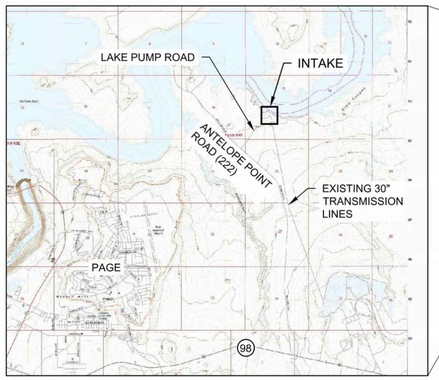
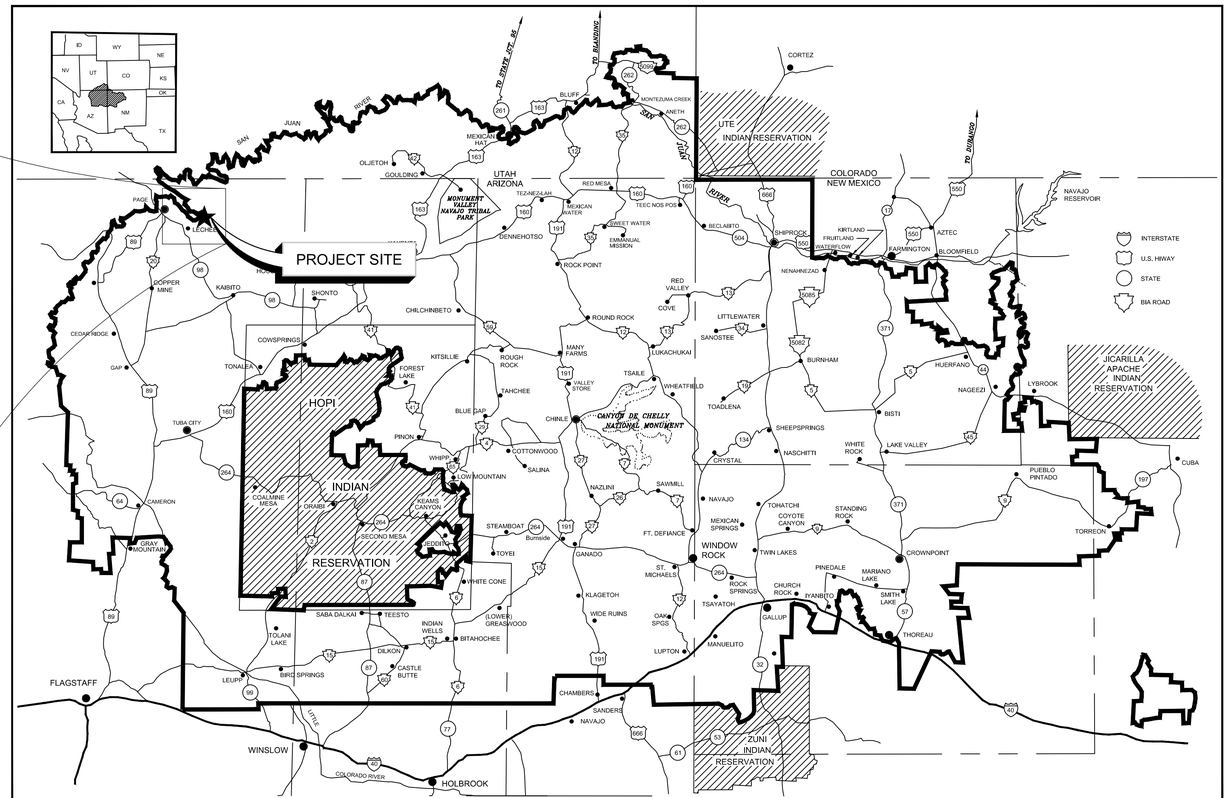
NAVAJO NATION

WESTERN NAVAJO PIPELINE PHASE I
VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING
APRIL 2024



VICINITY MAP



NAVAJO INDIAN RESERVATION PLAN

LOCATION MAP
PLAN
NOT TO SCALE

PLAN NORTH

Call at least two full working days before you begin excavation.

ARIZONA 811 Arizona Blue Stake, Inc.

Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

Brown AND Caldwell

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Montana Professional Engineer (Civil)
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67639
PAUL A. SWENSON
Date Signed 04/22/2024
ARIZONA, U.S.A.

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: A. MATTIE
DRAWN: J. BRIDGEWATER
CHECKED:
CHECKED:
APPROVED:

FILENAME
SC-CU-CV-INTAKE-LECHEE.dwg

BC PROJECT NUMBER

CLIENT PROJECT NUMBER
CO10232

GENERAL

COVER SHEET

DRAWING NUMBER
G-000

SHEET NUMBER 1 OF 54

Path: \\BIL-FS\BIL-PROJECTS\28\21254-01165\CAD\CIVIL FILENAME: SC-CU-CV-INTAKE-LECHEE.DWG PLOT DATE: 4/22/2024 10:12 AM CAD USER: JOHN BRIDGEWATER

SHEET NO.	DWG NO.	TITLE
GENERAL		
1	G-000	COVER SHEET
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4	G-003	STANDARD ABBREVIATIONS
5	G-004	VICINITY MAP
CIVIL		
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7	C-002	INTAKE BUILDING DEMO PLAN
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9	C-004	INTAKE BUILDING PHOTOS
10	C-005	INTAKE BUILDING REDESIGN
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23	S-103	CONTROL BUILDING BUILDING SECTION AND DETAILS
24	S-104	CONTROL BUILDING ELEVATIONS
25	S-105	CONTROL BUILDING ELEVATIONS
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	1 OF 6	PLC CONTROL PANEL COVER SHEET
	2 OF 6	PLC CONTROL PANEL DISCRETE I/O (BOOSTER WITH BOOSTERPAQ)
	3 OF 6	PLC CONTROL PANEL ANALOG I/O (BOOSTER WITH BOOSTERPAQ)
	3A OF 6	PLC CONTROL PANEL ANALOG OUTPUT (BOOSTER WITH BOOSTERPAQ)
	4 OF 6	PLC CONTROL PANEL POWER DISTRIBUTION
	5 OF 6	PLC CONTROL PANEL BACKPLANE
	6 OF 6	PLC CONTROL PANEL CABLE PINOUT

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GENERAL

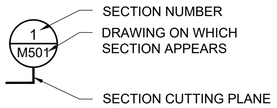
DRAWING INDEX

DRAWING NUMBER
G-001

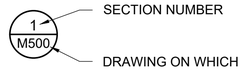
SHEET NUMBER 2 OF 54

SECTION AND DETAIL DESIGNATION

(1) SECTION CUT ON DWG M500



(2) ON DWG M501 THIS SECTION IS IDENTIFIED



(3) DETAILS ARE CROSS-REFERENCED IN A SIMILAR MANNER. EXCEPT THAT DETAILS ARE IDENTIFIED BY LETTER RATHER THAN BY NUMBER.

DRAWING NUMBERING SYSTEM

1. THE DRAWINGS ARE SUBDIVIDED BY DISCIPLINE AS FOLLOWS:

G	GENERAL
C	CIVIL
A	ARCHITECTURAL
S	STRUCTURAL
M	MECHANICAL
H	HVAC
E	ELECTRICAL
I	INSTRUMENTATION
P	PROCESS
U	PLUMBING

GENERAL SYMBOLS

	NEW FACILITIES
	PROPERTY LINE
	RIGHT OF WAY (EASEMENT)
	EDGE OF PAVEMENT
	CENTERLINE
	HIDDEN LINE
	FENCE
	WATER SURFACE
@	AT
&	AND
Ø	DIAMETER
℄	CENTER LINE
'	FEET
"	INCHES

	NATURAL GROUND OR GRADE
	COMPACTED GRADE OR FILL
	GRANULAR MATERIAL/ AGGREGATE BASE
	AC PAVEMENT IN PLAN OR SECTION
	GRAVEL SURFACE WITH GEOTEXTILE IN PLAN
	PAVEMENT IN PLAN

1. ADDITIONAL DISCIPLINE SPECIFIC SYMBOLS, ARE INCLUDED IN THE DISCIPLINE DRAWINGS

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GENERAL

STANDARD SYMBOLS

DRAWING NUMBER
G-002

SHEET NUMBER 3 OF 54

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A	AMPERE
AC	ASPHALTIC CONCRETE
A/C	AIR CONDITIONING
ACC	AREA CONTROL CENTER
ACP	ASBESTOS CEMENT PIPE
ACST	ACOUSTIC
ACU	AIR CONDITIONING UNIT
AF	AIR FILTER
AHU	AIR HANDLING UNIT
AMD	AIR MONITORING DEVICE
.ANC	ANCHOR
AR	AIR RETURN
ARV	AIR RELEASE VALVE
AS	AIR SUPPLY
ATP	VERTICAL TURBINE PUMP AIR RELEASE VALVE
ATS	AUTOMATIC TRANSFER SWITCH
AV	ANGLE VALVE
BAC	BACTERIOLOGICAL
BAV	BALL VALVE
BC	BEGINNING OF CURVE
BCR	BEGINNING OF CURVE RETURN
BCOP	BARE COPPER
BFP	BACK FLOW PREVENTER
BFV	BUTTERFLY VALVE
BGAT	BOOLEAN GATE
BF	BLIND FLANGE
BHP	BRAKE HORSEPOWER
BSN	BAR SCREEN
BUV	BUTTERFLY VALVE
CAB	DIRECT BURIAL CABLE
CAF	COMBUSTION AIR FAN
CC	COOLING COIL
C-C	CENTER TO CENTER
CCP	CONCRETE CYLINDER PIPE
CCSP	CONCRETE LINED AND COATED STEEL PIPE
CD	CEILING DIFFUSER
CDR	CONDUCTOR
CDU	CONDENSING UNIT
CED	CEILING EXHAUST DIFFUSER
CER	CEILING EXHAUST REGISTER
CF	CUBIC FEET
CFH	CUBIC FEET PER HOUR
CFR	CODE OF FEDERAL REGULATIONS
CHR	CHILLER
CIRC	CIRCUMFERENCE
CK	CHECKER(ED)
CKPL	CHECKER PLATE
C	CENTERLINE
CL	CLEARANCE
CL2	CHLORINE
CM	MANUAL CONTROL STATION
CMA	MANUAL-AUTO CONTROL STATION
CMC	CEMENT MORTAR COATED
CML	CEMENT MORTAR LINED
CMPA	ASBESTOS PROTECTED CORRUGATED METAL PIPE
CNTL	CONTROL
CO2	CARBON DIOXIDE
COD	CHEMICAL OXYGEN DEMAND
COF	COOLING AIR FAN
COM	COMMINUTOR
CON	CONVEYOR
COND	CONDUCTIVITY
CONN	CONNECTION
CJ	CONSTRUCTION JOINT
CONT	CONTINUED
CP	COMPRESSOR
CPVC	CHLORINATED POLYVINYL CHLORIDE
CR	CONDUIT RACK
CRF	CHEMICAL FEEDER
CRN	CRANE
CREJ	CORRUGATED RUBBER EXPANSION JOINT
CSD	CEILING SUPPLY DIFFUSER
CTF	CENTRIFUGE
CTR	CONTRACTOR, CONTROL UNIT
CV	CONTROL VALVE
DB	DUCT BANK
DE	DENSITY METER
DF	DRINKING FOUNTAIN
DFD	DUCT FIRE DAMPER
DG	DOOR GRILLE
DI	DUCTILE IRON
DM	DAMPER MOTOR
DR	DRAIN ROCK
DT	DRAIN TRAP
DU	DRIVE UNIT
DWF	DRY WEATHER FLOW
EA	EXHAUST AIR / ENVIRONMENTAL ASSESSMENT
EAT	ENTERING AIR TEMPERATURE
EAU	ENGINE ALTERNATOR UNIT
EC	END OF CURVE
ECU	EVAPORATIVE COOLING UNIT
ED	EXTRACTOR DAMPER, EQUIPMENT DRAIN
EE	EACH END
EF	EXHAUST FAN
EFF	EFFLUENT
EG	EXHAUST GRILLE
EJ	EXPANSION JOINT
EL	ELEVATION
ELL	ELBOW
EMBD	EMBEDDED
ENCL	ENCLOSURE
E/P	ELECTRIC/PNEUMATIC
EPR	EVAPORATOR
EQ	EQUAL
EQUIP	EQUIPMENT
ES	EXISTING SURFACE
EWEF	EACH WAY EACH FACE
EWT	ENTERING WATER TEMPERATURE
EXG	EXHAUST GRILLE
EXIST	EXISTING
F	FAHRENHEIT, FACE, FUSE(D), FAN
FAI	FRESH AIR INTAKE
FB	FLAT BAR, FLOOR BEAM
FC	FAIL CLOSED
FCL	FREE CHLORINE
FCR	FINE CRUSHED ROCK
FE	FLOWMETER
FF	FAR FACE / FINISHED FLOOR
F-F	FACE TO FACE
FH	FIRE HYDRANT, FLATHEAD
FIN	FINISHED
FIT	FLOW INDICATING TRANSMITTER
FL	FLOW LINE
FLC	FLOCCULATOR
FLP	FLUID POWER UNIT
FLR	FLOOR
FLT	FILTER
FM	FORCE MAIN , FLOW METER
FMH	FLEXIBLE METAL HOSE
FMX	FLASH MIXER
FO	FAIL OPEN
FP	FILTER PRESS
FPC	FLEXIBLE PIPE COUPLING
FPC-T	FPC TO TAKE TENSION
FRS	FREEZESTAT
FS	FLOW SWITCH, FIRESTAT
FT	FLASH TANK
G	POWER ACTUATED GATE
GAC	GRANULATING ACTIVATED CARBON
GB	GRADE BREAK
GBV	GLOBE VALVE
GDR	GRINDER
GEN	GENERATOR
GFI	GROUND FAULT INTERRUPTOR
GPD	GALLONS PER DAY
GRDR	GRINDER
GRT	GROUT
GSP	GALVANIZED STEEL PIPE
GT	GATE
GV	GATE VALVE
H/A	HAND AUTO
HC	HEATING COIL
HEX	HEAT EXCHANGER
HDOT	HEAVY DUTY OILTIGHT
HG	MERCURY, HAND GRADE
HHV	HEAT HOSE VALVE
HOA	HAND-OFF-AUTO
HOR	HORIZONTAL
HP	HIGH PRESSURE, HIGH POINT, HORSEPOWER
HR	HANDRAIL, HEAT RESERVOIR
HSS	HIGH SIGNAL SELECT
HTV	HIGH TEMPERATURE VENT
HV	HOSE VALVE
H/V	HEATING AND VENTILATING
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HWTR	HIGH WATER
HYDT	HYDRANT
ICN	INCINERATOR
IF	INSIDE FACE
IL	INDICATING LAMP
INF	INFLUENT
INS	INSULATE(D)(ION)
INTER	INTERMEDIATE
INT	INTERIOR
INV	INVERT
IT	INSTRUMENT TAP
JST	JOIST
K	KIP (1000 POUNDS)
KV	KILOVOLT
KVA	KILOVOLT AMPERE
KVAR	KILOVAR
KW	KILOWATT
LAT	LEAVING AIR TEMPERATURE, LATERAL, LATITUDE
LCP	LOCAL CONTROL PANEL
LE	LEVEL METER
LEL	LOWER EXPLOSIVE LIMIT
LGW	LOWER GREASEWOOD
LIT	LEVEL INDICATION TRANSMITTER
LOD	LIMITS OF DISTURBMENTS
LOS	LOCKOUT STOP
LS	LIMIT SWITCH
MBH	THOUSAND BTU'S PER HOUR
MCC	MOTOR CONTROL CENTER
MCM	THOUSAND CIRCULAR MILLS
MCU	MASTER CONTROL UNIT
MD	MOTORIZED DAMPER
MEE	MISCELLANEOUS ELECTRICAL EQUIPMENT
MGD	MILLION GALLONS PER DAY
MG/I	MILLIGRAMS PER LITER
MIE	MISCELLANEOUS INSTRUMENTATION EQUIPMENT
MILSPEC	MILITARY SPECIFICATION
MIN	MINIMUM, MINUTE
MJ	MECHANICAL JOINT
ML	MILLILITER
MME	MISCELLANEOUS MECHANICAL EQUIPMENT
MOP	MOTOR OPERATOR
MOV	MOTOR OPERATED VALVE
MUL/DIV	MULTIPLY/DIVIDE
MV	MUD VALVE, MILLIVOLT
MX	MIXER
N	NEUTRAL
NA	NONAUTOMATIC
NAOH	SODIUM HYDROXIDE
NEG	NEGATIVE
NC	NORMALLY CLOSED
NF	NONFUSED
NOX	NITRATES AND NITRITES
NPSH	NET POSITIVE SUCTION HEAD
NRS	NONRISING STEM
OA	OUTSIDE AIR, OVERALL
OAI	OUTSIDE AIR INTAKE
OB	OPPOSED BLADE
OL	OVERLOAD
O-O	OUT TO OUT
ORF	ODOR REMOVAL FILTER
ORP	OXIDATION REDUCTION POTENTIAL
ORT	ODOR REMOVAL TOWER
OSA	OUTSIDE AIR
OSC	ODOR SCRUBBER
P	PUMP
PAR	PARALLEL
PC	PLAIN CONCRETE, PIPE COUPLING
PCC	PLANT CONTROL CENTER
PCHV	PINCH VALVE
PCP	PLAIN CONCRETE PIPE
PC-T	PIPE COUPLING TO TAKE TENSION
PCU	PHOTOELECTRIC CONTROL UNIT
P/E	PNEUMATIC/ELECTRIC
PF	POWER FACTOR
PI	PROPORTIONAL PLUS INTEGRAL CONTROL , PRESSURE GAUGE
PID	PROPORTIONAL PLUS INTEGRAL PLUS DERIVATIVE CONTROL
PIT	PRESSURE INDICATING TRANSMITTER
PIVC	POINT OF INTERSECTION ON VERTICAL CURVE
PL	PROPERTY LINE, PIPELINE, PLATE
PLV	PLUG VALVE
PLYWD	PLYWOOD
PMP	PUMP
PNL	PANEL, PANELBOARD
PO4	PHOSPHATE
POP	PNEUMATIC OPERATOR
PP	POWER POLE
PRES	PRESSURE
PRD	PRESSURE RELIEF DAMPER
PRV	PRESSURE REGULATING (REDUCING) (RELIEF) VALVE
PRS	PRESSURE REDUCING STATION
PS	PRESSURE SWITCH, PRESSURE SENSOR , PUMP STATION
PSIA	POUND PER SQUARE INCH ABSOLUTE
PSIG	POUNDS PER SQUARE INCH GAGE
PV	PLUG VALVE, PROCESS VARIABLE
PVL	PRESSURE VESSEL
PVT	PAVEMENT
Q	RATE OF FLOW
QCPLG	QUICK COUPLING
R	RADIUS
RA	RETURN AIR
RAF	ROLL TYPE AIR FILTER
RCR	RECORDER
REC	RECEIVER
RECD	RECEIVED
RECP	RECEPTACLE
RED	REDUCE(R)
REG	REGULATOR
REL	RELAY
RT	RIGHT
RTP	REINFORCED THERMOSET PLASTIC
RTU	REMOTE TERMINAL UNIT
RGS	RIGID GALVANIZED STEEL
RL	REDUCED LEVEL
RW	RECLAIMED WATER
RWCD	RECALIMED WATER CONSERVATION DISTRICT
RWL	RAINWATER LEADER
S	SOUTH, SILENCER
SB	SIGNAL BOX
SBD	SWITCHBOARD
SCR	SCRUBBER
SD	SPLITTER DAMPER, SMOKE DETECTOR
SEP	SEPARATOR
SG	SUPPLY GRILLE, SLUICE GATE
SI	SPEED INCREASER
SIM	SIMILAR
SL	SLOPE
SLG	SLIDE GATE
SLR	SILENCER
SN	SCREEN
SP	SPACE, SET POINT, STATIC PRESSURE
SPG	SPACING
SPT	SOUND POWERED TELEPHONE
SO2	SULFUR DIOXIDE
SPL	SPLICE
SR	SPEED REDUCER, SALT RIVER PROJECT
SRV	SAFETY RELIEF VALVE
SRG	SPLIT-RANGING
SS	STAINLESS STEEL, SANITARY SEWER, SPEED SELECTOR
SSC	SOLID STATE CONTROLLER
SSFH	STAINLESS STEEL FLAT HEAD
SSK	SERVICE SINK
ST	START
STD	STANDARD
STGA	STARTING AIR
SUB	SUBSTITUTE
SUP	SUMP PUMP
SV	SOLENOID VALVE
SWB	SWITCHBOARD
SWGR	SWITCHGEAR
SYM	SYMMETRICAL
TP	TANGENT POINT
TB	TERMINAL BOX
T/B	TOP OF BANK
TBN	TURBINE
T/C	TOP OF CURB
TCL	TOTALLY CLOSED
TCP	TEMPERATURE CONTROL PANEL
TD	TIME DELAY RELAY
TFR	TRANSFORMER
TNK	TANK
TOA	TEST-OFF-AUTO
TOC	TOTAL ORGANIC CARBON
TPG	TOPPING
TPLX	TRIPLEXED
TR	TIMING RELAY, STAIR TREAD
TRM	TRANSMITTER
TRN	TRANSDUCER
TRS	TRANSFER SWITCH
TS	TEMPERATURE SWITCH
TV	THERMOSTATIC VALVE
UG	UNDERGROUND
UL	ULTIMATE LOAD
UN	UNION
UP	UTILITY POLE
UPS	UNINTERRUPTIBLE POWER SUPPLY
US	UTILITY STATION
USS	UNIT SUBSTATION
V	VALVE, VOLTS
VAC	VOLTS ALTERNATING CURRENT
VAR	VARIES, VARIABLE
VC	VERTICAL CURVE
VCP	VITRIFIED CLAY PIPE
VD	VOLUME DAMPER
VDC	VOLTS DIRECT CURRENT
VEN	VENTILATOR
VFD	VARIABLE FREQUENCY DRIVE
VFT	VACUUM FILTER
VP	VAPOR PRESSURE, VACUUM PUMP
VSC	VARIABLE SPEED COUPLING
VTR	VENT THROUGH ROOF
VV	VARIABLE VOLUME BOX
WC	WATER CLOSET, WATER COLUMN
WCO	WALL CLEANOUT
WEG	WALL EXHAUST GRILLE
WER	WALL EXHAUST REGISTER
WF	WIDE FLANGE
WG	WASTE GAS
WM	WATER METER
WSR	WALL SUPPLY REGISTER, WASHER
WSTP	WATERSTOP
WT	WATERTIGHT
WTP	WATER TREATMENT PLANT
WV	WATER VALVE
WWF	WELDED WIRE FABRIC, WET WEATHER FLOW
X	SPARE CONDUIT
XLP	CROSS LINKED POLYETHYLENE
XP	EXPLOSION-PROOF
YCO	YARD CLEANOUT
ZS	POSITION SWITCH

NOTES:
1. ADDITIONAL ABBREVIATIONS ARE DEFINED IN ANSI Y1.1-1972.
2. ABBREVIATIONS FOR PIPING SYSTEMS ARE SPECIFIED IN SECTION 15050.

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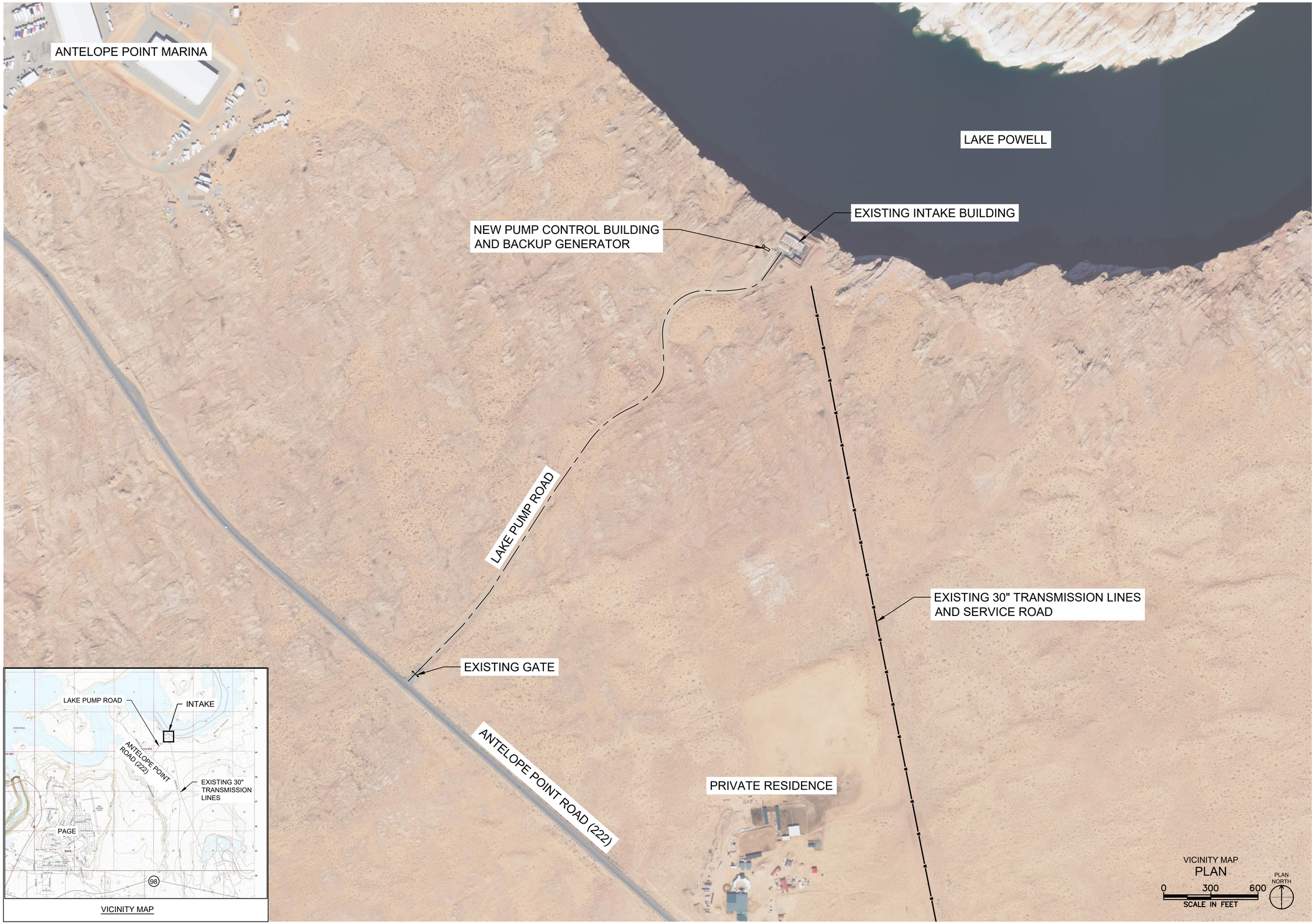
SHEET NUMBER 4 OF 54



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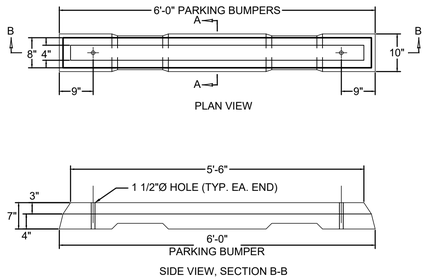
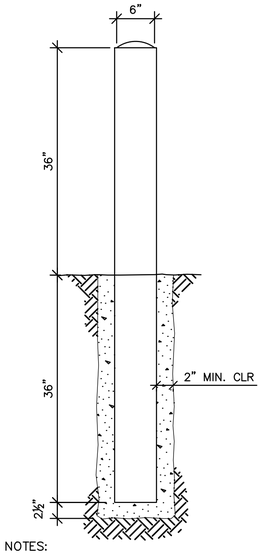
G-004

SHEET NUMBER 5 OF 54



1 C-002 **PRECAST CONCRETE WHEEL STOP**
NTS

+

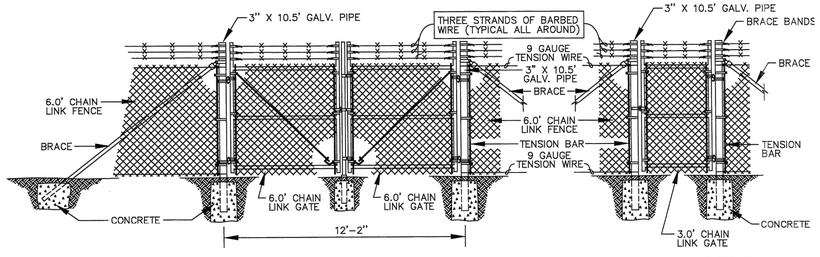


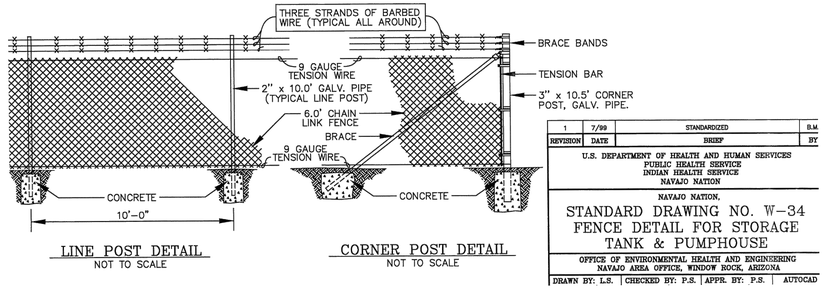
NOTES:

- BOLLARDS ARE 6"ø HEAVY-DUTY STEEL PIPE FILLED WITH 2000 P.S.I. CONCRETE.
- SET BOLLARDS A MINIMUM OF 3 FEET BELOW FINISHED GRADE.
- PAINT EXPOSED SURFACES YELLOW.

2 C-002 **SAFETY BOLLARD**
NTS

+





1	7/99	STANDARDIZED	B.M.
REVISION	DATE	BRIEF	BY

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
PUBLIC HEALTH SERVICE
INDIAN HEALTH SERVICE
NAVAJO NATION

NAVAJO NATION,

STANDARD DRAWING NO. W-34
FENCE DETAIL FOR STORAGE TANK & PUMPHOUSE

OFFICE OF ENVIRONMENTAL HEALTH AND ENGINEERING
NAVAJO AREA OFFICE, WINDOW ROCK, ARIZONA

DRAWN BY: L.S. | CHECKED BY: P.S. | APPR. BY: P.S. | AUTOCAD

Brown AND Caldwell

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PAUL A. SWENSON
Date Signed 04/26/2024
ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: A. MATTIE
DRAWN: J. BRIDGEWATER
CHECKED:
CHECKED:
APPROVED:

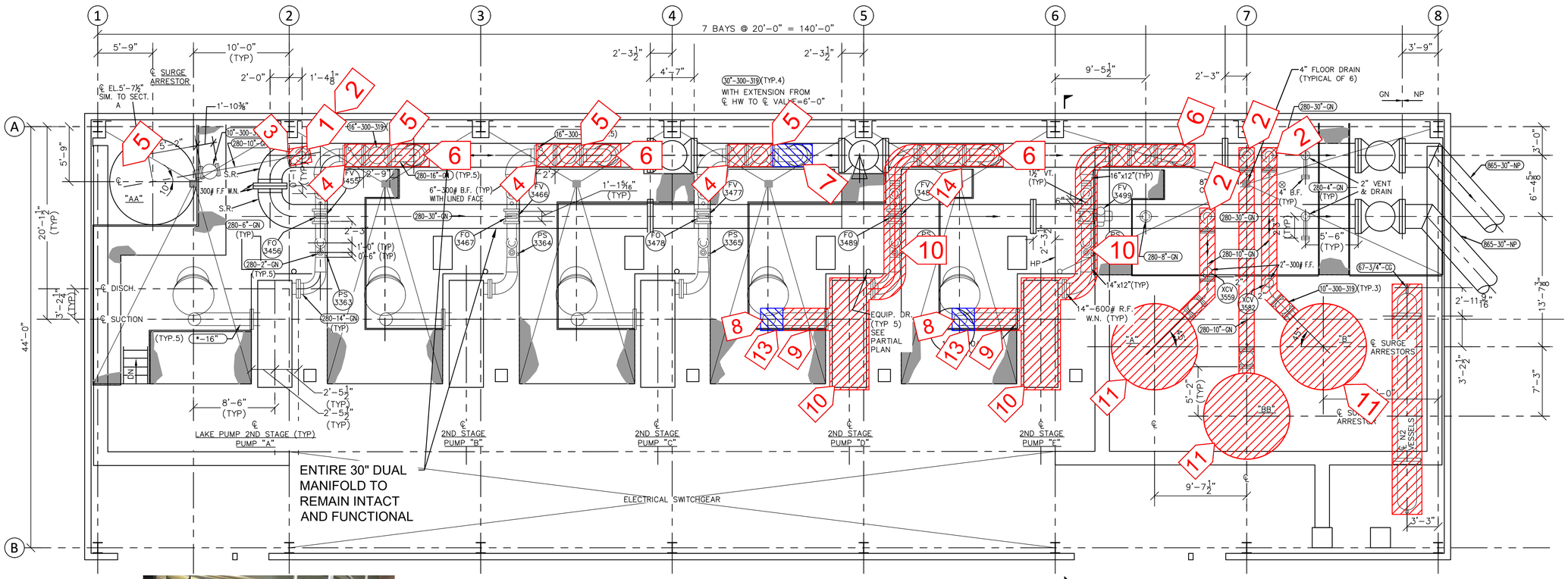
FILENAME
SC-CU-DT-INTAKE-LECHEE.DWG
BC PROJECT NUMBER
CLIENT PROJECT NUMBER
CO10232

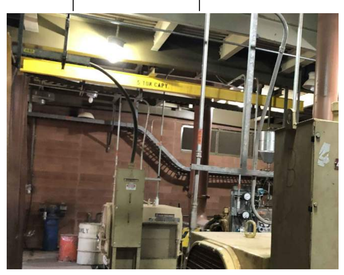
CIVIL

MISCELLANEOUS DETAILS

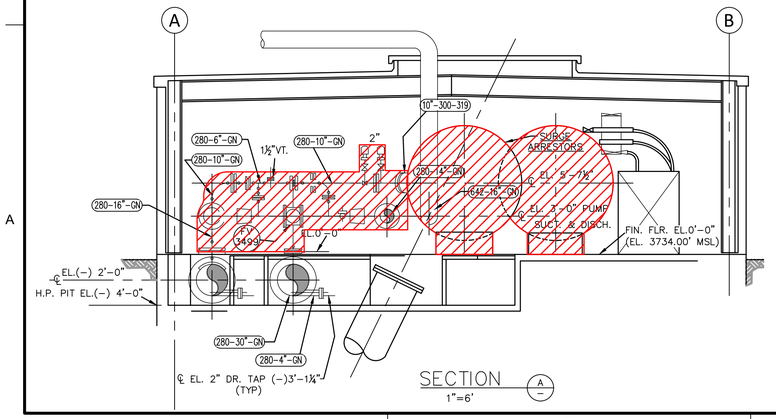
DRAWING NUMBER
C-001

SHEET NUMBER 6 OF 54





EXISTING 5 TON CRANE HOIST BEAM



SECTION
1"=6'

DEMOLITION LEGEND

- # — PHOTO / NOTE REFERENCE
- DEMOLITION REMOVAL
- DISASSEMBLE/SALVAGE FOR RE-USE

GENERAL DEMOLITION NOTES

1. BASE MAP IS FROM ORIGINAL INTAKE BUILDING DRAWINGS AND ACTUAL FEATURES MAY VARY SLIGHTLY.
2. CONTRACTOR TO VERIFY DEMOLITION LIMITS IN THE FIELD WITH ENGINEER.
3. NOT ALL PROCESS MECHANICAL EQUIPMENT, PIPING, ELECTRICAL CONDUIT, OR SUPPORT RACKS ARE SHOWN FOR CLARITY.
4. SEE ELECTRICAL & HVAC DRAWINGS AND SPECIFICATIONS FOR RELATED DEMOLITION REQUIREMENTS.

EXISTING SAFETY RAILING NOTES

1. EXISTING SAFETY RAILING SHALL BE MODIFIED AS NECESSARY TO ACCOMMODATE THE NEW PIPING DETAILED ON SHEET C-004.
2. ALL MODIFIED RAILING, ALONG WITH ANY RAILING SEGMENTS CONNECTED TO THE MODIFICATIONS, SHALL BE SAND-BLASTED AND REPAINTED WITH AN APPROVED EPOXY PAINT IN ACCORDANCE WITH THE SPECIFICATIONS.
3. ALL MODIFIED RAILING SHALL MATCH EXISTING RAILING STYLE AND BE REINSTALLED AND REFASTENED IN KIND.

EQUIPMENT SALVAGE NOTES

1. CONTRACTOR SHALL BE FREE TO SALVAGE ALL EQUIPMENT AND MATERIAL IDENTIFIED FOR DEMOLITION AND OR REMOVAL.
2. CONTRACTOR SHALL APPLY ANY COST SAVING FROM SALVAGE ITEMS AND MATERIALS TO THE DEMOLITION BID ITEMS FOR AN OVERALL COST SAVINGS.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR EVALUATING ALL SALVAGED EQUIPMENT AND MATERIALS.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK, LABOR AND MATERIALS ASSOCIATED WITH SALVAGED ITEMS.
5. EXISTING 5 TON CAPACITY CRANE HOIST BEAM LOCATED AT EACH PUMP BAY.

SHEET NOTES

1. REMOVE 10" VERTICAL PIPING AND ELBOW FITTING
2. NEW 10" 300# BLIND FLANGE
3. SEAL 10" FLANGE W/ GALV. SHEET METAL CUT TO MATCH DIA.; BOLT IN PLACE
4. SEAL 16" FLANGE W/ GALV. SHEET METAL CUT TO MATCH DIA.; BOLT IN PLACE
5. REMOVE 16" CHECK VALVE, ISOLATION VALVE, AND ELBOW FITTING
6. NEW 16" 300# BLIND FLANGE
7. SALVAGE 16" 300# FL X FL 90° BEND. ROTATE 90 DEGREES AT LOWER FLANGE AND RE-INSTALL (SEE SHEET).
8. SALVAGE 16" VICTAULIC X PE 90° BEND AND INTRGRAL PIPE SUPPORT. ROTATE 90° AT VICTAULIC JOINT AND RE-INSTALL (SEE SHEET). CUT HORIZONTAL PIPE LEG TO FIT AND TOACCEPT NEW SLIP-ON FLANGE,
9. REMOVE 16" PIPE BEYOND FIELD-CUT LOCATION
10. REMOVE PUMP & MOTOR INCL. BASE TO F.F.; ALL PIPING, FITTINGS VALVES, INSTRUMENTATION, ELEC. & CONTROL WIRING/CONDUIT, AND APPURT., INCL. SUPPORTS
11. REMOVE SURGE VESSEL INCL. BASE TO F.F.; ALL PIPING, FITTINGS, VALVES, INSTRUMENTATION, ELEC. & CONTROL WIRING/CONDUIT, AND APPURT., INCL. SUPPORTS
12. REMOVE NITROGEN STORAGE TANKS FOR SURGE VESSELS, INCLUDING ALL SUPPORTS AND APPURTENANCES
13. EXISTING SAFETY RAIL NOTES

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DRAWN:	J. BRIDGEWATER
CHECKED:	
CHECKED:	
APPROVED:	
FILENAME	MC-ST-INTAKE-BLDG-DEMO-21254-01.DWG
BC PROJECT NUMBER	
CLIENT PROJECT NUMBER	CO10232

CIVIL

INTAKE BUILDING DEMO PLAN

DRAWING NUMBER
C-002

SHEET NUMBER 7 OF 54

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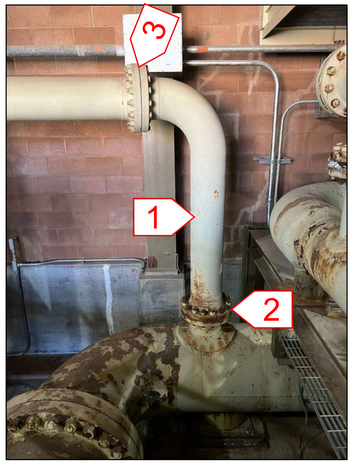
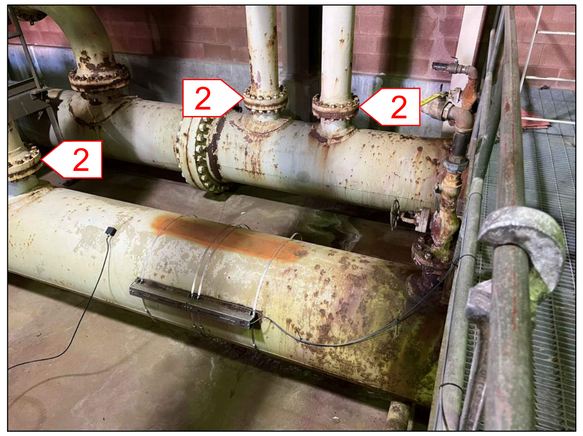


10" VERTICAL PIPING AND ELBOW



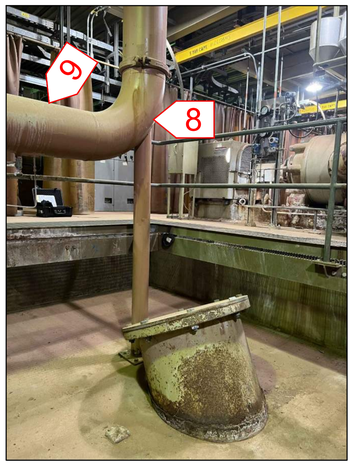
10" BLIND FLANGE

NITROGEN STORAGE TANKS

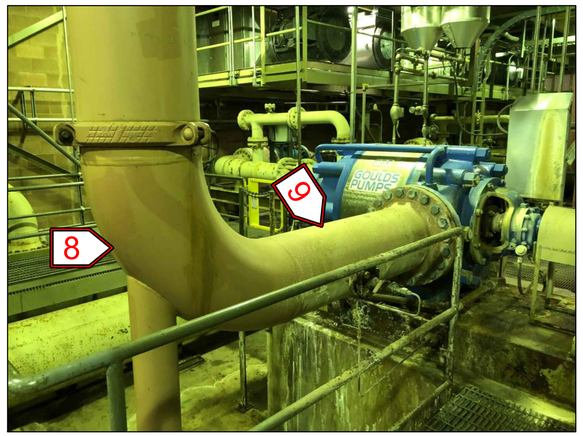
10 GENERAL DEPICTION OF EXISTING PUMP AND PIPING

10 GENERAL DEPICTION OF EXISTING PUMP AND PIPING

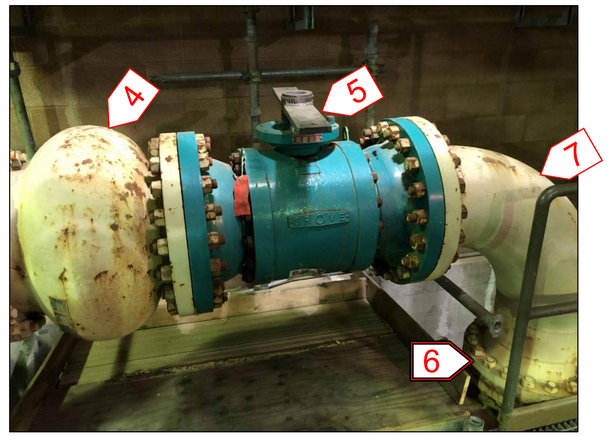
11 GENERAL DEPICTION OF EXISTING SURGE VESSEL AND PIPING



VICTAULIC 90° BEND AND PIPE SUPPORT



VICTAULIC 90° BEND AND PIPE SUPPORT



16" CHECK VALVE, ISOLATION VALVE AND ELBOW

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BC PROJECT NUMBER
CLIENT PROJECT NUMBER
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CIVIL

INTAKE BUILDING DEMO PLAN PHOTOS

DRAWING NUMBER
C-003

SHEET NUMBER 8 OF 54

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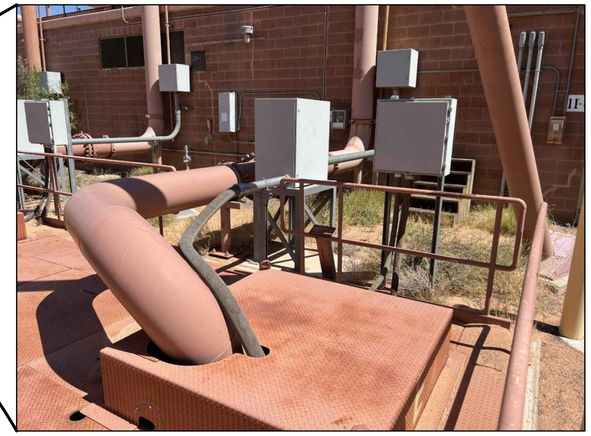
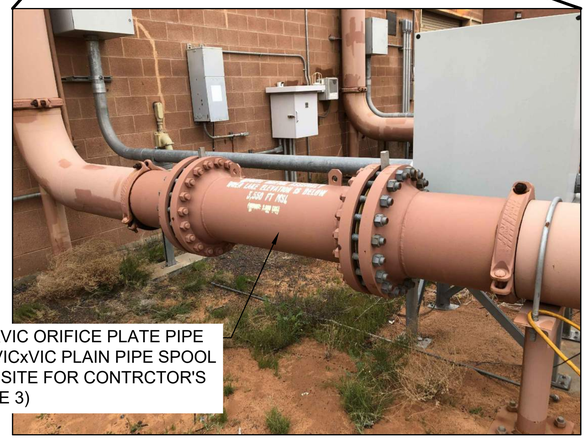
EXISTING INTAKE BUILDING

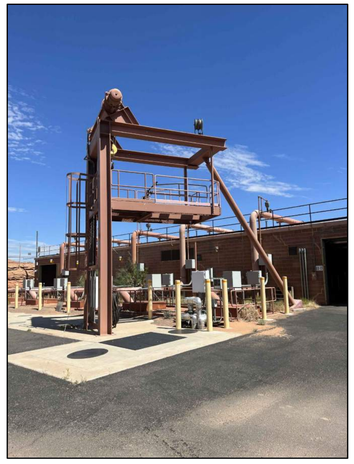
EXISTING SUBMERSIBLE PUMP DISCHARGE PIPE ON ROOF



EXISTING INTAKE SHAFT AT GROUND LEVEL



ORIFICE PLATE SPOOL



MOVEABLE FRAME & HOIST FOR PUMP EXTRACTION

(X) EXISTING INTAKE SHAFT DESIGNATION

NOTES

1. SHAFTS A - C AND ASSOCIATED PIPING SHALL REMAIN INACTIVE. DO NOT CHANGE EXISTING CONDITIONS.
2. SHAFTS D & E AND ASSOCIATED PIPING SHALL BE USED FOR THIS PROJECT. SEE PROJECT REQUIREMENTS FOR PROCESS PIPING OUTSIDE OF INTAKE BUILDING ON THIS SHEET AND ON SHEET C-007. ALL WORK SHOWN APPLIES TO BOTH D & E PIPING AND SUBMERSIBLE PUMP SYSTEMS.
3. ENTIRE DRAWING SET OF EXISTING IN-SHAFT PIPING, WELL HEAD ASSEMBLY, AND ORIFICE PLATE ASSEMBLY ARE LOCATED IN THE SPECIFICATIONS, APPENDIX H.
4. CONTRACTOR'S RESPONSIBILITY TO DETERMINE HOW TO REMOVE AND INSTALL SUBMERSIBLE PUMPS AND ASSOCIATED PIPING AND CABLES. ON-SITE FRAME AND HOIST AVAILABLE AS SHOWN IN PHOTO ON SHEET C-004.

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BC PROJECT NUMBER

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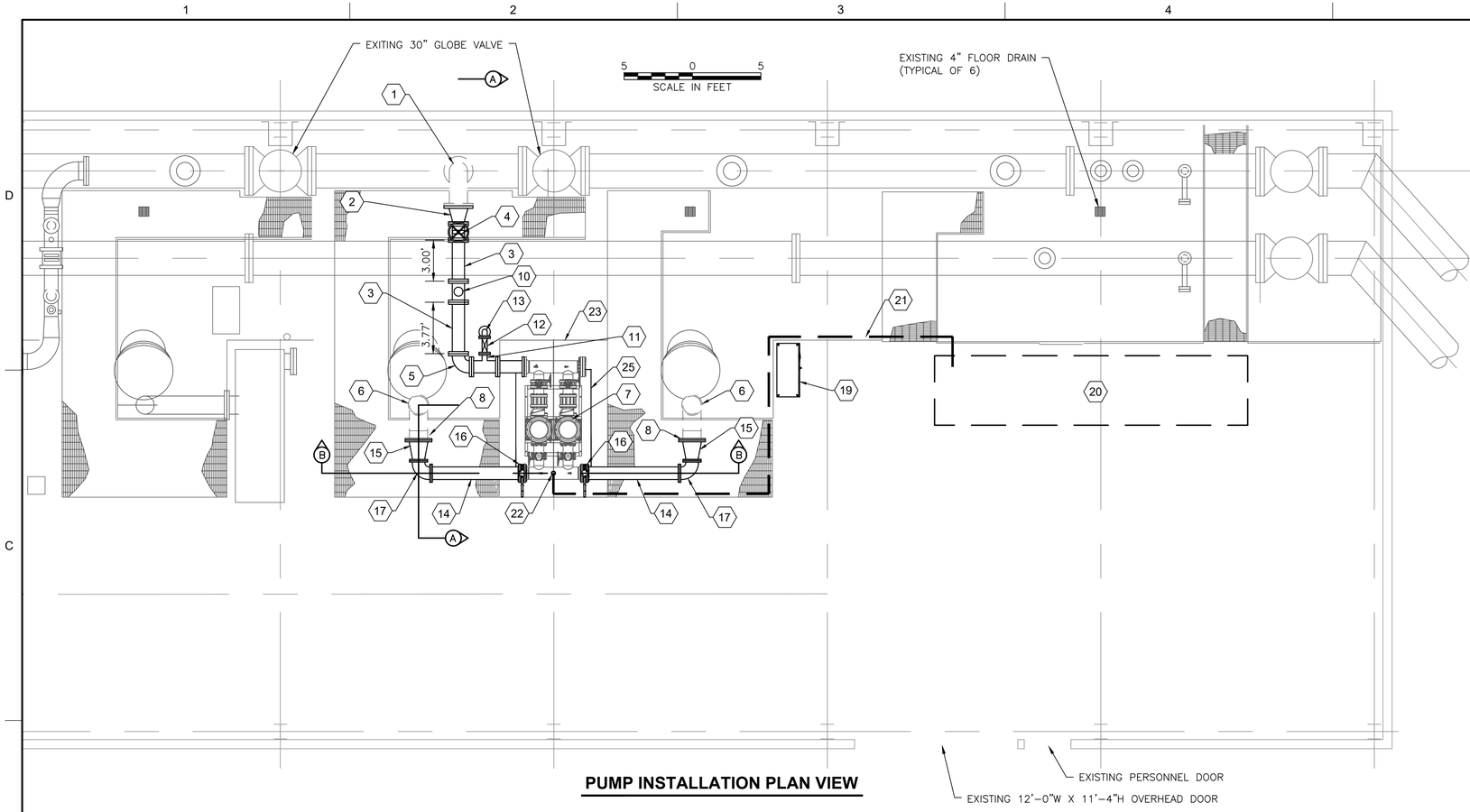
CIVIL

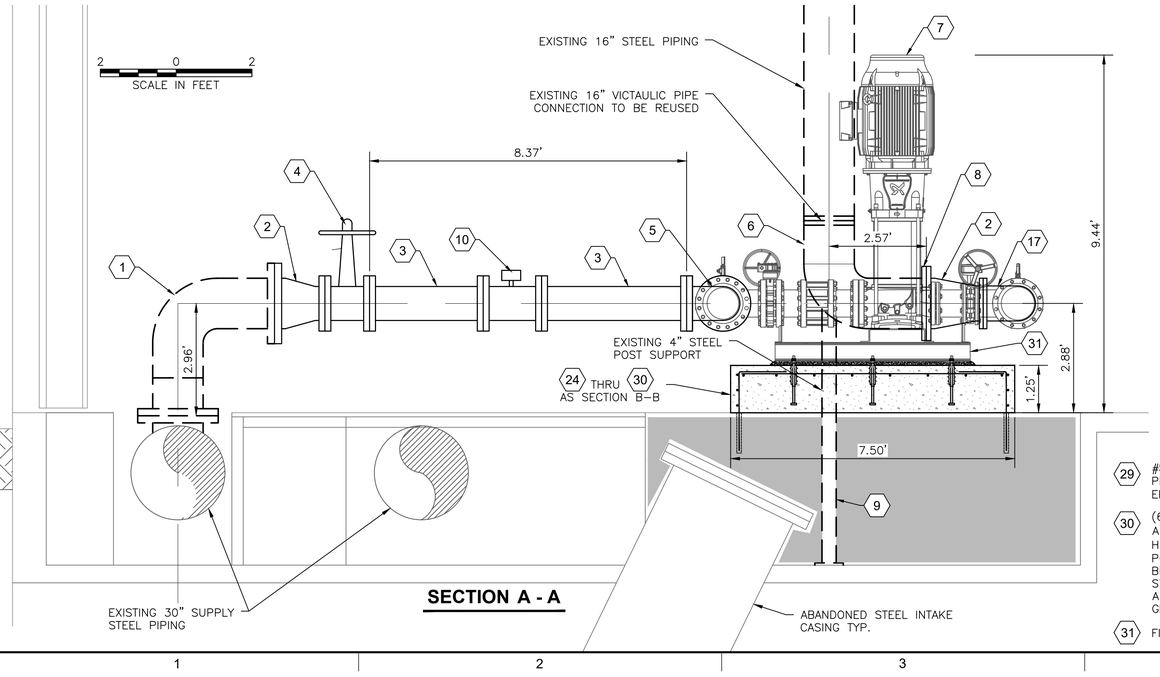
INTAKE BUILDING PHOTOS

DRAWING NUMBER
C-004

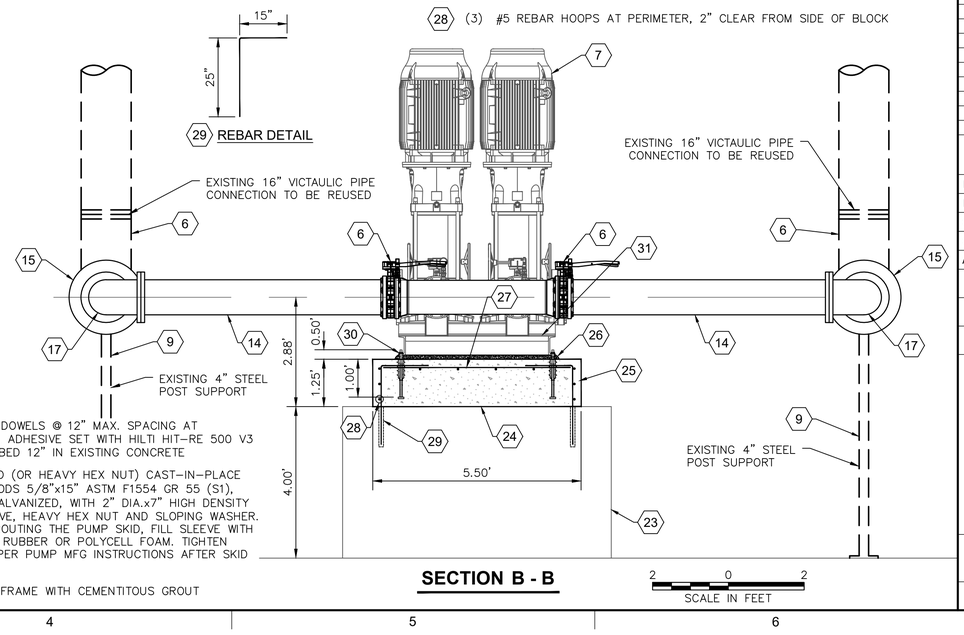
SHEET NUMBER 9 OF 54



PUMP INSTALLATION PLAN VIEW



SECTION A - A



SECTION B - B

SCALE IN FEET

1. EXISTING 16" STEEL 90° BEND W/ 300# ANSI B16.5 FL SHALL BE REPOSITIONED AS SHOWN
2. 16"x 10" STD. STEEL REDUCER W/ 300# FLxFL PER ANSI B16.5
3. 10" SCH. 40 STEEL PIPE SPOOL WITH PExFL-300# ANSI B16.5 AMD 300# WELDED SLIP ON FLANGE. ALL WELDS SHALL BE PER C206-88: AWWA STANDARD FOR FIELD WELDING OF STEEL WATER PIPE
4. 10" ANSI C515 KENNEDY 350psi RESILIENT WEDGE GATE VALVE W/ 300# FLxFL PER ANSI B16.5 & HANDWHEEL
5. 10" STD. STEEL 90° BEND W/ 300# FLxFL PER ANSI B16.5
6. EXISTING 16" STEEL 90° BEND WITH VICTAULIC CONNECTION SHALL BE REPOSITIONED AS SHOWN
7. GRUNDFOS "BOOSTER PACK" STAGE 2 PUMP PER SPECIFICATION SECTION 43 22 92.01
8. 16" 125# WELDED SLIP ON FLANGE PER ANSI B16.1. ALL WELDS SHALL BE PER C206-88: AWWA STANDARD FOR FIELD WELDING OF STEEL WATER PIPE
9. 4" STEEL SUPPORT POLE SHALL BE REUSED AND REBOLTED TO THE CONCRETE USING HILTI KWIK BOLT TZ2 WEDGE ANCHOR OR APPROVED EQUAL
10. 10" McCROMETER ULTA MAG FLOW METER MODEL UM 10-3SM050A3 MOUNT PER MANUFACTURE REQUIREMENTS W/ 300# FLxFL PER ANSI B16.5
11. 10"x4" TEE STD. STEEL W/ 300# FLxFLxFL PER ANSI B16.5
12. 4" CAL-VAL PRESSURE RELIEF VALVE MODEL 650-01 W/ 300# FLxFL PER ANSI B16.5 (SET TO 290 psi)
13. 4" STD. STEEL 90° BEND W/ 300# FLxFL PER ANSI B16.5
14. 10" SCH. 40 STEEL PIPE SPOOL WITH PExFL-125# ANSI B16.5 AMD 125# WELDED SLIP ON FLANGE. ALL WELDS SHALL BE PER C206-88: AWWA STANDARD FOR FIELD WELDING OF STEEL WATER PIPE
15. 16"x 10" STD. STEEL REDUCER W/ 125# FLxFL PER ANSI B16.5
16. 10" ANSI C504 & 516 RESILIENT WEDGE BUTTERFLY VALVE W/ 150# FLxFL PER ANSI B16.5. NOTE: SUPPLIED BY GRUNDFOS WITH "BOOSTER PUMP" PACKAGE
17. 10" STD. STEEL 90° BEND W/ 125# FLxFL PER ANSI B16.5
19. PUMP CONTROL CABINET. SEE ELECTRICAL DRAWINGS.
20. QUAGGA MUSSEL (QM) INHIBITOR CHEMICAL STORAGE AND METERING PUMP LOCATION PER SPECIFICATION SECTION 43 13 13.
21. QM CHEMICAL LINE; ROUTE ALONG FACE OF BUILDING SUMP; FASTEN TO CONCRETE PER APPLICABLE VOLUME 2 DRAWINGS DETAIL; SIZE PER METERING PUMP SYSTEM REQUREMENTS.
22. QM CHEMICAL INJECTION PORT; SIZE PER METERING PUMP SYSTEM REQUIREMENTS AND COORDINATE WITH STAGE 2 PUMP SKID.
23. EXISTING CONCRETE PUMP BLOCK
24. ROUGHEN CONCRETE SURFACE TO 1/4" AMPLITUDE, CLEAN AND APPLY BONDING AGENT
25. ADDED CONCRETE PUMP BLOCK. 4000 PSI, MAX. WATER/CEMENT RATIO IS 0.45
26. SET AND LEVEL PUMP BASE FRAME. THEN EPOXY GROUT UNDER FRAME CHANNELS (ROUGHEN AND CLEAN CONCRETE SURFACE AT GROUT CONTACT AREAS AND TAPE ANCHOR PROJECTION SO GROUT DOES NOT BOND TO ROD).
27. #5 REBAR @ 12" MAX. SPACING EACH WAY. 2" CLEAR FROM TOP OF BLOCK
28. (3) #5 REBAR HOOPS AT PERIMETER, 2" CLEAR FROM SIDE OF BLOCK
29. #5 REBAR DOWELS @ 12" MAX. SPACING AT PERIMETER, ADHESIVE SET WITH HILTI HIT-RE 500 V3 EPOXY, EMBED 12" IN EXISTING CONCRETE
30. (6) HEADED (OR HEAVY HEX NUT) CAST-IN-PLACE ANCHOR RODS 5/8"x15" ASTM F1554 GR 55 (S1), HOT DIP GALVANIZED, WITH 2" DIA.x7" HIGH DENSITY POLY SLEEVE, HEAVY HEX NUT AND SLOPING WASHER. BEFORE GROUTING THE PUMP SKID, FILL SLEEVE WITH SYNTHETIC RUBBER OR POLYCELL FOAM. TIGHTEN ANCHORS PER PUMP MFG INSTRUCTIONS AFTER SKID GROUTING.
31. FILL BASE FRAME WITH CEMENTITOUS GROUT

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CHECKED:
CHECKED:
APPROVED:

FILENAME
MC-ST-INTAKE-BLDG-ENG-21254-01.DWG
BC PROJECT NUMBER
CLIENT PROJECT NUMBER
CO10232

CIVIL

INTAKE BUILDING REDESIGN

DRAWING NUMBER
C-005

SHEET NUMBER 10 OF 54

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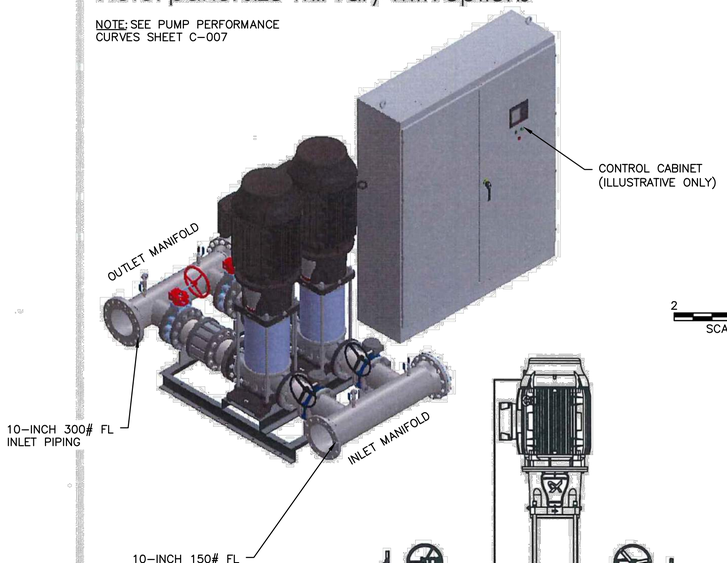
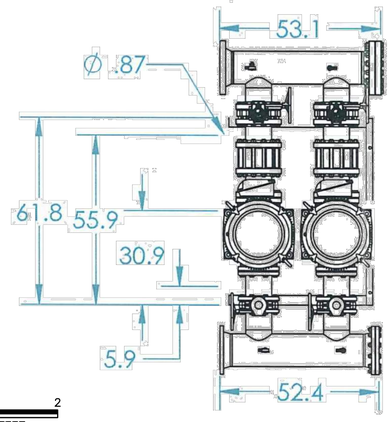
1. Manifolds 10" ANSI Class 150/300 (suction/discharge) AISI 316SS Schedule 10s ASTM A312 or ∅273.1mm x3mm
2. Base/Frame ASTM A36 Steel
3. Standard system layout: panel right facing suction
4. 8" lug style ANSI 150# & 300# class butterfly valve
5. UL Type 3R/12 rated electrical panel

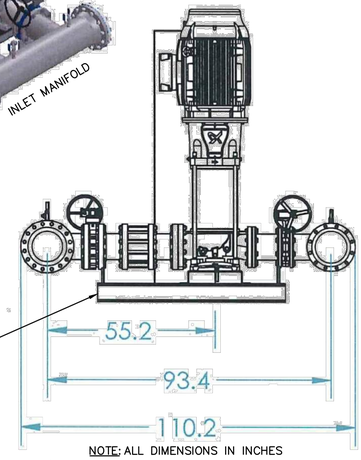
Note: panel size will vary with options

NOTE: SEE PUMP PERFORMANCE CURVES SHEET C–007

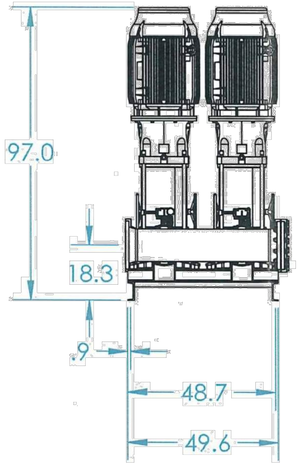


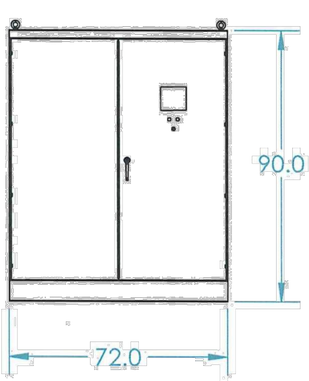


2 0 2
SCALE IN FEET



NOTE: ALL DIMENSIONS IN INCHES





GRUNDFOS
FRESNO, CALIFORNIA 93727 USA

Note:
All dimensions are ±0.5"
Not for Construction
All dimensions subject to change without notice.

Model: HYDRO MPC E 2CRN185-4-4
Power: 3x460 60HZ 2x150HP
Job:
Scale: 1:48
Dwg No: 8002141707 | Rev: 1 | Date: 8/14/2023 | Drawer: 79690 | Page: 1 of 1

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PAUL A. SWENSON
Date Signed 04/26/2024
ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: A. MATTIE
DRAWN: J. BRIDGEWATER
CHECKED:
CHECKED:
APPROVED:

FILENAME
MC-ST-INTAKE-BLDG-ENG-21254-01.DWG

BC PROJECT NUMBER

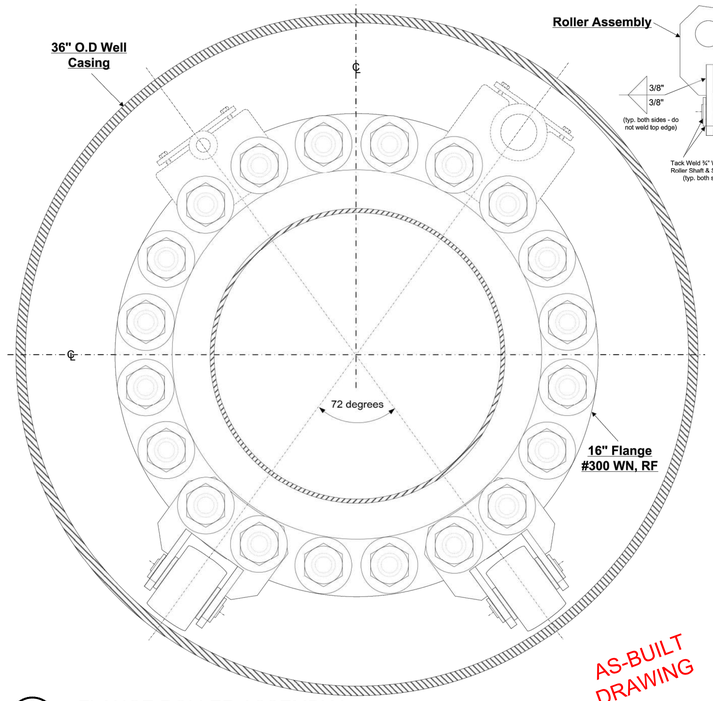
CLIENT PROJECT NUMBER
CO10232

CIVIL

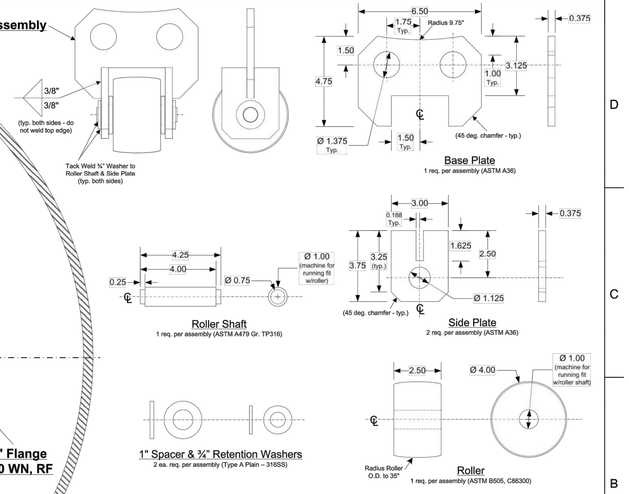
INTAKE BUILDING REDESIGN
STAGE 2 PUMP

DRAWING NUMBER
C-006

SHEET NUMBER 11 OF 54



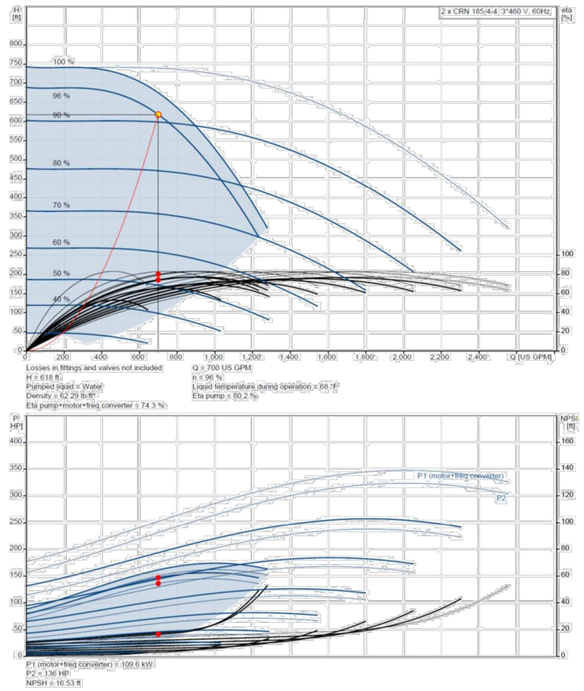
2 C-007 FLANGE ROLLER ASSEMBLY
NTS



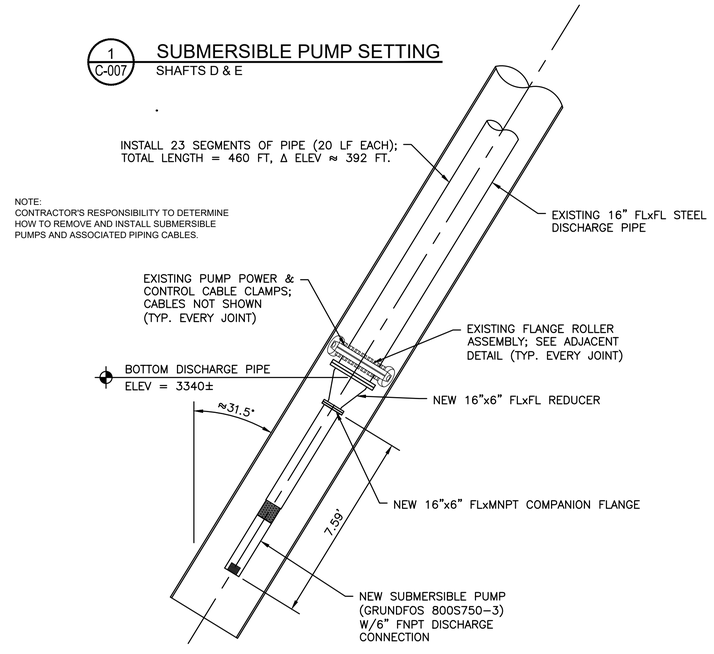
AS-BUILT DRAWING

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
2	Installation Record	09/23/09	P.Prinsze
1	Eliminated Roller Bushing	06/26/09	P.Prinsze
0	Issued for Construction	06/15/09	P. Prinsze

Salt River Project	NAVAJO GENERATING STATION				
	Submersible Lake Pump 16" Discharge Piping - Roller Assembly Details				
Generation Engineering	SIZE B	Charge Number P2510264-16	DWG NO SK2009-001		REV 2
Mechanical, Electrical, & Controls	SCALE 1in. = 4in.	Peter Prinsze	SHEET 5 OF 10		



3 C-007 STAGE 2 PUMP PREFORMANCE CURVE
NTS



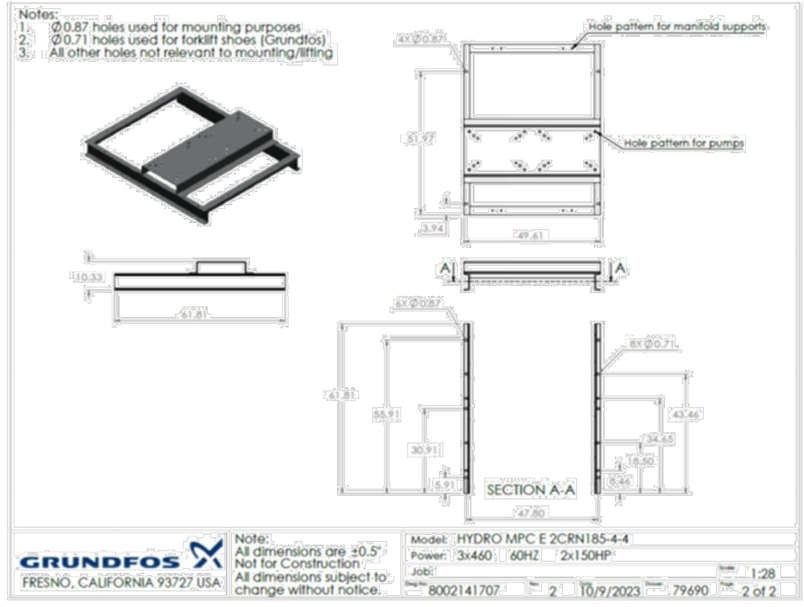
DISCHARGE PIPE NOTES:

1. REMOVE EXISTING FLANGED DISCHARGE PIPE AND EXISTING SUBMERSIBLE PUMP FROM INTAKE SHAFTS D & E.
2. ATTACH NEW REDUCER, FLANGE ADAPTER, SUBMERSIBLE PUMP TO DISCHARGE PIPE SEGMENT AND RE-INSTALL EXISTING DISCHARGE PIPE SEGMENTS INSIDE SHAFTS D & E TO THE DEPTH SHOWN.
3. EACH DISCHARGE PIPE JOINT SHALL HAVE A ROLLER ASSEMBLY AS SHOWN IN DETAIL 2/C-007. USE EXISTING HARDWARE FOR ALL JOINT ASSEMBLIES. SEE ELECTRICAL FOR POWER AND CONTROL CABLE REQUIREMENTS.
4. CONTRACTOR'S RESPONSIBILITY TO DETERMINE HOW TO REMOVE AND INSTALL SUBMERSIBLE PUMPS AND ASSOCIATED PIPING AND CABLES. ON-SITE FRAME AND HOIST AVAILABLE AS SHOWN IN PHOTO ON SHEET C-004.

4 C-007 STAGE 2 PUMP FRAME ASSEMBLY
NTS

FRAME ASSEMBLY NOTES:

1. ALL FRAME MATERIALS SHALL BE PER GRUNDFOS REQUIREMENTS.
2. GRUNDFOS PUMP SKID SHALL BE FACTORY ASSEMBLED AND TESTED.
3. ALL GRUNDFOS INSTALLATION REQUIREMENTS SHALL BE FOLLOWED BY THE CONTRACTOR.



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Registered Professional Engineer (Civil)
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ARIZONA, U.S.A.

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VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS		
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DRAWN:	J. BRIDGEWATER
CHECKED:	
CHECKED:	
APPROVED:	
FILENAME	MC-ST-INTAKE-BLDG-ENG-21254-01.DWG
BC PROJECT NUMBER	
CLIENT PROJECT NUMBER	CO10232

CIVIL

INTAKE BUILDING REDESIGN STAGE 1 SUBMERSIBLE PUMP

DRAWING NUMBER
C-007

SHEET NUMBER 12 OF 54

Path: \\BIL-FS\BIL-PROJECTS\28\21254-01\65CAD\CIVIL FILENAME: MC-ST-INTAKE-BLDG-ENG-21254-01.DWG PLOT DATE: 4/22/2024 10:13 AM CAD USER: JOHN BRIDGEWATER

Path: \\BIL-FS\BIL-PROJECTS\280\21254-01165\CAD\CIVIL FILENAME: SC-CU-SP-INTAKE-LECHEE.DWG PLOT DATE: 4/22/2024 10:14 AM CAD USER: JOHN BRIDGEWATER

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CHECKED:
CHECKED:
APPROVED:

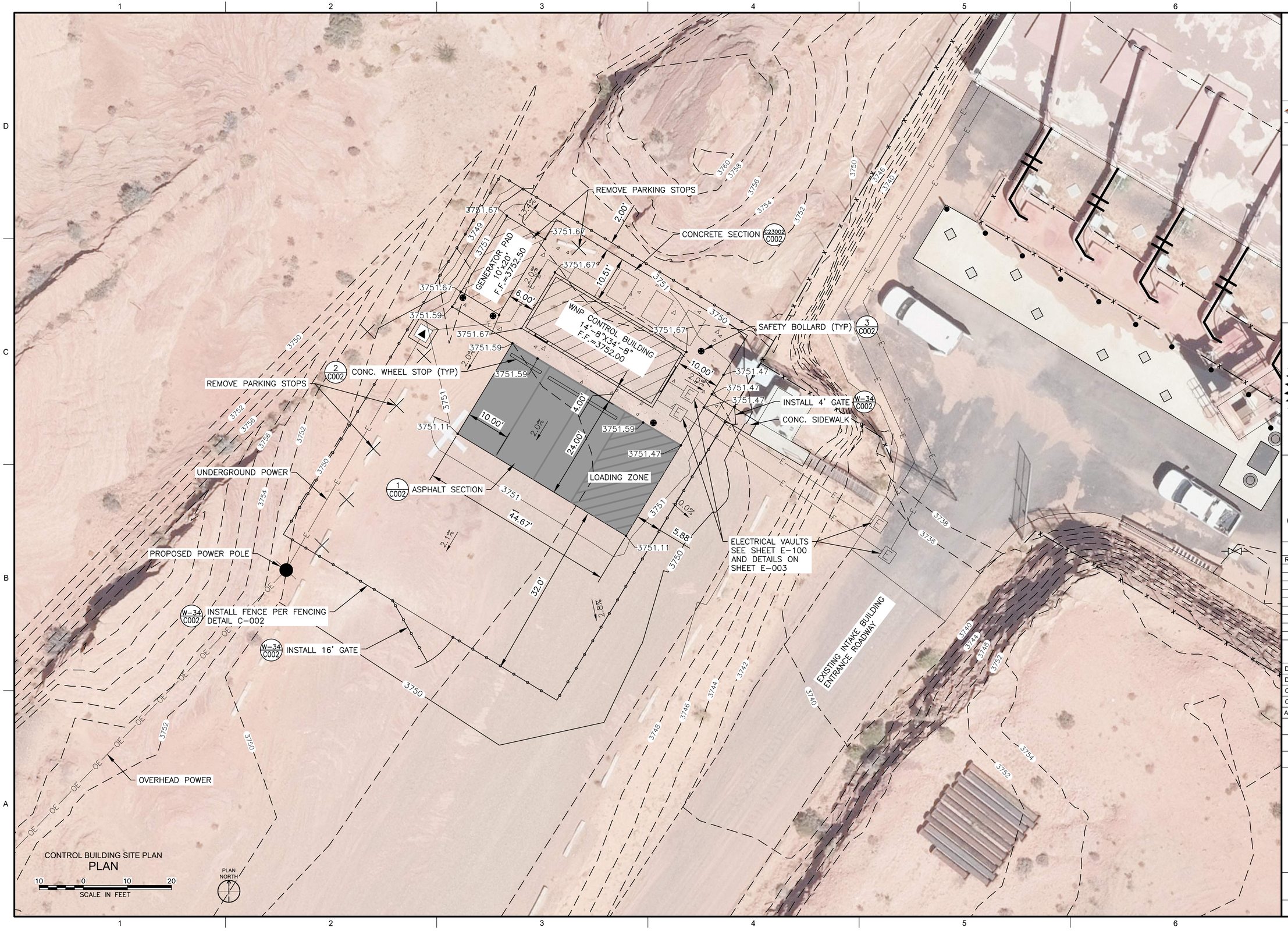
FILENAME
SC-CU-SP-INTAKE-LECHEE.DWG
BC PROJECT NUMBER
CLIENT PROJECT NUMBER
CO10232

CIVIL

INTAKE OVERALL SITE AND GRADING PLAN

DRAWING NUMBER
C-100

13 SHEET NUMBER OF 54



CONTROL BUILDING SITE PLAN
PLAN

10 0 10 20
SCALE IN FEET

PLAN NORTH

Path: \\BIL-FS\BIL-PROJECTS\28\21254-01\65CAD\CIVIL FILENAME: SC-CU-SP-CNTRL-LECHEE.DWG PLOT DATE: 4/22/2024 10:16 AM CAD USER: JOHN BRIDGEWATER

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VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: AJM
DRAWN: JMB
CHECKED:
CHECKED:
APPROVED:

FILENAME
SC-CU-SP-CNTRL-LECHEE.DWG
BC PROJECT NUMBER
CLIENT PROJECT NUMBER
4028.21254.01

CIVIL

CONTROL BUILDING SITE AND GRADING PLAN

DRAWING NUMBER
C-101

SHEET NUMBER 14 OF 54

GENERAL

G 1 SCOPE
THE GENERAL NOTES AND STANDARD DETAILS ARE GENERAL AND APPLY TO THE ENTIRE PROJECT EXCEPT WHERE THERE ARE SPECIFIC INDICATIONS TO THE CONTRARY.

G 2 PRECEDENCE
IF THERE IS A CONFLICT BETWEEN PROJECT SPECIFICATIONS AND STRUCTURAL DRAWINGS, INCLUDING STRUCTURAL NOTES, CONTACT THE STRUCTURAL ENGINEER OF RECORD FOR CLARIFICATION. SPECIFIC NOTES AND DETAILS ON DRAWINGS TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS.

G 3 DIMENSIONS
STRUCTURAL DIMENSIONS CONTROLLED BY OR RELATED TO THE MECHANICAL OR ELECTRICAL EQUIPMENT AND DIMENSIONS RELATED TO EXISTING FACILITIES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL CONSTRUCTION DIMENSIONS AND NOTIFYING CONSTRUCTION MANAGER OF DISCREPANCIES IN A TIMELY FASHION.

G 4 PROVISIONS FOR EQUIPMENT
MECHANICAL AND ELECTRICAL EQUIPMENT SUPPORTS, ANCHORAGES, OPENINGS, RECESSES AND EMBEDMENTS NOT SPECIFIED ON THE STRUCTURAL DRAWINGS, BUT SPECIFIED ON OTHER CONTRACT DRAWINGS, SHALL BE PROVIDED PRIOR TO CASTING CONCRETE.

G 5 MEANS, METHODS & CONSTRUCTION LOADS
CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. CONTRACTOR IS RESPONSIBLE FOR MEANS, METHODS AND SEQUENCE OF CONSTRUCTION, AND SHALL MAKE ADEQUATE PROVISION TO MAINTAIN THE INTEGRITY OF ALL STRUCTURES AT ALL STAGES OF CONSTRUCTION. DETERMINATION OF AND PROVISIONS FOR CONSTRUCTION LOADING SHALL BE PROVIDED BY THE CONTRACTOR.

G 6 SAFETY
CONTRACTOR SHALL TAKE ADEQUATE PRECAUTIONS TO ENSURE THE SAFETY OF WORKERS AND VISITORS TO THE SITE, INCLUDING BUT NOT LIMITED TO SHORING, BRACING AND ACCESS RESTRICTION. COMPLY WITH ALL FEDERAL, STATE AND LOCAL SAFETY CODES AND STANDARDS.

G 7 DRAINAGE SURFACES
SLOPE DRAINAGE SURFACES UNIFORMLY TO DRAIN. SLOPE SHALL BE 1/8" TO 1/4" PER FOOT EXCEPT WHERE NOTED OTHERWISE ON THE PLANS.

G 8 OPENINGS
OPENINGS THROUGH NEW AND EXISTING WALLS AND SLABS FOR PIPES, DUCTS, CONDUITS, ETC., ARE NOT ALL SHOWN ON THE STRUCTURAL DRAWINGS. THE CONTRACTOR SHALL COORDINATE WITH OTHER DISCIPLINES AND PROVIDE THESE OPENINGS IN ACCORDANCE WITH THE OTHER CONTRACT DOCUMENTS.

DESIGN CRITERIA

DESIGN CRITERIA

D 1 GOVERNING BUILDING CODE
CONSTRUCTION AND DESIGN SHALL BE IN ACCORDANCE WITH THE 2018 INTERNATIONAL BUILDING CODE. THIS CODE SHALL GOVERN EXCEPT WHERE OTHER APPLICABLE CODES OR CONTRACT PROVISIONS ARE MORE RESTRICTIVE.

D 2 LIVE LOADS
1. PUMP STATION ROOF LIVE LOAD....................20 PSF
2. SLAB ON GRADE LIVE LOAD....................250 PSF

D 3 SNOW LOADS
CONTROL BUILDING
GROUND SNOW LOAD .... p_g = 30 PSF
SNOW EXPOSURE FACTOR .... C_e = 0.9
THERMAL FACTOR .... C_t = 1.1
SNOW LOAD IMPORTANCE FACTOR .... I_s = 1.1
FLAT ROOF SNOW LOAD .... p_f = 24 PSF
PLUS DRIFT LOADS IN ACCORDANCE WITH ASCE 7-16

D 4 WIND
RISK CATEGORY IV
EXPOSURE CATEGORY C
TOPOGRAPHIC FACTOR .... K_{ZT}= 1.0
CONTROL BUILDING
BASIC WIND SPEED (ULTIMATE).................... 115 MPH

D 5 SEISMIC
MCE ACCELERATION, SHORT PERIOD .... S_S = 0.31 g
MCE ACCELERATION, 1-SEC PERIOD .... S_1 = 0.096 g
SITE CLASS .... B
DESIGN ACCEL, SHORT PERIOD .... S_{DS} = 0.186 g
DESIGN ACCEL, 1-SEC PERIOD .... S_{D1} = 0.051 g
RISK CATEGORY IV
SEISMIC IMPORTANCE FACTOR .... I_e = 1.5 I_P = 1.5,
SEISMIC DESIGN CATEGORY C
CONTROL BUILDING
ORDINARY REINFORCED MASONRY SHEAR WALLS
(ASCE 7-16, TABLE 12.2-1) .... R = 2 Ω_o = 2.5
ANALYSIS PROCEDURE: EQUIVALENT LATERAL FORCE

FOUNDATION

F 1 DESIGN BASIS
FOUNDATION DESIGN IS BASED ON RECOMMENDATIONS CONTAINED IN THE GEOTECHNICAL REPORT, "LECHEE PIPELINE AND BOOSTER PUMP STATION, LECHEE, AZ" BY WOOD ENVIRONMENT & INFRASTRUCTURE SOLUTIONS, INC. DATED 06/10/21 AND ITS AMENDMENT DATED 6/29/22. CONTRACTOR SHALL FOLLOW THE PROJECT SPECIFICATIONS AND TAKE INTO CONSIDERATION RECOMMENDATIONS CONTAINED IN THE REPORT. NOTIFY THE CONSTRUCTION MANAGER OF CONFLICTS BETWEEN SPECIFICATIONS AND THE REPORT RECOMMENDATIONS FOR RESOLUTION.

F 2 ALLOWABLE BEARING PRESSURE
SHALLOW FOUNDATIONS SHALL BEAR ON AT LEAST 3 FEET OF STRUCTURAL FILL OVER NATIVE SOILS OR EXTENDING TO NEAR SURFACE BEDROCK, WHICHEVER IS LESS AND HAVE BEEN DESIGNED FOR AN ALLOWABLE BEARING PRESSURE OF 3,000 PSF.

F 3 MINIMUM FOUNDATION PREPARATION
ALL NEW FOUNDATIONS, BEDDING MATERIAL AND SLAB ON GRADE FLOORS SHALL BE SUPPORTED ON A MINIMUM OF 3 FEET OF PROPERLY PLACED AND COMPACTED STRUCTURAL FILL OVER NATIVE SOILS OR EXTENDING TO NEAR SURFACE BEDROCK, WHICHEVER IS LESS (SEE GEOTECHNICAL REPORT).

F 4 DIFFERING CONDITIONS
FOUNDATION CONDITIONS NOTED DURING CONSTRUCTION WHICH DIFFER FROM THOSE INDICATED IN THE REPORT SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE CONSTRUCTION MANAGER. CONTRACTOR IS RESPONSIBLE FOR REPLACING WORK CONDUCTED AFTER SUCH NOTIFICATION BUT BEFORE CONSTRUCTION MANAGER PROVIDES ADDITIONAL DIRECTIONS.

F 5 EXCAVATION, DE-WATERING & SAFETY
CONTRACTOR SHALL PROVIDE FOR ALL DE-WATERING OF EXCAVATIONS, AND DESIGN / PROVIDE ALL CRIBBING, SHORING AND BRACING REQUIRED FOR SAFETY AND TO ALLOW CONSTRUCTION OF THE WORK PRESENTED HEREIN.

F 6 STRUCTURAL BACKFILL
UNLESS NOTED OTHERWISE, STRUCTURAL BACKFILL SHALL BE PLACED IN UNIFORM LAYERS AND SHALL BE BROUGHT UP UNIFORMLY AROUND THE STRUCTURE. ADDITIONALLY, BACKFILL SHALL BE BROUGHT UP UNIFORMLY ON BOTH SIDES OF FOUNDATION WALLS. SEE SPECIFICATION 02200 FOR ADDITIONAL INFORMATION.

CONCRETE

C 1 APPLICABLE CODES
CONCRETE CONSTRUCTION SHALL CONFORM TO ACI 301-16 "SPECIFICATIONS FOR STRUCTURAL CONCRETE", AND THE FOLLOWING CODES:
ACI 318-14 "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"

C 2 REINFORCING STEEL DETAILS
ALL DETAILING, FABRICATION AND ERECTION OF REINFORCING BARS, UNLESS OTHERWISE NOTED, SHALL BE IN ACCORDANCE WITH ACI DETAILING MANUAL (ACI SP-66), LATEST EDITION.

C 3 DESIGN STRENGTH
1. STRUCTURAL CAST-IN-PLACE CONCRETE .... f'c = 4,500 PSI
2. REINFORCING STEEL .... ASTM A615, GRADE 60 DEFORMED BARS UNLESS OTHERWISE NOTED

C 4 CONCRETE COVER
CONCRETE COVER FOR REINFORCING BARS SHALL CONFORM TO ACI 318 AND AS FOLLOWS WITH MINIMUM COVER OF ONE BAR DIAMETER:
1. CONCRETE CAST AGAINST EARTH .... 3"
2. CONCRETE EXPOSED TO EARTH, WASTEWATER, CHEMICALS OR WEATHER .... 2"
3. CONCRETE NOT EXPOSED TO EARTH, WASTEWATER, CHEMICALS OR WEATHER .... 1-1/2"

C 5 BAR DEVELOPMENT AND LAP SPLICE LENGTH
SEE TABLE AT THE END OF THESE STRUCTURAL NOTES. IN SLABS, BEAMS, GIRDERS AND HORIZONTAL REINFORCING AT WALLS, SPLICES OF ADJACENT REINFORCING STEEL BARS SHALL BE STAGGERED AT LEAST ONE SPLICE LENGTH, UNLESS OTHERWISE SPECIFIED.

C 6 STANDARD HOOKS
BARS ENDING IN RIGHT ANGLE BENDS OR HOOKS SHALL CONFORM TO THE REQUIREMENTS OF ACI 318-16. PROVIDE STANDARD HOOK IN BARS WHICH TERMINATE AT WALL OR SLAB EDGES / INTERSECTIONS THAT PROVIDE LESS THAN THE SPECIFIED DEVELOPMENT LENGTH.

C 7 CHAMFERS
EXCEPT AS OTHERWISE REQUIRED, EXPOSED CONCRETE CORNERS AND EDGES SHALL HAVE 3/4" CHAMFERS. RE-ENTRANT CORNERS SHALL NOT HAVE FILLETS.

C 8 ANCHOR BOLTS
ANCHOR BOLTS SHALL BE STAINLESS STEEL TYPE 316 MATERIAL UNLESS OTHERWISE NOTED (SEE SPECIFICATIONS).

C9 COMPATIBLE FINISHES
CURING COMPOUNDS AND OTHER SURFACE TREATMENTS, CONCRETE ADMIXTURES AND SUB-SLAB DRAINAGE SHALL BE REVIEWED BY CONTRACTOR AND CERTIFIED COMPATIBLE WITH FINISHES TO BE APPLIED LATER IN THE CONSTRUCTION SEQUENCE.

GROUT

GR 1 EQUIPMENT GROUTING
SEE MECHANICAL SPECIFICATIONS AND SPECIFICATION SECTION 03600, GROUT.

GR 2 EPOXY ADHESIVE GROUT AT ANCHORS INTO CONCRETE: HILTI HIT-RE 500v3 EPOXY ADHESIVE ANCHOR SYSTEM BY HILTI INC. OR EQUAL APPROVED BY ENGINEER OF RECORD. INSTALLERS OF HORIZONTAL OR UPWARDLY INCLINED ADHESIVE ANCHORS SHALL BE CERTIFIED IN ACCORDANCE WITH THE ACI / CRSI ADHESIVE ANCHOR INSTALLER CERTIFICATION PROGRAM.

GR 3 MASONRY ADHESIVE ANCHORS: HILTI HIT-HY 270.

REINFORCED CONCRETE MASONRY

MA1 APPLICABLE CODES
REINFORCED CONCRETE MASONRY SHALL CONFORM TO THE FOLLOWING CODES:
TMS 402-16: "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES"
TMS 602-16: "SPECIFICATION FOR MASONRY STRUCTURES"

MA 2 CONCRETE MASONRY UNITS (CMU) SHALL BE HOLLOW LOAD BEARING UNITS CONFORMING TO ASTM C90, MEDIUM WEIGHT.

MA 3 SPECIFIED COMPRESSIVE STRENGTH OF CONCRETE MASONRY (f'm) = 2,000 PSI.

MA 4 CMU WALLS SHALL BE SOLID GROUTED.

MA 5 MORTAR SHALL BE TYPE S CONFORMING TO ASTM C270.

MA 6 CMU AND MORTAR AT WEATHER ENCLOSURE WALLS OR AT ELECTRICAL CONTROL ROOMS IN HIGH MOISTURE ENVIRONMENTS SHALL CONTAIN "DRY BLOCK ADMIXTURE" AS MANUFACTURED BY W.R. GRACE CO., AMOUNT PER MANUFACTURER'S RECOMMENDATION.

MA 7 GROUT SHALL BE f'c = 2,000 PSI CONFORMING TO ASTM C476.

MA 8 REINFORCING STEEL SHALL BE ASTM A615, GRADE 60 DEFORMED BARS.

MA 9 RUNNING BOND SHALL BE USED THROUGHOUT.

MA 10 USE 3/8" FLUSH MORTAR JOINTS THROUGHOUT, TOOLED CONCAVE.

MA11 REINFORCING STEEL SHALL BE SECURED INTO PLACE USING REBAR POSITIONERS PRIOR TO GROUTING.

STEEL

ST 1 ALL STRUCTURAL STEEL WORK SHALL BE IN ACCORDANCE WITH THE AISC "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" (AISC 360-16) AND AISC "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" (AISC 303-16).

ST 2 MATERIALS
1. STEEL WIDE FLANGE SHAPES SHALL CONFORM TO ASTM A992. OTHER STEEL SHAPES AND PLATES SHALL CONFORM TO ASTM A36.
2. ALL STAINLESS STEEL SHALL BE TYPE 316 MEETING ASTM A276 FOR BARS AND SHAPES, AND ASTM A240 FOR PLATES, UNLESS OTHERWISE SPECIFIED. ALL STAINLESS STEEL SHALL BE PASSIVATED PER ASTM A380.

ST 3 WELDING
1. WELDING SHALL CONFORM TO AWS D1.1-1.
2. ELECTRODES FOR SHOP AND FIELD WELDS SHALL CONFORM TO AWS A5.1 OR A5.5, CLASS E70XX.
3. STAINLESS STEEL WELDING SHALL CONFORM TO AWS D1.6 WITH A5.4 OR A5.9 ELECTRODES.

ST 4 BOLTS
STRUCTURAL BOLTS AT STEEL FRAMING SHALL BE GALVANIZED AND CONFORM TO ASTM A325N (TYPE 1) FOR CONNECTION OF GALVANIZED OR PAINTED FRAMING. HIGH STRENGTH BOLTS SHALL BE FULLY TENSIONED UNLESS CONNECTING HSS SHAPES OR OTHERWISE NOTED. STAINLESS STEEL TYPE 316 BOLTS SHALL BE USED FOR CONNECTION OF STAINLESS STEEL FRAMING.

ST 5 EXPANSION ANCHORS SHALL BE STAINLESS STEEL "KWIK BOLT TZ2" BY HILTI INC. OR EQUAL APPROVED BY OWNER.

STEEL ROOF DECK

SD 1 DECKING SHALL BE NUCOR VULCRAFT MANUFACTURING COMPANY TYPE 1.5B-36 PROFILE, 1 1/2" DEEP, 18 GAUGE, GALVANIZED (G-50), OR EQUAL AS APPROVED BY OWNER.

SD 2 ALL STEEL ROOF DECK FLASHING SHALL BE 22 GAUGE MINIMUM, G-50 GALVANIZED STEEL UNLESS NOTED OTHERWISE ON DRAWINGS.

SD 3 DECK SHALL BE CONTINUOUS OVER THREE SPANS MINIMUM.

Brown AND Caldwell
SALT LAKE CITY, UT

62969
JERRY A.
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VOLUME 1 -
LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES
AT FULL SIZE

DESIGNED: A. QADAN
DRAWN: T. BOWMAN
CHECKED: J. SIMON
CHECKED:
APPROVED: S. BRENCHLEY
FILENAME

BC PROJECT NUMBER
150360
CLIENT PROJECT NUMBER
C010232

STRUCTURAL

GENERAL STRUCTURAL NOTES

DRAWING NUMBER
S-001
15 SHEET NUMBER OF 54

Plot Date: 4/15/2024 1:47:30 PM Path: BIM 360://150360 - Western Navajo Pipeline (LeChee)/150360-S-CTRLBLDG_V21.rvt

TABLE 1

REQUIRED SPECIAL INSPECTIONS - STRUCTURAL SYSTEMS

SYSTEM OR MATERIAL	REQUIRED INSPECTION	FREQUENCY OF INSPECTION		REMARKS
		CONTINUOUS	PERIODIC	
SOILS	VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL		X	
	VERIFY SOIL MATERIALS BELOW FOOTINGS ARE ADEQUATE TO ACHIEVE DESIGN BEARING CAPACITY		X	
	PRIOR TO PLACEMENT OF COMPACTED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY		X	
	PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS		X	SEE TABLE 2
	VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL	X		SEE TABLE 2
CONCRETE	INSPECT FORMWORK FOR LOCATION AND DIMENSIONS OF MEMBER BEING FORMED		X	
	VERIFY MATERIAL FOR REINFORCEMENT		X	CONTRACTOR TO SUBMIT CERTIFIED MILL TEST REPORTS
	REINFORCING STEEL PLACEMENT		X	
	INSPECT ANCHORS TO BE CAST IN CONCRETE		X	PRIOR TO AND DURING CONCRETE PLACEMENT
	INSPECT POST-INSTALLED CONCRETE ANCHORS: - HORIZONTAL AND UPWARDLY INCLINED ADHESIVE ANCHORS - OTHER ANCHORS UNLESS ICC REPORT REQUIRED CONTINUOUS INSPECTION	X	X	INSPECTION TO CONFORM TO IBC AND TO ANCHOR MANUFACTURER'S RECOMMENDATIONS AND ICC REPORTS
	VERIFY USE OF REQUIRED CONCRETE MIX DESIGN(S)		X	
	AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND TEMPERATURE OF CONCRETE	X		CONTINUOUS DURING PREPARATION OF SAMPLES
	CONCRETE PLACEMENT	X		
	INSPECTION FOR MAINTENANCE OF CURING PROCEDURES AND TEMPERATURE		X	VERIFY APPROPRIATE CURING METHOD HAS BEEN IMPLEMENTED AFTER EACH POUR
	VERIFY IN-SITU CONCRETE STRENGTH PRIOR TO REMOVAL OF SHORES AND FORMS FROM STRUCTURAL SLABS AND BEAMS		X	
	CEMENTITIOUS GROUTING OF BASE PLATES AND EPOXY GROUTING FOR EQUIPMENT MOUNTING	X		
STRUCTURAL STEEL	FABRICATION OF STRUCTURAL ELEMENTS			FABRICATOR SHALL BE APPROVED IN ACCORDANCE WITH IBC, CHAPTER 17 TO PERFORM WORK WITHOUT SPECIAL INSPECTION
	VERIFY MATERIAL OF ANCHOR BOLTS AND THREADED RODS		X	CONTRACTOR TO SUBMIT MANUFACTURER'S CERTIFIED TEST REPORTS
	VERIFY MATERIAL OF HIGH-STRENGTH BOLTS, NUTS AND WASHERS		X	CONTRACTOR TO SUBMIT MANUFACTURER'S CERTIFIED TEST REPORTS
	VERIFY MATERIAL FOR STRUCTURAL STEEL SHAPES, PLATES, BARS, ETC.		X	CONTRACTOR TO SUBMIT CERTIFIED MILL TEST REPORTS
	VERIFY MATERIALS FOR WELD FILLER MATERIALS		X	
	VERIFY WELDER QUALIFICATIONS		X	CONTRACTOR TO SUBMIT WELDERS CERTIFICATES
	VERIFY USE OF PROPER WELDING PROCEDURES		X	
	INSPECT COMPLETE AND PARTIAL-PENETRATION GROOVE WELDS, MULTI-PASS FILLET WELDS, AND SINGLE-PASS FILLET WELDS GREATER THAN 5/16"	X		
	INSPECT SINGLE-PASS FILLET WELDS LESS THAN OR EQUAL TO 5/16"		X	VISUALLY INSPECT ALL WELDS
	INSPECT HIGH-STRENGTH BEARING-TYPE BOLTED CONNECTIONS		X	
	VERIFY TYPE, DEPTH AND GAGE OF DECKING		X	

TABLE 1

REQUIRED SPECIAL INSPECTIONS - STRUCTURAL SYSTEMS

SYSTEM OR MATERIAL	REQUIRED INSPECTION	FREQUENCY OF INSPECTION		REMARKS
		CONTINUOUS	PERIODIC	
	INSPECT INSTALLATION (ATTACHMENT) OF DECKING		X	
	INSPECT FRAME TO VERIFY THAT BRACING, STIFFENERS, MEMBER LOCATIONS AND JOINT DETAILS COMPLY WITH APPROVED CONSTRUCTION DRAWINGS		X	
MASONRY	VERIFY PROPORTIONS OF SITE -PREPARED MORTAR AND GROUT		X	AT START OF MASONRY CONSTRUCTION
	VERIFY SPECIFIED TYPE, GRADE AND SIZE OF REINFORCEMENT		X	CONTRACTOR TO SUBMIT CERTIFIED MILL TEST REPORTS
	VERIFY MATERIALS FOR MASONRY UNITS, MORTAR, GROUT, ANCHORS, TIES AND ACCESSORIES		X	CONTRACTOR TO SUBMIT MANUFACTURER'S CERTIFIED COMPLIANCE REPORTS
	VERIFY TYPE, SIZE, LOCATION AND INSTALLATION OF EMBEDDED CONNECTORS AND ANCHORS		X	
	VERIFY SIZE AND LOCATION OF STRUCTURAL ELEMENTS		X	
	VERIFY TYPE, SIZE AND LOCATION OF ANCHORAGE OF MASONRY TO OTHER CONSTRUCTION		X	
	VERIFY PROTECTION PROVISIONS FOR COLD AND HOT WEATHER MASONRY CONSTRUCTION		X	
	PLACEMENT OF MASONRY UNITS AND CONSTRUCTION OF MORTAR JOINTS		X	
	REINFORCING STEEL PLACEMENT		X	
	VERIFY GROUT SPACE IS CLEAN		X	
	VERIFY PROPORTIONS OF GROUT; USE OF REQUIRED GROUT MIX DESIGN		X	
	OBSERVE GROUT PLACEMENT	X		
	OBSERVE PREPARATION OF ANY GROUT OR MORTAR SPECIMENS AND/OR PRISMS	X		CONTINUOUS DURING PREPARATION OF SAMPLES

QUALITY ASSURANCE NOTES

1. THE QUALITY OF THE WORKMANSHIP AND THE QUALITY OF THE MATERIALS OF CONSTRUCTION ARE GOVERNED BY THE INTERNATIONAL BUILDING CODE, 2018 EDITION (IBC).
2. ALL NEW STRUCTURES AND MODIFICATIONS TO EXISTING STRUCTURES TO BE CONSTRUCTED AS A PART OF THIS PROJECT ARE CLASSIFIED AS RISK CATEGORY III IN ACCORDANCE WITH THE IBC. THE STRUCTURES ARE CLASSIFIED AS SEISMIC DESIGN CATEGORY B.
3. TO ASSURE THE QUALITY OF THE CONSTRUCTION OF THIS PROJECT, STRUCTURAL TESTS, SPECIAL INSPECTION AND STRUCTURAL OBSERVATION WILL BE PERFORMED IN ACCORDANCE WITH IBC, CHAPTER 17.
4. WHERE FREQUENCY OF INSPECTION IS SPECIFIED TO BE CONTINUOUS, THE SPECIAL INSPECTOR IS EXPECTED TO BE PRESENT IN THE AREA WHERE THE WORK IS BEING PERFORMED AND PROVIDING FULL-TIME OBSERVATION OF THE WORK REQUIRING SPECIAL INSPECTION.
5. WHERE FREQUENCY OF INSPECTION IS SPECIFIED TO BE PERIODIC, THE SPECIAL INSPECTOR IS EXPECTED TO BE PRESENT IN THE AREA WHERE THE WORK HAS BEEN OR IS BEING PERFORMED AND AT THE COMPLETION OF THE WORK (PRIOR TO THE NEXT CONSTRUCTION TASK).
6. SPECIAL INSPECTIONS ARE IN ADDITION TO INSPECTIONS BY THE BUILDING OFFICIALS. CONSTRUCTION IS SUBJECT TO INSPECTION BY THE BUILDING OFFICIAL. COORDINATE WITH BUILDING DEPARTMENT TO DETERMINE REQUIRED INSPECTIONS.
7. CONTRACTOR SHALL PROVIDE ACCESS TO THE WORK FOR REQUIRED INSPECTIONS. CONTRACTOR SHALL PROVIDE NOTIFICATION IN ADVANCE OF REQUIRED INSPECTIONS, TESTING AND STRUCTURAL OBSERVATIONS.

Brown AND Caldwell

SALT LAKE CITY, UT

STATE OF UTAH — #2969 JERRY A. SIMON — REGISTERED PROFESSIONAL ENGINEER — 4/15/24

GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: A. QADAN
DRAWN: T. BOWMAN
CHECKED: J. SIMON
CHECKED:
APPROVED: S. BRENCHLEY

FILENAME

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

STRUCTURAL

SPECIAL INSPECTION NOTES - 1

DRAWING NUMBER
S-002

SHEET NUMBER 16 OF 54

Plot Date: 4/15/2024 1:47:30 PM Path: BIM 360://150360 - Western Navajo Pipeline (LeChee)/150360-S-CTRLBLDG_V21.rvt

SPECIAL INSPECTIONS

SI 1 AN INDEPENDENT TESTING COMPANY RETAINED BY THE OWNER AND APPROVED BY THE BUILDING OFFICIAL SHALL INSPECT THE FOLLOWING
(SEE EXPANDED LIST ON DRAWING S-003, SPECIFICATIONS AND GOVERNING CODE):

1. SOIL COMPACTION AT FOUNDATIONS.
2. REINFORCING BAR, CONCRETE PLACEMENT AND TAKING OF CONCRETE TEST SPECIMENS.
3. ANCHOR BOLTS.
4. HIGH STRENGTH BOLTING.
5. MECHANICAL AND ELECTRICAL EQUIPMENT, PERIODIC SPECIAL INSPECTION OF STRUCTURAL COMPONENTS FOR SEISMIC RESISTANCE:
   A. ANCHORAGE OF ELECTRICAL EQUIPMENT.
   B. INSTALLATION OF COMPONENTS WHERE THE COMPONENT IMPORTANCE FACTOR IS 1.5.

SI 2 CONTRACTOR SHALL NOTIFY THE TESTING COMPANY FOR ALL INSPECTIONS.

STRUCTURAL OBSERVATIONS

SO 1 THE OWNER SHALL RETAIN A REGISTERED DESIGN PROFESSIONAL TO PERFORM STRUCTURAL OBSERVATIONS. THE CONSTRUCTION MANAGER SHALL NOTIFY THE OWNER AT LEAST 48 HOURS BEFORE A DESIGNATED WORK IS TO BE COVERED. REFER TO SPECIFICATION 01400 FOR ADDITIONAL REQUIREMENTS.

SO 2 REQUIRED STRUCTURAL OBSERVATIONS INCLUDE:
1. STRUCTURAL FILL.
2. FOUNDATIONS PREPARED FOR CONCRETE PLACEMENT.
3. PRIOR TO GROUTING FIRST LIFT OF MASONRY CONSTRUCTION.
4. COMPLETION OF LATERAL FORCE RESISTING ELEMENTS INCLUDING DIAPHRAGMS AND OTHER ELEMENTS.

TABLE 2

REQUIRED TESTING FOR SPECIAL INSPECTIONS

SYSTEM OR MATERIAL	TESTING		REMARKS
	CODE OR STANDARD REFERENCE	FREQUENCY	
GEOTECHNICAL			
PREPARED SUBGRADE DENSITY	ASTM D6938	EACH 300 SF OF PREPARED SUBGRADE	PER GEOTECHNICAL REPORT
FILL IN-PLACE DENSITY	ASTM D6938	EACH 300 SF OF EACH LIFT PLACED EACH DAY	PER GEOTECHNICAL REPORT
CONCRETE			
CONCRETE COMPRESSIVE STRENGTH	ASTM C31,ASTM C39,ASTM C172	SEE SPECIFICATION 03300	
CONCRETE SLUMP	ASTM C143	WHENEVER CYLINDERS ARE CAST	
CONCRETE AIR CONTENT	ASTM C231	WHENEVER CYLINDERS ARE CAST	
CONCRETE TEMPERATURE	ASTM C1064	WHENEVER CYLINDERS ARE CAST	
CEMENTITIOUS AND EPOXY GROUT COMPRESSIVE STRENGTH	ASTM C942 (CEMENTITIOUS) ASTM C579 (EPOXY)		TEST 2" CUBES FOR EACH GROUT SHIPMENT TO THE FIELD
MASONRY			
COMPRESSIVE STRENGTH,f'm, OF MASONRY ASSEMBLIES			PRIOR TO START OF MASONRY CONSTRUCTION, CONTRACTOR SHALL SUBMIT VERIFICATION OF COMPRESSIVE STRENGTH FOR EACH TYPE OF MASONRY ASSEMBLY.
MASONRY UNIT STRENGTH	ASTM C140	(12) UNITS PER EACH 50000 UNITS	CONTRACTOR TO SUBMIT MANUFACTURER'S CERTIFIED TEST REPORTS FOR EACH TYPE OF MASONRY UNIT
GROUT STRENGTH	ASTM C1019	EACH 5000 SF OF WALL	COMPRESSIVE STRENGTH, AIR CONTENT, SLUMP, TEMPERATURE OF FILL FOR MASONRY ASSEMBLIES SHALL BE TESTED PER CONCRETE REQUIREMENTS ABOVE.

TENSION DEVELOPMENT AND LAP SPLICE LENGTHS (IN INCHES) FOR UNCOATED BARS IN NORMAL-WEIGHT CONCRETE WITH f_c' = 4,000 PSI OR HIGHER

THIS TABLE IS GOOD ONLY FOR CENTER/CENTER SPACING OF REINFORCING BARS EQUAL TO THE MINIMUM SHOWN OR GREATER. NO TRANSVERSE REINFORCING ASSUMED.

BAR SIZE	APPLICATION	CONCRETE COVER = 1.50 IN.			CONCRETE COVER = 2.00 IN.			CONCRETE COVER = 3.00 IN.		
		TOP	OTHER	MIN C/C SPACING	TOP	OTHER	MIN C/C SPACING	TOP	OTHER	MIN C/C SPACING
#3	DEVELOPMENT LAP SPLICE	12 16	12 16	3.50 3.75	12 16	12 16	4.50 4.75	12 16	12 16	6.50 6.75
#4	DEVELOPMENT LAP SPLICE	15 20	12 16	3.50 4.00	15 20	12 16	4.50 5.00	15 20	12 16	6.50 7.00
#5	DEVELOPMENT LAP SPLICE	19 24	15 19	3.75 4.25	19 24	15 19	4.75 5.25	19 24	15 19	6.75 7.25
#6	DEVELOPMENT LAP SPLICE	22 29	17 22	3.75 4.50	22 29	17 22	4.75 5.50	22 29	17 22	6.75 7.50
#7	DEVELOPMENT LAP SPLICE	37 48	28 37	4.00 4.75	33 42	25 33	5.00 5.75	33 42	25 33	7.00 7.75
#8	DEVELOPMENT LAP SPLICE	47 60	36 47	4.00 5.00	37 48	29 37	5.00 6.00	37 48	29 37	7.00 8.00

NOTES:

1. TABULATED VALUES ARE BASED ON GRADE 60 REINFORCING BARS AND NORMAL-WEIGHT CONCRETE.
2. TENSION DEVELOPMENT LENGTHS AND TENSION LAP SPLICE LENGTHS ARE CALCULATED PER ACI 318-14, SECTIONS 25.4.2.3 AND 25.5, RESPECTIVELY.
3. LAP SPLICE LENGTHS ARE LAP CLASS B = 1.3 l_d (ACI 318-14, SECTION 25.5.2).
4. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 IN. OF FRESH CONCRETE CAST BELOW THE BARS. NOTE THAT IN ADDITION TO TOP BARS IN BEAMS AND SLABS, ALL HORIZONTAL BARS IN WALLS ARE CONSIDERED TO BE TOP BARS.

Brown AND Caldwell

SALT LAKE CITY, UT

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JERRY A. SIMON
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CHECKED: J. SIMON
CHECKED:
APPROVED: S. BRENCHLEY
FILENAME

BC PROJECT NUMBER
150360
CLIENT PROJECT NUMBER
C010232

STRUCTURAL

SPECIAL INSPECTION NOTES - 2

DRAWING NUMBER
S-003

17 SHEET NUMBER OF 54

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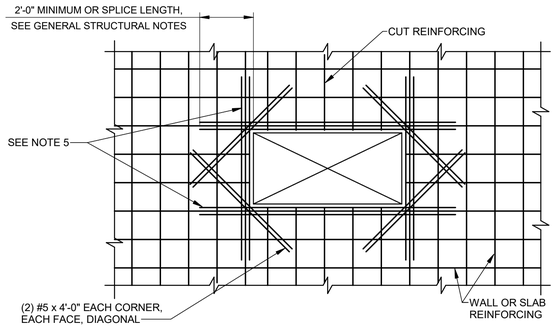
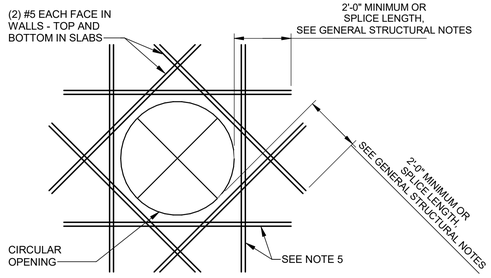
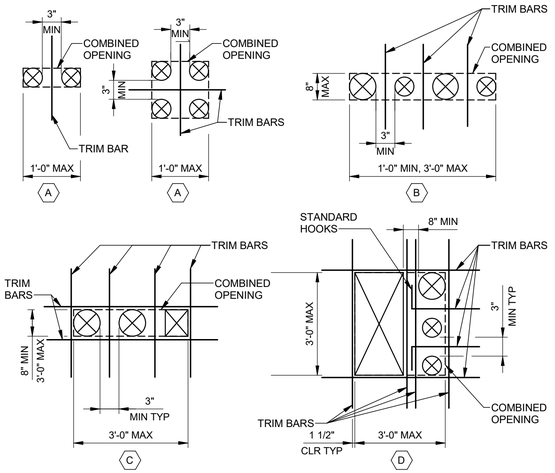




NOTES:

1. THIS DETAIL APPLIES TO UP TO 8'-0" MAXIMUM DIMENSION FOR RECTANGULAR OPENINGS AND UP TO 8'-0" DIAMETER FOR CIRCULAR OPENINGS.
2. AT OPENINGS 12" OR LESS, NO ADDITIONAL #5 DIAGONAL REINFORCING IS REQUIRED UNLESS NOTED OTHERWISE. REINFORCING SHALL BE OFFSET, STILL MAINTAINING REQUIRED SPACING, TO ALLOW FOR OPENING WHERE PRACTICAL, OR CUT AT THE OPENING AND ADDITIONAL REINFORCING ADDED PER NOTE 5.
3. OPENINGS ARE NOT ALL SHOWN ON STRUCTURAL DRAWINGS. PROVIDE OPENINGS IN ACCORDANCE WITH ARCHITECTURAL, MECHANICAL AND OTHER CONTRACT DRAWINGS.
4. ADDITIONAL REINFORCEMENT MAY BE OMITTED ONLY WHERE OPENING IS FRAMED BY BEAMS OR WALLS.
5. ADDITIONAL REINFORCING (4) SIDES OF OPENING EQUAL TO NUMBER AND SIZE OF DISCONTINUOUS REINFORCING. WHERE AN ODD NUMBER OF REBAR ARE DISCONTINUOUS, PROVIDE (ODD NO. +1)/2 EACH SIDE OF OPENING.

S0101 ADDITIONAL REINFORCING AT OPENINGS
NO SCALE



TRIM BAR NOTES:

1. OPENINGS IN CONCRETE WHICH ARE CLOSER TO ONE ANOTHER THAN THE DIAMETER OR SHORTER SIDE OF THE LARGER OF THE TWO ARE CONSIDERED TO FORM A COMBINED OPENING.
2. THESE DIAGRAMS ARE FOR COMBINED OPENINGS WHOSE LARGER DIMENSION DOES NOT EXCEED 3'-0". SEE DRAWINGS FOR "ADDITIONAL REINFORCING AT OPENINGS" DETAIL FOR LARGER COMBINED OPENINGS
3. TRIM BAR SIZE IS SELECTED TO MATCH TYPICAL WALL OR SLAB REINFORCING IN EACH DIRECTION. PLACE TRIM BARS AT EACH FACE OR LAYER OF TYPICAL REINFORCING.
4. TRIM BAR EXTENSION PAST EDGES OF COMBINED OPENINGS SHALL BE 1'-0" FOR #4 BARS, 1'-6" FOR #5 BARS, AND ONE DEVELOPMENT LENGTH FOR LARGER BARS.
5. DISPLACE PRINCIPAL REINFORCEMENT TO EACH SIDE OF COMBINED OPENING OR PLACE BETWEEN INDIVIDUAL OPENINGS. DO NOT CUT PRINCIPAL REINFORCEMENT.
6. SEE " ADDITIONAL REINFORCING AT OPENINGS" DETAIL FOR TRIM BARS FOR INDIVIDUAL OPENINGS.
7. SUBMIT SPECIAL SITUATIONS TO ENGINEER FOR REVIEW.

TRIM BAR REQUIREMENTS:

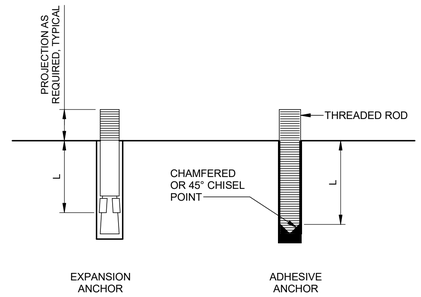
(A) IF THE COMBINED OPENING IS SMALLER THAN 1'-0", PROVIDE (1) #5 EACH FACE BETWEEN OPENINGS.

(B) IF THE LARGER DIMENSION OF A COMBINED OPENING EXCEEDS 1'-0" BUT THE SMALLER DIMENSION IS LESS THAN OR EQUAL TO 8", AND PROVIDED THE COMBINED OPENING IS ALIGNED WITH THE PRINCIPAL REINFORCEMENT, PROVIDE (1) #5 EACH FACE BETWEEN OPENINGS.

(C) IN OTHER CASES WHERE OPENINGS ARE ARRANGED IN A SINGLE LINE, PROVIDE (1) #5 EACH FACE BETWEEN OPENINGS AND (1) #5 EACH FACE AROUND PERIMETER OF COMBINED OPENING.

(D) WHERE INDIVIDUAL OPENINGS OF A COMBINED OPENING FORM TWO OR MORE ROWS, SEPARATE THE ROWS BY AT LEAST 8" OF CONCRETE. PROVIDE (2) #5 EACH FACE BETWEEN ROWS OF OPENINGS, (1) #5 EACH FACE BETWEEN OPENINGS IN THE PERPENDICULAR DIRECTION, AND (1) #5 EACH FACE AROUND THE PERIMETER OF COMBINED OPENINGS. PROVIDE STANDARD HOOKS WHERE BARS TERMINATE WITHIN THE COMBINED OPENING.

S0102 COMBINED OPENING TRIM BARS
NO SCALE



MINIMUM EMBEDMENT LENGTH, L		
DIAMETER	EXPANSION ANCHOR	ADHESIVE ANCHOR
3/8"	3 1/2"	4 1/2"
1/2"	4 3/4"	6"
5/8"	5 1/2"	7 1/2"
3/4"	6 1/2"	9"
7/8"	-	10 1/2"
1"	-	12"

NOTES:

1. MINIMUM EMBEDMENT LENGTH PER SCHEDULE UNLESS INDICATED OTHERWISE ON DRAWINGS.
2. CONFORM TO ICC EVALUATION SERVICE REPORT (ES REPORT) REQUIREMENTS AND MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION.
3. EXPANSION ANCHORS AND THREADED RODS SHALL BE TYPE 316 STAINLESS STEEL MATERIAL UNLESS INDICATED OTHERWISE ON THE DRAWINGS.
4. HOLE DIAMETER SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

S0103 ADDITIONAL REINFORCING AT OPENINGS
NO SCALE

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SALT LAKE CITY, UT

REGISTERED PROFESSIONAL ENGINEER #2969 JERRY A. SIMON 4/15/24 STATE OF UTAH

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

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DRAWN: T. BOWMAN
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APPROVED: S. BRENCHLEY
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BC PROJECT NUMBER 150360
CLIENT PROJECT NUMBER C010232

STRUCTURAL

STANDARD DETAILS - 1

DRAWING NUMBER S-004

SHEET NUMBER 18 OF 54

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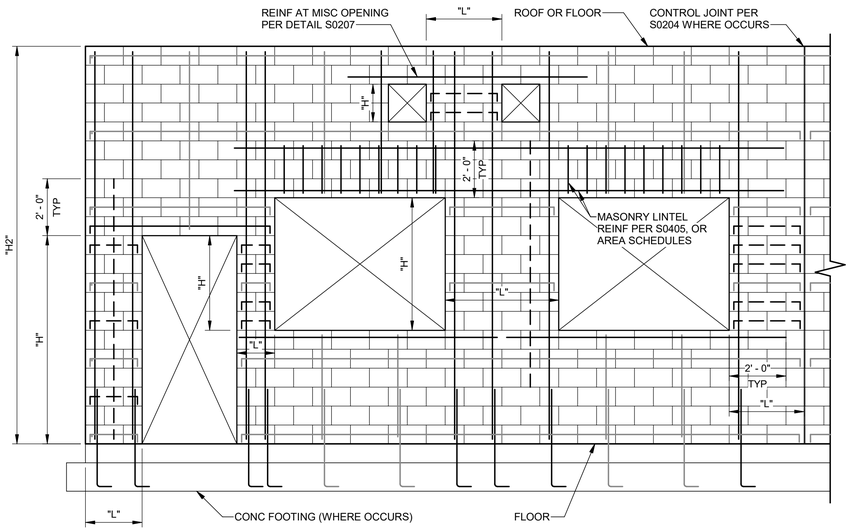


NOTES:

1. GROUT ALL CELLS SOLID.
2. UNLESS NOTED OTHERWISE, 8" CMU WALLS SHALL BE REINFORCED WITH #5 AT 32" VERTICAL (CENTERED IN WALL). 12" CMU WALLS SHALL BE REINFORCEMENT WITH #5 AT 32" VERTICAL (AT EACH SIDE OF THE WALL).
3. UNLESS NOTED OTHERWISE, 8" CMU WALLS SHALL BE REINFORCED WITH #5 AT 120" HORIZONTAL (CENTERED IN WALL). 12" CMU WALLS SHALL BE REINFORCEMENT WITH #5 AT 120" HORIZONTAL (AT EACH SIDE OF THE WALL).
4. PROVIDE ADDITIONAL BOND BEAMS AS DEFINED ON DRAWING SECTIONS.
5. FOR ADDITIONAL REINFORCEMENT AT WALL INTERSECTIONS AND CORNERS, SEE DETAIL S0203.
6. HORIZONTAL JOINT REINFORCEMENT (HJR) AT 16" ON CENTER MAXIMUM. PROVIDE PRE-FABRICATED CORNER AND INTERSECTION PIECES AS SPECIFIED.
   A. HJR IS 2-W1.7 GA (9 GAGE) PER COURSE SPACING, ONE WIRE EACH FACE SHELL.
   B. LAP = 1'-4" FOR HJR.
7. CMU FOR BOND BEAMS TO BE SPECIAL BOND BEAM UNITS.
8. AT ROLL UP DOORS WIDER >10' ADD FULL HEIGHT VERT #5 (3) CELLS OVER FROM OPENING EACH SIDE.
9. ADDED BAR SIZE SHALL BE (1) #5 MINIMUM.
10. ALL ADDED HORIZONTAL REINFORCING SHALL BE TERMINATED WITH A 90 DEG OR 180 DEG STANDARD HOOK AROUND THE VERTICAL REINFORCING.
11. FOR WALLS WITH "H2" AND "L"≥12'-0" ADDITIONAL REINFORCING FOR DUCTILITY IS NOT REQUIRED.
12. SEE DETAILS S0202, S0203, S0204, S0205, S0206 & S0207 FOR ADDITIONAL INFORMATION.

S0201 STANDARD MASONRY WALL ELEVATION
NO SCALE

WALL REINFORCING LEGEND:

SCHEDULED WALL REINF

SCHEDULED OPENING REINF

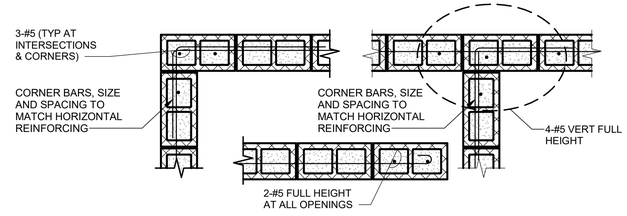
MAXIMUM SPACING OF VERTICAL AND HORIZ BARS	
HEIGHT - WIDTH	SPACING
("H" OR "L") < 4'-0"	8" OC
4'-0" ≤ ("H" OR "L") < 6'-0"	16" OC
6'-0" ≤ ("H" OR "L") < 8'-0"	24" OC
8'-0" ≤ ("H" OR "L") < 10'-0"	32" OC
10'-0" ≤ ("H" OR "L") < 12'-0"	40" OC
12'-0" ≤ ("H" OR "L")	48" OC

MASONRY REINFORCING BAR LAP SPLICE SCHEDULE

BAR SIZE	f'm = 2,000 psi 8" CMU CLASS A	f'm = 2,000 psi 8" CMU CLASS B
#3	12"	12"
#4	13"	21"
#5	20"	35"
#6	38"	54"
#7	52"	**
#8	**	--

NOTES:
1. CLASS A SPLICES MAY BE USED WHEN ONLY ONE BAR IS CONTINUOUS IN THE MASONRY CELL OR COURSE.
2. CLASS B SPLICES SHALL BE USED WHEN TWO BARS ARE CONTINUOUS IN THE MASONRY CELL OR COURSE.
3. ** INDICATES THAT A LAP SPLICE IS NOT ALLOWED AND MECHANICAL BAR COUPLERS ARE REQUIRED FOR THE BAR SPLICES. SPLICES SHALL BE OFFSET 2'-0" TO AVOID CONGESTION.
4. WHERE VERTICAL BARS HAVE A REQUIRED LAP SPLICE GREATER THAN THE HEIGHT OF THE GROUT POUR. THE BAR SPLICES SHALL BE MADE WITH A MECHANICAL BAR COUPLER. WHERE THE HEIGHT OF THE GROUT POUR EXCEEDS 60 INCHES, HIGH LIFT GROUTING PROCEDURES SHALL BE FOLLOWED.
5. WHERE MECHANICAL BAR COUPLERS ARE USED, THE CONNECTOR SHALL DEVELOP 125% OF THE SPECIFIED YIELD STRENGTH OF THE BAR IN TENSION AND COMPRESSION.

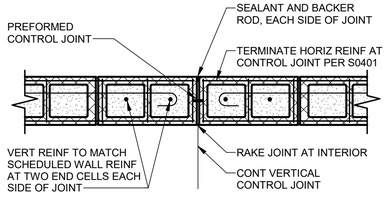
S0202 MASONRY REINFORCING BAR LAP SPLICE SCHEDULE
NO SCALE



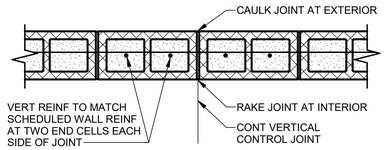
PLAN VIEW - 8" CMU

NOTES:
1. SEE TABLE THIS SHEET FOR LAP SPLICE LENGTHS.

S0203 HORIZONTAL REINFORCING AT CMU WALL INTERSECTIONS
NO SCALE

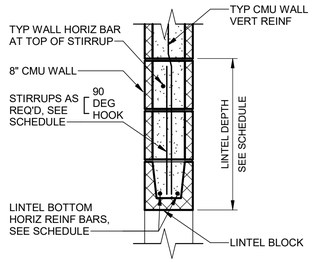


STOP HORIZONTAL REINF TYPICAL AT JOINT REINF



CONTINUOUS HORIZONTAL REINF TYPICAL AT HORIZ BOND BEAM

S0204 STANDARD CONTROL JOINTS IN MASONRY WALLS
NO SCALE

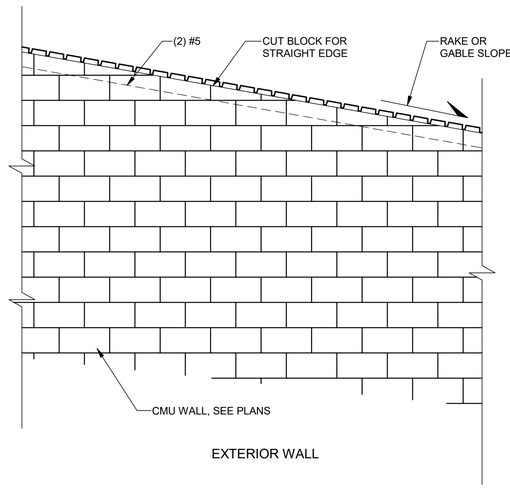


8" LINTEL SECTION

8" LINTEL			
OPENING WIDTH	HORIZ REINF	LINTEL DEPTH	STIRRUPS
< 4'-0"	(1) #5	8"	--
≤ 4'-0" TO < 8'-0"	(2) #5	16"	#4@4"
≤ 8'-0" TO 16'-0"	(2) #6	32"	#4@8"
WHERE LINTEL DEPTH >8", MAY USE 8" DEEP LINTEL BLOCK AND 8" CMU BLOCKS WITH INNER WEB REMOVED. FILL LINTEL DEPTH WITH ONE MONOLITHIC CONCRETE GROUT POUR.			

NOTE:
CMU LINTEL DETAIL TYP, UNLESS NOTED OTHERWISE ON PLANS.

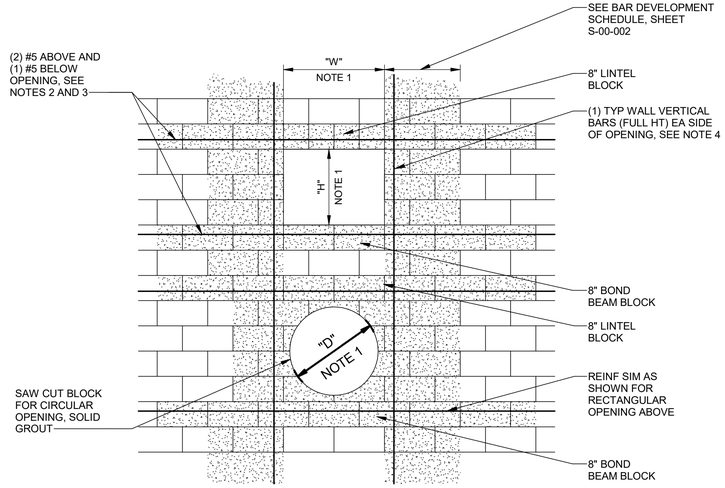
S0205 CMU LINTEL REINFORCING
NO SCALE



EXTERIOR WALL

SLOPING BOND BEAM NOTE:
CUT BLOCK AND KNOCK-OUT CELL WALLS AS REQUIRED TO SEAT REINFORCING AND PROVIDE 8" HIGH x CMU WIDTH NOMINAL GROUT AREA.

S0206 SLOPING BOND BEAM
NO SCALE



NOTES:
1. TYPICAL FOR ALL OPENINGS WITH (W,H, OR D) 2'-0" OR GREATER AND 4'-0" OR LESS, UNLESS NOTED OTHERWISE. SEE PLANS FOR LARGER OPENINGS.
2. AT ADJACENT OPENINGS WITH LESS THAN 8'-0" WALL BETWEEN, CONTINUE HORIZONTAL REINFORCING TO 3'-9" BEYOND FURTHEST OPENING.
3. AT OPENINGS LOCATED WITHIN 3'-9" OF CORNER, CONTINUE HORIZONTAL REINFORCING AROUND CORNER PER DETAIL S0403.
4. LOCATE VERTICAL BARS CENTERED IN 1 ADJACENT CELL IN 8" WALLS, LAP WITH MATCHING FOUNDATION DOWELS. SEE TABLE ON SHEET S-00-002 FOR LAP LENGTH.

S0207 CMU OPENING REINFORCEMENT
NO SCALE

Brown AND Caldwell
SALT LAKE CITY, UT

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APPROVED: S. BRENCHLEY
FILENAME

BC PROJECT NUMBER 150360
CLIENT PROJECT NUMBER C010232

STRUCTURAL

STANDARD DETAILS - 2

DRAWING NUMBER S-005

SHEET NUMBER 19 OF 54

Path: BIM 360://150360 - Western Navajo Pipeline (LeChee)/150360-S-CTRLBLDG_V21.rvt
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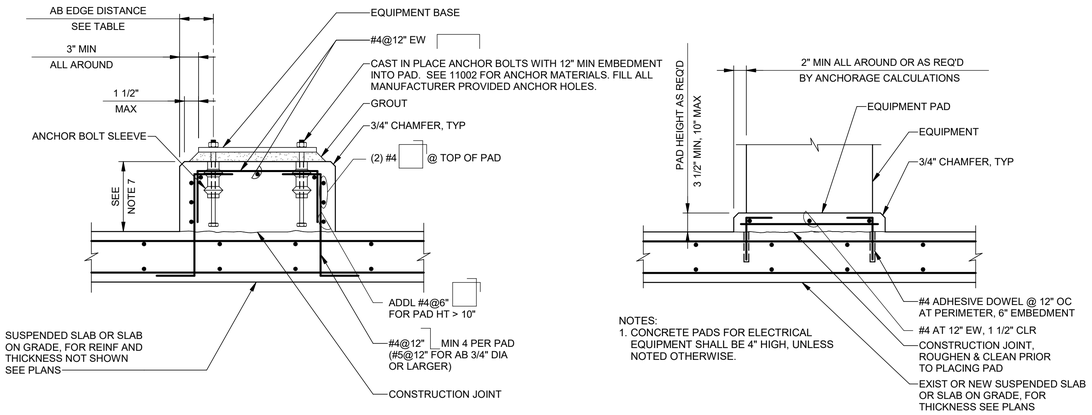


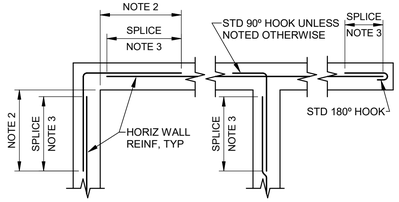
TYPE A

NOTES:
1. CONCRETE PADS FOR ELECTRICAL EQUIPMENT SHALL BE 4" HIGH, UNLESS NOTED OTHERWISE.

TYPE E

EQUIPMENT PAD DIMENSIONS										
AB DIA (IN.)	1/2	5/8	3/4	7/8	1	1 1/4	1 3/8	1 1/2	1 3/4	2
MIN PAD HT (IN.)	7 1/2	9 1/2	11	12 1/2	14	17 1/2	19	20 1/2	24	27
MIN AB EDGE DISTANCE	4 1/2	4 1/2	4 1/2	5 1/4	6	7 1/2	8 1/4	9	10 1/2	12

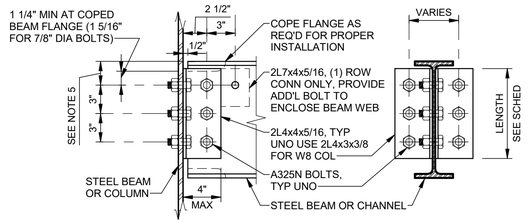
S0301 CONCRETE EQUIPMENT PAD DETAILS
NTS



SINGLE MAT REINFORCING

NOTES:
1. UNLESS NOTED OTHERWISE, SIZE AND SPACING OF CORNER OR INTERSECTION REINFORCING SHALL MATCH HORIZONTAL REINFORCING SHOWN IN SPECIFIC SECTIONS OR DETAILS. VERTICAL REINFORCING NOT SHOWN FOR CLARITY.
2. UNLESS NOTED OTHERWISE, BAR SPLICE SHALL BE LOCATED OUTSIDE OF CORNER OR INTERSECTION AREA TO AVOID CONGESTION. CONTRACTORS OPTION TO PROVIDE SINGLE BENT BAR IN LIEU OF SPLICE CONFIGURATION AT ONE END ONLY.
3. SEE GENERAL STRUCTURAL NOTES FOR SPLICE LENGTH. HORIZONTAL WALL BARS SHALL BE CONSIDERED TOP BARS FOR DEVELOPMENT AND SPLICE LENGTHS.

S0302 HORIZONTAL WALL REINFORCING
NTS

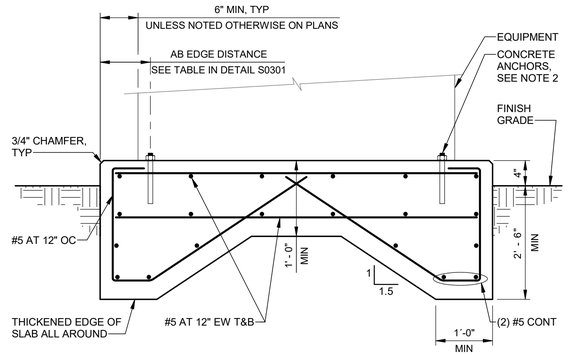


NOMINAL BEAM DEPTH, INCHES	ROWS OF BOLTS	BOLT DIA	LENGTH OF DOUBLE ANGLE, INCHES	COMMENTS
8 - 10	2	3/4"	0' - 5 1/2"	-

NOTES:

1. UNLESS OTHERWISE NOTED, NUMBER OF ROWS IS EQUAL TO NUMBER OF BOLTS TO ENCLOSE BEAM WEB.
2. ALL BEAM FRAMING CONNECTIONS SHALL CONFORM TO THIS DETAIL UNLESS SPECIFICALLY NOTED OTHERWISE OR APPROVED IN WRITING BY THE ENGINEER.
3. FOR NOMINAL BEAM DEPTHS LESS THAN 8", EXTEND LONG LEG OF DOUBLE ANGLE ALONG BEAM WEB AND PROVIDE ADDITIONAL BOLT TO ENCLOSE BEAM WEB AS SHOWN.
4. PROVIDE ADDITIONAL 1 1/2" LENGTH TO DOUBLE ANGLE FOR STAGGERED BOLT CONNECTIONS WHERE REQUIRED. DIMENSION SHALL BE 3" UNLESS OTHERWISE REQUIRED FOR PROPER FABRICATION.

S0303 BEAM/BEAM CONNECTION - STEEL
NTS



NOTES:

1. PAD SIZE SHALL BE MINIMUM INDICATED OR AS SHOWN ON THE PLANS OR AS INDICATED BY THE MANUFACTURER AND APPROVED BY THE PROJECT REPRESENTATIVE.
2. THE SIZE, NUMBER, TYPE, LOCATION, AND THREAD PROJECTION OF THE ANCHOR BOLTS SHALL BE DETERMINED BY THE EQUIPMENT MANUFACTURER AND AS APPROVED BY THE PROJECT REPRESENTATIVE. ANCHOR BOLTS SHALL BE HELD IN POSITION WITH A TEMPLATE OR OTHER ACCEPTABLE MEANS, MATCHING THE BASE PLATE, WHILE PAD IS BEING PLACED.

S0304 CONCRETE PAD
NTS

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SALT LAKE CITY, UT

STATE OF ARIZONA
#32969
JERRY A. SIMON
REGISTERED
PROFESSIONAL ENGINEER
4/15/24
Jerry A. Simon

GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: A. QADAN
DRAWN: T. BOWMAN
CHECKED: J. SIMON
CHECKED:
APPROVED: S. BRENCHLEY

FILENAME

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

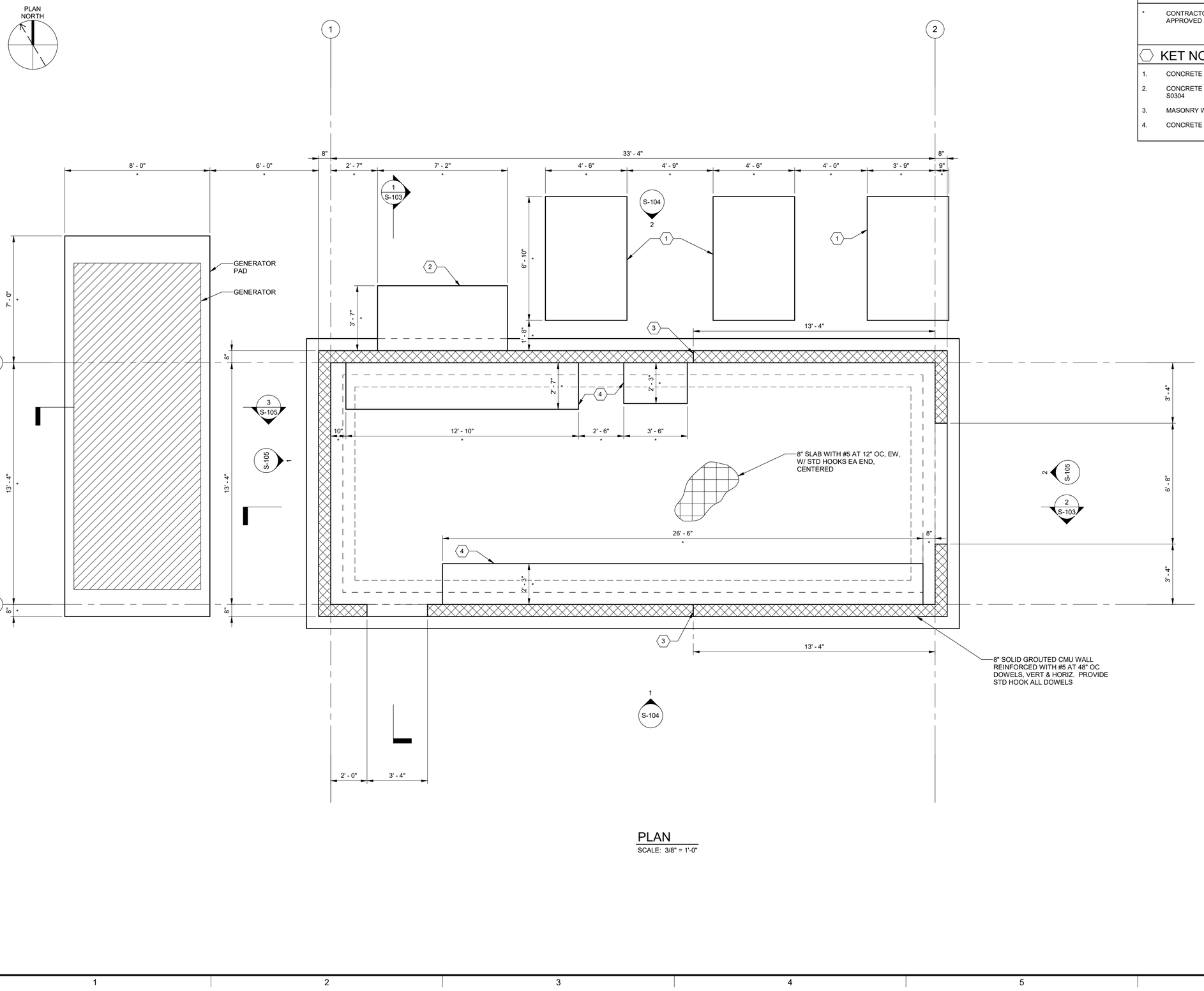
STRUCTURAL

STANDARD DETAILS - 3

DRAWING NUMBER
S-006

SHEET NUMBER 20 OF 54

Plot Date: 4/15/2024 1:47:31 PM Path: BIM 360://150360 - Western Navajo Pipeline (LeChee)/150360-S-CTRLBLDG_V21.rvt



PLAN

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

GENERAL NOTES:

* CONTRACTOR TO COORDINATE DIMENSION WITH APPROVED EQUIPMENT SUBMITTAL. (TYP ALL EQUIPMENT)

KET NOTES:

1. CONCRETE PAD FOR HVAC UNITS, SEE DETAIL S0304
2. CONCRETE PAD FOR ELECTRICAL EQUIPMENT, SEE DETAIL S0304
3. MASONRY WALL CONTROL JOINT. SEE DETAIL S0204
4. CONCRETE PAD, SEE DETAIL S0301.

Brown AND Caldwell

SALT LAKE CITY, UT

REGISTERED PROFESSIONAL ENGINEER #2969 JERRY A. SIMON 4/15/24 STATE OF UTAH

Jerry A. Simon

GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: A. QADAN
DRAWN: T. BOWMAN
CHECKED: J. SIMON
CHECKED:
APPROVED: S. BRENCHLEY

FILENAME

BC PROJECT NUMBER 150360

CLIENT PROJECT NUMBER C010232

STRUCTURAL

CONTROL BUILDING FOUNDATION PLAN

DRAWING NUMBER S-101

SHEET NUMBER 21 OF 54

Path: BIM 360://150360 - Western Navajo Pipeline (LeChee)/150360-S-CTRLBLDG_V21.rvt

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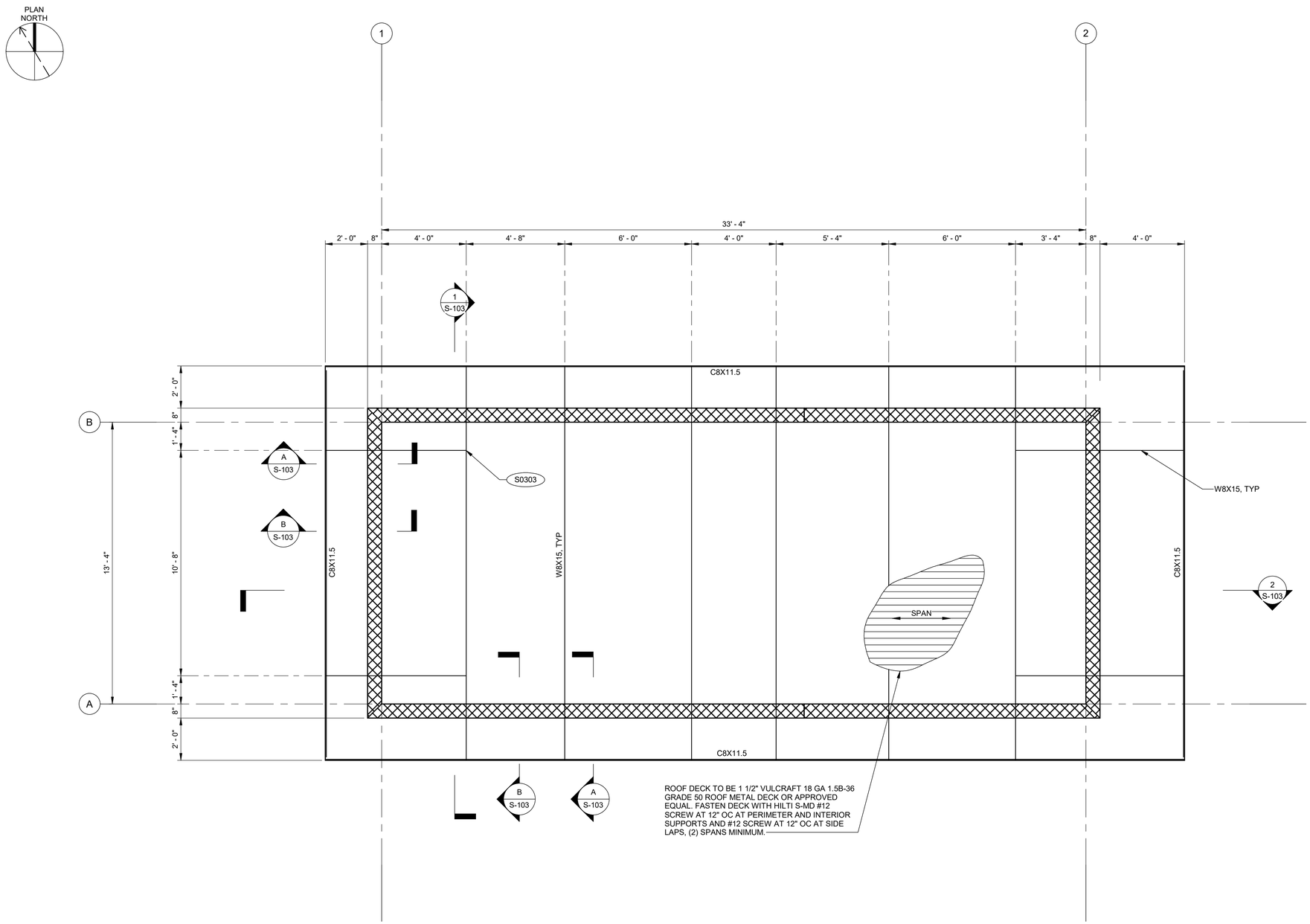


PLAN
SCALE: 3/8" = 1'-0"

Brown AND Caldwell

SALT LAKE CITY, UT

#2969
JERRY A. SIMON
4/15/24

GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: A. QADAN
DRAWN: T. BOWMAN
CHECKED: J. SIMON
CHECKED:
APPROVED: S. BRENCHLEY
FILENAME

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

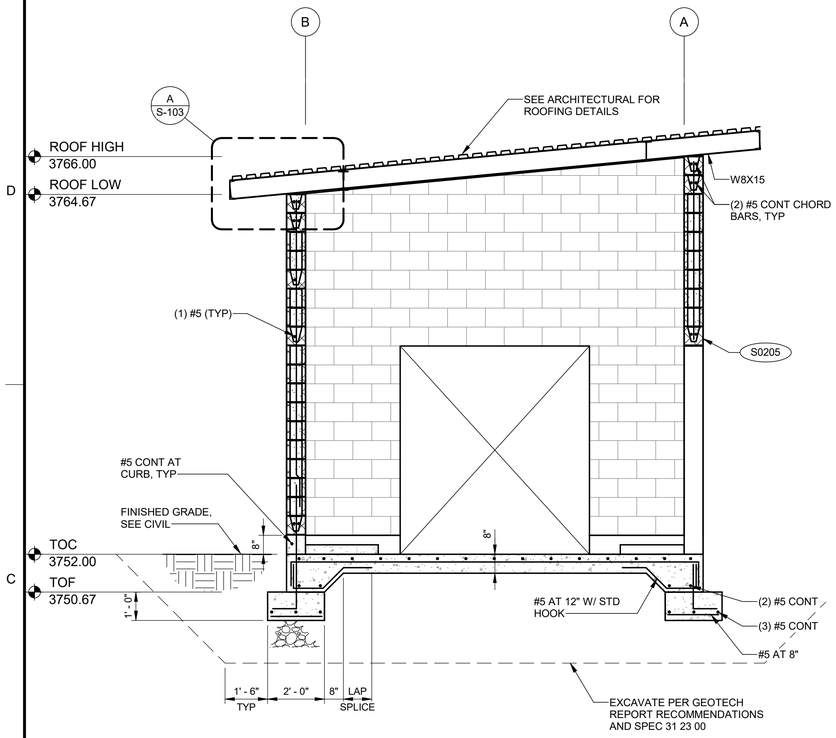
STRUCTURAL

CONTROL BUILDING ROOF FRAMING PLAN

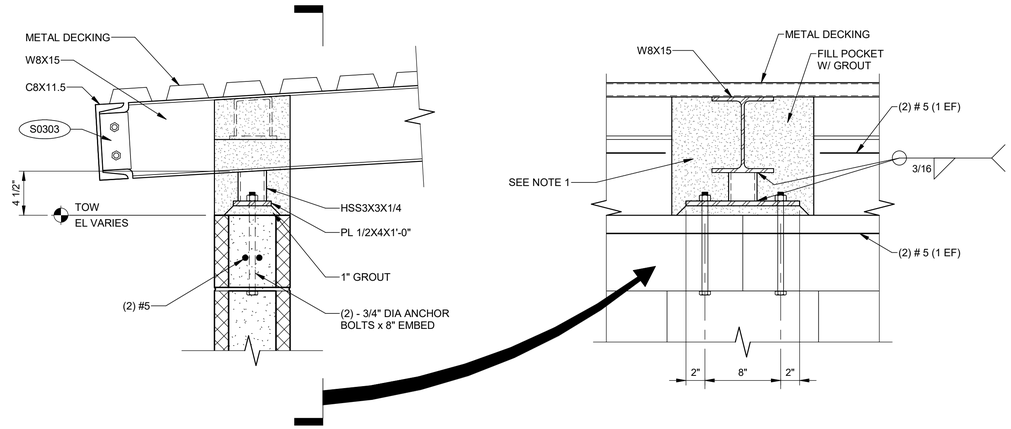
DRAWING NUMBER
S-102

22 SHEET NUMBER OF 54

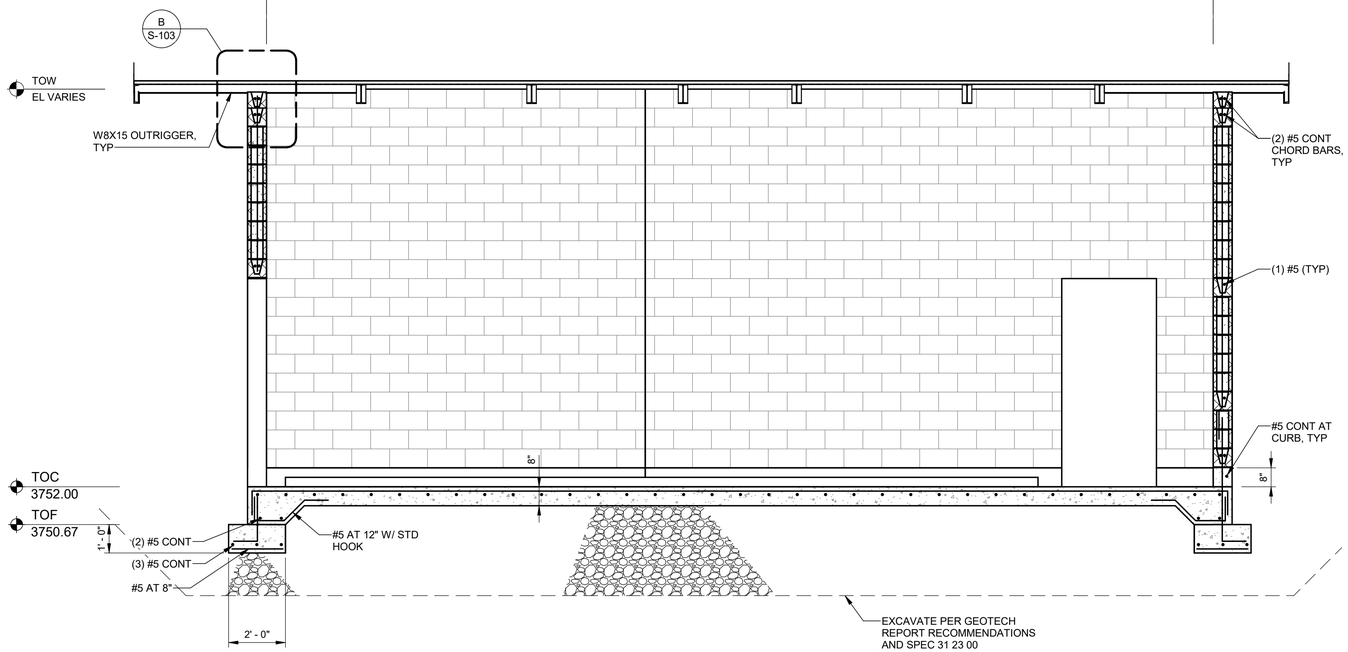
Plot Date: 4/15/2024 1:47:31 PM Path: BIM 360://150360 - Western Navajo Pipeline (LeChee)/150360-S-CTRLBLDG_V21.rvt



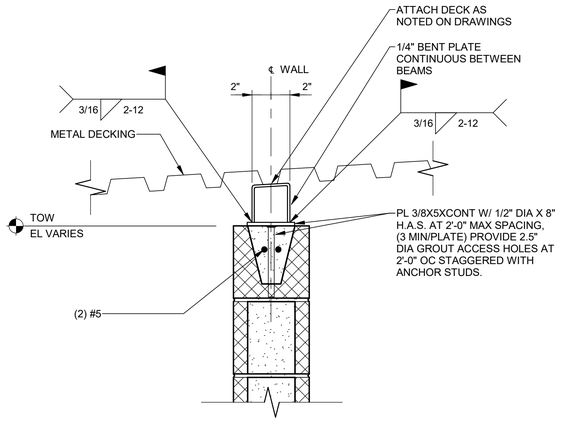
1 S-101 **SECTION**
SCALE: 3/8" = 1'-0"



A S-102 **DETAIL**
SCALE: 1 1/2" = 1'-0"



2 S-101 **SECTION**
SCALE: 3/8" = 1'-0"



B S-102 **DETAIL**
SCALE: 1 1/2" = 1'-0"

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SALT LAKE CITY, UT

#2969 JERRY A. SIMON 4/15/24

GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: A. QADAN
DRAWN: T. BOWMAN
CHECKED: J. SIMON
CHECKED:
APPROVED: S. BRENCHLEY
FILENAME

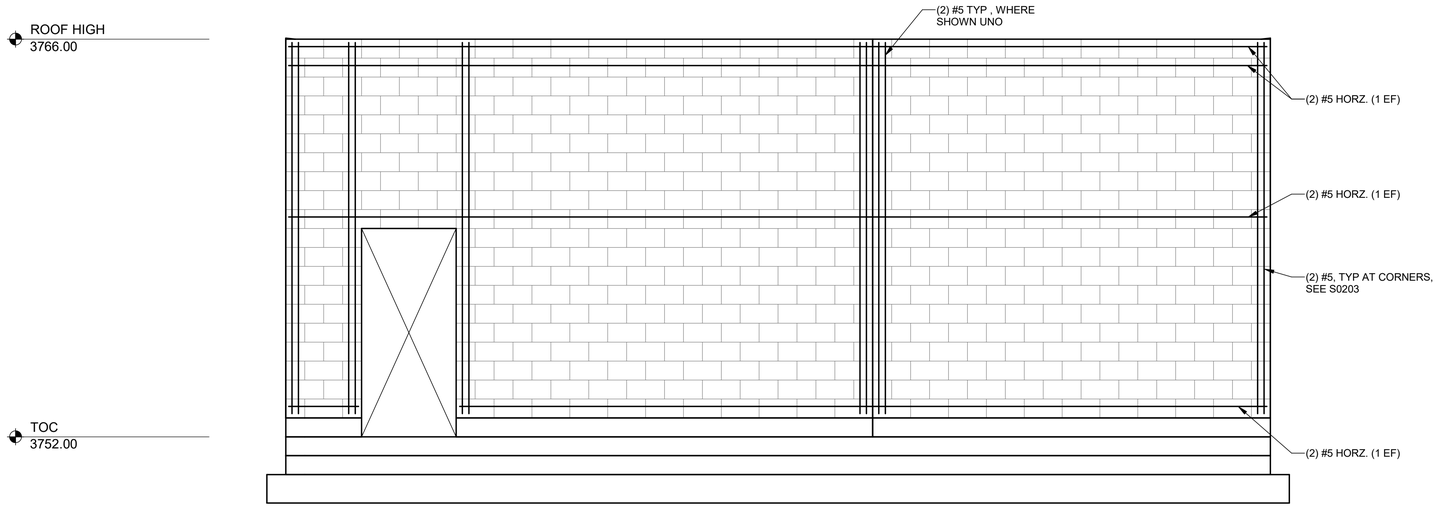
BC PROJECT NUMBER
150360
CLIENT PROJECT NUMBER
C010232

STRUCTURAL

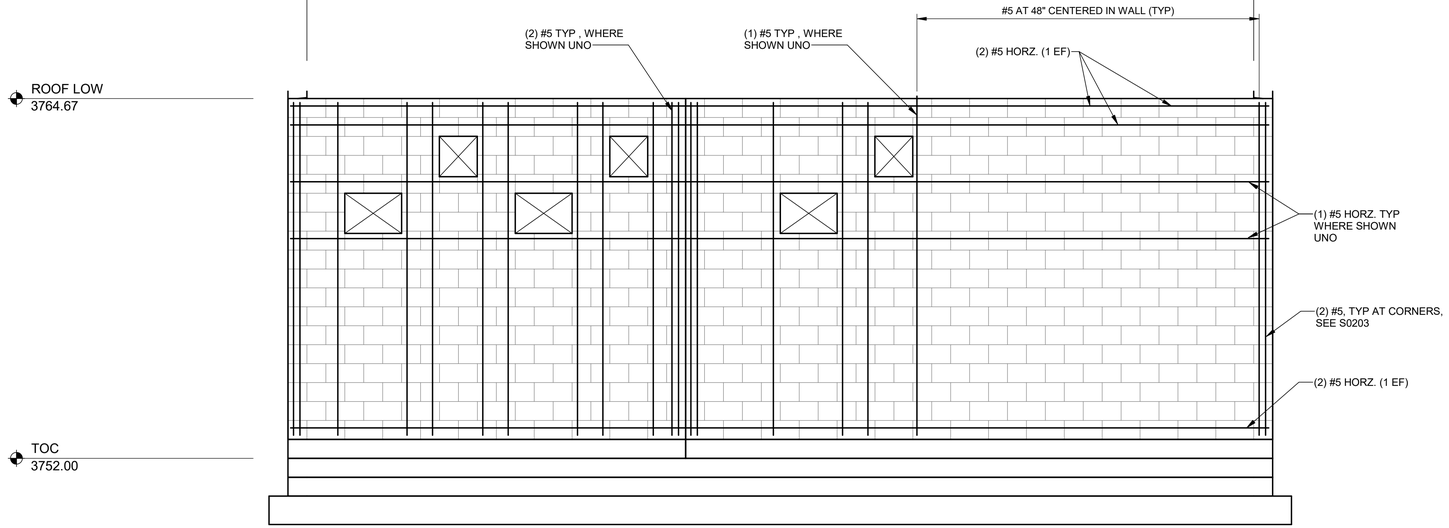
CONTROL BUILDING SECTIONS AND DETAILS

DRAWING NUMBER
S-103
SHEET NUMBER 23 OF 54

Path: BIM 360://150360 - Western Navajo Pipeline (LeChee)/150360-S-CTRLBLDG_V21.rvt
Plot Date: 4/15/2024 1:47:32 PM



1 S-101 ELEVATION AT GRID A
SCALE: 3/8" = 1'-0"



2 S-101 ELEVATION AT GRID B
SCALE: 3/8" = 1'-0"

GENERAL NOTES:

1. NOT ALL OF THE REINFORCEMENTS ARE SHOWN FOR CLARITY.
2. FOR ADDITIONAL DETAIL REFER TO DETAILS S0201, S0202, S0203, S0204, S0205, S0206 & S0207.
3. REFER TO ARCH FOR EXACT LOCATIONS OF DOORS AND WINDOWS. REFER TO MECH./HVAC FOR EXACT LOCATIONS OF WALL PENETRATIONS.

Brown AND Caldwell

SALT LAKE CITY, UT

STATE OF UTAH
#2969
JERRY A. SIMON
4/15/24
REGISTERED PROFESSIONAL ENGINEER

GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: A. QADAN
DRAWN: T. BOWMAN
CHECKED: J. SIMON
CHECKED:
APPROVED: S. BRENCHLEY
FILENAME

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

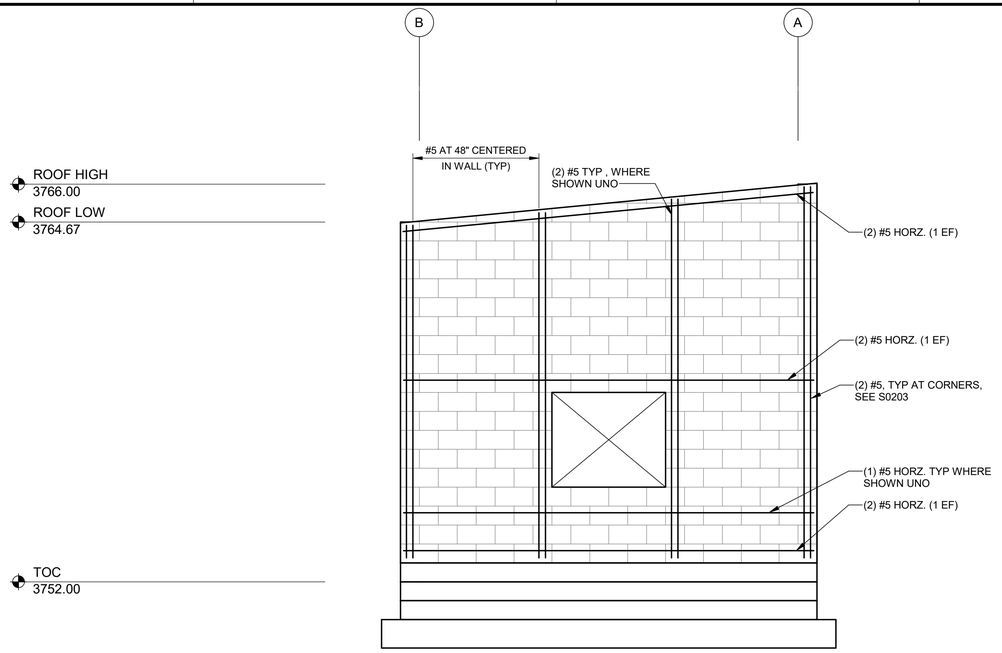
STRUCTURAL

CONTROL BUILDING ELEVATIONS

DRAWING NUMBER
S-104

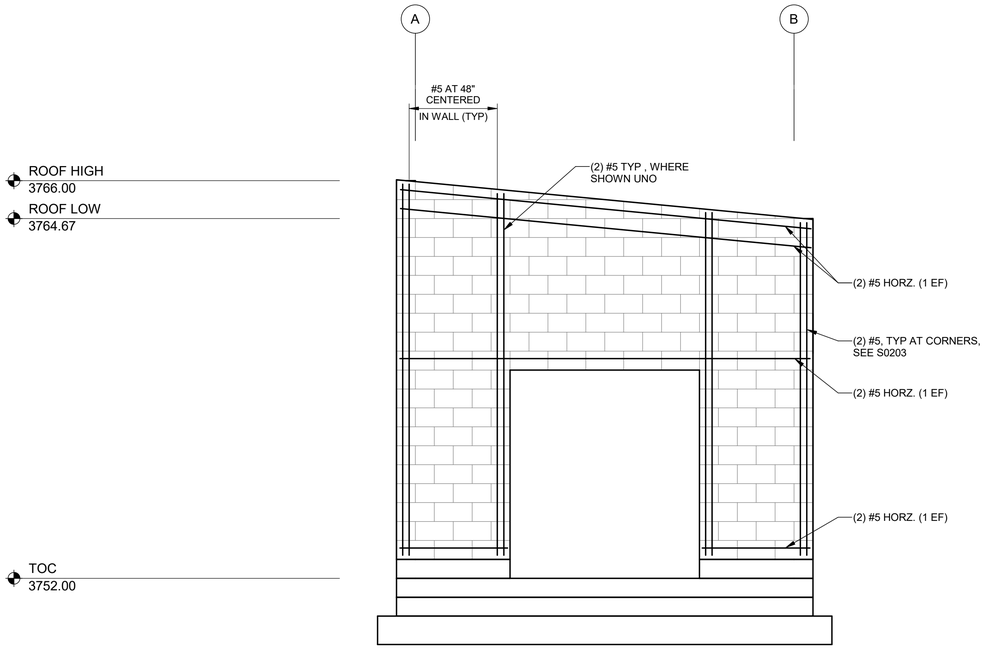
24 SHEET NUMBER OF 54

Plot Date: 4/15/2024 1:47:32 PM Path: BIM 360://150360 - Western Navajo Pipeline (LeChee)/150360-S-CTRLBLDG_V21.rvt



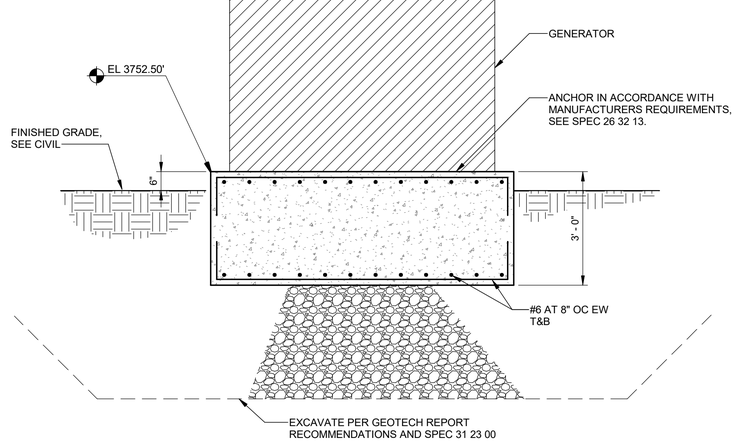
1 S-101 ELEVATION AT GRID 1

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



2 S-101 ELEVATION AT GRID 2

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



NOTES:

1. FINAL DIMENSTIONS TO BE COORDINATED WITH APPROVED EQUIPMENT SUBMITTAL.
2. SEE CIVIL GRADING AND SITE LAYOUT.
3. COORDINATE ELECTRICAL PENETRATIONS IN SLAB WITH APPROVED EQUIPMENT SUBMITTAL.
4. PROVIDE LARGEST VALUE OF 6" MINIMUM EDGE DISTANCE OR MANUFACTURER'S MINIMUM EDGE DISTANCE AT ALL CONCRETE ANCHORS.

3 S-101 SECTION

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

GENERAL NOTES:

1. NOT ALL OF THE REINFORCEMENTS ARE SHOWN FOR CLARITY.
2. FOR ADDITIONAL DETAIL REFER TO DETAILS S0201, S0202, S0203, S0204, S0205, S0206 & S0207.
3. REFER TO ARCH FOR EXACT LOCATIONS OF DOORS AND WINDOWS. REFER TO MECH./HVAC FOR EXACT LOCATIONS OF WALL PENETRATIONS.

Brown AND Caldwell

SALT LAKE CITY, UT

#2969 JERRY A. SIMON 4/25/24

GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: A. QADAN
DRAWN: T. BOWMAN
CHECKED: J. SIMON
CHECKED:
APPROVED: S. BRENCHLEY
FILENAME

BC PROJECT NUMBER 150360
CLIENT PROJECT NUMBER C010232

STRUCTURAL

CONTROL BUILDING ELEVATIONS

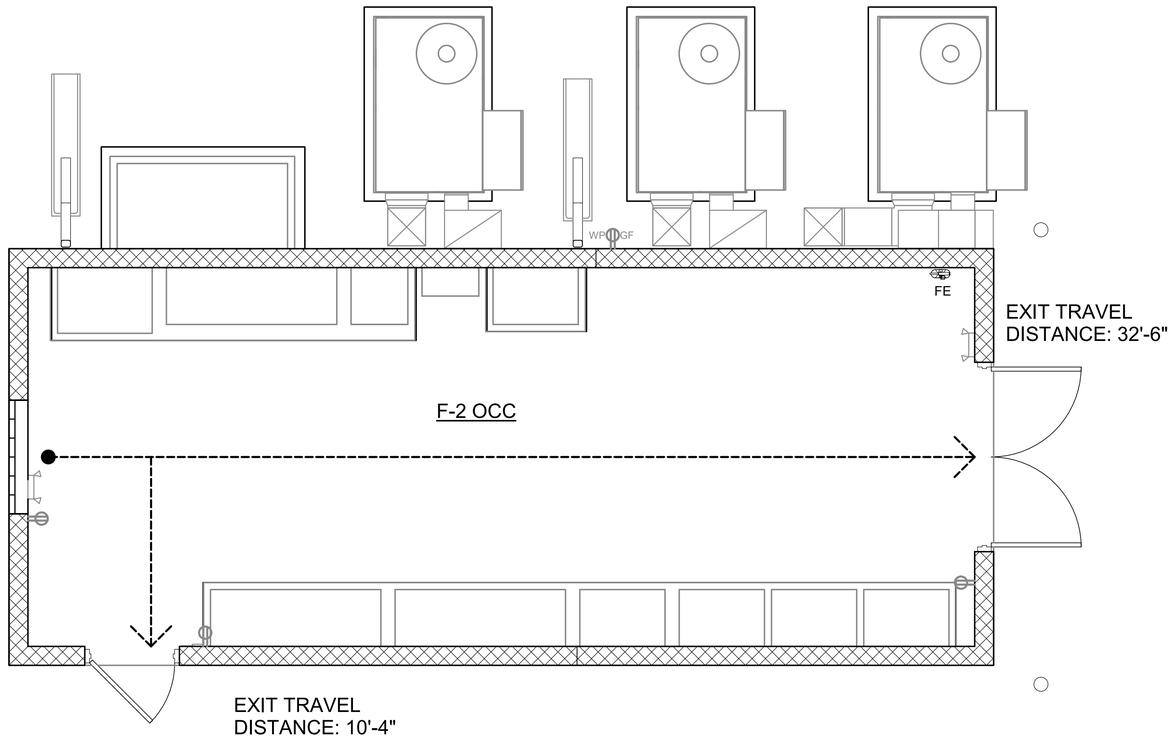
DRAWING NUMBER S-105

SHEET NUMBER 25 OF 54

Path: BIM 360://150360 - Western Navajo Pipeline (LoChee)/150360-S-CTRLBLDG_V21.rvt

Plot Date: 4/24/2024 8:48:55 AM

PLAN NORTH



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

BUILDING CODE ANALYSIS

AHJ:	NAVAJO NATION (STRUCTURAL DESIGN CRITERIA: COCONINO COUNTY)
BUILDING CODES:	2018 INTERNATIONAL BUILDING CODE 2018 INTERNATIONAL MECHANICAL CODE 2018 INTERNATIONAL FUEL GAS CODE 2018 INTERNATIONAL PLUMBING CODE 2018 INTERNATIONAL ENERGY CONSERVATION CODE 2017 NATIONAL ELECTRICAL CODE 2018 INTERNATIONAL FIRE CODE
APPLICABLE STANDARDS:	COCONINO COUNTY DESIGN CRITERIA WIND LOAD: 115 MPH, EXPOSURE 'C' SEISMIC DESIGN CATEGORY C GROUND SNOW LOAD: 30 PSF ROOF SNOW LOAD: 24 PSF
CONSTRUCTION TYPE:	TYPE II-B (TABLE 601)
OCCUPANCY:	FACTORY INDUSTRIAL F-2 LOW-HAZARD FACTORY INDUSTRIAL (306.2)
ALLOWABLE AREAS:	F-2 23,000 SF
ACTUAL AREAS:	F-2 509 SF
ALLOWABLE HEIGHTS:	F-2 3 STORIES, 55'
ACTUAL HEIGHT:	F-2 1 STORY, 15' - 0"
FIRE RESISTANCE RATING FOR EXTERIOR WALLS (TABLE 602):	RATING FOR II-B CONSTRUCTION TYPE AND F-2 X > 30' = 0 HOUR
FIRE PROTECTION SYSTEMS:	PORTABLE FIRE EXTINGUISHERS (TABLE 906.3(1)) MAX FLOOR AREA PER EXTINGUISHER = 11,250 SF MAXIMUM TRAVEL DISTANCE TO EXTINGUISHER: 75 FT
KEY BOXES:	IFC 506.1: KEY BOXES PER UL 1037 IS WILL BE PROVIDED IN LOCATIONS APPROVED BY THE FIRE CODE OFFICIAL
ACCESSIBILITY:	OCCUPANCY GROUP F-2: EXEMPT FROM ACCESSIBILITY REQUIREMENTS PER IBC 1103.2.9
EGRESS:	DISTANCE TO EXITS: (TABLE 1014.3) F-2 75 FT MAXIMUM, WITHOUT SPRINKLER SYSTEM OCCUPANCY LOADS: (TABLE 1004.1.2) F-2 OCCUPANCY 508 SF / 300 (MECHANICAL EQUIPMENT ROOM) = 2
EXITS:	REQUIRED EXITS = 1 ACTUAL EXITS = 2

Brown AND Caldwell
SALT LAKE CITY, UT

SHORT AND BRENNAN ARCHITECTS

REGISTERED ARCHITECT
CERTIFICATE NO.
59478
GREGORY T. SHORT
ARIZONA U.S.A.

GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: C. CARDONA
DRAWN: C. CARDONA
CHECKED: G. SHORT
CHECKED:
APPROVED: G. SHORT
FILENAME

BC PROJECT NUMBER
153060
CLIENT PROJECT NUMBER
C010232

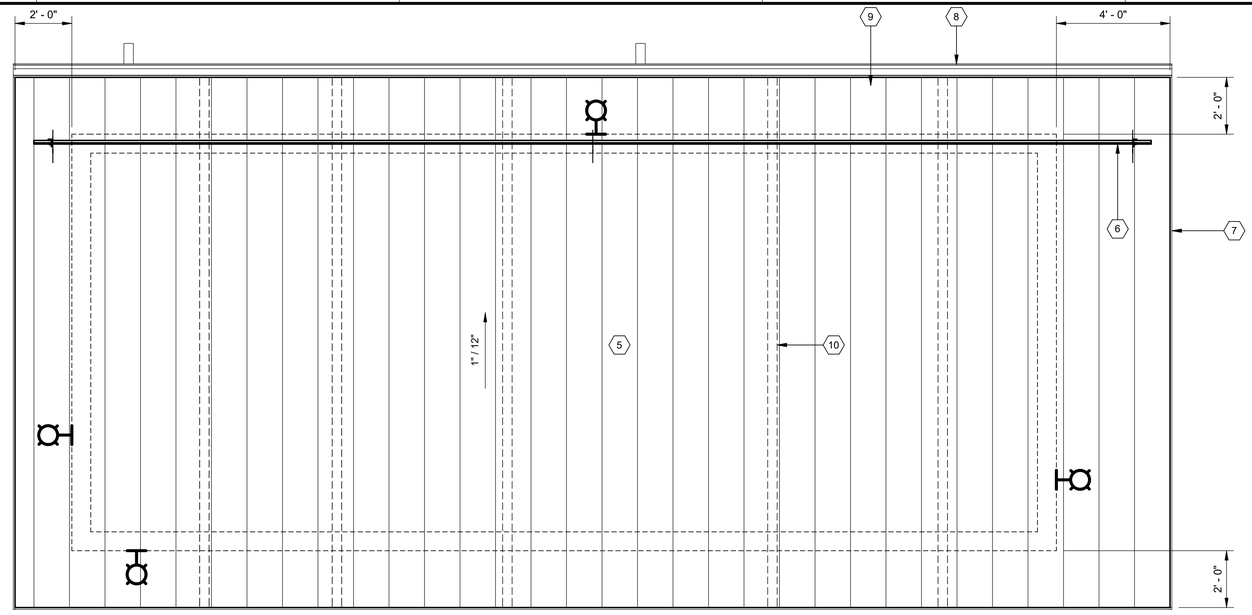
ARCHITECTURAL

CONTROL BUILDING CODE PLAN

DRAWING NUMBER
A-101

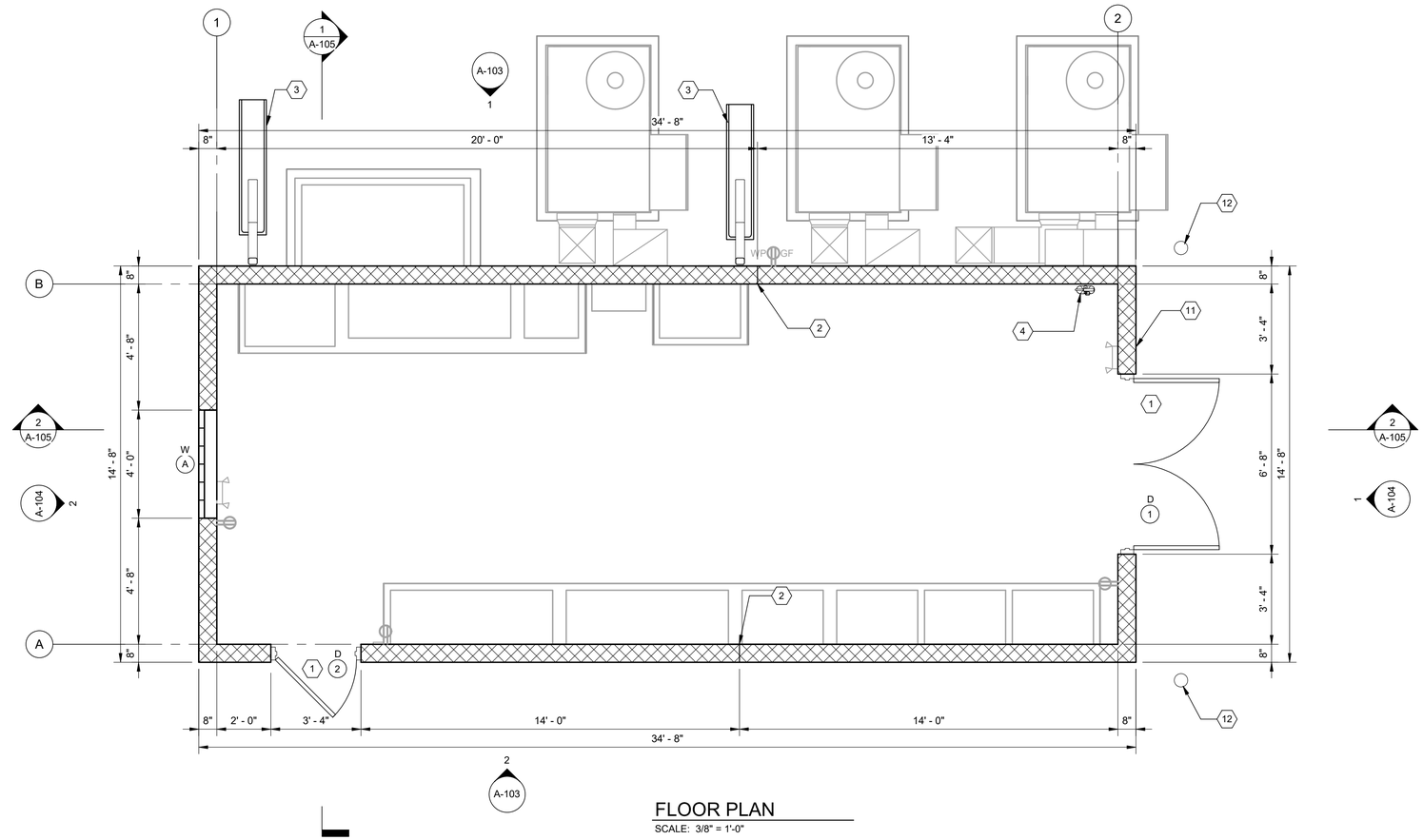
SHEET NUMBER 26 OF 54

PLAN NORTH



ROOF PLAN

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



FLOOR PLAN

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

KEYNOTES:

1	HM DOOR AND FRAME, RE: DOOR SCHEDULE
2	MASONRY CONTROL JOINT, ALIGN EXPANSION JOINT W/COURSING, TYP., RE: STRUCT., RE:3/A-106
3	PREFINISHED GALV METAL DOWNSPOUT AND 5' LONG CONCRETE SPLASHBLOCK, TYP.
4	FIRE EXTINGUISHER
5	STANDING SEAM METAL ROOFING ON SYN. UNDERLAYMENT ON NAILBASE INSULATION ON MTL STRUCTURE, TYP, RE: STRUCT
6	SNOW GUARD, TYP.
7	PREFINISHED MTL FASCIA, TYP.
8	PREFIN MTL GUTTER
9	PREFINISHED METAL SOFFIT PANELS TO MATCH FASCIA, TYP. AT ROOF RAKES, EAVES, AND AREAS INDICATED
10	LINE OF STEEL STRUCTURE BELOW, TYP.
11	8" CMU WALL W/WATER REPELLENT FULL EXTENT, EXTERIOR SURFACES, TYP., RE: STRUCT
12	BOLLARD @ NORTH AND SOUTH CORNERS, RE: CIVIL

Brown AND Caldwell

SALT LAKE CITY, UT

SHORT AND BRENNAN ARCHITECTS

REGISTERED ARCHITECT
CERTIFICATE NO.
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GREGORY T. SHORT
ARIZONA U.S.A.

GREAT SEAL OF THE NAVAJO NATION

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REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: C. CARDONA
DRAWN: C. CARDONA
CHECKED: G. SHORT
CHECKED:
APPROVED: G. SHORT

FILENAME

BC PROJECT NUMBER
153060

CLIENT PROJECT NUMBER
C010232

ARCHITECTURAL

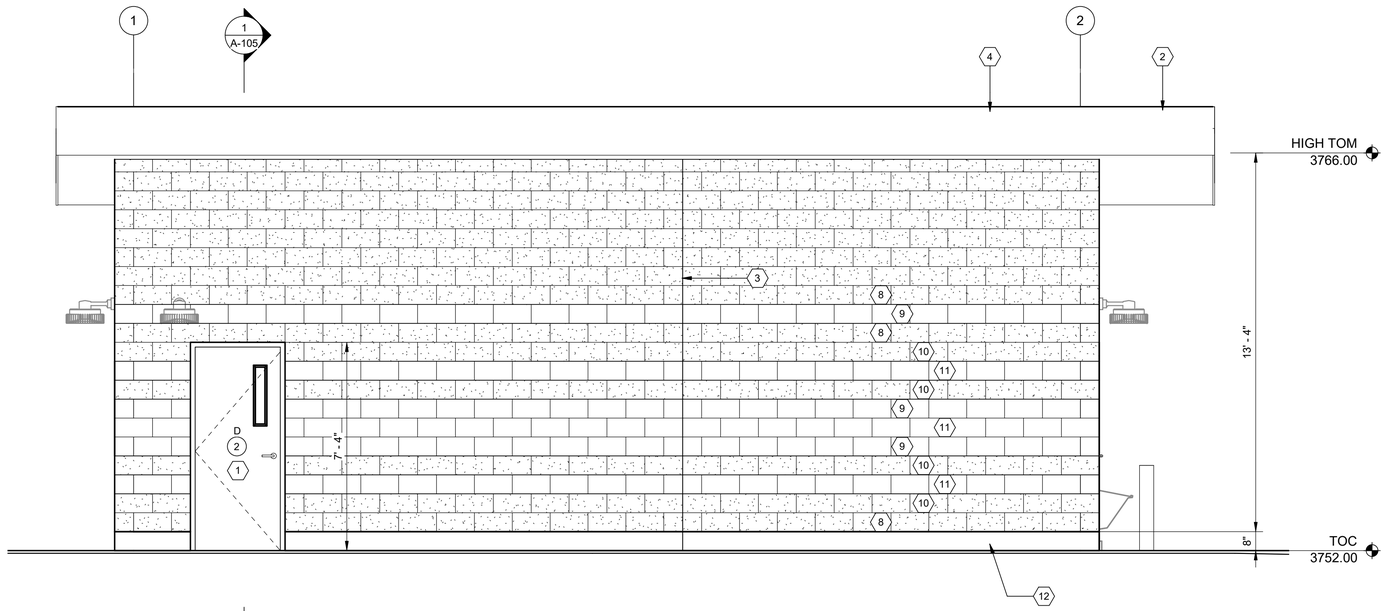
CONTROL BUILDING FLOOR PLANS

DRAWING NUMBER
A-102

SHEET NUMBER 27 OF 54

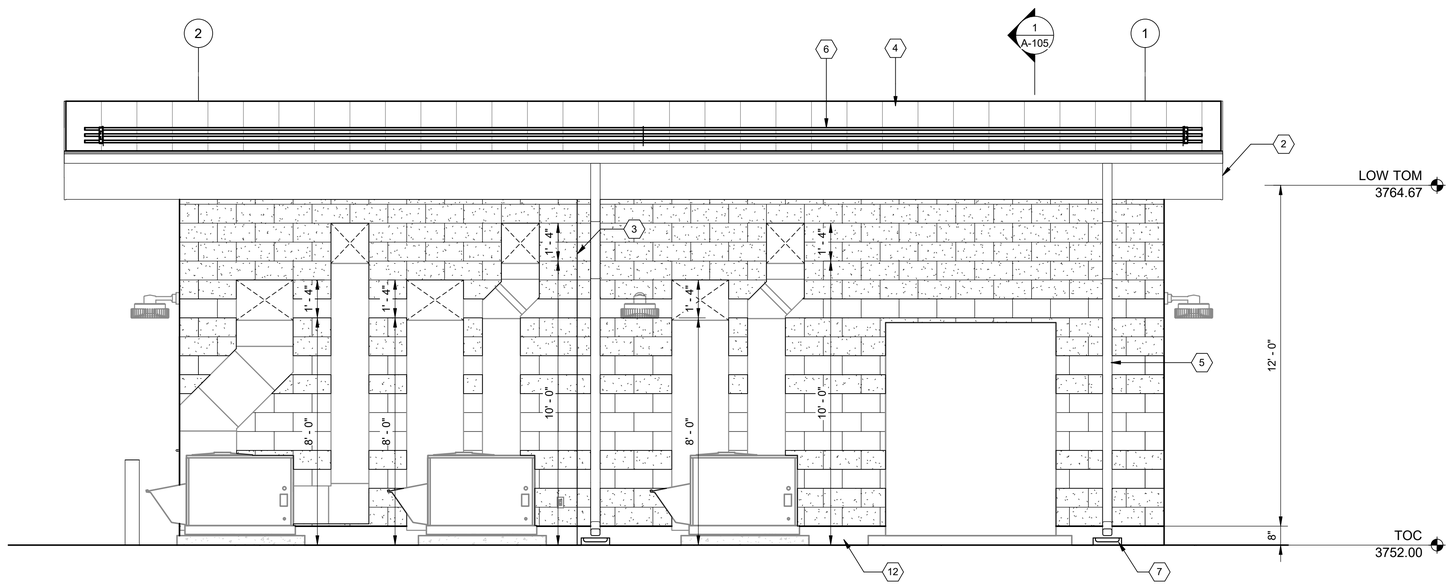
Path: BIM 360://150360 - Western Navajo Pipeline (LeChee)/150360-A-CTRLBLDG_V21.rvt

Plot Date: 4/19/2024 5:27:49 PM



2 A-102 SCALE: 3/8" = 1'-0"

SOUTH ELEVATION



1 A-102 SCALE: 3/8" = 1'-0"

NORTH ELEVATION

GENERAL NOTES:

1. APPLY WATER REPELLENT AT EXTERIOR SURFACES OF 8" CMU AND CONCRETE CURB.

KEYNOTES:

1	HM DOOR AND FRAME, PAINT, RE: DOOR SCHEDULE
2	PREFINISHED MTL FASCIA, TYP.
3	MASONRY CONTROL JOINT, ALIGN EXPANSION JOINT W/COURSING, TYP., RE: STRUCT., RE:3/A-106
4	STANDING SEAM METAL ROOFING ON SYN. UNDERLAYMENT ON NAILBASE INSULATION ON MTL STRUCTURE, TYP. RE: STRUCT
5	PREFINISHED GALV METAL GUTTER AND DOWNSPOUT, TYP.
6	SNOW GUARD, TYP.
7	CONCRETE SPLASHBLOCK, TYP.
8	8" SPLIT FACE CMU, COLOR 'A'
9	8" SMOOTH FACE CMU, COLOR 'B'
10	8" SPLIT FACE CMU, COLOR 'C'
11	8" SMOOTH FACE CMU, COLOR 'D'
12	CONCRETE CURB W/WATER REPELLENT, RE: STRUCT, TYP.

Brown AND Caldwell

SALT LAKE CITY, UT

SHORT AND BRENNAN ARCHITECTS

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GREGORY T. SHORT
ARIZONA U.S.A.

GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	C. CARDONA
DRAWN:	C. CARDONA
CHECKED:	G. SHORT
CHECKED:	
APPROVED:	G. SHORT

FILENAME

BC PROJECT NUMBER
153060

CLIENT PROJECT NUMBER
C010232

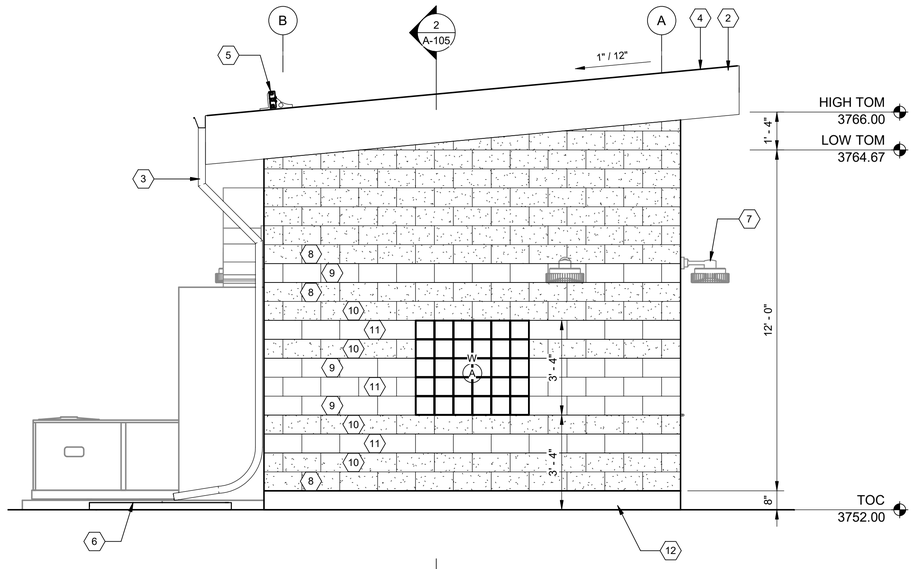
ARCHITECTURAL

CONTROL BUILDING ELEVATIONS

DRAWING NUMBER
A-103

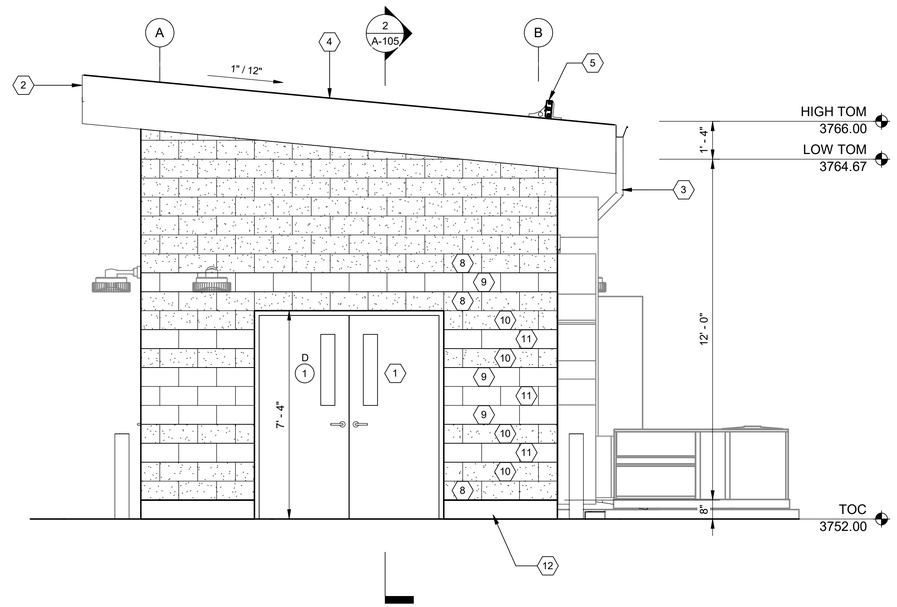
SHEET NUMBER 28 OF 54

Plot Date: 4/19/2024 5:28:11 PM Path: BIM 360://150360 - Western Navajo Pipeline (LoChee)/150360-A-CTRLBLDG_V21.rvt



2 A-102 WEST ELEVATION

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



1 A-102 EAST ELEVATION

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

GENERAL NOTES:

1. APPLY WATER REPELLENT AT EXTERIOR SURFACES OF 8" CMU AND CONCRETE CURB.

KEYNOTES:

1	HM DOOR AND FRAME, PAINT, RE: DOOR SCHEDULE
2	PREFINISHED MTL FASCIA, TYP.
3	PREFINISHED GALV METAL GUTTER AND DOWNSPOUT, TYP.
4	STANDING SEAM METAL ROOFING ON SYN. UNDERLAYMENT ON NAILBASE INSULATION ON MTL STRUCTURE, TYP, RE: STRUCT
5	SNOW GUARD, TYP.
6	CONCRETE SPLASHBLOCK, TYP.
7	LIGHT FIXTURE, RE: ELEC
8	8" SPLIT FACE CMU, COLOR 'A'
9	8" SMOOTH FACE CMU, COLOR 'B'
10	8" SPLIT FACE CMU, COLOR 'C'
11	8" SMOOTH FACE CMU, COLOR 'D'
12	CONCRETE CURB W/WATER REPELLENT, RE: STRUCT, TYP.

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SALT LAKE CITY, UT

SHORT AND BRENNAN ARCHITECTS

REGISTERED ARCHITECT
CERTIFICATE NO.
59478
GREGORY T. SHORT
ARIZONA U.S.A.

GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	C. CARDONA
DRAWN:	C. CARDONA
CHECKED:	G. SHORT
CHECKED:	
APPROVED:	G. SHORT

FILENAME

BC PROJECT NUMBER
153060

CLIENT PROJECT NUMBER
C010232

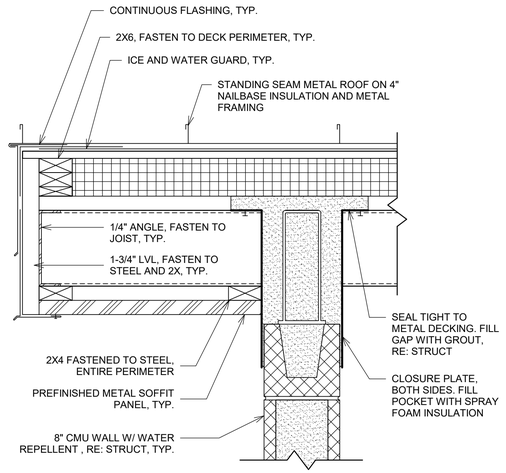
ARCHITECTURAL

CONTROL BUILDING ELEVATIONS

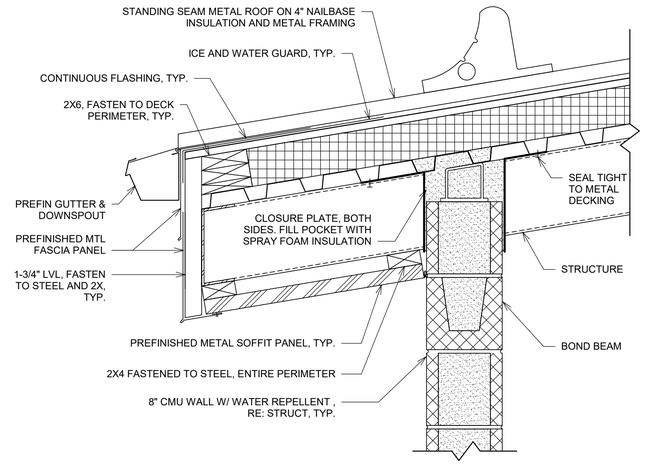
DRAWING NUMBER
A-104

SHEET NUMBER 29 OF 54

Plot Date: 4/19/2024 5:28:33 PM Path: BIM 360://150360 - Western Navajo Pipeline (LeChee)/150360-A-CTRLBLDG_V21.rvt



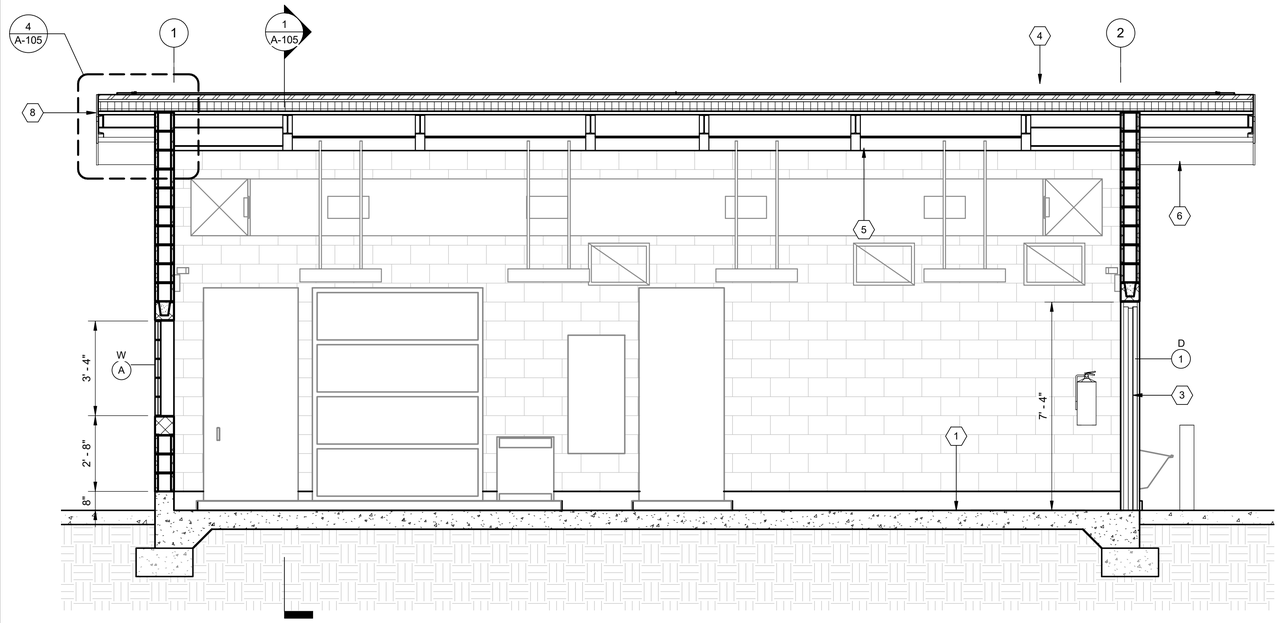
4 A-105 ROOF RAKE
SCALE: 1 1/2" = 1'-0"



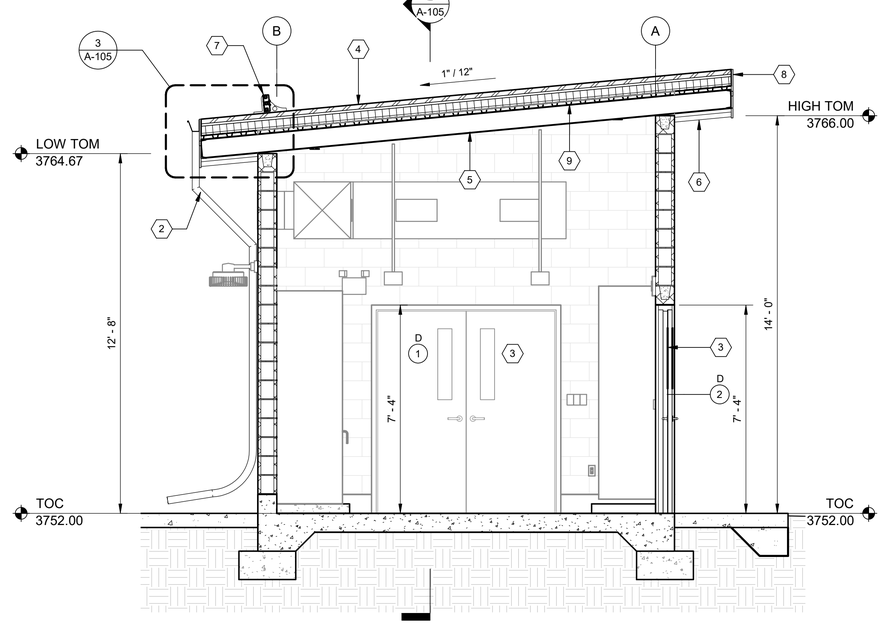
3 A-105 ROOF EAVE
SCALE: 1 1/2" = 1'-0"

KEYNOTES:

1 CONC SLAB, RE: STRUCT., TYP.
2 PREFINISHED GALV METAL GUTTER AND DOWNSPOUT, TYP.
3 HM DOOR AND FRAME, PAINT, TYP., RE: DOOR SCHEDULE
4 STANDING SEAM METAL ROOFING ON SYN. UNDERLAYMENT ON NAILBASE INSULATION ON MTL STRUCTURE, TYP, RE: STRUCT
5 GALVANIZED STEEL STRUCT AND DECKING, RE: STRUCT., TYP.
6 PREFINISHED METAL SOFFIT PANELS TO MATCH FASCIA, TYP. AT ROOF RAKES, EAVES, AND AREAS INDICATED
7 SNOW GUARD, TYP.
8 PREFINISHED MTL FASCIA, TYP.
9 OPEN STRUCTURE CEILING, PAINT STRUCTURE WHERE EXPOSED. PAINT JOIST AND DECKING CONTRASTING COLORS, TYP.



2 A-102 SECTION 2
SCALE: 3/8" = 1'-0"



1 A-102 SECTION 1
SCALE: 3/8" = 1'-0"

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REGISTERED ARCHITECT CERTIFICATE NO. 59478 GREGORY T. SHORT ARIZONA U.S.A.

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DRAWN: C. CARDONA
CHECKED: G. SHORT
CHECKED:
APPROVED: G. SHORT
FILENAME

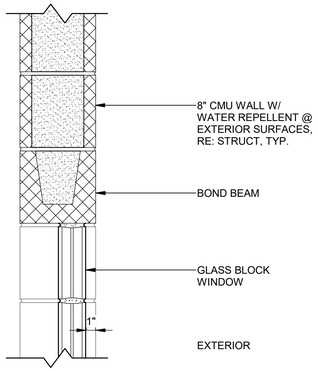
BC PROJECT NUMBER 153060
CLIENT PROJECT NUMBER C010232

ARCHITECTURAL

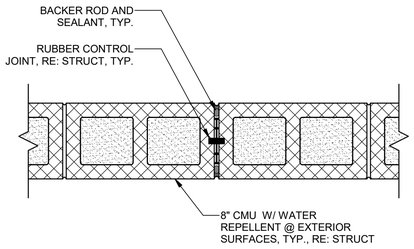
CONTROL BUILDING SECTIONS

DRAWING NUMBER
A-105
SHEET NUMBER 30 OF 54

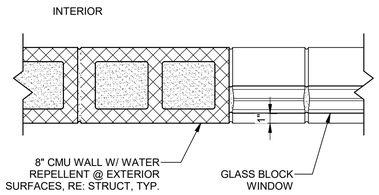
Path: BIM 360://150360 - Western Navajo Pipeline (LeChee)/150360-A-CTRLBLDG_V21.rvt
Plot Date: 4/19/2024 5:30:09 PM



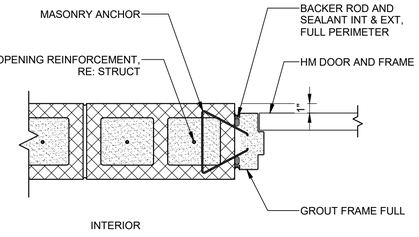
6 GLASS BLOCK HEAD
SCALE: 1 1/2" = 1'-0"



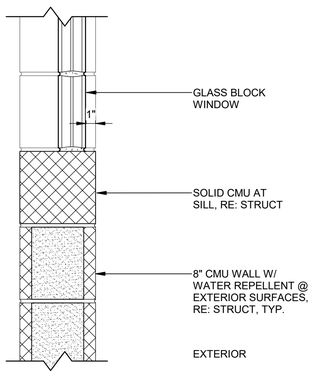
3 MASONRY CONTROL JOINT
SCALE: 1 1/2" = 1'-0"



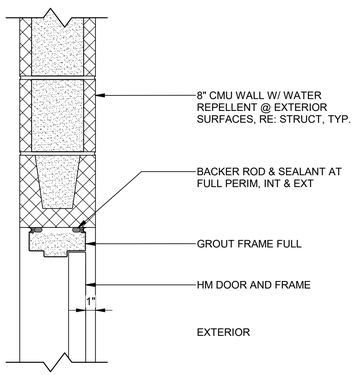
5 GLASS BLOCK JAMB
SCALE: 1 1/2" = 1'-0"



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



4 GLASS BLOCK SILL
SCALE: 1 1/2" = 1'-0"

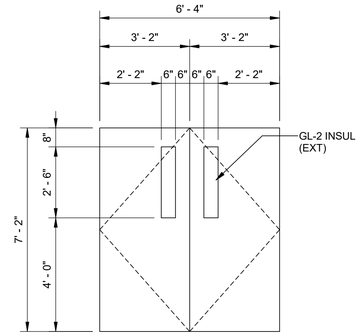


1 DOOR HEAD
SCALE: 1 1/2" = 1'-0"

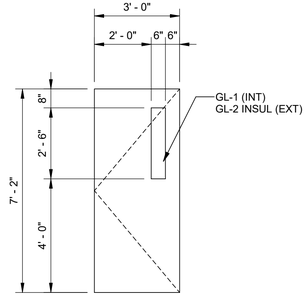
DOOR SCHEDULE

DOOR NO.	DOORS TYPE	DIMENSIONS W	H	TH	MATERIAL	GENERAL HDWRE	RATING	FRAMES TYPE	DETAILS HEAD	JAMB	MATERIAL	COMMENTS REMARKS
1	A	6' - 4"	7' - 2"	1 3/4"	HM	5		1	1/A-106	2/A106	HM	
2	B	3' - 0"	7' - 0"	1 3/4"	HM	2		2	1/A-106	2/A-106	HM	

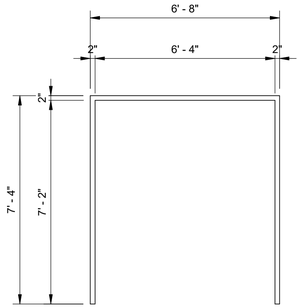
DOOR AND FRAME ELEVATIONS



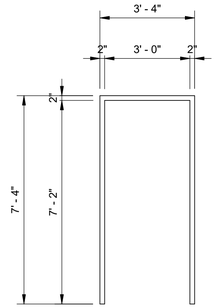
DOOR A



DOOR B

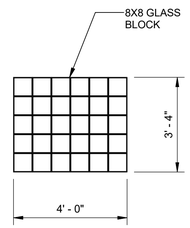


FRAME 1



FRAME 2

WINDOW ELEVATIONS



TYPE A

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DRAWN: C. CARDONA
CHECKED: G. SHORT
CHECKED:
APPROVED: G. SHORT
FILENAME
BC PROJECT NUMBER 153060
CLIENT PROJECT NUMBER C010232

ARCHITECTURAL

CONTROL BUILDING DOOR SCHEDULE AND DETAILS

DRAWING NUMBER
A-106

SHEET NUMBER 31 OF 54

Plot Date: 4/19/2024 5:29:10 PM Path: BIM 360://150360 - Western Navajo Pipeline (LeChee)/150360-A-CTRLBLDG_V21.rvt

SYMBOLS:

CIRCUIT AND RACEWAYS:

RACEWAY OR WIRING SYSTEM ABOVE FLOOR LEVEL BELOW CEILING, EXPOSED, UON.

RACEWAY OR WIRING SYSTEM ABOVE FLOOR LEVEL. CONCEALED IN WALL OR ABOVE CEILING, UON.

RACEWAY OR WIRING SYSTEM IN OR UNDER FLOOR, OR CONCEALED IN OR BEHIND STRUCTURE OR EQUIPMENT, OR CONDUIT ROUTED BELOW GRADE IN CONCRETE ENCASEMENT.

ELECTRICAL DUCTBANK

EMH — ELECTRICAL MANHOLE

EPB, IPB — ELECTRICAL PULLBOX, INSTRUMENT PULLBOX.

PNL-A-1,3,5 — HOME RUN: DESIGNATIONS INDICATE A ONE-LINE DIAGRAM OR PANELBOARD SCHEDULE REFERENCE.
EXAMPLE: TO PANELBOARD PNL-A, CIRCUITS 1, 3, AND 5.

RACEWAY OR WIRING SYSTEM: UP ON PLAN DRAWINGS

RACEWAY OR WIRING SYSTEM: DOWN ON PLAN DRAWINGS

RACEWAY OR WIRING SYSTEM CHANGE IN ELEVATION

EMPTY CONDUIT STUB AND CAP

SHH23 — SIGNAL (S), LOW VOLTAGE (L), OR MEDIUM VOLTAGE (M), HANDHOLE (HH) OR MANHOLE (MH) WITH DESIGNATION. EXAMPLE: SIGNAL HANDHOLE NUMBER 23.

JB 2700A — JUNCTION BOX WITH OPTIONAL IDENTIFIER.

JUNCTION BOX, WALL MOUNTED.

TB 1035 — TERMINAL BOX WITH OPTIONAL IDENTIFIER
EXAMPLE: TERMINAL BOX #1035

GROUNDING:

GROUND ROD, 3/4" x 10'-0", COPPERCLAD

GROUND ROD AND TEST WELL

LIGHTNING ROD

GROUND CONNECTION

G — G — GROUNDING SYSTEM CONDUCTOR

L — L — LIGHTNING SYSTEM CONDUCTOR

G — EQUIPMENT GROUND PLATE

OHE — OHE — OVERHEAD POWER LINE

METERING (ANSI/IEEE FUNCTIONS AS SPECIFIED):

ID# — POWER MONITOR (PM), POWER QUALITY MONITOR (HARMONIC ANALYSIS) (PQM), MOTOR MONITOR AND PROTECTION RELAY (MPR), FEEDER PROTECTION RELAY (FPR)

POWER DISTRIBUTION EQUIPMENT:

APPROXIMATE SHAPE AND SCALE WITH ESTIMATED SIZE AND NUMBER OF SECTIONS

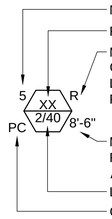
FLOOR MOUNTED SWITCHBOARD OR MOTOR CONTROL CENTER

MCC 1100 / OR MCC-M — EQUIPMENT NUMBER

WALL MOUNTED PANELBOARD OR CABINET

PBD 1200 — EQUIPMENT NUMBER

LUMINARIES:



NUMBER OF FIXTURES (OPTIONAL)
FIXTURE TYPE PER LUMINAIRE SCHEDULE
MOUNTING TYPE:
G = GROUND R = RECESSED
L = POLE S = SURFACE
P = PENDANT W = WALL
MOUNTING HEIGHT:
FLOOR TO CENTER OF FIXTURE.
AHAP = AS HIGH AS POSSIBLE
LAMP NUMBER AND WATTAGE
CONTROL: PHOTOCELL, SWITCH, CONTACTOR

RECESSED MOUNTED FIXTURE

SUSPENDED PENDANT MOUNTED FIXTURE

SURFACE MOUNTED FIXTURE

RECESSED, SURFACE OR PENDANT

WALL MOUNTED

DIRECTIONAL LIGHT

POLE-MOUNTED AREA LIGHT: ONE POLE AND TWO FIXTURES SHOWN

EMERGENCY LIGHTING UNIT WITH BATTERY CHARGER

EXIT LIGHTS WITH DARK QUADRANTS INDICATE ILLUMINATED FACES:

SURFACE ON CEILING

WALL MOUNTED

EXIT DIRECTIONAL ARROWS

LIGHTING CONTROL AND CIRCUITING:

3a — LIGHTING CIRCUIT IDENTIFIER:
3a INDICATES FIXTURE POWERED FROM CIRCUIT 3 AND CONTROLLED BY SWITCH a

NL — EMERGENCY LIGHTING FIXTURES WITH EMERGENCY BALLAST
NL = UNSWITCHED POWER SOURCE

PCU — PHOTOELECTRIC CONTROL UNIT

CIRCUIT IDENTIFICATION:

P101-1: 3-1/0, 6G, 2"C	CIRCUIT P101-1: THREE 1/0 CONDUCTORS, ONE NO. 6 AWG GROUND WIRE IN 2" CONDUIT
P101-2: 2 [3-1/0, 6G, 2"C]	P101-2: TWO PARALLEL SETS OF THREE 1/0 CONDUCTORS, ONE NO. 6 AWG GROUND EACH IN 2" CONDUIT
C113: 12/C #14, 2"C	CONTROL CIRCUIT C113: ONE-TWELVE CONDUCTOR #14 AWG CONTROL CABLE
S111: 2-1 PR #16S, 1"C	SIGNAL CIRCUIT S111: TWO SIGNAL CABLES OF ONE PAIR 16 AWG TWISTED SHIELDED CABLES IN 1" CONDUIT
S112: 1-4 PR #16S, 1"C	SIGNAL CIRCUIT S112: ONE - FOUR PAIR 16 AWG SHIELDED IN 1" CONDUIT

TELEPHONE SYSTEMS:

EXTERNAL LINE OR PLANT PHONE SYSTEM OUTLET

WIRING DEVICES:

SWITCHES:

$ — SINGLE POLE SWITCH.

$$ — GANGED SWITCHES IN COMMON BOX WITH COMMON WALL PLATE

$ with a, 3 — SWITCH SUPERSCRIPT MODIFIER: LOWER CASE LETTER INDICATES LUMINAIRE CONTROLLED (I.E. a, b, c, ect). MAY BE COMBINED WITH CIRCUIT NUMBER (I.E. 1a, 4b, ect.)
SWITCH SUBSCRIPT MODIFIER: UPPER CASE LETTER OR NUMBER
2 = DOUBLE POLE
3 = THREE WAY
4 = FOUR WAY
K = KEY OPERATED
M = HORSEPOWER RATED MANUAL STARTER
MC = MOMENTARY CONTACT, THREE POSITION
MS = MANUAL (MOTOR) STARTER OR SWITCH
R = RHEOSTAT (DIMMER OR SPEED CONTROL)
F = FLUSH MOUNTED
WP = WEATHERPROOF

RECEPTACLES:

3, GF — SINGLE STROKE - SINGLE OUTLET
DOUBLE STROKE - DUPLEX OUTLET

RECEPTACLE MODIFIERS:
3 = BRANCH CIRCUIT NUMBER
C = CLOCK HANGER
GF = GROUND FAULT CIRCUIT INTERRUPTER
WP = WEATHERPROOF

480V RECEPTACLE

10-50R — SPECIAL RECEPTACLE. RATING OR NEMA CONFIGURATION. EXAMPLE: NEMA 10-50R, 125/250V, 3 POLE, 3 WIRE, 50 AMP, NON-GROUNDING TYPE

RECESSED FLOOR RECEPTACLE

SURFACE FLOOR RECEPTACLE

GANGED RECEPTACLES: IN COMMON BOX WITH COMMON WALL PLATE

EQUIPMENT AND AREA CLASSIFICATIONS:

M — MOTOR

INDIVIDUAL MOTOR STARTER

COMBINATION MOTOR STARTER

100A — NON-FUSED DISCONNECT: 100A, 3POLE

F, 60A — FUSED DISCONNECT

FIELD INSTRUMENT

FIELD INSTRUMENT MOUNTED ON CONTROL STATION MOUNTING STAND. TYPICAL FOR ALL EQUIPMENT.

CS — CONTROL STATION. CONFIGURATION ACCORDING TO CONTROL DIAGRAMS. REFER TO P&ID FOR HAND STATION EQUIVALENT DEVICES.

HS 1311 — HAND STATION EQUIPMENT DESIGNATOR

CI-D1, CI-D2 — HAZARDOUS AREA CLASSIFICATION

UNCLASSIFIED — UNCLASSIFIED AREA

CORROSIVE — CORROSIVE AREA

ANTENNA

ABBREVIATIONS:

NOTES:
1. ABBREVIATIONS SHOWN ON ELECTRICAL DRAWINGS ARE IN ACCORDANCE WITH ASME STANDARD Y14.38A
2. ABBREVIATIONS ON THIS SHEET ARE IN ADDITION TO THE ABBREVIATIONS DEFINED ON OTHER DRAWINGS.
3. ABBREVIATIONS HERE IN SHALL TAKE PRECEDENCE IN CASE OF CONFLICT.
4. ABBREVIATIONS ARE NOT EQUIPMENT NUMBERING PREFIXES LISTED ON OTHER DRAWINGS.

A, AMP	AMP(S), AMPERE(S)	HH	HANDHOLE	OWS	OPERATOR WORKSTATION
AC	ALTERNATING CURRENT	HID	HIGH INTENSITY DISCHARGE	P	POLE, PHASE
AFF	ABOVE FINISHED FLOOR	HP	HORSEPOWER	PB	PUSH-BUTTON, PULLBOX
AHAP	AS HIGH AS POSSIBLE	HPS	HIGH PRESSURE SODIUM	PCP	PROCESS CONTROL PANEL
AIC	AMPS INTERRUPTING CAPACITY, SYMM.	HTR	HEATER	PF	POWER FACTOR
AL	ALUMINUM	HV	HIGH VOLTAGE	PH	PHASE
ARCH	ARCHITECT(URAL)	HVAC	HEATING, VENTILATION, & AIR CONDITIONING	PLC	PROGRAMMABLE LOGIC CONTROLLER
ASYM	ASYMMETRICAL	HZ	HERTZ (CYCLES PER SECOND)	PMM	POWER MONITORING MODULE
AUTO	AUTOMATIC	I/O	INPUT / OUTPUT	PNL	PANEL
AUX	AUXILIARY	ICOM	INTERCOM	PP	POWER PANEL
AWG	AMERICAN WIRE GAUGE	ID	INSIDE DIAMETER	PRI	PRIMARY
BC	BARE COPPER	IMC	INDIVIDUAL MOTOR CONTROLLER	PT	POTENTIAL TRANSFORMER
BLDG	BUILDING	INCAND	INCANDESCENT	PVC	POLYVINYL CHLORIDE
BOT	BOTTOM	INST	INSTANTANEOUS, INSTRUMENT	PWR	POWER
C	CONDUCTOR, CONDUIT	INTLK	INTERLOCK	RCPT	RECEPTACLE
CB	CIRCUIT BREAKER	IPB	INSTRUMENT PULLBOX	RE STL	REINFORCED STEEL
CKT	CIRCUIT	JB	JUNCTION BOX	REF	REFERENCE
CLG	CEILING	KCMIL	1000 CIRCULAR MIL	REQD	REQUIRED
CM	CENTIMETERS	kV	KILOVOLT	RMS	ROOT MEAN SQUARE
CNTL	CONTROL	kVA	KILOVOLT-AMPERE	RTD	RESISTANCE TEMPERATURE DETECTOR
CONC	CONCRETE	kVAR	KILOVOLT-AMPERE REACTIVE	RTU	REMOTE TERMINAL UNIT
CPT	CONTROL POWER TRANSFORMER	KW	KILOWATT	SA	SURGE ARRESTOR
CT	CURRENT TRANSFORMER	KWH	KILOWATT HOUR	SCR	SILICON CONTROLLED RECTIFIER
CU	COPPER	L	LONG	SD	SMOKE DETECTOR
DB	DIRECT BURIAL	LA	LIGHTNING ARRESTOR	SEC	SECONDARY
DC	DIRECT CURRENT, DATA CABLE	LCP	LOCAL CONTROL PANEL	SEL	SELECTOR
DET	DETAIL	LT	LONG TIME	SPD	SURGE PROTECTIVE DEVICE
DIAG	DIAGRAM	LTG	LIGHTING	SPEC	SPECIFICATION
DISC	DISCONNECT	LV	LOW VOLTAGE	SPKR	SPEAKER
DWG	DRAWING	M	METER	ST	SHORT TIME
EA	EACH	MA	MILLIAMPERE	SUB	SUBSTATION
EC	EMPTY CONDUIT	MBS	MANUAL BYPASS SWITCH	SW	SWITCH
ECP	EQUIPMENT CONTROL PANEL	MCC	MOTOR CONTROL CENTER	SWBD	SWITCHBOARD
EDB	ELECTRICAL DUCTBANK	MCP	MOTOR CIRCUIT PROTECTOR	SWGR	SWITCHGEAR
EG	ENGINE GENERATOR SET	MECH	MECHANICAL	SYMM	SYMMETRICAL
EL	ELEVATION	MFR	MANUFACTURE	SYS	SYSTEM
ELEC	ELECTRIC(AL)	MH	MANHOLE, METAL HALIDE	TB	TERMINAL BOX
EMER	EMERGENCY	MIC	MICROPHONE	TEL	TELEPHONE
EMH	ELECTRICAL MANHOLE	MISC	MISCELLANEOUS	TEMP	TEMPERATURE
ENCL	ENCLOSURE / ENCLOSED	MM	MILLIMETER	TFR	TRANSFORMER
EP	EXPLOSION PROOF	MOV	MOTOR OPERATED VALVE	TRI	TRIAD
EPB	ELECTRICAL PULLBOX	MPC	MINI POWER CENTER	TV	TELEVISION
EQUIP	EQUIPMENT	MTS	MANUAL TRANSFER SWITCH	TYP	TYPICAL
EX	EXISTING	MV	MILLIVOLT, MEDIUM VOLTAGE	U/G	UNDERGROUND
F.O.	FAIL OPENED	MVMC	MEDIUM VOLTAGE MOTOR CONTROL	UON	UNLESS OTHERWISE NOTED
FDR	FEEDER	N.C.	NORMALLY CLOSED	UPS	UNINTERRUPTIBLE POWER SUPPLY
FL	FLUORESCENT	N.O.	NORMALLY OPENED	V	VOLT
FLA	FULL LOAD AMPS	N/A	NOT APPLICABLE	VA	VOLT-AMPERE
FLEX	FLEXIBLE CONDUIT	NEUT,N	NEUTRAL	VAR	VOLT-AMPERE REACTIVE
FM	FLOW METER	NF	NON-FUSED	VC	VACUUM CONTACTOR
FO	FIBER OPTIC	NIC	NOT IN CONTRACT	W	WATT, WIRE, WIDE
FUT	FUTURE	NO.	NUMBER	W/	WITH
GDR	GROUNDING RESISTOR	NOM	NOMINAL	W/O	WITHOUT
GEC	GROUND ELECTRODE CONDUCTOR	NP	NAMEPLATE	WG	WITH GROUND
GF	GROUND FAULT	NTS	NOT TO SCALE	WP	WEATHERPROOF
GFI	GROUND FAULT INTERRUPTER	OC	ON CENTER	WW	WIREWAY
GND, G	GROUND	OD	OUTSIDE DIAMETER	XMTR	TRANSMITTER
GRS	GALVANIZED RIGID STEEL	OH	OVERHEAD	Z	IMPEDANCE
H	HIGH	OIS	OPERATOR INTERFACE STATION		
HGT	HEIGHT	OT	OIL TIGHT		

Brown AND Caldwell

SALT LAKE CITY, UT

Registered Professional Engineer — 79150 — DANIEL E. EHMANN — Date Signed 05/10/24 — ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	D. EHMANN
DRAWN:	Q. SMITH
CHECKED:	R. MILLS
CHECKED:	K. CHANDLER
APPROVED:	S. BRENCHLEY

FILENAME
E-001.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

ELECTRICAL

SYMBOLS, ABBREVIATIONS AND NOTES

DRAWING NUMBER

E-001

SHEET NUMBER 32 OF 54

CONTROL DIAGRAMS:

LINEWORK:

- CONDUCTORS CONNECTED
- CONDUCTORS NOT CONNECTED

MISCELLANEOUS:

- MCP, 15 AMP — MOTOR CIRCUIT PROTECTOR (MCP) MAGNETIC-ONLY CIRCUIT BREAKER
- 15 AMP — THERMAL-MAGNETIC CIRCUIT BREAKER
- FU 2B, 15 AMP — FUSE WITH SIZE AND OPTIONAL IDENTIFICATION
- FU 2B, 15 AMP — FUSE WITH BLOWN FUSE INDICATOR
- SIZE — DISCONNECT SWITCH
- MTR — MOTOR (PHASES AS REQUIRED)
- SOLENOID VALVE OR OVERLOAD TRIP UNIT
- 250W — SPACE HEATER AND WATTAGE
- 480V / 120V, 250VA — CONTROL TRANSFORMER. PRIMARY & SECONDARY VOLTAGE SHOWN, SIZE OPTIONAL
- 50/3, CT (3) — CURRENT TRANSFORMER WITH PRIMARY / SECONDARY TURNS RATIO
- HORN / SIREN
- KVAR — POWER FACTOR CORRECTION CAPACITOR
- XX — MOTOR STARTER TERMINATION POINT
- XX — PLC I/O POINTS:
  - DO = DIGITAL OUT SIGNAL
  - DI = DIGITAL IN SIGNAL
  - AO = ANALOG OUT SIGNAL
  - AI = ANALOG IN SIGNAL

STATUS INDICATORS: SHOWN WITH DESCRIPTION AND COLOR (X):

- A = AMBER
- B = BLUE
- G = GREEN
- R = RED
- W = WHITE

INDICATORS:

- X — STATUS (X = COLOR)
- X1 — PUSH TO TEST
- TEST, X — REMOTE TEST
- X — BACK-LIT PUSH-BUTTON

DESCRIPTION (TYP)

COILS:

- C — LTG CTK #1
- CR, 10 — AUTO ENABLE
- TR, 9 — ON or OFF DELAY RANGE x to xx SEC/MIN SET AT x SEC/MIN
- U, L, LR, 8

A) RELAYS OR CONTACTOR COILS WITH DESCRIPTION OR REFERENCE
- C = CONTACTOR, LIGHTING OR GENERAL USE
- F = FAST OR FORWARD
- IC = ISOLATION CONTACTOR
- M = MAIN OR LINE
- MO = MOTOR OPERATED
- R = RUN OR REVERSE
- S = SLOW OR START
- T = TRIP COIL
- 1M = FIRST MAIN OR WYE
- 2M = SECOND OR DELTA

B) RELAY COILS WITH NUMERIC PREFIX OR SUFFIX
- CR = CONTROL RELAY
- MR = MACHINE TOOL RELAY
- TR = TIMING RELAY

C) TIME DELAY COIL WITH NUMERIC PREFIX OR SUFFIX, DELAY ACTION, TIMING RANGE AND SETTING

D) MECHANICALLY LATCHED RELAY WITH UNLATCH COIL

- OL (SSOL) — THERMAL OVERLOAD RELAY OR SOLID STATE OVERLOAD RELAY
- A — METER WITH ALPHA IDENTIFIERS
  - ETM= ELAPSED TIME
  - A = AMMETER
  - V = VOLTMETER

POWER CONTACTORS:

- M, SIZE 3 — AIR-BREAK CONTACTOR WITH NEMA SIZE
- M, SIZE 6 — VACUUM CONTACTOR WITH NEMA SIZE
- M, SIZE 2 — REDUCED VOLTAGE SOLID STATE STARTER

SWITCH OR INTERLOCK CONTACTS:

NORMALLY OPEN (NO)	NORMALLY CLOSED (NC)	
CR12, LINE 12	CR9, LINE 25	CONTROL RELAY CONTACTS
TR3, TC, LINE 43 OR	TR4, TO, LINE 44 OR	ON DELAY (DELAY ON COIL ENERGIZATION) RELAY CONTACTS TC = NORMALLY OPEN, TIME CLOSED TO = NORMALLY CLOSED, TIME OPENED
TR5, TO, LINE 45 OR	TR6, TC, LINE 46 OR	OFF DELAY (DELAY ON COIL DE-ENERGIZATION) RELAY CONTACTS TO = NORMALLY OPEN, TIME OPENED TC = NORMALLY CLOSED, TIME CLOSED
TR5, INST, LINE 45	TR6, INST, LINE 46	TIME DELAY RELAY INSTANTANEOUS CONTACTS

SWITCHES: (SHOWN WITH OPTIONAL LOCATION REFERENCE)

NORMALLY OPEN (NO)	NORMALLY CLOSED (NC)	
5ZS, VALVE FV010	1ZS, VALVE FV0101	LIMIT: FREE
3ZS, VALVE FV0101	7ZS, VALVE FV0101	LIMIT: HELD
FS3	FS3	FLOW
TS1	TS1	TEMPERATURE
PS1	PS1	PRESSURE
LS5	LS5	LEVEL
WS2	WS2	FORCE OR TORQUE
SS1	SS1	SPEED
HSxxx, AT PNLxxx	HSxxx, AT PNLxxx	MOMENTARY PUSH-BUTTON
STOP, AT DRIVE		MUSHROOM HEAD MOMENTARY PUSH-BUTTON
OFF, ON, DESCRIPTION		MAINTAINED PUSH-BUTTON OR ROCKER SWITCH
1, 2, OX, AT PNLxxx		SELECTOR SWITCH: 2 POSITION MAINTAINED SWITCH POSITION X = CLOSED CONTACT O = OPEN CONTACT
1, 2, XO, OX, AT PNLxxx		SELECTOR SWITCH: 2 POSITION SPRING RETURN X = CLOSED CONTACT O = OPEN CONTACT
1, 2, 3, XOO, OOX, AT PNLxxx		SELECTOR SWITCH: 3 POSITION X = CLOSED CONTACT O = OPEN CONTACT

ONE LINE DIAGRAMS:

- CIRCUIT ROUTED IN UNDERGROUND DUCTBANK
- 12kV — INCOMING POWER SUPPLY
- CABLE TERMINATION: STRESS CONE FOR SHIELDED CABLES.
- LIGHTNING ARRESTOR
- SURGE ARRESTOR
- BUS DUCT OR BUSWAY
- STAB OR PULL-APART CONNECTION.
- 52A, 200A — AIR CIRCUIT BREAKER: TRIP RATING AND I.D.
- 3P, 400AT, 400AF, LSIG — AIR CIRCUIT BREAKER: BREAKER FRAME RATING / TRIP SETTING. SOLID STATE TRIP FEATURES SHOWN: L = LONG DELAY, S = SHORT DELAY, I = INSTANTANEOUS, G = GROUND FAULT
- 52-G1, E, 1000AT, 1200AF — POWER CIRCUIT BREAKER FRAME AND TRIP SETTING AND I.D. SHOWN
- 100A — POWER DISCONNECT OR ISOLATION SWITCH: CONTINUOUS RATING SHOWN. 30A, 3P
- F, OR, 100E, 200A — FUSED SWITCH: WITH TYPE AND RATINGS
- 1500 KVA, 13.2 KV - 480V, 3Ø, 4W — POWER TRANSFORMER: DESIGNATION, SIZE, PRIMARY AND SECONDARY VOLTAGES, AND WINDING CONFIGURATION
- WINDING CONFIGURATION: DELTA
- WYE (GROUNDED)
- 4160V - 120V — POTENTIAL TRANSFORMER WITH PRIMARY AND SECONDARY VOLTAGES AND WINDINGS QUANTITIES
- 250/5 — CURRENT TRANSFORMER: RATIO, QUANTITIES
- XS — METER SWITCH:
  - AS = AMMETER SWITCH
  - VS = VOLTMETER SWITCH
- A, 0 - 1000 AMPS — METER WITH RANGE:
  - A = AMMETER
  - W = WATTMETER
  - KWH = KILOWATT-HOUR METER
  - F = FREQUENCY METER
  - VAR = VAR METER
  - V = VOLTMETER
- 64 N — ANSI C37.2 DEVICE WITH QUANTITIES
- 600kW, 60 HZ — 480V, 3P,4W — G — OR — GENERATOR WITH RATING
- GDR, 50 AMP, 10 SEC — NEUTRAL GROUNDING RESISTOR: CURRENT / TIME RATING SHOWN
- K — KEY INTERLOCK

- 5 — MOTOR WITH HORSEPOWER
- NORMAL / EMERGENCY, MTS10, 60A, 3P, LOAD — POWER TRANSFER SWITCH WITH DESIGNATIONS, RATING AND CONFIGURATION
  - MTS = MANUAL TRANSFER SWITCH
  - ATS = AUTOMATIC TRANSFER SWITCH
- FVNR, 31 — MOTOR CONTACTOR (SIZE 1)
  - FVR = FULL VOLTAGE, REVERSING STARTER
  - FVNR = FULL VOLTAGE NON-REVERSING
  - RVSS = REDUCED VOLTAGE SOLID-STATE
  - 2S2W = TWO SPEED, TWO WINDING STARTER
- GROUND ROD ELECTRODE
- CONTROL STATION PER CONTROL DIAGRAMS
- FIELD INSTRUMENT OR DEVICE
- 55 KVAR — POWER FACTOR CORRECTION CAPACITOR: KVAR RATING

GENERAL NOTES:

1. SYMBOLS AND ABBREVIATION DRAWINGS ARE GENERAL IN NATURE
2. NOT ALL SYMBOLS OR ABBREVIATIONS SHOWN ON DRAWINGS E-001 AND E-002 ARE USED IN SUBSEQUENT DRAWINGS.

Brown AND Caldwell

SALT LAKE CITY, UT

Professional Engineer — 79150 — DANIEL E. EHMANN — Date Signed 05/10/24 — ARIZONA, U.S.A.

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FILENAME E-002.DWG
BC PROJECT NUMBER 150360
CLIENT PROJECT NUMBER C010232

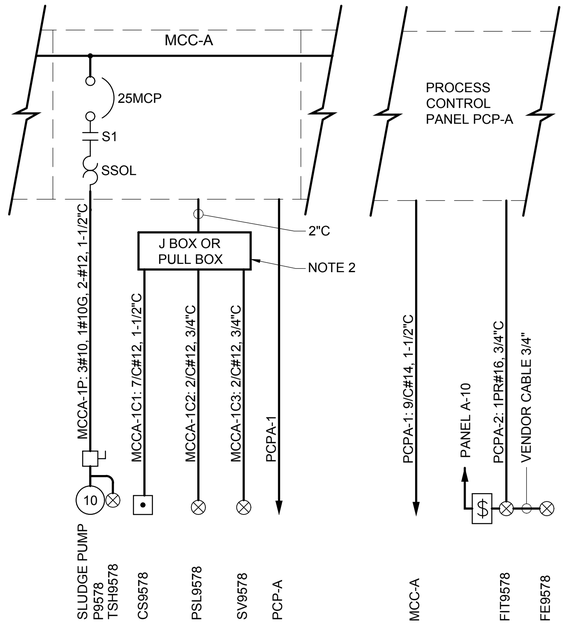
ELECTRICAL

CONTROL AND ONE-LINE DIAGRAM LEGENDS AND SYMBOLS

DRAWING NUMBER

E-002

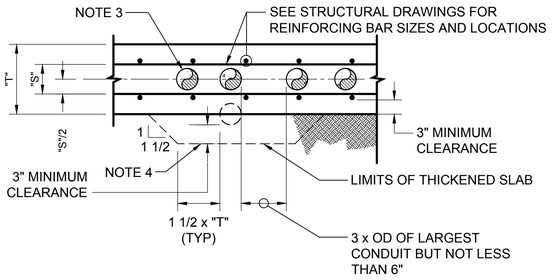
33 SHEET NUMBER OF 54



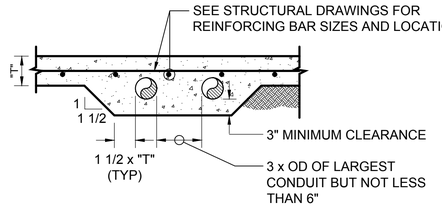
NOTES:

1. MOTOR CONTROL CENTER AND PROCESS CONTROL PANEL HOMERUN CIRCUIT DESIGNATIONS: REFER TO PLAN DRAWINGS.
2. PROVIDE TERMINATION BOX, PULL BOX FITTINGS, OR DUCTBANK TRANSITION, AS REQUIRED.

E1001 SINGLE-LINE DIAGRAM TYPICAL
NTS



DOUBLE MAT REINFORCEMENT

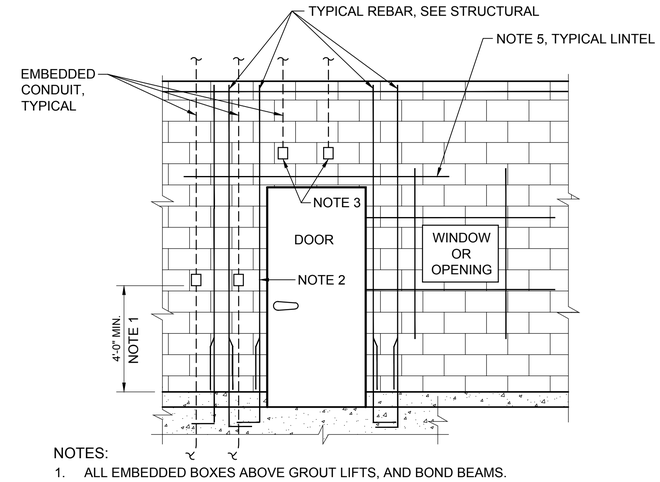


SINGLE MAT REINFORCEMENT

NOTES

1. OD = OUTSIDE DIAMETER OF CONDUIT.
2. "S" = CLEAR SPACE BETWEEN REINFORCING.
3. MAXIMUM OD = T/4 OR S - 1/2".
4. PLACE CONDUIT UNDER SLAB AND ENCASE IN CONCRETE WHERE OD GREATER THAN T/4 OR S - 1/2".
5. PROVIDE PVC OR PVC COATED CONDUITS WHERE IN CONTACT WITH REINFORCING.

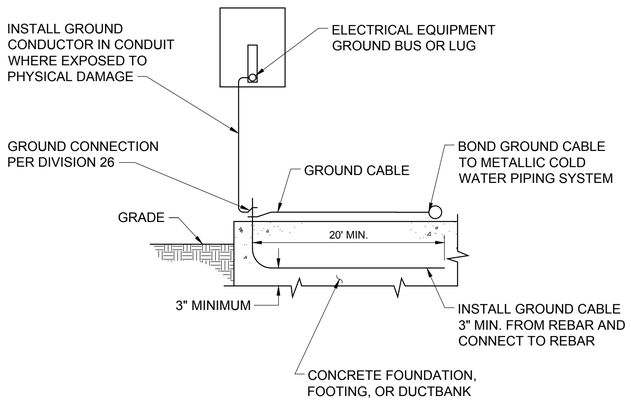
E2202 EMBEDDED RACEWAYS SLAB ON GRADE
NTS



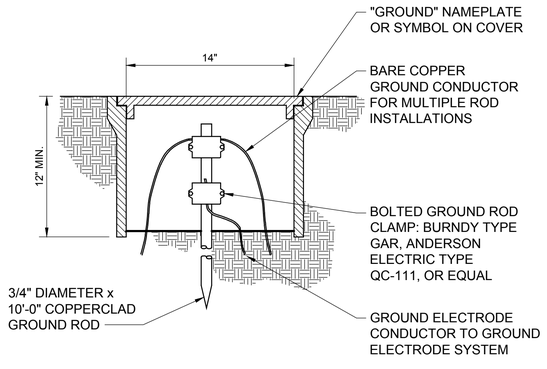
NOTES:

1. ALL EMBEDDED BOXES ABOVE GROUT LIFTS, AND BOND BEAMS.
2. EMBEDDED BOXES ARE NOT ALLOWED IN WALL BLOCK CELLS WITH VERTICAL REBAR.
3. EMBEDDED BOXES FOR EXIT LIGHTS, FIRE ALARMS, INTRUSION SWITCHES, ETC. ABOVE HORIZONTAL LINTEL. SEE STRUCTURAL FOR LINTEL HEIGHTS.
4. CUT OPENINGS IN CMU FOR EMBEDDED BOXES.
5. HORIZONTAL CONDUIT RUNS ARE NOT ALLOWED IN BOND BEAM OR LINTEL.
6. ELECTRICAL EQUIPMENT WEIGHING OVER 200 POUNDS MAY NOT BE ATTACHED TO WALLS. PROVIDE EQUIPMENT RACK PER DETAIL B/E-005.

E2211 EMBEDDED RACEWAYS CMU WALLS
NTS

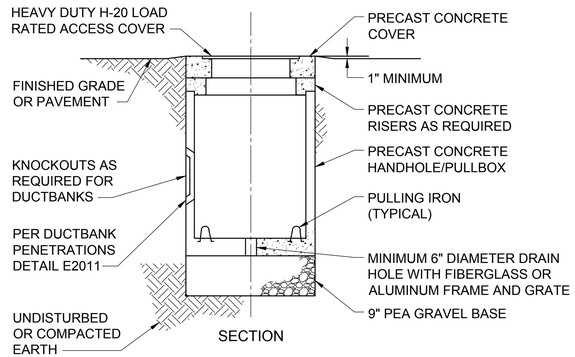


E3001 GROUND ELECTRODE CONCRETE ENCASED
NTS



NOTES:
1. TEST WELL OF CONCRETE, PVC, OR FRP MATERIAL.
2. H-20 LOAD RATED COVER FOR TEST WELL IN TRAFFIC AREA.

E3002 GROUND ELECTRODE TEST WELL
NTS



NOTES:

1. HANDHOLE/PULLBOX DEPTH, SIZE AND LOCATION PER DRAWINGS.
2. MINIMUM INTERIOR DIMENSIONS SHALL BE 3' x 3' x 3'D UON.
3. BOND DUCTBANK GROUND CONDUCTORS TOGETHER.
4. MANHOLE INTERIOR SPACE: CLASSIFIED AS CORROSIVE AREA PER SPECIFICATION DIVISION 26.
5. SEE SPECIFICATION 03 48 11 PRECAST CONCRETE VAULTS FOR STRUCTURAL REQUIREMENTS.

E2701 RACEWAY BOXES HANDHOLE/PULLBOX
NTS

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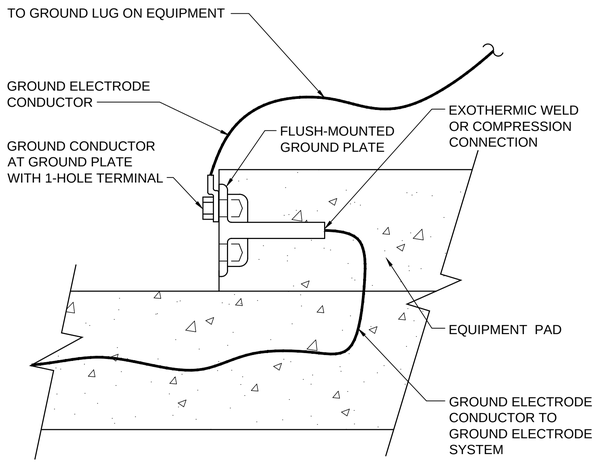
FILENAME E-003.DWG
BC PROJECT NUMBER 150360
CLIENT PROJECT NUMBER C010232

ELECTRICAL

STANDARD DETAILS 1

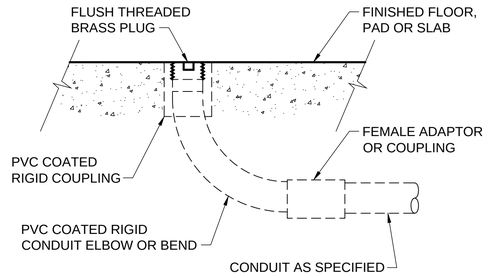
DRAWING NUMBER
E-003

SHEET NUMBER 34 OF 54

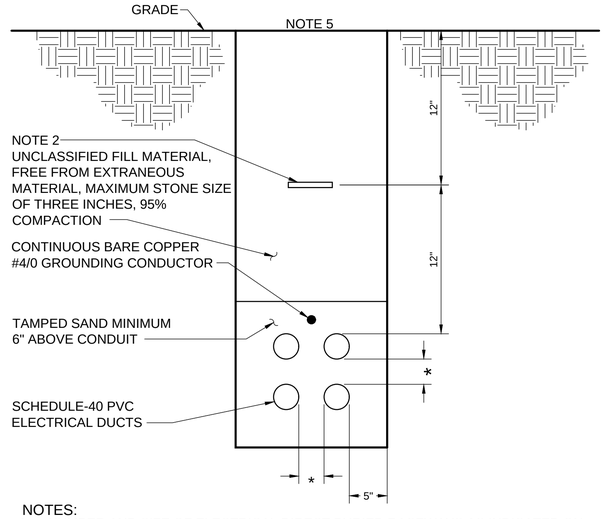


NOTE:
1. REQUIRED AT ELECTRICAL EQUIPMENT

E3101 EQUIPMENT GROUNDING GROUND PLATE IN SLAB
NTS

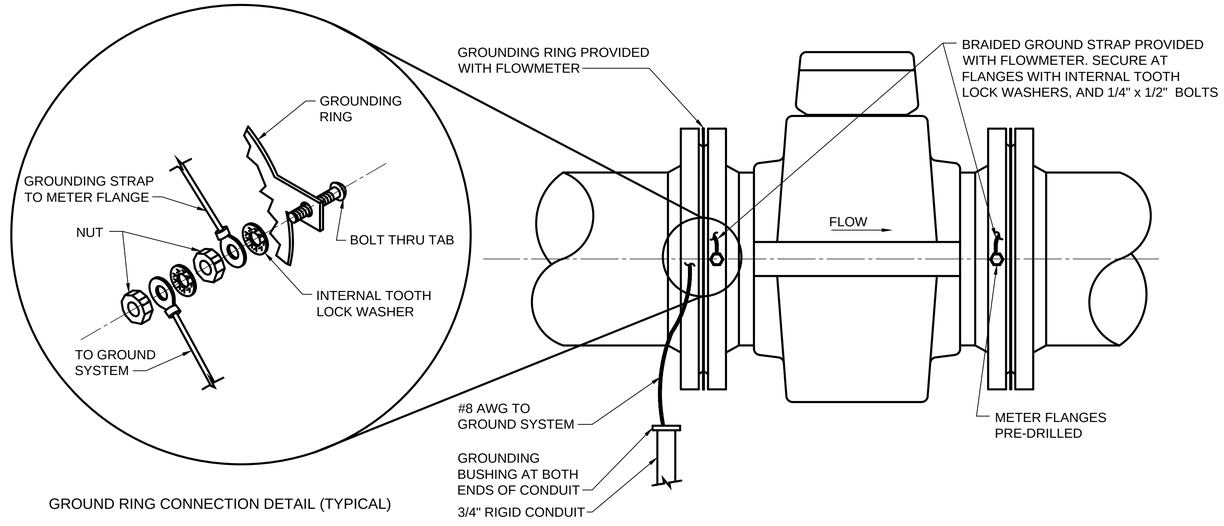


E2111 UNDERGROUND RACEWAYS FLUSH TERMINATION IN SLAB
NTS



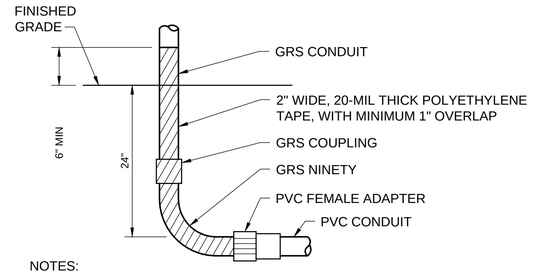
NOTES:
1. NUMBER AND SIZE OF ELECTRICAL DIRECT BURIED RACEWAYS AS INDICATED ON DRAWINGS OR SCHEDULES.
2. OSHA APPROVED 6" WIDE RED WARNING TAPE (IDEAL DU-601 OR EQUAL).
3. DIMENSIONS ARE MINIMUM.
4. BOND GROUNDING CONDUCTOR TO BUILDING GROUNDING ELECTRODES, POWER SOURCE AND LOAD ENCLOSURES.
5. REPLACE GRADING, PAVING AND CONCRETE TO MATCH EXISTING.

A TYP UNDERGROUND RACEWAYS DIRECT BURIED
SCALE: NONE



GROUND RING CONNECTION DETAIL (TYPICAL)

I4001 FLOW TRANSMITTER MAGNETIC - GROUNDING
NTS



NOTES:
1. WHERE CONDUITS ARE RUN IN SLAB, THE 24" DIMENSION DOES NOT APPLY.

B TYP GRS STUB UP
SCALE: NONE

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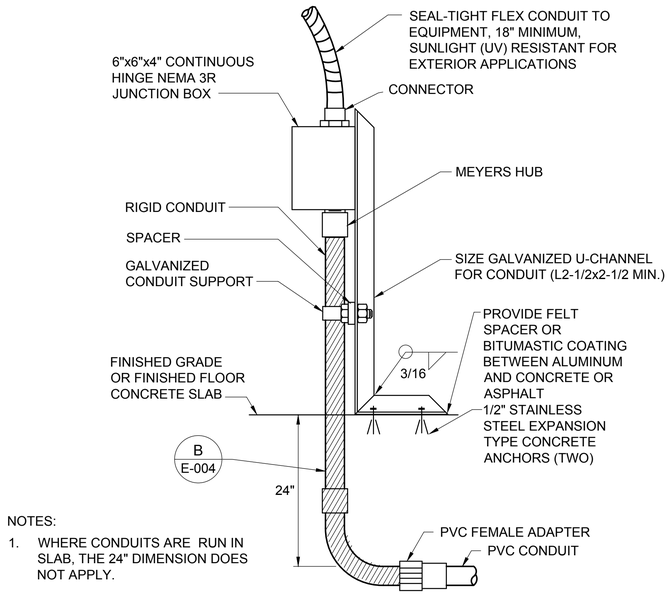
FILENAME E-004.DWG
BC PROJECT NUMBER 150360
CLIENT PROJECT NUMBER C010232

ELECTRICAL

STANDARD DETAILS 2

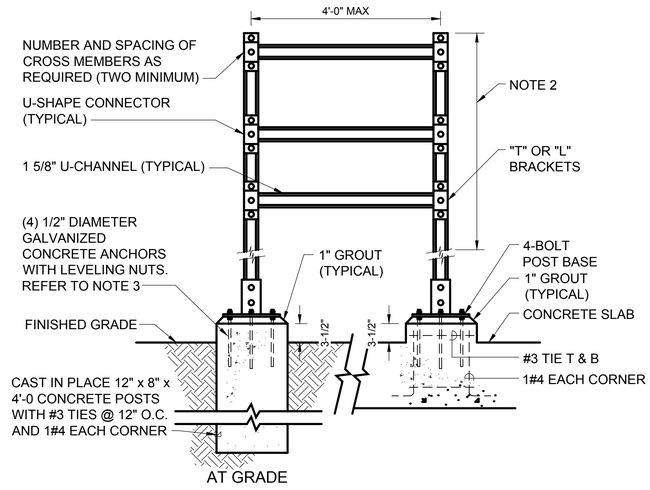
DRAWING NUMBER
E-004

SHEET NUMBER 35 OF 54



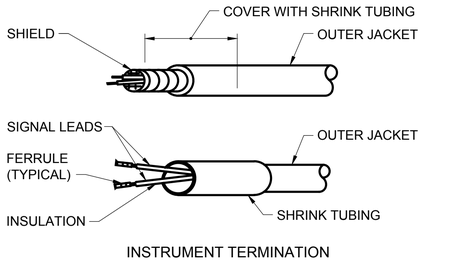
NOTES:
1. WHERE CONDUITS ARE RUN IN SLAB, THE 24" DIMENSION DOES NOT APPLY.

A TYP RIGID CONDUIT STUBUP & TRANSITION JB SUPPORT
SCALE: NONE

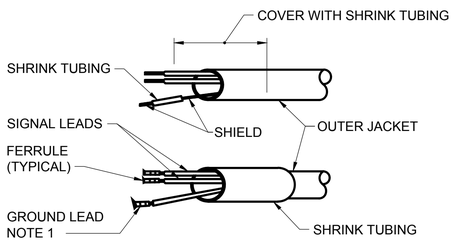


B TYP EQUIPMENT RACK
SCALE: NONE

NOTES:
1. EQUIPMENT RACK SIZING:
   A. ONE ITEM GREATER THAN 150 SQUARE INCHES.
   B. TWO EQUIPMENT ITEMS GREATER THAN 130 SQUARE INCHES.
   C. THREE OR MORE EQUIPMENT ITEMS.
   D. PROVIDE GALVANIZED CHANNEL END-CAPS, AND FITTINGS
   E. PROVIDE 1/4" MINIMUM ALUMINUM PLATE FOR SMALL ITEMS
2. MOUNT INDICATORS OR EQUIPMENT OPERATING HANDLES FOUR FEET ABOVE FLOOR OR PLATFORM.
3. REFER TO STRUCTURAL DRAWINGS AND SPECIFICATION FOR ANCHORAGE MATERIAL AND METHOD REQUIREMENTS.
4. MATERIAL AND HARDWARE PER SPECIFICATION DIVISION 26.



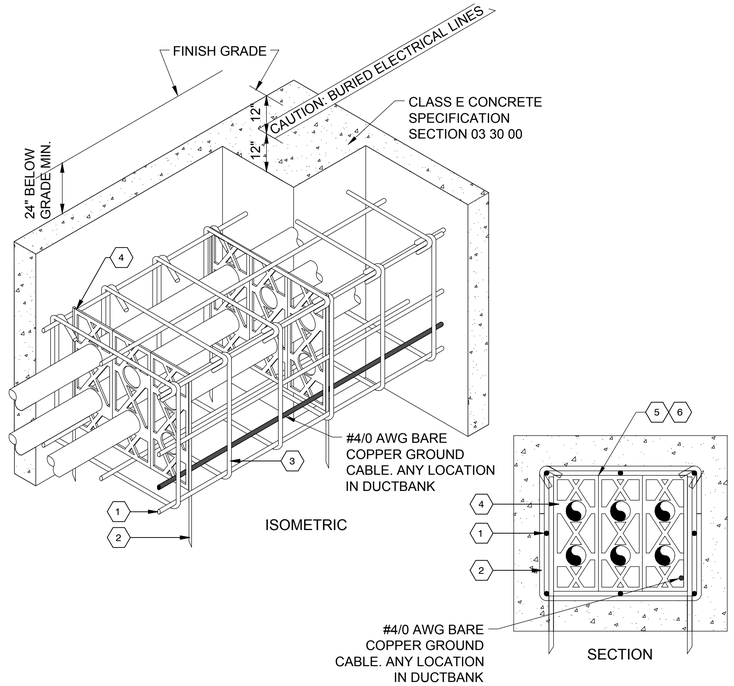
INSTRUMENT TERMINATION



PANEL TERMINATION

NOTE:
1. GROUND SHIELD AT PANEL NOT AT INSTRUMENT.

C TYP SHIELDED CABLE TERMINATION
SCALE: NONE



E11001 UNDERGROUND DUCTBANKS REINFORCED LARGE DUCTBANK
NTS

NOTES:
1. REFER TO SPECIFICATIONS DIVISION 26 FOR DUCTBANK CONSTRUCTION REQUIREMENTS.
2. INSTALL NUMBER AND SIZE OF ELECTRICAL DUCTS AS SHOWN ON DRAWINGS OR SCHEDULES.
3. PROVIDE OSHA APPROVED 6" WIDE RED WARNING TAPE (IDEAL DU-601 OR EQUAL).
4. DIMENSIONS ARE MINIMUM AND TYPICAL FOR OUTSIDE SURFACES.
5. BOND GROUNDING CONDUCTOR TO ALL GROUNDING ELECTRODES, INCLUDING BUILDING GROUNDING ELECTRODE AT EACH END OF DUCTBANK.
6. SADDLE-TYPE CONDUIT SPACERS (CARLON SNAP-LOC, SNAP-N-STAC, PW EAGLE PIPE, UNDERGROUND DEVICES, OR EQUAL).
7. PROVIDE PLYWOOD FOR DUCTBANK CONCRETE FORMS.

KEY NOTES:
1. PROVIDE #4 REINFORCING STEEL, 12" MAXIMUM ON CENTER GROUND ENTIRE PERIMETER OF DUCTBANK.
2. PROVIDE #4 REINFORCING STEEL TWO PIECE STIRRUPS 35" MAXIMUM ON CENTER AROUND PERIMETER OF DUCTBANK.
3. INSTALL #4 REINFORCING STEEL 36" MAXIMUM IN UNDESTURBED SOIL AT EVERY PVC CONDUIT SPACER LOCATION ALONG LENGTH OF DUCT BANK TO PREVENT DUCT BANK FROM FLOATING DURING CONCRETE POUR. PROVIDE TWO #4 REINFORCING STEEL UPRIGHTS PER PVC CONDUIT SPACER LOCATION.
4. INSTALL PVC CONDUIT SPACERS ON 5'-0" CENTERS LOCATED 12" FROM STIRRUPS.
5. PROVIDE 2" SEPARATION FOR CONDUITS LESS THAN 4".
6. PROVIDE 3" SEPARATION FOR CONDUITS 4" AND LARGER.

Brown AND Caldwell
SALT LAKE CITY, UT

Professional Engineer — 79150 — DANIEL E. EHMANN — Date Signed 05/10/24 — ARIZONA, U.S.A.

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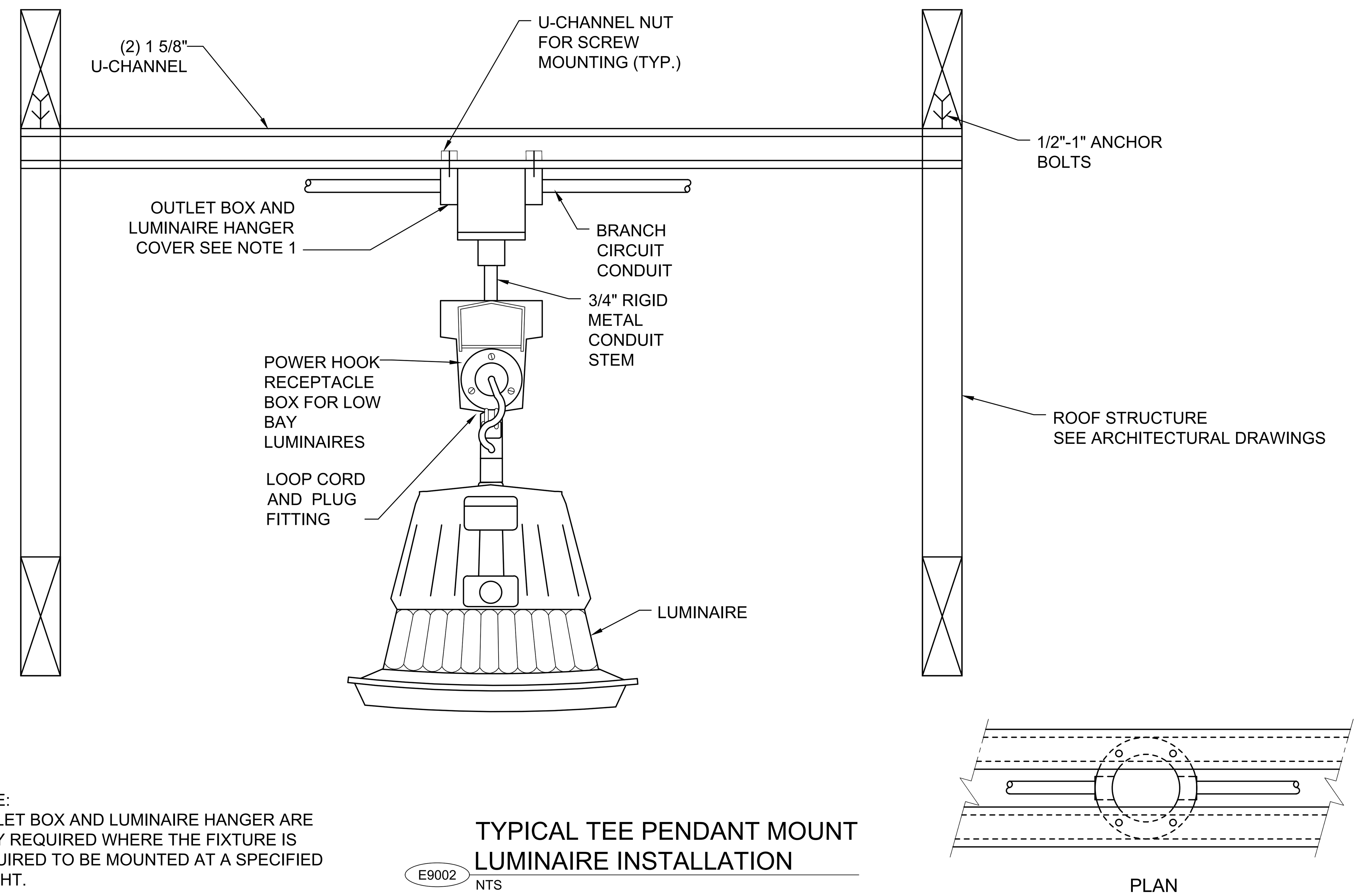
BC PROJECT NUMBER 150360
CLIENT PROJECT NUMBER C010232

ELECTRICAL

STANDARD DETAILS 3

DRAWING NUMBER
E-005

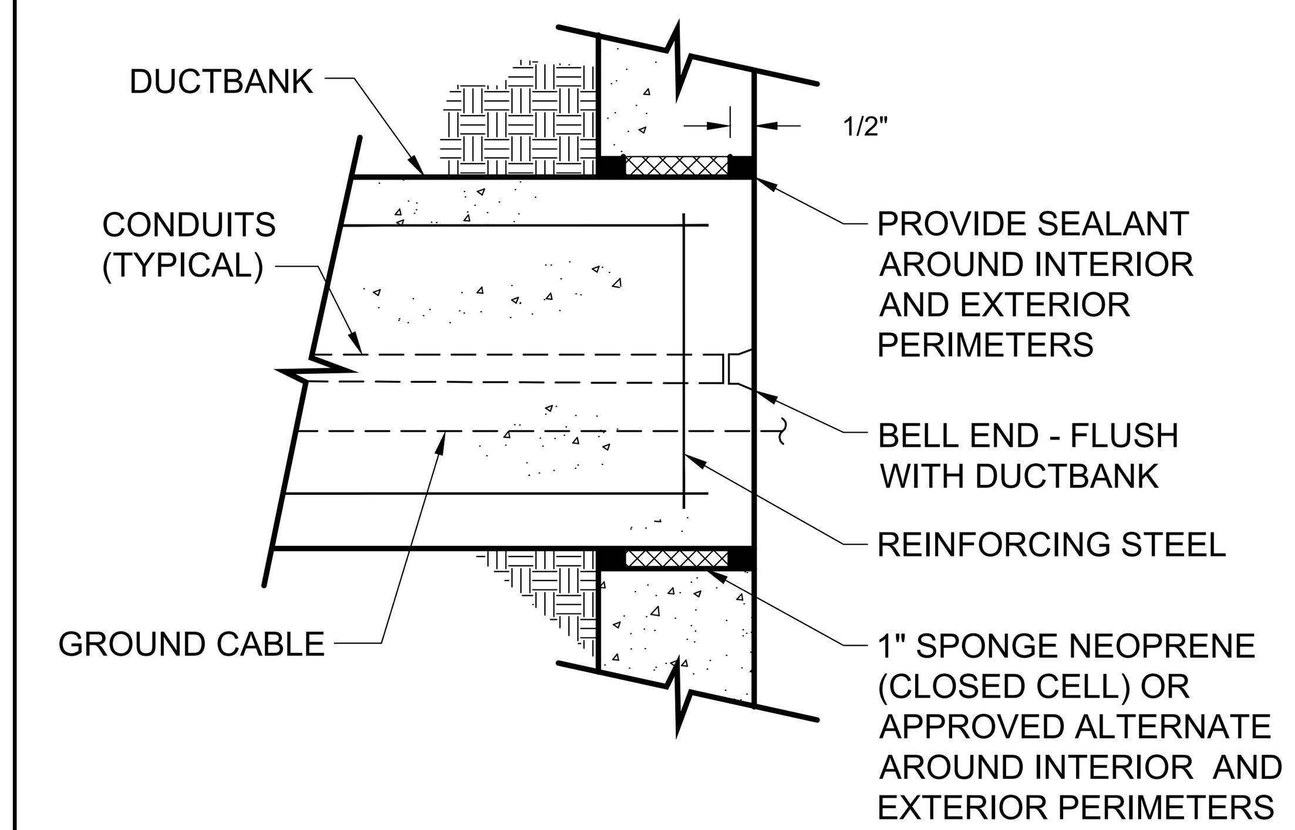
36 SHEET NUMBER OF 54



NOTE:
1. OUTLET BOX AND LUMINAIRE HANGER ARE ONLY REQUIRED WHERE THE FIXTURE IS REQUIRED TO BE MOUNTED AT A SPECIFIED HEIGHT.

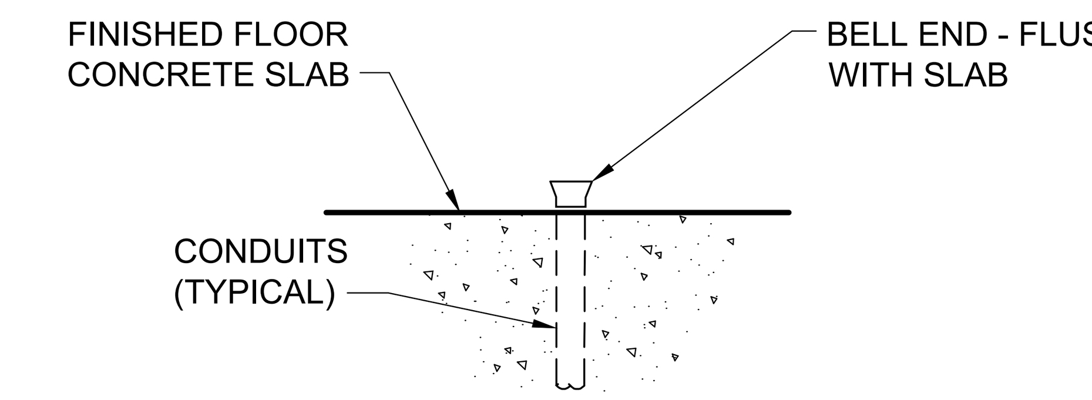
TYPICAL TEE PENDANT MOUNT LUMINAIRE INSTALLATION

E9002
NTS



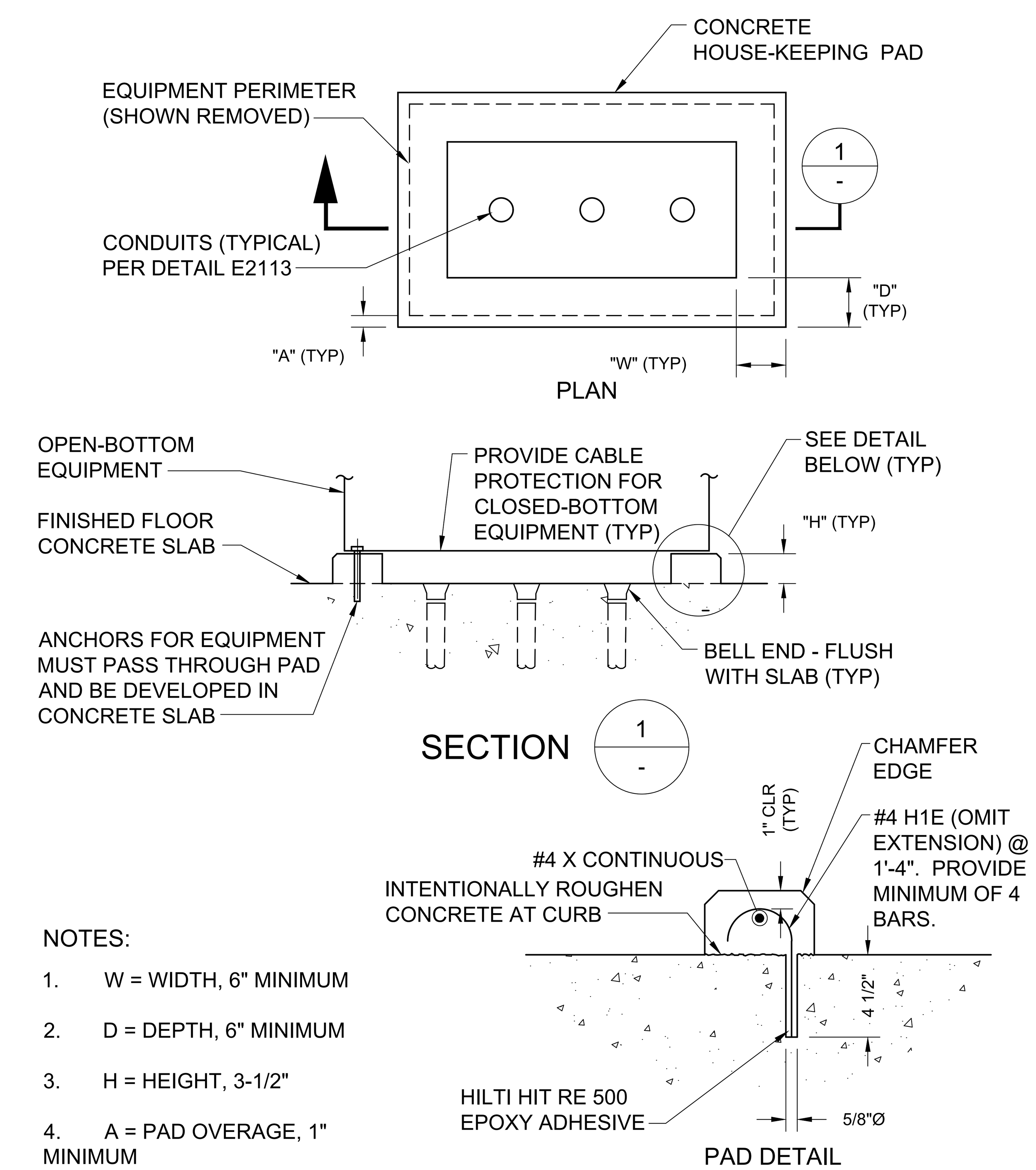
UNDERGROUND DUCTBANKS DUCTBANK AT STRUCTURE

E2011
NTS



UNDERGROUND RACEWAYS UNDER FREESTANDING EQUIPMENT

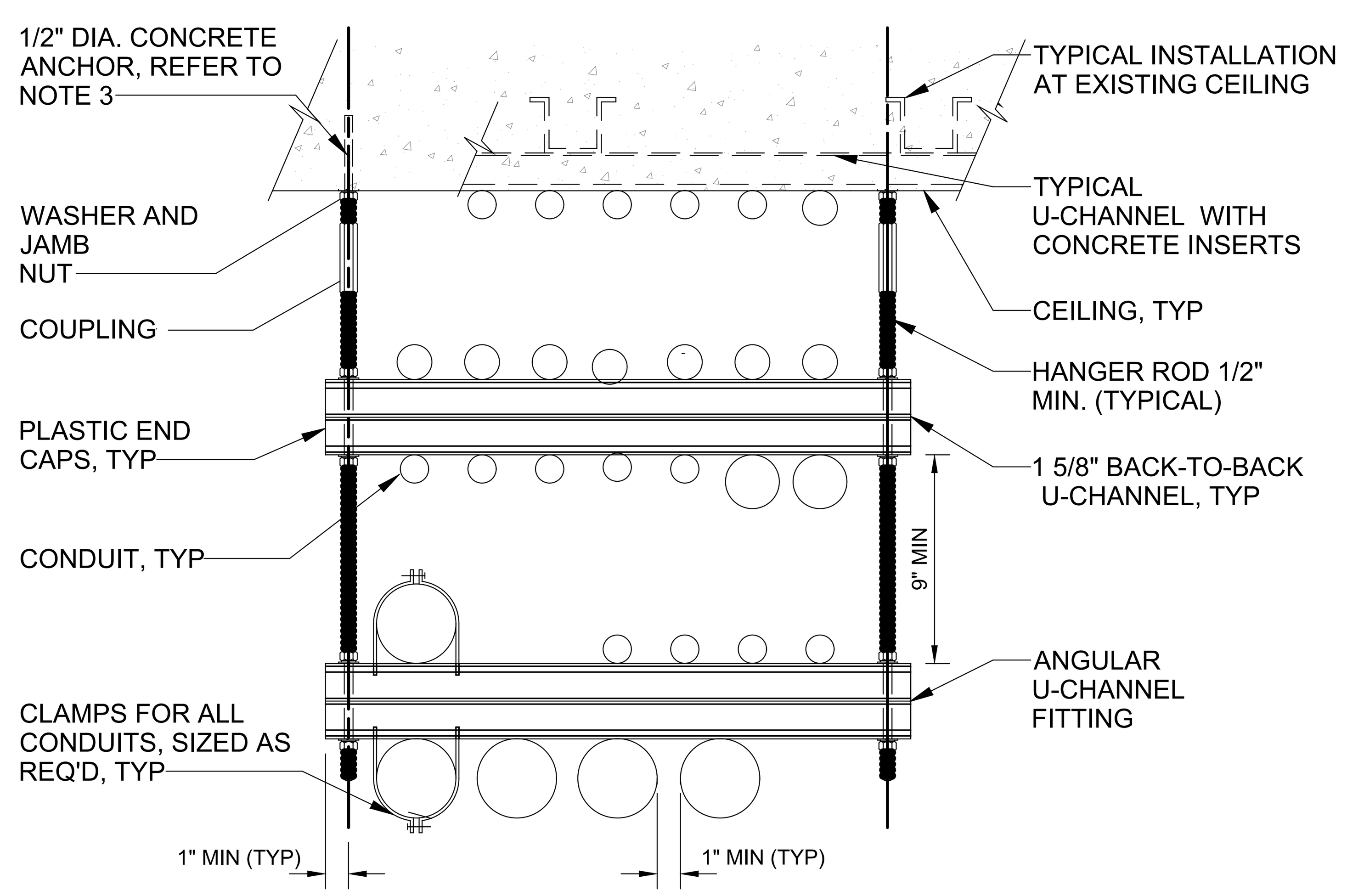
E2113
NTS



NOTES:
1. W = WIDTH, 6" MINIMUM
2. D = DEPTH, 6" MINIMUM
3. H = HEIGHT, 3-1/2"
4. A = PAD OVERAGE, 1" MINIMUM

EQUIPMENT SUPPORTS HOUSE-KEEPING PAD

E4021
NTS

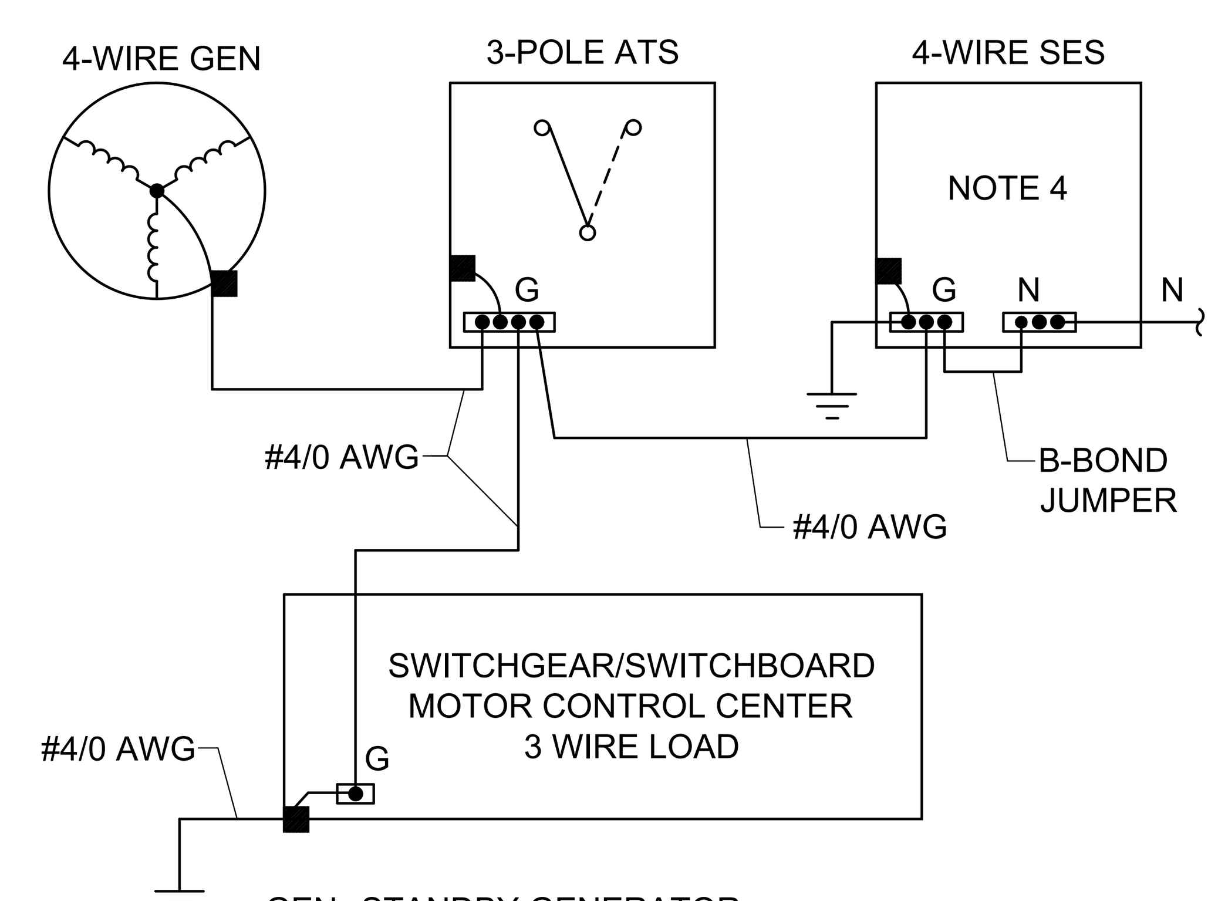


FRONT VIEW

NOTES:
1. MATERIALS AND HARDWARE PER SPECIFICATION DIVISION 26 REQUIREMENTS.
2. HOLE SIZES ON FITTINGS SHALL BE 9/16" DIAMETER WITH 1/2" HEX HEAD CAP SCREW 15/16" LONG AND 1/2" CLAMP NUT WITH SPRINT WASHER.
3. PROVIDE BRACING AND ANCHORAGE FOR RACEWAYS AND SUPPORTS IN ACCORDANCE WITH SECTION 01 73 24.

RACEWAY SUPPORTS SUSPENDED

E23002
NTS



GEN: STANDBY GENERATOR
ATS: AUTOMATIC TRANSFER SWITCH
SES: SERVICE ENTRANCE SECTION
G: GROUND (GROUNDING CONDUCTOR)
B: BOND NEUTRAL TO GROUND AT SES AND GENERATOR
N: NEUTRAL

NOTES:
1. REFERENCE NEC EXHIBIT 250.11 HANDBOOK FIGURES
2. BOND NEUTRAL TO GROUND, DO NOT INSTALL NEUTRAL FROM SES TO ATS.
3. BOND NEUTRAL TO GROUND, DO NOT INSTALL NEUTRAL FROM GENERATOR TO ATS.
4. LABEL PER NEC 702.8 A - SIGNS

STANDBY GENERATOR GROUNDING 3-PHASE 4-WIRE, NEUTRAL NOT USED

E3201
NTS

Brown AND Caldwell

SALT LAKE CITY, UT

Registered Professional Engineer (Electrical) CERTIFICATE NO. 79150 DANIEL E. EHMANN Date Signed 05/10/24 ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	D. EHMANN
DRAWN:	Q. SMITH
CHECKED:	R. MILLS
CHECKED:	K. CHANDLER
APPROVED:	S. BRENCHLEY

FILENAME E-006.DWG
BC PROJECT NUMBER 150360
CLIENT PROJECT NUMBER C010232

ELECTRICAL

STANDARD DETAILS 4

DRAWING NUMBER
E-006

SHEET NUMBER 37 OF 54

Path: C:\USERS\DEHMANN\BCPWD3032058 FILENAME: E-006.DWG PLOT DATE: 5/10/2024 12:09 PM CAD USER: DANIEL EHMANN
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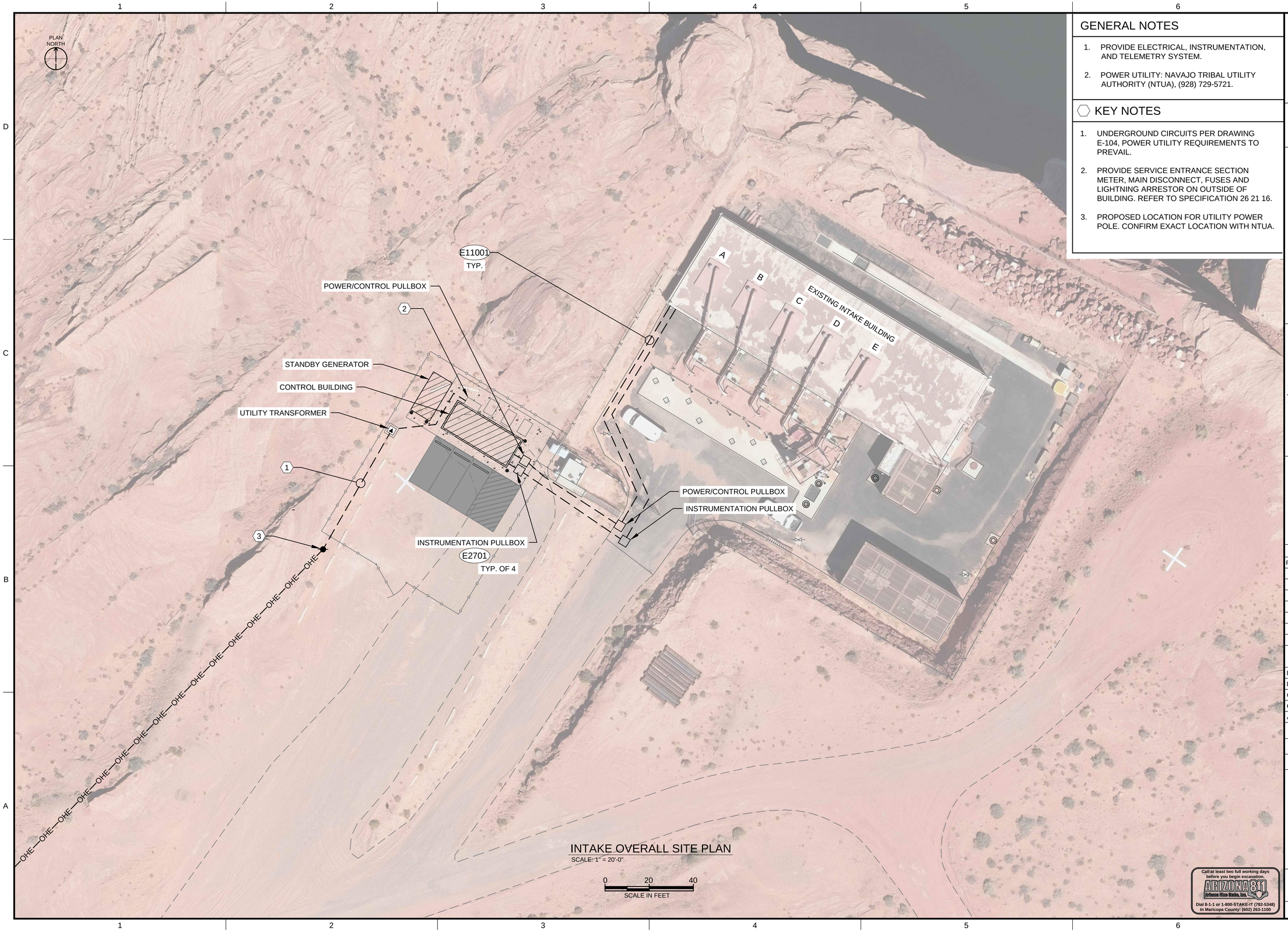

INTAKE OVERALL SITE PLAN

SCALE-1" = 20'-0"

0 20 40

SCALE IN FEET

GENERAL NOTES

1. PROVIDE ELECTRICAL, INSTRUMENTATION, AND TELEMETRY SYSTEM.
2. POWER UTILITY: NAVAJO TRIBAL UTILITY AUTHORITY (NTUA), (928) 729-5721.

KEY NOTES

1. UNDERGROUND CIRCUITS PER DRAWING E-104, POWER UTILITY REQUIREMENTS TO PREVAIL.
2. PROVIDE SERVICE ENTRANCE SECTION METER, MAIN DISCONNECT, FUSES AND LIGHTNING ARRESTOR ON OUTSIDE OF BUILDING. REFER TO SPECIFICATION 26 21 16.
3. PROPOSED LOCATION FOR UTILITY POWER POLE. CONFIRM EXACT LOCATION WITH NTUA.

Brown AND Caldwell

SALT LAKE CITY, UT

Registered Professional Engineer (Electrical)
79150
DANIEL E. EHMANN
Date Signed 05/30/24
ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	D. EHMANN
DRAWN:	Q. SMITH
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CHECKED:	K. CHANDLER
APPROVED:	S. BRENCHLEY

FILENAME
E-100.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

ELECTRICAL

INTAKE OVERALL SITE PLAN

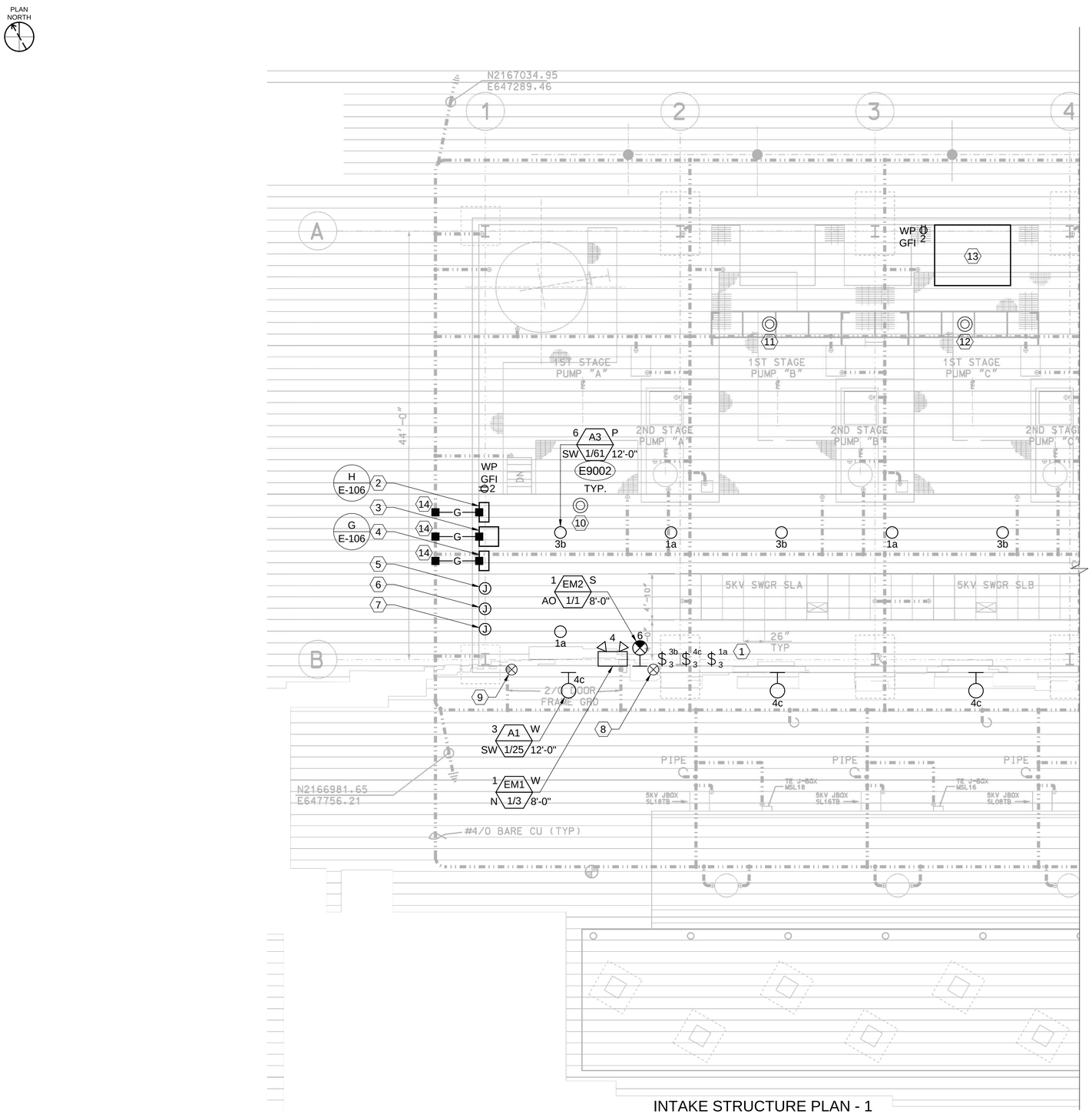
DRAWING NUMBER

E-100

SHEET NUMBER 38 OF 54

Call at least two full working days before you begin excavation.
ARIZONA 811 Arizona Blue Stake, Inc.
Dial 8-1-1 or 1-800-STAKE-IT (782-5348)
In Maricopa County: (602) 263-1100

Path: C:\BCPW\D3032058 FILENAME: E-100.DWG PLOT DATE: 5/9/2024 4:54 PM CAD USER: QUENTIN SMITH
WP to WTP Pipeline_Rev.sld
Project Area Aerial Image.jpg



INTAKE STRUCTURE PLAN - 1

SCALE: 1" = 6'-0"

0 6 12

SCALE: 1" = 6'-0"

GENERAL NOTES

1. GENERAL REQUIREMENTS: SPECIFICATION 26 05 00.
2. TESTING: SPECIFICATION 26 08 00.
3. ARC FLASH HAZARD ANALYSIS AND LABELING: SPECIFICATION 26 05 74.
4. CIRCUITS: DRAWINGS E-104, E-106 AND E-107.
5. LUMINAIRE SCHEDULE: DRAWING E-105.
6. SUBMIT CONDUIT LAYOUT PER SPECIFICATION 26 05 00.
7. EXISTING LIGHTING FIXTURE LOCATIONS SHOWN ARE APPROXIMATE. FIELD VERIFY LOCATION OF EXISTING LIGHTING FIXTURES AND REPLACE IN SAME LOCATION.
8. ABANDON IN PLACE EXISTING ELECTRICAL EQUIPMENT. UNLESS OTHERWISE NOTED.
9. DEMOLISH AND REMOVE OBSTRUCTIONS IMPEDING WALKWAY AND VIOLATION CLEARANCE REQUIREMENTS OF ELECTRICAL DISTRIBUTION EQUIPMENT AND JUNCTION BOXES.
10. REFER TO DETAIL E23002/E-006 FOR METHOD OF OVERHEAD CONDUIT RACEWAY SUPPORTS. DEMOLISH AND REMOVE EXISTING OVERHEAD CONDUITS, CONDUCTORS AND SUPPORTS IMPEDING PATH OF CONDUITS FROM NORTH WEST WALL TO REPLACEMENT EQUIPMENT AND EXISTING EQUIPMENT TO REMAIN IN SERVICE.

KEY NOTES

1. PROVIDE LIGHT SWITCHES AT MANDOOR ENTRANCE.
2. LOAD CENTER LC-002.
3. TRANSFORMER TFR-002.
4. PANELBOARD PNL-002.
5. 480V POWER JUNCTION BOX.
6. 120V POWER/CONTROLS JUNCTION BOX.
7. INSTRUMENTATION JUNCTION BOX.
8. MANDOOR INTRUSION SWITCH 1.
9. GARAGE DOOR INTRUSION SWITCH 1.
10. EXISTING UNIT HEATER 1 TO REMAIN IN SERVICE, REFER TO HVAC DRAWINGS.
11. EXISTING UNIT HEATER 2 TO REMAIN IN SERVICE, REFER TO HVAC DRAWINGS.
12. EXISTING UNIT HEATER 3 TO REMAIN IN SERVICE, REFER TO HVAC DRAWINGS.
13. EXISTING EXHAUST FAN 4 TO REMAIN IN SERVICE, REFER TO HVAC DRAWINGS.
14. CONNECT TO EXISTING BUILDING GROUND SYSTEM. REFER TO SPECIFICATION 26 05 26.

Brown AND Caldwell

SALT LAKE CITY, UT

Professional Engineer — Electrical — 79150 DANIEL E. EHMANN — Date Signed 05/30/24 — ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	D. EHMANN
DRAWN:	Q. SMITH
CHECKED:	R. MILLS
CHECKED:	K. CHANDLER
APPROVED:	S. BRENCHLEY

FILENAME
E-101.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

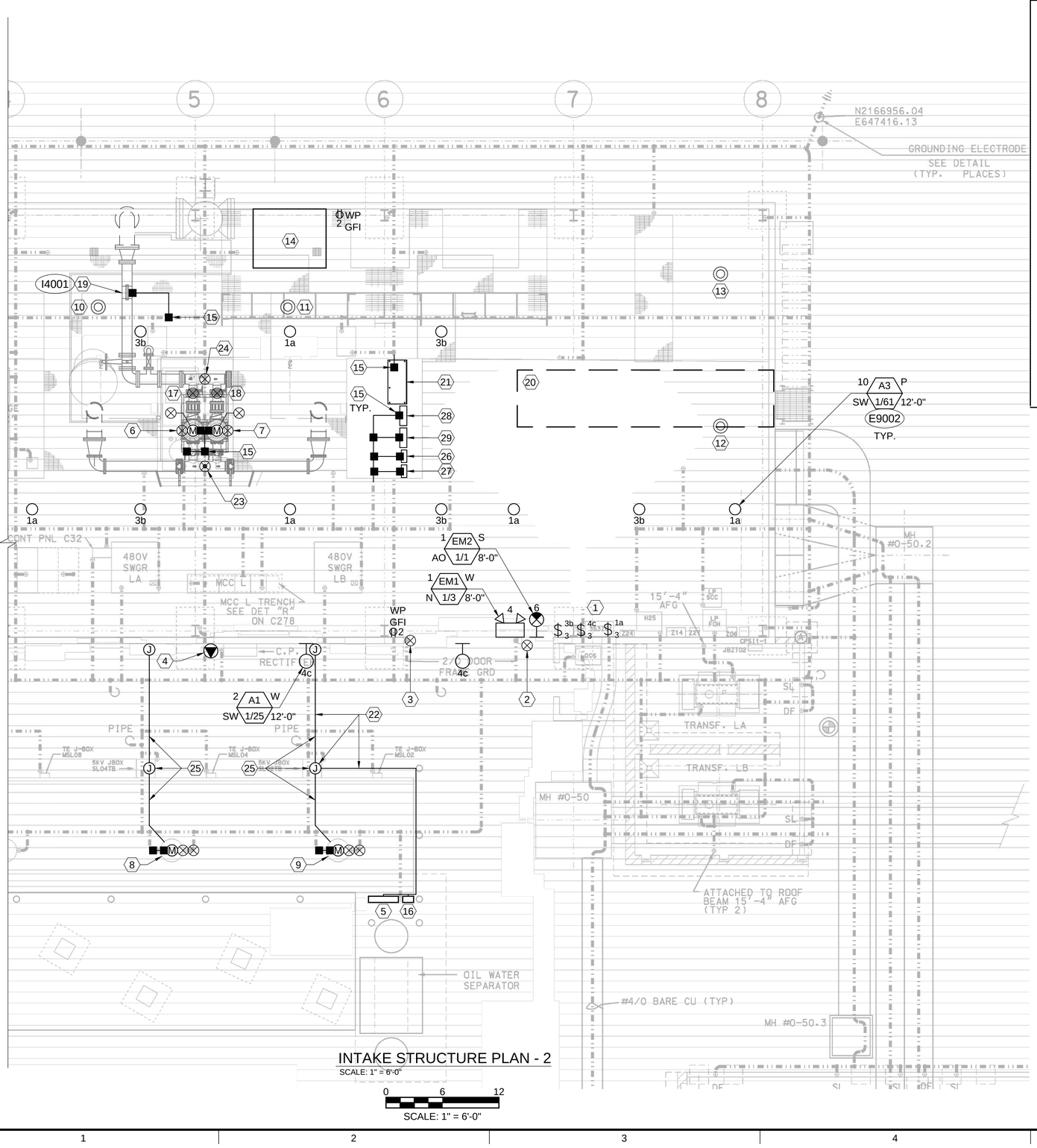
ELECTRICAL

INTAKE STRUCTURE PLAN 1

DRAWING NUMBER

E-101

39 SHEET NUMBER OF 54



INTAKE STRUCTURE PLAN - 2

SCALE: 1" = 6'-0"

0 6 12

SCALE: 1" = 6'-0"

GENERAL NOTES

1. GENERAL REQUIREMENTS: SPECIFICATION 26 05 00.
2. TESTING: SPECIFICATION 26 08 00.
3. ARC FLASH HAZARD ANALYSIS AND LABELING: SPECIFICATION 26 05 74.
4. CIRCUITS: DRAWINGS E-104, E-106 AND E-107.
5. LUMINAIRE SCHEDULE: DRAWING E-105.
6. SUBMIT CONDUIT LAYOUT PER SPECIFICATION 26 05 00.
7. EXISTING LIGHTING FIXTURE LOCATIONS SHOWN ARE APPROXIMATE. FIELD VERIFY LOCATION OF EXISTING LIGHTING FIXTURES AND REPLACE IN SAME LOCATION.
8. ABANDON IN PLACE EXISTING ELECTRICAL EQUIPMENT.
9. REFER TO DETAIL E23002/E-006 FOR METHOD OF OVERHEAD CONDUIT RACEWAY SUPPORTS. DEMOLISH AND REMOVE EXISTING OVERHEAD CONDUITS, CONDUCTORS AND SUPPORTS IMPEDING PATH OF CONDUITS FROM NORTH WEST WALL TO REPLACEMENT EQUIPMENT AND EXISTING EQUIPMENT TO REMAIN IN SERVICE.

KEY NOTES

1. PROVIDE LIGHT SWITCHES AT MANDOOR ENTRANCE.
2. MANDOOR INTRUSION SWITCH 1.
3. GARAGE DOOR INTRUSION SWITCH 1.
4. EXISTING STAGE 1 PUMP CRANE 480V RECEPTACLE TO REMAIN IN SERVICE.
5. EXISTING OIL WATER SEPARATOR CONTROL PANEL TO REMAIN IN SERVICE.
6. REPLACE STAGE 2 PUMP A. PROVIDE MOTOR TE AND LINE TERMINATOR.
7. REPLACE STAGE 2 PUMP B. PROVIDE MOTOR TE AND LINE TERMINATOR.
8. SHAFT TO STAGE 1 SUBMERSIBLE PUMP A. REPLACE PUMP LOCATED IN LAKE POWELL. PROVIDE MOTOR MSH, TSH AND LINE TERMINATOR.
9. SHAFT TO STAGE 1 SUBMERSIBLE PUMP B. REPLACE PUMP LOCATED IN LAKE POWELL. PROVIDE MOTOR MSH, TSH AND LINE TERMINATOR.
10. EXISTING UNIT HEATER 4 TO REMAIN IN SERVICE, REFER TO HVAC DRAWINGS.
11. EXISTING UNIT HEATER 5 TO REMAIN IN SERVICE, REFER TO HVAC DRAWINGS.
12. EXISTING UNIT HEATER 6 TO REMAIN IN SERVICE, REFER TO HVAC DRAWINGS.
13. EXISTING UNIT HEATER 7 TO REMAIN IN SERVICE, REFER TO HVAC DRAWINGS.
14. EXISTING EXHAUST FAN 5 TO REMAIN IN SERVICE, REFER TO HVAC DRAWINGS.
15. CONNECT TO EXISTING BUILDING GROUND SYSTEM. REFER TO SPECIFICATION 26 05 26.
16. EXISTING HEAT TRACE TO REMAIN IN SERVICE.
17. STAGE 2 PUMP A HIGH PRESSURE SWITCH.
18. STAGE 2 PUMP B HIGH PRESSURE SWITCH.
19. STAGE 2 FLOW METER.
20. QUAGGA MUSSEL METERING PUMP AND CHEMICAL STORAGE AREA.
21. STAGE 1 AND STAGE 2 PUMPS LOCAL CONTROL PANEL AND HMI.
22. UTILIZE EXISTING STAGE 1 PUMP B RIGID CONDUIT AND JUNCTION BOX FOR ROUTING OF OIL SEPARATOR AND HEAT TRACE CONDUCTORS AND CONDUITS. PROVIDE UNISTRUT CONDUIT SUPPORTS.
23. PT-100, PT-200.
24. PT-300.
25. REMOVE EXISTING POWER AND CONTROL CONDUCTORS. UTILIZE EXISTING RIGID CONDUIT AND JUNCTION BOXES FROM INTAKE STRUCTURE WALL TO FIRST STAGE PUMPS. REPLACE EXISTING FLEXIBLE CONDUIT FROM JUNCTION BOX TO PUMP.
26. STAGE 1 PUMP A DISCONNECT SWITCH.
27. STAGE 1 PUMP B DISCONNECT SWITCH.
28. STAGE 2 PUMP A DISCONNECT SWITCH.
29. STAGE 2 PUMP B DISCONNECT SWITCH.

Brown AND Caldwell

SALT LAKE CITY, UT

79150 DANIEL E. EHMANN — Professional Engineer — Electrical — Date Signed 05/10/24 — ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	D. EHMANN
DRAWN:	Q. SMITH
CHECKED:	R. MILLS
CHECKED:	K. CHANDLER
APPROVED:	S. BRENCHLEY

FILENAME E-102.DWG

BC PROJECT NUMBER 150360

CLIENT PROJECT NUMBER C010232

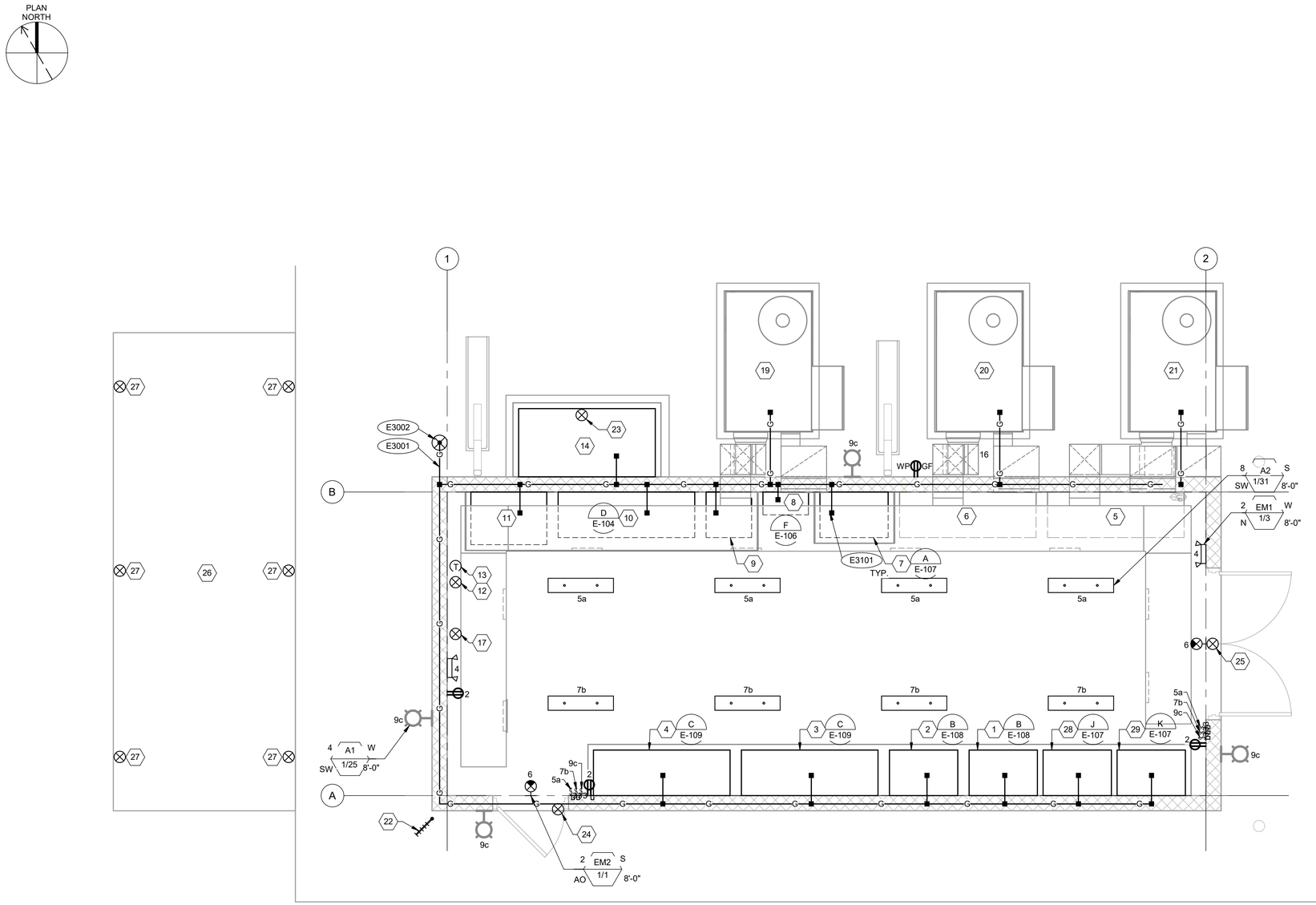
ELECTRICAL

INTAKE STRUCTURE PLAN 2

DRAWING NUMBER

E-102

SHEET NUMBER 40 OF 54



GENERAL NOTES

1. GENERAL REQUIREMENTS: SPECIFICATION 26 05 00.
2. TESTING: SPECIFICATION 26 08 00.
3. ARC FLASH HAZARD ANALYSIS AND LABELING: SPECIFICATION 26 05 74.
4. CIRCUITS: DRAWING E-104, E-106 AND E-107.
5. LUMINAIRE SCHEDULE: DRAWING E-105.
6. SUBMIT ELECTRICAL EQUIPMENT LAYOUT PRIOR TO CONDUIT ROUGH-IN.
7. POWER AND CONTROL INFRASTRUCTURE FOR FUTURE THIRD STAGE PUMP VFDS TO BE PROVIDED IN A FUTURE PROJECT.

8 SCHEDULE AND COORDINATE WORK TO MINIMIZE WATER SYSTEM CONTROL OUTAGES. REFER TO SPECIFICATION 01 12 16 AND 40 61 96.

KEYNOTES:

1. STAGE 1 PUMP A VFD
2. STAGE 1 PUMP B VFD
3. STAGE 2 PUMP A VFD
4. STAGE 2 PUMP B VFD
5. STAGE 3 PUMP A VFD (FUTURE)
6. STAGE 3 PUMP B VFD (FUTURE)
7. TELEMETRY PLC
8. LOAD CENTER LC-001
9. LOAD CENTER TRANSFORMER TFR-001
10. SWITCHBOARD SWBD-001
11. AUTOMATIC TRANSFER SWITCH
12. AIR TEMPERATURE TRANSMITTER NAMEPLATE: "AIR TEMPERATURE"
13. THERMOSTAT
14. SERVICE ENTRANCE SECTION
15. NOT USED
16. NOT USED
17. STAGE 2 FLOW TRANSMITTER. NAMEPLATE: "DISCHARGE FLOW"
18. NOT USED
19. HVAC UNIT 1
20. HVAC UNIT 2
21. HVAC UNIT 3
22. TELEMETRY ANTENNA ON 2" X 25'-0" PIPE, ANCHORED TO BUILDING. PROVIDE ANTENNA CABLE IN CONDUIT. PROVIDE CGB FITTING AND EXPOSE LOOP OF CABLE FOR FINAL CONNECTION TO ANTENNA. MAKE PENETRATION TO BUILDING WATER TIGHT
23. SERVICE ENTRANCE SECTION INTRUSION SWITCH
24. DOOR INTRUSION SWITCH
25. DOUBLE DOOR INTRUSION SWITCH
26. STANDBY GENERATOR
27. STANDBY GENERATOR INTRUSION SWITCH, TYPICAL OF 6
28. STAGE 1 PUMP CONTROLLER MPC-100
29. STAGE 2 PUMP CONTROLLER MPC-200

Brown AND Caldwell

SALT LAKE CITY, UT

Professional Engineer (Electrical) No. 79150 DANIEL E. EHMANN Date Signed 05/10/24 ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	D. EHMANN
DRAWN:	Q. SMITH
CHECKED:	R. MILLS
CHECKED:	K. CHANDLER
APPROVED:	S. BRENCHLEY

FILENAME

BC PROJECT NUMBER 153060

CLIENT PROJECT NUMBER C010232

ELECTRICAL

INTAKE CONTROL BUILDING PLAN

DRAWING NUMBER E-103

41 SHEET NUMBER OF 54

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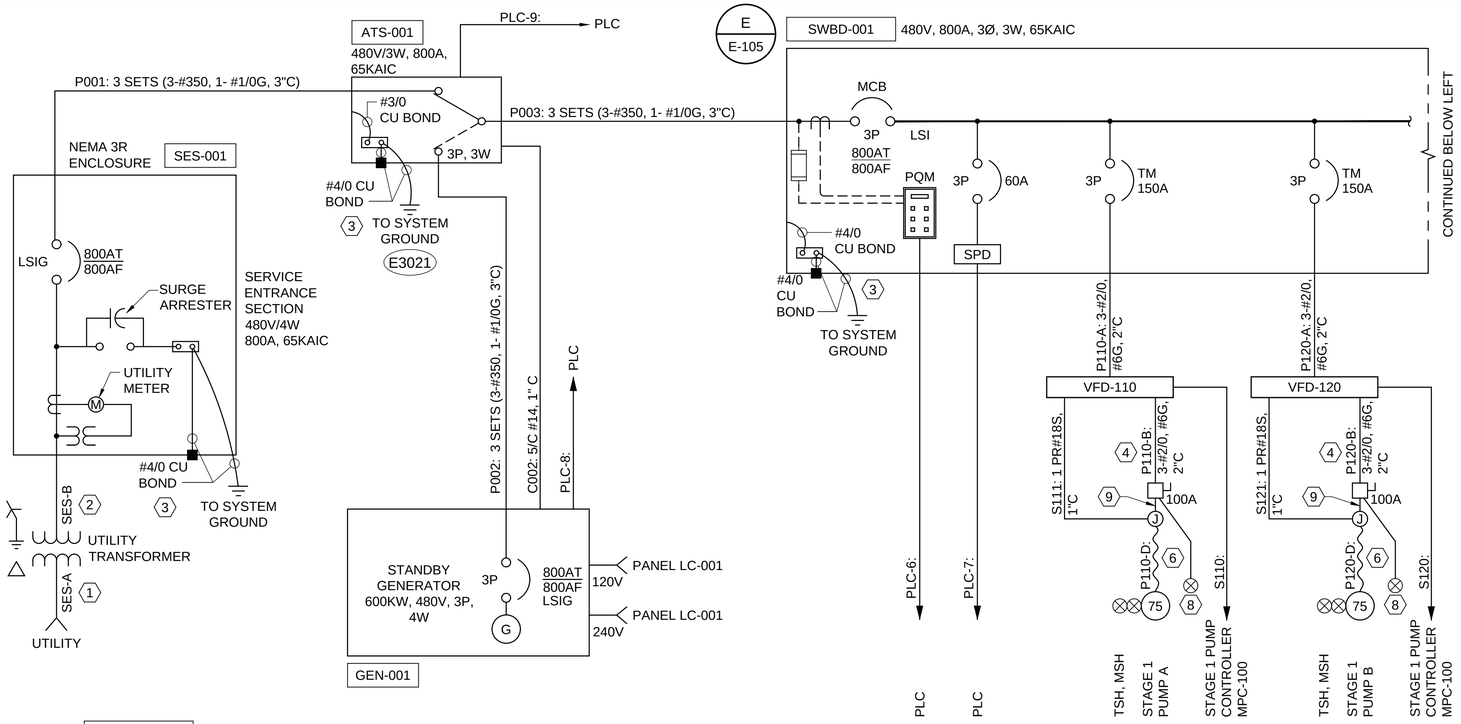

D E-103 SWBD-001 ONE-LINE DIAGRAM

SCALE: NONE

GENERAL NOTES

1. POWER UTILITY: NAVAJO TRIBAL UTILITY AUTHORITY.
2. GENERAL REQUIREMENTS: SPECIFICATION 26 05 00.
3. TESTING: SPECIFICATION 26 08 00.
4. ARC FLASH HAZARD ANALYSIS AND LABELING: SPECIFICATION 26 05 74.
5. LOAD SUMMARY: DRAWING E-105.
6. CONDUCTORS ARE SIZED USING NEC TEMPERATURE DERATING AND SHALL NOT BE DOWNSIZED. PROVIDE LUGS TO CONNECT TO EQUIPMENT.

KEY NOTES

1. SES-A: 2-4" EC OR PER UTILITY SERVICE ENTRANCE DESIGN DRAWINGS. TRENCH, CONDUIT, BACKFILL BY CONTRACTOR PER NTUA REQUIREMENTS.
2. SES-B: 2-4" CONDUITS BY CONTRACTOR, CABLE BY NTUA.
3. PROVIDE CU GROUND, BOND TO GROUND GRID, SYSTEM AND DUCTBANK GROUND CABLE.
4. PROVIDE VFD TYPE CABLE PER SPECIFICATION 26 05 19.
5. CABLE PER MANUFACTURER, 3/4"C.
6. CABLE PER MANUFACTURER, 2"C.
7. FUSE SIZES PER EQUIPMENT MANUFACTURER.
8. LINE TERMINATOR, SPEC. 26 09 16.
9. MATCH SIZE AND TYPE OF DISCONNECT SWITCH PRIMARY SIDE CONDUCTORS AND CONDUITS. MATCH PRIMARY SIDE CONDUIT TAG NAMING CONVENTION WITH "C" IN PLACE OF "B".

Brown AND Caldwell

SALT LAKE CITY, UT

Professional Engineer — 79150 DANIEL E. EHMANN — Date Signed 05/10/24 — ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

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DRAWN:	Q. SMITH
CHECKED:	R. MILLS
CHECKED:	K. CHANDLER
APPROVED:	S. BRENCHLEY

FILENAME E-104.DWG

BC PROJECT NUMBER 150360

CLIENT PROJECT NUMBER C010232

ELECTRICAL

INTAKE ONE-LINE DIAGRAM

DRAWING NUMBER

E-104

SHEET NUMBER 42 OF 54

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LECHEE INTAKE FACILITY SWBD-001

LOAD SUMMARY AT 480 VAC

LOAD DESCRIPTION	KVA	HP	CONNECTED FLA	RUNNING FLA
STAGE 1 PUMP A VFD		75	96	96
STAGE 1 PUMP B VFD (STANDBY)		75	96	
STAGE 2 PUMP A VFD		150	180	180
STAGE 2 PUMP B VFD (STANDBY)		150	180	
HVAC-1			21.7	21.7
HVAC-2			21.7	21.7
HVAC-3 (STANDBY)			21.7	
TRANSFORMER FOR LC-001	15		31.3	31.3
PNL-002			324.3	244.3
SUBTOTAL MOTOR LOAD:		450	617.1	319.4
SUBTOTAL NON-MOTOR LOAD:	15		356	276
PLUS 25% OF LARGEST MOTOR:			45.0	45.0
PLUS 25% OF NON-MOTOR LOAD			88.9	88.9
AMPERE TOTAL:			1106.5	728.8
600 kW STANDBY GENERATOR AT 0.95 PF:	631.6		760	760

E / E-104 SWBD-001 LOAD SUMMARY
SCALE: NONE

LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	MODEL #
A1 / 1/25	LITHONIA WST LED - SURFACE MOUNT, RUGGED DIE-CAST ALUMINUM HOUSING, ACRYLIC LENS, HIGH-EFFECIENCY LED'S, ZERO UPLIGHT, NIGHTTIME FRIENDLY, IP65 RATED, CONSISTENT WITH LEED AND GREEN GLOBE CRITERIA FOR ELIMINATING WASTEFUL UPLIGHT, 120VAC	LITHONIA WST LED P2 3000 50K VF MVOLT DDBTXD
A2 / 1/31	LITHONIA FEM LED - SURFACE MOUNT, FIBERGLASS HOUSING, REPLACEABLE DIFFUSER LENS, HIGH-EFFICIENCY LED'S, 4000K TEMPERATURE STANDARD, CSA CERTIFIED TO UL AND C-UL STANDARDS, 120VAC	LITHONIA FEM L48 4000LM LPAFL MD MVOLT GZ10 40K 80CRI
A3 / 1/61	HOLOPHANE BANTAM 2000 ENCLOSED LED LOW BAY - PENDANT, HOOK OR LOOP MOUNT, 8000 NOMINAL LUMENS, 5000K CCT, ALUMINUM HOUSING, SYMMETRICAL OPTICS, WET LOCATION LISTED, IP65 RATED, 120VAC POWER HOOK AND CORD	HOLOPHANE BALED 8L 5K 12 P CDP L5 X PHCB UPH 35 120 WH
EM1 / 1/3	LITHONIA ELM2 LED - SURFACE MOUNT, THERMOPLASTIC HOUSING, POLYCARBONATE LENS, LED SYSTEM, 90 MINUTE EMERGENCY LAMP CAPACITY, NICKEL CADMIUM BATTERY, MEETS UL 924, NFPA 101, NEC AND OSHA ILLUMINATION STANDARDS, 120VAC	LITHONIA ELM2 LED HO
EM2 / 1/1	LITHONIA LQM - SURFACE MOUNT, THERMOPLASTIC HOUSING, LED SYSTEM, 90 MINUTE EMERGENCY LAMP CAPACITY, NICKEL CADMIUM BATTERY, MEETS UL 924, NFPA 101, NEC AND OSHA ILLUMINATION STANDARDS, 120VAC	LITHONIA LQM S W 3 R 120/277 EL N

GENERAL NOTES

1. INTERIOR LUMINAIRES: SPECIFICATION 26 51 19.
2. EXTERIOR LUMINAIRES: SPECIFICATION 26 56 19.

Brown AND Caldwell

SALT LAKE CITY, UT

Professional Engineer (Electrical) 79150 DANIEL E. EHMANN Date Signed 05/10/24 ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: D. EHMANN
DRAWN: Q. SMITH
CHECKED: R. MILLS
CHECKED: K. CHANDLER
APPROVED: S. BRENCHLEY

FILENAME E-105.DWG
BC PROJECT NUMBER 150360
CLIENT PROJECT NUMBER C010232

ELECTRICAL

INTAKE LOAD SUMMARY AND LUMINAIRE SCHEDULE

DRAWING NUMBER
E-105

43 SHEET NUMBER OF 54

SINGLE PHASE PANEL: LOAD CENTER (LC-001)

VOLTAGE, PHASE, & WIRE: 120 / 240 VAC, 1 PHASE, 3 WIRE
BUS SIZE: 100 AMPERE
MAIN SIZE: 70 AMPERE
MAIN TYPE: CIRCUIT BREAKER
BREAKER TYPE: PLUG-ON

LOCATION: INTAKE CONTROL BUILDING
ENCLOSURE: NEMA-3R
MOUNTING: WALL
BUS BRACING: 22 K AIC
FED FROM: SES OUTDOORS

CIRCUIT TITLE / LOAD DESCRIPTION	AWG WIRE SIZE	RACE-WAY SIZE	BREAKER CKT NO.	BREAKER AMP	BREAKER POLE	LOAD (VA) PHASE A	LOAD (VA) PHASE B	LOAD (VA) PHASE B	LOAD (VA) PHASE A	BREAKER POLE	BREAKER AMP	BREAKER CKT NO.	AWG WIRE SIZE	RACE-WAY SIZE	CIRCUIT TITLE / LOAD DESCRIPTION
TELEMETRY PLC	2-12, 12G	1/2	1	15	1	180			720	1	15	2	2-12, 12G	1/2	CONTROL BLDG RECEPTACLES
SPARE			3	15	1			7.5		1	15	4	2-12, 12G	1/2	CONTROL BLDG EMERGENCY LIGHTING
CONTROL BLDG LIGHTING	2-12, 12G	1/2	5	15	1	155			3	1	15	6	2-12, 12G	1/2	CONTROL BLDG EXIT LIGHTING
CONTROL BLDG LIGHTING	2-12, 12G	1/2	7	15	1		155	10		1	15	8	2-12, 12G	1/2	FLOW INDICATOR STAGE 1
CONTROL BLDG EXTERIOR LIGHTING	2-12, 12G	1/2	9	15	1	125			10	1	15	10	2-12, 12G	1/2	FLOW AMI UNIT STAGE 1
SPARE			11	15	1			10		1	15	12	2-12, 12G	1/2	FLOW INDICATOR STAGE 2
SCADA NETWORK CABINET	2-12, 12G	1/2	13	15	1	360			10	1	15	14	2-12, 12G	1/2	FLOW AMI UNIT STAGE 2
GENERATOR BATTERY CHARGER	2-12, 12G	1/2	15	15	1		960	360		1	15	16	2-12, 12G	1/2	HVAC SERVICE RECEPTACLE
GENERATOR JACKET WATER HEATER	2-8, 10G	1	17	40	2	3210				1	15	18			SPARE
			19				3210			1	15	20			SPARE
STAGE 1 PUMP CONTROLLER MPC-100	2-12, 12G	1/2	21	15	1	180				2	*	22	MFR.	-	SURGE PROTECTOR
STAGE 2 PUMP CONTROLLER MPC-200	2-12, 12G	1/2	23	15	1		180					24			
	COLUMN	TOTALS:				4210	4505	388	743						

* CIRCUIT BREAKER SIZE PER MANUFACTURER

PHASE-A LOAD (VA): 4953
PHASE-B LOAD (VA): 4893

TOTAL LOAD (VA)= 9846 I (amp) 41.0

F E-103 LC-001 PANEL SCHEDULE
SCALE: NONE

THREE PHASE PANEL: PNL-002

VOLTAGE: 480 VAC
BUS SIZE: 400 AMPERE
MAIN SIZE: 400 AMPERE
MAIN TYPE: YES CIRCUIT BREAKER:
NO MAIN LUGS ONLY:

LOCATION: EXISTING INTAKE BUILDING
ENCLOSURE: NEMA-3R
MOUNTING: WALL
BUS BRACING 42 kAIC
FED FROM: SWBD-001

CIRCUIT TITLE / LOAD DESCRIPTION	AWG WIRE SIZE	RACE-WAY SIZE	BREAKER CKT NO.	BREAKER AMP	BREAKER POLE	LOAD, VA PHASE A	LOAD, VA PHASE B	LOAD, VA PHASE C	LOAD, VA PHASE A	LOAD, VA PHASE B	LOAD, VA PHASE C	BREAKER POLE	BREAKER AMP	BREAKER CKT NO.	AWG WIRE SIZE	RACE-WAY SIZE	CIRCUIT TITLE / LOAD DESCRIPTION
			1			22170			6651					2			
EXISTING STAGE 1 PUMP CRANE	3-1, 8G	2	3	100	3		22170			6651		3	40	4	3-8, 10G	1	UNIT HEATER 5
			5					22170			6651			6			
			7			6374			6651					8			
EXISTING OIL WATER SEPARATOR CONTROL PANEL	3-8, 10G	1	9	40	3		6374			6651		3	40	10	3-8, 10G	1	UNIT HEATER 6
			11					6374			6651			12			
			13			13010			6651					14			
LOAD CENTER LC-002 VIA 15 KVA TFR-002	2-8, 10G	1	15	40	2	-				6651		3	40	16	3-8, 10G	1	UNIT HEATER 7
			17				13010				6651			18			
			19			6651			3048					20			
UNIT HEATER 1	3-8, 10G	1	21	40	3		6651			3048		3	20	22	3-12, 12G	1	EXHAUST FAN 4
			23					6651			3048			24			
			25			6651			3048					26			
UNIT HEATER 2	3-8, 10G	1	27	40	3		6651			3048		3	20	28	3-12, 12G	1	EXHAUST FAN 5
			29					6651			3048			30			
			31			6651								32			
UNIT HEATER 3	3-8, 10G	1	33	40	3		6651					3	20	34			SPARE
			35					6651						36			
			37			6651								38			
UNIT HEATER 4	3-8, 10G	1	39	40	3		6651					3	*	40	MFR	-	SURGE PROTECTOR
			41					6651						42			
	COLUMN	TOTALS:				68158	55148	68158	26049	26049	26049						

* CIRCUIT BREAKER SIZE PER MANUFACTURER

PHASE A LOAD (VA) = 94207
PHASE B LOAD (VA) = 81197
PHASE C LOAD (VA) = 94207

I (amp) = VA / (1.732 * 480 VAC)

TOTAL LOAD (VA)= 269611 I (amp) 324.3

G E-101 PNL-002 PANEL SCHEDULE
SCALE: NONE

SINGLE PHASE PANEL: LOAD CENTER (LC-002)

VOLTAGE, PHASE, & WIRE: 120 / 240 VAC, 1 PHASE, 3 WIRE
BUS SIZE: 100 AMPERE
MAIN SIZE: 70 AMPERE
MAIN TYPE: CIRCUIT BREAKER
BREAKER TYPE: PLUG-ON

LOCATION: EXISTING INTAKE BUILDING
ENCLOSURE: NEMA-3R
MOUNTING: WALL
BUS BRACING: 22 K AIC
FED FROM: PANELBOARD PNL-002

CIRCUIT TITLE / LOAD DESCRIPTION	AWG WIRE SIZE	RACE-WAY SIZE	BREAKER CKT NO.	BREAKER AMP	BREAKER POLE	LOAD (VA) PHASE A	LOAD (VA) PHASE B	LOAD (VA) PHASE B	LOAD (VA) PHASE A	BREAKER POLE	BREAKER AMP	BREAKER CKT NO.	AWG WIRE SIZE	RACE-WAY SIZE	CIRCUIT TITLE / LOAD DESCRIPTION
INTAKE BLDG LIGHTING	2-12, 12G	1/2	1	15	1	610			1440	1	15	2	2-12, 12G	1/2	INTAKE BLDG RECEPTACLES
INTAKE BLDG LIGHTING	2-12, 12G	1/2	3	15	1		610	10		1	15	4	2-12, 12G	1/2	INTAKE BLDG EMERGENCY LIGHTING
EXTERIOR LIGHTING	2-12, 12G	1/2	5	15	1	156			10	1	15	6	2-12, 12G	1/2	INTAKE BLDG EXIT LIGHTING
QUAGGA MUSSEL PUMP	2-12, 12G	1/2	7	15	1		122	3600		1	50	8	2-6, 10G	1	WATER OIL SEPARATOR HEAT TRACE
SPARE			9	15	1				3600			10			
SPARE			11	15	1					1	15	12			SPARE
SPARE			13	15	1					1	15	14			SPARE
SPARE			15	15	1					1	15	16			SPARE
SPARE			17	15	1					1	15	18			SPARE
SPARE			19	15	1					1	15	20			SPARE
SPARE			21	15	1					2	*	22	MFR.	-	SURGE PROTECTOR
SPARE			23	15	1							24			
	COLUMN	TOTALS:				766	732	3610	5050						

* CIRCUIT BREAKER SIZE PER MANUFACTURER

PHASE-A LOAD (VA): 5816
PHASE-B LOAD (VA): 4342

TOTAL LOAD (VA)= 10158 I (amp) 42.3

H E-101 LC-002 PANEL SCHEDULE
SCALE: NONE

Brown AND Caldwell

SALT LAKE CITY, UT

79150 DANIEL E. EHMANN Professional Engineer Arizona, U.S.A. Date Signed 05/10/24

GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: D. EHMANN
DRAWN: Q. SMITH
CHECKED: R. MILLS
CHECKED: K. CHANDLER
APPROVED: S. BRENCHLEY

FILENAME E-106.DWG
BC PROJECT NUMBER 150360
CLIENT PROJECT NUMBER C010232

ELECTRICAL

INTAKE PANEL SCHEDULES

DRAWING NUMBER
E-106

SHEET NUMBER 44 OF 54

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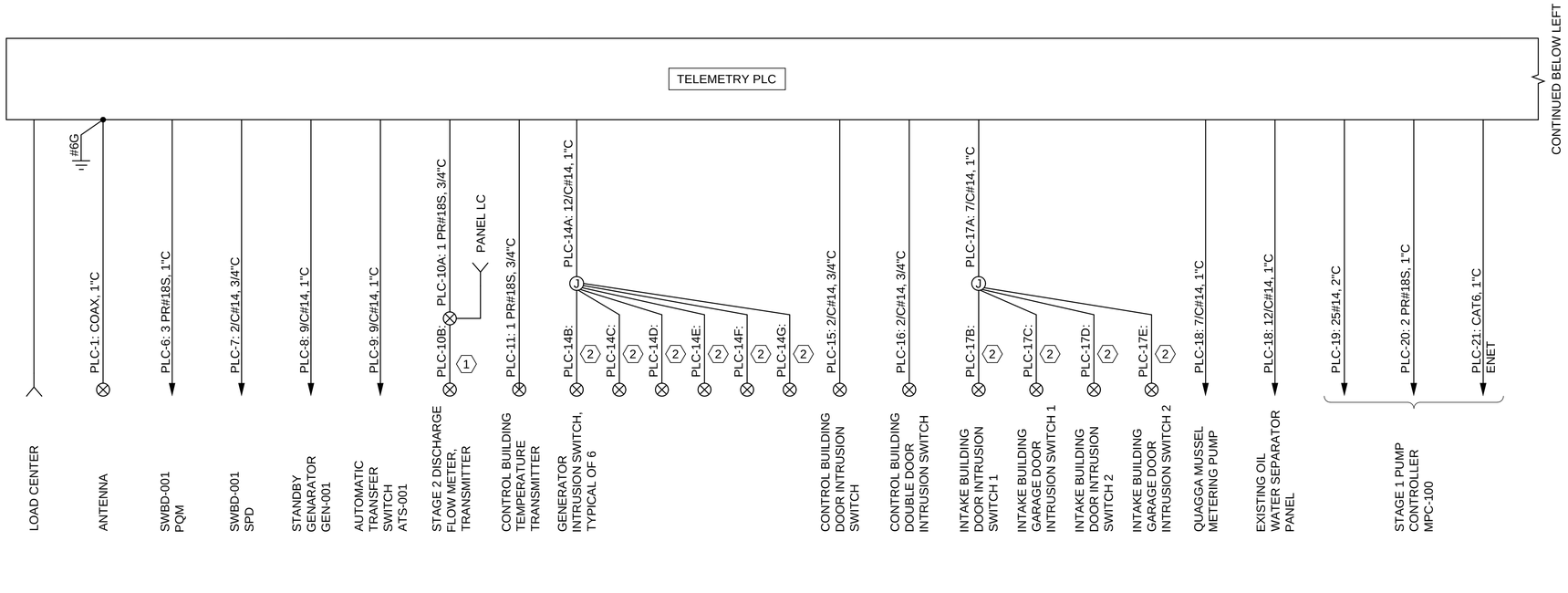
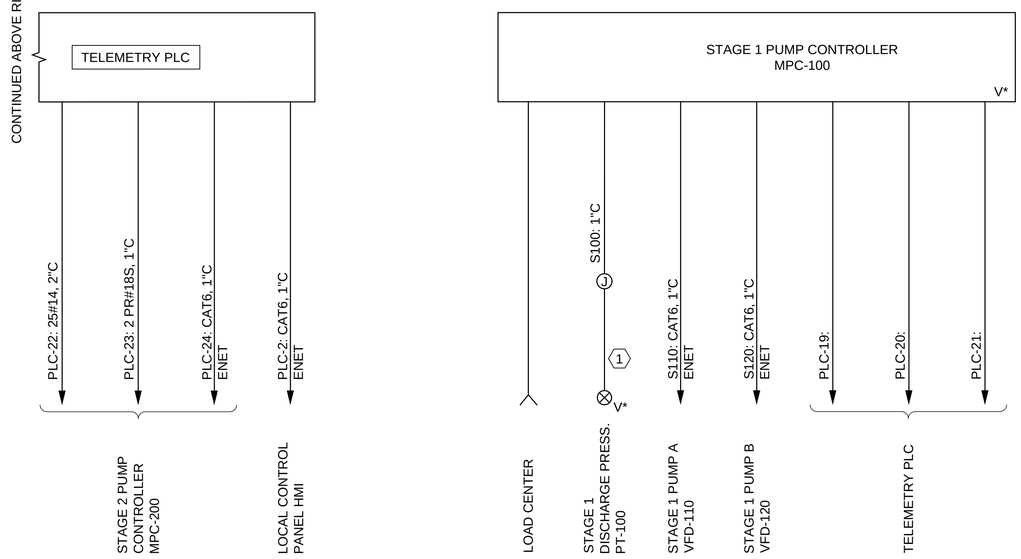
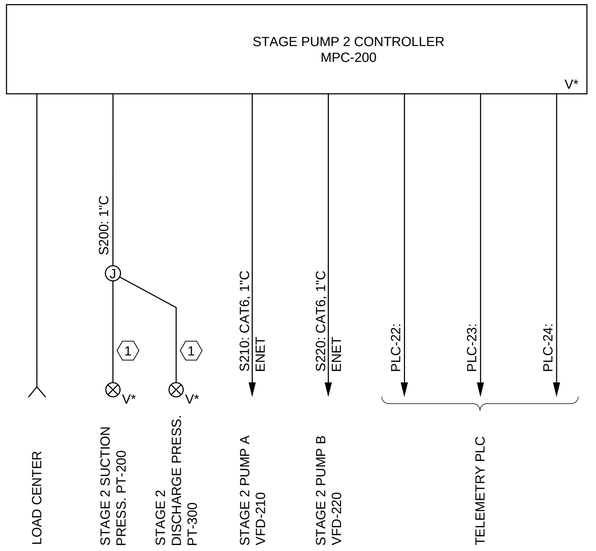


A E-103 CONTROL ONE-LINE DIAGRAM
SCALE: NONE



J E-103 CONTROL ONE-LINE DIAGRAM
SCALE: NONE



K E-103 CONTROL ONE-LINE DIAGRAM
SCALE: NONE

GENERAL NOTES

1. GENERAL REQUIREMENTS: SPECIFICATION 26 05 00.
2. TESTING: SPECIFICATION 26 08 00.
3. PANEL SCHEDULE: DRAWING E-105.
4. PUMP CONTROLLER: SPEC. 42 23 71, 43 23 92.01.

KEY NOTES

1. MFR. CABLE, 3/4"C
2. 2/C#14, 3/4"C

Brown AND Caldwell

SALT LAKE CITY, UT

Professional Engineer
79150
DANIEL E. EHMANN
Date Signed 05/09/24
ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	D. EHMANN
DRAWN:	Q. SMITH
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CHECKED:	K. CHANDLER
APPROVED:	S. BRENCHLEY

FILENAME E-107.DWG
BC PROJECT NUMBER 150360
CLIENT PROJECT NUMBER C010232

ELECTRICAL

INTAKE CONTROL ONE-LINE DIAGRAMS

DRAWING NUMBER
E-107

SHEET NUMBER 45 OF 54

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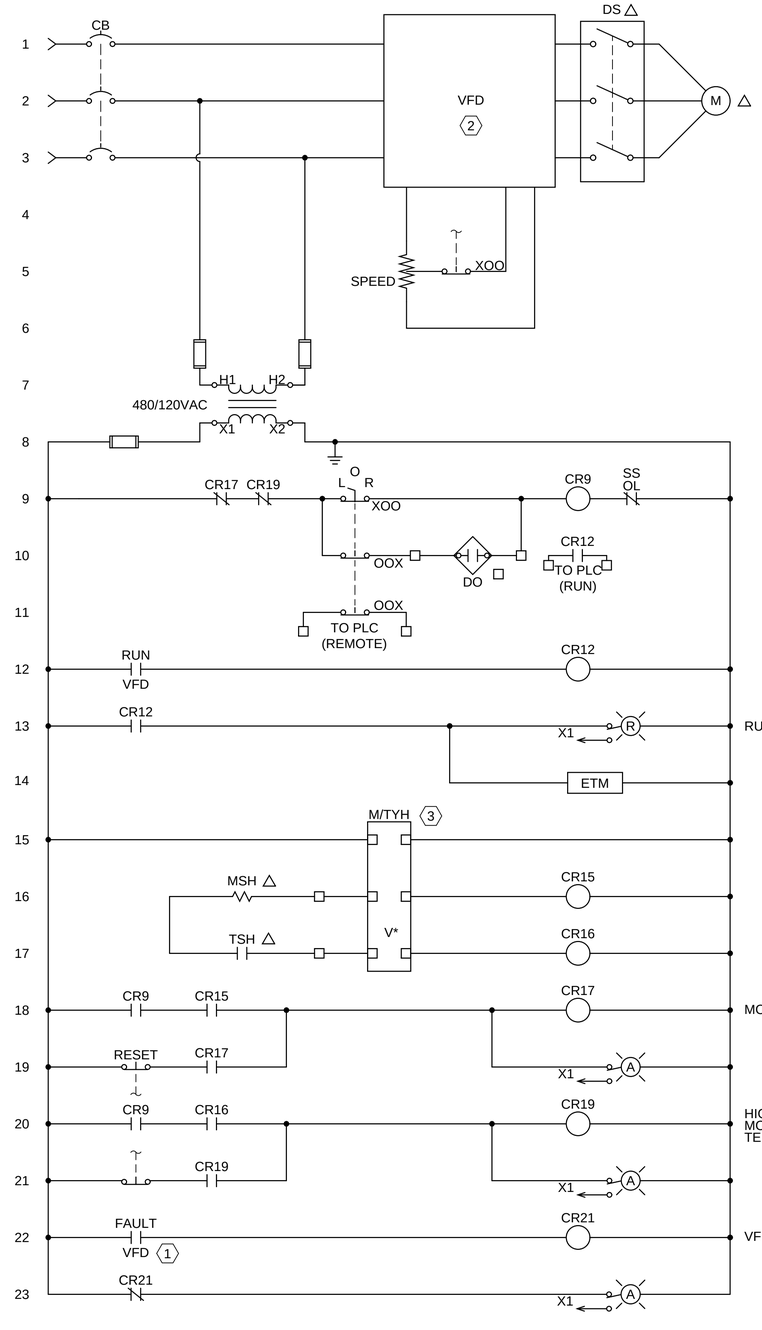

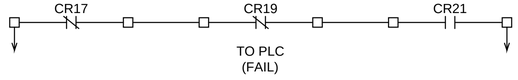

SCHEDULE		
VFD	PMP	EQUIPMENT
VFD-110	PMP-110	STAGE 1 PUMP A
VFD-120	PMP-120	STAGE 1 PUMP B

B E-103 CONTROL SCHEMATIC DIAGRAM 1

SCALE: NONE

GENERAL NOTES

1. VFD: SPECIFICATION 26 29 23.
2. ALL COMPONENTS LOCATED IN VFD UNLESS DENOTED OTHERWISE.
3. PROVIDE VFD KEYPAD, PILOTS, SELECTORS, AND PUSHBUTTONS ON FRONT OF ENCLOSURE.
4. SPEED CONTROL IN REMOTE: ETHERNET.
5. SPEED FEEDBACK TO PLC: ETHERNET.
6. ETHERNET PORT REQUIRED, NOT SHOWN.
7. SEPARATE LINE AND LOAD REACTORS REQUIRED, NOT SHOWN.

KEY NOTES

1. VFD FAULT CONTACTS OPEN WHEN DRIVE FAULTS OR DISCONNECT IS OPENED.
2. 18 PULSE TRANSFORMER OR 6 PULSE LINE REACTOR, AND LOAD REACTOR REQUIRED, NOT SHOWN.
3. MOISTURE/TEMPERATURE RELAY M/TYH IS PROVIDED BY PUMP MANUFACTURER. FIELD INSTALL IN VFD. COORDINATE WITH PUMP MANUFACTURER.

LEGEND

□ AT PLC

△ FIELD MOUNTED

Brown AND Caldwell

SALT LAKE CITY, UT

Registered Professional Engineer No. 79150 Electrical DANIEL E. EHMANN Date Signed 05/10/24 ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS		
REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	D. EHMANN
DRAWN:	Q. SMITH
CHECKED:	R. MILLS
CHECKED:	K. CHANDLER
APPROVED:	S. BRENCHLEY

FILENAME
E-108.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

ELECTRICAL

INTAKE SCHEMATIC DIAGRAMS 1

DRAWING NUMBER

E-108

SHEET NUMBER 46 OF 54

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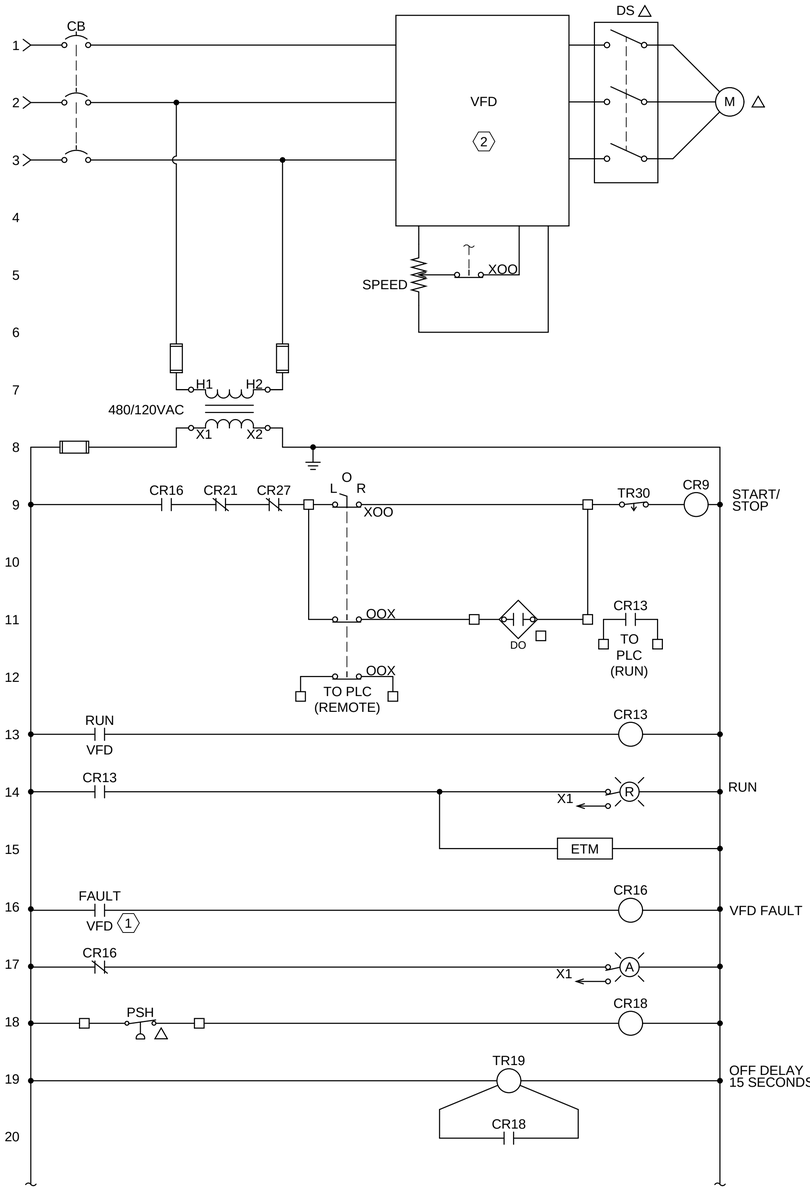
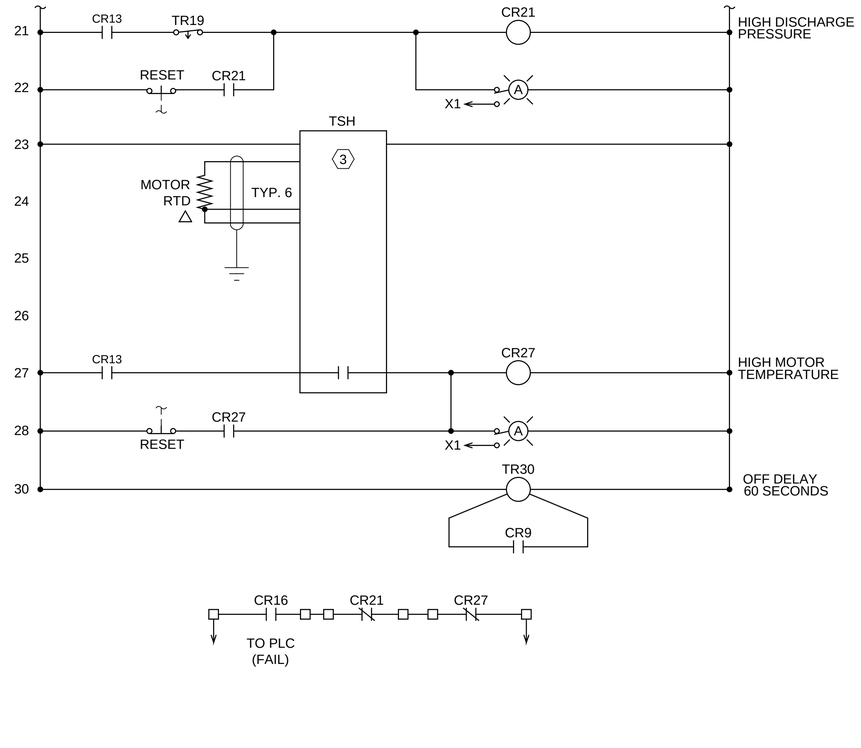




SCHEDULE		
VFD	PMP	EQUIPMENT
VFD-210	PMP-210	STAGE 2 PUMP A
VFD-220	PMP-220	STAGE 2 PUMP B

GENERAL NOTES

1. VFD: SPECIFICATION 26 29 23.
2. ALL COMPONENTS LOCATED IN VFD UNLESS DENOTED OTHERWISE.
3. PROVIDE VFD KEYPAD, PILOTS, SELECTORS, AND PUSHBUTTONS ON FRONT OF ENCLOSURE.
4. SPEED CONTROL IN REMOTE: ETHERNET.
5. SPEED FEEDBACK TO PLC: ETHERNET.
6. ETHERNET PORT REQUIRED, NOT SHOWN.
7. SEPARATE LINE AND LOAD REACTORS REQUIRED, NOT SHOWN.

⬡ KEY NOTES

1. VFD FAULT CONTACTS OPEN WHEN DRIVE FAULTS OR DISCONNECT IS OPENED.
2. 18 PULSE TRANSFORMER OR 6 PULSE LINE REACTOR, AND LOAD REACTOR REQUIRED, NOT SHOWN.
3. RTD HIGH TEMPERATURE SHUTDOWN RELAY. SET PER PUMP MFR. RECOMMENDATIONS. COORDINATE WITH PUMP MFR, SPEC. 43 23 92 STAGE 2.

LEGEND

□ AT PLC

△ FIELD MOUNTED

C E-103 CONTROL SCHEMATIC DIAGRAM 2

SCALE: NONE

Brown AND Caldwell

SALT LAKE CITY, UT

Professional Engineer — Electrical — 79150 — DANIEL E. EHMANN — Date Signed 05/10/24 — ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	D. EHMANN
DRAWN:	Q. SMITH
CHECKED:	R. MILLS
CHECKED:	K. CHANDLER
APPROVED:	S. BRENCHLEY

FILENAME
E-109.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

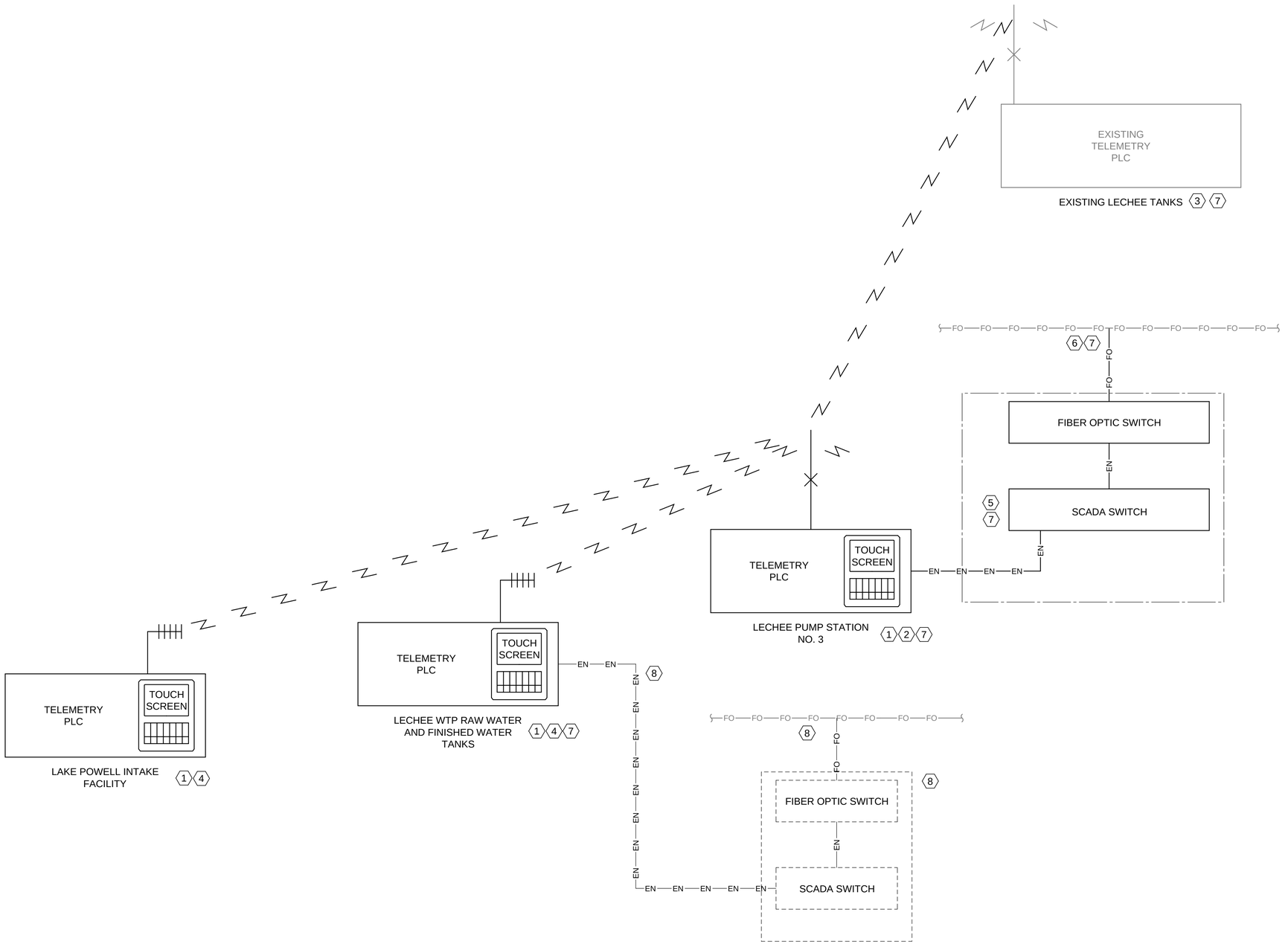
ELECTRICAL

INTAKE SCHEMATIC DIAGRAMS 2

DRAWING NUMBER

E-109

SHEET NUMBER 47 OF 54



GENERAL NOTES

1. THE EXISTING LECHEE PUMP STATION NO.1 (NOT SHOWN), ALSO PROVIDES WATER FOR THE EXISTING LECHEE TANKS.
2. EXISTING LECHEE PUMP STATION NO.2 (NOT SHOWN), PROVIDES WATER FROM THE EXISTING LECHEE TANKS TO THE EXISTING HAMBURGER HILL/LECHEE TANK NO.3 (NOT SHOWN).
3. SCHEDULE AND COORDINATE WORK TO MINIMIZE WATER SYSTEM CONTROL OUTAGES. REFER TO SPECIFICATION 01 12 16 AND 40 61 21.

KEY NOTES

1. PUMP STATON AND TELEMETRY.
2. PLC STORES AND FORWARDS SYSTEM STATUS BETWEEN LAKE POWELL INTAKE FACILITY AND LECHEE WTP RAW WATER TANK.
3. REVISE EXISTING LECHEE TANKS TELEMETRY PROGRAM SO LECHEE PUMP STATION NO.3 MAINTAINS TANK LEVEL.
4. LECHEE WATER SYSTEM STATUS TO LECHEE PUMP STATION NO. 3 PLC FOR SCADA FORWARDING.
5. SCADA SWITCH AND FIBER OPTIC SWITCH.
6. FIBER OPTIC CABLE AND CONNECTION TO EXISTING FIBER OPTIC LOOP BY NTUA.
7. SEPARATE DESIGN PACKAGE.
8. FUTURE WATER TREATMENT PLANT SCADA NETWORK CABINET, FIBER OPTIC AND ETHERNET CABLES TO BE ADDED IN THE FUTURE.

Brown AND Caldwell

SALT LAKE CITY, UT

Professional Engineer — CERTIFICATE NO. — 35940 — KENNETH W. CHANDLER — Date Signed 05/10/24 — ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED:	K. CHANDLER
DRAWN:	Q. SMITH
CHECKED:	K. CHANDLER
CHECKED:	R. MILLS
APPROVED:	S. BRENCHLEY

FILENAME
I-001.DWG

BC PROJECT NUMBER
150360

CLIENT PROJECT NUMBER
C010232

INSTRUMENTATION

COMMUNICATIONS BLOCK DIAGRAM

DRAWING NUMBER

I-001

48 SHEET NUMBER OF 54

MECHANICAL LEGEND

SYMBOL	ABR,	DESCRIPTION
GENERAL TERMINOLOGY		
A / ME101		SECTION LETTER DESIGNATION / SECTION DRAWN ON THIS SHEET
A2		DETAIL NUMBER DESIGNATION CORRESPONDING WITH GRID LOCATION
AH / 1		MECHANICAL EQUIPMENT DESIGNATION / EQUIPMENT ITEM DESIGNATION
D-1 / CFM		REGISTER, GRILLE OR DIFFUSER DESIGNATION WITH BALANCING CFM LISTED BELOW
R-1		GRILLE OR LOUVER DESIGNATION WHERE BALANCING NOT REQUIRED
1		REVISION DESIGNATOR AND NUMBER
1		KEY NOTE DESIGNATOR AND NUMBER
	POC	POINT OF CONNECTION
	POR	POINT OF REMOVAL
AFF		ABOVE FINISHED FLOOR
AP		ACCESS PANEL
C EL.		CENTERLINE ELEVATION
GC		GENERAL CONTRACTOR
MC		MECHANICAL CONTRACTOR
ATC		CONTROLS CONTRACTOR
EC		ELECTRICAL CONTRACTOR
FPC		FIRE PROTECTION CONTRACTOR
NIC		NOT IN CONTRACT
NTS		NOT TO SCALE
VCP		VITRIFIED CLAY PIPE
C		COMMON
NC		NORMALLY CLOSED
NO		NORMALLY OPEN

SYMBOL	ABR,	DESCRIPTION
AIR SIDE		
		EXISTING AIR DUCT TO BE REMOVED
		EXISTING AIR DUCT TO REMAIN
		NEW AIR DUCT
		RECT TO RECT AIR DUCT TAKE-OFF
		RECT TO RND AIR DUCT TAKE-OFF
		RND TO RND AIR DUCT TAKE-OFF
		MEDIUM PRESSURE TAKE-OFF
		FLEXIBLE AIR DUCT
		LINED DUCT
		RADIUS ELBOW
		ECCENTRIC DUCT TRANSITION
		CONCENTRIC DUCT TRANSITION
		VOLUME DAMPER
		SUPPLY AIR DIFFUSER
		RETURN & TRANSFER AIR GRILLE
		EXHAUST GRILLE OR CEILING EXH. FAN
		RETURN & OUTSIDE AIR DUCT UP/DN
		RETURN & OA ROUND DUCT UP/DN
		SUPPLY AIR DUCT UP/DN
		SUPPLY AIR ROUND DUCT UP/DN
		EXHAUST AIR DUCT UP/DN
		EXHAUST AIR ROUND DUCT UP/DN
	AP	ACCESS PANEL
		EXISTING EQUIPMENT TO BE REMOVED
		EXISTING EQUIPMENT TO REMAIN
		NEW EQUIPMENT
SA		SUPPLY AIR
RA		RETURN AIR
EA		EXHAUST AIR
OA		OUTSIDE AIR
MA		MIXED AIR
RF		RELIEF AIR
FO		FLAT OVAL
M	MVD	MOTORIZED VOLUME DAMPER
BD	BD	BACKDRAFT DAMPER
F	FD	FIRE DAMPER
S	SD	SMOKE DAMPER
FS	FS	FIRE & SMOKE DAMPER
T	T-STAT	WALL MOUNTED THERMOSTAT
S		WALL MOUNTED TEMP. SENSOR
H	H-STAT	WALL MOUNTED HUMIDISTAT
F	F-STAT	WALL MOUNTED FIRESTAT

GENERAL NOTES

G-1 - MECHANICAL INFORMATION IS NOT LIMITED TO THE MECHANICAL DRAWINGS. CONTRACTOR SHALL BE RESPONSIBLE FOR INFORMATION OF THE EXISTING BUILDING AND SITE CONDITIONS, EXISTING PIPING, EXISTING ELECTRICAL, AND EXISTING SUPPORTS.

A - EACH DRAWING SHEET AND THE SPECIFICATIONS HAVE BEEN PREPARED TO SUPPLEMENT EACH OTHER AND THEY SHALL BE INTERPRETED AS AN INTEGRAL UNIT WITH ITEMS SHOWN AND NOTED ON ONE AND NOT THE OTHER BEING FURNISHED AND INSTALLED AS THOUGH SHOWN AND CALLED OUT IN ALL PLACES. ITEMS IN SPECIFICATIONS OR DRAWINGS LISTED WHICH ARE DIFFERING IN EFFICIENCY OR QUALITY SHALL BE HELD TO THE GREATEST OF: EFFICIENCY, QUALITY OR GOVERNING CODE.

B - THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR THE INSTALLATION OF THE SYSTEMS ACCORDING TO THE TRUE INTENT AND MEANING OF THE CONTRACT DOCUMENTS.

C - THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT WITH PROPER SERVICE ACCESS AND CLEARANCES ACCORDING TO MANUFACTURERS RECOMMENDATIONS. THE CONTRACTOR SHALL REVIEW SUPPLIERS BID PACKAGES FOR COMPLETENESS AND COMPLIANCE TO THE SPECIFICATIONS, SCHEDULES, AND DESIGN INTENT (ALL EQUIPMENT AND METHODS). THE CONTRACTOR SHALL REMOVE AND REINSTALL CORRECTLY AT HIS OWN EXPENSE ANY EQUIPMENT NOT IN COMPLIANCE.

D - THE CONTRACTOR SHALL CONSULT MANUFACTURERS INSTALLATION INSTRUCTIONS FOR SIZES, METHODS, ACCESSORIES, AND CLEARANCES IN SPACE AVAILABLE PRIOR TO BIDDING PROJECT.

E - ANYTHING NOT CLEAR OR IN CONFLICT WILL BE EXPLAINED BY MAKING APPLICATION TO THE ENGINEER IN WRITING.

G-2 - ANY AND ALL ALTERATIONS TO THE SYSTEM SHOWN SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO CHANGES FOR APPROVAL. CONTRACTOR SHALL NOT START ANY CHANGES UNTIL NOTIFIED IN WRITING. IF CHANGES ARE MADE PRIOR TO APPROVAL CONTRACTOR SHALL TAKE ALL RESPONSIBILITY FOR THE CHANGES MADE AND ALL COSTS RELATING TO FAILURE OR REPLACEMENT OF ALTERATIONS.

G-3 - CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS AND LOCATIONS.

G-4 - THE WORKING DRAWINGS ARE DIAGRAMMATIC. THEY DO NOT SHOW EVERY OFFSET, BEND, OR ELBOW NECESSARY FOR THE COMPLETE INSTALLATION IN THE SPACE PROVIDED. ALL LOCATIONS FOR MECHANICAL EQUIPMENT SHALL BE FIELD VERIFIED AND COORDINATED WITH ALL DRAWINGS. THE CONTRACTOR SHALL PROVIDE OR COORDINATE WITH THE GENERAL CONTRACTOR PROVISIONS FOR BLOCKOUTS OR CORE DRILLS THROUGH STRUCTURE.

G-5 - THE INSTRUCTION TO "PROVIDE" ALSO INCLUDES INSTALLATION.

G-6 - MECHANICAL CONTRACTOR SHALL PROVIDE AND INSTALL SMOKE AND FIRE DAMPERS AS REQUIRED BY LOCAL CODES AND AUTHORITIES.

G-7 - SHEET METAL DUCT SIZES SHOWN ON DRAWINGS ARE FREE AREA DIMENSIONS.

G-8 - PROVIDE AND INSTALL BALANCING DAMPERS IN ALL SUPPLY AND EXHAUST AIR BRANCH DUCTS. BALANCE TO CFM SHOWN ON PLAN.

G-9 - SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF DIFFUSERS AND GRILLES.

G-10 - PROVIDE TURNING VANES IN ALL ELBOWS OF RECTANGULAR DUCT.

G-11 - THE CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY IN HANDLING AND DISPOSING OF REFRIGERANTS, OILS, ETC. ALL SUCH MATERIALS SHALL BE HANDLED, DISPOSED, AND USED IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL LAWS.

G-12 - THE MECHANICAL CONTRACTOR SHALL VERIFY MOTOR VOLTAGES WITH THE ELECTRICAL DRAWING BEFORE ORDERING MOTORIZED EQUIPMENT AND CONTROLS.

G-13 - C.F.M. LISTED IS ACTUAL AIR.

G-14 - SUPPLIERS SHALL REVIEW ALL DRAWINGS AND THE SPECIFICATIONS PRIOR TO SUBMITTING PRICES TO THE CONTRACTOR. ALL QUESTIONS AND DISCREPANCIES SHALL BE BROUGHT TO THE ENGINEERS ATTENTION PRIOR TO BIDDING.

G-15 - CONTRACTOR SHALL THOROUGHLY REVIEW AND SIGN SUBMITTALS FOR COMPLETENESS AND COMPLIANCE TO THE SPECIFICATIONS PRIOR TO ENGINEERS REVIEW. SUPPLIERS SHALL HIGHLIGHT OR MARK ALL INFORMATION REQUIRED TO SHOW COMPLIANCE TO THE SPECIFICATIONS. ALL REQUESTED EXCEPTIONS TO THE SPECIFICATIONS, OR SCHEDULES SHALL BE CLEARLY NOTED AND EXPLAINED. SUBMITTAL REVIEW AND ACCEPTANCE IS FOR DESIGN CONCEPT ONLY, AND DOES NOT AT ANY TIME RELIEVE THE CONTRACTOR OF RESPONSIBILITY TO MEET SPECIFICATIONS, CAPACITIES, OR DESIGN INTENT.

G-16 - ALL MECHANICAL SHALL BE INSTALLED AND CONFORM TO THE 2021 EDITION OF THE IMC AND IPC WITH LOCAL JURISDICTION ANNOTATIONS AND LOCAL AUTHORITY REQUIREMENTS.

G-17 - THIS CONTRACTOR SHALL BE RESPONSIBLE FOR THE DRAINING DOWN AND RE-FILLING OF ALL SYSTEMS NECESSARY TO COMPLETE THE WORK OUTLINED BY THIS PROJECT. THIS INCLUDES PROVIDING THE REQUIRED CHEMICAL TREATMENT WHEN RE-FILLING THE SYSTEM.

G-18 - ALL PIPING, MATERIALS, ETC. SHALL BE NEW AND DOMESTIC MADE UNLESS SPECIFICALLY AUTHORIZED IN WRITING PRIOR TO BID.

Brown AND Caldwell

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CERTIFICATE NO.
No. 69496
WINWARD M. PACKER
DATE SIGNED 04-08-24
ARIZONA, U.S.A.

GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. BRITNELL
DRAWN: J. BRITNELL
CHECKED: W. PACKER
CHECKED:
APPROVED: W. PACKER

FILENAME

BC PROJECT NUMBER 153060

CLIENT PROJECT NUMBER C010232

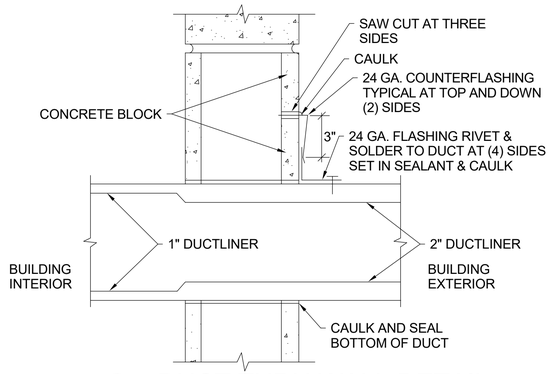
BUILDING MECHANICAL

MECHANICAL GENERAL NOTES AND LEGEND

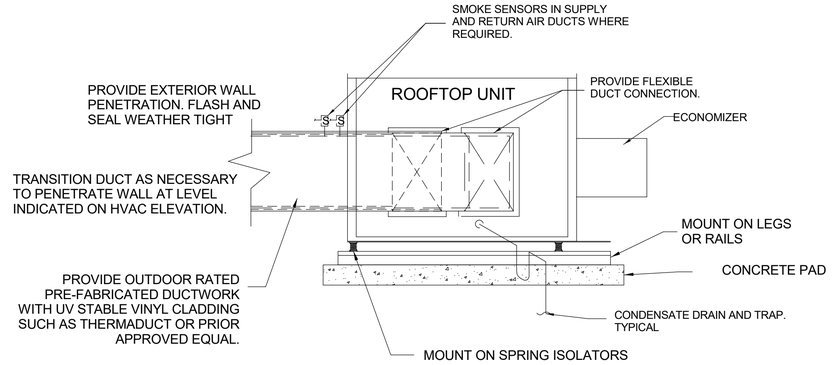
DRAWING NUMBER
H-001

SHEET NUMBER 49 OF 54

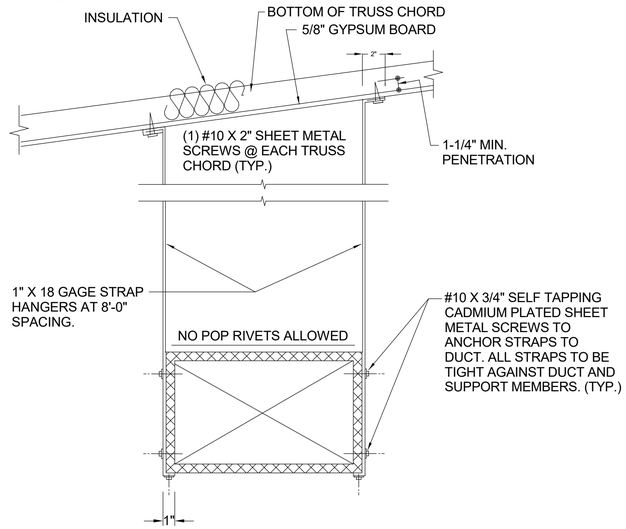
Plot Date: 4/11/2024 5:01:22 PM Path: BIM 360://150360 - Western Navajo Pipeline (LeChee)/150360-H-CTRLBLDG_V21.rvt



C3 DUCT THRU WALL DETAIL
SCALE: NONE



C5 GROUND MOUNTED ROOFTOP UNIT
SCALE: NONE



B5 DUCT STRAP HANGER DETAIL
SCALE: NONE

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GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS

REV	DATE	DESCRIPTION

LINE IS 2 INCHES AT FULL SIZE

DESIGNED: J. BRITNELL
DRAWN: J. BRITNELL
CHECKED: W. PACKER
CHECKED:
APPROVED: W. PACKER

FILENAME

BC PROJECT NUMBER
153060

CLIENT PROJECT NUMBER
C010232

BUILDING MECHANICAL

HVAC CONTROL BUILDING DETAILS

DRAWING NUMBER
H-002

SHEET NUMBER 50 OF 54

Plot Date: 4/11/2024 5:01:22 PM Path: BIM 360://150360 - Western Navajo Pipeline (LeChee)/150360-H-CTRLBLDG_V21.rvt

ROOF TOP UNIT SCHEDULE

TAG		AREA SERVED	CFM	CFM (OUTSIDE AIR)	ESP	HEATING					COOLING			ELECTRICAL						SEER (3-5 TON) EER (7.5+ TON)	OPERATING WEIGHT	MANUF & MODEL	SCHEDULE NOTES
TYPE	#					AMBIENT EAT (DB)	EAT (DB)	LAT (DB)	MIN. TOTAL MBH	ELECTRIC HEATER	EAT (DB)	EAT (WB)	TOTAL LOAD (BTU/HR)	VOLTAGE	PHASE	FREQUENCY	# OF COMPRESSORS	MCA	MOCP				
RTU	1	CONTROL BUILDING	1,600 CFM	160 CFM	0.75 in-wg	47 °F	60 °F	90 °F	44,080 Btu/h	10.6 kW	80 °F	62 °F	39,760 Btu/h	460 V	3	60 Hz	1	11 A	15 A	14.3	635 lb	CARRIER 50FCQA05	1-5
RTU	2	CONTROL BUILDING	1,600 CFM	160 CFM	0.75 in-wg	47 °F	60 °F	90 °F	44,080 Btu/h	10.6 kW	80 °F	62 °F	39,760 Btu/h	460 V	3	60 Hz	1	11 A	15 A	14.3	635 lb	CARRIER 50FCQA05	1-5
RTU	3	CONTROL BUILDING	1,600 CFM	160 CFM	0.75 in-wg	47 °F	60 °F	90 °F	44,080 Btu/h	10.6 kW	80 °F	62 °F	39,760 Btu/h	460 V	3	60 Hz	1	11 A	15 A	14.3	635 lb	CARRIER 50FCQA05	1-5

1. RATED MINIMUM INPUT AT SEA LEVEL.
2. PROVIDE ONE 15 AMP, 120 VOLT, DUPLEX GFCI SERVICE OUTLET. FACTORY INSTALLED, FIELD WIRED.
3. ESP DOES NOT INCLUDE LOSSES THROUGH ACCESSORIES.
4. PROVIDE 100% OUTSIDE AIR ECONOMIZER.
5. SEE SPECIFICATIONS FOR OTHER APPROVED MANUFACTURERS.

DIFFUSER AND GRILLE SCHEDULE

TAG	AIRFLOW DIRECTION	MAX FLOW	FACE SIZE		NECK SIZE		CEILING TYPE	BLOW PATTERN	THROW @ 50 FPM	MAX NC	MANUF & MODEL	SCHEDULE NOTES
			LENGTH	WIDTH	LENGTH/ DIAMETER	WIDTH						
R-1	RETURN	1,500 CFM	26"	18"	24"	16"	SIDEWALL	N/A	0'	35	PRICE 535	1-2
S-1	SUPPLY	400 CFM	18"	10"	16"	8"	DUCT MTD	1 WAY	60'	25	PRICE HCD	1-2

1. SEE SPECIFICATIONS FOR OTHER APPROVED MANUFACTURERS.
2. FINISH SHALL BE SPECIFIED BY ARCHITECT.

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GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS

REV	DATE	DESCRIPTION

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DRAWN: J. BRITNELL
CHECKED: W. PACKER
CHECKED:
APPROVED: W. PACKER

FILENAME

BC PROJECT NUMBER 153060

CLIENT PROJECT NUMBER C010232

BUILDING MECHANICAL

HVAC CONTROL BUILDING SCHEDULES

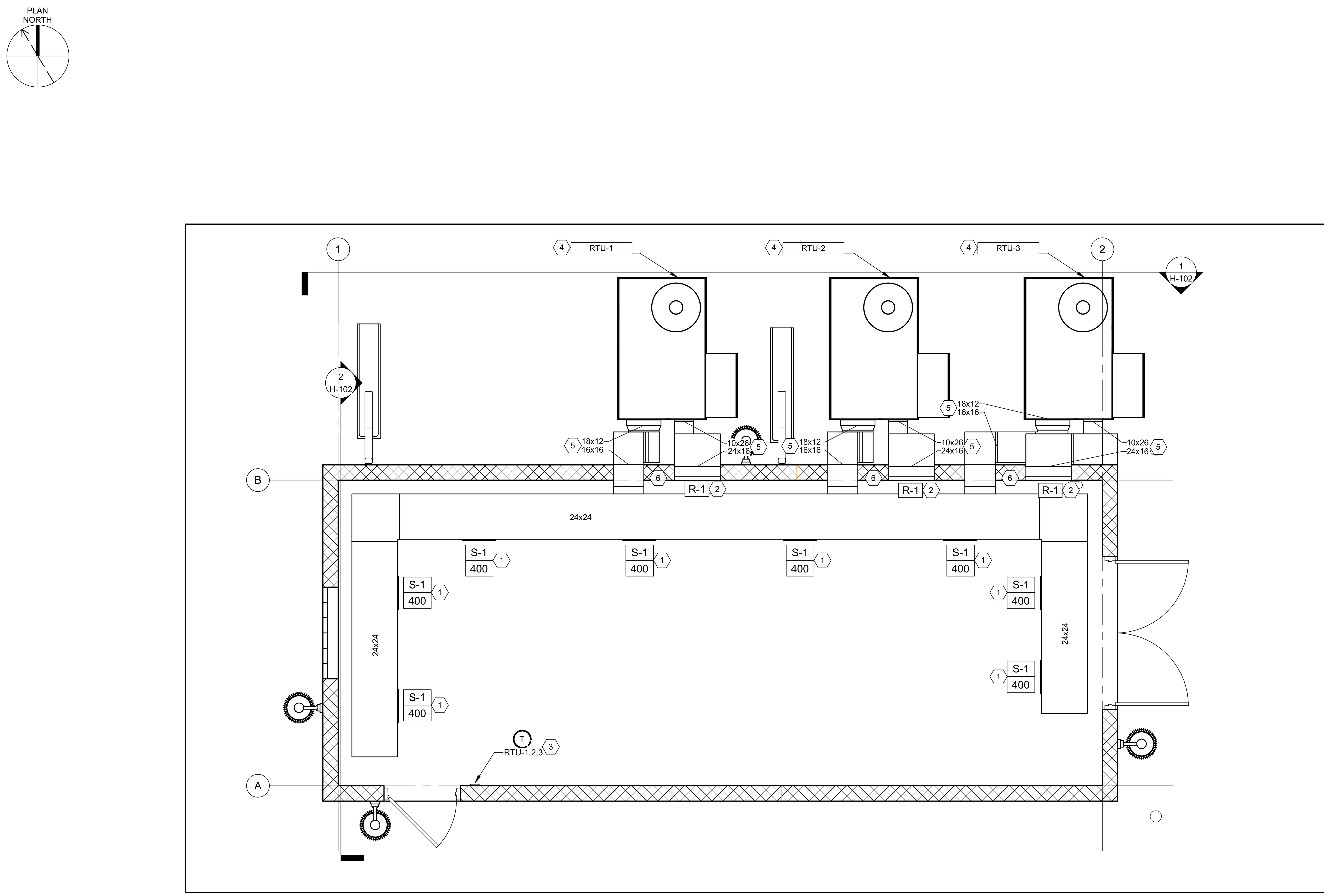
DRAWING NUMBER H-003

51 SHEET NUMBER OF 54

Plot Date: 4/11/2024 5:01:23 PM Path: BIM 360://150360 - Western Navajo Pipeline (LeChee)/150360-H-CTRLBLDG_V21.rvt

KEYNOTES:

1. PROVIDE DUCT MOUNTED SUPPLY DIFFUSER WITH 15 DEGREE ANGLED BLADES IN THIS APPROXIMATE LOCATION. BALANCE TO CFM AS SHOWN. SEE BUILDING MECHANICAL SCHEDULES.
2. PROVIDE WALL MOUNTED RETURN GRILLE IN THIS APPROXIMATE LOCATION. SEE BUILDING MECHANICAL SCHEDULES.
3. PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT IN NEMA-4X HOUSING 48" A.F.F. IN THIS APPROXIMATE LOCATION. PROVIDE WITH CONTROLS FOR UNITS TO OPERATE ON A LEAD/LAG AND EQUAL RUN TIME SEQUENCE.
4. PROVIDE GROUND MOUNTED RTU WITH 4" CONCRETE PAD IN THIS APPROXIMATE LOCATION. SEE HVAC MECHANICAL DETAILS AND SCHEDULE. UNITS TO OPERATE ON A LEAD/LAG AND EQUAL RUN TIME SCHEDULE.
5. PROVIDE OUTDOOR RATED DUCTWORK WITH UV STABLE VINYL CLADDING SUCH AS THERMADUCT OR PRIOR APPROVED EQUAL, FROM UNIT TO BUILDING PENETRATION. TRANSITION TO UNIT DUCT SIZE AS REQUIRED BASED ON MANUFACTURER.
6. DUCT PENETRATION DIMENSIONS ARE FOR APPROXIMATION ONLY. COORDINATE WITH ARCHITECTURAL PLANS AND WALL PENETRATION DETAILS FOR EXACT PLACEMENT.



HVAC FLOOR PLAN

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

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VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS		
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CHECKED: W. PACKER
CHECKED:
APPROVED: W. PACKER

FILENAME

BC PROJECT NUMBER 153060

CLIENT PROJECT NUMBER C010232

BUILDING MECHANICAL

CONTROL BUILDING HVAC FLOOR PLAN

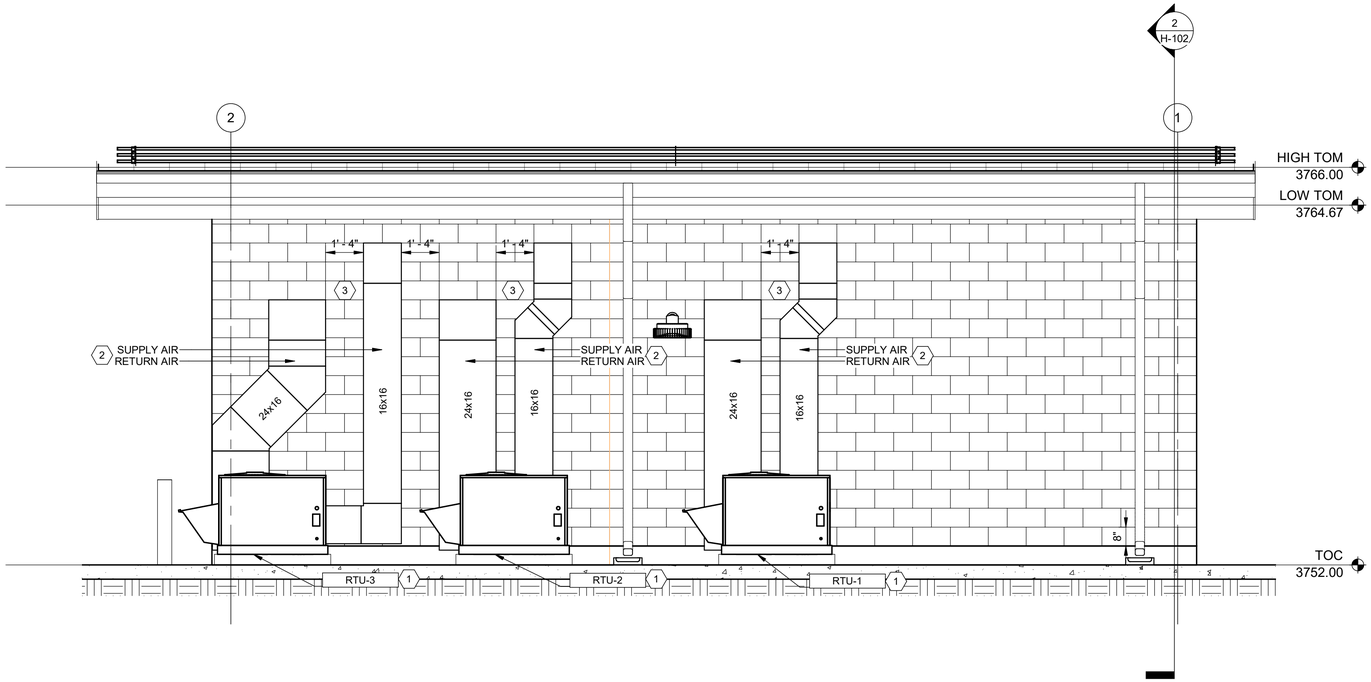
DRAWING NUMBER H-101

52 SHEET NUMBER OF 54

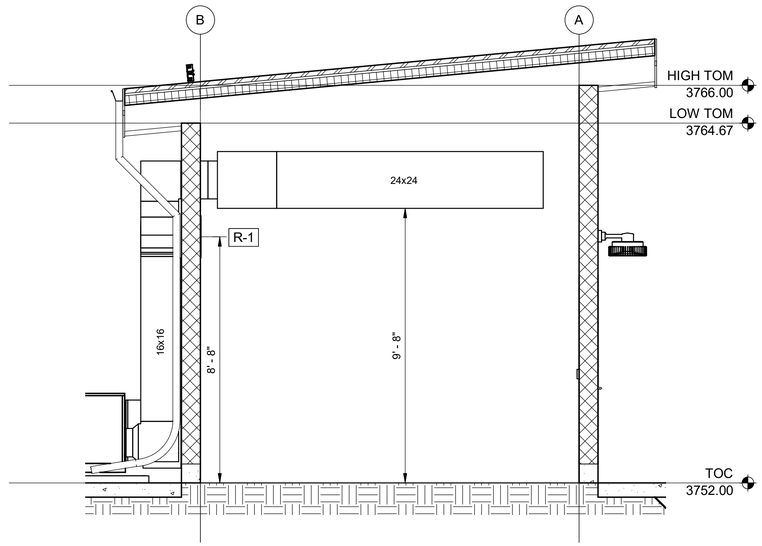
Plot Date: 4/11/2024 5:01:23 PM   Path: BIM 360://150360 - Western Navajo Pipeline (LeChee)/150360-H-CTRLBLDG_V21.rvt

KEYNOTES:

1. PROVIDE GROUND MOUNTED RTU WITH 4" CONCRETE PAD IN THIS APPROXIMATE LOCATION. SEE HVAC MECHANICAL DETAILS AND SCHEDULE. UNITS TO OPERATE ON A LEAD/LAG AND EQUAL RUN TIME SCHEDULE.
2. PROVIDE OUTDOOR RATED DUCTWORK WITH UV STABLE VINYL CLADDING SUCH AS THERMADUCT OR PRIOR APPROVED EQUAL, FROM UNIT TO BUILDING PENETRATION. TRANSITION TO UNIT DUCT SIZE AS REQUIRED BASED ON MANUFACTURER.
3. DUCT PENETRATION DIMENSIONS ARE FOR APPROXIMATION ONLY. COORDINATE WITH ARCHITECTURAL PLANS AND WALL PENETRATION DETAILS FOR EXACT PLACEMENT.



1 H-101 HVAC ELEVATION
SCALE: 3/8" = 1'-0"



2 H-101 HVAC SECTION
SCALE: 3/8" = 1'-0"

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GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS

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DRAWN: J. BRITNELL
CHECKED: W. PACKER
CHECKED:
APPROVED: W. PACKER
FILENAME

BC PROJECT NUMBER
153060
CLIENT PROJECT NUMBER
C010232

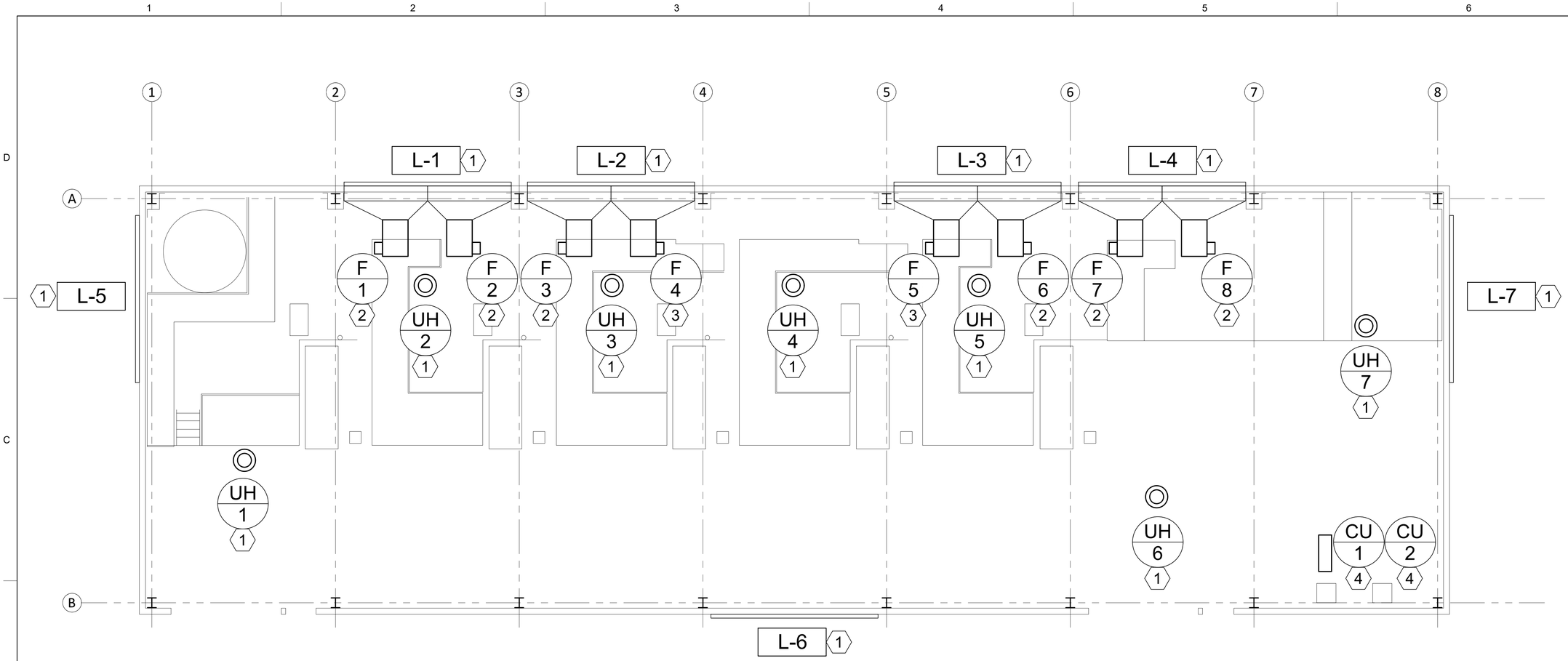
BUILDING MECHANICAL

CONTROL BUILDING HVAC ELEVATION AND SECTION

DRAWING NUMBER
H-102

53 SHEET NUMBER OF 54

Plot Date: 4/11/2024 5:01:23 PM Path: BIM 360://150360 - Western Navajo Pipeline (LeChee)/150360-H-CTRLBLDG_V21.rvt



EXISTING ELECTRIC UNIT HEATER SCHEDULE

SYMBOL	MANUFACTURERS AND MODEL NO.	CFM	BTUH	ELECTRICAL				RPM	AIR TEMP RISE	THROW	WEIGHT (LBS)	COMMENTS
				SERVICE	KW	AMPS	HPW					
UH 1	CHROMALOX VUH-20	1,300	-	480/3/60	20	24	1/8	1,725	-	-	85	CONTROL CIRCUIT: 120/1/60, 14 VA MAX
UH 2	CHROMALOX VUH-20	1,300	-	480/3/60	20	24	1/8	1,725	-	-	85	CONTROL CIRCUIT: 120/1/60, 14 VA MAX
UH 3	CHROMALOX VUH-20	1,300	-	480/3/60	20	24	1/8	1,725	-	-	85	CONTROL CIRCUIT: 120/1/60, 14 VA MAX
UH 4	CHROMALOX VUH-20	1,300	-	480/3/60	20	24	1/8	1,725	-	-	85	CONTROL CIRCUIT: 120/1/60, 14 VA MAX
UH 5	CHROMALOX VUH-20	1,300	-	480/3/60	20	24	1/8	1,725	-	-	85	CONTROL CIRCUIT: 120/1/60, 14 VA MAX
UH 6	CHROMALOX VUH-20	1,300	-	480/3/60	20	24	1/8	1,725	-	-	85	CONTROL CIRCUIT: 120/1/60, 14 VA MAX
UH 7	CHROMALOX VUH-20	1,300	-	480/3/60	20	24	1/8	1,725	-	-	85	CONTROL CIRCUIT: 120/1/60, 14 VA MAX

EXISTING LOUVER SCHEDULE

SYMBOL	DIRECTION OF FLOW	MAX FLOW	FACE SIZE		MIN FREE AREA	MAX VELOCITY	MAX NC	MANUF. & MODEL	SCHEDULE NOTES
			HEIGHT	WIDTH					
L-1	INTAKE	21,000 CFM	48"	192"	-	-	-	-	-
L-2	INTAKE	21,000 CFM	48"	192"	-	-	-	-	-
L-3	INTAKE	21,000 CFM	48"	192"	-	-	-	-	-
L-4	INTAKE	21,000 CFM	48"	192"	-	-	-	-	-
L-5	EXHAUST	28,000 CFM	32"	128"	-	-	-	-	-
L-6	EXHAUST	28,000 CFM	32"	128"	-	-	-	-	-
L-7	EXHAUST	28,000 CFM	32"	128"	-	-	-	-	-

EXISTING VENTILATION FAN SCHEDULE

SYMBOL	MANUFACTURER & MODEL No.	SERVES	C.F.M.	STATIC PRESSURE IN. WG.	MAX NOISE SONES	MOTOR			OPER. WT. (LBS)	COMMENTS	SCHEDULE NOTES
						V - Ø - Hz	HP	RPM			
EF 1	COOK 225QMX	EXISTING INTAKE FACILITY	10,500	2.95	-	460-3-60	7.5	1,725	-	-	-
EF 2	COOK 225QMX	EXISTING INTAKE FACILITY	10,500	2.95	-	460-3-60	7.5	1,725	-	-	-
EF 3	COOK 225QMX	EXISTING INTAKE FACILITY	10,500	2.95	-	460-3-60	7.5	1,725	-	-	-
EF 4	COOK 225QMX	EXISTING INTAKE FACILITY	10,500	2.95	-	460-3-60	7.5	1,725	-	-	-
EF 5	COOK 225QMX	EXISTING INTAKE FACILITY	10,500	2.95	-	460-3-60	7.5	1,725	-	-	-
EF 6	COOK 225QMX	EXISTING INTAKE FACILITY	10,500	2.95	-	460-3-60	7.5	1,725	-	-	-
EF 7	COOK 225QMX	EXISTING INTAKE FACILITY	10,500	2.95	-	460-3-60	7.5	1,725	-	-	-
EF 8	COOK 225QMX	EXISTING INTAKE FACILITY	10,500	2.95	-	460-3-60	7.5	1,725	-	-	-

KEYNOTES:

1. EXISTING MECHANICAL EQUIPMENT WILL REMAIN IN PLACE AND OPERATIONAL. PROVIDE TYPICAL EQUIPMENT SERVICE AND CONFIRM OPERATION.
2. EXISTING MECHANICAL EQUIPMENT WILL REMAIN IN PLACE AND ABANDONED.
3. EXISTING VENTILATION FANS SHALL BE IN USE WITH A LEAD-LAG OPERATION.
4. EXISTING CONDENSING UNITS SHALL BE DEMOLISHED AND REMOVED.

Brown AND Caldwell

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No. 69496
WINWARD M. PACKER
DATE SIGNED 12-31-24
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GREAT SEAL OF THE NAVAJO NATION

VOLUME 1 - LECHEE INTAKE FACILITY AND CONTROL BUILDING

REVISIONS

REV	DATE	DESCRIPTION

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DESIGNED: J. BRITNELL
DRAWN: J. BRITNELL
CHECKED: W. PACKER
CHECKED:
APPROVED: W. PACKER

FILENAME
22130 EXISTING INTAKE HVAC.DWG
BC PROJECT NUMBER
153060
CLIENT PROJECT NUMBER
C010232

BUILDING MECHANICAL

HVAC INTAKE STRUCTURE PLAN AND SCHEDULES

DRAWING NUMBER
H-103

SHEET NUMBER 54 OF 54

NAVAJO TRIBAL UTILITY AUTHORITY
PUMP CONTROL PANEL LAYOUT

SCHEDULE OF DRAWINGS

SHEET	FILENAME	TITLE	NOTES
1	PLC_CV	COVERSHEET	SHEDULE OF DRAWINGS
2	PLC_DIO	DISCRETE I/O	WIRING
3	PLC_AI	ANALOG INPUT	WIRING
3A	PLC_AO	ANALOG OUTPUT	WIRING
4	PLC_PWR	POWER DISTRIBUTION	WIRING
5	PLC_BP	BACKPLANE LAYOUT	BP W/ BOM
~~5A~~	~~PLC_SOP~~	~~SWING OUT PANEL~~	~~BP W/ BOM~~
6	PLC_CBL	COMM CABLES PINOUT	

PLC CONTROL PANEL

LECHEE INTAKE PS

NO.	DATE	DESCRIPTION	BY
01	3/22	DWG MODIFICATION "DILKON PASS BOOSTER"	NTUA

NAVAJO TRIBAL UTILITY AUTHORITY

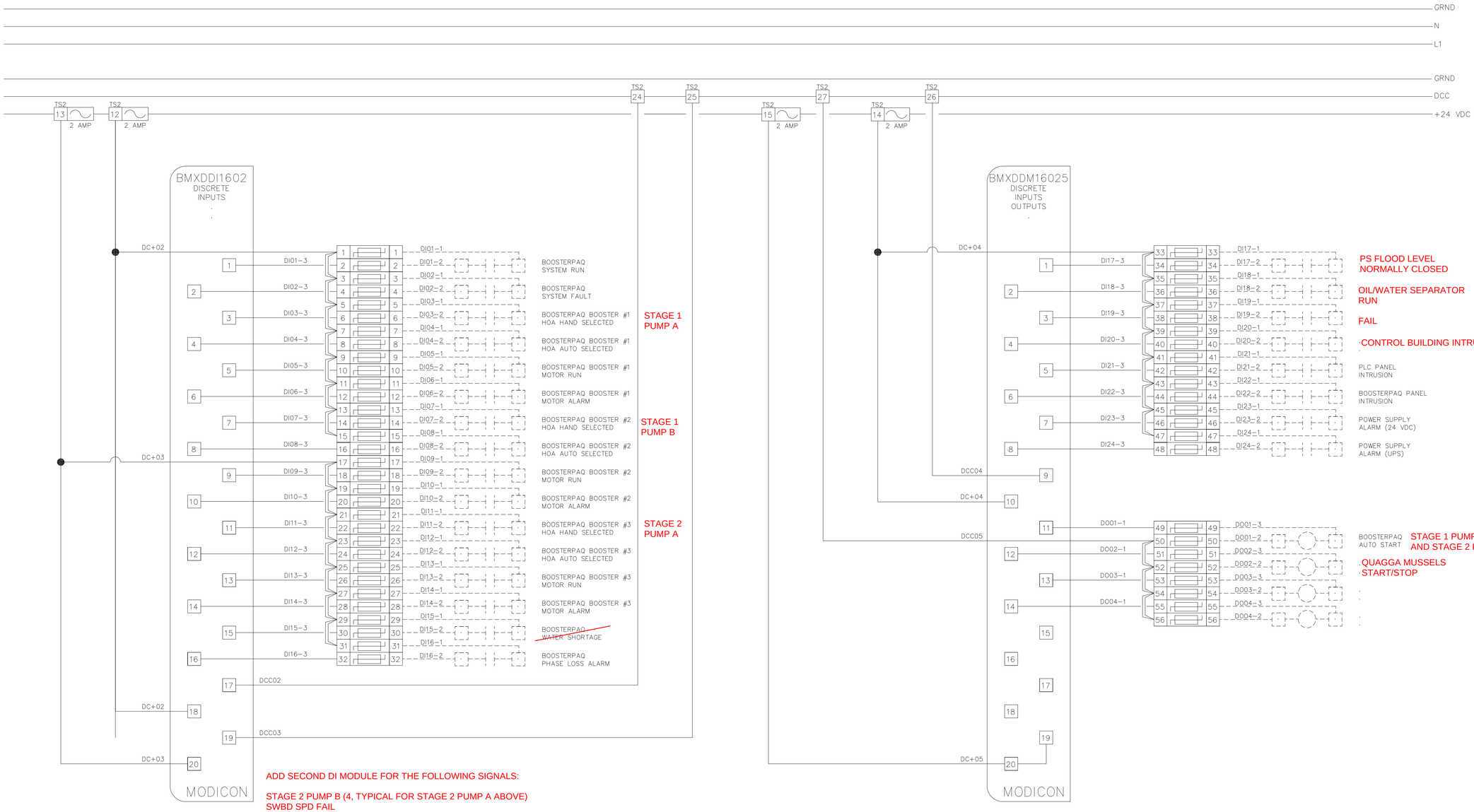
SCALE: NONE	REVISIONS	BY	DATE
DATE:			
DRN. / CKD.			
APV'D.			

TITLE: PLC CONTROL PANEL
COVER SHEET

W.O.#

SHEET 1 OF 6

POWER DISTRIBUTION THIS PAGE REFLECTS "LOGICAL" SCHEMATIC SEE "DC DISTRIBUTION" DRAWING AND "AC DISTRIBUTION" DRAWING FOR POINT TO POINT TERMINATIONS



ADD SECOND DI MODULE FOR THE FOLLOWING SIGNALS:

STAGE 2 PUMP B (4, TYPICAL FOR STAGE 2 PUMP A ABOVE)
SWBD SPD FAIL
GENERATOR RUN, TROUBLE, FAIL, LOW FUEL, INTRUSION (5)
ATS NORMAL AND STANDBY POSITIONS, TROUBLE (3)
QUAGGA MUSSLE RUN, FAIL (2)

LEGEND

Field Terminations ----------

Panel Wiring ——————

NO.	DATE	DESCRIPTION	BY
02	12/21	DWG UPDATES "DILKON PASS BOOSTER"	NTUA
01	3/19	DWG UPDATES	NTUA

NAVAJO TRIBAL UTILITY AUTHORITY

SCALE: NONE	REVISIONS	BY	DATE
DATE:			
DRN. CKD.			
APVD.			

TITLE: PLC CONTROL PANEL DISCRETE I/O (BOOSTER WITH BOOSTERPAQ)

W.O.#

POWER DISTRIBUTION THIS PAGE REFLECTS "LOGICAL" SCHEMATIC SEE "DC DISTRIBUTION" DRAWING AND "AC DISTRIBUTION" DRAWING FOR POINT TO POINT TERMINATIONS

GRND
N
L1

GRND
DCC
+24 VDC

TS2 28
TS2 16 — 2 AMP
DCC06
DC+06

BMXAMI0810
ANALOG INPUTS

REWIRE PER BELOW 3 LOOPS.

1	AI01-3	TS1 57 — 57	AI01-1	ANALOG IN LOOP POWERED	STAGE 1 MOTOR 1 CURRENT
2	AI01-4	77			
3		TS1 58 — 58	AI01-2		
4	AI02-3	TS1 59 — 59	AI02-1	ANALOG IN SELF POWERED	STAGE 1 MOTOR 2 MOTOR #1 CURRENT
5	AI02-4	TS1 60 — 60	AI02-2		
6		78			
7	AI03-3	TS1 61 — 61	AI03-1	ANALOG IN SELF POWERED	STAGE 2 MOTOR 2 MOTOR #2 CURRENT
8	AI03-4	TS1 62 — 62	AI03-2		
9		79			
10	AI04-3	TS1 63 — 63	AI04-1	ANALOG IN SELF POWERED	STAGE 2 MOTOR 2 MOTOR #3 CURRENT
11	AI04-4	TS1 64 — 64	AI04-2		
12		80			
13					
14					

81
82

BMXAMI0810
ANALOG INPUTS
(CONTINUED)

15	AI05-3	TS1 65 — 57	AI05-1	ANALOG IN LOOP POWERED	STAGE 2 SUCTION PRESSURE
16	AI05-4	TS1 66 — 58	AI05-2		
17					
18	AI06-3	TS1 67 — 59	AI06-1	ANALOG IN SELF POWERED	STAGE 2 DISCHARGE PRESSURE
19	AI06-4	TS1 68 — 60	AI06-2		
20					
21	AI07-3	TS1 69 — 61	AI07-1	ANALOG IN SELF POWERED	PQM VOLTAGE CHLORINE BOTTLE WEIGHT SCALE
22	AI07-4	TS1 70 — 62	AI07-2		
23					
24	AI08-3	TS1 71 — 63	AI08-1	ANALOG IN SELF POWERED	PQM CURRENT
25	AI08-4	TS1 72 — 64	AI08-2		
26					
27					
28					

MODICON

LEGEND

Field Terminations ----------

Panel Wiring ——————

NO.	DATE	DESCRIPTION	BY
03	3/22	DWG MODIFICATIONS "DILKON PASS BOOSTER"	NTUA
02	12/21	DWG UPDATES	NTUA
01	3/19	DWG UPDATES	NTUA

NAVAJO TRIBAL UTILITY AUTHORITY

SCALE: NONE
DATE: .
DRN. . CKD. .
APVD. .

REVISIONS	BY	DATE
.	.	.
.	.	.

TITLE: PLC CONTROL PANEL
ANALOG INPUT
(BOOSTER WITH BOOSTERPAQ)

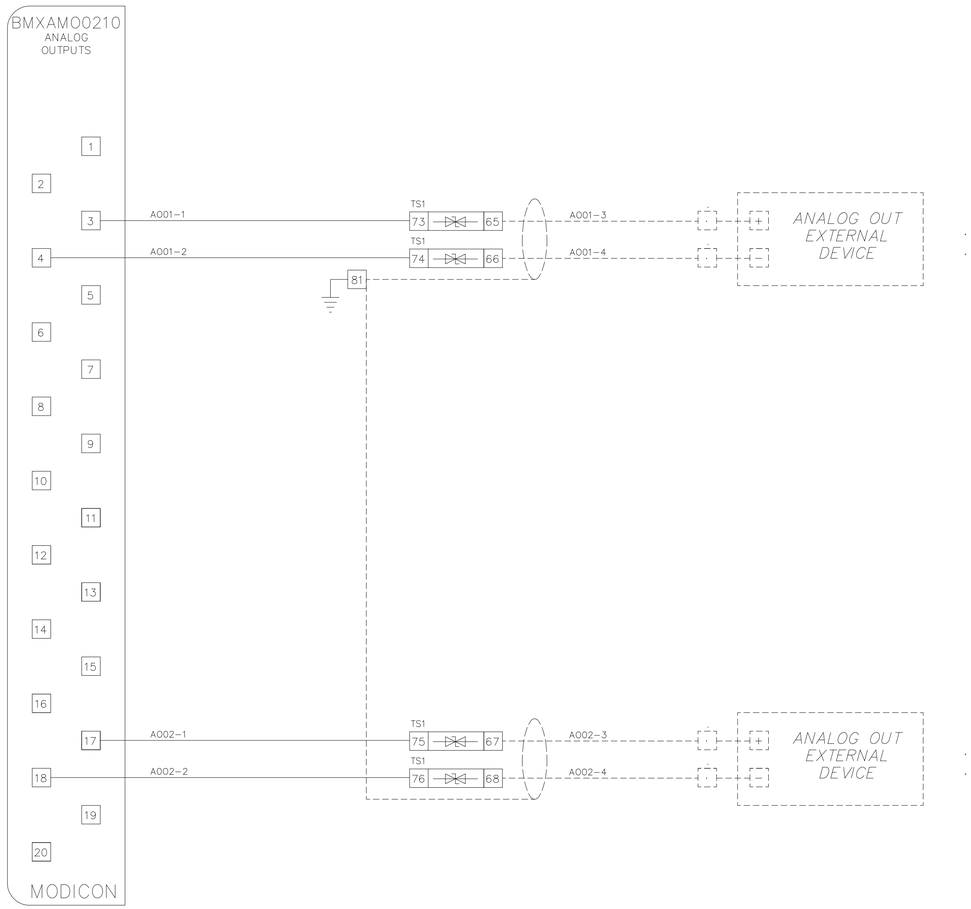
W.O.#

SHEET 3 OF 6

POWER DISTRIBUTION THIS PAGE REFLECTS "LOGICAL" SCHEMATIC SEE "DC DISTRIBUTION" DRAWING AND "AC DISTRIBUTION" DRAWING FOR POINT TO POINT TERMINATIONS

GRND
N
L1

GRND
DCC
+24 VDC



LEGEND

Field Terminations ----------

Panel Wiring _____

NO.	DATE	DESCRIPTION	BY
03	3/22	DWG MODIFICATIONS "DILKON PASS BOOSTER"	NTUA
02	12/21	DWG UPDATES	NTUA
01	3/19	DWG UPDATES	NTUA

NAVAJO TRIBAL UTILITY AUTHORITY

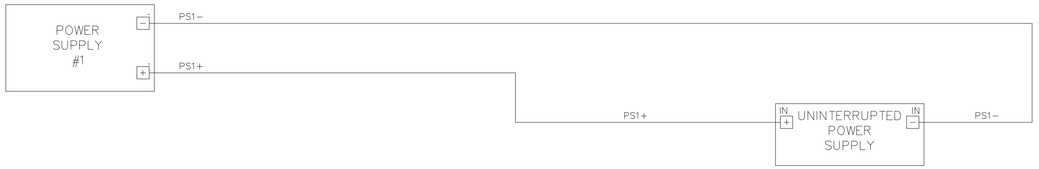
SCALE: NONE
DATE:
DR'N.
CK'D.
AP'VD.

REVISIONS	BY	DATE

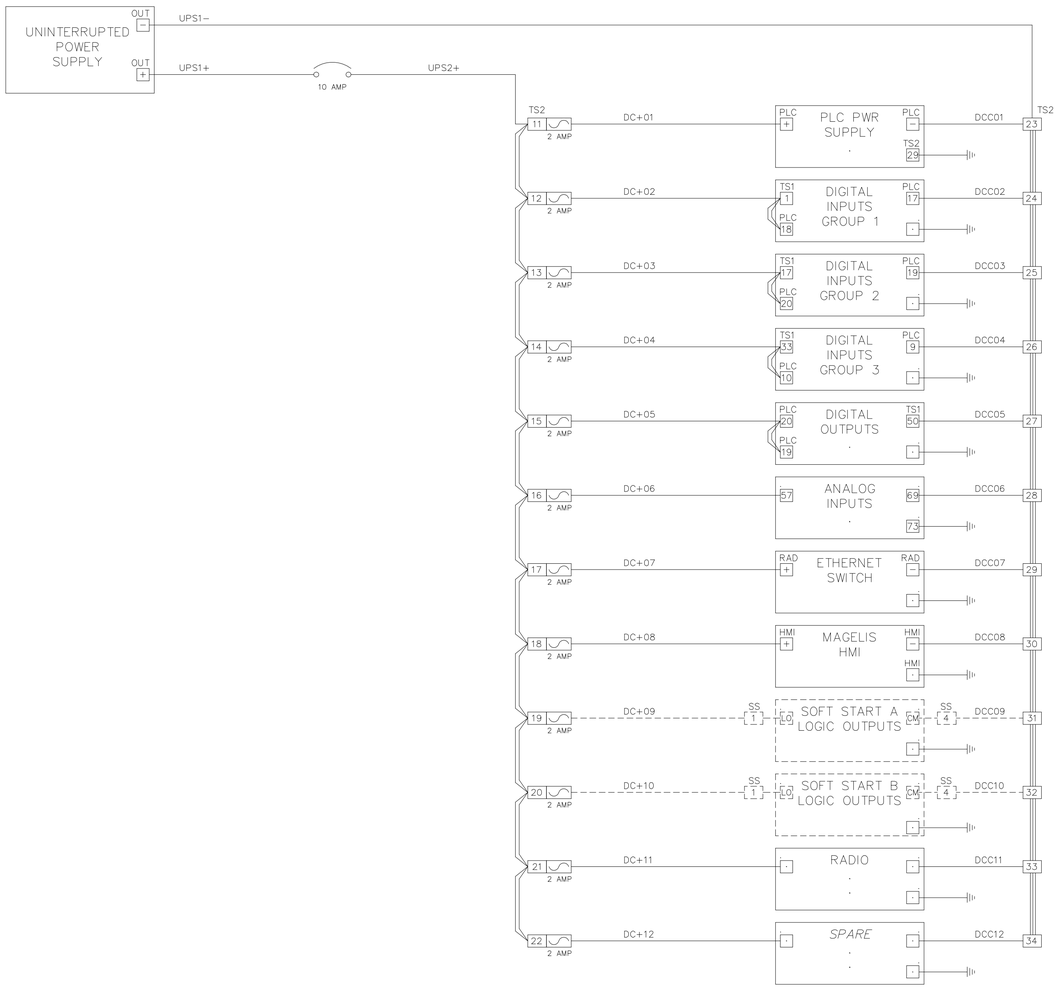
TITLE: PLC CONTROL PANEL
ANALOG OUTPUT
(BOOSTER WITH BOOSTERPAQ)

W.O.#

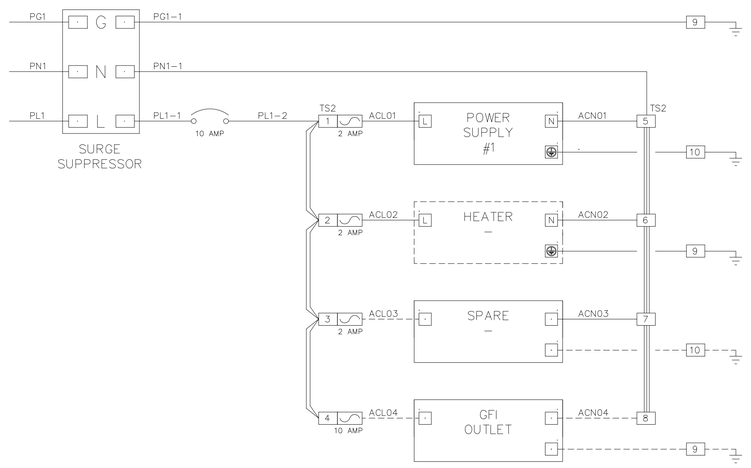
24VDC DISTRIBUTION



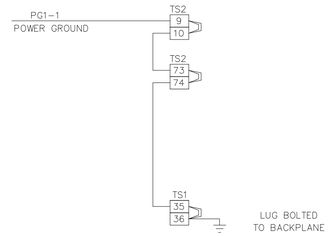
24VDC DISTRIBUTION (UPS)



120VAC DISTRIBUTION



GRND



LEGEND

Field Terminations ----------

Panel Wiring _____

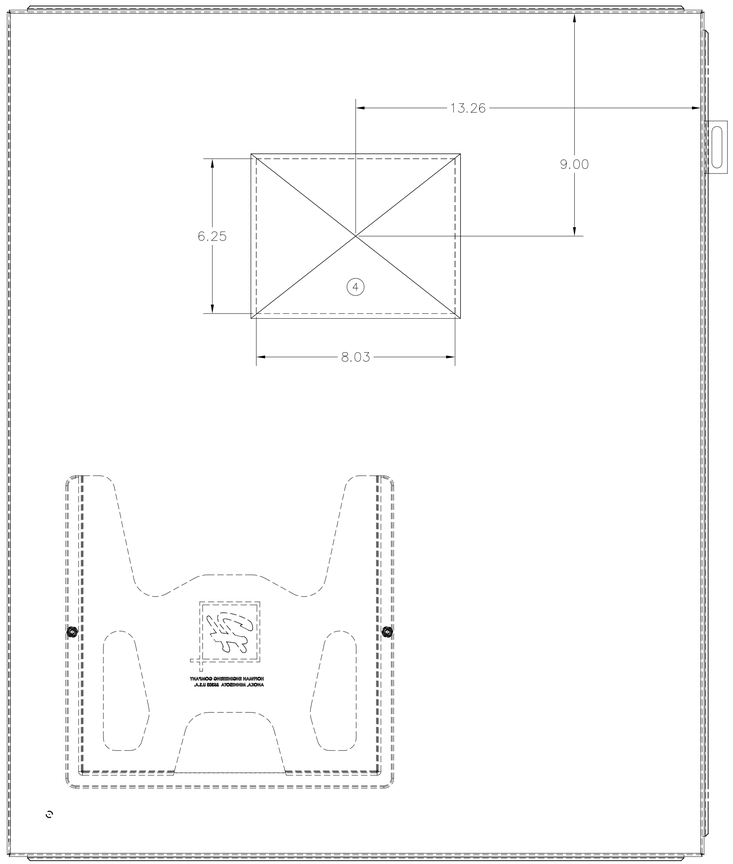
NO.	DATE	DESCRIPTION	BY
01	12/16	DWG UPDATES	NTUA

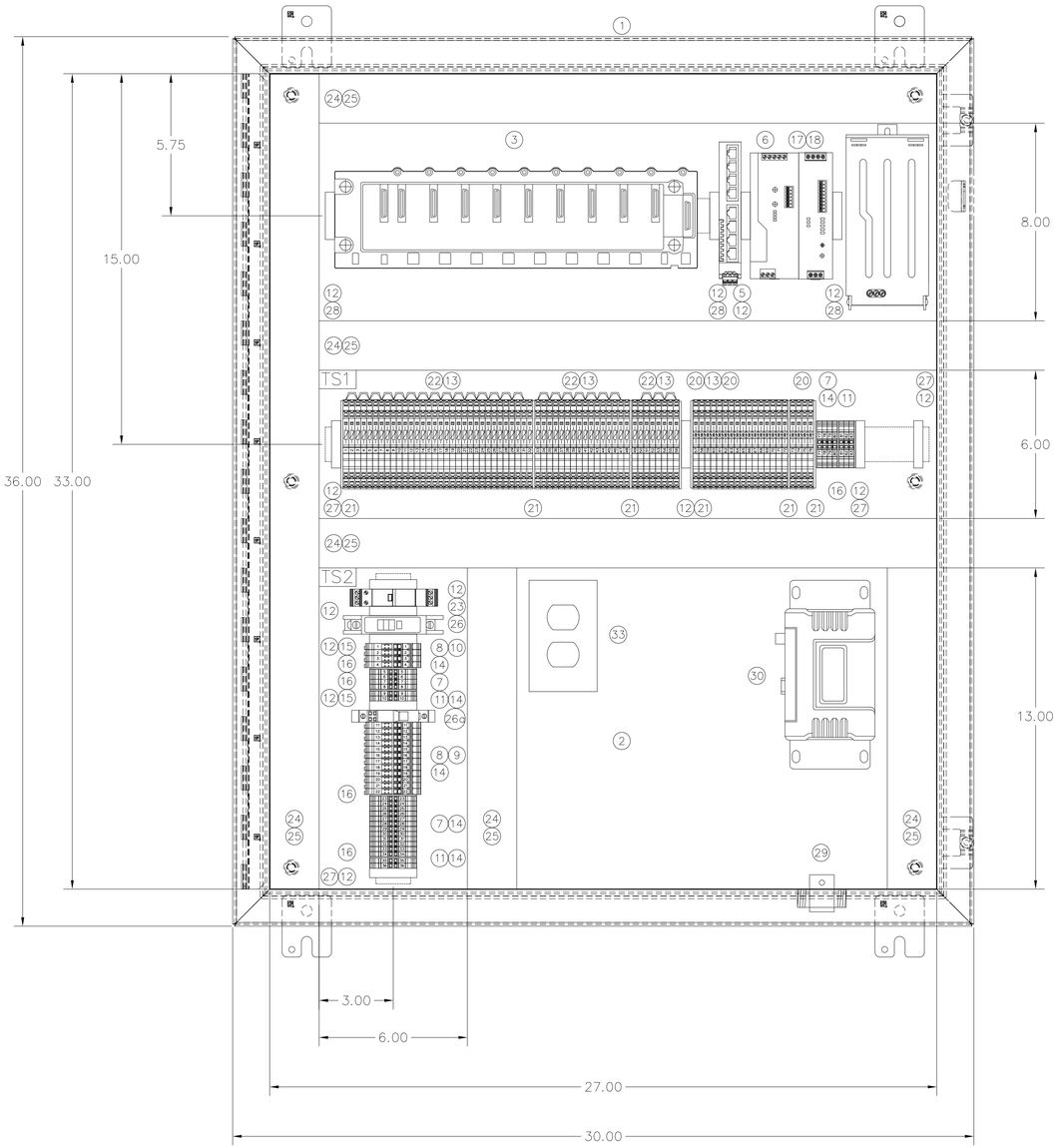
NAVAJO TRIBAL UTILITY AUTHORITY

SCALE:	REVISIONS	BY	DATE
DATE:			
DRN. / CKD.			
APV'D.			

TITLE: PLC CONTROL PANEL
POWER DISTRIBUTION

W.O.#





BILL OF MATERIALS

ITEM	QTY	PART NO.	DESCRIPTION	MFG
1	1	A-363012LP	SINGLE-DOOR TYPE 12 ENCLOSURE	HOFFMAN
2	1	A-36P30	BACKPLANE	HOFFMAN
3*	.	M340	MODICON M340 BOM	SCHNEIDER ELECTRIC
3a	1	BMXXBP0800	8-SLOT RACK	SCHNEIDER ELECTRIC
3b	1	BMXCPS3020	POWER SUPPLY MODULE	SCHNEIDER ELECTRIC
3c	1	BMXP342020	CPU PROCESSOR MODULE	SCHNEIDER ELECTRIC
3d	1	BMXDDI1602	DIGITAL INPUT MODULE	SCHNEIDER ELECTRIC
3e	1	BMXDDM16025	DIGITAL INPUT/OUTPUT MODULE	SCHNEIDER ELECTRIC
3f	1	BMXAMI0810	ANALOG INPUT MODULE	SCHNEIDER ELECTRIC
3g	1	BMXAMO0210	ANALOG OUTPUT MODULE	SCHNEIDER ELECTRIC
3h	3	BMXFTB2010	REMOVABLE CONNECTION BLOCK - SCREW CLAMP	SCHNEIDER ELECTRIC
3i	1	BMXFTB2800	REMOVABLE CONNECTION BLOCK - CAGE SPRING	SCHNEIDER ELECTRIC
4	1	HMIGTO4310	7.5 GRAPHIC TERMINAL TOUCHSCREEN (MAGELIS)	SCHNEIDER ELECTRIC
5	1	FL SWITCH 1008N	INDUSTRIAL ETHERNET SWITCH	PHOENIX CONTACT
6	1	QUINT4-PS/1AC/ 24DC/10	POWER SUPPLY 22.5-28.5V ADJUSTABLE	PHOENIX CONTACT
7	26	UT2,5	UT2,5 TERMINALS	PHOENIX CONTACT
8	16	UT4TG	FUSE TERMINAL BASE	PHOENIX CONTACT
9	12	P-FU5X20LED24	FUSE PLUG	PHOENIX CONTACT
10	4	P-FU5X20LA250	FUSE PLUG	PHOENIX CONTACT
11	7	UT2,5PE	GROUNDING TERMINAL	PHOENIX CONTACT
12	15	E/NS35N	END CLAMP	PHOENIX CONTACT
13	4	FBS 20-6 BU #3032208	FIXED BRIDGE	PHOENIX CONTACT
14	4	FBS 20-5 BU #3036929	INSERTION BRIDGE	PHOENIX CONTACT
15	6	D-UT2,5/10	END COVER	PHOENIX CONTACT
16	6	ATP-UT	PARTITION PLATES	PHOENIX CONTACT
17	1	QUINT4-UPS/24DC /24DC/10	UNINTERRUPTIBLE POWER SUPPLY	PHOENIX CONTACT
18	1	UPS-BAT/PB/ 24DC/4.0AH	ENERGY STORAGE	PHOENIX CONTACT
19	.	.	.	.
20	20	TTC-6-TVSD-C-24DC-UT-I	SURGE PROTECTION #2906831	PHOENIX CONTACT
21	7	TTC-6-LCP #2908729	END COVER	PHOENIX CONTACT
22	56	TTC-6-MOV-C-24DC-UT-I	SURGE PROTECTION #2906837	PHOENIX CONTACT
23	1	PLT-SEC-T3-120 -FM-UT	TYPE 3 SURGE PROTECTION DEVICE	PHOENIX CONTACT
24	AN	F2X4LG6	TYPE F NARROW SLOT WIRING DUCT	PANDUIT
25	AN	C2LG6	WIRING DUCT COVER	PANDUIT
26	1	TMC 71C 10A #0902072	CIRCUIT BREAKER	PHOENIX CONTACT
26a	1	UT6-TMCM 10A #0916610	CIRCUIT BREAKER	PHOENIX CONTACT
27	AN	1492DR6	EXTENDED DIN RAIL	ALLEN BRADLEY
28	AN	1492-DR5	DIN RAIL	ALLEN BRADLEY
29	1	IS-50NX-C2	LIGHTNING ARRESTER	POLYPHASER
30	1	ORBIT OR TRANSNET	902 - 928 MHz RADIO SPREAD SPECTRUM	GEMDS
31	2	CAT6	ETHERNET PATCH CABLE (4' - BLACK)	BELDEN
32	1	.	CABLE - PLC TO MODEM (TO LENGTH)	.
33	1	DRUBGFI15	DIN RAIL UTILITY BOX	HUBBELL

AN - As needed
3* - BOM - To include items 3a-3h.

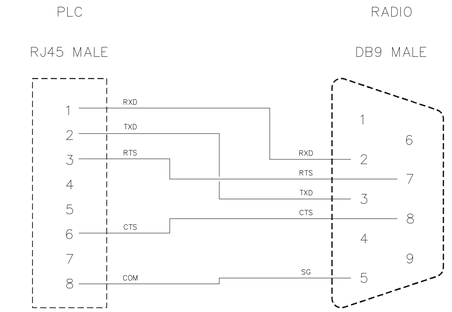
NO.	DATE	DESCRIPTION	BY
02	3/22	DWG MODIFICATIONS "DILKON PASS BOOSTER"	NTUA
01	3/19	DWG UPDATES	NTUA

NAVAJO TRIBAL UTILITY AUTHORITY

SCALE: NONE	REVISIONS	BY	DATE
DATE: .	.	.	.
DRN. . CKD. .	.	.	.
APVD. .	.		

TITLE: PLC CONTROL PANEL
BACKPLANE

W.O.#



A CABLE DIAGRAM: PLC TO RADIO

NO.	DATE	DESCRIPTION	BY
01	12/16	DWG UPDATES	NTUA

NAVAJO TRIBAL UTILITY AUTHORITY

SCALE: NONE	REVISIONS	BY	DATE
DATE:			
DR'N. CKD.			
APV'D.			

TITLE PLC CONTROL PANEL
CABLE PINOUT

W.O.#

SHEET 6 OF 6