DYNAMIC LOADS THAT MIGHT BE APPLIED UNTIL STRUCTURE CAN SUPPORT SUCH LOADS.
I. CONCRETE COMPRESSIVE STRENGTH (28 DAY)
   a) STRUCTURAL CONCRETE: 4,500 PSI
J. WHERE NEW CONCRETE IS PLACED AGAINST EXISTING CONCRETE, THE EXISTING CONCRETE SURFACE SHALL BE CLEANED AND ROUGHENED TO A MINIMUM 1/4-INCH AMPLITUDE.

4) STRUCTURAL AND MISCELLANEOUS STEEL:

A. ALL STRUCTURAL STEEL WORK SHALL CONFORM TO THE LATEST EDITION OF THE AISC SPECIFICATIONS.
B. WELDS: PROVIDE 70ksi LOW HYRDOGEN ELECTRODE OR PROCESS IN ACCORDANCE WITH AWS A5.1.
C. EPOXY BOLT OR EXPANSION BOLT SUBSTITUTIONS FOR EMBEDDED BOLTS IS PROHIBITED.
D. ALL STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE AISC CODE OF STANDARD PRACTICE, EXCEPT AS MODIFIED IN THESE NOTES AND THE PROJECT SPECIFICATIONS.
E. SPLICING OF STEEL MEMBERS, UNLESS SHOWN ON THE DRAWINGS, IS PROHIBITED WITHOUT WRITTEN APPROVAL OF THE ENGINEER.
F. STRUCTURAL STEEL WELDING OPERATORS SHALL BE CERTIFIED BY PERFORMANCE QUALIFICATION TESTS REQUIRED BY THE AWS AND IBC CODES TO DETERMINE WELDERS, WELDING OPERATORS OR TACK WELDER'S ABILITY TO PRODUCE SOUND WELDS. INSPECTOR MAY REQUEST WELDING CERTIFICATION FOR THE POSITIONS WELDED DURING THE TIME OF INSPECTION.

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STATE OF ALASKA 49th MARK MERKLEIN No. 185381 REGISTERED PROFESSIONAL ENGINEER 9-19-22

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

STANDARD STRUCTURAL NOTES

DESIGNED G. CLARK
DRAWN R. GUERRERO
CHECKED M. MERKLEIN
PROJECT DATE 09/19/22

DRAWING
GS001

JOB NO: 000000

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DESIGN CRITERIA

ROOF LOADS	
DEAD LOAD	10.0 PSF
COLLATERAL LOAD	3.0 PSF
LIVE LOAD	20.0 PSF
SNOW LOAD DATA	
GROUND SNOW LOAD (Pg)	300.0 PSF
EXPOSURE FACTOR (Ce)	1.0
IMPORTANCE FACTOR (Is)	1.1
THERMAL FACTOR (Ct)	1.2
WIND DESIGN DATA	
ULTIMATE DESIGN WIND SPEED (Vult)	148.0 MPH
RISK CATEGORY	III
WIND EXPOSURE	C
EARTHQUAKE DESIGN DATA	
RISK CATEGORY	III
IMPORTANCE FACTOR (Ie)	1.00
SPECTRAL RESPONSE PARAMETER (Ss)	0.27
SPECTRAL RESPONSE PARAMETER (S1)	0.24
SITE CLASS	D
SITE COEFFICIENT, Fa	1.000
SITE COEFFICIENT, Fv	1.000
DESIGN SPECTRAL RESPONSE PARAMETER (Sds)	0.20
DESIGN SPECTRAL RESPONSE PARAMETER (Sd1)	0.22
SEISMIC DESIGN CATEGORY	C

STRUCTURAL AND MISCELLANEOUS STEEL	
WIDE FLANGE SHAPES	ASTM A992, GRADE 50
SHAPES, PLATES, BARS	ASTM A36, OR ASTM A992 GRADE 36 OR GRADE 50
HSS	ASTM A500, GRADE B
PIPE, PIPE COLUMNS, BOLLARDS	ASTM A53, TYPE E OR S, GRADE B STANDARD WEIGHT UNO
BOLTS	
STEEL TO STEEL CONNECTIONS	ASTM A325, UNLESS OTHERWISE SPECIFIED
STEEL TO CONCRETE CONNECTIONS	ASTM A325, UNLESS OTHERWISE SPECIFIED
STEEL TO CMU CONNECTIONS	ASTM A307

SPECIAL INSPECTION REQUIRMENTS

SPECIAL INSPECTION TABLE - VALVE HOUSE

SPECIAL INSPECTION ITEM	CONTINUOUS INSPECTION	PERIODIC INSPECTION	NOTES
1. STRUCTURAL AND LIGHT GAGE STEEL CONSTRUCTION			
A. STEEL FABRICATED IN AN APPROVED FABRICATION SHOP			FABRICATOR SHALL SUBMIT A CERTIFICATE OF COMPLIANCE STATING THAT THE WORK WAD PREFORMED IN ACCORDANCE WITH THE APPROVED CONSTRUCTION DRAWINGS.
B. HIGH STRENGTH BOLTING			N/A TO PIPE AND ASSOCIATED FITTINGS (SEE MECH SPECIFICATIONS)
1) VERIFY IDENTIFICATION MARKINGS AND THE MANUFACTURERS CERTIFICATE OF COMPLIANCE		X	
2) VERIFICATION OF BOLT TENSION		X	
3) VERIFICATION OF BOLT TENSION WHEN "TURN OF THE NUT" OR "CALIBRATE WRENCH" INSTALLATION METHODS ARE USED	X		
C. WELDING			N/A TO PIPE AND ASSOCIATED FITTINGS (SEE MECH SPECIFICATIONS)
1) VERIFY IDENTIFICATION MARKINGS AND THE MANUFACTURERS CERTIFICATE OF COMPLIANCE		X	
2) SINGLE PASS FILLET WELDS $\frac{5}{16}$" AND LESS, STEEL STUDS AND WELDING OR STEEL DECK		X	
3) WELDING OF STAIRS AND RAILINGS		X	
4) ALL OTHER WELDS	X		
D. VERIFICATION OF STRUCTURAL STEEL FRAME JOINT DETAILS INCLUDING MEMBER LOCATION, APPLICATION OF JOINT DETAILS AND DETAILS SUCH AS BRACING AND STIFFENING		X	
2. CONCRETE CONSTRUCTION			
A. CONCRETE SLABS AND SIDEWALKS DIRECTLY SUPPORTED ON THE GROUND			SPECIAL INSPECTION IS NOT REQUIRED
B. FOUNDATION WALLS OF ONE STORY OR LESS			SPECIAL INSPECTION IS NOT REQUIRED
C. INSPECTION OF FORMWORK FOR SHAPE, SIZE AND LOCATION OF CONCRETE MEMBERS.		X	
D. VERIFICATION OF STEEL MATERIAL, SIZE AND LOCATION		X	
E. VERIFY THE USE OF THE REQUIRED MIX DESIGN.		X	
F. SAMPLING OF FRESH CONCRETE FOR COMPRESSIVE STRENGTH, AIR CONTENT, SLUMP AND TEMPERATURE.	X		
G. INSPECTION FOR MAINTENANCE OF CURING TEMPERATURE AND TECHNIQUES.		X	
H. AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X		
3. FOUNDATIONS			
A. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.		X	
B. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X		
C. PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT THE SITE HAS BEEN PREPARED PROPERLY.		X	

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STATE OF ALASKA 49th MARK MERKLEIN No. 185381 REGISTERED PROFESSIONAL ENGINEER 9-19-22

WARNING

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

STRUCTURAL DESIGN CRITERIA AND SPECIAL INSPECTIONS

DESIGNED G. CLARK

DRAWN R. GUERRERO

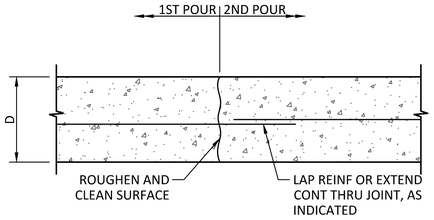
CHECKED M. MERKLEIN

PROJECT DATE 09/19/22

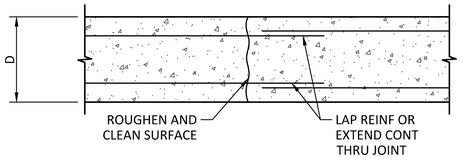
DRAWING

GS002

JOB NO: 000000

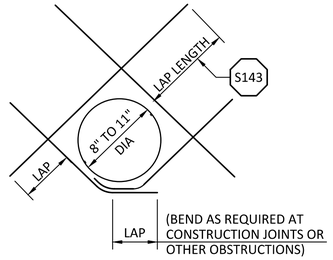


SINGLE MAT



DOUBLE MAT

NOTES:
1. DETAIL APPLIES TO WALLS OR SLABS (ELEVATED OR SLAB-ON-GRADE).

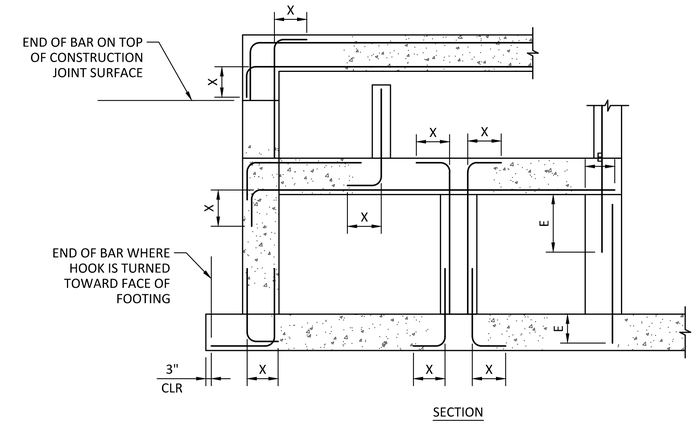


NOTES:
1. CUT NORMAL REINFORCEMENT 2" CLEAR OF OPENING.
2. DIAGONAL BARS TO BE PLACED;
   A. AT CENTERLINE OF WALL OR SLAB WHERE ONE LAYER OF REINFORCEMENT IS PROVIDED.
   B. AT EACH FACE OF WALL OR SLAB WHERE TWO LAYERS OF REINFORCEMENT ARE PROVIDED.
3. UNLESS OTHERWISE NOTED, SIZE OF DIAGONAL BARS SHALL BE THE SIZE OF THE LARGEST NORMAL REINFORCING BAR CUT.
4. THIS DETAIL TO BE USED WHEN CALLED FOR ON THE DRAWINGS OR WHEN NO OTHER DETAIL IS SPECIFIED.

CONSTRUCTION JOINTS (CJ)

S112

SCALE: NTS



SECTION

NOTES:
1. USE LAP LENGTHS AS DETERMINED FROM THESE TABLES UNLESS SHOWN OTHERWISE.
2. THE TABLES SHOWN ARE FOR f'c=4000psi, fy=60,000psi, 1.5" MIN CONCRETE COVER AND 3" MIN BAR SPACING.
3. MULTIPLY THE LAP AND E SHOWN IN THESE TABLES BY 1.5 FOR EPOXY COATED REINFORCING.
4. WHEN BARS OF DIFFERENT SIZES ARE LAP SPLICED, LAP LENGTH SHALL BE THE LARGER OF: EMBEDMENT LENGTH OF LARGER BAR LAP OR LENGTH OF SMALLER BAR.
5. UNLESS NOTED OTHERWISE USE REBAR COUPLERS FOR SPLICES OF #11 AND LARGER BARS.
6. ALL DOWEL BARS SHALL EXTEND AN EMBEDMENT LENGTH E INTO ANOTHER MEMBER OR ACROSS A CONSTRUCTION JOINT UNLESS SHOWN TO SPLICE WITH OTHER BARS OR TO EXTEND TO THE FAR FACE OF THE MEMBER AND END WITH A STANDARD HOOK.

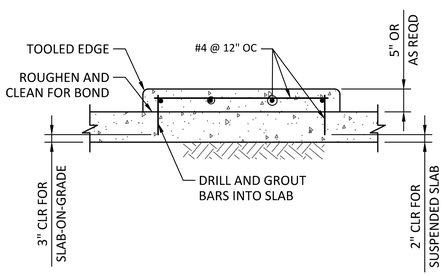
BAR SIZE	LENGTH (*) HOOK X	LAP	EMBEDMENT E
#3	6"	16" (21")	12" (16")
#4	8"	16" (21")	12" (16")
#5	10"	20" (26")	15" (20")
#6	12"	28" (37")	22" (28")
#7	14"	48" (62")	37" (48")
#8	16"	62" (81")	48" (62")
#9	19"	79" (102")	61" (79")
#10	22"	100" (130")	77" (100")
#11	24"	123" (160")	95" (123")

* USE LENGTH IN PARENTHESIS FOR WALL HORIZONTAL REBARS AND SLAB BARS WITH 12" OR MORE OF FRESH CONCRETE UNDERNEATH

STANDARD 90° BAR HOOKS, EMBEDMENT LENGTHS AND LAP LENGTHS

S143

SCALE: NTS



HOUSEKEEPING PAD

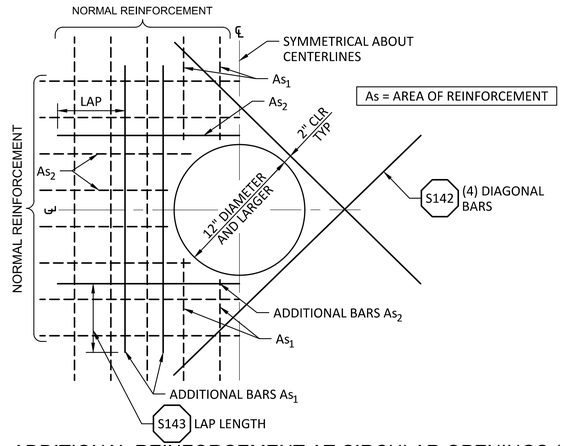
S191

SCALE: NTS

DIAGONAL REINF AT CIRCULAR OPENINGS

S142

SCALE: NTS



NOTES:
1. CUT NORMAL REINFORCEMENT AT OPENINGS: As_1 AND As_2 = ½ AREA OF CUT BARS TO BE ADDED ON EACH SIDE OF OPENING.
2. ADDITIONAL BARS As_1 AND As_2 TO BE PLACED:
   A. AT CENTERLINE OF WALLS OR SLABS WHERE ONE LAYER OF REINFORCEMENT IS PROVIDED.
   B. AT EACH FACE OF WALLS OR SLABS WHERE TWO LAYERS OF REINFORCEMENT ARE PROVIDED.
3. INCREASE SIZE OF ADDITIONAL BARS AS NEEDED TO FIT WITHIN A DISTANCE OF 2 X WALL/SLAB THICKNESS FROM OPENING, PROVIDE 2" MIN CLEAR BETWEEN BARS.
4. THIS DETAIL TO BE USED ONLY WHEN NO OTHER DETAIL IS INDICATED ON THE DRAWINGS.
5. WHERE A SLAB OR INTERSECTING WALL CONNECTS WITHIN ONE WALL THICKNESS OF THE OPENINGS, ADDITIONAL BARS ON THAT SIDE MAY BE OMITTED.

ADDITIONAL REINFORCEMENT AT CIRCULAR OPENINGS (12" DIA OR LARGER)

S144

SCALE: NTS

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA — 49th — MARK MERKLEIN — No. 185381 — REGISTERED PROFESSIONAL ENGINEER — 9-19-22

WARNING
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

STANDARD STRUCTURAL DETAILS

DESIGNED G. CLARK
DRAWN R. GUERRERO
CHECKED M. MERKLEIN
PROJECT DATE 09/19/22

DRAWING
GS003

JOB NO: 000000

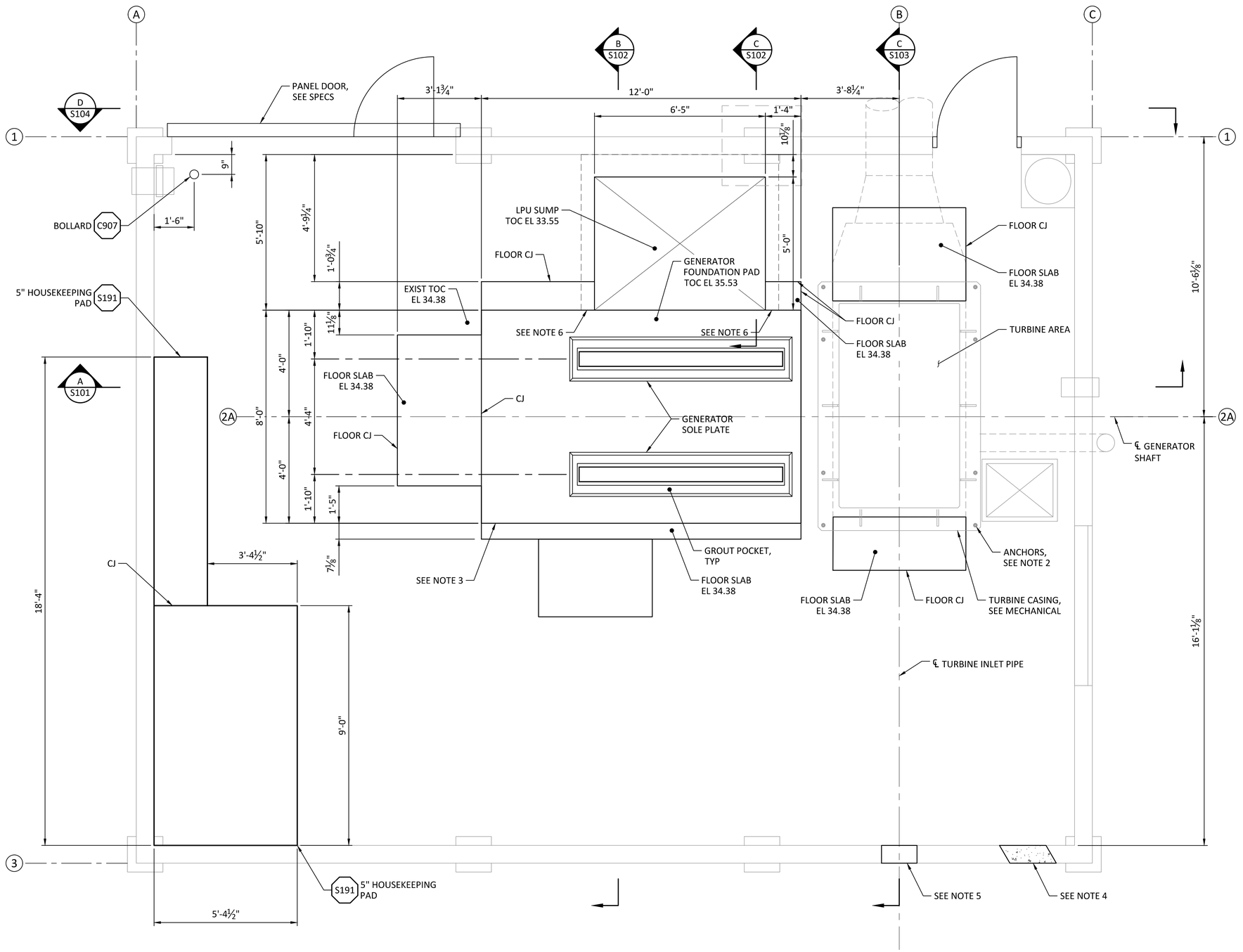
Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\GS003.dwg Plot date: Sep 19, 2022 04:11pm, CAD User: Guerrero

SHEET NOTES:

1. CONTRACTOR SHALL VERIFY ALL DIMENSIONAL REQUIREMENTS PERTAINING TO THE SOLE PLATE, PLATE ANCHORS, AND GROUTING POCKET WITH THOSE PROVIDED BY THE TURBINE/GENERATOR SUPPLIER.
2. ANCHORS FOR TURBINE CASING SHALL BE DESIGNED AND SUPPLIED BY TURBINE/GENERATOR SUPPLIER.
3. PROVIDE 3/4-INCH GAP BETWEEN FLOOR SLAB AND GENERATOR SLAB. INFILL WITH FIBERBOARD.
4. INFILL EXISTING PENETRATION THROUGH CONCRETE WALL WITH NON-SHRINK GROUT.
5. PROVIDE 16" DIA CORE DRILL THROUGH EXISTING CONCRETE WALL TO ACCOMMODATE 14" DIA PIPE. PROVIDE POLYURETHANE GROUT TO INFILL ANNULAR SPACE BETWEEN WALL AND PIPE.
6. PROVIDE 3/4-INCH GAP BETWEEN END WALLS OF SUMP AND GENERATOR SLAB.

LEGEND:

OFCI OWNER FURNISHED, CONTRACTOR INSTALLED



POWERHOUSE STRUCTURAL FOUNDATION PLAN

SCALE: 1/2"= 1'-0"

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA — 49th — MARK MERKLEIN — No. 185381 — REGISTERED PROFESSIONAL ENGINEER — 9-19-22

WARNING

0 1/2 1

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

McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

POWERHOUSE STRUCTURAL FOUNDATION PLAN

DESIGNED G. CLARK

DRAWN R. GUERRERO

CHECKED M. MERKLEIN

PROJECT DATE 09/19/22

DRAWING

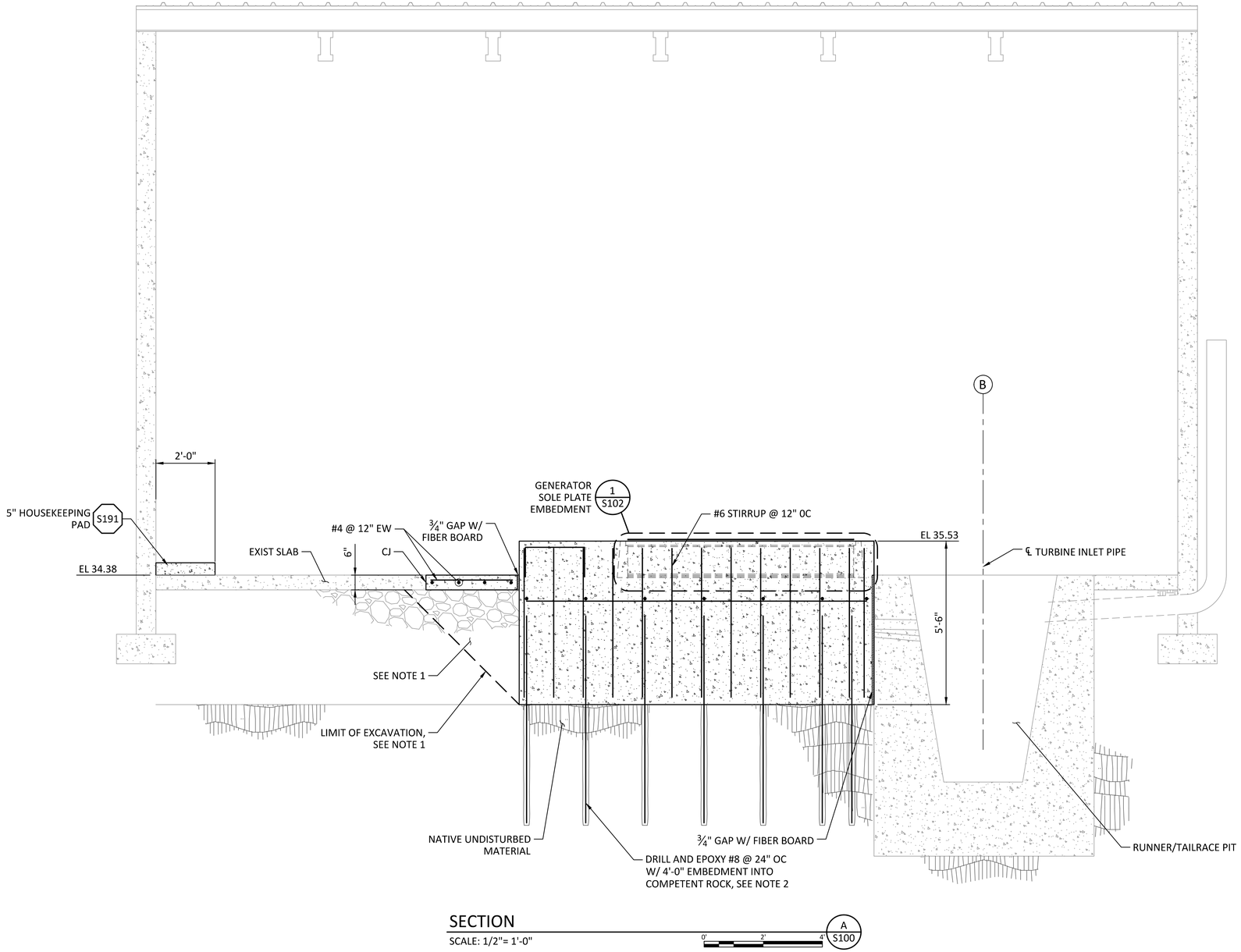
S100

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\S100.dwg Plot date: Sep 19, 2022 04:11pm, CAD User: Guerrero

SHEET NOTES:

1. SLAB EXCAVATION MAY RESULT IN LOSS OF FOUNDATION MATERIAL BENEATH EXISTING FLOOR SLAB. CONCRETE FOR GENERATOR SLAB SHALL BE ALLOWED TO FLOW LATERALLY AND FILL CAVITIES BENEATH FLOOR SLAB.
2. REBAR ANCHORS SHALL BE DRILLED INTO COMPETENT ROCK WITH 3-INCH DIAMETER (MIN) DRILL.
3. ANCHOR BOLTS IN BOTTOM FLANGE OF GENERATOR BEAM ARE NOT SHOWN FOR CLARITY.



SECTION
SCALE: 1/2"= 1'-0"

A S100

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49th MARK MERKLEIN No. 185381 REGISTERED PROFESSIONAL ENGINEER 9-19-22

WARNING
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

POWERHOUSE STRUCTURAL
SECTIONS AND DETAILS 1

DESIGNED G. CLARK
DRAWN R. GUERRERO
CHECKED M. MERKLEIN
PROJECT DATE 09/19/22

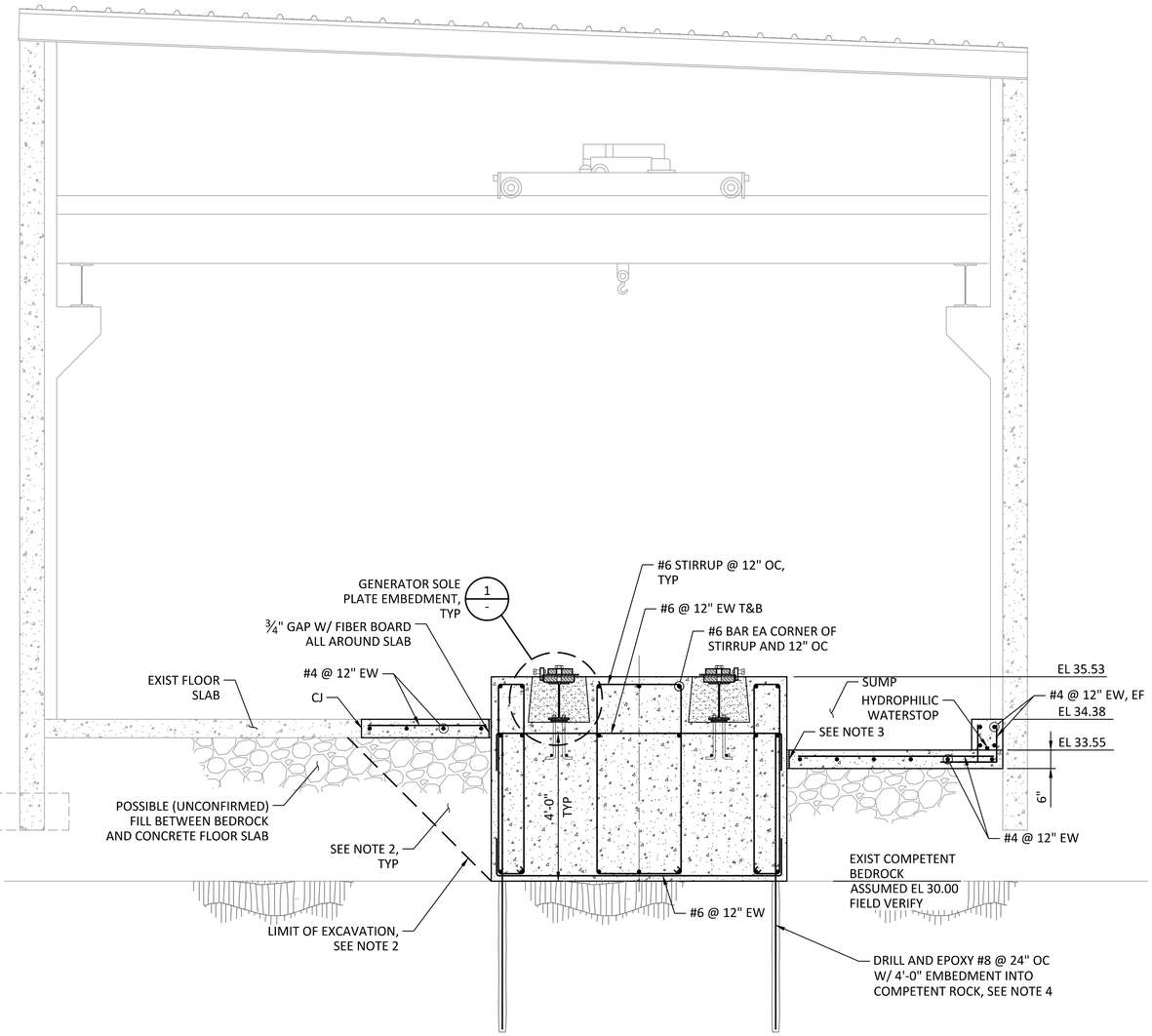
DRAWING
S101

JOB NO: 000000

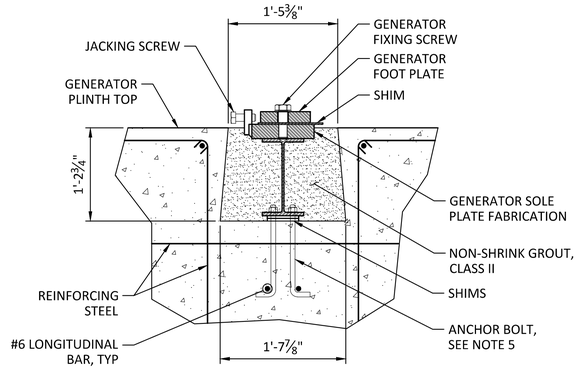
Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\S101.dwg Plot date: Sep 19, 2022 04:11pm, CAD User: Guerrero

SHEET NOTES:

1. TYPE A MATERIAL MAY BE OMITTED IF EXCAVATION SURFACE IS INTO COMPETENT BEDROCK.
2. SLAB EXCAVATION MAY RESULT IN LOSS OF FOUNDATION MATERIAL BENEATH EXISTING FLOOR SLAB. CONCRETE FOR GENERATOR SLAB SHALL BE ALLOWED TO FLOW LATERALLY AND FILL CAVITIES BENEATH FLOOR SLAB.
3. PROVIDE 3/4-INCH GAP BETWEEN END WALLS OF SUMP AND GENERATOR SLAB INFILL WITH HYDROPHILIC WATERSTOP.
4. REBAR ANCHORS SHALL BE DRILLED INTO COMPETENT ROCK WITH 3-INCH DIAMETER (MIN) DRILL.
5. ANCHOR BOLTS SHALL BE ¾" DIA @ 12" SPACING WITH 12" EMBED, STAGGERED EACH SIDE OF BEAM. ANCHORS SHALL BE CAST-IN-PLACE. PROVIDE 1¼" DIA OVERSIZED HOLES IN BOTTOM FLANGE OF BEAM. USE OVERSIZED 3/8-INCH THICK WASHER PLATES.



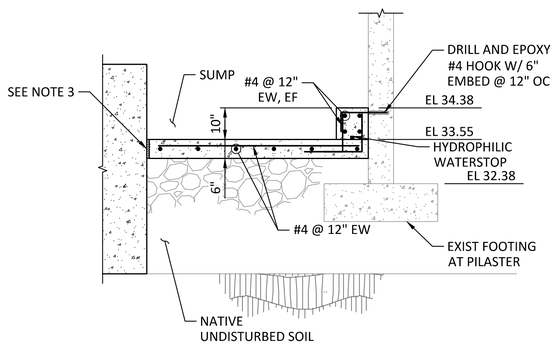
SECTION
SCALE: 1/2"= 1'-0"
B S100



(TYP BOTH SIDES OF GENERATOR)

NOTE:
ALL METAL FABRICATION MATERIALS SHOWN IN DETAIL SHALL BE PROVIDED BY TURBINE/GENERATOR SUPPLIER.

GENERATOR SOLE PLATE EMBEDMENT DETAILS
SCALE: 1"= 1'-0"
1 -



SECTION
SCALE: 1/2"= 1'-0"
C S100

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49th MARK MERKLEIN No. 185381 REGISTERED PROFESSIONAL ENGINEER 9-19-22

WARNING
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

McMILLEN JACOBS ASSOCIATES

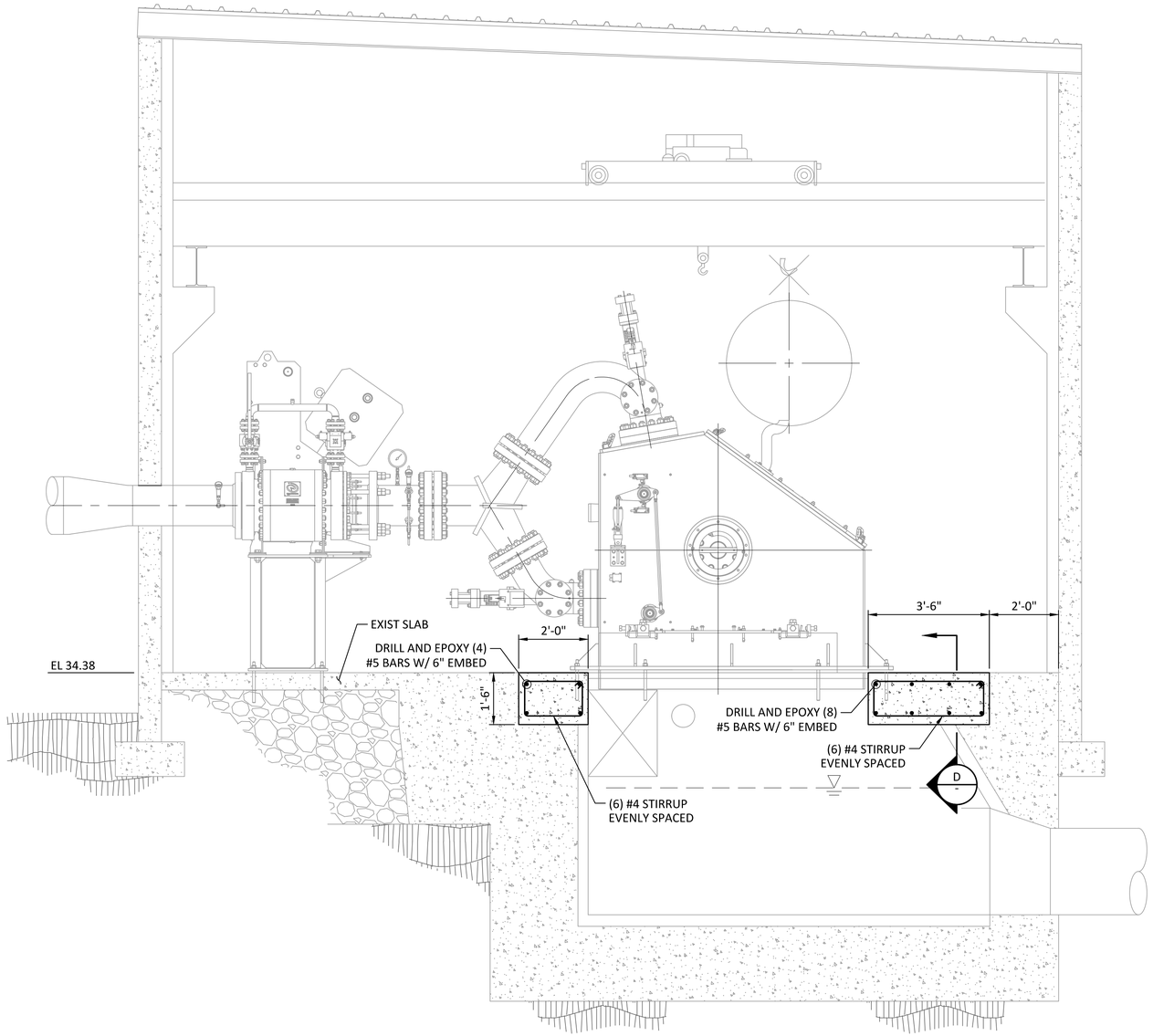
PETERSBURG ALASKA

PETERSBURG BOROUGH
BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT
POWERHOUSE STRUCTURAL
SECTIONS AND DETAILS 2

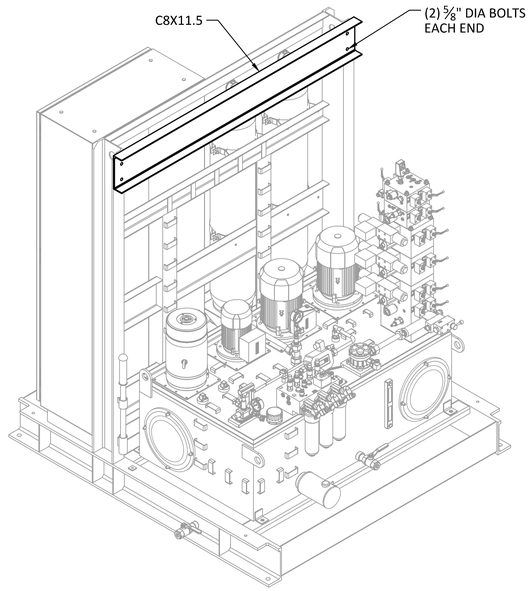
DESIGNED G. CLARK
DRAWN R. GUERRERO
CHECKED M. MERKLEIN
PROJECT DATE 09/19/22

DRAWING
S102

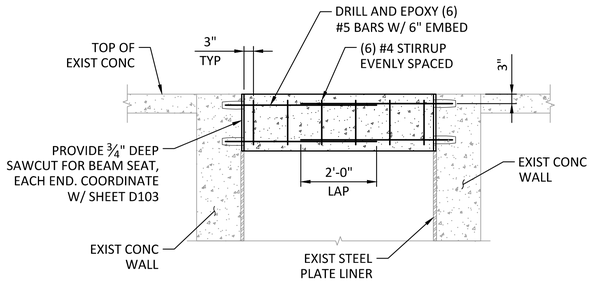
JOB NO: 000000
Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\S102.dwg Plot date: Sep 19, 2022 04:11pm, CAD User: Guerrero



SECTION
SCALE: 1/2"= 1'-0"
C
S100



DETAIL
SCALE: NTS
1
-



SECTION
SCALE: 1/2"= 1'-0"
D
-

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49th MARK MERKLEIN No. 185381 REGISTERED PROFESSIONAL ENGINEER 9-19-22

WARNING
0 1/2 1
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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH
BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT
POWERHOUSE STRUCTURAL
SECTIONS AND DETAILS 3

DESIGNED G. CLARK
DRAWN R. GUERRERO
CHECKED M. MERKLEIN
PROJECT DATE 09/19/22

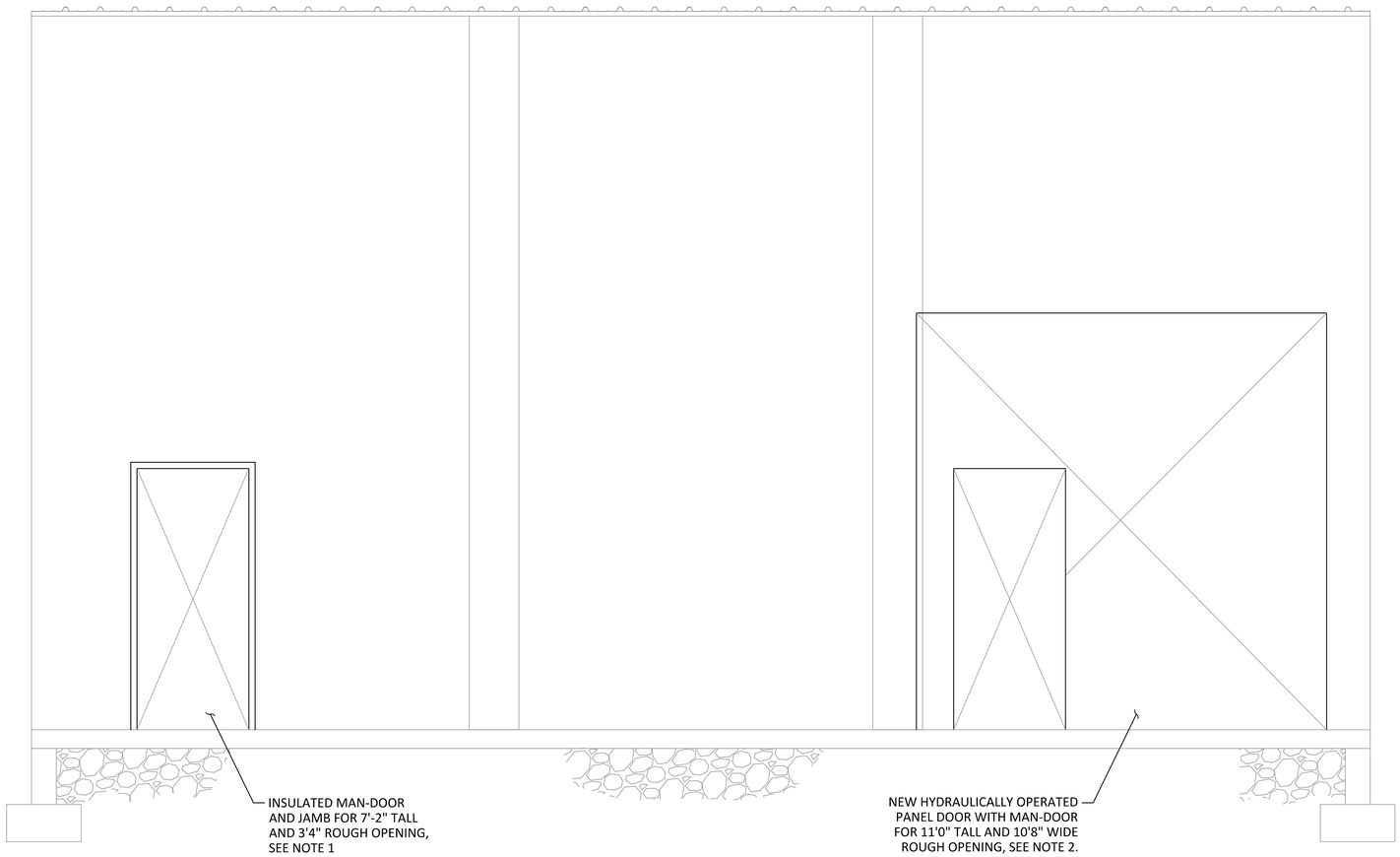
DRAWING
S103

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\S103.dwg Plot date: Sep 19, 2022 04:12pm, CAD User: Guerrero

SHEET NOTES:

1. NEW STEEL DOOR SHALL BE INSULATED & FIT FULLY INTO EXISTING ROUGH OPENING. DOOR SHALL HAVE 24" X 24" MANUALLY ACTUATED LOUVER IN BOTTOM HALF OF DOOR. DOOR HANDLE ON RIGHT WHEN ENTERING BUILDING. SEE SPEC. SECTION 08 11 13 FOR REQUIREMENTS.
2. NEW PANEL DOOR SHALL BE INSULATED AND CONTAIN INTEGRATED FRAMED EGRESS MAN-DOOR. HYDRAULIC POWER UNIT SHALL BE MOUNTED INTERIOR OF THE BUILDING ADJACENT TO THE DOOR. SEE SPEC SECTION 08 34 23 FOR REQUIREMENTS.



NORTH ELEVATION
SCALE: 1/2"= 1'-0"

0' 2' 4'

D
S100

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49th MARK MERKLEIN No. 185381 REGISTERED PROFESSIONAL ENGINEER 9-19-22

WARNING
0 1/2 1
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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

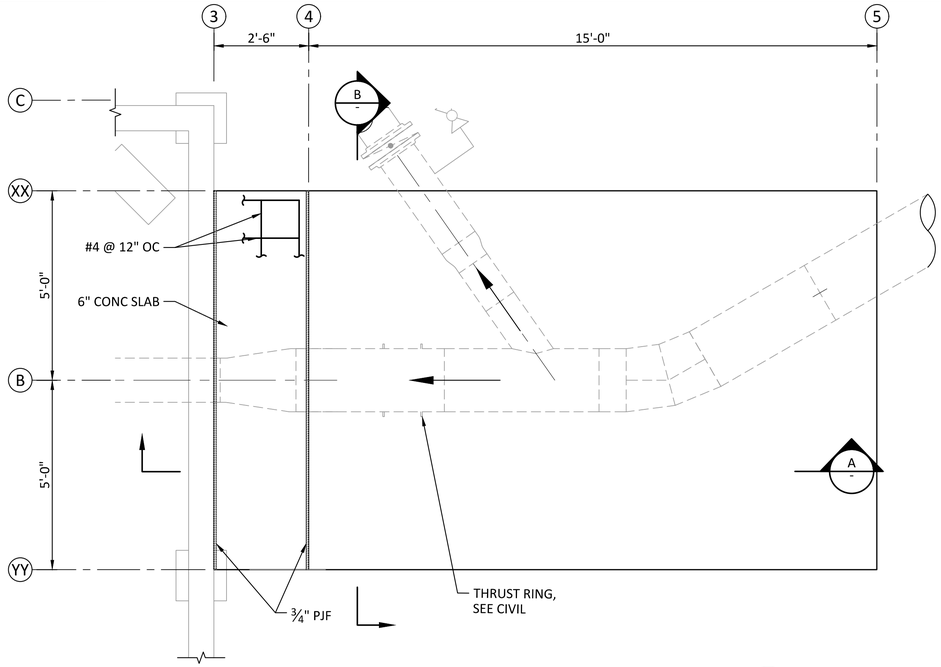
POWERHOUSE STRUCTURAL
NORTH ELEVATION

DESIGNED G. CLARK
DRAWN R. GUERRERO
CHECKED M. MERKLEIN
PROJECT DATE 09/19/22

DRAWING
S104

JOB NO: 000000

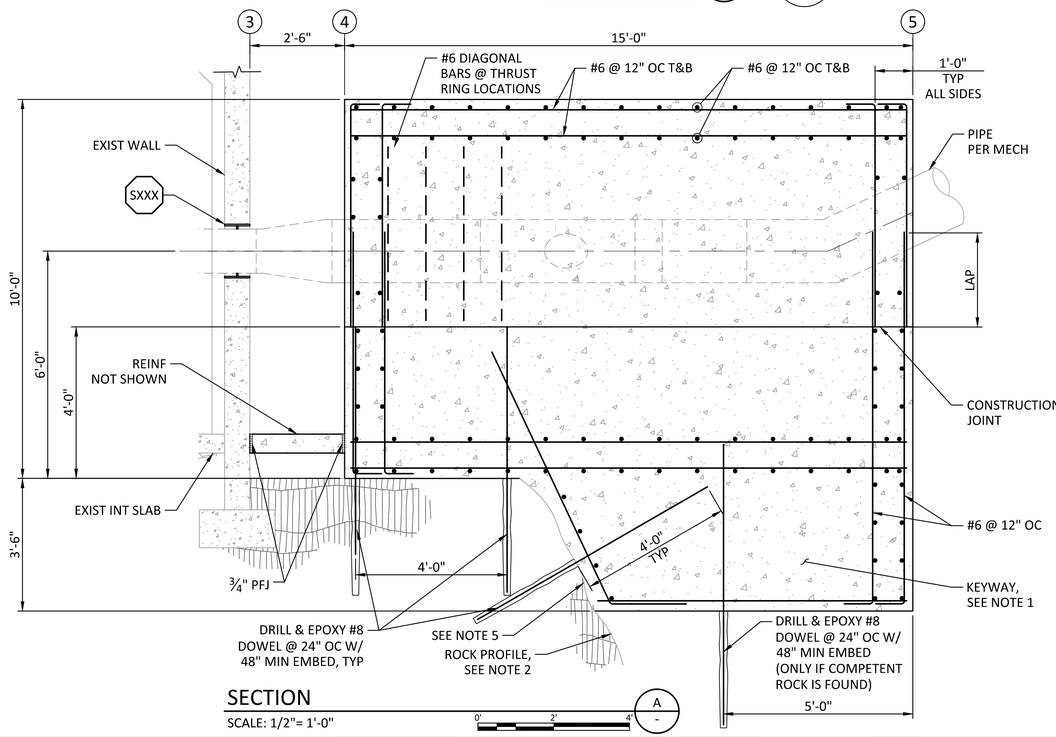
Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\S104.dwg Plot date: Sep 19, 2022 04:12pm, CAD User: Guerrero



THRUST BLOCK NO. 2 PLAN

SCALE: 1/2"= 1'-0"

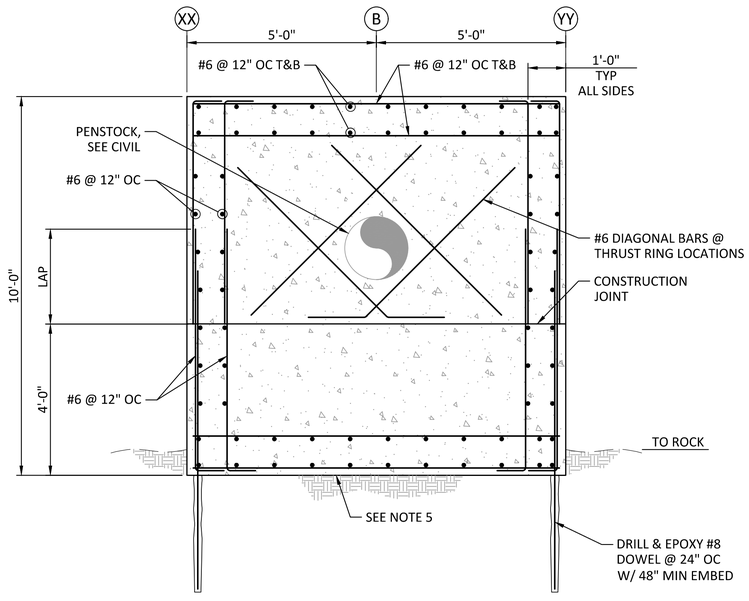
2 C100



SECTION

SCALE: 1/2"= 1'-0"

A -



SECTION

SCALE: 1/2"= 1'-0"

B -

SHEET NOTES:

1. KEYWAY SHALL BE EXCAVATED 3'-6" DEEP THROUGH EXISTING SOIL TO PROVIDE CONTACT WITH EXISTING ROCK INTERFACE.
2. LOCATION OF ROCK PROFILE HAS BEEN ASSUMED AND IS BASED ON INFORMATION CONTAINED IN THE GEOTECHNICAL REPORT.
3. DRILLED BAR SHOULD ONLY BE CONSTRUCTED IN THE EVENT THAT COMPETENT ROCK IS DISCOVERED AT THE EXCAVATED DEPTH FOR THE KEYWAY.
4. THRUST BLOCK NO. 2 IS CONSIDERED MASS POUR CONCRETE. CONTRACTOR SHALL SUBMIT MITIGATION PLAN PER SPEC 03 33 00 FOR APPROVAL BY ENGINEER. CONSTRUCTION JOINT SHOWN ON THESE DRAWINGS ARE INTENDED TO HELP MINIMIZE AFFECTS OF MASS POUR PLACEMENT.
5. SCARIFY ROCK FACE AS REQUIRED TO EXPOSE COMPETENT, SOLID ROCK.
6. REBAR ANCHORS SHALL BE DRILLED INTO COMPETENT ROCK WITH 3-INCH DIAMETER (MIN) DRILL.

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49th MARK MERKLEIN No. 185381 REGISTERED PROFESSIONAL ENGINEER 9-19-22

WARNING

0 1/2 1

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

McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

PENSTOCK THRUST BLOCK NO. 2
PLAN AND SECTIONS

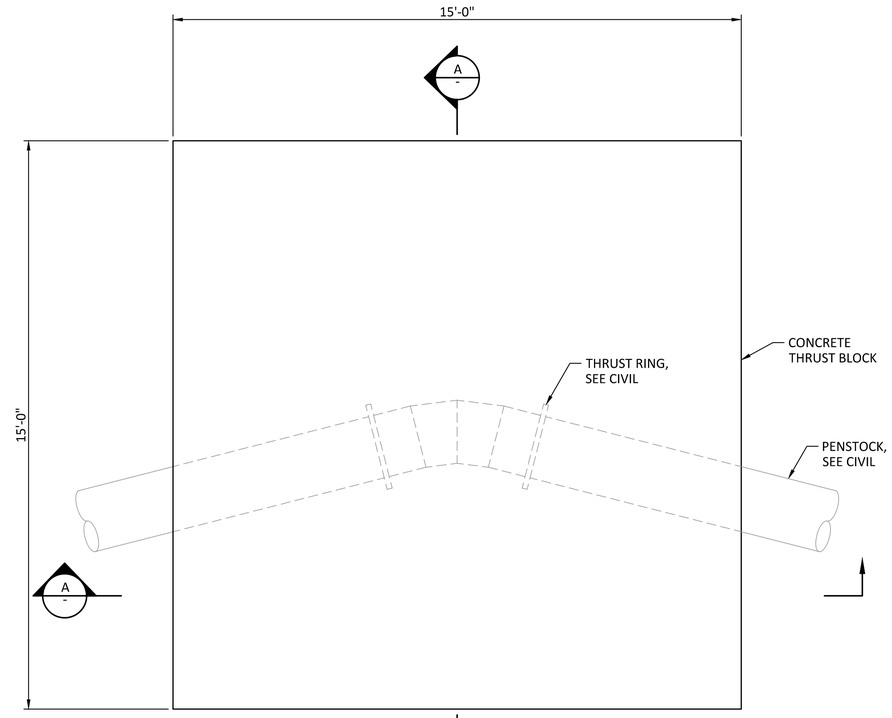
DESIGNED G. CLARK
DRAWN R. GUERRERO
CHECKED M. MERKLEIN
PROJECT DATE 09/19/22

DRAWING

S110

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\S110.dwg Plot date: Sep 19, 2022 04:12pm, CAD User: Guerrero



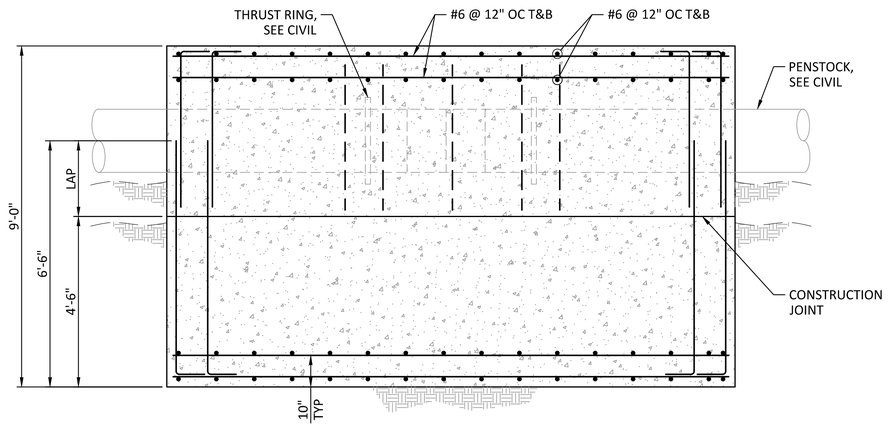
THRUST BLOCK NO. 1 PLAN

SCALE: 1/2"= 1'-0"

0' 2' 4'

SHEET NOTES:

1. THRUST BLOCK NO. 1 IS CONSIDERED MASS POUR CONCRETE. CONTRACTOR SHALL SUBMIT MITIGATION PLAN PER SPEC 03300 FOR APPROVAL BY ENGINEER. CONSTRUCTION JOINT SHOWN ON THESE DRAWINGS ARE INTENDED TO HELP MINIMIZE AFFECTS OF MASS POUR PLACEMENT.

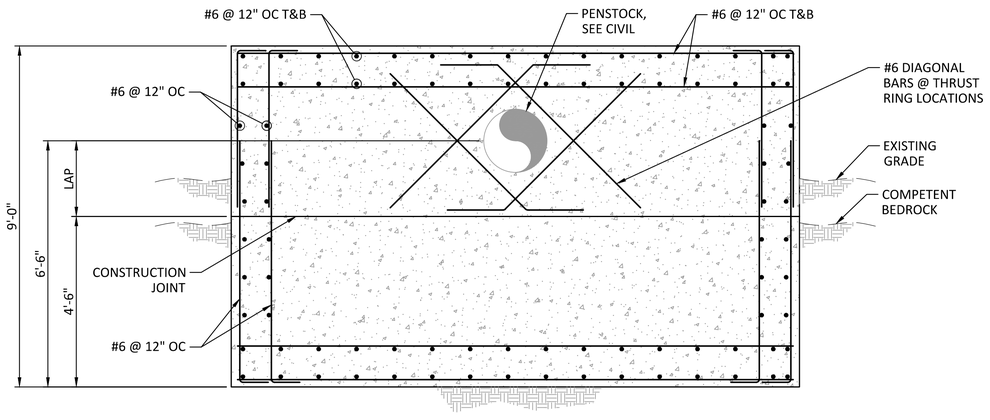


SECTION

SCALE: 1/2"= 1'-0"

A
-

0' 2' 4'



SECTION

SCALE: 1/2"= 1'-0"

B
-

0' 2' 4'

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49th
MARK MERKLEIN
No. 185381
REGISTERED PROFESSIONAL ENGINEER
9-19-22

WARNING

0 1/2 1

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

PENSTOCK THRUST BLOCK NO. 1
PLAN AND SECTIONS

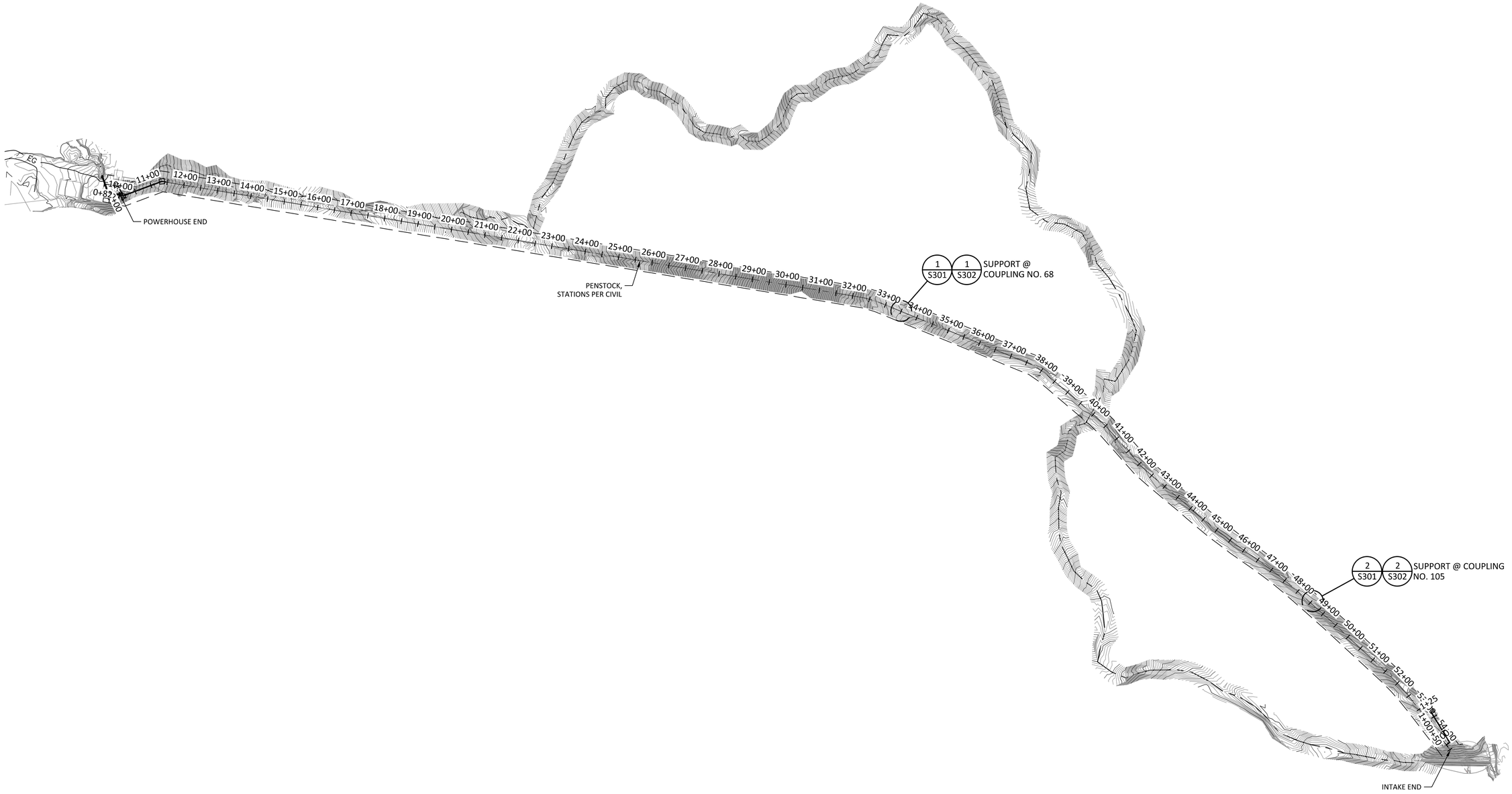
DESIGNED G. CLARK
DRAWN R. GUERRERO
CHECKED M. MERKLEIN
PROJECT DATE 09/19/22

DRAWING

S111

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\S111.dwg Plot date: Sep 19, 2022 04:12pm, CAD User: Guerrero



PENSTOCK STRUCTURAL KEY PLAN

SCALE: 1"= 150'

0" 150' 300'

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49th MARK MERKLEIN No. 185381 REGISTERED PROFESSIONAL ENGINEER 9-19-22

WARNING

0 1/2 1

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

McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

PENSTOCK STRUCTURAL KEY PLAN

DESIGNED G. CLARK

DRAWN R. GUERRERO

CHECKED M. MERKLEIN

PROJECT DATE 09/19/22

DRAWING

S300

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\S300.dwg Plot date: Sep 19, 2022 04:13pm, CAD User: Guerrero

PHOTO - SUPPORT @ COUPLING NO. 68

SCALE: NTS

1
S300

PHOTO - SUPPORT @ COUPLING NO. 105

SCALE: NTS

1
S300

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA
49th
MARK MERKLEIN
No. 185381
REGISTERED PROFESSIONAL ENGINEER
9-19-22

WARNING

0 1/2 1

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

McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

PENSTOCK STRUCTURAL PHOTOS

DESIGNED G. CLARK

DRAWN R. GUERRERO

CHECKED M. MERKLEIN

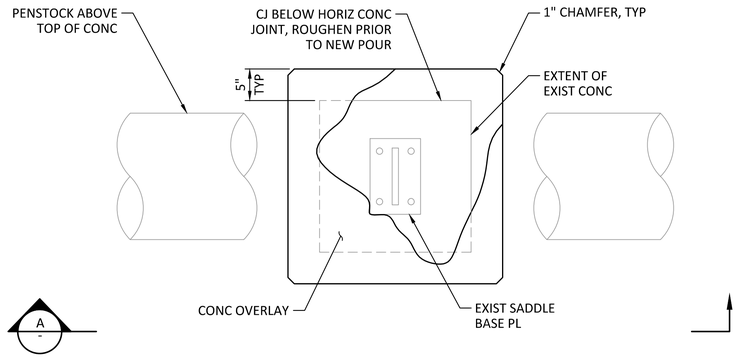
PROJECT DATE 09/19/22

DRAWING

S301

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\S301.dwg Plot date: Sep 19, 2022 04:13pm, CAD User: Guerrero

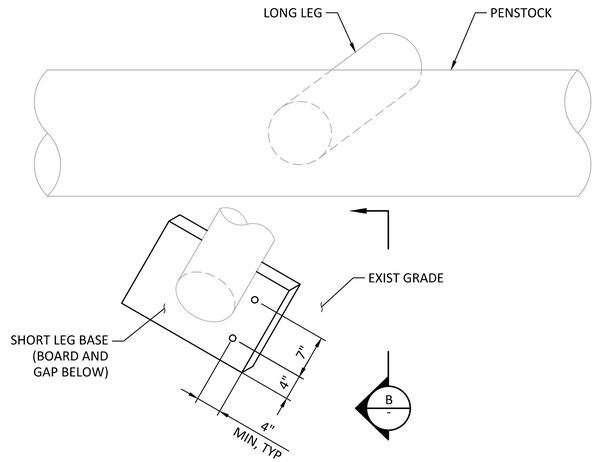


SUPPORT @NO. 68 - PLAN

SCALE: 1"= 1'-0"

0' 1' 2'

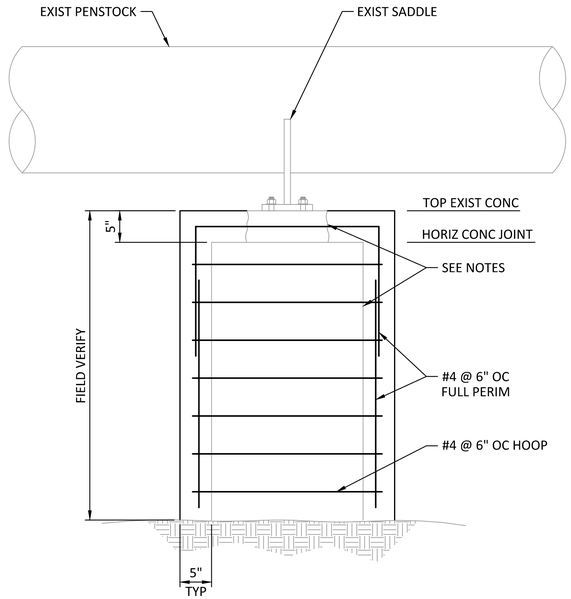
1 S300



SUPPORT @ NO. 105 - PLAN

SCALE: NTS

2 S300



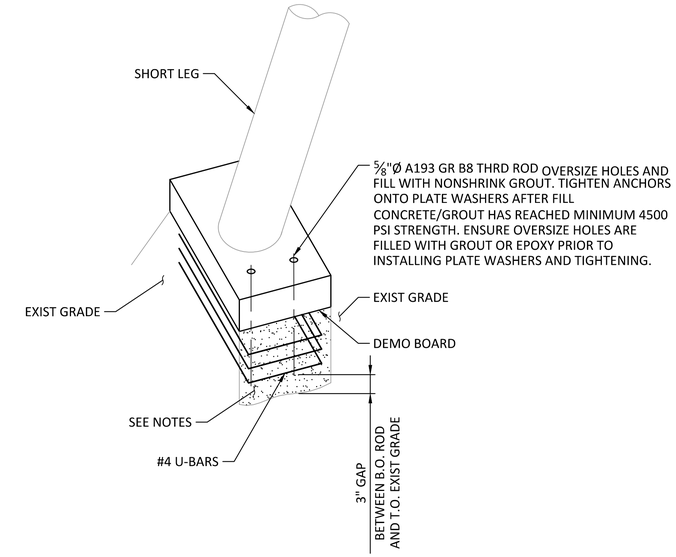
NOTES:
1. REMOVE ALL UNSOUND OR DETERIORATED CONCRETE.
2. REMOVE PREVIOUS REPAIRS THAT ARE FAILING.
3. ROUGHEN ALL EXISTING SURFACES AND REMOVE ANY COATINGS LEAVING A SURFACE ROUGHENED TO A MINIMUM 1.4-INCH AMPLITUDE.
4. DAMPEN ALL SURFACES PRIOR TO PLACING NEW CONCRETE.

SUPPORT @NO. 68 - SECTION

SCALE: 1"= 1'-0"

0' 1' 2'

A -



NOTES:
1. REMOVE ALL LOOSE MATERIAL AND CLEAN BOTH CONCRETE AND SUBGRADE.
2. FORM OVERSIZED FOUNDATION UNDER EXISTING FOOTING WITH BIRDSMOUTH THAT PERMITS INSERTION OF PENCIL VIBRATOR TO ENSURE CONCRETE OR GROUT COMPLETELY FILLS EXISTING VOID.
3. PRIOR TO PLACING CONCRETE/GROUT INSTALL #4 U-BAR BARS AT 6-INCHES ON CENTER, MINIMUM OF 3 THAT EXTEND TO BACKSIDE OF UNDERMINED FOOTING
4. FILL WITH 4500 PSI CONCRETE OR NON-SHRINK GROUT EXTENDED WITH PEA GAVEL.

SUPPORT @ NO. 105 - SECTION

SCALE: NTS

B -

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49th MARK MERKLEIN No. 185381 REGISTERED PROFESSIONAL ENGINEER 9-19-22

WARNING

0 1/2 1

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

McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

PENSTOCK PEDESTAL SUPPORT DETAILS 1

DESIGNED G. CLARK

DRAWN R. GUERRERO

CHECKED M. MERKLEIN

PROJECT DATE 09/19/22

DRAWING

S302

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\S302.dwg Plot date: Sep 19, 2022 04:13pm, CAD User: Guerrero

GENERAL NOTES FOR PROCESS MECHANICAL DRAWINGS:

1. FOR EXTERIOR YARD PIPING, SEE CIVIL ("C") DRAWINGS. FOR INTERIOR PROCESS PIPING AND PLANT/PROCESS DRAINS, SEE PROCESS MECHANICAL AND FLOOR DRAIN PIPING ("M") DRAWINGS. FOR MECHANICAL AND OTHER HVAC EQUIP. - SEE HVAC ("H") DRAWINGS.
2. SEE GENERAL ("G") DRAWINGS FOR ADDITIONAL NOTES, LEGEND, SYMBOLS, ABBREVIATIONS, AND EQUIPMENT, PIPE, AND AREA DESIGNATION SYSTEMS
3. PIPING SHALL RUN THROUGH EXIST CONC. SLABS AND WALLS WHERE INDICATED ON THE DRAWINGS UTILIZING CONC. CORE-DRILLED HOLES THRU WALLS WHERE SHOWN ON DRAWINGS. DIAMETER OF CORE-DRILLED HOLES SHALL BE BETWEEN 2 TO 4-INCHES LARGER THAN OD OF NEW PIPE PENETRATION.
4. ALL PIPING NEAR VALVES, FITTINGS, APPURTENANCES, EXPANSION JOINTS, COUPLINGS, AND EQUIPMENT CONNECTIONS ARE TO BE PROPERLY SUPPORTED AND ANCHORED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS (IN ADDITION TO PIPE SUPPORT REQUIREMENTS OF THE CONTRACT DOCUMENTS). SUPPORT AND THRUST DETAILS SHALL BE ACCEPTABLE TO THE DESIGN ENGINEER AND SHALL BE BASED UPON ALL PIPES FULL OF WATER.
5. PIPING SHALL BE INSTALLED SUCH THAT ANY PIPES, LAYER OF PIPING, OR EQUIPMENT CAN BE REMOVED WITHOUT DISTURBING REMAINING PIPES OR SUPPORTS. PIPE ANCHORS, EQUIPMENT, AND PIPE SUPPORTS / HANGERS ARE TYPICALLY NOT SHOWN FOR PIPES OF 2-INCH DIAMETER AND SMALLER. SEE CONTRACT SPECIFICATIONS AND STANDARD DETAILS.
6. WHERE MECHANICAL (SPLIT RING) OR SLEEVE-TYPE COUPLINGS ARE REQUIRED, INSURE THAT THE JOINTS ARE FULLY SEPARATED AND EQUALLY SPACED EACH SIDE OF SEPARATION AFTER THE RINGS ARE IN PLACE AND PRIOR TO TIGHTENING THE BOLTS. FOLLOW ALL COUPLING MANUFACTURER RECOMMENDATIONS FOR PROPER INSTALLATION.
7. EQUIPMENT PADS INDICATED ARE APPROXIMATE. EXACT DIMENSIONS SHALL BE DETERMINED BY THE FINAL APPROVED SUBMITTALS AND EQUIPMENT VENDOR REQUIREMENTS. ALL FLOOR-MOUNTED EQUIPMENT, UNO, SHALL BE SET ON EQUIPMENT PADS IN ACCORDANCE WITH THE TYPICAL EQUIPMENT PAD AND ANCHOR BOLT DETAILS SHOWN ON THE STRUCTURAL DRAWINGS AND AS SPECIFIED.
8. THE FINAL ORIENTATION OF VALVE OPERATORS INCLUDING HANDWHEELS AND GEAR OPERATORS SHALL BE COORDINATED BETWEEN THE CONTRACTOR AND DESIGN ENGINEER / CONSTRUCTION MANAGER DURING SHOP DRAWING SUBMITTALS AND INSTALLATION.
9. THE CONTRACTOR IS RESPONSIBLE FOR MAKING NECESSARY MINOR ADJUSTMENTS TO LAYOUTS AND DIMENSIONS SHOWN TO ACCOMMODATE FINAL EQUIPMENT FURNISHED.
10. SEE ACCOMPANYING SPECIFICATIONS FOR FULL CONTRACT REQUIREMENTS.
11. WHERE DRAWINGS AND SPECIFICATIONS CONFLICT, SPECIFICATIONS SHALL TAKE PRECEDENCE.
12. EQUIPMENT MANUFACTURER IS RESPONSIBLE FOR COMPREHENSIVE "WATER TO WIRE" SYSTEM DESIGN.
13. DESIGN ALL PIPING, EQUIPMENT, ETC TO AVOID INTERFERENCE WITH THE OPERATION AND SERVICING OF ALL EQUIPMENT. IN GENERAL, DO NOT INSTALL ANYTHING ABOVE OR WITHIN 3' IN FRONT OF ELECTRICAL GEAR.
14. LOCATE EQUIPMENT, COMPONENTS, FITTINGS, ETC THAT REQUIRE ACCESS FOR MAINTENANCE OR INSPECTION IN EASILY ACCESSIBLE AREAS. IF EQUIPMENT CANNOT BE LOCATED IN EASILY ACCESSIBLE AREAS, PROVIDE ACCESS DOORS, PANELS, ETC AS REQUIRED TO FACILITATE OPERATIONS AND MAINTENANCE.
15. DIMENSIONS ARE IN INCHES AND DEFAULT TOLERANCES SHALL BE:
    X ±.1
    XX ±.01
    XXX ±.005
    XXXX ±.0005
    ANGLES ±½"

MANUFACTURING AND SHIPPING NOTES:

1. BREAK ALL CORNERS AND SHARP EDGES.
2. COAT ALL FERROUS SURFACES EXCEPT AS REQUIRED FOR FACE TO FACE CONTACT. PROTECT EXPOSED SURFACES WITH COSMOLINE OR SIMILAR CORROSION PREVENTATIVE.
3. MECHANICAL COMPONENTS TO BE PACKAGED FOR STORAGE DURATION AND TO BE KEPT FREE OF MOISTURE AND DEBRIS.

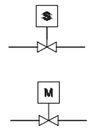
EQUIPMENT NOTES:

1. NPT THREAD NOT ALLOWED FOR OIL AND AIR LINES.
2. PRESSURE VESSELS SHALL BE DESIGNED, CONSTRUCTED AND STAMPED PER ASME BPVC.
3. ANTI-SEIZE COMPOUNDS SHALL BE BOSTIK MARINE GRADE NEVER-SEEZ, PRODUCED BY BOSTIK FINDLEY, INC, OR APPROVED EQUAL. APPLY THE ANTI-SEIZE COMPOUND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

DEMOLITION NOTES:

1. REMOVE ALL EXISTING CONSTRUCTION AND FINISH NECESSARY FOR THE COMPLETION OF THE WORK DEPICTED ON THE DRAWINGS. INCLUDING BUT NOT LIMITED TO, ITEMS SHOWN ON THE PLANS WITH DASHED LINES. NECESSARY DISCONNECTS AND ALTERATIONS TO EXISTING MECHANICAL AND ELECTRICAL SYSTEMS SHALL BE INCLUDED. PATCH AS REQUIRED ALL CONSTRUCTION IS DESIGNATED TO MAKE REMOVALS, DISPOSITION OF MATERIALS IS THE RESPONSIBILITY OF THE CONTRACTOR. VERIFY WITH OWNER, THE DISPOSITION AND REMOVAL OF ANY COMPONENTS OF SALVAGEABLE VALUE.
2. ALL REMOVALS AND SALVAGE, UNLESS SPECIFICALLY NOTED OR REQUESTED BY THE OWNER SHALL BECOME THE PROPERTY OF THE CONTRACTOR.

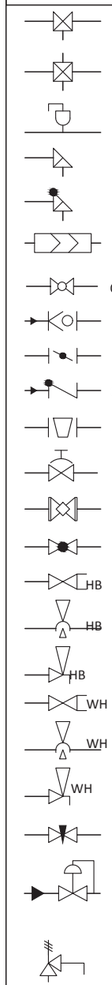
VALVE AND GATE ACTUATORS



SOLENOID OPERATOR

ELECTRIC MOTOR OPERATOR

VALVES



3 WAY MULT-PORT VALVE

4 WAY MULTI-PORT VALVE

AIR VACUUM, AIR RELEASE, OR
AIR VACUUM AND AIR RELEASE ASSEMBLY

ANGLE VALVE

ANGLE CHECK VALVE

BACKFLOW PREVENTER VALVE

OR BALL VALVE

BALL CHECK VALVE

BUTTERFLY VALVE

OR CHECK VALVE

CONE VALVE

DIAPHRAGM VALVE

ECCENTRIC PLUG VALVE

GLOBE VALVE

HOSE BIBB
FROM TOP, FRONT AND SIDE VIEW

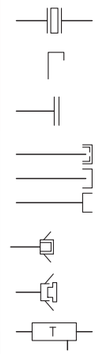
WHARF HYDRANT
FROM TOP, FRONT AND SIDE VIEW

NEEDLE VALVE

PRESSURE REGULATING VALVE

PRESSURE RELIEF VALVE

FITTINGS AND ACCESSORIES



ANNULAR SEAL

ATMOSPHERIC VENT

BLIND FLANGE

CAP (THREAD-ON)

CAP (WELD-ON)

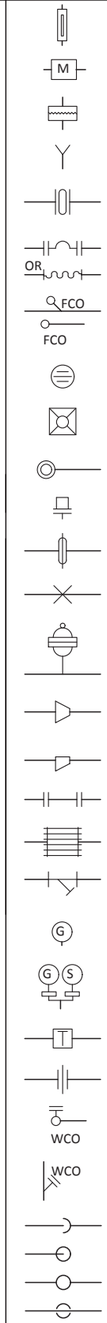
QUICK DISCONNECT

MALE QUICK DISCONNECT WITH CAP

FEMALE QUICK DISCONNECT WITH CAP

CONDENSATE TRAP

FITTINGS AND ACCESSORIES



CALIBRATION COLUMN

FLOW METER

DIAPHRAGM SEAL

DRAIN

EXPANSION JOINT

FLEXIBLE CONNECTION

FLOOR CLEANOUT

FLOOR DRAIN

FLOOR SINK

HUB DRAIN

LEVEL TRANSMITTER

MECHANICAL TYPE COUPLING

PIPE SUPPORT (PLAN)

PULSATION DAMPENER

REDUCER - CONCENTRIC

REDUCER - ECCENTRIC

REMOVABLE SPOOL PIECE

SLEEVE TYPE COUPLING

STRAINER - WYE TYPE

PRESSURE GAGE

PRESSURE GAGE AND SWITCH WITH DIAPHRAGM SEALS

TRAP

UNION

WALL CLEANOUT

VERT ELBOW DOWN

VERT ELBOW UP

VERT TEE UP

VERT TEE DOWN

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49TH JOSEPH CARSON No. ME-14630 REGISTERED PROFESSIONAL ENGINEER
Sept 19, 2022

WARNING
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

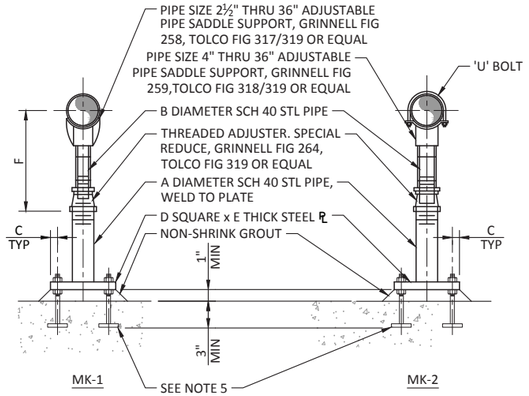
STANDARD MECHANICAL
NOTES AND SYMBOLS

DESIGNED J. CARSON
DRAWN R. GUERRERO
CHECKED D. JARRETT
PROJECT DATE 09/19/22

DRAWING
GM001

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\GM001.dwg Plot date: Sep 19, 2022 04:13pm, CAD User: Guerrero

JOB NO: 1000000



DIMENSIONS IN INCHES							
NOMINAL PIPE SIZE	A	B	C	D	E	F (APPROX)	
						(MIN)	(MAX)
2½	2	1½	2	6	⅜	7	11½
3	2	1½	2	6	⅜	7 5/16	11 13/16
3½	2	1½	2	6	⅜	7 9/16	12 1/16
4	3	*2½/3	1⅛	7½	½	10¼	14¾
6	3	*2½/3	1⅛	7½	½	11 9/16	16 1/16
8	3	*2½/3	1⅛	7½	½	13 9/16	18 1/16
10	3	*2½/3	1⅛	7½	½	14⅝	19⅛
12	3	*2½/3	1⅛	7½	½	15⅝	20⅛
14	4	3	1¼	9	⅝	18⅞	23⅜
16	4	3	1¼	9	⅝	19⅞	24⅜
18	6	4	1½	11	¾	22¼	26¾
20	6	4	1½	11	¾	23¼	27¾
24	6	4	1½	11	¾	26½	31
30	6	4	1½	11	¾	29⅝	34⅛
32	6	4	1½	11	¾	30⅝	35⅛
36	6	4	1½	11	¾	32⅝	37⅛

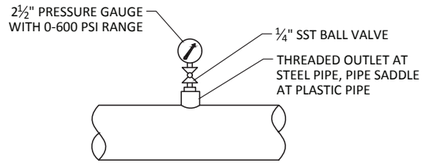
* SEE MANUFACTURER

NOTES:
1. FOR ADDITIONAL REQUIREMENTS SEE SPEC SECTION 'PIPE SUPPORTS'.
2. GALVANIZE ALL PARTS AFTER FABRICATION.
3. WHERE PIPE SUPPORT OCCURS ON GRADE REFER TO STRUCTURAL DRAWINGS FOR DETAILS.
4. THIS PIPE SUPPORT IS LIMITED TO PIPE FROM 2½" DIAMETER TO 36" DIAMETER INCLUSIVE.
5. GALVANIZED ANCHOR BOLT OR CONCRETE ANCHOR WITH TWO NUTS AND ONE LOCKWASHER. PROVIDE BAR 4x½x4" WELDED TO BOLT. TYP OF 4, SEE SPECS.

ADJUSTABLE PIPE SUPPORT WITH OR WITHOUT 'U' BOLT

M108

SCALE: NTS



PRESSURE GAUGE

M109

SCALE: NTS

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49TH — JOSEPH CARSON — No. ME-14630 — REGISTERED PROFESSIONAL ENGINEER — Sept 19, 2022

WARNING
0 1/2 1
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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

STANDARD MECHANICAL DETAILS

DESIGNED J. CARSON
DRAWN R. GUERRERO
CHECKED D. JARRETT
PROJECT DATE 09/19/22

DRAWING
GM002

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\GM002.dwg Plot date: Sep 19, 2022 04:14pm, CAD User: Guerrero

EQUIPMENT OFCI	.= EQUIPMENT OWNER-FURNISHED, CONTRACTOR INSTALLED (OFCI)
EQUIPMENT NIC	.= EQUIPMENT NOT-IN-CONTRACT; FOR REFERENCE ONLY & FOR NEW ELECT. CONDUIT & WIRING WORK CARRIED OUT BY CONTRACTOR

TURBINE-GENERATOR PACKAGE SCHEDULE

EQUIPMENT NUMBER	LOCATION / FLUID SERVICE	EQUIPMENT DESCRIPTION	FLOW CAPACITY (CFS) @ NET HEAD (FT)	GENERATOR SIZE (kW)	ELECT. SERVICE (VAC/PH/HZ)	EQUIPMENT SUPPLIED BY:	MOUNTING TYPE / WORKING PRESSURE	COMMENTS
TUR-100	INDOORS POWERHOUSE, HIGH PRESSURE RW	HORIZONTAL SHAFT, 2-JET PELTON TURBINE	25 CFS @ 1110 TO 1155 FT	2,100	2300 /3 / 60	OWNER / TGSM	SEE EP SPEC 48 13 13 / 545 PSIG + SURGE	INCLUDES NEEDLES, DEFLECTORS, ACTUATORS, INSTRUMENTATION AND CONTROLS

LUBRICATION OIL & HYDRAULIC POWER UNITS SCHEDULE

EQUIPMENT NUMBER	LOCATION / FLUID SERVICE	EQUIPMENT DESCRIPTION	FLOW (GPM) AT TDH (PSIG)	RATED POWER (HP)*	ELECT. SERVICE (VAC/PH/HZ)	EQUIPMENT SUPPLIED BY:	MOUNTING TYPE / WORKING PRESSURE	COMMENTS
LPU-101	INDOORS POWERHOUSE, LUBRICATION OIL	LUBE OIL UNIT, PUMP #1	6.4 @ 145	1.5 KW	480 /3 / 60	OWNER / TGSM	SKID MOUNTED / PER REQUIREMENTS OF GEN. BEARINGS & SYSTEM	
LPU-102	INDOORS POWERHOUSE, LUBRICATION OIL	LUBE OIL UNIT, PUMP #2	6.4 @ 145	1.5 KW	480 /3 / 60	OWNER / TGSM	SKID MOUNTED / PER REQUIREMENTS OF GEN. BEARINGS & SYSTEM	
LPU-103	INDOORS POWERHOUSE, LUBRICATION OIL	LUBE OIL UNIT, PUMP #3	5.8 @ 145	1.5 KW	125 VDC	OWNER / TGSM	SKID MOUNTED / PER REQUIREMENTS OF GEN. BEARINGS & SYSTEM	
ME-104	INDOORS POWERHOUSE, NONE	LUBE OIL UNIT ELECTRIC HEATER	NONE	1.0 KW	480 /3 / 60	OWNER / TGSM	SKID MOUNTED / PER REQUIREMENTS OF TGSM	
HPU-105	INDOORS POWERHOUSE, HYD. SYSTEM OIL	HYDRAULIC POWER UNIT, PUMP #1	3.2 @ 1508	1.0 KW	480 /3 / 60	OWNER / TGSM	SKID MOUNTED / PER REQMNTS OF TIV & OTHER TURBINE UNIT ACCESSORIES	
HPU-106	INDOORS POWERHOUSE, HYD. SYSTEM OIL	HYDRAULIC POWER UNIT, PUMP #2	3.2 @ 1508	1.0 KW	480 /3 / 60	OWNER / TGSM	SKID MOUNTED / PER REQMNTS OF TIV & OTHER TURBINE UNIT ACCESSORIES	
HPU-107	INDOORS POWERHOUSE, HYD. SYSTEM OIL	HYDRAULIC POWER UNIT, PUMP #3	SEE EP SPECS	1.0 KW	125 VDC	OWNER / TGSM	SKID MOUNTED / PER REQMNTS OF TIV & OTHER TURBINE UNIT ACCESSORIES	
ME-108	INDOORS POWERHOUSE, HYD. SYSTEM OIL	HYDRAULIC POWER UNIT, ACCUMULATOR	NONE	NONE	NONE	OWNER / TGSM	SKID MOUNTED / PER REQMNTS OF TIV & OTHER TURBINE UNIT ACCESSORIES	

TURBINE INLET VALVE SCHEDULE

EQUIPMENT-VALVE NUMBER	LOCATION / FLUID SERVICE	EQUIPMENT DESCRIPTION	DIAMETER (IN)	ASME PRESSURE CLASS	ELECT. SERVICE (VAC/PH/HZ)	EQUIPMENT SUPPLIED BY:	MOUNTING TYPE / HYDROSTATIC PRESSURE + SURGE PRESS	ACTUATOR TYPE (NORMAL POSITION)
TIV-110	INDOORS POWERHOUSE, HIGH PRESSURE RW	TURBINE INLET BALL VALVE	14	600	HYDRAULIC	OWNER / TGSM	ASME B16.5 - CLASS 600 FLANGED ENDS - RAISED FACE / 545 PSIG + SURGE	HYDRAULIC, COUNTER-WEIGHED, PLC CONTROLLED (OPEN)
V-111	INDOORS POWERHOUSE, HIGH PRESSURE RW	TIV BYPASS BALL VALVE	2	600	NONE	OWNER / TGSM	ASME B16.5 - CLASS 600 FLANGED ENDS - RAISED FACE / 545 PSIG + SURGE	MANUAL LEVER (OPEN)
V-112	INDOORS POWERHOUSE, HIGH PRESSURE RW	TIV BYPASS BALL VALVE	2	600	HYDRAULIC	OWNER / TGSM	ASME B16.5 - CLASS 600 FLANGED ENDS - RAISED FACE / 545 PSIG + SURGE	HYDRAULIC, PLC CONTROLLED (CLOSED)
V-120	INDOORS POWERHOUSE, LOW PRESSURE RW	BALL VALVE / LOW PRESSURE PIPE DRAIN	1	300	NONE	CONTRACTOR	ASME B16.5 - CLASS 300 FLANGED ENDS - RAISED FACE / 545 PSIG + SURGE	HAND LEVER (CLOSED). ONLY OPEN AFTER PENSTOCK HAS BEEN DEWATERED

PRESSURE TRANSMITTER (PE / PIT-x) SCHEDULE

EQUIPMENT NUMBER	LOCATION / FLUID SERVICE	EQUIPMENT / ELEMENT DESCRIPTION	MFTR & MODEL #	MEASURING RANGE	ELECT. SERVICE (VAC/PH/HZ)	EQUIPMENT SUPPLIED BY:	MOUNTING TYPE / WORKING PRESSURE	COMMENTS
PT-120	INDOORS, DISCH SIDE OF TIV / HIGH PRESS RW	NON-VENTED PT W/ 4-20 MA OUTPUT TO MCP-100	VEGABAR 38	0-600 PSI	12/24 VDC via MCP	OWNER / TGSM	0.5" TAP w/ ISOL. 304 SS BALL VALVE	304 SS SUSPENSION WIRE w/ POLYESTER POWDER COATING
PT-121	INDOORS, UPSTREAM SIDE OF TIV / HIGH PRESS RW	NON-VENTED PT W/ 4-20 MA OUTPUT TO MCP-100	VEGABAR 38	0-600 PSI	12/24 VDC via MCP	OWNER / TGSM	0.5" TAP w/ ISOL. 304 SS BALL VALVE	304 SS SUSPENSION WIRE w/ POLYESTER POWDER COATING
PSL-121	INDOORS, DISCH SIDE OF TIV / HIGH PRESS RW	ON-LINE PRESSURE SWITCH DISCRETE (LOW)		MIN ADJUST XX - YY PSIG	120 /1 / 60	OWNER / TGSM	0.5" TAP w/ ISOL. 304 SS BALL VALVE	ON ASSEMBLY W/ PRESS GAUGE, (SEE ELECT. DRAWINGS)

MECHANICAL EQUIPMENT (ME-x) SCHEDULE

EQUIPMENT NUMBER	LOCATION / FLUID SERVICE	EQUIPMENT DESCRIPTION	FLOW CAPACITY / SIZE / DUTY OR STANDBY?	DISCH. HEAD FLANGE SIZE	ELECT. SERVICE (VAC/PH/HZ)	EQUIPMENT SUPPLIED BY:	MOUNTING TYPE / WORKING PRESSURE	COMMENTS
ME-180	INDOORS POWERHOUSE / COMPRESSED AIR	EXISTING AIR COMPRESSOR	5-TON	??	480 /3 / 60	OWNER (EXISTING)	VERTICAL RECEIVER / 150 PSIG., NIC	PROVIDE NEW CONDUIT & WIRING TO EXIST. UNIT FROM 480 VAC DIST PANEL
ME-182	INDOORS POWERHOUSE / N/A	EXISTING BRIDGE CRANE	15-TON	N/A	NONE	OWNER (EXISTING)	OVERHEAD CRANE RAILS	CRANE WILL BE AVAILABLE FOR CONTRACTOR'S USE

FLOW METER ELEMENT (FE-x) SCHEDULE

EQUIPMENT NUMBER	LOCATION / FLUID SERVICE	EQUIPMENT / METER DESCRIPTION	~ FLOW RANGE (CFS) / NOM. DIAMETER (IN)	METER ENDS	ELECT. SERVICE (VAC/PH/HZ)	FLOW METER & XMTR SUPPLIED BY:	ELECTRODES / BODY LINER MATERIAL	SENSOR & XMIT NEMA RATING (Provide Grounding Rings for all Mag Meters)
FE - 200	OUTDOORS, NEW PENSTOCK / HIGH PRESS. RW	MAGNETIC - PIPE SPOOL, RF FLANGED ENDS	8 TO 25 / 20"	FLG ANSI B16.5- CLS 300	120 /1 / 60	OWNER	316L SS / POLYURETHANE OR BUTYL/HARD RUBBER	NEMA 4X REMOTE MOUNT XMIT INSIDE PH / 4-20mA OUTPUT TO MCP-100 FOR FLOW CONFIRM

PENSTOCK VALVE SCHEDULE (2" AND LARGER, ALL VALVES SUPPLIED BY OWNER & INSTALLED BY CONTRACTOR)

VALVE NUMBER	LOCATION / FLUID SERVICE (NOTE 1)	DESCRIPTION / BODY MATERIALS	VALVE FLANGED-END TYPE	DIAMETER (INCHES)	MIN PRES. & VELOCITY RATING (PSIG)	MFTR SERIES # OR EQUAL:	VALVE-DISC SHAFT / SEAT MATERIALS	ACTUATOR TYPE, (NORMAL POSITION)
V-200	OUTDOORS, ISOLATION ON INTAKE PIPELINE / RW	DUAL-OFFSET BUTTERFLY / 2205 DUPLEX SS	ASME B16.5, CLASS 300 OR 400,	12	CLASS 150B	AV-TEK AWWA DEX	2205 DUPLEX SS / Ni-Cr 316L WELDED BODY SEAT W/ NAT. RUBBER ELASTOMER	HANDWHEEL MANUAL (CLOSED)
V-201	OUTDOORS, ISOLATION ON BP PIPELINE / RW	DUAL-OFFSET BUTTERFLY / 2205 DUPLEX SS	ASME B16.5, CLASS 300 OR 400,	12	CLASS 300C	AV-TEK AWWA DEX	2205 DUPLEX SS / Ni-Cr 316L WELDED BODY SEAT W/ NAT. RUBBER ELASTOMER	HANDWHEEL MANUAL W/ GEAR BOX (OPEN)
V-202	OUTDOORS, ISOLATION ON BP PIPELINE / RW	DUAL-OFFSET BUTTERFLY / 2205 DUPLEX SS	ASME B16.5, CLASS 300 OR 400,	12	CLASS 300C	AV-TEK AWWA DEX	2205 DUPLEX SS / Ni-Cr 316L WELDED BODY SEAT W/ NAT. RUBBER ELASTOMER	ELECTRIC MOTOR OPERATOR W/ GEAR BOX & HANDWHEEL MANUAL (CLOSED)
V-203	OUTDOORS, ISOLATION ON 2" BP PIPE / RW	BALL VALVE, BRONZE, 2 OR 3-PIECE BODY	ASME B16.5, CLASS 300 OR 400,	2	CLASS 300	APOLLO XXX	304 SS ASTM A276 SEATS FOR HIGH PRESSURE	LEVER MANUAL (CLOSED)
V-204	OUTDOORS, 1-STAGE PRES. REDUCTION ON BP PIPE	FIXED SLEEVE-VALVE, 304 SS INTERNALS	ASME B16.5, CLASS 300 STEEL	10" INSIDE 16" DIA HOUSING	CLASS 300	BAILEY B16, OR EQUAL	NA	NONE, FIXED ORIFICE DIA = 0.375", (OPEN)
V-205	OUTDOORS, 2-STAGE PRES. REDUCTION ON BP PIPE	FIXED SLEEVE-VALVE, 304 SS INTERNALS	ASME B16.5, CLASS 300 STEEL	10" INSIDE 16" DIA HOUSING	CLASS 300	BAILEY B16, OR EQUAL	NA	NONE, FIXED ORIFICE DIA = 0.500", (OPEN)

NOTE 1. ALL VALVES WILL BE IN FRESH-WATER SERVICE WITH TEMPERATURES RANGING FROM 35F TO 60F. ALL VALVES INSTALLED BY CONTRACTOR.

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49TH — JOSEPH CARSON — No. ME-14630 — REGISTERED PROFESSIONAL ENGINEER
Sept 19, 2022

WARNING
0 1/2 1
IF THIS BAR DOES NOT MEASURE 1" THEN DRAWING IS NOT TO SCALE.

McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

POWERHOUSE MECHANICAL
EQUIPMENT SCHEDULES 1

DESIGNED J. CARSON
DRAWN R. GUERERO
CHECKED D. JARRETT
PROJECT DATE 09/19/22

DRAWING
GM003

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\GM003.dwg Plot date: Sep 19, 2022 04:14pm, CAD User: Guerrero

EQUIPMENT OFCI	.= EQUIPMENT OWNER-FURNISHED, CONTRACTOR INSTALLED (OFCI)
EQUIPMENT NIC	.= EQUIPMENT NOT-IN-CONTRACT; FOR REFERENCE ONLY & FOR NEW ELECT. CONDUIT & WIRING WORK CARRIED OUT BY CONTRACTOR

EXHAUST FAN (EF-x) SCHEDULE

EQUIPMENT NUMBER	LOCATION / SERVICE	EQUIPMENT DESCRIPTION	FLOW CAPACITY AT DESIGN SP (CFM @ "WC)	MOTOR SPEED(S) (RPM)	ELECT. SERVICE (VAC/PH/HZ)	EQUIPMENT SUPPLIED BY:	MOTOR POWER / MOUNTING TYPE	COMMENTS / CONTROL
EF-185 (EXISTING)	INDOORS, WEST WALL OF PH / AMBIENT AIR	TUBE AXIAL FAN	8100 @ 0.25" SP	DUAL, 1725 / 1140	208 /3 / 60	OWNER (EXISTING)	COOK EDD 1.5 HP / WALL MOUNTED,	EXISTING FAN TO BE REUSED, NEW WIRING, CONDUIT & CONTROL SWITCH TO BE PROVIDED BY CONTRACTOR

LOUVER (L-x) SCHEDULE

EQUIPMENT NUMBER	LOCATION / SERVICE	EQUIPMENT DESCRIPTION	EXIST. WALL OPENING DIMENSIONS (WIDTH X HEIGHT)	MIN. FREE AREA (SQ-FT)	ELECT. SERVICE (VAC/PH/HZ)	EQUIPMENT SUPPLIED BY:	MOTOR POWER / MOUNTING TYPE	COMMENTS / CONTROL
L-184	EAST END WALL / OUTSIDE AMBIENT AIR	COMBINED, HORIZ. BLADE STATIONARY STORM LOUVER W/ GRAVITY BACKDRAFT DAMPER	45.75"x 45.63"	6.0	NONE	OWNER (EXISTING)	NONE / WALL-MOUNTED W/ NO DAMPERS	EXISTING LOUVER TO BE REUSED

ELECTRIC UNIT HEATER (EUH-x) SCHEDULE

EQUIPMENT NUMBER	LOCATION / SERVICE	EQUIPMENT DESCRIPTION	MIN. AIR FAN SIZE (HP)	HEATING CAPACITY (KW)	ELECT. SERVICE (VAC/PH/HZ)	EQUIPMENT SUPPLIED BY:	MOUNTING TYPE	COMMENTS / CONTROL
EUH-183	INDOOR, SE CORNER OF PH / INSIDE AIR	RESISTANCE COIL HEATER W/ BUILT-IN FAN UNIT	AS REQD BY MFTR	12.5kW	480 /3 / 60	CONTRACTOR	WALL MOUNT; BRACKET & THERMOSTAT BY EUH MFTR	RUNS OFF SELF CONTAINED T-STAT, SEE SPECS

AIR VACUUM (AV) AIR RELEASE (AR) VALVE SCHEDULE

VALVE NUMBER	LOCATION / SERVICE, WTR TEMP	VALVE TYPE, ENDS	INLET SIZE / OUTLET SIZE (INCHES)	BODY MATERIALS	VACUUM FLOW CAPACITY @ DP= 4 PSIG (SCFM)	CWP PRES. RATING (PSIG) OR CLASS	VALVE MFTR & SERIES # OR EQUAL	COMPRESSION SPRING AND MISC HARDWARE MTLS	VALVE SEAT & PLUG MTLS / HARDWARE MTLS	COATINGS & COMMENTS
AVAR-03	OUTDOORS STA 36+50, LARGE VOLUME AIR & VACUUM RELEASE, 33-50F	COMBIN. AIR-VACUUM RELEASE, SPRING LOAD (CRACKING PRESS 0F 0.25 PSIG) / ANSI B16.1 CLASS 150 FLANGED	6 / --	DI, ASTM A536, GRADE 65-45-12W/ 316 SS TRIM & HW	3800	CLASS 150	VALMATIC 1808AVB.1 (VAC BREAKER W/ AIR RELEASE)	ASTM A313, TYPE 316 STAINLESS STL	ASTM B584 ALLOY C87600 CAST BRONZE	FBE PER NSF/ANSI 61, PER AWWA C550; PROVIDE OPTIONAL HOOD ASSEMBLY
AVAR-04	OUTDOORS STA 14+50, LARGE VOLUME AIR & VACUUM RELEASE, 33-50F (ON MW-10 BLD FLG)	COMBIN. AIR-VACUUM RELEASE, SPRING LOAD (CRACKING PRESS 0F 0.25 PSIG) / ANSI B16.1 CLASS 300 FLANGED	6 / --	DI, ASTM A536, GRADE 65-45-12W/ 316 SS TRIM & HW	3800	CLASS 300	VALMATIC 1806AVB.1 (VAC BREAKER W/ AIR RELEASE VALMATIC 38.5 (ORIFICE = 5/32")	ASTM A313, TYPE 316 STAINLESS STL	ASTM B584 ALLOY C87600 CAST BRONZE	FBE PER NSF/ANSI 61, PER AWWA C550; PROVIDE OPTIONAL HOOD ASSEMBLY

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49TH — JOSEPH CARSON No. ME-14630 REGISTERED PROFESSIONAL ENGINEER — Sept 19, 2022

WARNING
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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

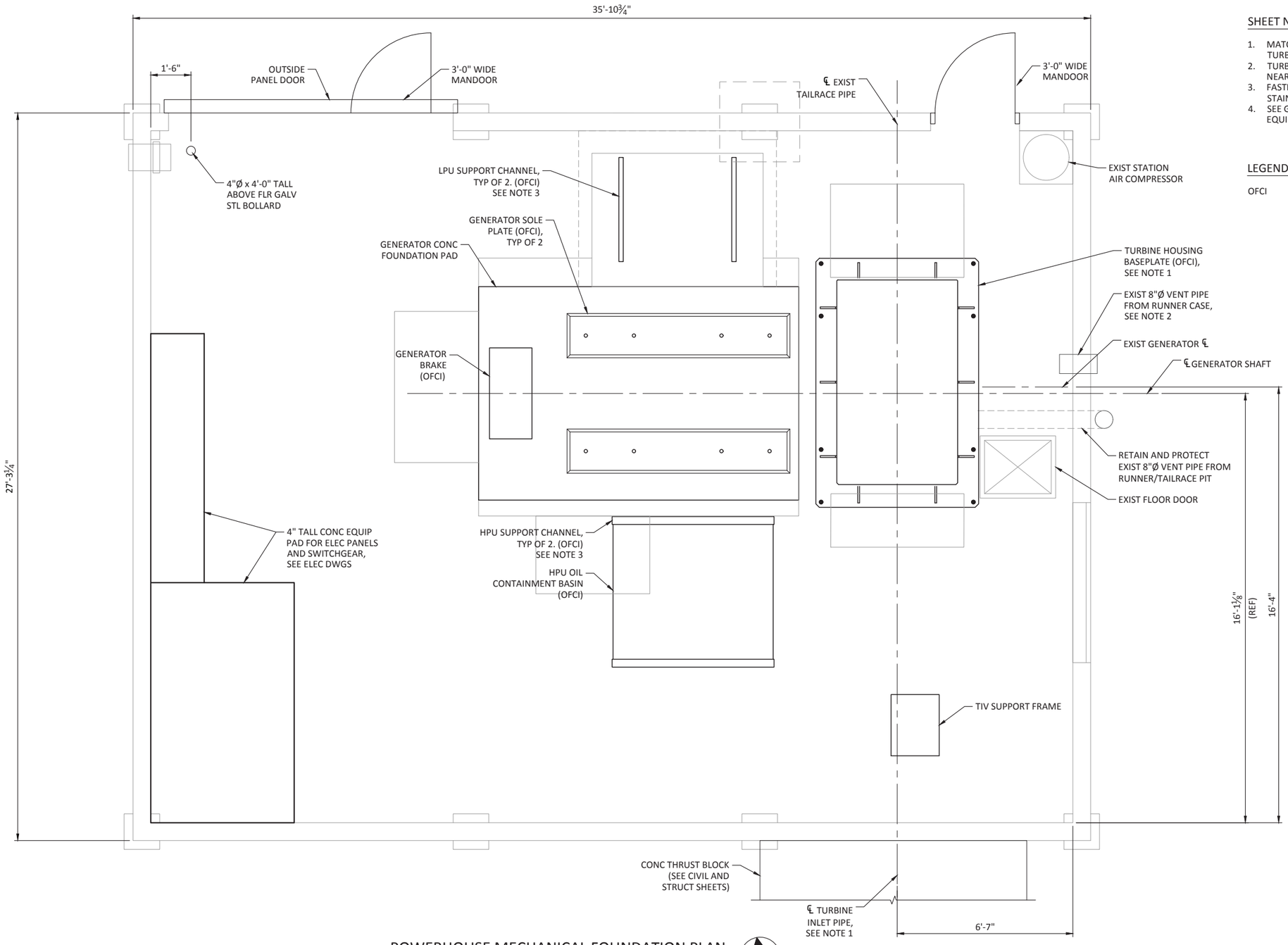
POWERHOUSE MECHANICAL
EQUIPMENT SCHEDULES 2

DESIGNED J. CARSON
DRAWN R. GUERERO
CHECKED D. JARRETT
PROJECT DATE 09/19/22

DRAWING
GM004

JOB NO: 0000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\GM004.dwg Plot date: Sep 19, 2022 04:14pm, CAD User: Guerrero



POWERHOUSE MECHANICAL FOUNDATION PLAN

SCALE: 1/2"= 1'-0"

0' 2' 4'

N

SHEET NOTES:

1. MATCH EXISTING TURBINE CENTERLINE, TO ALIGN THE GILKES TURBINE WITH THE EXISTING TURBINE PIT.
2. TURBINE CASE VENT IS NOT NEEDED FOR GILKES TURBINE; CUT PIPE NEAR WALL AND FILL WALL-EMBEDDED SEGMENT WITH GROUT.
3. FASTEN SUPPORT CHANNELS TO CONCRETE FLOOR USING STAINLESS STEEL EPOXY ANCHORS.
4. SEE GILKES REFERENCE DRAWINGS FOR DETAILS OF OFCI EQUIPMENT.

LEGEND:

OFCI OWNER FURNISHED, CONTRACTOR INSTALLED

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49TH — JOSEPH CARSON No. ME-14630 — REGISTERED PROFESSIONAL ENGINEER — Sept 19, 2022

WARNING

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

POWERHOUSE MECHANICAL FOUNDATION PLAN

DESIGNED J. CARSON

DRAWN R. GUERRERO

CHECKED D. JARRETT

PROJECT DATE 09/19/22

DRAWING

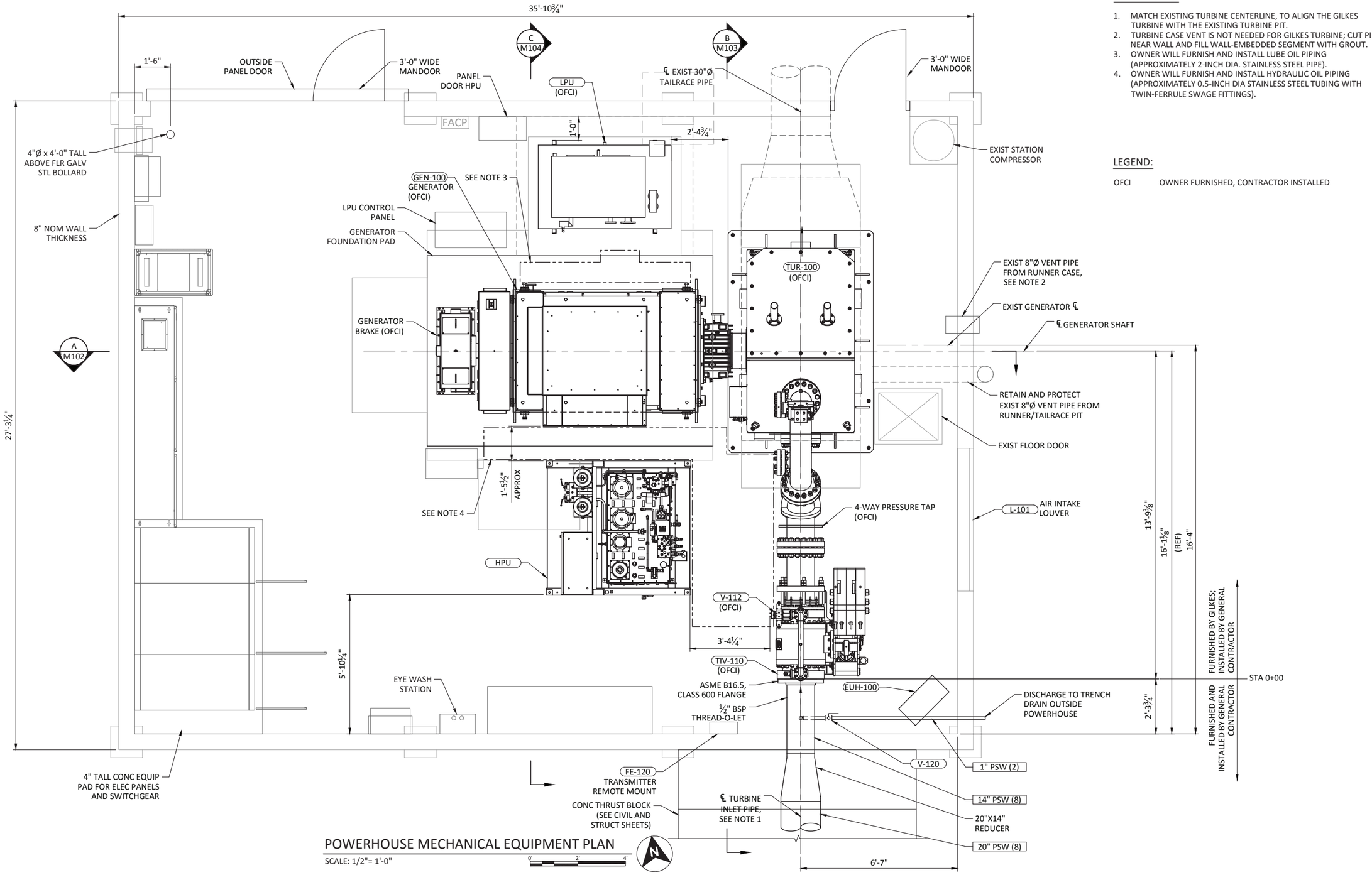
M100

SHEET NOTES:

1. MATCH EXISTING TURBINE CENTERLINE, TO ALIGN THE GILKES TURBINE WITH THE EXISTING TURBINE PIT.
2. TURBINE CASE VENT IS NOT NEEDED FOR GILKES TURBINE; CUT PIPE NEAR WALL AND FILL WALL-EMBEDDED SEGMENT WITH GROUT.
3. OWNER WILL FURNISH AND INSTALL LUBE OIL PIPING (APPROXIMATELY 2-INCH DIA. STAINLESS STEEL PIPE).
4. OWNER WILL FURNISH AND INSTALL HYDRAULIC OIL PIPING (APPROXIMATELY 0.5-INCH DIA STAINLESS STEEL TUBING WITH TWIN-FERRULE SWAGE FITTINGS).

LEGEND:

OFCI OWNER FURNISHED, CONTRACTOR INSTALLED



POWERHOUSE MECHANICAL EQUIPMENT PLAN

SCALE: 1/2"= 1'-0"

0' 2' 4'

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49TH — JOSEPH CARSON No. ME-14630 — REGISTERED PROFESSIONAL ENGINEER
Sept 19, 2022

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

POWERHOUSE MECHANICAL EQUIPMENT PLAN

DESIGNED J. CARSON
DRAWN R. GUERRERO
CHECKED D. JARRETT
PROJECT DATE 09/19/22

DRAWING
M101

JOB NO: 0000000

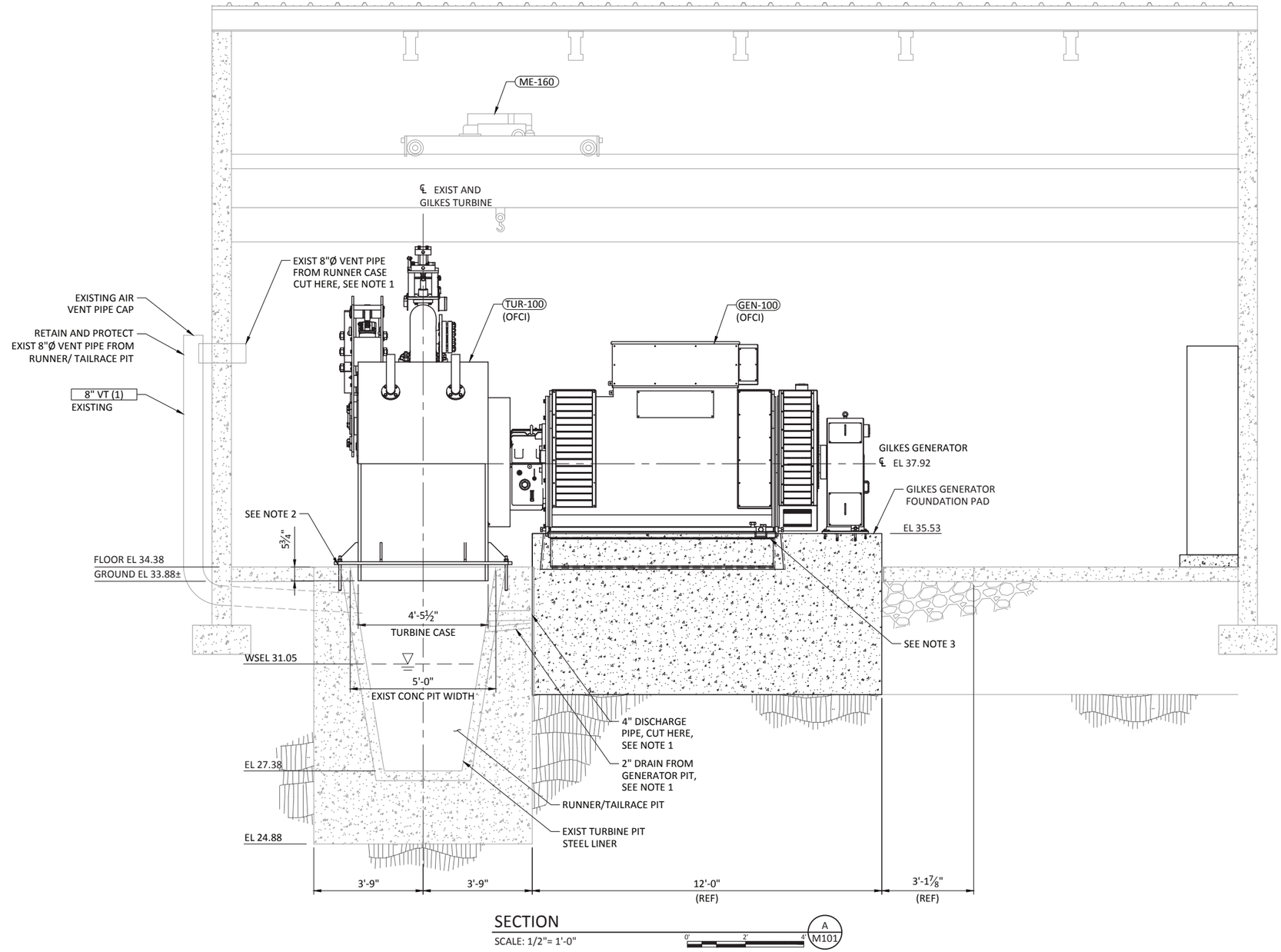
Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\M101.dwg Plot date: Sep 19, 2022 04:14pm, CAD User: Guerrero

SHEET NOTES:

1. THIS PIPE IS NOT NEEDED FOR GILKES TURBINE. FILL EMBEDDED SEGMENT WITH GROUT.
2. LEVEL AND GROUT TURBINE CASE FOUNDATION IN ACCORDANCE WITH TURBINE MANUFACTURER'S INSTRUCTIONS.
3. LEVEL AND GROUT GENERATOR IN ACCORDANCE WITH GENERATOR MANUFACTURER'S INSTRUCTIONS. SEE STRUCTURAL DRAWINGS FOR SOLE PLATE SECTION VIEW.

LEGEND:

OFCI OWNER FURNISHED, CONTRACTOR INSTALLED



SECTION
SCALE: 1/2"= 1'-0"

A M101

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49TH JOSEPH CARSON No. ME-14630 REGISTERED PROFESSIONAL ENGINEER Sept 19, 2022

WARNING
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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH
BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT
POWERHOUSE
MECHANICAL SECTIONS 1

DESIGNED J. CARSON
DRAWN R. GUERRERO
CHECKED D. JARRETT
PROJECT DATE 09/19/22

DRAWING
M102

JOB NO: 0000000

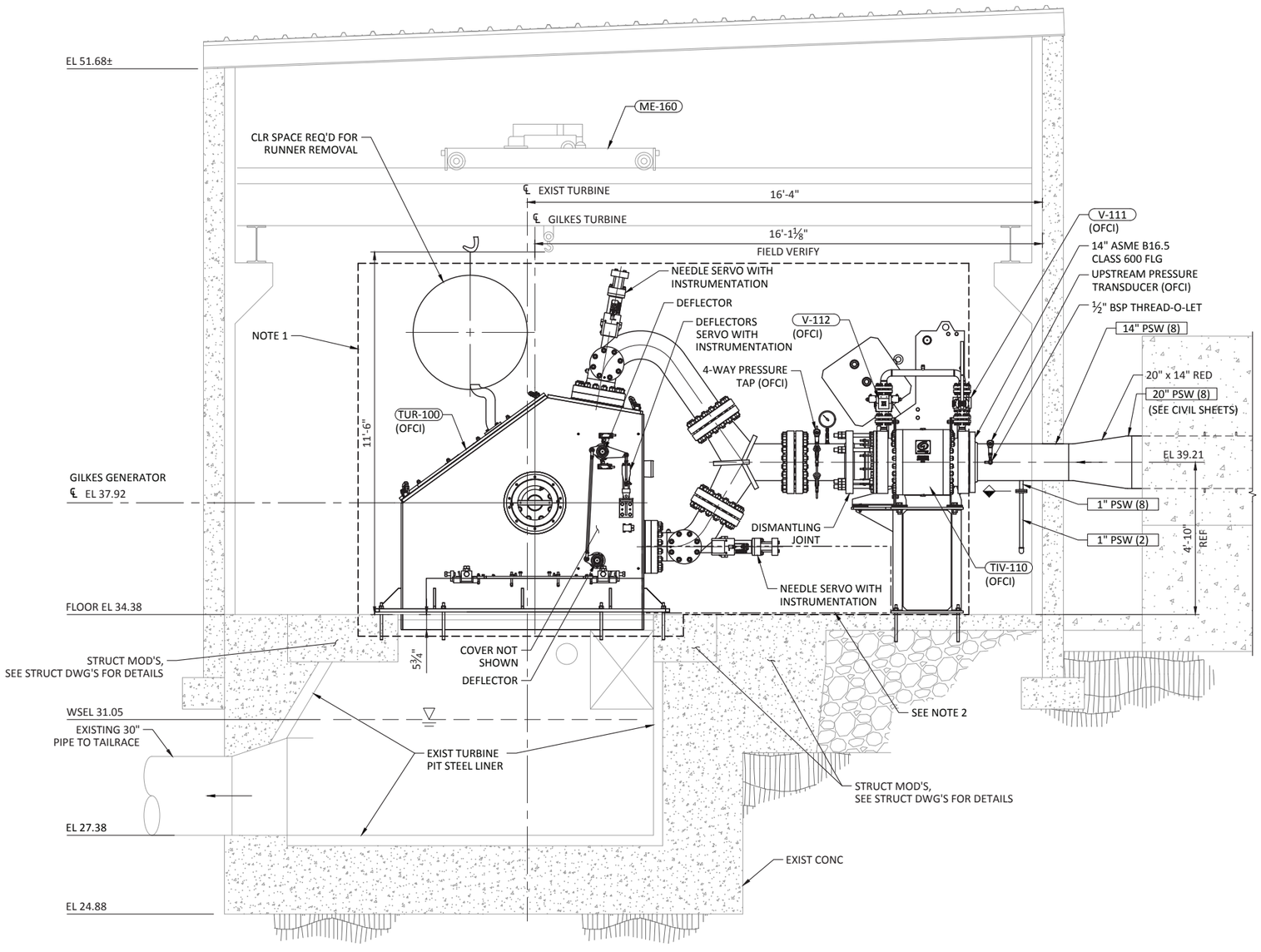
Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\M102.dwg Plot date: Sep 19, 2022 04:14pm, CAD User: Guerrero

SHEET NOTES:

1. THIS EQUIPMENT WILL BE FURNISHED BY OWNER AND SHALL BE INSTALLED BY CONTRACTOR. FOR ADDITIONAL INFORMATION, SEE REFERENCE DRAWINGS.
2. OWNER WILL FURNISH AND INSTALL HYDRAULIC OIL PIPING (APPROXIMATELY 0.5-INCH DIA STAINLESS STEEL TUBING WITH TWIN-FERRULE SWAGE FITTING.).

LEGEND:

OFCI OWNER FURNISHED, CONTRACTOR INSTALLED



SECTION
SCALE: 1/2"= 1'-0"

B
M101

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49TH JOSEPH CARSON No. ME-14630 REGISTERED PROFESSIONAL ENGINEER Sept 19, 2022

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

POWERHOUSE
MECHANICAL SECTIONS 2

DESIGNED J. CARSON
DRAWN R. GUERRERO
CHECKED D. JARRETT
PROJECT DATE 09/19/22

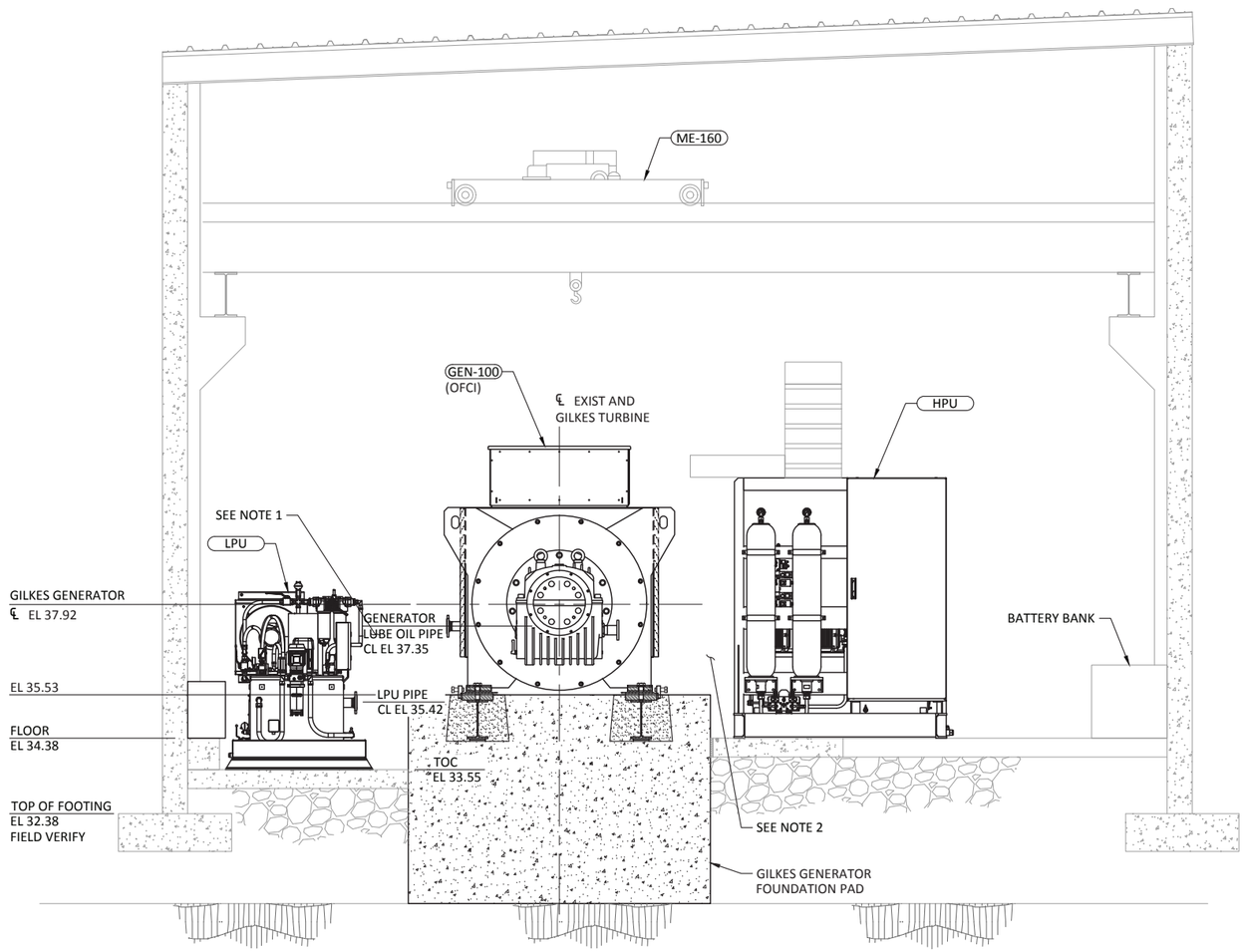
DRAWING
M103

SHEET NOTES:

1. OWNER WILL FURNISH AND INSTALL LUBE OIL PIPING (APPROXIMATELY 2-INCH DIA STAINLESS STEEL PIPE).
2. OWNER WILL FURNISH AND INSTALL HYDRAULIC OIL PIPING (APPROXIMATELY 0.5-INCH DIA STAINLESS STEEL TUBING WITH TWIN-FERRULE SWAGE FITTINGS).

LEGEND:

OFCI OWNER FURNISHED, CONTRACTOR INSTALLED



SECTION BLDG SECTION M-M (C / M101)

SCALE: 1/2"= 1'-0"

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

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WARNING

0 1/2 1

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

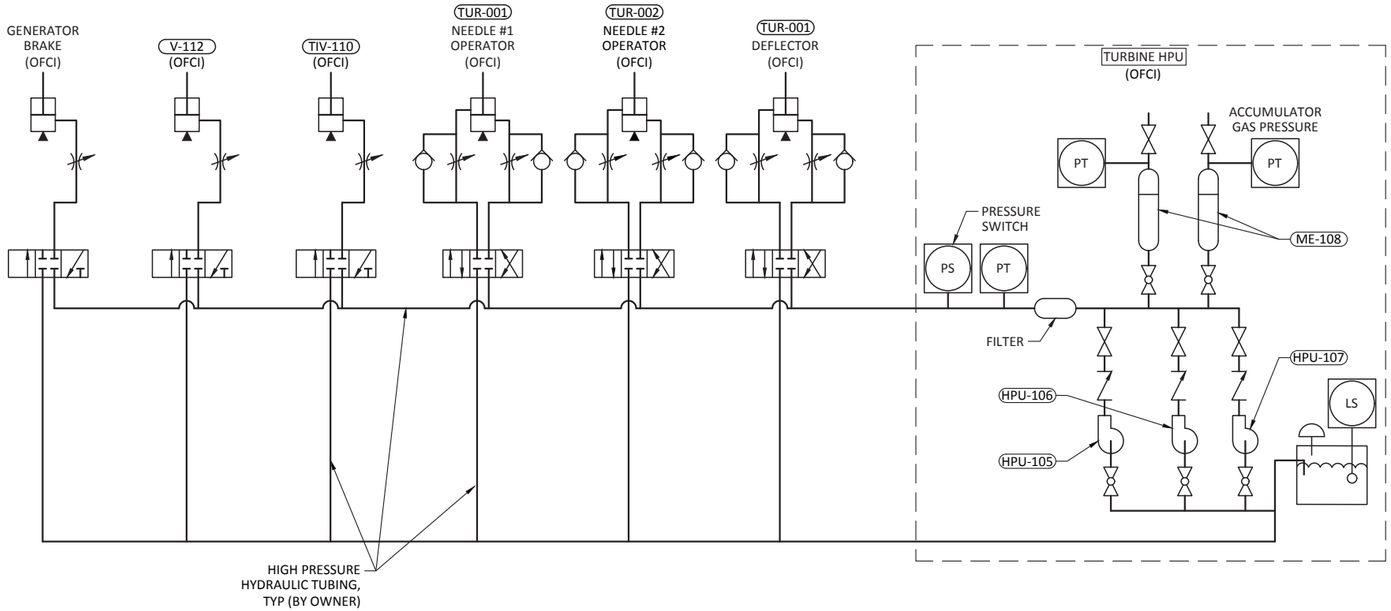
POWERHOUSE
MECHANICAL SECTIONS 3

DESIGNED J. CARSON
DRAWN R. GUERRERO
CHECKED D. JARRETT
PROJECT DATE 09/19/22

DRAWING
M104

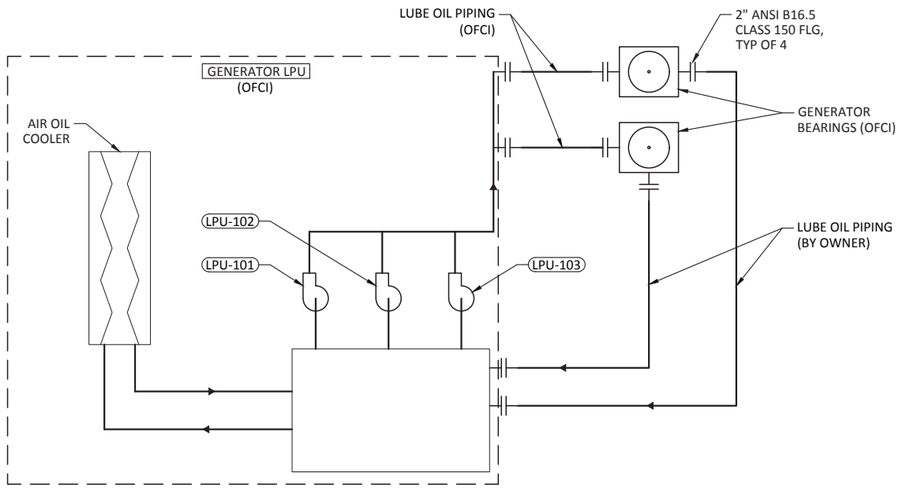
JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\M104.dwg Plot date: Sep 19, 2022 04:14pm, CAD User: Guerrero



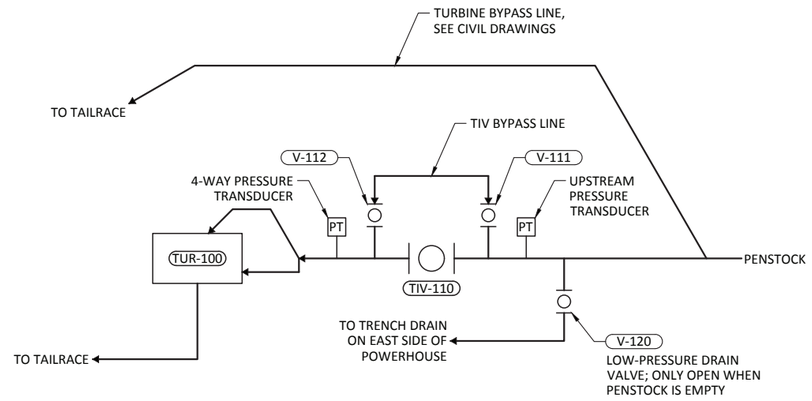
TURBINE HYDRAULIC PIPING SCHEMATIC

SCALE: NTS



GENERATOR BEARING LUBE OIL PIPING SCHEMATIC

SCALE: NTS



PENSTOCK DRAIN SCHEMATIC

SCALE: NTS

SHEET NOTES:

1. P&ID SCHEMATICS ARE TYPICAL.
2. REFERENCE EQUIPMENT SUPPLIER DETAILED SHOP DRAWINGS.

LEGEND

OFCI OWNER FURNISHED, CONTRACTOR INSTALLED

CHECK VALVE

SHUT-OFF VALVE

CYLINDER, SINGLE ACTING

CYLINDER, DOUBLE ACTING

FLANGED CONNECTION

FLANGED CONNECTION WITH ORIFICE PLATE

TURBINE, GENERATOR, OR BEARING

PUMP

"P" PUMP

"PT" PRESSURE TRANSDUCER

"PS" PRESSURE SWITCH

"H" HYDRAULIC

ACCUMULATOR

PRESSURE REDUCING VALVE

BALL VALVE

WYE STRAINER

DUPLEX BASKET STRAINER

HOSE BIB

PRESSURE GAUGE

REDUCER

GLOBE VALVE

UNIVERSAL AIR HOSE CONNECTOR

AIR COMPRESSOR

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49TH JOSEPH CARSON No. ME-14630 REGISTERED PROFESSIONAL ENGINEER
Sept 19, 2022

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

POWERHOUSE PROCESS PIPING SCHEMATIC

DESIGNED J. CARSON
DRAWN R. GUERRERO
CHECKED D. JARRETT
PROJECT DATE 09/19/22

DRAWING
M105

JOB NO: 0000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\M105.dwg Plot date: Sep 19, 2022 04:14pm, CAD User: Guerrero

ABBREVIATIONS

2TSP	MULTI-TWISTED TWO PAIR, OVERALL SHIELDED
A, AMP	AMP AMPERE
AAAC	ALL ALUMINUM ALLOY CONDUCTOR
AF	AMPERE FRAME SIZE
AFF	ABOVE FINISHED FLOOR
AH	AMPERE HOURS
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
AL	ALUMINUM
A/R	AS REQUIRED
AT	AMPERE TRIP, AUTO, AUTOMATIC
ATS	AUTOMATIC TRANSFER SWITCH
AUX	AUXILIARY
AVR	AUTOMATIC VOLTAGE REGULATOR
AWG	AMERICAN WIRE GAUGE
BLDG	BUILDING
C	CONDUIT
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CLF	CURRENT LIMITING FUSE
CTRL	CONTROL
CO	CONDUIT ONLY
CONTD	CONTINUED
CP	CONTROL PANEL
CR	CONTROL RELAY
CS	CONTROL SWITCH
CT	CURRENT TRANSFORMER
CU	COPPER
DB	DUCT BANK
DET	DETAIL
DIAG	DIAGRAM
DISC	DISCONNECT
DP	DISTRIBUTION PANEL
DSL	MANUAL DISCONNECT SWITCH, 3-POLE, GANG OPERATED
DWG(S)	DRAWING(S)
EL	ELEVATION
EMER	EMERGENCY
EPT	EXCITATION POWER TRANSFORMER
EV	ELECTRICAL VAULT
EQUIP	EQUIPMENT
FDR	FEEDER
GEN	GENERATOR
GFCI	GROUND-FAULT CIRCUIT INTERRUPTER
GFI	GROUND-FAULT INTERRUPTION
GFP	GROUND-FAULT PROTECTION
GND	GROUND
GRS	GALVANIZED RIGID STEEL
GSU	GENERATOR STEP-UP TRANSFORMER
HH	HAND HOLE
HMI	HUMAN-MACHINE INTERFACE
HOA	HAND-OFF-AUTO
HPU	HYDRAULIC POWER UNIT
HTR	HEATER
HZ	HERTZ (CYCLES PER SECOND)
I/O	INPUT/OUTPUT
INST	INSTANTANEOUS
INTLK	INTERLOCK
IP	INTERNET PROTOCOL
IPB	ILLUMINATED PUSH BUTTON
JB	JUNCTION BOX
JCRN	JIB CRANE
KCMIL	THOUSAND CIRCULAR MILLS
kV	KILOVOLTS
kVA	KILOVOLT AMPERES (APPARENT POWER)
kVAR	KILOVARS (REACTIVE POWER)
kW	KILOWATTS (REAL POWER)
kWH	KILOWATT HOUR
LP	LIGHTING PANEL
LTG	LIGHTING
LV	LOW VOLTAGE
mA	MILLIAMPERES
M	MOTOR MAN MANUAL
MAN	MANUAL
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MFM	MULTIFUNCTIONAL METER
MH	MAN HOLE
MTS	MANUAL TRANSFER SWITCH
mV	MILLIVOLTS
NC	NORMALLY CLOSED
NGR	NEUTRAL GROUNDING RESISTOR
NO	NORMALLY OPEN, NUMBER
NP	NAMEPLATE
NTS	NOT TO SCALE
OL	OVERLOAD
PB	PULLBOX, PUSH BUTTON
PC	PHOTOELECTRIC CONTROL UNIT
PCC	POINT OF COMMON CONNECTION
PH Ø	PHASE
PNL	PANEL
PLC	PROGRAMMABLE LOGIC CONTROLLER
POI	POINT OF INTER-CONNECTION
PTT	PUSH-TO-TEST
PVC	POLYVINYL CHLORIDE
RCP	RECEPTACLE
REF	REFERENCE
RGS	RIGID GALVANIZED STEEL CONDUIT
RIO	REMOTE I/O
RTD	RESISTANCE TEMPERATURE DETECTOR
S	SYNC SCOPE
SA	SURGE ARRESTER
SC	SURGE CAPACITOR
SDP	STANDBY DISTRIBUTION PANEL
SEC	SECOND
SEL	SELECTOR, SCHWEITZER ENGINEERING LABORATORIES
SPEC	SPECIFICATION
SS	STAINLESS STEEL
S/S	STATION SERVICE
STA	STATION
SW	SWITCH
SWGR	SWITCHGEAR
TB	TERMINAL BLOCK, TERMINAL BOX
TS	THERMOSTAT
TSP	TWISTED SHIELDED PAIR
TST	TWISTED SHIELDED TRIAD
TX	TRANSMITTER
TYP	TYPICAL
UP	UTILITY POWER
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTS
VAC	VOLTS ALTERNATING CURRENT
VC	VIDEO CAMERA
VDC	VOLTS DIRECT CURRENT
VFD	VARIABLE FREQUENCY DRIVE
W	WIRE
W/	WITH
W/O	WITHOUT
WP	WEATHER PROOF (NEMA 4)
XFMR	TRANSFORMER
XLP	CROSS LINKED POLYETHYLENE
XP	EXPLOSION PROOF
YL	YARD LIGHT

CONTROL RELAY AND DEVICES INDEX

3	CHECKING OR INTERLOCKING RELAY
4	MASTER CONTACTOR
5	STOPPING DEVICE
12	OVER-SPEED DEVICE
13	SYNCHRONOUS-SPEED DEVICE
14	UNDER-SPEED DEVICE
15	SPEED/FREQUENCY MATCHING DEVICE
20	ELECTRIC OPERATED VALVE
21	DISTANCE RELAY
23T	THERMOSTAT
24	VOLT/HERTZ RELAY
25	SYNCHRONOUS CHECK DEVICE
25A	AUTOMATIC SYNCHRONIZATION DEVICE
26	APPARATUS THERMAL DEVICE
27	UNDERVOLTAGE RELAY
30	ANNUNCIATOR RELAY
32	REVERSE POWER RELAY
33	POSITION SWITCH
34	MASTER SEQUENCE DEVICE
37	UNDERCURRENT/UNDERPOWER RELAY
38	BEARING PROTECTION DEVICE
39	VIBRATION DETECTOR
40	FIELD RELAY
41	FIELD CURRENT BREAKER
43	MANUAL TRANSFER/SELECTOR DEVICE
46	REVERSE PHASE/PHASE BALANCE RELAY
48	INCOMPLETE SEQUENCE RELAY
49	MACHINE/TRANSFORMER THERMAL RELAY
50	INSTANTANEOUS OVERCURRENT RELAY
51	AC TIME OVERCURRENT RELAY
51C	VOLTAGE-CONTROLLED TIME OVERCURRENT RELAY
50/51	TIME AND INSTANTANEOUS OVERCURRENT RELAY
52	AC CIRCUIT BREAKER
52G	GENERATOR CIRCUIT BREAKER
52L	LINE CIRCUIT BREAKER
53	EXCITER/DC GENERATOR RELAY
54	HIGH SPEED DC CIRCUIT BREAKER
55	POWERFACTOR RELAY
57	GROUND SWITCH
59	OVERVOLTAGE RELAY
59N	NEUTRAL OVERVOLTAGE RELAY
60	VOLTAGE BALANCE RELAY
61	CURRENT BALANCE RELAY
62	TIME DELAY RELAY
63	LIQUID OR GAS PRESSURE LEVEL/FLOW RELAY
64	GROUND PROTECTIVE RELAY
65	GOVERNOR
67	AC DIRECTIONAL OVERCURRENT RELAY
70	ELECTRIC OPERATED RHEOSTAT
71	TRANSFORMER OIL LEVEL TRIP/ALARM DEVICE
72	DC CIRCUIT BREAKER
74	ALARM RELAY
76	DC OVERCURRENT RELAY
79	AUTOMATIC RECLOSING RELAY
81	FREQUENCY RELAY
81O/U	OVER/UNDER FREQUENCY RELAY
83	AUTOMATIC SELECTIVE CONTROL/TRANSFER RELAY
85	CARRIER/PILOT WIRE RECEIVER RELAY
86	LOCKOUT RELAY
87	DIFFERENTIAL PROTECTIVE RELAY
87G	GENERATOR DIFFERENTIAL RELAY
87T	TRANSFORMER DIFFERENTIAL RELAY
89	LINE ISOLATING SWITCH
90	REGULATING DEVICE
94	TRIPPING RELAY
95	SUPERVISION ALARM

METERING SYSTEMS AND DEVICES INDEX

A	AMMETER
AHr	AMPERE HOUR METER
AS	AMMETER SELECTOR SWITCH
C	COUNTER
CMC	CONTACT MAKING CLOCK
D	DEMAND METER
ET	ELAPSE TIME METER
F	FREQUENCY METER
G	GALVANOMETER
GFD	GROUND FAULT DETECTOR
Hz	FREQUENCY METER
KV	KILO-VOLTMETER
KW	KILO-WATTMETER
KWH	KILO-WATT HOUR METER
mA	MILLI-AMMETER (TRANSDUCER)
OHM	OHMMETER
OSC	OSCILLOGRAPH
PH	PHASE METER
PI	POSITION INDICATOR
PF	POWER FACTOR METER
REC	RECORDER
RF	REACTIVE FACTOR METER
SYN	SYNCHROSCOPE
T	TEMPERATURE METER
TLM	TELEMETER
V	VOLTMETER
VAR	VARMETER
VRHr	VAR HOUR METER
VS	VOLTMETER SELECTOR SWITCH
W	WATTMETER
WHr	WATT HOUR METER

PILOT - INDICATOR LIGHT INDEX

A	AMBER
B	BLUE
C	CLEAR
G	GREEN
NE	NEON
O	ORANGE
OP	OPALESCENT
P	PURPLE
R	RED
W	WHITE
Y	YELLOW

GENERAL NOTES:

1. THESE ABBREVIATIONS APPLY TO THE ELECTRICAL DISCIPLINE OF CONTRACT DRAWINGS ONLY.
2. LISTING OF ABBREVIATIONS DOES NOT IMPLY ALL ABBREVIATIONS ARE USED IN THE CONTRACT DRAWINGS.
3. ABBREVIATIONS SHOWN ON THIS SHEET INCLUDE VARIATIONS OF THE WORD. FOR EXAMPLE, "AT" MAY MEAN AMPERE TRIP OR AUTO; "NO" MAY MEAN NORMALLY OPEN OR NUMBER; "PB" MAY MEAN EITHER PULLBOX OR PUSH BUTTON.
4. SCREENING OR SHADING OF WORK IS USED TO INDICATE EXISTING COMPONENTS OR TO DE-EMPHASIZE PROPOSED IMPROVEMENTS TO HIGHLIGHT SELECTED TRADE WORK. REFER TO CONTEXT OF EACH SHEET FOR USAGE.

REV	DATE	BY	DESCRIPTION
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STATE OF ALASKA 49th — MATHEW L. LAWSON No. AELE11874 REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING

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

McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

STANDARD ELECTRICAL ABBREVIATIONS

DESIGNED M. LAWSON

DRAWN D. JOHNSTON

CHECKED J. BAKKEN

PROJECT DATE 09/19/22

DRAWING

GE001

JOB NO: 000000

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FIRE ALARM/DETECTION SYSTEM

- FA — FIRE ALARM PANEL
- RA — REMOTE ANNUNC PANEL
- M — MANUAL PULL STATION
- H — GAS MAN RELEASE STN
- A — GAS MAN ABORT STN
- B — F.A. BELL
- S — F.A. SIREN
- DD — DUCT SMOKE DETECTOR
- TD — THERMAL DETECTOR
- ID — IONIZATION DETECTOR
- FV — FIRE WATER VALVE LIMIT
- SD — SMOKE DETECTOR
- FS — FLOW SWITCH
- PS — PRESSURE SWITCH
- TS — THERMAL/SMOKE DETECTOR
- ELD — END OF LINE DEVICE

PRIVATE TELEPHONE SYSTEM

- SB — SWITCHBOARD
- TC — TERMINAL CABINET
- D — DESK PHONE
- W — WALL PHONE

PRIVATE ETHERNET NETWORK SYSTEM

- DATA JACK
- VOICE/DATA JACK

PAGE/SOUND SYSTEM

- A — AMPLIFIER
- WS — SPEAKER, WALL MTD
- CS — SPEAKER, CEIL MTD
- WH — HORN, WALL MTD
- CH — HORN, CEIL MTD
- MIC — MICROPHONE
- P — HANDSET

TELEVISION SYSTEM

- TV — TV JACK
- TV — TV JACK
- TV — TV JACK

INTRUSION ALARM/ACCESS SYSTEM

- IA — CENTRAL ALARM PANEL
- RA — REMOTE ANNUNC PANEL
- M — MANDOOR ALARM CONTACT
- V — VEHICLE DOOR ALARM CONTACT
- W — WINDOW ALARM CONTACT
- E — ELECTRIC DOOR ACCESS CONTROL
- C — CARD DOOR ACCESS CONTROL
- K — KEY ACTIVATED STATION
- B — I.A. BELL
- S — I.A. SIREN
- PB — PUSHBUTTON DOOR ACCESS
- PE — PHOTO ELECTRIC DOOR ACCESS
- MOTION DETECTOR

CLOCK SYSTEM

- M — MASTER CLOCK
- C — SECONDARY CLOCK

WATCHMANS SYSTEM

- C — CONTROL/CENTRAL STATION
- K — KEY STATION

CCTV SYSTEM

- CCTV — CAMERA FIXED POSITION
- CCTV — CAMERA ROTATING
- CCTV — CCTV MONITOR
- CCTV — CCTV MONITOR

LOW VOLTAGE ELECTRICAL DEVICES

- CB — -CIRCUIT BREAKER SWITCH
- UF — -UNFUSED DISCONNECT SWITCH
- F — -FUSED DISCONNECT SWITCH
- -MOTOR STARTER MANUAL
- -MOTOR STARTER MAGNETIC
- CB / F — -MOTOR STARTER MAG. COMBINATION C.B. SW.
- F — -MOTOR STARTER MAG. COMBINATION FUSED D.S.
- -PUSHBUTTON SW. EMERG. STOP
- -PUSHBUTTON SW. STOP/START
- -PUSHBUTTON STATION
- -SELECTOR SWITCH
- FS — -FLOAT SWITCH
- LI — -LEVEL SWITCH
- BI — -BIN LEVEL SWITCH
- LS — -LIMIT SWITCH
- PS — -PRESSURE SWITCH
- PE — -ELECTRICAL/PNEUMATIC SWITCH
- PT — --PRESSURE TRANSMITTER
- SV — -SOLENOID VALVE
- T — -THERMOSTAT
- TS — -TEMPERATURE SWITCH
- B-HTR — BASEBOARD HEATER
- C-HTR — CEILING HEATER
- F — WALL HEATER WITH FAN
- BUH — BLOWER UNIT HEATER
- F, W — FAN WALL MOUNT
- F, C — FAN CEILING MOUNT
- ELECTRIC MOTOR VERTICAL MTD
- ELECTRIC MOTOR HORIZONTAL MTD
- -UTILITY METER

CONTROL ELECTRICAL DEVICES

- $ — SPST SWITCH
- $3 — -3 WAY SWITCH; LETTER INDICATES LIGHTING CIRCUIT
- $WP — SPST WEATHERPROOF SWITCH
- $M — -MOTOR SWITCH, NONFUSED
- OS — WALL MOUNTED OCCUPANCY SENSOR
- OS — CEILING MOUNTED OCCUPANCY SENSOR
- DUPLEX RECEPTACLE
- SINGLE RECEPTACLE
- WP — DUPLEX WEATHERPROOF RECEPTACLE
- GFI — DUPLEX GROUND FAULT INTERRUPTER RECEPT
- C — CLOCK RECEPTACLE
- FLOOR RECEPTACLE
- SPECIAL PURPOSE RECEPTACLE

ELECTRICAL LIGHTING FIXTURES

- SURFACE/PENDANT FLUORESCENT
- SURFACE/PENDANT FLUORESCENT, NIGHT LIGHT / EMERGENCY
- RECESSED FLUORESCENT
- RECESSED FLUORESCENT, NIGHT LIGHT / EMERGENCY
- LIGHT FIXTURE SURFACE/PENDANT CEILING MOUNT
- LIGHT FIXTURE SURFACE WALL MOUNT
- R — LIGHT FIXTURE RECESSED CEILING MOUNT
- R — LIGHT FIXTURE RECESSED WALL MOUNT
- H — HAZARD LIGHT FIXTURE CEILING MOUNT
- EXIT LIGHT FIXTURE SURFACE/PENDANT CEILING MOUNT
- EXIT LIGHT FIXTURE SURFACE WALL MOUNT
- R — EXIT LIGHT FIXTURE RECESSED WALL MOUNT
- EMERGENCY LIGHT FIXTURE SURFACE/PENDANT CEILING MOUNT
- EMERGENCY LIGHT FIXTURE SURFACE WALL MOUNT
- R — EMERGENCY LIGHT FIXTURE RECESSED CEILING MOUNT
- R — EMERGENCY LIGHT FIXTURE RECESSED WALL MOUNT
- EMERGENCY LIGHTING UNIT, 1 HEAD
- EMERGENCY LIGHTING UNIT, 2 HEAD
- EMERGENCY LIGHTING UNIT, 3 HEAD
- SURFACE MTD. DISTR. PANELBOARD
- FLUSH MTD. DISTR. PANELBOARD

POWER DISTRIBUTION/GROUNDING/ROADWAY LIGHTING

- POLE CONCRETE
- POLE WOOD
- POLE MOUNTED TRANSFORMER
- DOWN GUY
- SIDEWALK GUY
- M — MANHOLE
- H — HANDHOLE
- V — VAULT
- S — PAD MOUNTED SWITCH
- T — TRANSFORMER VAULT
- PAD MOUNTED TRANSFORMER
- GROUND ROD
- GROUND ROD WITH ACCESS BOX
- GROUND CONNECTION EXOTHERMIC
- GROUND CONNECTION MECHANICAL BOLTED
- GROUND CONNECTION TO PIPE RACK
- GROUND COIL (PIGTAIL) 5'0" (1.5M)
- GROUND GRADIENT MAT (SAFETY MAT) 4'X 4'
- GROUND GRADIENT MAT (SAFETY MAT) 4'X 6'
- LF-1 — STREET LIGHT & BRACKET, 1 FIXTURE
- LF-1 LF-1 — STREET LIGHT & BRACKET, 2 FIXTURE
- LF-1 LF-1 LF-1 — STREET LIGHT & BRACKET, 3 FIXTURE
- LF-1 LF-1 LF-1 LF-1 — STREET LIGHT & BRACKET, 4 FIXTURE

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STATE OF ALASKA 49th — MATHEW L. LAWSON No. AELE11874 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

STANDARD ELECTRICAL SYMBOLS 1

DESIGNED M. LAWSON
DRAWN D. JOHNSTON
CHECKED J. BAKKEN
PROJECT DATE 09/19/22

DRAWING GE002

JOB NO: 000000

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CIRCUIT BREAKER SYMBOLS

CB-1	CB-2	CB-3	CB-4	CB-5
CIR BKR HIGH VOLT DRAWOUT ELEC OPER	CIR BKR DRAWOUT ELEC OPER	CIR BKR THERM O/L DRAWOUT ELEC OPER	CIR BKR MAG O/L DRAWOUT ELEC OPER	CIR BKR THERM/MAG O/L DRAWOUT ELEC OPER

H.V. ISOLATING SWITCHES

DS-1	DS-2	DS-3	DS-4	DS-5	DS-6
ISOLATING SWITCH MOTOR OPERATED	INTERRUPTER SWITCH FUSED	CENTER-BREAK SWITCH MOTOR OPERATED	DUAL-BREAK SWITCH MOTOR OPERATED	LOAD-BREAK SWITCH MOTOR OPERATED	HORN GAP SWITCH

POWER TRANSFORMER SYMBOLS

XF-1	XF-2	XF-3	XF-4	XF-5
TRANSFORMER POWER	TRANSFORMER MAG CORE	TRANSFORMER LOAD TAP CHANGING	TRANSFORMER SPLIT SECONDARY	AUTO-TRANSFORMER

TRANSFORMER WINDING CONNECTIONS

DELTA-1	DELTA-2	DELTA-3	DELTA-4	WYE-1	WYE-2	ZZ-1	ZZ-2
DELTA 3P3W	DELTA GRD'D 3P4W	DELTA GRD'D 3P3W	BROKEN DELTA	WYE 3POLE	WYE GRD'D 3P4W	ZIG-ZAG 3POLE	ZIG-ZAG GRD'D 3POLE

POTENTIAL/CURRENT TRANSFORMER SYMBOLS

PT-1	PT-2	CT-1	CT-2	CT-3
POTENTIAL TRANSFORMER	POTENTIAL TRANSFORMER DUAL SECONDARY	CURRENT TRANSFORMER	CURRENT TRANSFORMER CORE BALANCE	CURRENT TRANSFORMER BUSHING

LINETYPE AND CONNECTION SYMBOLS

HIGH VOLTAGE POWER
LOW VOLTAGE POWER
CONTROL
ENCLOSURE
OH POWER SCHEMATIC
EXIST POWER SCHEMATIC

CONDUCTOR, CROSSING OF PATHS OR CONDUCTORS NOT CONNECTED

CONDUCTOR, JUNCTION OF CONNECTED PATHS, CONDUCTORS OR WIRES

WT-1 WAVE TRAP SMALL	WT-2 WAVE TRAP LARGE	LA-1 LIGHTNING ARRESTER	LA-2 LIGHTNING ARRESTER	GRD-SW GROUND SW MOTOR OPER	IPB-FLEX ISOL PH BUS FLEX CONN	IPB-LINK ISOL PH BUS REMOVEABLE LINK	
WELDING OUTLET	NEUT NEUTRAL CONNECTION	LINE IN/OUT LINE	CABLE-1 CABLE TERMINATION STRESS CONE	CABLE-2 CABLE POTHEAD OIL-FILLED	REACTOR		
RELAY-1 RELAY SINGLE TEXT	RELAY-2 RELAY DOUBLE TEXT	DEVICE-1 CONTROL DEVICE	TRANSD TRANSDUCER	INSTR-1 INSTRUMENT SEL SW	METER-1 ANALOG METER	METER-2 ANALOG METER	METER-3 DIGITAL METER
PL-TEST PUSH-TO-TEST LIGHT	PL-1 PILOT/INDIC LIGHT	CONT-NO CONTACT NORM OPEN	CONT-NC CONTACT NORM CLOSED	FLOW-NO FLOW OPER NORM OPEN	FLOW-NC FLOW OPER NORM CLOSED	LVL-NO LEVEL OPER NORM OPEN	LVL-NC LEVEL OPER NORM CLOSED
SW-NO SWITCH NORM OPEN	SW-NC SWITCH NORM CLOSED	TEMP-NO TEMP ACT SW N.O.	TEMP-NC TEMP ACT SW N.C.	FOOT-NO FOOT OPER NORM OPEN	FOOT-NC FOOT OPER NORM CLOSED	PRES-NO PRESS OPER NORM OPEN	PRES-NC PRESS OPER NORM CLOSED
PBSW-NO PB SWITCH NORM OPEN	PBSW-NC PB SWITCH NORM CLOSED	SSW-1 OFF MAN AUTO SELECTOR SWITCH	LIM-NO LIMIT SW NORM OPEN	LIM-NC LIMIT SW NORM CLOSED	LIM-NOHC LIMIT SW NORM OPEN HELD CLOSED	LIM-NCHO LIMIT SW NORM CLOSED HELD OPEN	SOL SOLENOID
FUSE-1 FUSE	FUSE-2 FUSE DUMMY	DS-FUSE DISC SW FUSED	FUSE-LNK FUSIBLE LINK	CAP CAPACITOR	RES-1 RESISTOR	RES-2 RESISTOR ADJUSTABLE	HTR-E HEATER ELEMENT
BATT BATTERY	RECT-1 RECTIFIER SOLID STATE	RECT-2 AC PDS NEG AC RECTIFIER FULLWAVE	BRAKE DC BRAKE	GRD-1 GROUND	GRD-2 CHASIS GROUND	SHUNT CURRENT SHUNT	DD-1 DISCONNECTING DEVICE
CIR-BKR1 CIRC BKR	CIR-BKR2 CIRC BKR W. OL'S	OLS-1 OVERLOAD POWER	OLS-2 OVERLOAD CONTROL	R-COIL RELAY COIL	MOTOR-DC MOTOR-DC	MOTOR-AC MOTOR-AC	GEN-1 GENERATOR

DISCONNECT	CIRCUIT INTERRUPTER	CIRCUIT BREAKER W/ THERMAL OL	CIRCUIT BREAKER W/ MAGNETIC OL	CIRCUIT BREAKER W/ THERMAL OL AND MAGNETIC OL

SELECTOR

TWO-POSITION — X-CONTACT CLOSED

	J	K
A1	X	
A2		X

THREE-POSITION — X-CONTACT CLOSED

	J	K	L
A1	X		
A2			X

TWO-POSITION SELECTOR PUSHBUTTON — X-CONTACT CLOSED

CONTACTS	SELECTOR POSITION A BUTTON FREE	A BUTTON CONTACTS	B BUTTON FREE	B BUTTON CONTACTS
1-2	X			
3-4		X	X	X

PUSHBUTTONS

MOMENTARY CONTACTS: SINGLE CIRCUIT (NO, NC) | DOUBLE CIRCUIT (NO & NC) | MUSHROOM HEAD | WOBBLE STICK | TWO SINGLE CIRCUIT | ONE DOUBLE CIRCUIT | ILLUMINATED (R)

CONTACTS

INSTANT OPERATING

WITH BLOWOUT NO	WITH BLOWOUT NC	WITHOUT BLOWOUT NO	WITHOUT BLOWOUT NC

TIMED CONTACTS - CONTACT ACTION RETARDED AFTER COIL IS:

ENERGIZED NOTC	ENERGIZED NCTO	DE-ENERGIZED NOTO	DE-ENERGIZED NCTC

OVERLOAD RELAYS

THERMAL	MAGNETIC

SUPPLEMENTARY CONTACTS SYMBOLS

SPST NO SINGLE BREAK	SPST NO DOUBLE BREAK	SPST NC SINGLE BREAK	SPST NC DOUBLE BREAK	SPDT SINGLE BREAK	SPDT DOUBLE BREAK
DPST, 2NO SINGLE BREAK	DPST, 2NO DOUBLE BREAK	DPST, 2NC SINGLE BREAK	DPST, 2NC DOUBLE BREAK	DPDT SINGLE BREAK	DPDT DOUBLE BREAK

TERMS

SPST SINGLE-POLE, SINGLE-THROW

SPDT SINGLE-POLE, DOUBLE-THROW

DPST DOUBLE-POLE, SINGLE-THROW

DPDT DOUBLE-POLE, DOUBLE-THROW

NO NORMALLY OPEN

NC NORMALLY CLOSED

METER (INSTRUMENT)

INDICATE TYPE BY LETTER: V, AM

TO INDICATE FUNCTION OF METER OR INSTRUMENT, PLACE SPECIFIED LETTER OR LETTERS WITHIN SYMBOL

AM or A	AMMETER	VA	VOLTMETER
AH	AMPERE HOUR	VAR	VARMETER
AM or A	MICROAMMETER	VARH	VARHOUR METER
mA	MILLAMMETER	W	WATTMETER
PF	POWER FACTOR	WH	WATTHOUR METER
V	VOLT METER		

PILOT LIGHTS

INDICATE COLOR BY LETTER

NON PUSH-TO-TEST (R) | PUSH-TO-TEST (R)

A-AMBER, B-BLUE, C-CLEAR, G-GREEN, NE-NEON, R-RED, W-WHITE, Y-YELLOW

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STATE OF ALASKA — 49th — MATHEW L. LAWSON — No. AELE11874 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

STANDARD ELECTRICAL SYMBOLS 2

DESIGNED M. LAWSON
DRAWN D. JOHNSTON
CHECKED J. BAKKEN
PROJECT DATE 09/19/22

DRAWING GE003

JOB NO: 1000000

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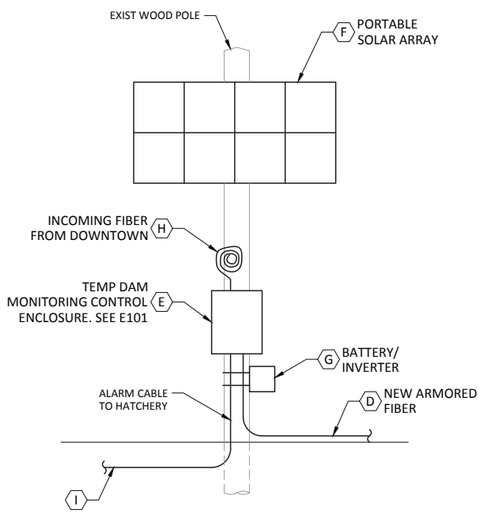
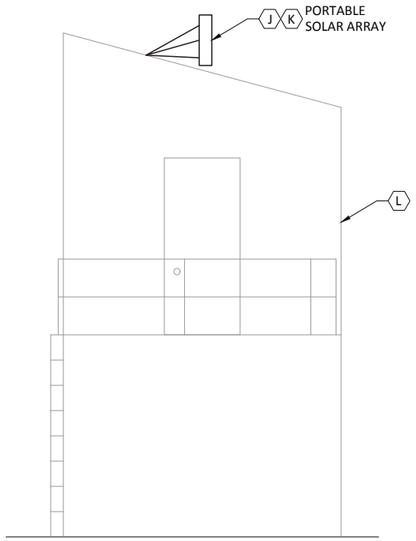


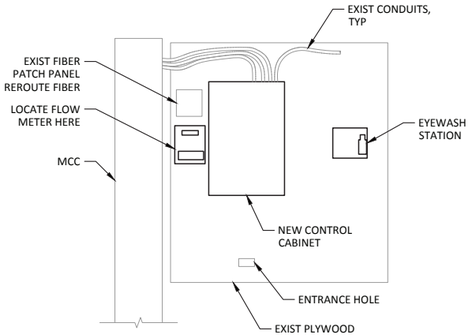
POLE ELEVATION

SCALE: NTS



INTAKE BUILDING ELEVATION

SCALE: NTS



INTAKE PANEL ELEVATION

SCALE: NTS

SHEET KEY NOTES:

A INSTALL NEW ARMORED FIBER (OWNER FURNISHED) AND SECURE AS INDICATED. SEE E102 FOR CABLE PROFILE. JUST ABOVE PENSTOCK BIFURCATION AND NEW THRUST BLOCK, SECURE FIBER AND ROUTE AWAY FROM PENSTOCK. THIS STARTS TEMPORARY FIBER CABLE ROUTING.

B ROUTE ARMORED CABLE AROUND POWERHOUSE AS SHOWN. LAY FIBER CABLE ON GROUND IN A CONVENIENT MANNER. MAINTAIN MINIMUM BENDING RADIUS OF 15".

C ROUTE ARMORED FIBER AROUND WEST POWERHOUSE WALL. MAINTAIN ADDITIONAL MINIMUM 50 FEET OF FIBER COILED AT POWERHOUSE.

D CONTINUE ROUTING FIBER ON GROUND TO EXISTING WOOD COMMUNICATION POLE, AND UP POLE INTO TEMPORARY DAM MONITORING CONTROL ENCLOSURE (SEE E101). TERMINATE FIBER TO NETWORK SWITCH AND TEST.

E MOUNT OWNER FURNISHED TEMPORARY DAM MONITORING CONTROL ENCLOSURE ON WOOD POLE WITH TOP OF ENCLOSURE 6 FEET ABOVE GRADE. SECURE TO POLE WITH STRAPS OR CLAMPS. TERMINATE FIBER AND ALARM CABLE PER SHEET E101.

F MOUNT PORTABLE SOLAR PANEL ABOVE CONTROL ENCLOSURE FACING SOUTHWARD. PROVIDE WOODEN FRAME OR SUPPORT FOR FLEXIBLE SOLAR ARRAY. SOLAR ARRAY AND BATTERY INVERTER TO BE MINIMUM 537WH PORTABLE POWER STATION W/ 4 110V/700W AC OUTLETS, BLUETTI SOLAR GENERATOR EB55 WITH PV200 SOLAR PANEL INCLUDED, OR APPROVED EQUAL.

G INSTALL INVERTER AND BATTERY IN VENTED NEMA 3R ENCLOSURE AND MOUNT ON OR NEXT TO WOODEN POLE. ROUTE POWER WIRING FROM INVERTER TO DAM MONITORING CONTROL ENCLOSURE AND TERMINATE, PROVIDING UPS POWER TO CONTROLS. SEE E101.

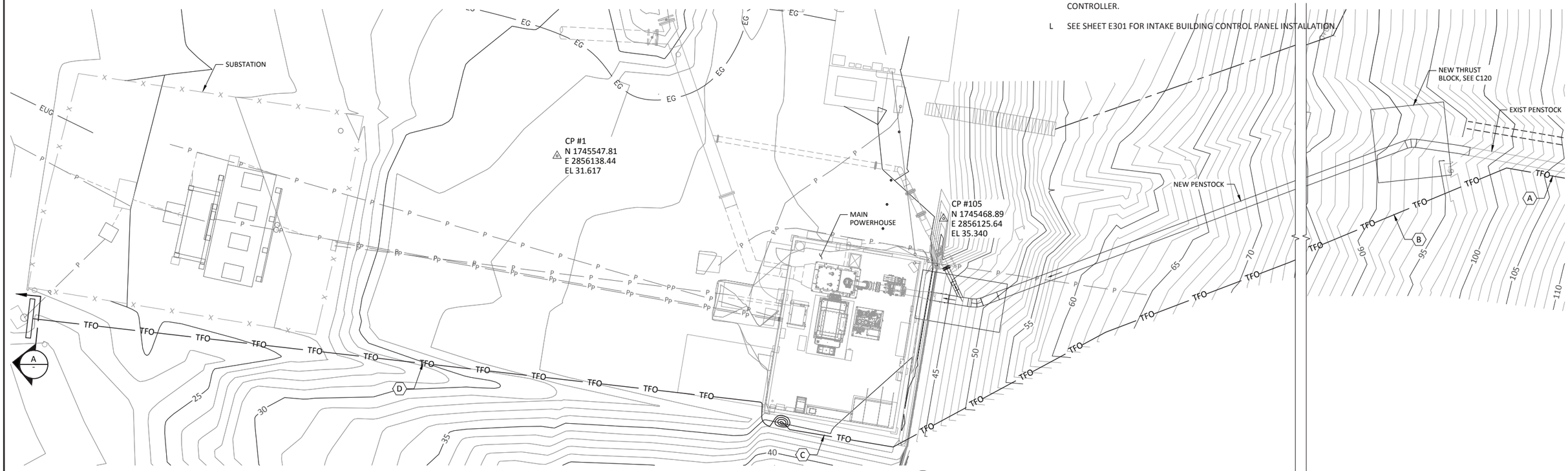
H DETACH AND PULL BACK FROM POWERHOUSE INCOMING ARIEL FIBER FROM DOWNTOWN AND COIL AT WOOD POLE. TERMINATE FIBER TO INTERNAL NETWORK SWITCH IN TEMPORARY DAM MONITORING CONTROL BOX. SEE E101.

I ROUTE 4CC#8 THHN CABLE FROM DAM MONITORING CONTROL BOX TO INCOMING ALARM CABLE FROM HATCHERY. CONTRACTOR TO LOCATE AND SPLICE IN CABLE TO EXISTING ALARM TO HATCHERY. CONTINUITY TEST AND VERIFY DRY CONTACT AT CONTROL BOX INITIATES ALARM AT HATCHERY. COORDINATE WITH HATCHERY PERSONNEL. HATCHERY ALARM CABLE TERMINATES INTO EXISTING PLC CONTROL CABINET. CONTRACTOR TO LOCATE AND EXTEND ALARM CABLE TO TEMPORARY MONITORING CABINET.

J INSTALL A SECOND SOLAR ARRAY AND BATTERY INVERTER AT INTAKE BUILDING, TO BE MINIMUM 537WH PORTABLE POWER STATION W/ 4 110V/700W AC OUTLETS, BLUETTI SOLAR GENERATOR EB55 WITH PV200 SOLAR PANEL INCLUDED OR APPROVED EQUAL. PROVIDE SOLAR ARRAY SUPPORT FRAME ON TOP OF INTAKE BUILDING AND SECURE. SUPPORT SHALL HAVE MANUAL MEANS TO ADJUST ALTITUDE ANGLE FROM HORIZON TO VERTICAL. CONNECT ARRAY TO INVERTER, AND INVERTER TO INTAKE CONTROL PANEL (OWNER FURNISHED). SEE OS ENGINEER DRAWINGS FOR NEW INTAKE CONTROL CABINET..

K POWER UP AND SUPPORT COMMISSIONING OF NEW INTAKE CONTROL CABINET AND TEMPORARY DAM MONITORING CONTROL CABINET. OWNER TO PROGRAM DAM MONITORING CONTROLLER AND EXISTING SCADA SYSTEM TO MONITOR NEW INTAKE CONTROLLER.

L SEE SHEET E301 FOR INTAKE BUILDING CONTROL PANEL INSTALLATION.



TEMPORARY DAM MONITORING PLAN

SCALE: 1"= 10'

0" 10' 20'

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

TEMPORARY DAM MONITORING PLAN

DESIGNED M. LAWSON

DRAWN D. JOHNSTON

CHECKED J. BAKKEN

PROJECT DATE 09/19/22

DRAWING

E100

JOB NO: 000000

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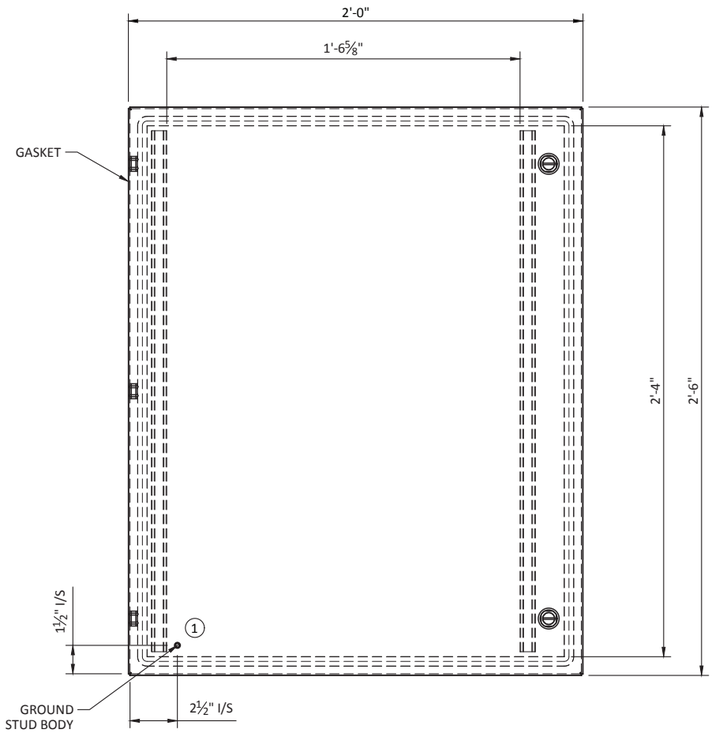
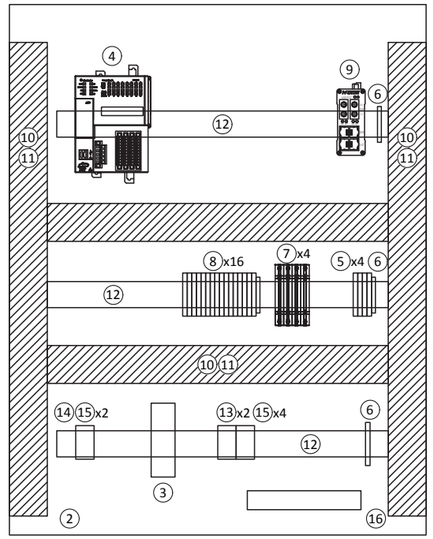


TEMPORARY DAM MONITORING CONTROL CABINET

SCALE: 3"= 1'-0"



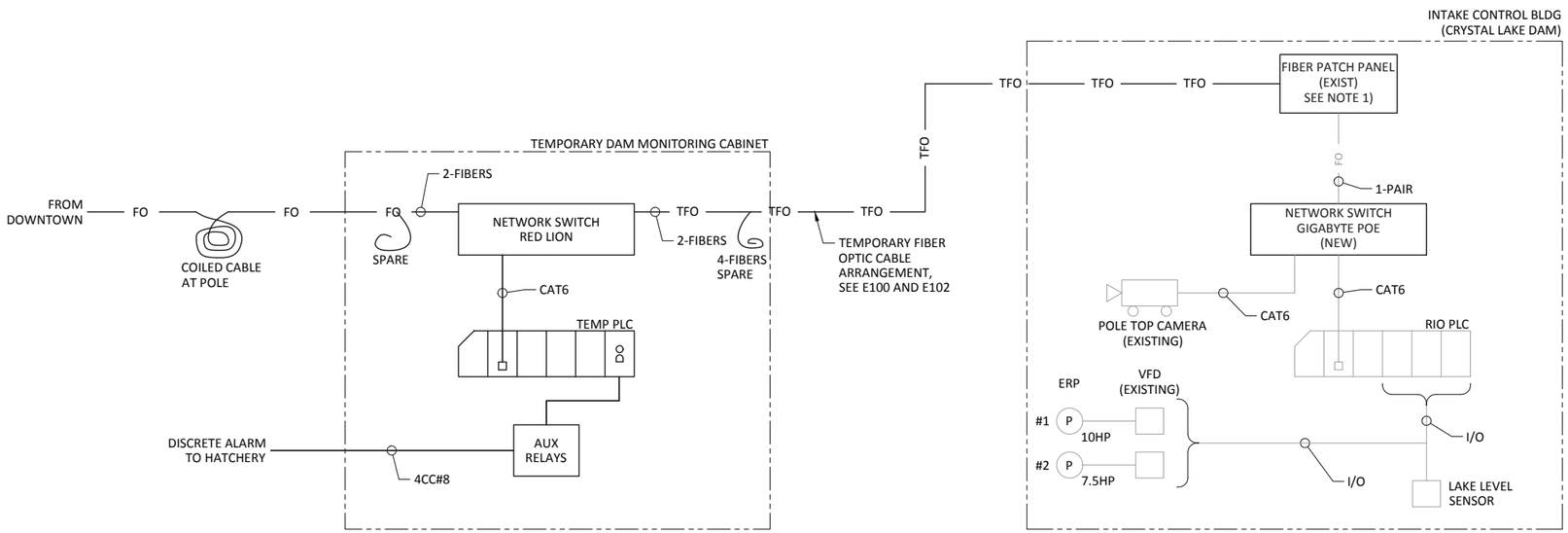
TEMPORARY DAM MONITORING CABINET LAYOUT

SCALE: 3"= 1'-0"

BILL OF MATERIALS				
ITEM #	QTY	DESCRIPTION	MANUFACTURER	PART #
1	1	24"W x 30"H x 12"D CABINET	HAMMOND	EN4SD302412SS
2	1	BACK PANEL	HAMMOND	EP3024
3	1	60W POWER SUPPLY	PHOENIX	2904598
4	1	COMPACT LOGIX W/ EMBEDDED IO	ROCKWELL	1769-L16ER-BB1B
5	4	GROUND TERMINAL BLOCK	PHOENIX	3044092
6	3	DIN RAIL GROUNDING TB	PHOENIX	444019
7	4	AUXILIARY RELAYS	ROCKWELL	700-CF220EJ
8	16	KNIFE SWITCH TERMINAL BLOCK	PHOENIX	3046144
9	1	NETWORK SWITCH	RED LION	106FX2-SC
10	A/R	WIRE DUCT 2"W 3"H	PANDUIT	F2X3LG6
11	A/R	WIRE DUCT 2" COVER	PANDUIT	FC2LG6
12	A/R	DIN RAIL TS35	WEIMULLER	514570000
13	2	2A 24VDC CIRCUIT BREAKER	PHOENIX	2800870
14	1	6A 120VAC CIRCUIT BREAKER	PHOENIX	2800885
15	6	BASE, CIRCUIT BREAKER ELEMENT	PHOENIX	2801305
16	1	GROUND BUS 1" COPPER		

SHEET NOTES:

1. RELOCATE AND REUSE EXISTING PATCH PANEL. SEE E301.
2. TEMPORARY DAM MONITORING CABINET TO BE PROVIDED BY PMP+L (OWNER).



TEMPORARY DAM MONITORING NETWORK DIAGRAM

SCALE: NTS

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49th MATHEW L. LAWSON No. AELE11874 REGISTERED PROFESSIONAL ENGINEER 09/19/2022

WARNING

0 1/2 1

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

TEMPORARY DAM MONITORING
CONTROL CABINET

DESIGNED M. LAWSON

DRAWN R. GUERRERO

CHECKED J. BAKKEN

PROJECT DATE 09/19/22

DRAWING

E101

JOB NO: 1000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\E101.dwg Plot date: Sep 19, 2022 04:16pm, CAD User: Guerrero

SHEET KEY NOTES:

A FOLLOWING APPROVED SUBMITTED RIGGING PLAN, PULL FIBER OPTIC CABLE FROM INTAKE BUILDING TO POWERHOUSE. OWNER FURNISHED FIBER CABLE SPOOL LOCATE NEAR INTAKE BUILDING.

B LAY FIBER CABLE ON THE GROUND IN AREA INDICATED IN PROFILE. CUT BRUSH AS NECESSARY TO ENSURE CABLE IS ON GRADE.

C BURY FIBER OPTIC CABLE IN SOFT SOIL AREA AS INDICATED WITH A MINIMUM OF 6 INCHES COVER.

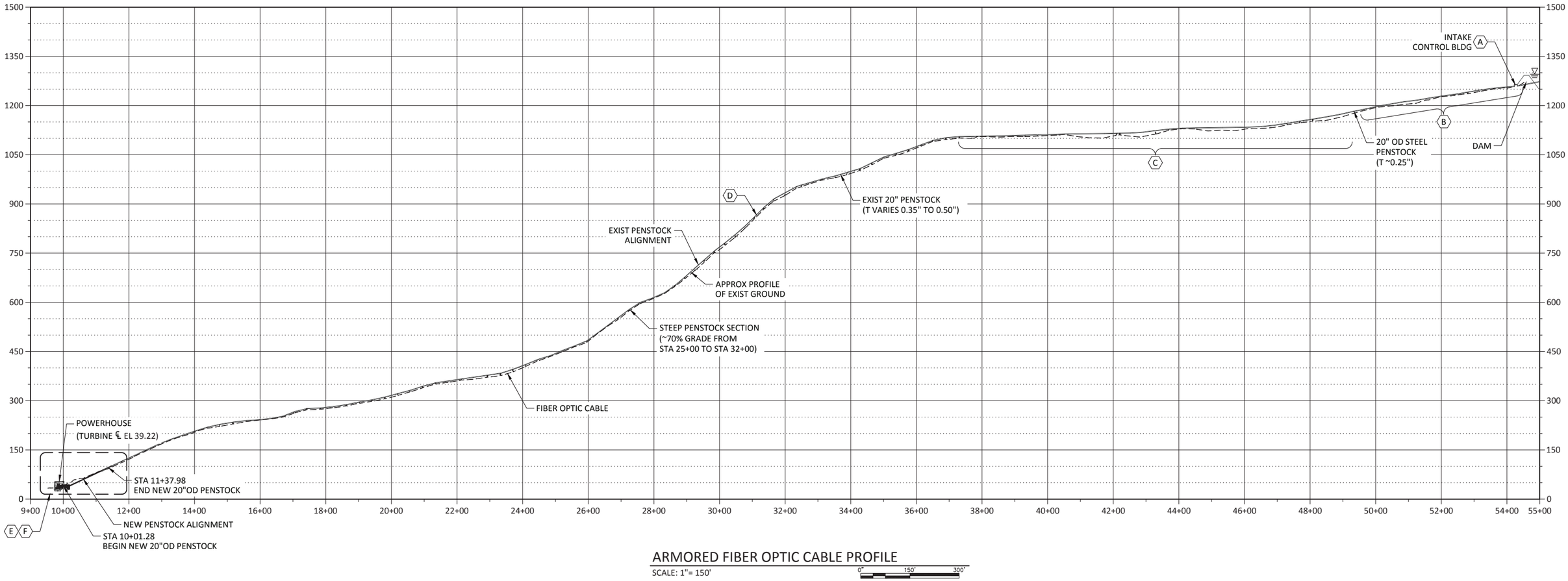
D CONTINUE LAYING FIBER ON THE GROUND, CUTTING BRUSH AS NEEDED TO ENSURE CABLE IS ON GRADE.

E FOR TEMPORARY INSTALLATION NEAR POWERHOUSE, BEFORE NEW THRUST BLOCK AND PENSTOCK BIFURCATION, ROUTE ARMORED FIBER CABLE WEST AROUND THE POWERHOUSE LAYING ON THE GROUND. TERMINATE FIBER INTO TEMPORARY DAM MONITORING CONTROL ENCLOSURE. SEE E100.

F UPON COMPLETION OF POWERHOUSE AND SWITCHYARD CONSTRUCTION, ARMORED FIBER OPTIC CABLE TO BE PULLED BACK FROM TEMPORARY ROUTING AND RE-ROUTED IN CONDUIT SHOWN ON E110.

SHEET NOTES:

1. CONTRACTOR TO INSPECT FIBER OPTIC ROUTING ALONG PENSTOCK TO GAUGE RIGGING REQUIREMENTS FOR PULLING OWNER SUPPLIED FIBER OPTIC CABLE. PROVIDE OWNER WITH PULLING AND RIGGING PLAN FOR INSTALLING FIBER BETWEEN INTAKE BUILDING AND POWERHOUSE. CABLE ROUTING SHALL GENERALLY FOLLOW THE PENSTOCK. NOTE ON RIGGING PLAN GENERAL LOCATION OF CABLE. NOTE FIBER OPTIC CABLE SHALL BE PULLED INTO PLACE PRIOR TO POWERHOUSE AND SUBSTATION OUTAGE. FIBER OPTIC CABLE TO BE USED DURING CONSTRUCTION FOR TEMPORARY DAM MONITORING. SEE SHEET E100.
2. OWNER FURNISHED FIBER OPTIC CABLE SPOOL LOCATED AT DAM NEAR INTAKE BUILDING. PRIOR TO PULLING FIBER CABLE, CONTRACTOR SHALL TEST ALL FIBER STRANDS TO MEASURE LOSSES AND SUBMIT TEST REPORT TO OWNER.
3. UPON POWERHOUSE AND SUBSTATION DEMO OF INTAKE ELECTRICAL EQUIPMENT, INSTALL NEW OWNER FURNISHED CONTROL PANEL. CONTROL PANEL SHALL BE USED DURING CONSTRUCTION TO MONITOR DAM BREACH. SEE E100 AND E101.
4. CUT VEGETATION AS NECESSARY TO ALLOW FIBER OPTIC CABLE TO LAY ON THE GROUND.



ARMORED FIBER OPTIC CABLE PROFILE

SCALE: 1"= 150'

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49th MATHEW L. LAWSON No. AELE11874 REGISTERED PROFESSIONAL ENGINEER 09/19/2022

WARNING

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

ARMORED FIBER OPTIC CABLE PROFILE

DESIGNED M. LAWSON

DRAWN R. GUERRERO

CHECKED J. BAKKEN

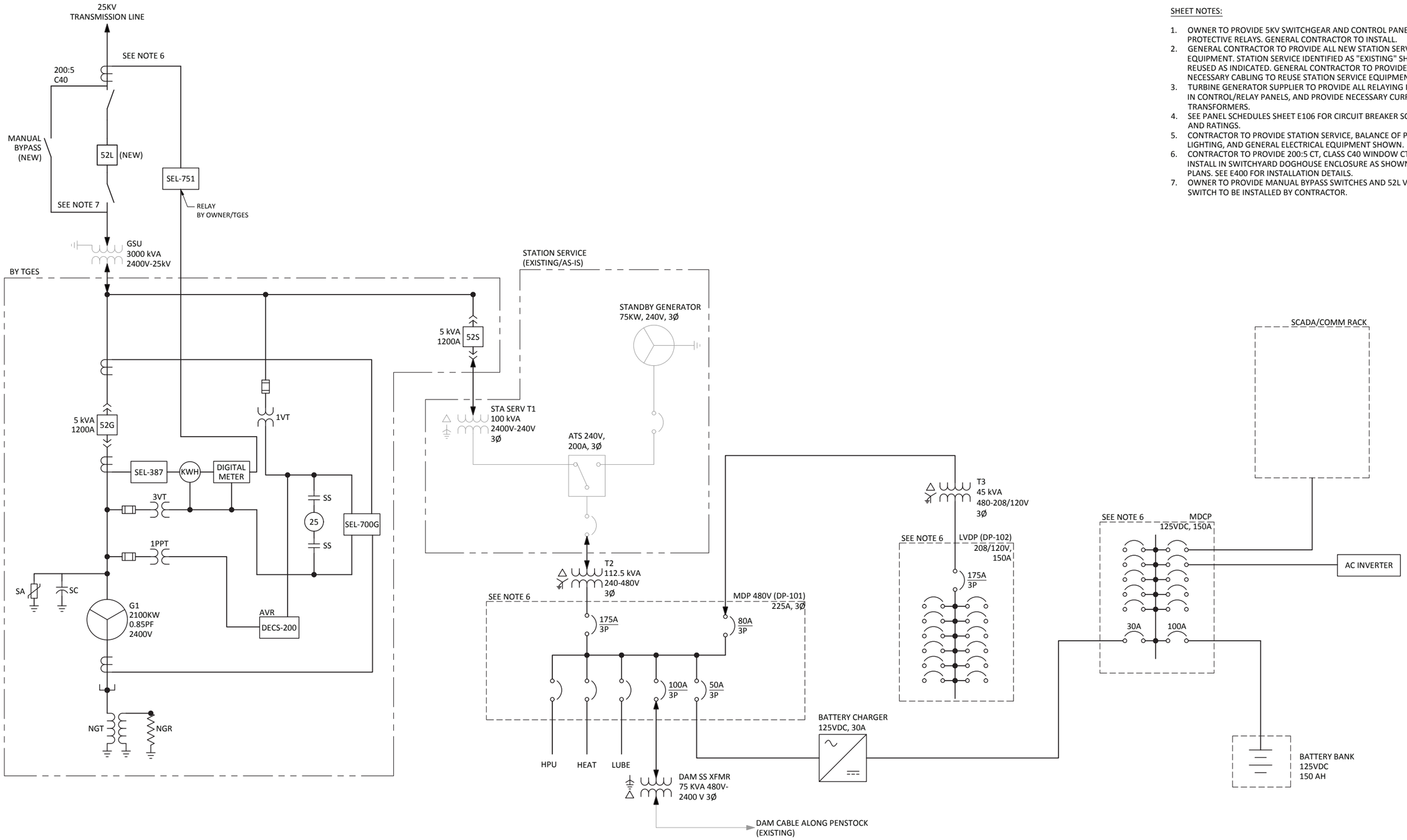
PROJECT DATE 09/19/22

DRAWING

E102

JOB NO: 1000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\E102.dwg Plot date: Sep 19, 2022 04:17pm, CAD User: Guerrero



SHEET NOTES:

1. OWNER TO PROVIDE 5KV SWITCHGEAR AND CONTROL PANELS WITH PROTECTIVE RELAYS. GENERAL CONTRACTOR TO INSTALL.
2. GENERAL CONTRACTOR TO PROVIDE ALL NEW STATION SERVICE EQUIPMENT. STATION SERVICE IDENTIFIED AS "EXISTING" SHALL BE REUSED AS INDICATED. GENERAL CONTRACTOR TO PROVIDE NECESSARY CABLING TO REUSE STATION SERVICE EQUIPMENT.
3. TURBINE GENERATOR SUPPLIER TO PROVIDE ALL RELAYING INSTALLED IN CONTROL/RELAY PANELS, AND PROVIDE NECESSARY CURRENT TRANSFORMERS.
4. SEE PANEL SCHEDULES SHEET E106 FOR CIRCUIT BREAKER SCHEDULE AND RATINGS.
5. CONTRACTOR TO PROVIDE STATION SERVICE, BALANCE OF PLANT, LIGHTING, AND GENERAL ELECTRICAL EQUIPMENT SHOWN.
6. CONTRACTOR TO PROVIDE 200:5 CT, CLASS C40 WINDOW CTS AND INSTALL IN SWITCHYARD DOGHOUSE ENCLOSURE AS SHOWN ON THE PLANS. SEE E400 FOR INSTALLATION DETAILS.
7. OWNER TO PROVIDE MANUAL BYPASS SWITCHES AND 52L VACUUM SWITCH TO BE INSTALLED BY CONTRACTOR.

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49th — MATHEW L. LAWSON No. AELE11874 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING
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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

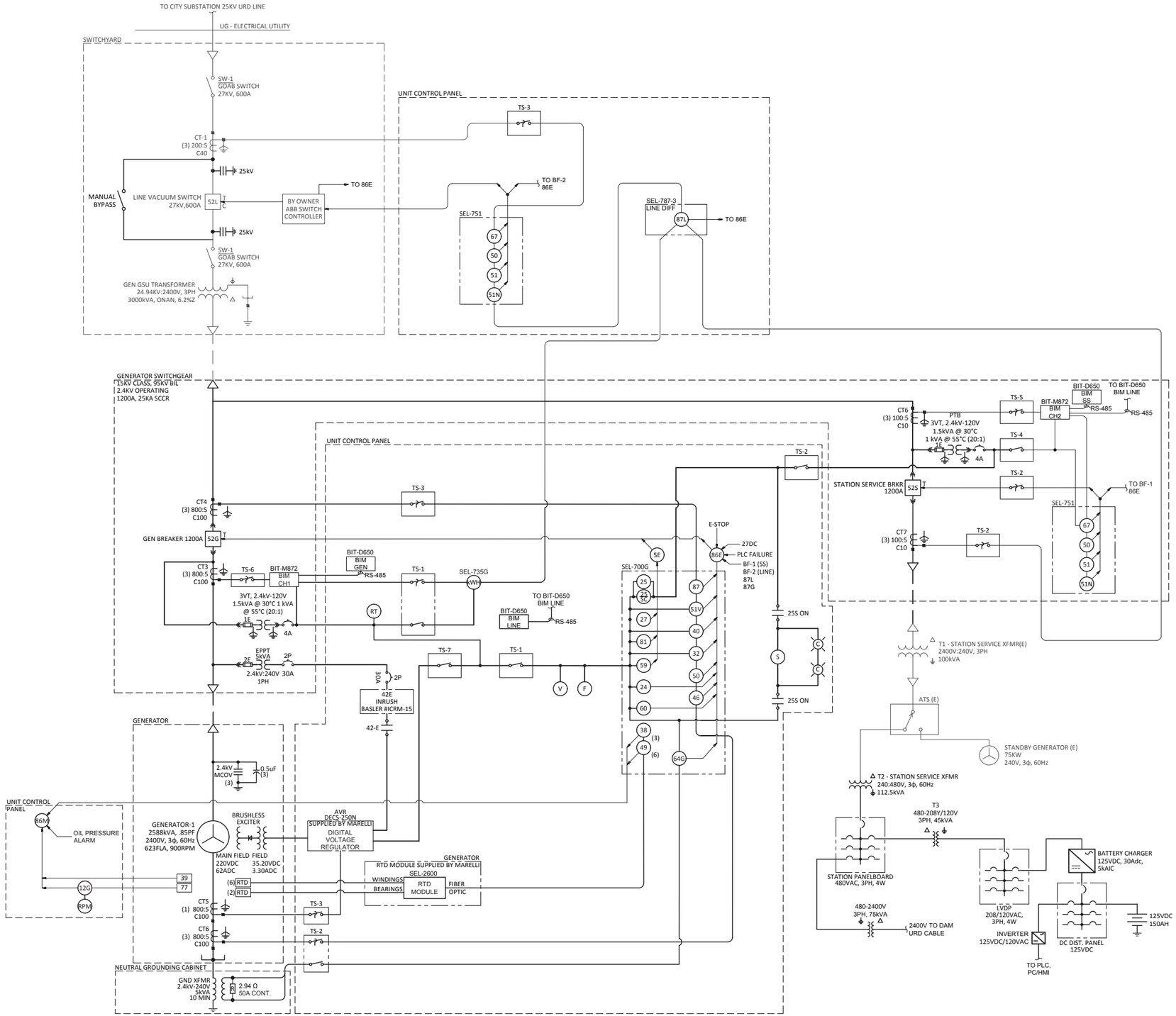
ONE-LINE DIAGRAM

DESIGNED M. LAWSON
DRAWN D. JOHNSTON
CHECKED J. BAKKEN
PROJECT DATE 09/19/22

DRAWING
E103

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\E103.dwg Plot date: Sep 19, 2022 04:17pm, CAD User: Guerrero



LEGEND

AVR	AUTOMATIC VOLTAGE REGULATOR
EPPT	EXCITATION POWER POTENTIAL TRANSFORMER
FPR	FEEDER PROTECTION RELAY
FU	FUSE
MCOV	MAXIMUM CONTINUES OPERATING VOLTAGE
VFD	VARIABLE FREQUENCY DRIVE
42E	AVR OPERATING POWER BREAKER
R	RECLOSER
52	MEDIUM VOLTAGE CIRCUIT BREAKER
	GROUND
	SURGE ARRESTER
	BUSHING CURRENT TRANSFORMER
	CURRENT TRANSFORMER
	POWER TRANSFORMER
	POTENTIAL TRANSFORMER
	POWER FUSE
	FUSED DISCONNECT
4	MASTER START
5	UNLOAD & SHUTDOWN
12	OVER SPEED
13	SYNCHRONOUS SPEED
14	UNDER SPEED
24	VOLTS/HERTZ
25	SYNCHRONISM (SC- SYNC CHECK)
27	UNDERVOLTAGE
32	REVERSE POWER
38	BEARING (T-THERMAL)
39	VIBRATION
40	LOSS OF FIELD
46	NEGATIVE SEQUENCE
49	WINDING THERMAL
50BF	BREAKER FAILURE
50	INSTANTANEOUS OVER CURRENT RELAY
51	TIME OVER CURRENT RELAY
59	OVERVOLTAGE
60	LOSS OF POTENTIAL
64F	FIELD GROUND
77	SPEED TRANSDUCER
81	OVER/UNDER FREQUENCY
86	LOCKOUT
87	CURRENT DIFFERENTIAL
94	NON-LOCKOUT TRIP
OEL	OVER EXCITATION LIMIT
UEL	UNDER EXCITATION LIMIT
RT	RUN TIME METER
BIM	BITRONICS DIGITAL RECORDING METER

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49th — MATHEW L. LAWSON No. AELE11874 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

RELAY DIAGRAM

DESIGNED M. LAWSON

DRAWN D. JOHNSTON

CHECKED J. BAKKEN

PROJECT DATE 09/19/22

DRAWING

E104

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\E104.dwg Plot date: Sep 19, 2022 04:17pm, CAD User: Guerrero

PANELBOARD MDP		PANEL SCHEDULE								PROJECT: PETERSBURG BLIND SLOUGH HYDRO				
480/277V, 3Ø, 4W		225A BUS				175A M.C.B				LOCATION: BLIND SLOUGH POWERHOUSE				
MOUNTING: SURFACE						NEMA 12				DATE:			NEUTRAL: BONDED	
CKT	DESCRIPTION/LOCATION	LOAD VA	LOAD TYPE	LOAD AMP	CB AMP	CB POLE	PHASE	CB POLE	CB AMP	LOAD AMP	LOAD TYPE	LOAD VA	DESCRIPTION/LOCATION	CKT
1	HPU CONTROL CABINET		M		30	3	A	3	40		M		COMPRESSOR OUTLET	2
3							B							4
5							C							6
7	LUBE OIL CONTROL CABINET		M		30	3	A	3	30		H		UNIT HEATER	8
9							B							10
11							C							12
13	VALVE V-202		M		20	3	A	3	50		G		INTAKE POWER (STEPUP XFMR)	14
15							B							16
17							C							18
19	BATTERY GENERATOR		G		50	3	A	3	70		L		LIGHTING TRANSFORMER	20
21							B							22
23							C							24
25	SPARE				20	3	A	3	30				SPARE	26
27							B							28
29							C							30
31							A							32
33							B							34
35							C							36
37							A	3	30				SPARE	38
39							B							40
41							C							42

PANELBOARD LVDP		PANEL SCHEDULE								PROJECT: PETERSBURG BLIND SLOUGH HYDRO				
208/120V, 3Ø, 4W		150A BUS				150A M.C.B				LOCATION: BLIND SLOUGH POWERHOUSE				
MOUNTING: SURFACE						NEMA 12				DATE:			NEUTRAL: BONDED	
CKT	DESCRIPTION/LOCATION	LOAD VA	LOAD TYPE	LOAD AMP	CB AMP	CB POLE	PHASE	CB POLE	CB AMP	LOAD AMP	LOAD TYPE	LOAD VA	DESCRIPTION/LOCATION	CKT
1	EXIT SIGN		L		20	1	A	2	20		G		EXHAUST FAN	2
3	LIGHTS - INTERIOR		L		20	1	B							4
5	LIGHTS - EXTERIOR		L		20	1	C	2	20		H		GEN SPACE HEATER	6
7	OUTLETS - INTERIOR NORTH		R		20	1	A							8
9	OUTLETS - INTERIOR SOUTH		R		20	1	B	2	20				SPARE	10
11	EMERGENCY LIGHTS		L		20	1	C							12
13	SWITCHYARD LIGHTING		G		20	1	A	2	30				UNIT CONTROL PANEL CB6-1	14
15	LUBE OIL		G		20	1	B							16
17	FLOW METER		G		20	1	C	1	20				UNIT CONTROL PANEL CB1-1	18
19	FIRE ALARM		G		20	1	A	1	20				UNIT CONTROL PANEL CB2-1	20
21	SPARE				20	1	B	1	20				DOOR HYDRAULIC OPERATOR	22
23	SPARE				20	1	C	1	20				SPARE	24
25	SPARE				20	1	A	1	20				SPARE	26
27	SPARE				20	1	B	1	20				SPARE	28
29	OUTLET HEAT THERMOSTAT		H		20	1	C	1	20				SPARE	30

PANELBOARD DC		PANEL SCHEDULE								PROJECT: PETERSBURG BLIND SLOUGH HYDRO				
125V STATION SERVICE, 2W		150A BUS				150A M.C.B				LOCATION: BLIND SLOUGH POWERHOUSE				
MOUNTING: SURFACE						NEMA 1				DATE:			NEUTRAL: NONE	
CKT	DESCRIPTION/LOCATION	LOAD VA	LOAD TYPE	LOAD AMP	CB AMP	CB POLE	PHASE	CB POLE	CB AMP	LOAD AMP	LOAD TYPE	LOAD VA	DESCRIPTION/LOCATION	CKT
1	BATTERY BANK		G		100	2	A	2	30		G		BATTERY CHARGER	2
3							B							4
5	HPU EM PUMP		M		20	2	A	2	20		G		UNIT CONTROL PANEL (CB4)	6
7							B							8
9	LUBE OIL		M		30	2	A	2	20		G		UNIT CONTROL PANEL (CB5)	10
11							B							12
13	AC INVERTER		G		20	2	A	2	20		G		GENERATOR BREAKER/RELAY (CB3)	14
15							B							16
17	GENERATOR BREAKER/RELAY		G		20	2	A	2	10		G		STATION SERVICE BREAKER (CB1)	18
19							B							20
21							A	2	10		G		SPARE	22
23							B							24
25							A	2	10		G		SPARE	26
27							B							28
29							A							30
31							B							32
33							A							34
35							B							36
37							A							38
39							B							40
41							A							42

SHEET NOTES:

1. PROVIDE PANEL BOARDS CONFIGURED AS SHOWN WITH ELECTRICAL RATINGS AS INDICATED. ELECTRICAL BUS BARS TO BE COPPER. BUS AND BREAKERS SHALL BE RATED FOR MIN 14,000 INTERRUPTING AMPERES. BREAKERS TO BE BOLT-ON TYPE.

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49th — MATHEW L. LAWSON No. AELE11874 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING
0 1/2 1
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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

PANEBOARD SCHEDULES
AC & DC

DESIGNED M. LAWSON
DRAWN D. JOHNSTON
CHECKED J. BAKKEN
PROJECT DATE 09/19/22

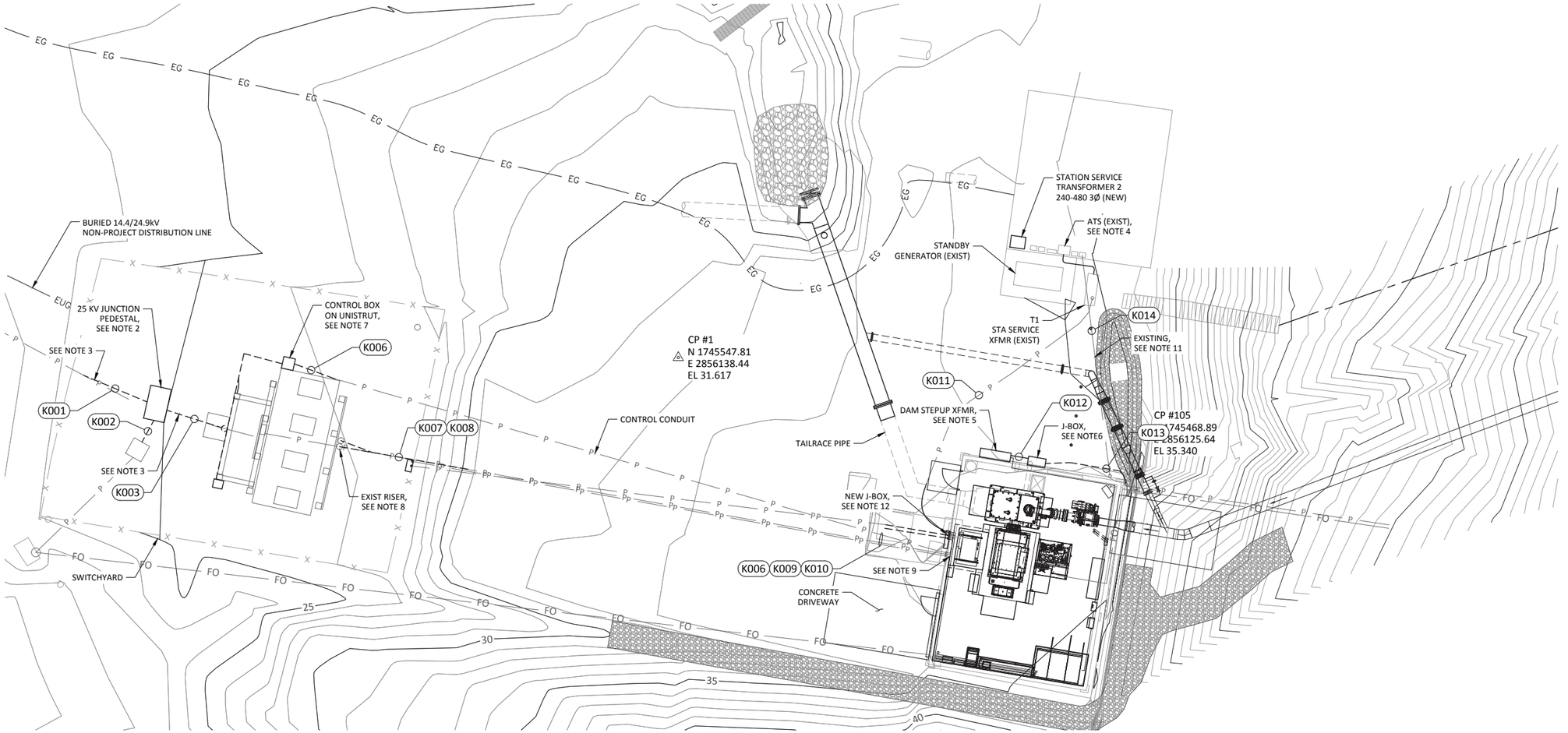
DRAWING
E106

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\E106.dwg Plot date: Sep 19, 2022 04:17pm, CAD User: Guerrero

SHEET NOTES:

1. CONTRACTOR TO FIELD VERIFY LOCATIONS AND SIZES OF EXISTING CONDUIT.
2. INSTALL NEW 25KV JUNCTION PEDESTAL PER DETAIL SHEET E402.
3. SPLICE NEW 5" PVC CONDUIT FROM JUNCTION PEDESTAL TO EXISTING 5" CONDUIT FOR INCOMING 25 KV DISTRIBUTION. REUSE EXISTING RISER AND CONNECT TO OWNER PROVIDED VACUUM SWITCH PER REFERENCE DRAWINGS.OWNER TO PROVIDE AND INSTALL 25KV CABLING.
4. REUSE EXISTING STATION SERVICE EQUIPMENT SHOWN.
5. PROVIDE 480V - 2400V STEP UP TRANSFORMER FOR DAM POWER.
6. JUNCTION BOX FOR SPLICING 2400V DAM FEEDER CABLE. SPLICE AND EXTEND EXISTING 2" PVC DAM FEEDER CONDUIT TO J-BOX. INSTALL 2" RGS BETWEEN J-BOX AND TRANSFORMER. LABEL J-BOX "HIGH VOLTAGE".
7. INSTALL NEW 24" X 24" X 12" CONTROL JUNCTION BOX ON UNISTRUT FRAME. TERMINATE NEW CONDUIT TO LINE SWITCH AND SPLICE IN ADDITIONAL NEW CONDUIT TO MEET EXISTING CONDUIT RUN AS REQUIRED. MAINTAIN GROUNDING.
8. REUSE EXISTING RISER AT GSU TRANSFORMER. CONTRACTOR SHALL SPLICE NEW 6" PVC CONDUIT INTO EXISTING RUNS AS REQUIRED.
9. SPLICE NEW RGS CONDUIT INTO EXISTING TERMINATIONS AT POWERHOUSE. ROUTE ALONG INSIDE WALL TO NEW SWITCHGEAR.
10. ALL POWER AND CONTROL CONDUITS SHALL BE MANDRALLED.
11. MAINTAIN AND REUSE EXISTING BURIED STATION SERVICE CABLE AND CONDUIT.
12. PROVIDE JUNCTION SHOWN ON E104 DETAIL A.
13. RESURFACE SWITCHYARD WITH NEW SURFACE ROCK. SEE E400.



ELECTRICAL SITE PLAN

SCALE: 1"= 10'

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA — 49th — MATHEW L. LAWSON No. AELE11874 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

ELECTRICAL
SITE PLAN

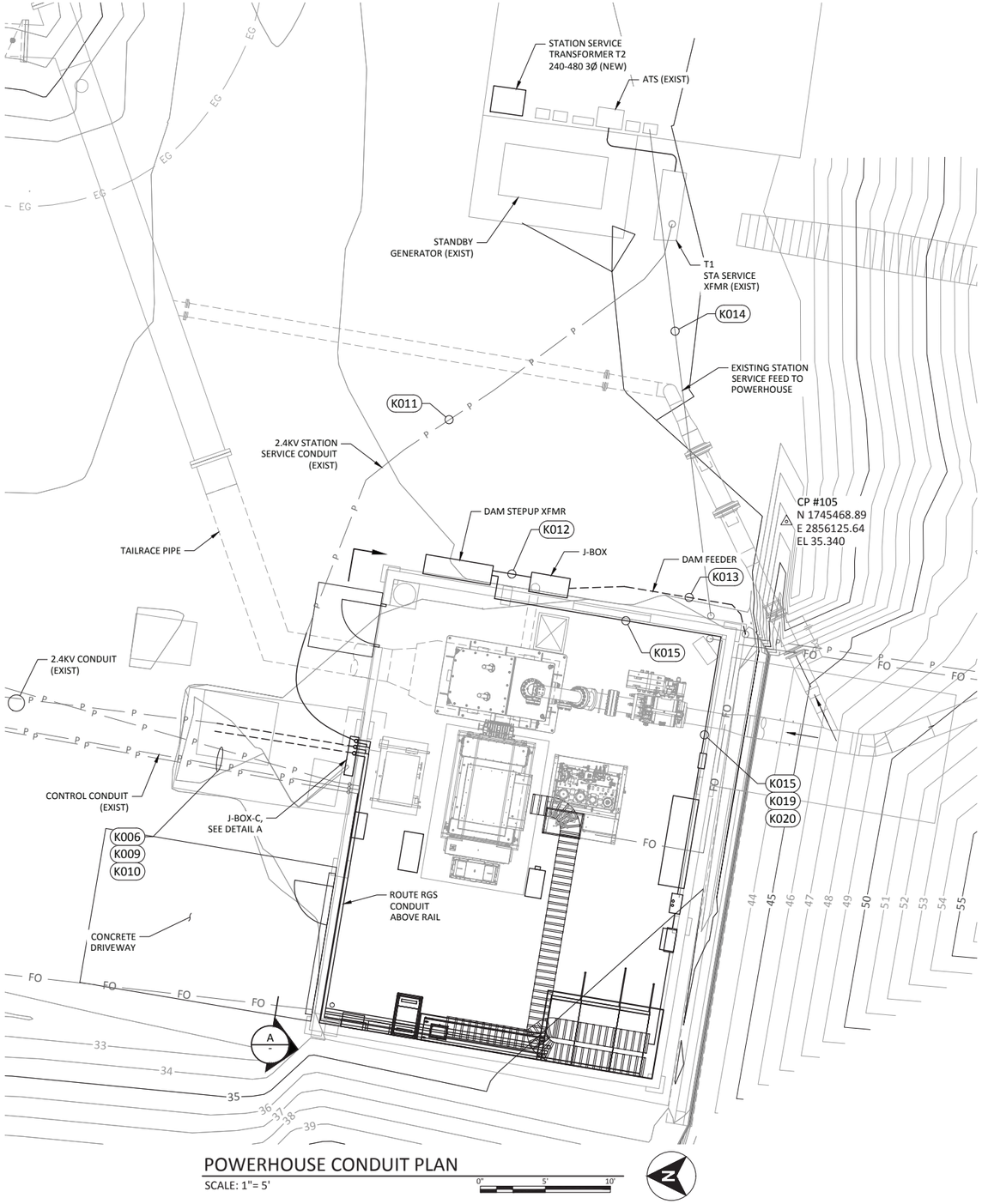
DESIGNED M. LAWSON
DRAWN D. JOHNSTON
CHECKED J. BAKKEN
PROJECT DATE 09/19/22

DRAWING

E107

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\E107.dwg Plot date: Sep 19, 2022 04:18pm, CAD User: Guerrero



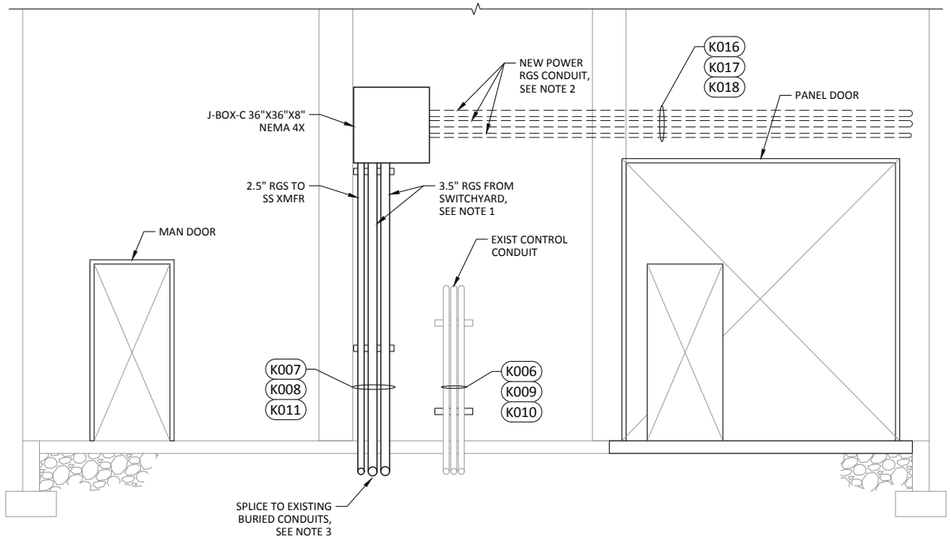
POWERHOUSE CONDUIT PLAN

SCALE: 1"= 5'

0" 5' 10'

SHEET NOTES:

1. SPLICE AND EXTEND EXISTING BURIED 2.4KV POWER CONDUITS FROM SWITCHYARD, USING RGS, UP ALONG NORTH EXTERIOR FACE OF POWERHOUSE AND PENETRATE WALL ABOVE CRANE RAIL. MAINTAIN MINIMUM RADIUS BEND OF 15".
2. ROUTE POWER CONDUITS ALONG INTERIOR POWERHOUSE WALL TO CABLE TRAY. PROVIDE ANGEL SUPPORT BRACKETS AS REQUIRED. DO NOT IMPEDE CRANE MOVEMENT.
3. SPLICE BURIED PVC CONTROL CONDUITS TO EXISTING PVC VERTICAL CONDUIT ON NORTH EXTERIOR FACE OF POWERHOUSE.
4. SEE SHEETS E107, E200, E204, AND E400 FOR DETAIL CONDUIT RUNS.
5. NOTE LOW VOLTAGE POWER CONDUITS FOR LIGHTING, HYDRAULIC DOOR ACTUATOR, HEAT TRACE, AND FIRE ALARM PANEL NOT SHOWN. CONTRACTOR TO PROVIDE AND ROUTE AS NECESSARY.



ELEVATION - CONDUITS

SCALE: NTS

A
-

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49th MATHEW L. LAWSON No. AELE11874 REGISTERED PROFESSIONAL ENGINEER 09/19/2022

WARNING

0 1/2 1

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

POWERHOUSE CONDUIT PLAN

DESIGNED M. LAWSON

DRAWN R. GUERRERO

CHECKED J. BAKKEN

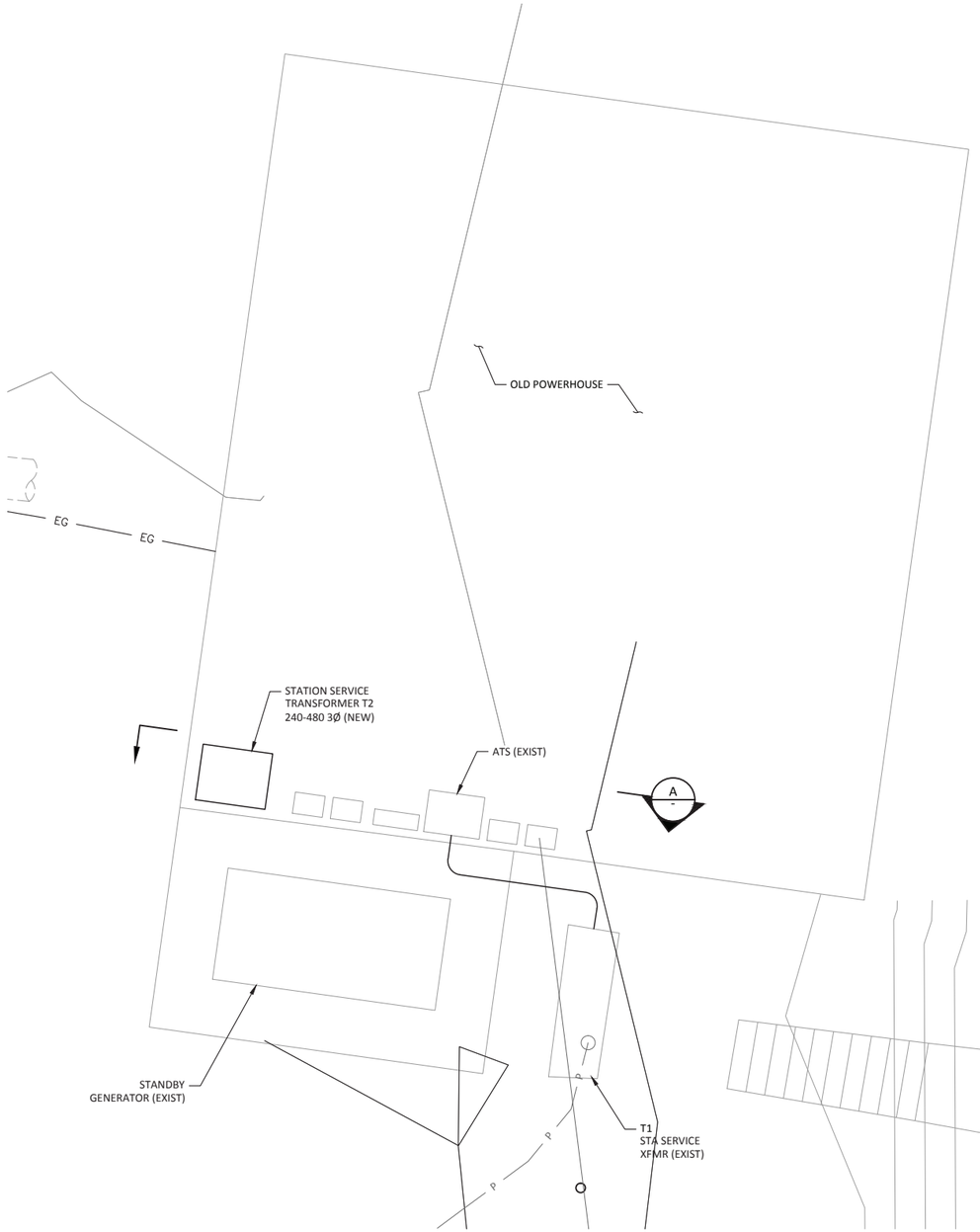
PROJECT DATE 09/19/22

DRAWING

E108

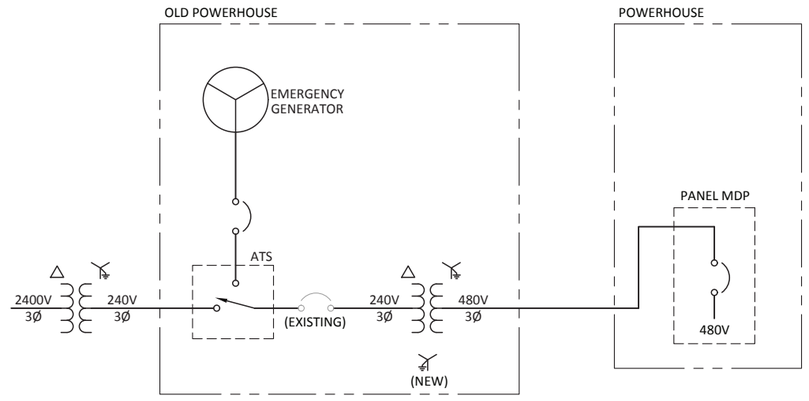
JOB NO: 0000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\E108.dwg Plot date: Sep 19, 2022 04:17pm, CAD User: Guerrero



480V STATION SERVICE TRANSFORMER

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

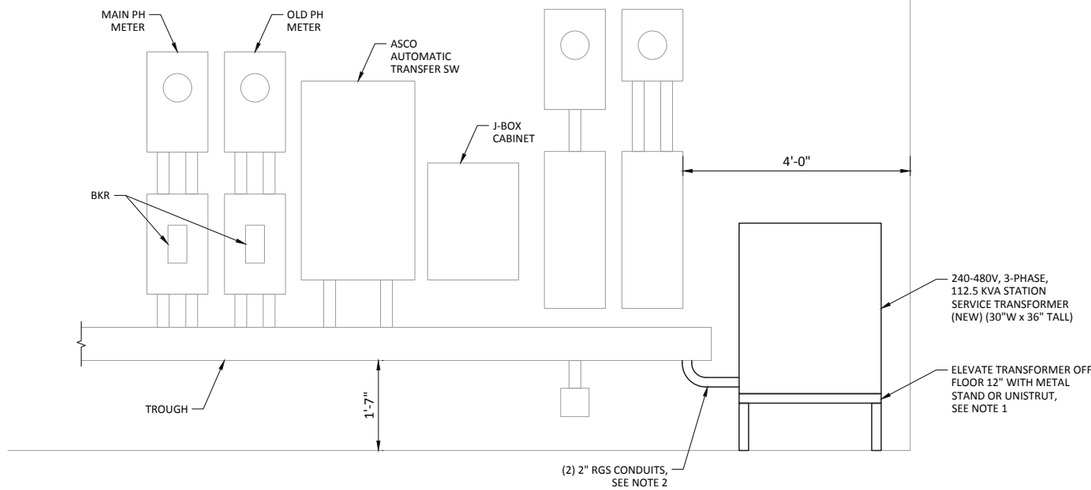


STATION SERVICE ONE-LINE

SCALE: NTS

SHEET NOTES:

1. INSTALL NEW STATION SERVICE STEP-UP TRANSFORMER IN OLD POWERHOUSE AS SHOWN. TRANSFORMER TO BE ELEVATED ABOVE WOOD FLOOR.
2. RUN (2) 2" RGS CONDUITS BETWEEN NEW STATION SERVICE TRANSFORMER AND EXISTING CABLE TROUGH.
3. PULL (3) 4/0 CONDUCTORS, WITH #1 GROUND, FROM TRANSFORMER 240V WINDING TO ATS AND TERMINATE.
4. PULL (3) 4/0 CONDUCTORS, WITH #1 GROUND, FROM TRANSFORMER T2 480V WINDING TO NEW POWERHOUSE STATION SERVICE PANEL MDP.



OLD POWERHOUSE STATION SERVICE ELEVATION

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

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49th MATHEW L. LAWSON No. AELE11874 REGISTERED PROFESSIONAL ENGINEER 09/19/2022

WARNING

0 1/2 1

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

McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

480V STATION SERVICE TRANSFORMER

DESIGNED M. LAWSON

DRAWN D. JOHNSTON

CHECKED J. BAKKEN

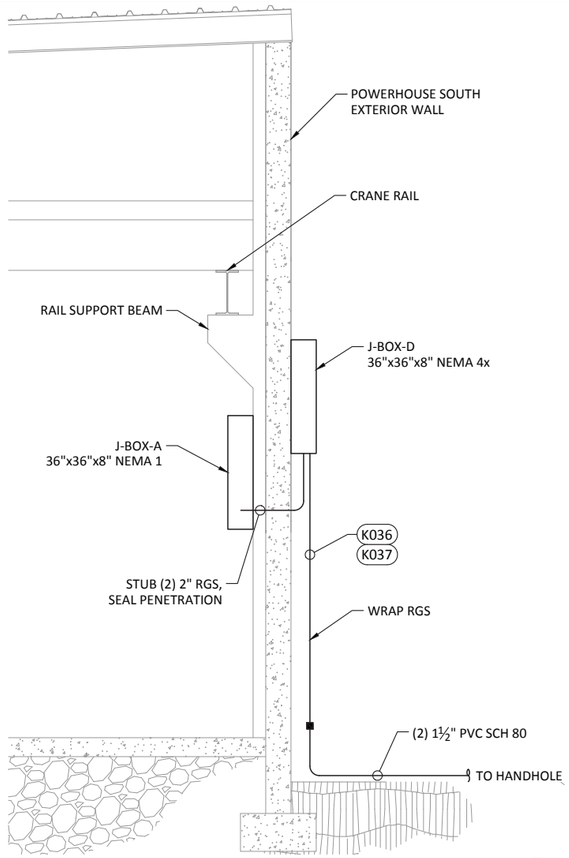
PROJECT DATE 09/19/22

DRAWING

E109

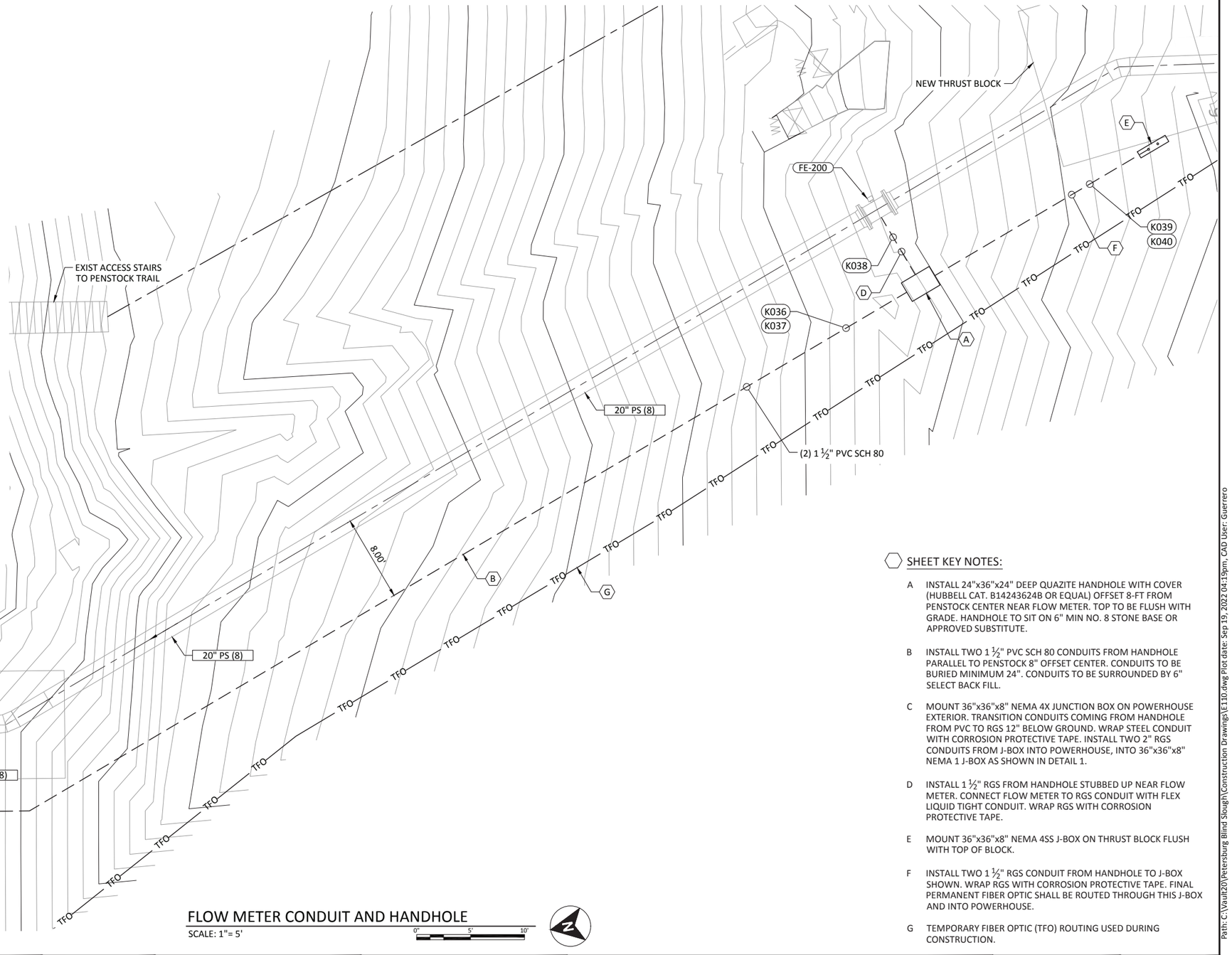
JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\E109.dwg Plot date: Sep 19, 2022 04:18pm, CAD User: Guerrero



DETAIL

SCALE: 1"= 2'



FLOW METER CONDUIT AND HANDHOLE

SCALE: 1"= 5'

SHEET KEY NOTES:

A INSTALL 24"x36"x24" DEEP QUAZITE HANDHOLE WITH COVER (HUBBELL CAT. B14243624B OR EQUAL) OFFSET 8-FT FROM PENSTOCK CENTER NEAR FLOW METER. TOP TO BE FLUSH WITH GRADE. HANDHOLE TO SIT ON 6" MIN NO. 8 STONE BASE OR APPROVED SUBSTITUTE.

B INSTALL TWO 1 ½" PVC SCH 80 CONDUITS FROM HANDHOLE PARALLEL TO PENSTOCK 8" OFFSET CENTER. CONDUITS TO BE BURIED MINIMUM 24". CONDUITS TO BE SURROUNDED BY 6" SELECT BACK FILL.

C MOUNT 36"x36"x8" NEMA 4X JUNCTION BOX ON POWERHOUSE EXTERIOR. TRANSITION CONDUITS COMING FROM HANDHOLE FROM PVC TO RGS 12" BELOW GROUND. WRAP STEEL CONDUIT WITH CORROSION PROTECTIVE TAPE. INSTALL TWO 2" RGS CONDUITS FROM J-BOX INTO POWERHOUSE, INTO 36"x36"x8" NEMA 1 J-BOX AS SHOWN IN DETAIL 1.

D INSTALL 1 ½" RGS FROM HANDHOLE STUBBED UP NEAR FLOW METER. CONNECT FLOW METER TO RGS CONDUIT WITH FLEX LIQUID TIGHT CONDUIT. WRAP RGS WITH CORROSION PROTECTIVE TAPE.

E MOUNT 36"x36"x8" NEMA 4SS J-BOX ON THRUST BLOCK FLUSH WITH TOP OF BLOCK.

F INSTALL TWO 1 ½" RGS CONDUIT FROM HANDHOLE TO J-BOX SHOWN. WRAP RGS WITH CORROSION PROTECTIVE TAPE. FINAL PERMANENT FIBER OPTIC SHALL BE ROUTED THROUGH THIS J-BOX AND INTO POWERHOUSE.

G TEMPORARY FIBER OPTIC (TFO) ROUTING USED DURING CONSTRUCTION.

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STATE OF ALASKA 49th — MATHEW L. LAWSON No. AELE11874 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

FLOW METER CONDUIT AND HANDHOLE

DESIGNED M. LAWSON
DRAWN R. GUERRERO
CHECKED J. BAKKEN
PROJECT DATE 09/19/22

DRAWING

E110

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\E110.dwg Plot date: Sep 19, 2022 04:19pm, CAD User: Guerrero

ID#	CATEGORY	FROM	TO	SIZE	CABLES IN CONDUIT	ROUTING TYPE	COMMENTS
K-001	HIGH VOLT	INCOMING LINE CONDUIT	NEW 25KV DOGHOUSE	5" PVC SCH40		BURIED	INTERCEPT AND EXTEND EXISTING CONDUIT TO DOGHOUSE
K-002	HIGH VOLT	25KV DOGHOUSE	EXISTING HANDHOLD	5" PVC SCH40		BURIED	INTERCEPT AND EXTEN CONDUIT FROM HANDHOLE TO DOGHOUSE
K-003	HIGH VOLT	25KV DOGHOUSE	25KV BUS RISE	5" PVC SCH40		BURIED	INTERCEPT 25KV BUS RISE OR REPLACE AS PREFERRED
K-004	POWER	JUNCTION BOX	SWITCHYARD POWER RECEPTACLE (EXIST)	1.25" RGS		BURIED	
K-005	CONTROL	JUNCTION BOX	VACUUM SWITCH CONTROL CABINET	2" RGS		BURIED	
K-006	CONTROL/PWR	JUNCTION BOX	POWERHOUSE	2" PVC SCH 40		BURIED	INTERCEPT EXISTING PVC CONDUIT AND SPLICE
K-007	HIGH VOLT	2.4KV BUS RISE	J-BOX-C POWERHOUSE (EXTERIOR)	5" PVC SCH40		BURIED	
K-008	HIGH VOLT	2.4KV BUS RISE	J-BOX-C POWERHOUSE (EXTERIOR)	5" PVC SCH40		BURIED	
K-009	CONTROL	SWYD J-BOX	POWERHOUSE	2" PVC SCH 40		BURIED	INTERCEPT EXISTING CONDUIT AND SPLICE
K-010	CONTROL	SWYD J-BOX	POWERHOUSE	2" PVC SCH 40		BURIED	INTERCEPT EXISTING CONDUIT AND SPLICE
K-011	HIGH VOLT	STATION SERVICE TRANSFORMER T1	J-BOX-C POWERHOUSE (EXTERIOR)	2" PVC SCH 40		BURIED	INTERCEPT EXISTING CONDUIT AND SPLICE
K-012	HIGH VOLT	HV JUNCTION BOX	DAM FEEDER TRANSFORMER T3	2" RGS		SURFACE	
K-013	HIGH VOLT	EXISTING DAM CABLE RISER	HV JUNCTION BOX	2" PVC SCH 40		BURIED	INTERCEPT EXISTING CONDUIT AND SPLICE
K-014	POWER	TRANSFORMER T2 (240-480 OLD PH)	CONDULET/JBOX (EXISTING)	EXISTING		BURIED/SURFACE	REUSE EXISTING AS PRACTICAL, PROVIDE AS REQUIRED.
K-015	POWER	TRANSFORMER T3	MDP 480VAC DAM FEEDER BREAKER	1.5" RGS		SURFACE	
K-016	HIGH VOLT	J-BOX-E	SWITCHGEAR- GENERATOR BREAKER	3" RGS		SURFACE	TERMINATE AT CABLE TRAY
K-017	HIGH VOLT	J-BOX-E	SWITCHGEAR- GENERATOR BREAKER	3" RGS		SURFACE	TERMINATE AT CABLE TRAY
K-018	HIGH VOLT	J-BOX-E	SWITCHGEAR- STATION SERVICE BREAKER	2" RGS		SURFACE	TERMINATE AT CABLE TRAY
K-019	POWER	CONDULET/JBOX (EXISTING)	MDP 480VAC MAIN BREAKER VIA CABLE TRAY	2" RGS EXISTING		SURFACE	REUSE AS PRACTICAL, PROVIDE AS REQUIRED.
K-020	POWER	UNIT HEAR	MDP 480VAC HEATER BREAKER	1" EXISTING		SURFACE	REUSE AS PRACTICAL, PROVIDE AS REQUIRED.
K-021	CONTROL	J-BOX-A	CABLE TRAY	2" RGS		SURFACE	STUB TO CABLE TRAY CONTROL SIDE
K-022	CONTROL	J-BOX-A	CABLE TRAY	2" RGS		SURFACE	STUB TO CABLE TRAY CONTROL SIDE
K-023	VDC	PANEL VDC	CABLE TRAY	1.5" RGS		SURFACE	STUB TO CABLE TRAY CONTROL SIDE
K-024	VDC	PANEL VDC	CABLE TRAY	1.5" RGS		SURFACE	STUB TO CABLE TRAY CONTROL SIDE
K-025	VDC	PANEL VDC	BATTERY CHARGER	1.5" RGS		SURFACE	
K-026	POWER	BATTERY CHARGER	PANEL MDP	1.5" RGS		SURFACE	VIA CABLE TRAY TO MPD
K-027	CONTROL	J-BOX-A	TIV POSITION FEEDBACK	3/4" LIQUID TIGHT		SURFACE	ROUTE WITH HYDRAULIC LINES
K-028	CONTROL	J-BOX-A	PRESSURE TRANSDUCER SUPPLY SIDE	3/4" LIQUID TIGHT		SURFACE	ROUTE WITH HYDRAULIC LINES
K-029	CONTROL	J-BOX-A	PRESSURE TRANSDUCER DOWNSTREAM SIDE	3/4" LIQUID TIGHT		SURFACE	ROUTE WITH HYDRAULIC LINES
K-030	VDC	BATTERY BANK	PANEL VDC	1.25" RGS		SURFACE	
K-031	CONTROL	J-BOX-A	FIT-200 TRANSMITTER	1" LIQUID TIGHT		SURFACE	
K-032	FACP	FIRE ALARM CONTROL PANEL	OLD POWERHOUSE PULL STATION	1" RGS		BURIED/SURFACE	WRAP BURIED SECTION WITH CORROSION RESISTANT TAPE
K-033	CONTROL	LUBE OIL CONTROL CABINET	CABLE TRAY CONTROL SIDE	1.5" RGS		SURFACE	
K-034	POWER	LUBE OIL CONTROL CABINET	CABLE TRAY POWER SIDE	1.5" RGS		SURFACE	
K-035	GEN NEUTRAL	GENERATOR NEUTRAL	NEUTRAL GROUNDING TRANSFORMER	1.5" RGS		SURFACE	
K-036	COMMUNICATION	HANDHOLE (NEAR FLOW METER)	J-BOX-D (EXT BACKSIDE)	1.5" RGS		BURIED/SURFACE	BURIED TO BE PVC SCH 40, EXPOSED RGS
K-037	COMMUNICATION	HANDHOLE (NEAR FLOW METER)	J-BOX-D (EXT BACKSIDE)	1.5" RGS		BURIED/SURFACE	BURIED TO BE PVC SCH 40, EXPOSED RGS
K-038	COMMUNICATION	HANDHOLE (NEAR FLOW METER)	FLOW METER	1.5" RGS		BURIED/SURFACE	ALL RGS
K-039	COMMUNICATION	HANDHOLE (NEAR FLOW METER)	JUNCTION BOX (ON THRUST BLOCK	1.5" RGS		BURIED/SURFACE	ALL RGS
K-040	COMMUNICATION	HANDHOLE (NEAR FLOW METER)	JUNCTION BOX (ON THRUST BLOCK	1.5" RGS		BURIED/SURFACE	ALL RGS
K-041	CONTROL	HYDRAULIC POWER UNIT (HPU)	DEFFLECTOR	3/4" LIQUID TIGHT		SURFACE	ROUTE WITH HYDRAULIC LINES
K-042	CONTROL	HYDRAULIC POWER UNIT (HPU)	JET-VALVE UPPER	3/4" LIQUID TIGHT		SURFACE	ROUTE WITH HYDRAULIC LINES
K-043	CONTROL	HYDRAULIC POWER UNIT (HPU)	JET-VALVE LOWER	3/4" LIQUID TIGHT		SURFACE	ROUTE WITH HYDRAULIC LINES
K-044	FACP	PANEL LVDP	FACP ENCLOSURE	3/4" RGS		SURFACE	
K-045	DC POWER	LUBE OIL CONTROL CABINET	CABLE TRAY, POWER SIDE	1" RGS		SURFACE	
K-046	POWER	LUBE OIL CONTROL CABINET	LUBE OIL CONTROL CABINET	1" LIQUID TIGHT		SURFACE	
K-047	CONTROL	LUBE OIL CONTROL CABINET	LUBE OIL CONTROL CABINET	1" LIQUID TIGHT		SURFACE	
K-048	DC POWER	LUBE OIL CONTROL CABINET	LUBE OIL CONTROL CABINET	1" LIQUID TIGHT		SURFACE	
K-049	POWER	J-BOX-B	CABLE TRAY, POWER SIDE	1" RGS		SURFACE	
K-050	CONTROL	J-BOX-B	J-BOX-A	3/8" RGS		SURFACE	
K-051	POWER/CONTROL	J-BOX-B	V202 ACTUATOR	1" RGS		SURFACE	PROVIDE FLEX CONDUIT CONNECTION TO ACTUATOR

SHEET NOTES:

1. CONDUITS FOR LIGHTING, AND POWER RECEPTACLES NOT SHOWN. CONTRACTOR TO PROVIDE AS REQUIRED.
2. BURIED OR EMBEDDED RGS CONDUIT TO BE WRAPPED FOR CORROSION RESISTANCE.
3. NOT ALL CONDUITS LISTED ARE SHOWN ON PLAN DRAWINGS. CONTRACTOR TO DETERMINE ROUTING AS NECESSARY.

REV	DATE	BY	DESCRIPTION
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STATE OF ALASKA 49th — MATHEW L. LAWSON No. AELE11874 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING
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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

CONDUIT SCHEDULE

DESIGNED M. LAWSON
DRAWN D. JOHNSTON
CHECKED J. BAKKEN
PROJECT DATE 09/19/22

DRAWING
E111

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\E111.dwg Plot date: Sep 19, 2022 04:19pm, CAD User: Guerrero

ID#	SIZE	TYPE	FROM	TO	K	K	K	K	K	K	COMMENTS
				MEDIUM VOLTAGE							
C-001	3CC-350 KCML, 4/0 GND, ARMORED CABLE	5-KV	SWITCHGEAR - GEN BREAKER	GENERATOR							ROUTE VIA CONDUIT
C-002	3CC-350 KCML, 4/0 GND, ARMORED	5-KV	SWITCHGEAR - GEN BREAKER	GENERATOR							ROUTE VIA CONDUIT
C-003	3x1CC-350 KCML, 4/0 GND, SHIELDED	5-KV	SWITCHGEAR INCOMING MAIN BUS	SWYD 2400V GSU TRANSFORMER BUS							ROUTE VIA CONDUIT AND CABLE TRAY
C-004	3x1CC-350 KCML, 4/0 GND, SHIELDED	5-KV	SWITCHGEAR INCOMING MAIN BUS	SWYD 2400V GSU TRANSFORMER BUS							ROUTE VIA CONDUIT AND CABLE TRAY
C-005	3CC-#4, SHIELDED	5-KV	SWITCHGEAR - SS BREAKER	STATION SERVICE TRANSFORMER T1							ROUTE VIA CONDUIT AND CABLE TRAY
				GROUND							
C-006	1CC - 2/0, THHN CONDUCTOR	2 KV	MAIN GROUND BAR (INSULATED)	GENERATOR - GROUND							
C-007	1CC - 2/0, THHN CONDUCTOR	600V	NEUTRAL GROUNDING TRANSFORMER	GENERATOR - NEUTRAL							
C-008	1CC - 2/0, THHN CONDUCTOR	600V	NEUTRAL GROUNDING TRANSFORMER	MAIN GROUND BAR (INSULATED)							
C-009	2CC - 2/0, THHN CONDUCTORS	600V	SWITCHYARD GROUND GRID	MAIN GROUND BAR (INSULATED)							
C-010	2CC - 2/0, THHN CONDUCTORS	600V	SWITCHYARD GROUND GRID	MAIN GROUND BAR (INSULATED)							
C-011	1CC - 2/0, THHN CONDUCTORS	600V	STATION TRANSFORMER T1 GROUND	MAIN GROUND BAR (INSULATED)							
C-012	3CC-#4, SHIELDED	5-KV	SWITCHGEAR - SS BREAKER	STATION SERVICE TRANSFORMER T1							
				480VAC							
C-013	3X1CC, 4/0, WITH #6 GND	600V THHN	MAIN POWERHOUSE BREAKER (IN OLD PH)	TRANSFORMER T2 - 240V WINDING							
C-014	3X1CC, 4/0, WITH #6 GND	600V THHN	TRANSFORMER T2 - 480V WINDING	MAIN POWERHOUSE PANEL MDP (480 VAC)							
C-015	4CC-#10	600V THHN	PANEL MDP - 480V, 3-PHASE	HPU CONTROL CABINET							
C-016	4CC-#10	600V THHN	PANEL MDP - 480V, 3-PHASE	LUBE OIL CONTROL CABINET							
C-017	4CC-#12	600V THHN	PANEL MDP - 480V, 3-PHASE	V-202 ACTUATOR							
C-018	4CC-#8	600V THHN	PANEL MDP - 480V, 3-PHASE	BATTERY CHARGER							
C-019	4CC-#10	600V THHN	PANEL MDP - 480V, 3-PHASE	UNIT HEATER							
C-020	4CC-#8	600V THHN	PANEL MDP - 480V, 3-PHASE	INTAKE/DAM STEP-UP TRANSFORMER T3							
C-021	4CC-#6	600V THHN	PANEL MDP - 480V, 3-PHASE	LIGHTING TRANSFORMER							
C-022	4CC-#8	600V THHN	PANEL MDP - 480V, 3-PHASE	COMPRESSOR							
C-023	4CC-#12	600V THHN	LUBE OIL CONTROL CABINET - 480V, 3-PHASE	LUBE OIL SKID - OIL PUMP #1							
C-024	4CC-#12	600V THHN	LUBE OIL CONTROL CABINET - 480V, 3-PHASE	LUBE OIL SKID - OIL PUMP #2							
C-025	4CC-#12	600V THHN	LUBE OIL CONTROL CABINET - 480V, 3-PHASE	LUBE OIL SKID - HEAT EXCHANGER AIR BLAST FAN							
C-026	4CC-#12	600V THHN	LUBE OIL CONTROL CABINET - 480V, 3-PHASE	LUBE OIL SKID - KIDNEY LOOP PUMP							
				208VAC							
C-027	3CC-1/0, #6 GND	600V THHN	LIGHTING TRANSFORMER	MAIN POWERHOUSE PANEL LVDP (280/120 VAC)							
C-028	3CC-#12	600V THHN	PANEL B - 208/120V, 3-PHASE	EXIT SIGN							
C-029	3CC-#12	600V THHN	PANEL B - 208/120V, 3-PHASE	LIGHTS - INTERIOR							
C-030	3CC-#12	600V THHN	PANEL B - 208/120V, 3-PHASE	LIGHTS - EXTERIOR							
C-031	3CC-#12	600V THHN	PANEL B - 208/120V, 3-PHASE	OUTLETS - INTERIOR NORTH							
C-032	3CC-#12	600V THHN	PANEL B - 208/120V, 3-PHASE	OUTLETS - INTERIOR SOUTH							
C-033	3CC-#12	600V THHN	PANEL B - 208/120V, 3-PHASE	EMERGENCY LIGHTS							
C-034	3CC-#12	600V THHN	PANEL B - 208/120V, 3-PHASE	UNIT CONTROL CABINET - CB1-1 TWO POLE (208V)							
C-035	3CC-#12	600V THHN	PANEL B - 208/120V, 3-PHASE	UNIT CONTROL CABINET - CB1-1 ONE POLE (120V)							
C-036	3CC-#12	600V THHN	PANEL B - 208/120V, 3-PHASE	UNIT CONTROL CABINET - CB2-1 ONE POLE (120V)							
C-037	3CC-#12	600V THHN	PANEL B - 208/120V, 3-PHASE	LUBE OIL CONTROL CABINET							
C-038	3CC-#12	600V THHN	PANEL B - 208/120V, 3-PHASE	FLOW METER							
C-039	3CC-#12	600V THHN	PANEL B - 208/120V, 3-PHASE	FIRE ALARM							
C-040	3CC-#12	600V THHN	PANEL B - 208/120V, 3-PHASE	OUTLET HEAT TRACE - OUTSIDE POWERHOUSE							
C-041	3CC-#12	600V THHN	PANEL B - 208/120V, 3-PHASE	EXHAUST FAN							
C-042	3CC-#12	600V THHN	PANEL B - 208/120V, 3-PHASE	GENERATOR SPACE HEATER							
C-043	4CC-#8	600V THHN	PANEL B - 208/120V, 3-PHASE	SWITCHYARD OUTLET & LIGHTING (120VAC)							
C-044	3CC-#12	600V THHN	PANEL B - 208/120V, 3-PHASE	UPS/COMM RACK							
C-045	3CC-#10	600V THHN	PANEL B - 208/120V, 3-PHASE	SWITCHYARD LINE VACUUM SWITCH CONTROL							
C-046	2X1CC-#14	600V THHN	UNIT CONTROL PANEL - 208/120V, 3-PHASE	LUBE OIL SKID - LUBE OIL SUMP HEATER							
				125VDC							
C-047	2CC-#2	600V THHN	PANEL VDC - 125 VDC	BATTERY BANK							
C-048	2CC-#12	600V THHN	PANEL VDC - 125 VDC	HPU CONTROL CABINET (EMERGENCY PUMP)							
C-049	2CC-#12	600V THHN	PANEL VDC - 125 VDC	LUBE OIL CONTROL CABINET (EMERGENCY PUMP)							
C-050	2CC-#12	600V THHN	PANEL VDC - 125 VDC	AC INVERTER							
C-051	2CC-#12	600V THHN	PANEL VDC - 125 VDC	BATTERY CHARGER							
C-052	2CC-#12	600V THHN	PANEL VDC - 125 VDC	UNIT CONTROL PANEL							
C-053	3CC-#12	600V THHN	PANEL VDC - 125 VDC	GENERATOR BREAKER/RELAY							
C-054	3CC-#12	600V THHN	PANEL VDC - 125 VDC	GENERATOR BREAKER/RELAY							
C-055	2CC-#12	600V THHN	PANEL VDC - 125 VDC	STATION SERVICE BREAKER /RELAY							
C-056	2CC-#12	600V THHN	PANEL VDC - 125 VDC	LINE RELAY (SEL751)							
C-057	2CC-#12	600V THHN	PANEL VDC - 125 VDC	DIFFERENTIAL RELAY (SEL-387)							
C-058	2CC-#12	600V THHN	PANEL VDC - 125 VDC	SWITCHGEAR METER							
C-059	3CC-#10	600V THHN	LUBE OIL CONTROL CABINET - 125VDC	LUBE OIL SKID - DC LUBE OIL PUMP							
C-060	3CC-#10	600V THHN	LUBE OIL CONTROL CABINET - 125VDC	LUBE OIL SKID - 125VDC PANEL							

SHEET NOTES:

1. MULTI-CONDUCTOR CABLES TO BE JACKETED CABLE TRAY RATED CABLE.
2. LIGHTING AND GENERAL POWER DISTRIBUTION WIRING NOT SHOWN. CONTRACTOR TO PROVIDE AS REQUIRED.
3. 5KV CABLE TO BE COPPER SHIELDED.
4. ALL CABLING PROVIDED BY GENERATOR CONTRACTOR.
5. DEDICATE GROUNDING CONDUCTORS NOT SHOWN HERE. SEE E118 FOR GROUNDING CONDUCTOR REQUIREMENTS.

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STATE OF ALASKA 49th — MATHEW L. LAWSON No. AELE11874 REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

CABLE SCHEDULE 1

DESIGNED M. LAWSON
DRAWN D. JOHNSTON
CHECKED J. BAKKEN
PROJECT DATE 09/19/22

DRAWING
E112

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\E112.dwg Plot date: Sep 19, 2022 04:19pm, CAD User: Guerrero

ID#	SIZE	TYPE	FROM	TO	K	K	K	K	K	K	COMMENTS
				PROTECTION							
C-061	4CC-#10	600V THHN	GEN RELAY SEL 700G - TS-04	GENERATOR NEUTRAL CTS							
C-062	2CC-#14	600V THHN	GEN RELAY SEL 700G - TS-04	GROUNDING TRANSFORMER							
C-063	2CC-#10	600V THHN	AVR - DECS 250N	GENERATOR NEUTRAL CT							
C-064	2CC-#10	600V THHN	AVR - DECS 250N	GENERATOR EXCITATION							
C-065	4CC-#10	600V THHN	CT-SWITCHYARD 25 KV LINE SIDE	UNIT CONTROL PANEL - STB-1							
C-066	4CC-#10	600V THHN	CT-GENERATOR NEUTRAL, 3 PHASE	UNIT CONTROL PANEL - STB-7							
C-067	2CC-#10	600V THHN	CT-GENERATOR NEUTRAL, 1-PHASE	UNIT CONTROL PANEL - STB-9							
C-068	2CC-#12	600V THHN	NEUTRAL GROUNDING TRANSFORMER	UNIT CONTROL PANEL - SL-4							
				CONTROL							
C-069	9CC-#12 THHN, 600V	CONTROL	SWITCHYARD LINE VACUUM SWITCH CONTROL	UNIT CONTROL PANEL							
C-070	9CC-#16 THHN, 600V	CONTROL	LUBE OIL CONTROL CABINET - PUMP CONTACTS	UNIT CONTROL PANEL							
C-071	9CC-#16 THHN, 600V	CONTROL	LUBE OIL CONTROL CABINET - MOTOR CONTROL	UNIT CONTROL PANEL							
C-072	9CC-#16 THHN, 600V	CONTROL	UNIT CONTROL PANEL	HPU SKID - CONTROL RELAY CONTACTS 1-2							
C-073	9CC-#16 THHN, 600V	CONTROL	UNIT CONTROL PANEL	HPU SKID - CONTROL RELAY CONTACTS 3-4							
C-074	9CC-#16 THHN, 600V	CONTROL	UNIT CONTROL PANEL	HPU SKID - PRESSURE SWITCHES							
C-075	9CC-#16 THHN, 600V	CONTROL	UNIT CONTROL PANEL	HPU SKID - SWITCHES							
C-076	2X1CC-#16 THHN, 600V	CONTROL	UNIT CONTROL PANEL	HPU SKID - E-STOP CONTACT							
C-077	9CC-#16 THHN, 600V	CONTROL	UNIT CONTROL PANEL	LUBE OIL SKID - SKID CONTROLS							
C-078	9CC-#16 THHN, 600V	CONTROL	UNIT CONTROL PANEL	LUBE OIL CONTROL CABINET - OVERLOAD RELAYS							
C-079	2X1CC-#14 THHN, 600V	CONTROL	UNIT CONTROL PANEL	LUBE OIL CONTROL CABINET - LUBE OIL 24VDC							
C-080	9CC-#16 THHN, 600V	CONTROL	UNIT CONTROL PANEL	SWITCHGEAR							
C-081	9CC-#16 THHN, 600V	CONTROL	UNIT CONTROL PANEL	GENERATOR SWITCHGEAR - BREAKER CABINET 52G							
C-082	9CC-#16 THHN, 600V	CONTROL	UNIT CONTROL PANEL	LINE BREAKER - BREAKER CABINET 52L							
C-083	9CC-#16 THHN, 600V	CONTROL	UNIT CONTROL PANEL	LINE BREAKER - BREAKER CABINET 52L							
C-084	9CC-#16 THHN, 600V	CONTROL	UNIT CONTROL PANEL	HPU SKID - PUMP RUN							
C-085	9CC-#16 THHN, 600V	CONTROL	UNIT CONTROL PANEL	HPU SKID - SOLENOIDS & VALVES							
C-086	9CC-#16 THHN, 600V	CONTROL	UNIT CONTROL PANEL	TURBINE CONTROLS							
C-087	9CC-#16 THHN, 600V	CONTROL	UNIT CONTROL PANEL	GENERATOR BRAKES							
C-088	18X1CC-#16 THHN, 600V	CONTROL	INTAKE CONTROL PANEL	INTAKE DIGITAL I/O							
C-089	12X1CC-#16 THHN, 600V	CONTROL	INTAKE CONTROL PANEL	INTAKE CONTROLS							
C-090	#16 TWISTED SHIELDED PAIR	CONTROL	UNIT CONTROL PANEL	INLET VALVE UPSTREAM PRESSURE SENSOR							
C-091	#16 TWISTED SHIELDED PAIR	CONTROL	UNIT CONTROL PANEL	INLET VALVE RING TAPPING PRESSURE SENSOR							
C-092	#16 TWISTED SHIELDED PAIR	CONTROL	UNIT CONTROL PANEL	DEFLECTOR POSITION SENSOR							
C-093	#16 TWISTED SHIELDED PAIR	CONTROL	UNIT CONTROL PANEL	BOTTOM SPEAR POSITION SENSOR							
C-094	#16 TWISTED SHIELDED PAIR	CONTROL	UNIT CONTROL PANEL	TOP SPEAR POSITION SENSOR							
C-095	#16 TWISTED SHIELDED PAIR	CONTROL	UNIT CONTROL PANEL	HPU RESERVOIR TEMPERATURE SENSOR							
C-096	#16 TWISTED SHIELDED PAIR	CONTROL	UNIT CONTROL PANEL	HPU PRESSURE SENSOR							
C-097	#16 TWISTED SHIELDED PAIR	CONTROL	UNIT CONTROL PANEL	DEFLECTOR PARKER 1							
C-098	#16 TWISTED SHIELDED PAIR	CONTROL	UNIT CONTROL PANEL	BOTTOM SPEAR PARKER 1							
C-099	#16 TWISTED SHIELDED PAIR	CONTROL	UNIT CONTROL PANEL	TOP SPEAR PARKER 1							
C-100	2X#16 TWISTED SHIELDED PAIR	CONTROL	UNIT CONTROL PANEL	NDE VIBRATION - X							
C-101	2X#16 TWISTED SHIELDED PAIR	CONTROL	UNIT CONTROL PANEL	NDE VIBRATION - Y							
C-102	2X#16 TWISTED SHIELDED PAIR	CONTROL	UNIT CONTROL PANEL	DE VIBRATION - X							
C-103	2X#16 TWISTED SHIELDED PAIR	CONTROL	UNIT CONTROL PANEL	DE VIBRATION - Y							
C-104	#16 TWISTED SHIELDED PAIR	CONTROL	INTAKE CONTROL PANEL	CLD LAKE LEVEL SENSOR							
C-105	#16 TWISTED SHIELDED PAIR	CONTROL	INTAKE CONTROL PANEL	CLD VALVE ROOM TEMPERATURE SENSOR							
C-106	#16 TWISTED SHIELDED PAIR	CONTROL	INTAKE CONTROL PANEL	CLD SUMP LEVEL SENSOR #1							
C-107	#16 TWISTED SHIELDED PAIR	CONTROL	INTAKE CONTROL PANEL	CLD SUMP LEVEL SENSOR #2							
C-108	#16 TWISTED SHIELDED PAIR	CONTROL	INTAKE CONTROL PANEL	CLD PUMP 1 SPEED OUTPUT							
C-109	#18 SHIELDED TWISTED TRIAD	CONTROL	UNIT CONTROL PANEL	GENERATOR SPEED SENSOR #1							
C-110	#18 SHIELDED TWISTED TRIAD	CONTROL	UNIT CONTROL PANEL	GENERATOR SPEED SENSOR #2							
C-111	#18 SHIELDED TWISTED TRIAD	CONTROL	SEL-2600D RTD MODULE	GENERATOR WINDING-1 PHASE U RTD							
C-112	#18 SHIELDED TWISTED TRIAD	CONTROL	SEL-2600D RTD MODULE	GENERATOR WINDING-1 PHASE V RTD							
C-113	#18 SHIELDED TWISTED TRIAD	CONTROL	SEL-2600D RTD MODULE	GENERATOR WINDING-1 PHASE W RTD							
C-114	#18 SHIELDED TWISTED TRIAD	CONTROL	SEL-2600D RTD MODULE	GENERATOR BEARING DE							
C-115	#18 SHIELDED TWISTED TRIAD	CONTROL	SEL-2600D RTD MODULE	GENERATOR WINDING-2 PHASE U RTD							
C-116	#18 SHIELDED TWISTED TRIAD	CONTROL	SEL-2600D RTD MODULE	GENERATOR WINDING-2 PHASE V RTD							
C-117	#18 SHIELDED TWISTED TRIAD	CONTROL	SEL-2600D RTD MODULE	GENERATOR WINDING-2 PHASE W RTD							
C-118	#18 SHIELDED TWISTED TRIAD	CONTROL	SEL-2600D RTD MODULE	GENERATOR BEARING NDE							
C-119	#18 TWISTED SHIELDED PAIR	CONTROL	UNIT CONTROL PANEL	FLOW METER							
C-120	#18 TWISTED SHIELDED PAIR	CONTROL	UNIT CONTROL PANEL	PRESSURE SENSOR 1							
C-121	#18 TWISTED SHIELDED PAIR	CONTROL	UNIT CONTROL PANEL	PRESSURE SENSOR 2							
C-122	2CC - #8	CONTROL	UNIT CONTROL PANEL	FISH HATCHERY (BREACH ALARM)							USE EXISTING CABLE - SPLICE AS NECESSARY
C-123	2X1CC-#16 THHN, 600V	CONTROL	UNIT CONTROL PANEL	GENERATOR BREAKER - 24VDC							
C-124	2X1CC-#16 THHN, 600V	CONTROL	UNIT CONTROL PANEL	HPU SKID - E-STOP							
C-125	2X1CC-#16 THHN, 600V	CONTROL	UNIT CONTROL PANEL	MIV							

SHEET NOTES:

1. MULTI-CONDUCTOR CABLES TO BE JACKETED CABLE TRAY RATED CABLE.
2. LIGHTING AND GENERAL POWER DISTRIBUTION WIRING NOT SHOWN. CONTRACTOR TO PROVIDE AS REQUIRED.
3. 5KV CABLE TO BE COPPER SHIELDED.
4. ALL CABLING PROVIDED BY GENERATOR CONTRACTOR.

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49th — MATHEW L LAWSON No. AELE11874 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING
0 1/2 1
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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

CABLE SCHEDULE 2

DESIGNED M. LAWSON
DRAWN D. JOHNSTON
CHECKED J. BAKKEN
PROJECT DATE 09/19/22

DRAWING
E113

JOB NO: 0000000

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ID#	SIZE	TYPE	FROM	TO	K	K	K	K	K	K	COMMENTS
MISCELLANEOUS											
C-126	2CC-#12	600V THHN	GENERATOR NEUTRAL REACTOR	UNIT CONTRL PANEL - SEL751							
C-127	FIBER OPTIC CABLE	SMFO	DAM INTAKE CONTROL BUILDING	POWERHOUSE							5000 FEET OWNER SUPPLIED FIBER CABLE
C-128	FIBER OPTIC CABLE	SMFO	INCOMING (FROM DOWNTOWN)	POWERHOUSE							PULL IN AND RETERMINATE EXISTING FIBER OPTIC CABLE.
C-129	COAX	COAX	GPS ANTENNA (ROOF)	PANEL 1 - SEL GPS CLOCK							SEE NOTE 5

SHEET NOTES:

1. MULTI-CONDUCTOR CABLES TO BE JACKETED CABLE TRAY RATED CABLE.
2. LIGHTING AND GENERAL POWER DISTRIBUTION WIRING NOT SHOWN. CONTRACTOR TO PROVIDE AS REQUIRED.
3. 5KV CABLE TO BE COPPER SHIELDED.
4. ALL CABLING PROVIDED BY GENERATOR CONTRACTOR.
5. OWNER SUPPLYING 75-FEET OF RG-6 COAX CABLE, ANTENNA AND INSTALLATION KIT. ANTENNA TO BE MOUNTED ON POWERHOUSE BUILDING PARAPET WALL WITH CLEAR VIEW OF SKY. COAX TO BE SURFACE MOUNTED WITHOUT NEED FOR CONDUIT.

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STATE OF ALASKA 49th MATHEW L. LAWSON No. AELE11874 REGISTERED PROFESSIONAL ENGINEER 09/19/2022

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PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

CABLE SCHEDULE 3

DESIGNED M. LAWSON
DRAWN D. JOHNSTON
CHECKED J. BAKKEN
PROJECT DATE 09/19/22

DRAWING

E114

JOB NO: 000000

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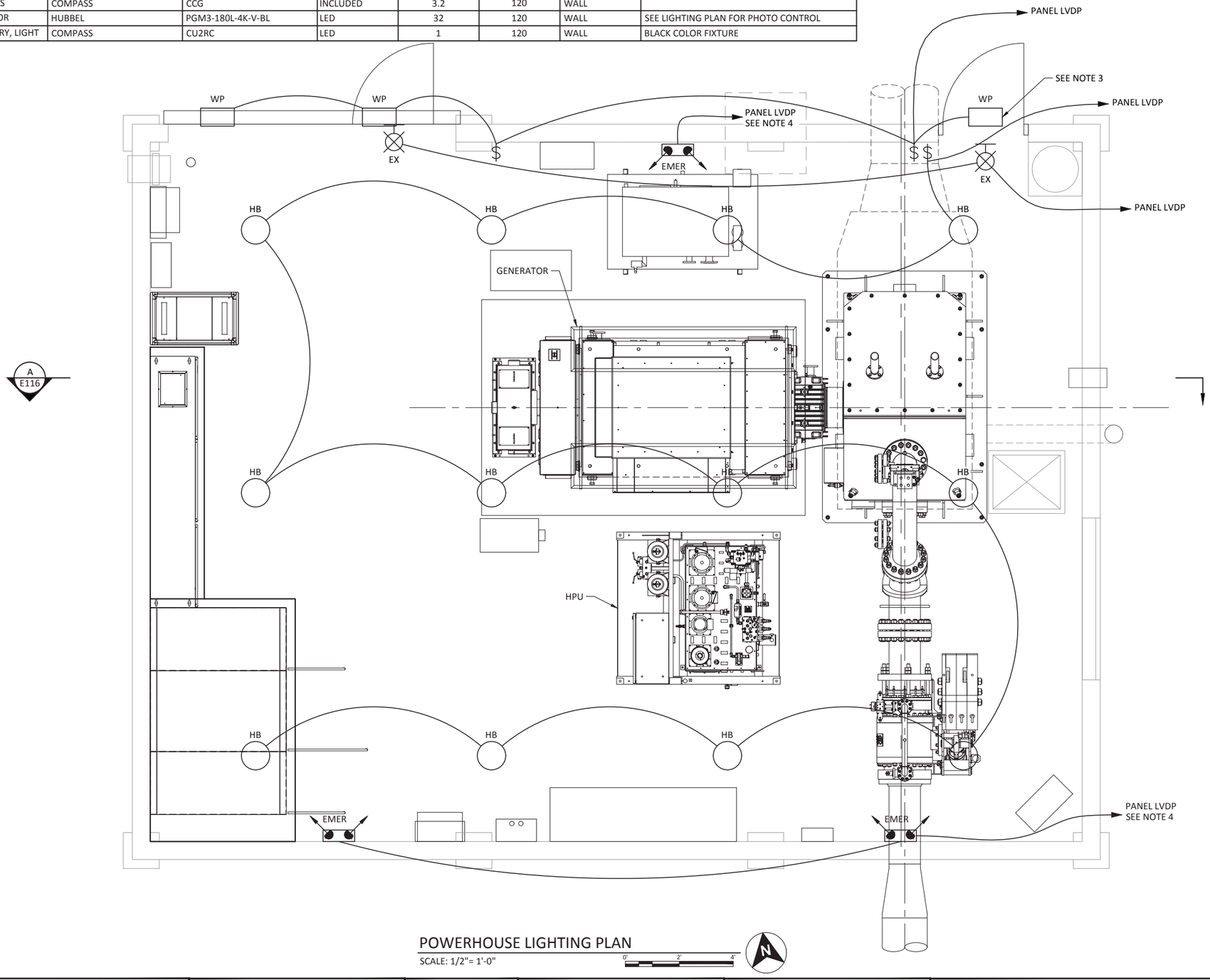
LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER	CATALOG NUMBER	LAMP TYPE	LAMP WATT	VOLTAGE	MOUNTING	NOTES
HB	HIGH BAY	PLT	PLT-11505	LED	150	120	RING/HANG	
EX	EXIT SIGN/EM LIGHTS	COMPASS	CCG	INCLUDED	3.2	120	WALL	
WP	WALL PACK, EXTERIOR	HUBBEL	PGM3-180L-4K-V-BL	LED	32	120	WALL	SEE LIGHTING PLAN FOR PHOTO CONTROL
EMER	EMERGENCY, BATTERY, LIGHT	COMPASS	CU2RC	LED	1	120	WALL	BLACK COLOR FIXTURE

SHEET NOTES:

1. ALL LIGHT FIXTURES TO BE LED TYPE AS SHOWN IN TABLE.
2. HANG INTERNAL HIGH BAY FIXTURES FROM CEILING ABOVE BRIDGE CRANE CARRIAGE.
3. WALL PACK LIGHT FIXTURE ABOVE MANDOOR TO HAVE PHOTO SENSOR CONTROL.
4. FEED ALL EMERGENCY LIGHT FIXTURES FROM SINGLE 120VAC CIRCUIT IN PANEL LVDP, SAME AS MAIN INTERIOR PH LIGHTING CIRCUIT.
5. PROVIDE MINIMUM 3/4" RGS LIGHTING CONDUIT AS REQUIRED.



POWERHOUSE LIGHTING PLAN

SCALE: 1/2"= 1'-0"

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BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

POWERHOUSE
LIGHTING PLAN

DESIGNED M. LAWSON
DRAWN D. JOHNSTON
CHECKED J. BAKKEN
PROJECT DATE 09/19/22

DRAWING

E115

JOB NO: 000000

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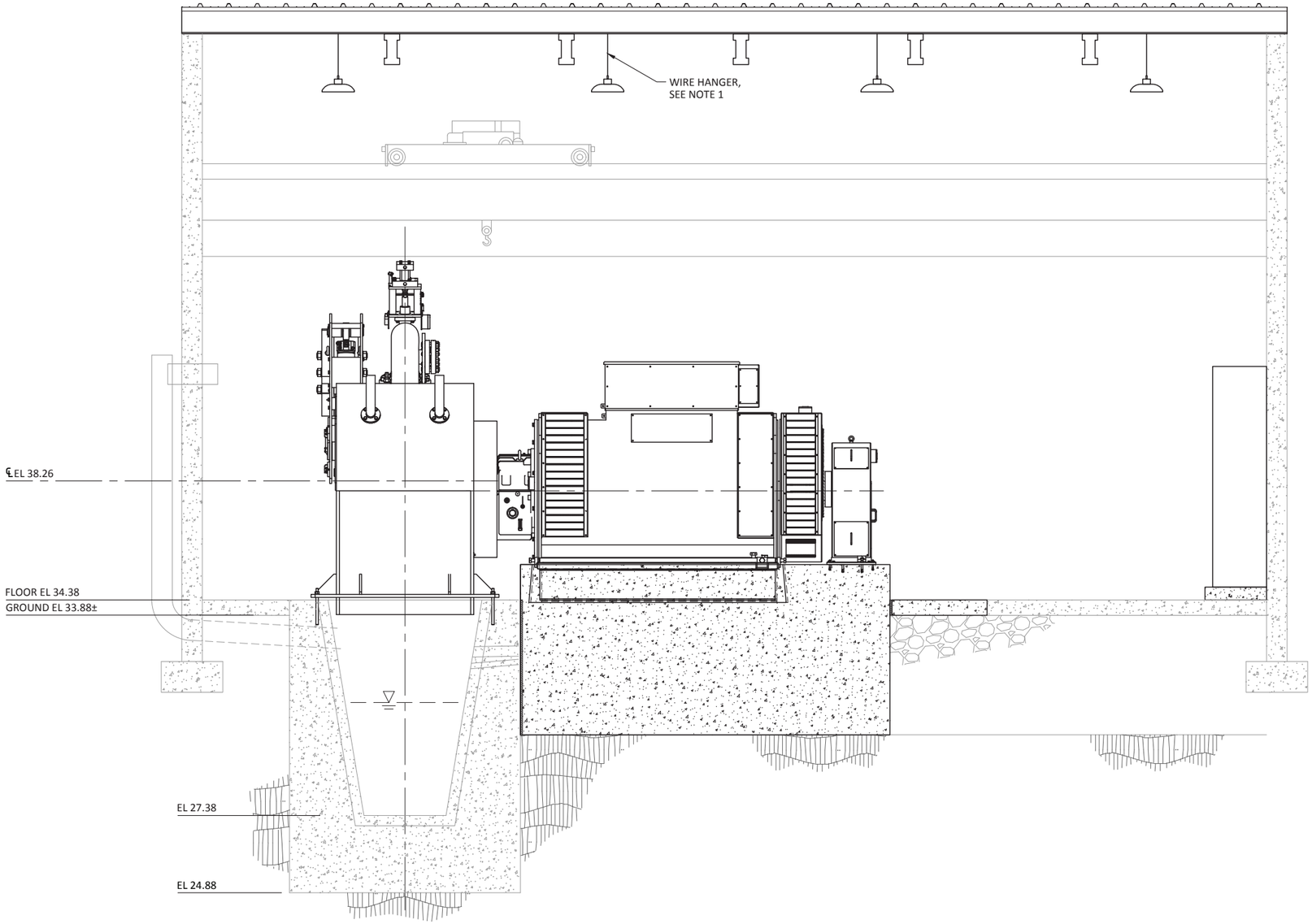
SHEET NOTES:

1. HANG INTERNAL HIGH BAY FIXTURES FROM CEILING ABOVE BRIDGE CRANE CARRIAGE.



SECTION
SCALE: 1/2"= 1'-0"

A
E115

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REGISTERED PROFESSIONAL ENGINEER
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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH
BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT
POWERHOUSE
LIGHTING SECTION

DESIGNED M. LAWSON
DRAWN J. LAHMON
CHECKED J. BAKKEN
PROJECT DATE 09/19/22

DRAWING
E116

JOB NO: 0000000

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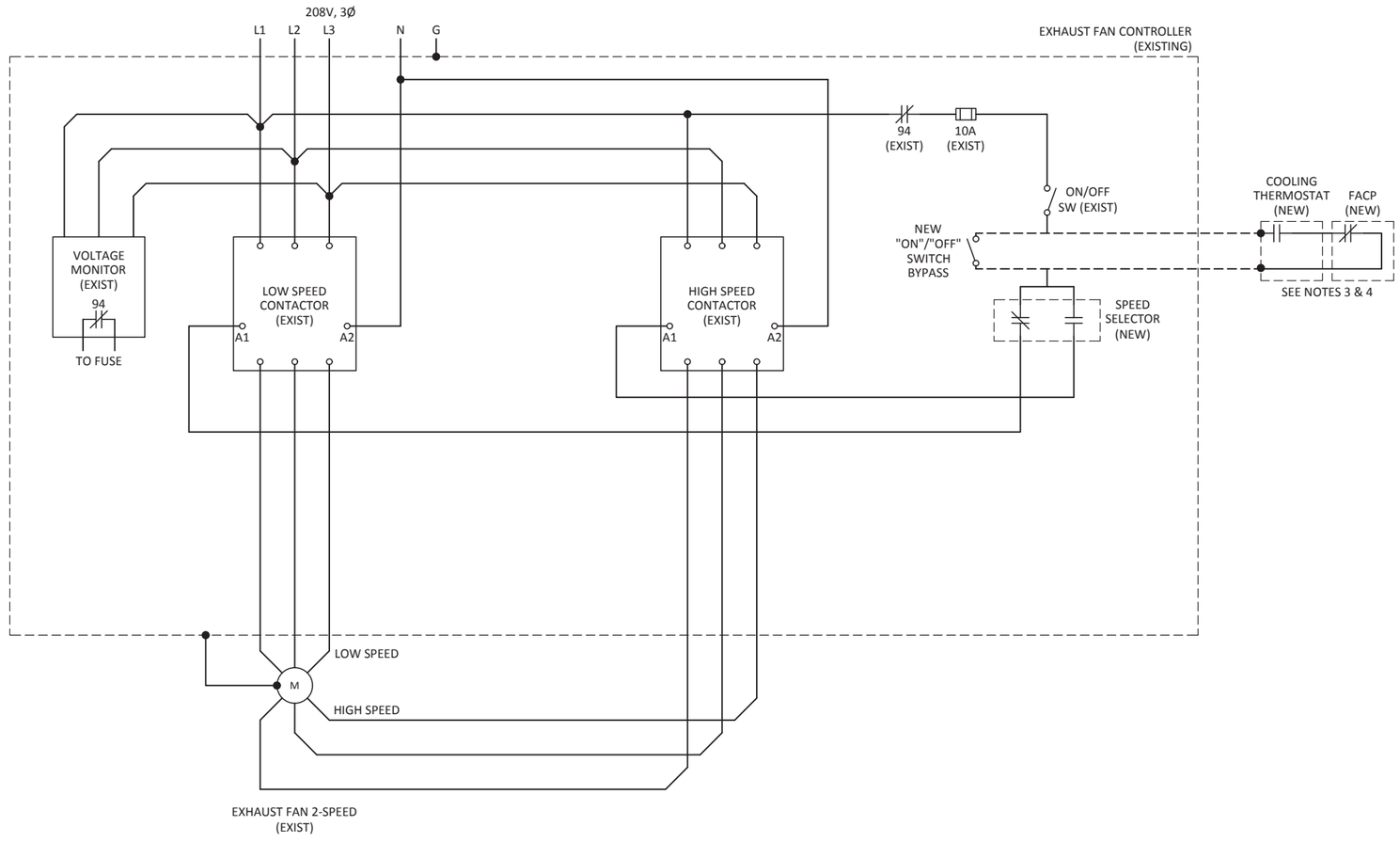
SHEET NOTES:

1. MAINTAIN EXISTING POWERHOUSE EXHAUST FAN AND CONTROLLER AND MODIFY CONTROLS AS DEPICTED.
2. PROVIDE NEW COOLING THERMOSTAT, 10A @ 120VAC, JUNXUAN ATTIC VENTILATOR THERMOSTAT (COOLING) OR EQUAL. MOUNT THERMOSTAT ON SOUTH INTERIOR WALL TO RIGHT OF DC PANEL. PROVIDE STUB-UP CONDUIT FROM THERMOSTAT TO CABLE TRAY.
3. PULL 2CC #14 WIRE FROM FACP & THERMOSTAT TO EXISTING CONTROLLER AND WIRE AS SHOWN.
4. REMOVE CONTROL RELAY AND WIRING LOCATED ON BOTTOM OF CONTROL ENCLOSURE. REWIRE SCHEMATIC TO MATCH DEPICTED.
5. MOUNT 2 POSITION MAINTAINED SELECTOR SWITCH, WITH NO/NC 120VAC, 10A RATED CONTACT, ON CONTROL ENCLOSURE DOOR. LABEL THE TWO POSITIONS "FAST" AND "SLOW", AND WIRE AS SHOWN. INSTALL ON/OFF BYPASS SWITCH ON ENCLOSURE DOOR.
6. PULL 4CC #12 , WITH #12 GROUND, WIRE FROM EXHAUST FAN TO PANEL LVDP (208/120VAC) AND WIRE TO 20A BREAKER. SEE PANEL SCHEDULE ON SHEET E106. TERMINATE POWER CONDUCTOR AT EXHAUST FAN. VERIFY FAN ROTATION AND THERMOSTAT/SPEED CONTROL.



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PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

EXHAUST FAN CONTROL

DESIGNED M. LAWSON
DRAWN D. JOHNSTON
CHECKED J. BAKKEN
PROJECT DATE 09/19/22

DRAWING
E117

JOB NO: 000000

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SHEET KEY NOTES:

A INSTALL INSULATED COPPER GROUND BAR ON WALL ABOVE SWITCHGEAR LINE-UP. SEE SECTION 26 05 26. BOND GROUND BAR TO SWITCHGEAR GROUND BUS USING TWO 2/0 THHN COPPER CONDUCTOR.

B PULL 2/0 , 600V THHN CONDUCTOR FROM GENERATOR GROUND TO INSULATED GROUND BAR.

C PULL 2/0 , 600V THHN CONDUCTOR FROM GENERATOR GROUNDING TRANSFORMER TO INSULATED GROUND BAR.

D PULL 2/0 , 600V THHN FROM STATION SERVICE TRANSFORMER TO INSULATED GROUND BAR.

E PULL SEPARATE 2/0 , 600V THHN CONDUCTORS FROM SWITCHGEAR GROUND BAR TO SWITCHYARD, ROUTING WITH 5kV CABLES. BOND GROUND CONDUCTORS AT SWITCHYARD TO EXISTING GROUND GRID.

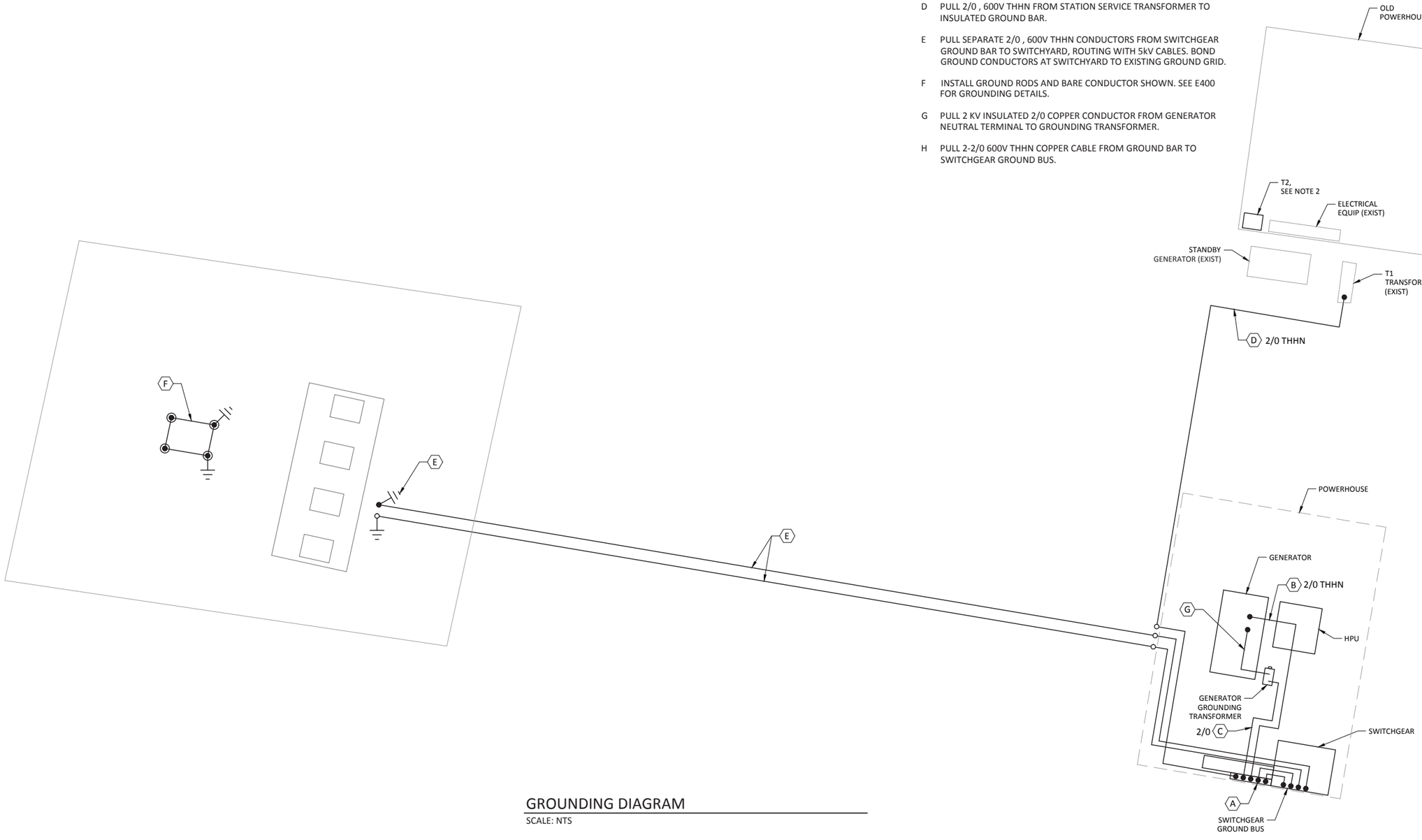
F INSTALL GROUND RODS AND BARE CONDUCTOR SHOWN. SEE E400 FOR GROUNDING DETAILS.

G PULL 2 KV INSULATED 2/0 COPPER CONDUCTOR FROM GENERATOR NEUTRAL TERMINAL TO GROUNDING TRANSFORMER.

H PULL 2-2/0 600V THHN COPPER CABLE FROM GROUND BAR TO SWITCHGEAR GROUND BUS.

SHEET NOTES:

1. ELECTRICAL EQUIPMENT AND CABLE TRAY SHALL BE GROUNDED PER NEC.
2. GROUND NEW STATION SERVICE STEP-UP TRANSFORMER PER E109 AND NEC.
3. ALL FASTENERS USED IN TERMINATING GROUND CONDUCTORS SHALL BE NON-MAGNETIC STAINLESS STEEL EMPLOYING FLAT AND BELVILLE WASHERS. EXCEPTIONS ALLOWED WHEN UL GROUNDING CONNECTORS WITH EMBEDDED FASTENERS.



GROUNDING DIAGRAM

SCALE: NTS

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BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

GROUNDING DIAGRAM

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E118

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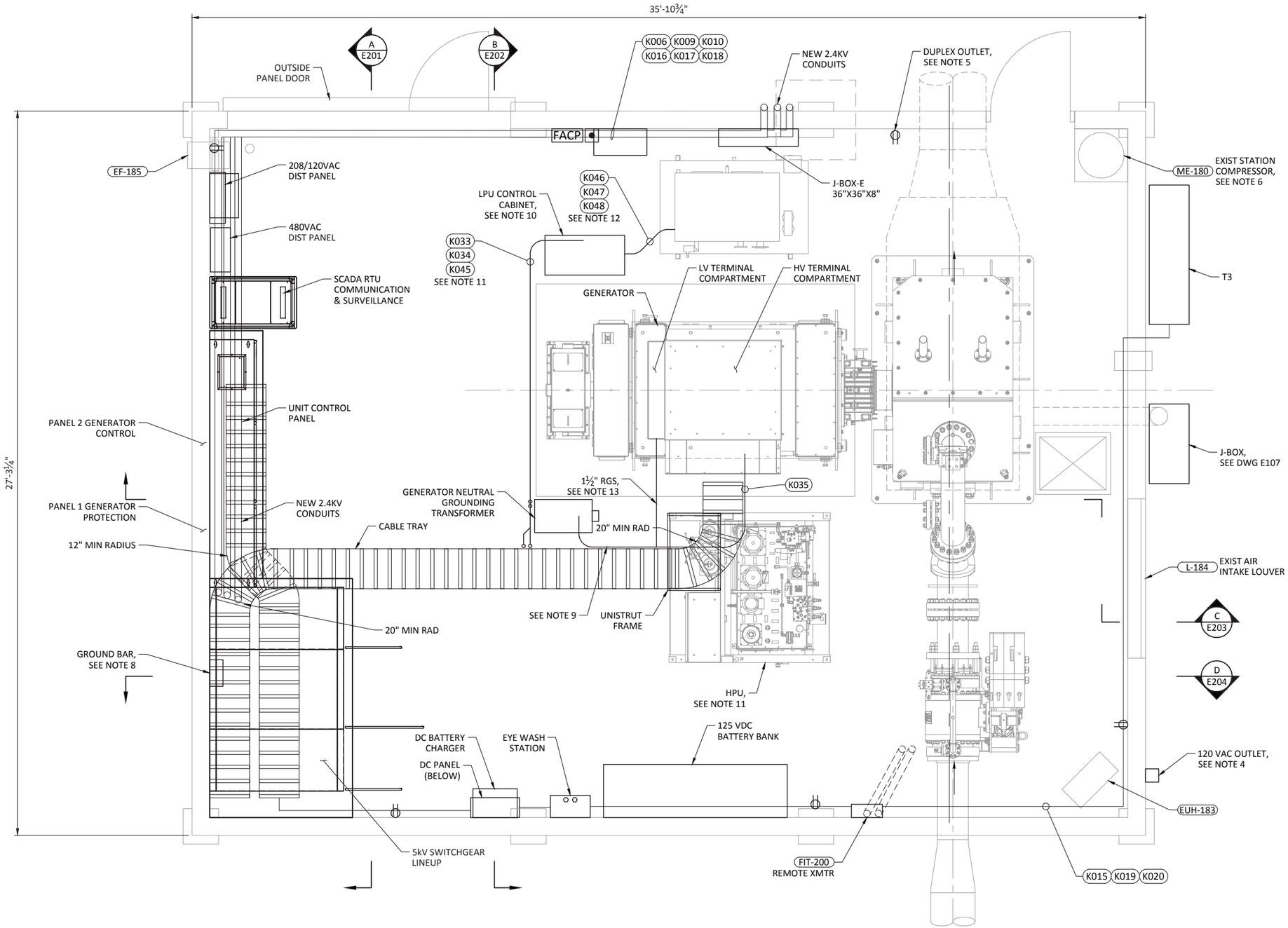

SHEET NOTES:

1. GENERAL EQUIPMENT ARRANGEMENT DEPICTED SHALL BE FOLLOWED. SWITCHGEAR TO BE FRONT ACCESS ONLY. ALSO SEE E201.
2. PROVIDE TWO LAYER CABLE TRAY (18" WIDE) AS SHOWN. CABLE TRAY TO BE SUPPORTED ON ELECTRICAL EQUIPMENT AND NOT BY SUPPORT HANGERS. MEDIUM VOLTAGE 5kV CABLES TO BE SHIELDED AND ROUTED IN ISOLATED CABLE TRAY FROM ALL OTHER CABLES.
3. CABLE TRAY SHALL BE RATED FOR 20' UNSUPPORTED SPANS WITH MINIMUM 50 LB/FT LOAD RATING.
4. PROVIDE NEW WEATHERPROOF 120VAC OUTLET OUTSIDE POWERHOUSE AS SHOWN FOR HEAT TRACE.
5. PROVIDE MINIMUM OF FOUR DUPLEX GFI 120VAC OUTLETS DISTRIBUTED INSIDE POWERHOUSE. SPLIT HALF THE OUTLETS ON ONE CIRCUIT BREAKER AND HALF ON ANOTHER, IDENTIFIED AS NORTH AND SOUTH OUTLETS.
6. EXISTING COMPRESSOR TO BE REUSED AND PLACED IN SAME LOCATION. WIRE FOR 480VAC, 3Ø.
7. SUPPORT CABLE TRAY FROM WESTERN WALL. USE KNEE-BRACE OR CANTILEVER SUPPORT BRACKETS AS REQUIRED. SEE E203 FOR CABLE TRAY BOM.
8. INSTALL INSULATED GROUNDING PLATE ON WALL ABOVE SWITCHGEAR. GROUND POWER EQUIPMENT AS SHOWN ON E118.
9. INSTALL RGS CONDUIT FROM GENERATOR TERMINATION COMPARTMENT TO NEUTRAL GROUNDING TRANSFORMER. SUPPORT CONDUIT ON CABLE TRAY AS NEEDED.
10. SET LPU CONTROL CABINET ON GENERATOR FOUNDATION IN LOCATION SHOWN AND ANCHOR WITH EPOXY ANCHORS. PROVIDE CROSS BRACING AS NEEDED TO GENERATOR FOUNDATION.
11. INSTALL TWO RGS CONDUIT FROM CABLE TRAY TO LPU. ATTACH TO HPU FOR SUPPORT AS NEEDED.
12. ROUTE THREE LIQUID TIGHT CONDUITS FROM LUBE OIL CONTROLLER TO LUBE OIL UNIT. ROUTE AC POWER, DC POWER, AND CONTROL WIRING IN SEPARATE CONDUITS.
13. SEE E202 DETAIL 1, NOTE F.

ELECTRICAL EQUIPMENT PLAN

SCALE: 1/2"= 1'-0"

0' 2' 4'

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WARNING

0 1/2 1

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PETERSBURG ALASKA

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BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

POWERHOUSE
ELECTRICAL
ARRANGEMENT PLAN

DESIGNED M. LAWSON
DRAWN D. JOHNSTON
CHECKED J. BAKKEN
PROJECT DATE 09/19/22

DRAWING

E200

JOB NO: 0000000

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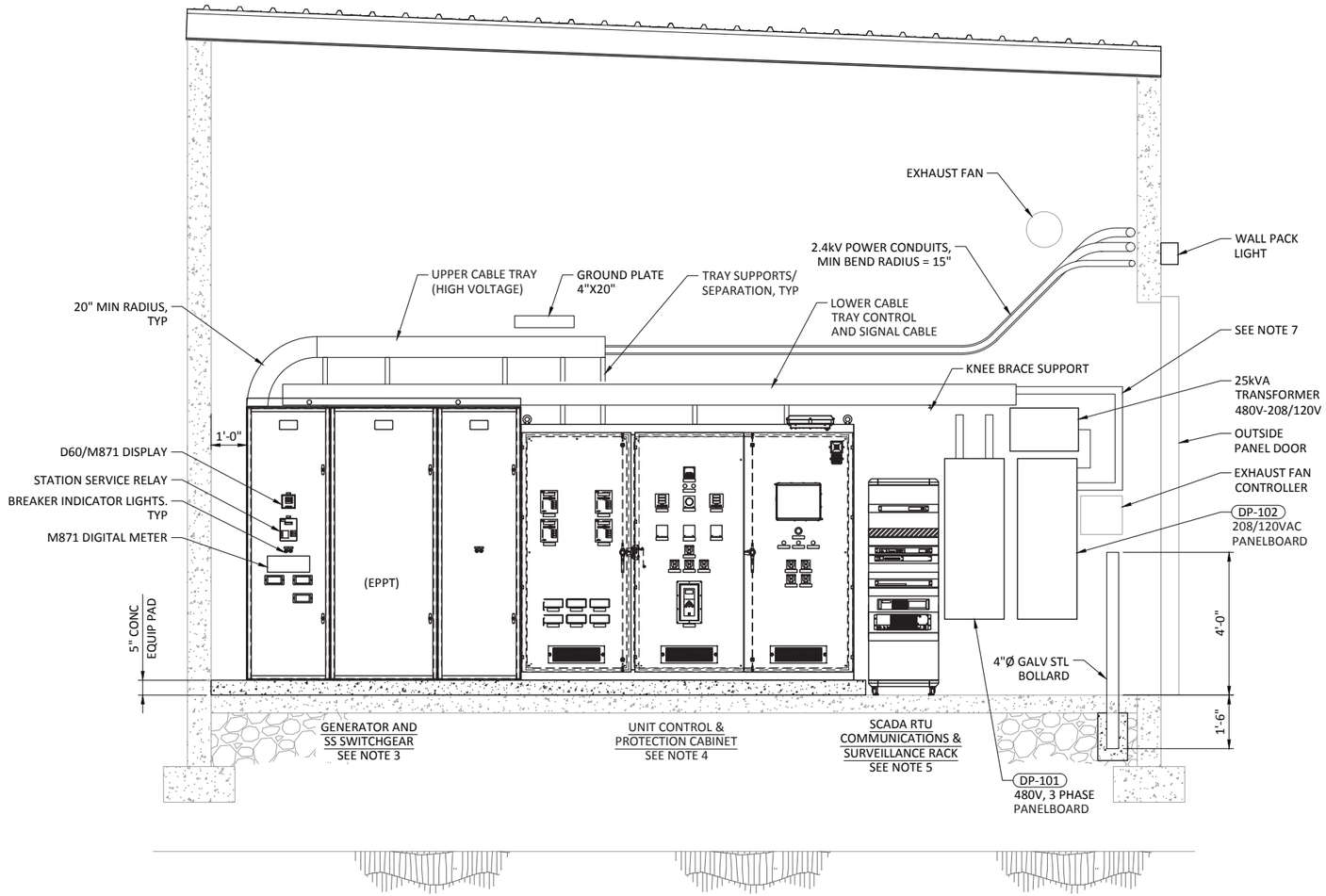
SHEET NOTES:

1. CONTRACTOR TO RECEIVE AND SET OWNER SUPPLIED EQUIPMENT AS SHOWN. ARRANGEMENT TO BE AS CLOSE AS POSSIBLE TO WHAT IS SHOWN. MAINTAIN MINIMUM CLEARANCES INDICATED.
2. UPON RECEIPT CONTRACTOR TO INSPECT AND CONFIRM EQUIPMENT IS NOT DAMAGED AND APPEARS IN GOOD CONDITION. NOTIFY OWNER IMMEDIATELY IF OWNER RECEIVED EQUIPMENT APPEARS DAMAGED.
3. INSTALL THREE-CUBICLE SWITCHGEAR ASSEMBLY AND ANCHOR TO FLOOR WITH EPOXY ANCHOR AND IN ACCORDANCE WITH MANUFACTURER DRAWINGS. SWITCHGEAR TO BE SHIPPED AS ONE ASSEMBLY.
4. INSTALL THREE-DOOR CONTROL CABINET AND ANCHOR TO FLOOR USING EPOXY ANCHORS AND IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. CONTROL CABINET TO BE SHIPPED AS A SINGLE ENCLOSURE.
5. SET SCADA/COMMUNICATION RACK AS INDICATED.
6. INSTALL CABLE TRAY AND CONDUITS AS SHOWN. MAINTAIN SPACING TO NOT IMPEDE POWERHOUSE CRANE. CABLE TRAY FOR POWER CABLES TO BE MINIMUM BEND RADIUS OF 20". SEE E203 FOR MAJOR CABLE TRAY BILL OF MATERIAL.
7. PROVIDE CONDUIT STUB-UPS TO CABLE TRAY AS NEEDED.



SECTION
SCALE: 1/2"= 1'-0"

0' 2' 4'

A E200

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PETERSBURG ALASKA

PETERSBURG BOROUGH
BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT
POWERHOUSE
ELECTRICAL
SECTIONS 1

DESIGNED M. LAWSON
DRAWN D. JOHNSTON
CHECKED J. BAKKEN
PROJECT DATE 09/19/22

DRAWING
E201

JOB NO: 000000

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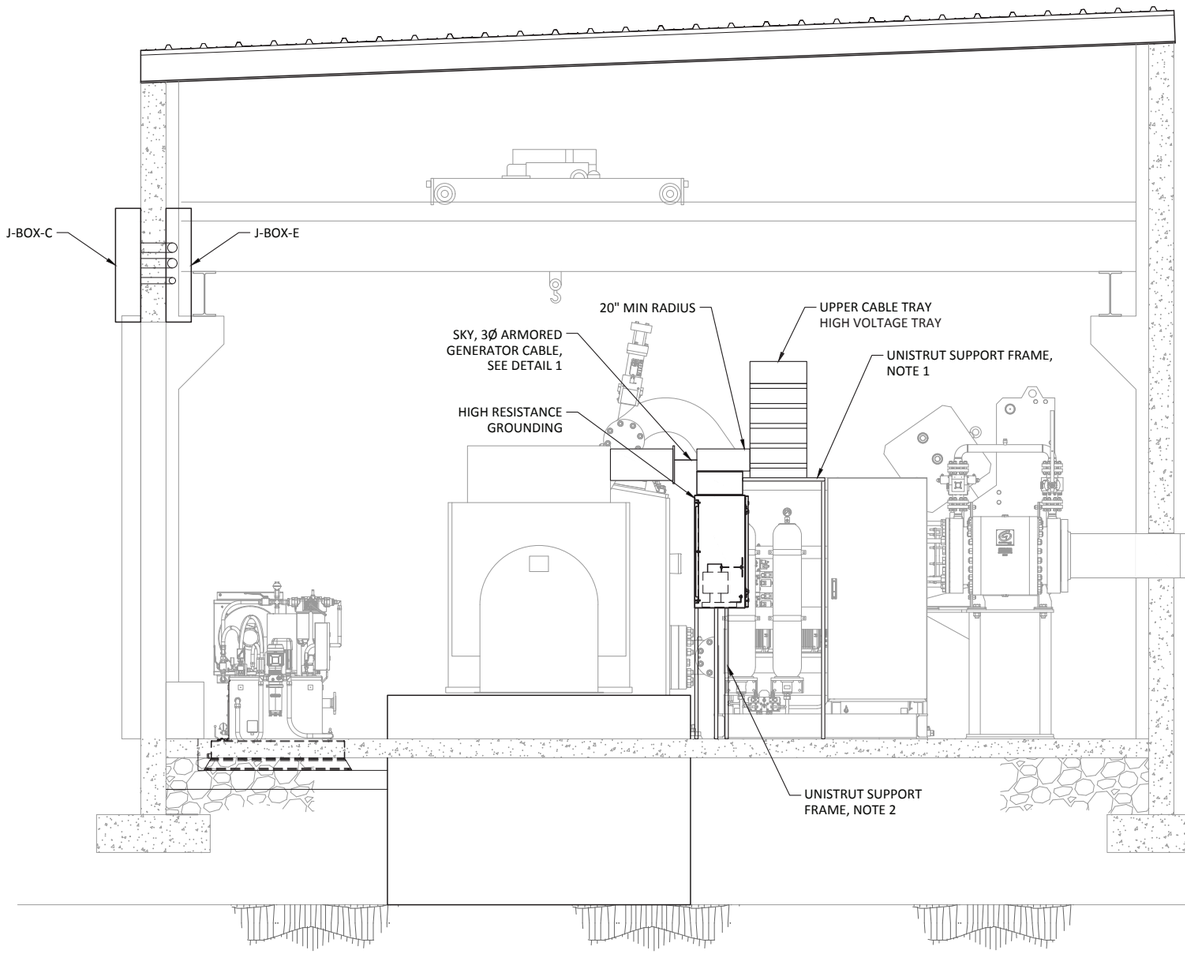


SECTION
SCALE: 1/2"= 1'-0"
0' 2' 4'
B
E200

SHEET NOTES:

1. CONTRACTOR SHALL ASSEMBLE 1 5/8" UNISTRUT SUPPORT FRAME. BOLT UNISTRUT TO THE CROSSBEAM FRAMEWORK OF HPU. ANCHOR UNISTRUT COLUMNS TO POWERHOUSE FLOOR IN FRONT OF HPU DRAIN BASIN.
2. ELEVATE HIGH-IMPENDENCE GROUNDING NEUTRAL TRANSFORMER CABINET FLUSH WITH TOP OF HPU. CROSS BRACE CABINET TO GENERATOR HOUSING AS REQUIRED.
3. SEE MARELLI GENERATOR TERMINAL ARRANGEMENT DRAWINGS ZEW34237C AND ZEWA03037C.

SHEET KEY NOTES: (SEE NOTE 3)

A CUT RECTANGULAR SLOT INTO ALUMINUM COVER, LARGE ENOUGH TO PREVENT 5kV CABLING FROM TOUCHING METAL WHEN GENERATOR CABLES TERMINATED.

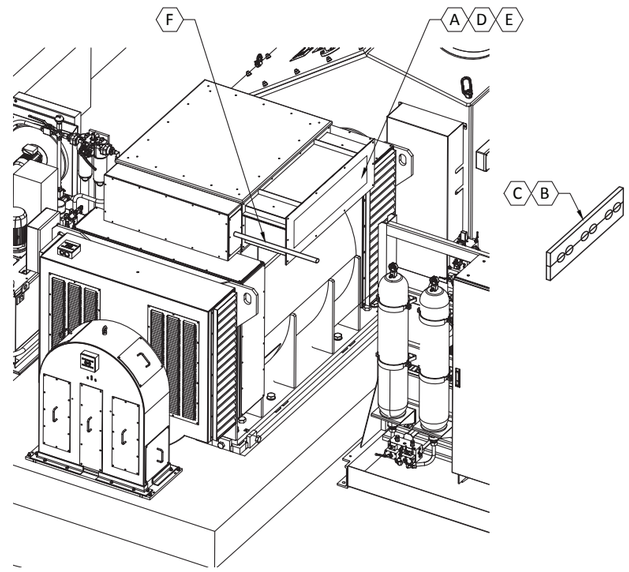
B CUT ½" THICK GLASTIC UTR (GPO-3) INSULATION BOARD TO MATCH DIMENSIONS OF ALUMINUM COVER (APPROXIMATELY 17"x53"). CUT HOLES ALONG CENTER LINE, DIAMETER SLIGHTLY LARGER THAN CABLE TO MATCH CONDUCTOR LOCATION.

C SLICE GPO-3 BOARD IN HALF.

D BLOCK GENERATOR CABLE WITH GPO-3 BLOCK, CLAMPING TO ALUMINUM COVER, USING 316 STAINLESS STEEL BEAM CLAMP.

E FINAL CABLES BLOCKING ASSEMBLY TO PREVENT GENERATOR CABLE JACK FROM TOUCHING METAL, AND SUFFICIENTLY SNUG TO PREVENT ⅜" ROD FROM BEING INSERTED.

F STUB 1½" RGS FROM LOW VOLTAGE TERMINAL CABINET TO CABLE TRAY.



DETAIL
SCALE: NTS
1
-

REV	DATE	BY	DESCRIPTION
0	09/19/22	DJ	ISSUED FOR BID

STATE OF ALASKA 49th
MATHEW L. LAWSON
No. AELE11874
REGISTERED PROFESSIONAL ENGINEER
09/19/2022

WARNING
0 1/2 1
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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH
BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT
POWERHOUSE
ELECTRICAL
SECTIONS 2

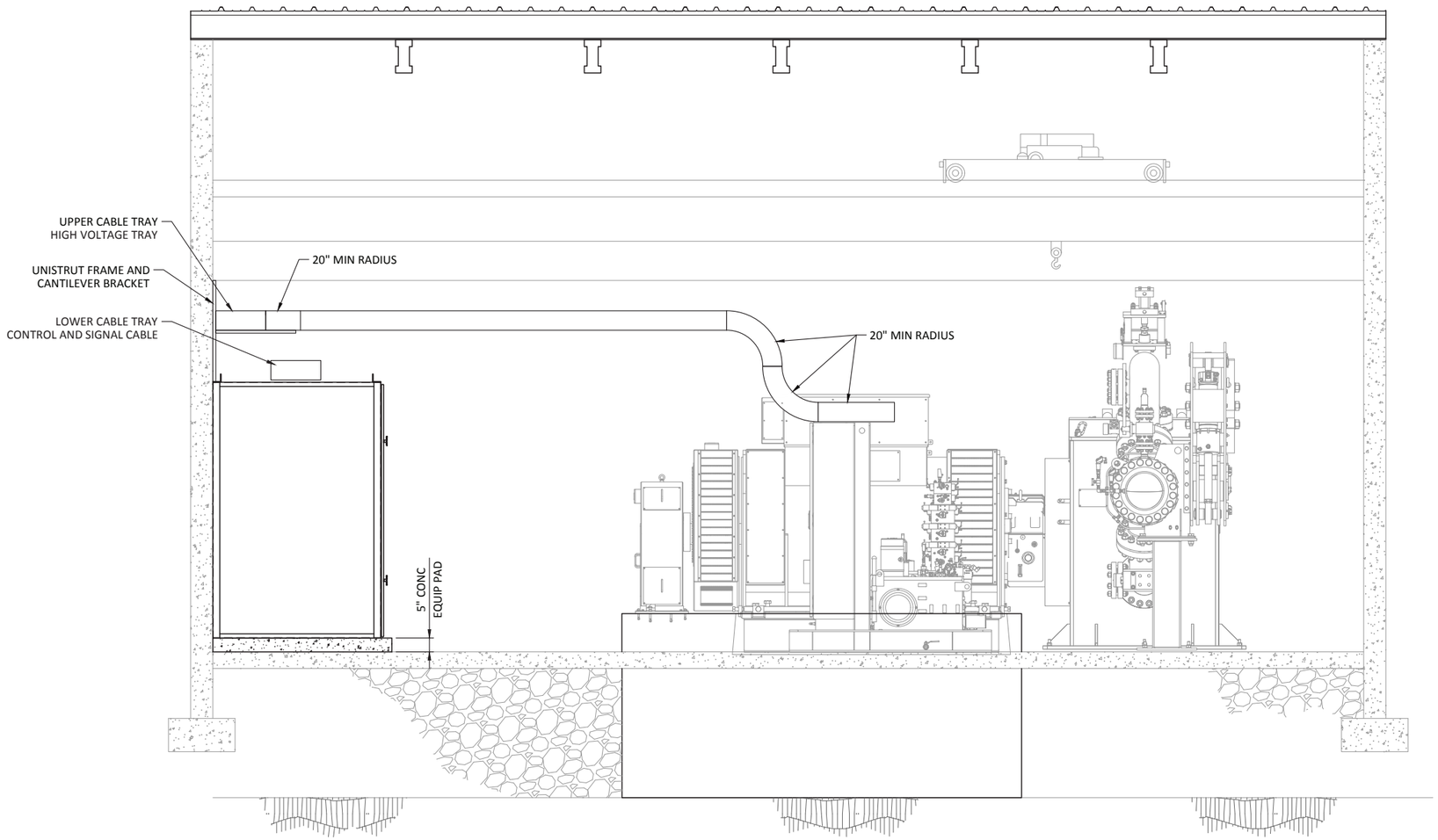
DESIGNED M. LAWSON
DRAWN R. GUERRERO
CHECKED J. BAKKEN
PROJECT DATE 09/19/22

DRAWING
E202

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\E202.dwg Plot date: Sep 19, 2022 04:19pm, CAD User: Guerrero

CABLE TRAY BILL OF MATERIALS				
DESCRIPTION	MANUFACTURER	PART NUMBER	QTY	NOTES
ALUMINUM CABLE TRAY	EATON	26A09-18-240	A/R	LADDER TYPE, 9" RUNG SPACING, CUT TO FIT FIELD DIMENSIONS
250 KCMIL BONDED JUMPER	EATON	99-1620		
UNISTRUT SUPPORT CLAMPS	EATON	9ZN-1208NB	A/R	
45 DEGREE VERTICAL INSIDE BENDS	EATON	6A-18-45VI36	1	36" RADIUS SELECTED TO GET APPROPRIATE VERTICAL DROP
45 DEGREE VERTICAL OUTSIDE BENDS	EATON	6A-1845VO36	1	36" RADIUS SELECTED TO GET APPROPRIATE VERTICAL DROP
90 DEGREE HORIZONTAL BENDS	EATON	6A-18-90HB24	2	
45 DEGREE HORIZONTAL BENDS	EATON	6A-18-45HB12	2	CONTROL CABLE TRAY
CABLE TIE	EATON	99-2125-15	A/R	NYLON CABLE TIES AS REQUIRED
GROUNDING CLAMP	EATON	9250-2352	A/R	
1 5/8" Unistrut	ATKORE	P1000T	A/R	HG FINISH
1 5/8 UNISTRUT COLUMN BASES	ATKORE	P2027A	2	ANCHORED TO CONCRETE HG FINISH
KNEE-BRACE WALL SUPPORT	EATON	B494-24	A/R	KNEE-BRACE SUPPORT
CANTILEVER WALL SUPPORT	EATON	B409-24	A/R	CANTILEVER BRACKET



SECTION

SCALE: 1/2"= 1'-0"

0' 2' 4'

C
E200

SHEET NOTES:

1. CONTRACTOR TO PROVIDE ALL FASTENERS AND HARDWARE TO INSTALL AND SUPPORT CABLE TRAY.
2. MAINTAIN POWER CABLE TRAY BEND OF RADIUS OF 20".
3. GROUND CABLE TRAY PER NEC AND AS INSTRUCTED BY MANUFACTURER.
4. SEE S103 FOR STRUCTURAL MODIFICATIONS TO THE HPU TO ENABLE SUPPORT OF CABLE TRAY.

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STATE OF ALASKA 49th
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No. AELE11874
REGISTERED PROFESSIONAL ENGINEER
09/19/2022

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

POWERHOUSE
ELECTRICAL
SECTIONS 3

DESIGNED M. LAWSON
DRAWN R. GUERRERO
CHECKED J. BAKKEN
PROJECT DATE 09/19/22

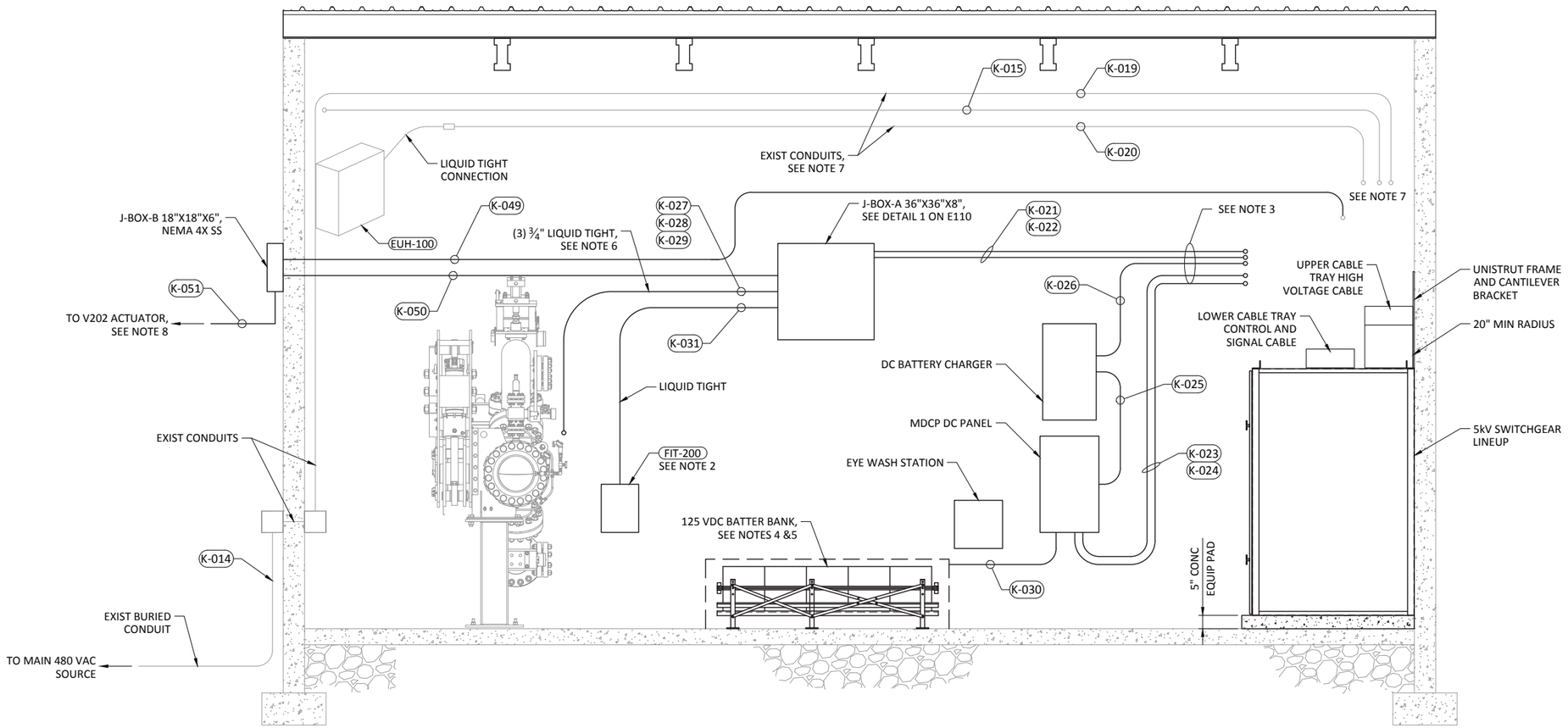
DRAWING
E203

JOB NO: 000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\E203.dwg Plot date: Sep 19, 2022 04:20pm, CAD User: Guerrero

SHEET NOTES:

1. REFER TO SHEET E203 FOR CABLE TRAY MAJOR BILL OF MATERIALS.
2. MOUNT FLOW METER REMOTE TRANSMITTER ENCLOSURE ON WALL AT LOCATION SHOWN. INSTALL CONDUIT FROM METER TO J-BOX AS SHOWN.
3. INSTALL RGS CONDUITS FROM ENCLOSURE SHOWN TO CONTROL CABLE TRAY. STUB CONDUIT TO CABLE TRAY SO CABLES TRANSITIONING REQUIRE NO ADDITIONAL SUPPORT.
4. PROVIDE BATTERY BANK/RACK/SPILL PAN, AND ACCESSORIES SPECIFIED.
5. BATTERY BANK SHOWN WITHOUT REQUIRED PLEXIGLAS COVER. CONTRACTOR TO PROVIDE REMOVABLE TOP AND FRONT CLEAR COVER OF BATTERY BANK.
6. INSTALL LIQUID TIGHT CONDUIT FROM J-BOX TO VARIOUS INSTRUMENTATION ON TSV AND JET VALVES.
7. REUSE AND EXTEND AS NECESSARY EXISTING POWER CONDUITS TO POWER CABLE TRAY.
8. ROUTE RGS CONDUIT ALONG BYPASS PIPE TO VALVE V202 ACTUATOR. FINAL CONNECTION TO USE FLEX LIQUID TIGHT.



SECTION

SCALE: 1/2"= 1'-0"

D E200

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STATE OF ALASKA 49th MATHEW L. LAWSON No. AELE11874 REGISTERED PROFESSIONAL ENGINEER 09/19/2022

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

POWERHOUSE
ELECTRICAL
SECTIONS 4

DESIGNED M. LAWSON
DRAWN R. GUERRERO
CHECKED J. BAKKEN
PROJECT DATE 09/19/22

DRAWING

E204

JOB NO: 000000

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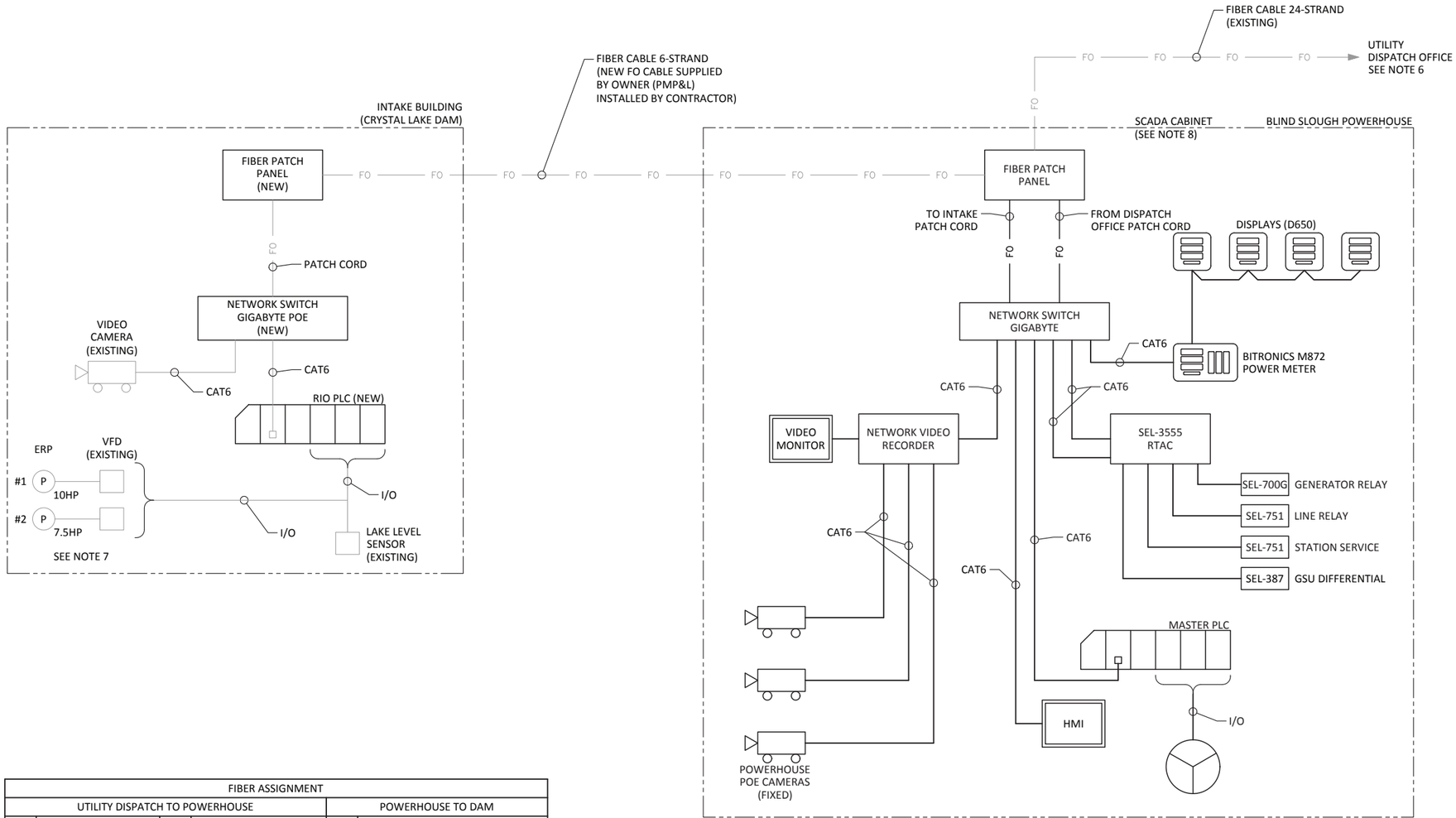

SHEET NOTES:

1. UNIT MASTER PLC IS OWNER SUPPLIED ALLEN BRADLEY COMPACTLOGIX PLC CONTROLLER.
2. POWERHOUSE CAMERAS ARE IP POE CONNECTED TO NETWORK VIDEO RECORDER (NVR) REMOTELY ACCESSIBLE FROM UTILITY DISPATCH OFFICE. DAM CAMERA TO BE REUSED AND ACCESSIBLE FROM DISPATCH OFFICE.
3. RTAC COMMUNICATES WITH UTILITY DISPATCH OFFICE WONDERWARE INTOUCH APPLICATION.
4. NETWORK SWITCHES SHALL BE MANAGED WITH VPN CAPABILITY. DIGITAL METER, PLC, RIO, HMI, AND RTAC SHALL BE ON ISOLATED VLAN. RTAC ACCESSIBLE FROM UTILITY OFFICE THROUGH SECOND NETWORK CONNECTION.
5. NETWORK VIDEO RECORDER (NVR) RECORDS VIDEO FROM ALL PROJECT CAMERAS AND PROVIDE REMOTE ACCESS TO LIVE AND RECORDED VIDEO OVER FIBER OPTIC NETWORK CONNECTION.
6. ENERGY RECOVER PUMPS (ERP) LOCATED AT DAM ARE CONTROLLED BY UNIT PLC. ERP'S ARE INHIBITED FROM AUTOMATIC OPERATION WHILE ON STANDBY GENERATOR POWER.
7. SUPPLIED BY TGSM. INSTALLED BY CONSTRUCTION CONTRACTOR.

LEGEND:

ERP	ENERGY RECOVER PUMPS
HMI	HUMAN MACHINE INTERFACE
NSW	ETHERNET NETWORK SWITCH
NVR	NETWORK VIDEO RECORDER
PLC	PROGRAMMABLE LOGIC CONTROLLER
POE	POWER OVER ETHERNET
RIO	REMOTE INPUT/OUTPUT CHASSIS
RTAC	REALTIME AUTOMATION CONTROLLER
VFD	VARIABLE FREQUENCY DRIVE

FIBER ASSIGNMENT					
UTILITY DISPATCH TO POWERHOUSE				POWERHOUSE TO DAM	
1	X	13	X	1	X
2		14		2	
3		15		3	
4		16		4	
5		17		5	
6		18		6	
7		19			
8		20			
9		21			
10		22			
11		23			
12		24			

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STATE OF ALASKA 49th
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09/19/2022

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

SCADA BLOCK DIAGRAM

DESIGNED M. LAWSON
DRAWN D. JOHNSTON
CHECKED J. BAKKEN
PROJECT DATE 09/19/22

DRAWING
E300

JOB NO: 0000000

Path: C:\Vault20\Petersburg Blind Slough\Construction Drawings\E300.dwg Plot date: Sep 19, 2022 04:20pm, CAD User: Guerrero

SHEET KEY NOTES:

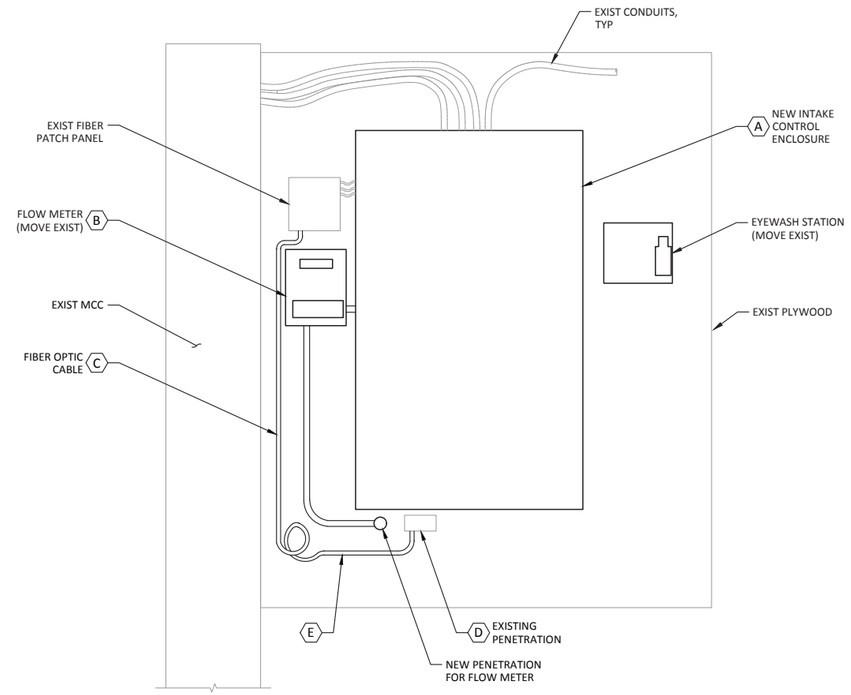
A INSTALL NEW OWNER FURNISHED 3' X 5' CONTROL ENCLOSURE AT LOCATION INDICATED. TERMINATE EXISTING CABLE AND CONDUIT TO ENCLOSURE. RELOCATE ANY CONDUIT AND SEAL ANY BUILDING PENETRATIONS THAT INTERFERE WITH NEW ENCLOSURE INSTALLATION.

B RELOCATE FLOW METER BASE AND ASSOCIATED CONDUIT, ROUTE THROUGH NEW INTAKE BUILDING PENETRATION AND SEAL WITH PUTTY.

C ROUTE EXISTING FIBER OPTIC CABLE AND NEW ARMORED FIBER OPTIC CABLE THROUGH EXISTING BUILDING PENETRATION INDICATED. STRIP CABLE ARMOR INSIDE CONTROL BUILDING AND LEAVE A 15 FT COIL OF EXCESS CABLE NEAR PENETRATION WHILE MAINTAINING MINIMUM BEND RADIUS OF 12". CABLE DIAMETER IS 0.65".

D AFTER INSTALLATION OF FIBER OPTIC CABLES, SEAL EXISTING BUILDING PENETRATION WITH PUTTY.

E ARMORED FIBER OPTIC CABLE TO BE SECURED WITH 50 FT LOOP WITHIN CONTRACTOR PROVIDED J-BOX LOCATED OUTSIDE INTAKE CONTROL BUILDING. CABLE DIAMETER IS 0.65", MAINTAIN 15" MINIMUM BEND RADIUS. LOCATE J-BOX IN CONVENIENT ACCESSIBLE LOCATION.



INTAKE CONTROL ENCLOSURE

SCALE: NTS

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STATE OF ALASKA 49th MATHEW L. LAWSON No. AELE11874 REGISTERED PROFESSIONAL ENGINEER 09/19/2022

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

INTAKE CONTROL ENCLOSURE

DESIGNED M. LAWSON
DRAWN R. GUERRERO
CHECKED J. BAKKEN
PROJECT DATE 09/19/22

DRAWING
E301

JOB NO: 0000000

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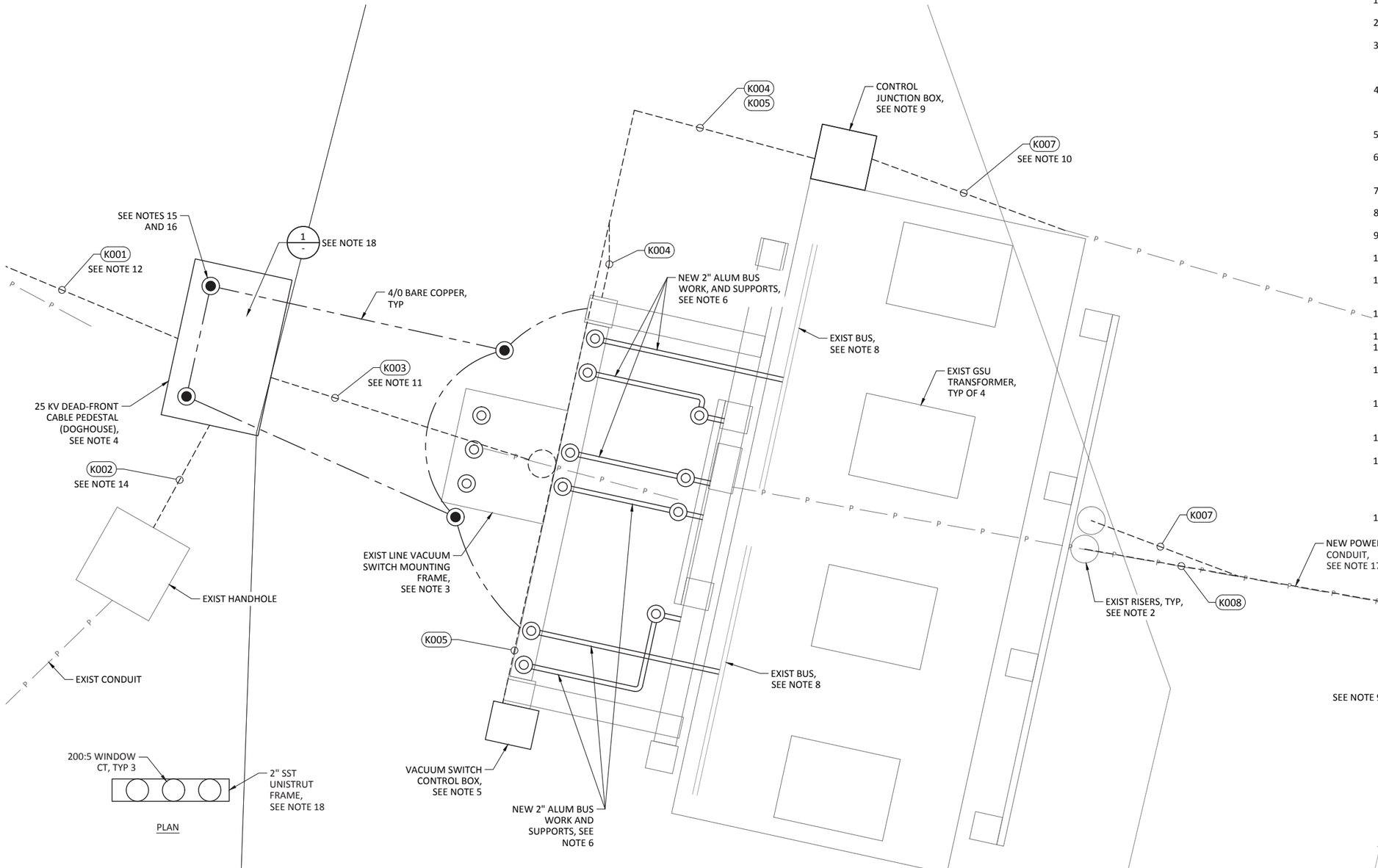

CT AND SUPPORT DETAIL

1

SCALE: NTS

SWITCHYARD PLAN

SCALE: 1"= 2'

0' 2' 4'

N

SHEET NOTES:

1. CONTRACTOR SHALL FIELD VERIFY LOCATIONS, AND SIZES OF ALL EXISTING CONDUITS PRIOR TO START OF WORK.
2. CONTRACTOR SHALL REUSE EXISTING RISERS AND SPLICE NEW CONDUIT INTO EXISTING RUNS AS REQUIRED.
3. CONTRACTOR SHALL VERIFY LINE VACUUM SWITCH MOUNTING FRAME DIMENSIONS ARE CORRECT PER ABB REFERENCE DRAWINGS PRIOR TO INSTALLATION. INSTALL OWNER-PROVIDED LINE VACUUM SWITCH PER ABB REFERENCE DRAWINGS.
4. CONTRACTOR SHALL PROVIDE AND INSTALL A CJP-30-50 DEAD-FRONT JUNCTION PEDESTAL WITH 3-WAY LOAD BREAK JUNCTION. INSTALL THE JUNCTION PEDESTAL PER REFERENCE INSTALLATION DRAWING FROM POWER DESIGN INC. NOTE BURIAL DEPTH "D" TO BE 24".
5. CONTRACTOR SHALL INSTALL OWNER-PROVIDED LINE VACUUM SWITCH CONTROL BOX PER ABB AND DH-HITTLE REFERENCE DRAWINGS.
6. CONTRACTOR SHALL FABRICATE AND INSTALL NEW 2" ALUMINUM BUSWORK PER HITTLE REFERENCE DRAWINGS. CONTRACTOR SHALL USE OWNER-PROVIDED BUS STOCK AND SUPPLEMENT AS REQUIRED.
7. OWNER SHALL PROVIDE AND INSTALL COLD-SHRINK 25 KV CABLE AND TERMINATIONS.
8. CONTRACTOR SHALL MODIFY EXISTING BUSWORK AS REQUIRED PER HITTLE REFERENCE DRAWINGS.
9. CONTRACTOR SHALL PROVIDE AND INSTALL A 24" X 24" X 12" NEMA 4X JUNCTION BOX AND INSTALL ON UNISTRUT FRAME IN GENERAL LOCATION INDICATED.
10. CONTRACTOR SHALL SPLICE INTO EXISTING UNDERGROUND CONTROL CONDUIT AND ROUTE TO NEW JUNCTION BOX.
11. CONTRACTOR SHALL SPLICE NEW PVC CONDUIT INTO EXISTING UNDERGROUND DISTRIBUTION RUN. ROUTE NEW SPLICED CONDUIT TO NEW DEAD-FRONT JUNCTION PEDESTAL AND EXISTING RISER.
12. CONTRACTOR SHALL SPLICE OUT-GOING POWER CONDUIT INTO EXISTING UNDERGROUND PVC RUNS.
13. ALL EXPOSED CONDUIT SHALL BE RGS.
14. EITHER MAINTAIN EXISTING CONDUIT OR INSTALL NEW BETWEEN NEW DOGHOUSE AND EXISTING HANDHOLE.
15. INSTALL GROUND RODS IN LOCATIONS SHOWN. WITHIN DOGHOUSE GROUND ROD TO STICK UP 6" ABOVE FLOOR. ALL OTHER GROUND RODS TO BE 18" BELOW GRADE.
16. CONNECT GROUND RODS WITH 4/0 SOFT DRAWN BARE COPPER CONDUCTORS CREATING LOOP AS SHOWN. BOND LOOP TO EXIST SWITCHYARD GROUND GRID IN AT LEAST TWO LOCATIONS. CONDUCTOR TO BE 24" BELOW GRADE.
17. PULL 600V THHN CONDUCTOR WITH 5KV CABLES FOR GROUNDING AT SWITCHYARD, BOND TO EXIST STATION GROUND GRID. SEE E118.
18. PROVIDE THREE 200:5, CLASS C40, 600V WINDOW CTS, (PLUS ONE SPARE) WITH 2" STAINLESS STEEL UNISTRUT SUPPORT FRAME AND INSTALL IN 25KV DOGHOUSE AS INDICATED IN DETAIL 1. CTS TO BE ABB SCT-983 OR APPROVED EQUAL. SUPPORT CTS SUCH THAT 25KV CABLE CAN BE ROUTED THROUGH THE WINDOW AND NOT BE SUPPORTED ON THE CABLE.
19. OWNER TO PROVIDE AND INSTALL ALL 25 KV CABLING/CONDUCTORS AND 25kV TERMINATIONS.

LEGEND:

- GROUND ROD, 5/8", COPPER CLAD, 10" LONG
- 4/0 BARE BURIED COPPER CONDUCTOR
- P — EXISTING POWER OR CONTROL CONDUIT

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STATE OF ALASKA 49th — MATHEW L. LAWSON No. AELE11874 — REGISTERED PROFESSIONAL ENGINEER — 09/19/2022

WARNING

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

SWITCHYARD PLAN

DESIGNED M. LAWSON

DRAWN R. GUERRERO

CHECKED J. BAKKEN

PROJECT DATE 09/19/22

DRAWING

E400

JOB NO: 000000

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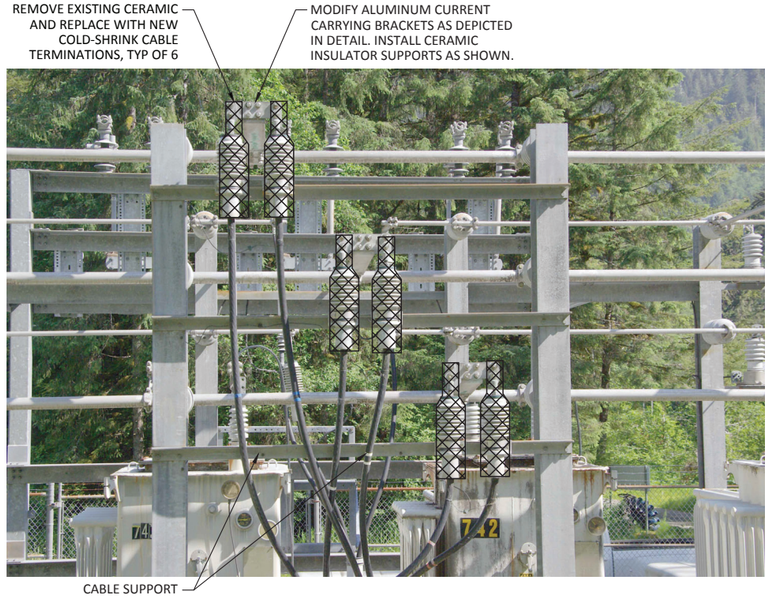
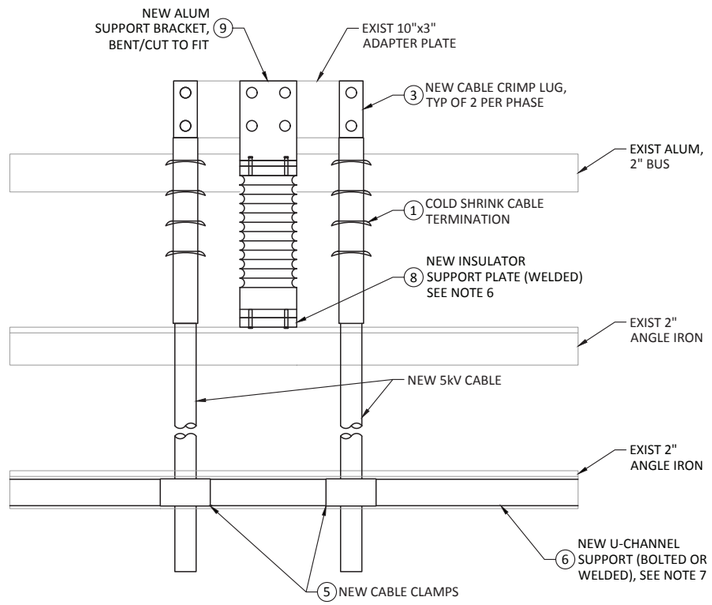


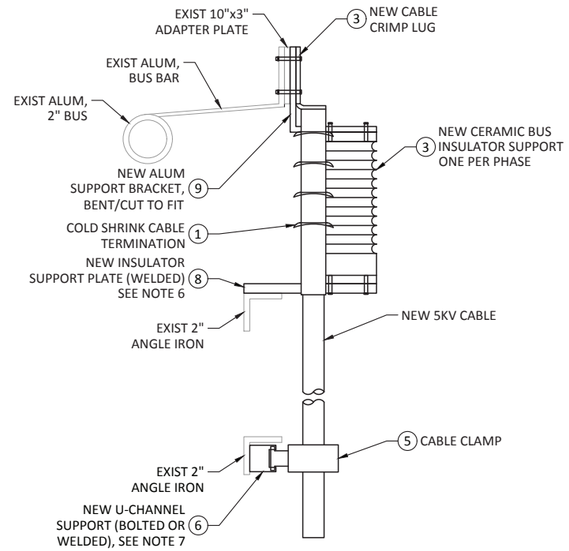
PHOTO: EXISTING SWITCHYARD TERMINATIONS

SCALE: NTS



5kV CABLE TERMINATION DETAIL

SCALE: 3"= 1'-0"



SHEET NOTES:

1. CONTRACTOR SHALL MATCH AND DRILL NEW ALUMINUM SUPPORT BRACKET WITH EXISTING ADAPTER PLATE AND NEW CERAMIC BUS INSULATOR SUPPORT.
2. BRACE CABLE AS REQUIRED ON EXISTING ANGLE IRONS. SEE BOM FOR MATERIAL LIST.
3. ALL FASTENERS SHALL BE STAINLESS STEEL 316 OR APPROVED SUBSTITUTE.
4. CONTRACTOR TO FIELD VERIFY BUS SUPPORT AND ASSOCIATED ITEM DIMENSIONS.
5. VERIFY QUANTITY OF FASTENERS REQUIRED. FASTENERS FOR SUPPORT BRACKETS AND CABLE GRIPS NOT SHOWN SHALL BE PROVIDED AS NEEDED.
6. CONTRACTOR TO FIELD WELD INSULATOR SUPPORT PLATE TO EXISTING ANGLE IRON AND GALVANIZE.
7. CONTRACTOR HAS OPTION TO WELD OR BOLT U-CHANNEL TO EXISTING ANGLE IRON. PROVIDE FASTENERS AS NEEDED.
8. QUANTITY OF FASTENERS LISTED DOES NOT INCLUDE SWITCHGEAR CABLE TERMINATIONS. CONTRACTOR TO PROVIDE EQUIVALENT TYPE AND QUANTITY AS REQUIRED FOR SWITCHGEAR CABLE TERMINATION.

CABLE TERMINATION BOM

ITEM	QTY	DESCRIPTION	MANUFACTURER	P/N	NOTES
1	6	COLD SHRINK TERMINATION	3M	7642-S-2	OR EQUAL
2	3	BUS INSULATOR & SUPPORT, T.R. 202	GAMMA INSULATORS	8420	OR EQUAL
3	12	CABLE TERMINATION LUG	3M	40156	OR EQUAL
4		NOT USED	N/A	N/A	
5	12	CABLE CLAMP SUPPORT	ZSI FOSTER	024CC034S	
6	A/R	U-CHANNEL	UNISTRUT	P1000	PRE-GALVANIZED FINISH
7	A/R	MOUNTING HARDWARE	N/A	N/A	PROVIDE ZINC-PLATED STEEL MOUNTING HARDWARE PER CABLE CLAMP AND U-CHANNEL MANUFACTURER REQUIREMENTS.
8	3	PLATE, GALVENIZED STEEL, 1/2" X 4" X 20" LENGTH TO BE CONFIRMED			DRILL 4 X 1/2 HOLES, 3" BOLT CIRCLE. LENGTH CUT TO FIT
9	3	PLATE, ALUMINUM T6061, , 1/2" X 4" X 20" LENGTH TO BE CONFIRMED			FIELD DRILL HOLES TO MATCH, FIELD BEND AND CUT. SEE NOTE 1
10	24	BOLT, 1/2"-13 COARSE, 1" LONG, THREAD HEX HEAD CAP 18-8, STAINLESS STEEL	NUTTY COMPANY OR EQUAL	HXC12131	
11	12	BOLT, 1/2"-20 FINE, 1.5" LONG THREAD HEX HEAD CAP 18-8, STAINLESS STEEL	NUTTY COMPANY OR EQUAL	XHC1220112	
12	12	BOLT, 1/2"-20 FINE, 3" LONG THREAD HEX HEAD CAP 18-8, STAINLESS STEEL	NUTTY COMPANY OR EQUAL	XHC12203	
13	24	NUT, 1/2"-20 HEX NUT 18-8, STAINLESS STEEL	NUTTY COMPANY OR EQUAL		
14	24	WASHER, FLAT, 1/2", od=1/14", id=0.531 STAINLESS STEEL	NUTTY COMPANY OR EQUAL	XHN1220	
15	48	WASHER, BELLEVILLE, 1/2", 18-8 STAINLESS STEEL	NUTTY COMPANY OR EQUAL	XBELW12H	

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STATE OF ALASKA 49th MATHEW L. LAWSON No. AELE11874 REGISTERED PROFESSIONAL ENGINEER 09/19/2022

WARNING
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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

SWITCHYARD DETAILS 2.4KV

DESIGNED M. LAWSON
DRAWN R. GUERRERO
CHECKED J. BAKKEN
PROJECT DATE 09/19/22

DRAWING E401

JOB NO: 000000

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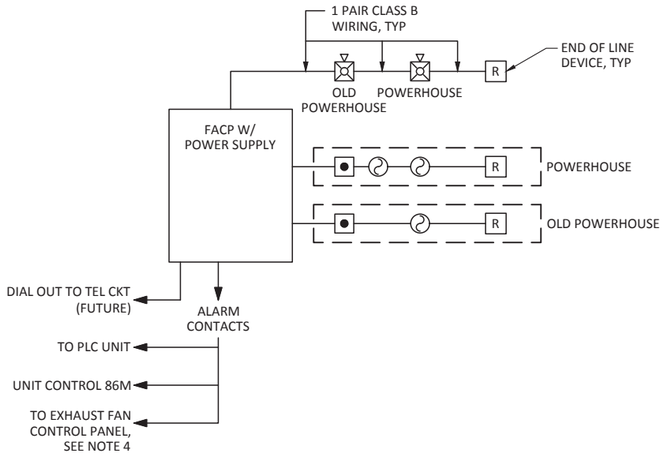
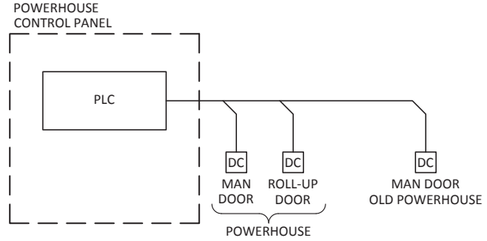


FIRE ALARM BLOCK DIAGRAM (SEE NOTE 2)

SCALE: NTS



SECURITY SYSTEM BLOCK DIAGRAM

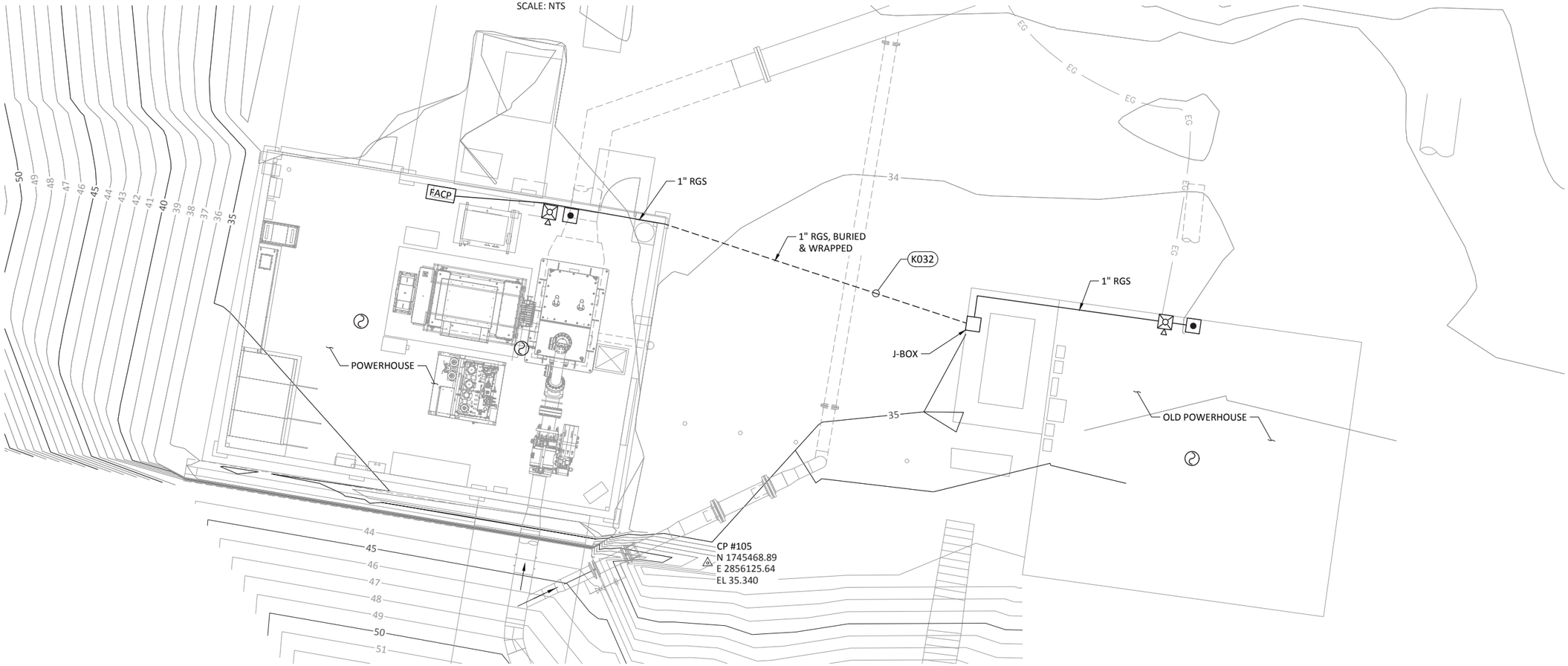
SCALE: NTS

SHEET NOTES:

1. PROVIDE CONDUITS AS NEEDED. FINAL ROUTING BY CONTRACTOR.
2. COMPLY WITH NEC ARTICLE 760 FOR POWER LIMITED FIRE ALARM (PLFA) CIRCUIT.
3. PROVIDE DEDICATED CONDUITS FOR FIRE ALARM CIRCUITS.
4. ALARM SHALL SHUT DOWN VENT FANS. SEE E117.
5. PROVIDE MAN DOOR AND ROLL UP DOOR CONTACTS TO INDICATE DOORS OPEN. CONNECT TO PLC. TERMINATE TO PLC DIGITAL INPUT PER GILKES/OS ENGINEERING CONTROL DRAWINGS.

LEGEND:

DC	DOOR CONTACT
	HORN/STROBE
	MANUAL PULL STATION
R	END OF LINE DEVICE (TERMINATION)
	SMOKE DETECTOR
FACP	FIRE ALARM CONTROL PANEL



FIRE ALARM AND SECURITY SYSTEMS PLAN

SCALE: 1"= 5'

0" 5' 10'

N

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STATE OF ALASKA 49th MATHEW L. LAWSON No. AELE11874 REGISTERED PROFESSIONAL ENGINEER 09/19/2022

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McMILLEN JACOBS ASSOCIATES

PETERSBURG ALASKA

PETERSBURG BOROUGH

BLIND SLOUGH HYDROELECTRIC PROJECT - BALANCE OF PLANT CONTRACT

FIRE ALARM AND SECURITY SYSTEMS PLAN

DESIGNED M. LAWSON

DRAWN R. GUERRERO

CHECKED J. BAKKEN

PROJECT DATE 09/19/22

DRAWING

FP100

JOB NO: 0000000

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