

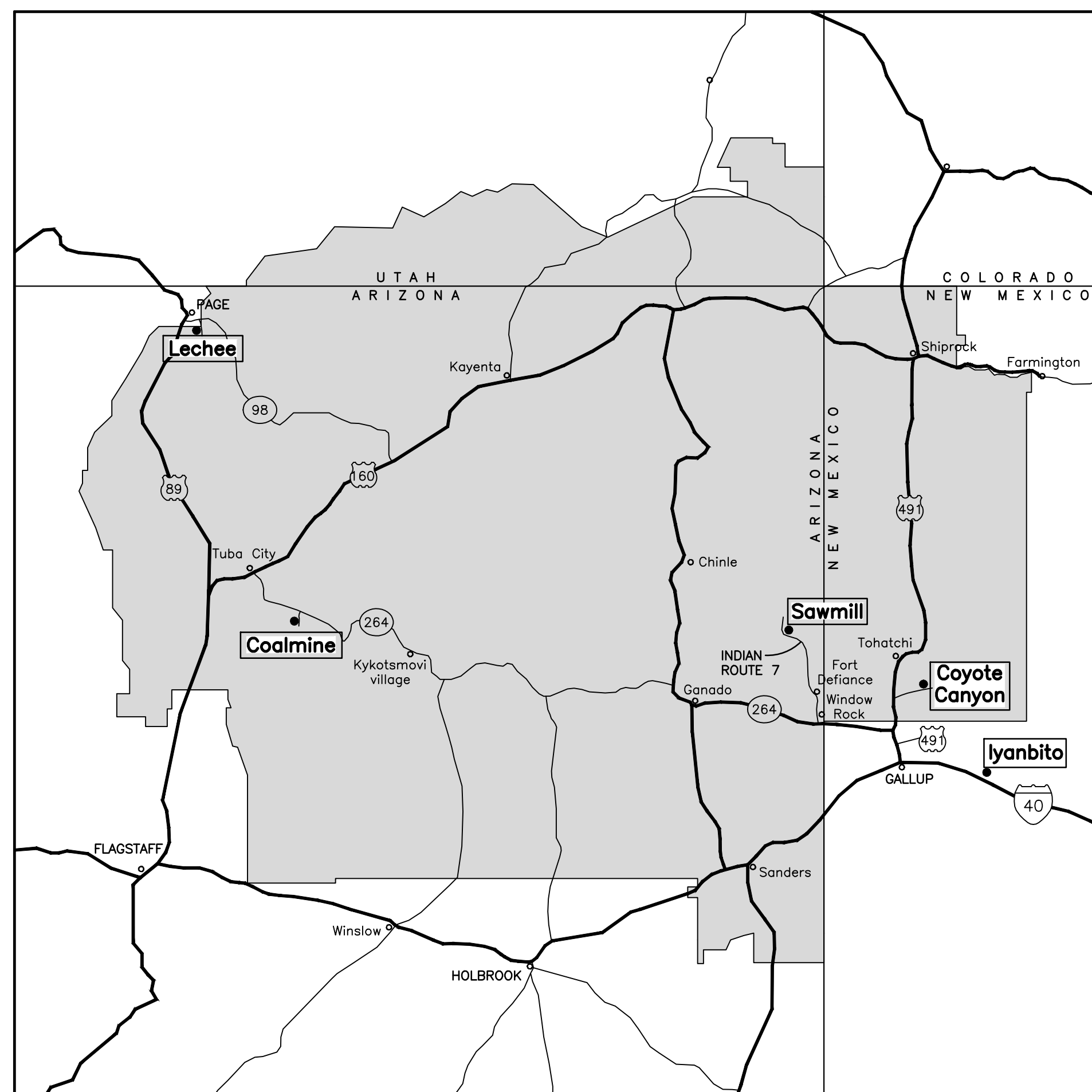


DESIGN AND CONSTRUCTION OF LECHEE LIFT STATION FACILITIES

NAVAJO TRIBAL UTILITY AUTHORITY

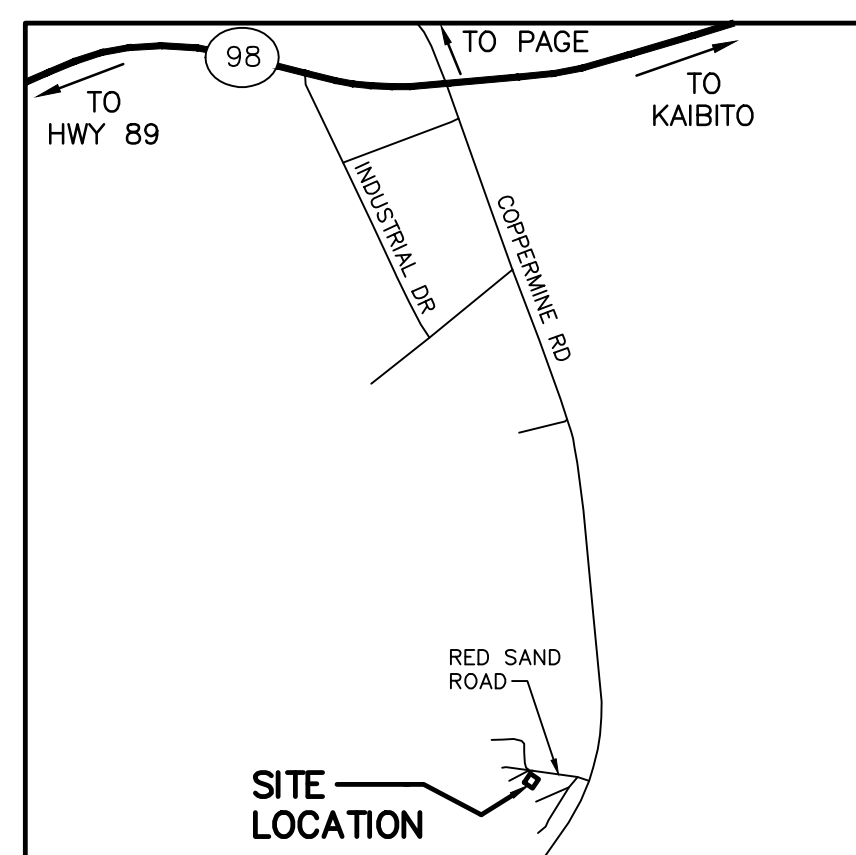
100% FOR CONSTRUCTION

SEPTEMBER, 2025



LOCATION MAP

Not to Scale



LECHEE
SITE LATITUDE: 36°52'23"N
LONGITUDE: 111°26'28"W

APPROVAL

ENGINEERING AND TECHNICAL SERVICES DIVISION

CIVIL ENGINEER

DATE

10/08/2025

DATE

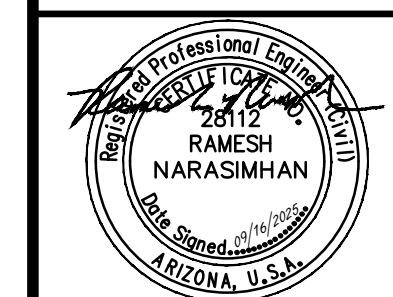
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NAVAJO TRIBAL UTILITY AUTHORITY
DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES

COVER SHEET AND VICINITY MAPS

No.	Revision	Note	Date	Drawn	Check



EXPIRATION DATE: 09/30/27

Drawn by: KWB

Design by: LAH

Approved by: RN

Date: 09/16/25
Project No.: 2344
Sheet No.: G-01

GENERAL NOTES

- ALL WORK AND MATERIALS SHALL CONFORM TO THE DRAWINGS AND SPECIFICATIONS AS WELL AS NAVAJO NATION STANDARD DETAILS, SPECIFICATIONS, AND REGULATIONS. ALL WORK AND MATERIALS NOT IN CONFORMANCE WITH THESE STANDARDS ARE SUBJECT TO REMOVAL AND REPLACEMENT AT THE CONTRACTORS EXPENSE.
- CONTRACTOR SHALL OBTAIN AND PAY FOR ANY PERMITS REQUIRED UNLESS OTHERWISE INDICATED. THE CONTRACTOR IS ADVISED THAT AN EXCAVATIONS AND DIRT MOVING PERMIT MAY BE REQUIRED BY THE NAVAJO NATION. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN THIS PERMIT, IF NECESSARY, AND COMPLY WITH ITS REQUIREMENTS. CONTRACTOR TO PROVIDE APPROPRIATE DUST CONTROL MEASURES DURING CONSTRUCTION. NTUA AND ENGINEER WILL OBTAIN NAVAJO NATION ENVIRONMENTAL PROTECTION AGENCY CONSTRUCTION PERMIT.
 - a. DAMAGE WORK TO SUCH UTILITIES CAUSED AS A RESULT OF THE WORK.
 - b. DAMAGES TO EXISTING WALKS, WALLS, CURBS, DRIVES, TREES, LANDSCAPING, AND PAVING.
- NOT USED
- EXISTING PIPING, ELECTRICAL, AND UTILITIES ARE BASED ON EXISTING RECORDS AND FIELD OBSERVATIONS BY NTUA AND ENGINEER. CONTRACTOR IS RESPONSIBLE FOR VERIFYING LOCATIONS OF ALL EXISTING PIPING, ELECTRICAL, AND UTILITIES AND AVOIDING DAMAGE TO THE SAME. PRIOR TO ANY CONSTRUCTION ACTIVITY, THE CONTRACTOR SHALL CONTACT NTUA AT (928)729-5721 AND THE NTUA PROJECT MANAGER. CONTRACTOR SHALL CONFIRM LOCATION OF ALL UNDERGROUND UTILITIES PRIOR TO ANY EXCAVATION AND SHALL BE RESPONSIBLE FOR:
 - a. DAMAGE WORK TO SUCH UTILITIES CAUSED AS A RESULT OF THE WORK.
 - b. DAMAGES TO EXISTING WALKS, WALLS, CURBS, DRIVES, TREES, LANDSCAPING, AND PAVING.
- CONTRACTOR SHALL POTHOLE EXISTING UTILITIES AHEAD OF CONSTRUCTION, TO ALLOW FOR ANY NECESSARY ADJUSTMENT IN GRADE LINE AND TO VERIFY PIPE TYPES FOR ORDERING PROPER TRANSITION, AND/OR TIE-IN FITTINGS WHICH MAY BE REQUIRED.
- CONTRACTOR IS RESPONSIBLE FOR REVIEWING ALL PLANS FOR DEMOLITION ITEMS.
- ALL UTILITIES SHALL BE PROTECTED FROM DAMAGE AS A RESULT OF THE WORK. THE CONTRACTOR SHALL RELOCATE, REPAIR OR REPLACE AT HIS EXPENSE, ANY AFFECTED UTILITIES TO THE SATISFACTION OF NTUA.
- PROVIDE TEMPORARY THRUST RESTRAINT FOR EXISTING PIPING WHENEVER THE WORK REQUIRES. CONTRACTOR SHALL REPLACE OR RESTORE THE EXISTING RESTRAINT SYSTEM TO LIKE-NEW CONDITION.
- CONTRACTOR SHALL PROTECT THE ADJACENT PROPERTY AND IMPROVEMENTS THERETO FROM ANY DAMAGE DURING CONSTRUCTION. ANY DAMAGE TO ADJACENT PROPERTY OR IMPROVEMENTS MUST BE REPAIRED OR REPLACED TO THE PROPERTY OWNER'S SATISFACTION, AT THE CONTRACTOR'S EXPENSE.
- DIMENSIONS AND ELEVATIONS FOR EQUIPMENT INSTALLATION TO BE VERIFIED BASED UPON EQUIPMENT MANUFACTURER SELECTED.
- ALL, DIMENSIONS AND ELEVATIONS SHALL BE FIELD VERIFIED.
- EXISTING EQUIPMENT TO BE REMOVED AND SALVAGED SHALL BE MARKED BY ENGINEER OR OWNER PRIOR TO WORK, UNLESS OTHERWISE NOTED ON THE CONTRACT DOCUMENTS.
- ALTHOUGH SUCH WORK MAY NOT BE SPECIFICALLY INDICATED, FURNISH AND INSTALL SUPPLEMENTARY OR MISCELLANEOUS ITEMS, APPURTENANCES AND DEVICES INCIDENTAL TO, OR NECESSARY FOR A SOUND, SECURE AND COMPLETE INSTALLATION.
- THE CONTRACTOR SHALL ADJUST ALL EXISTING MANHOLES, VALVE BOXES, CLEANOUTS, BLIND FLANGED PIPING, AND FIRE HYDRANTS WITHIN WORK LIMITS REQUIRED TO MATCH ACTUAL FINAL GRADE.
- GOVERNING BUILDING CODES:
2009 INTERNATIONAL BUILDING CODE
2011 NATIONAL ELECTRICAL CODE
- CONTRACTOR TO MAINTAIN ACCESS FOR EMERGENCY RESPONSE VEHICLES DURING CONSTRUCTION.
- CONTRACTOR SHALL COORDINATE WORK SCHEDULES WITH NTUA, CREWS TO PREVENT ANY CONFLICTING WORK CONDITIONS. LOCATIONS OF TEMPORARY FACILITIES, PARKING AND WORK WITHIN ANY RIGHT-OF-WAY, ETC. SHALL BE COORDINATED WITH THE NTUA.
- CONTRACTOR SHALL PROVIDE TEMPORARY SAFETY AND SECURITY FENCING AND SITE IMPROVEMENTS AS NEEDED AT NO EXTRA COST.
- CONSTRUCTION DEBRIS SHALL BE REMOVED FROM THE SITE AND LEGALLY DISPOSED OF AT LEAST WEEKLY BY THE CONTRACTOR. KEEP SITE AREA CLEAN.
- EXCAVATED SOIL IS TO BE USED TO FILL IN LOW SPOTS PRIOR TO BEING HAULED OFF SITE. CONTRACTOR SHALL ESTABLISH A SUITABLE STAGING AREA FOR STORAGE OF EXCAVATED SOIL.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY AT THE SITE WHILE CONSTRUCTION IS IN PROGRESS. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING THE PUBLIC FROM ANY HAZARDS ARISING FROM CONSTRUCTION OPERATIONS AND PROTECTING EXISTING AND NEW IMPROVEMENTS FROM DAMAGE DUE TO ACCIDENT OR VANDALISM.
- THESE LIFT STATION SITES ARE ACTIVE. CONTRACTOR TO MAINTAIN ACCESS TO LIFT STATION FACILITIES FOR MAINTAINING OPERATIONS DURING CONSTRUCTION. IF THE WORK REQUIRES INTERRUPTION OF EXISTING ACCESS TO OPERATING FACILITIES, THE CONTRACTOR SHALL PROVIDE TEMPORARY ACCESS (APPROVED BY NTUA) TO THESE FACILITIES. LIFT STATIONS ARE CRITICAL TO NTUA OPERATIONS AND A SHUT DOWN WILL NOT BE PERMITTED WITHOUT AN APPROVED MOPO PLAN.
- WHERE GROUND SURFACE IS DISTURBED, FINISH GRADE WITH UNIFORM SLOPE.
- PROPERTY LINES AND DIMENSIONS WHERE SHOWN ARE BASED ON NTUA AND NAVAJO NATION RECORDS.
- MAINTAIN, RELOCATE, OR REPLACE EXISTING SURVEY MONUMENTS, CONTROL POINTS, AND STAKES WHICH ARE DISTURBED OR DESTROYED. PERFORM THE WORK TO PRODUCE THE SAME LEVEL OF ACCURACY AS THE ORIGINAL MONUMENT(S) IN A TIMELY MANNER, AND AT THE CONTRACTOR'S EXPENSE.
- NOT USED.
- NOT USED.
- UNLESS SHOWN ON THE DRAWINGS, ALL DISTURBED AREAS NOT RECEIVING A HARD SURFACE OR GRAVEL SURFACE SHALL BE GRADED SMOOTH AND COMPACTED AS SPECIFIED.
- CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTING AND MAINTAINING EROSION CONTROL DEVICES DURING CONSTRUCTION. EROSION CONTROL DEVICES, SILT FENCING, RUNOFF CONTAINMENT BERMS, AND STRAW BALES ARE THE MINIMUM REQUIRED.
- CONTRACTOR SHALL TAKE ALL OTHER MEASURES TO POSITIVELY PRECLUDE EROSION MATERIALS FROM LEAVING THE SITE.
- WHERE WATERLINES, RECLAIMED WATERLINES OR SANITARY SEWER LINES (NEW OR EXISTING) CROSS OVER OR UNDER EACH OTHER WITHIN THE RIGHT OF WAY, PIPE LINE ENCASMENTS SHALL BE PROVIDED AS NECESSARY IN ACCORDANCE WITH NAVAJO NATION REQUIREMENTS.
- WHERE ALUMINUM IS TO BE EMBEDDED IN CONCRETE, THE ALUMINUM SHALL FIRST BE COATED WITH COAL TAR EPOXY.
- BACKFILLING OF PIPING AND STRUCTURES SHALL NOT BE STARTED UNTIL INSTALLATION IS APPROVED BY THE OWNER.
- UNLESS OTHERWISE NOTED, ALL PVC INSTALLED ABOVE GROUND SHALL BE PAINTED WITH UV PROTECTIVE COATING.

ABBREVIATION DESCRIPTION

/	PER
o	DEGREES
ø	DIAMETER
g	INCHES OR SECONDS
.	FEET OR MINUTES
=	EQUALS
%	PERCENT
#	NUMBER OR POUND
ø	AND
&	AND
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
AB	AGGREGATE BASE
ABAN	ABANDON
ABC	AGGREGATE BASE COURSE
AC	ASPHALT CONCRETE, ASBESTOS CEMENT
ACB	ASPHALT CONCRETE BASE
ACI	AMERICAN CONCRETE INSTITUTE
ACP	ASBESTOS CEMENT PIPE
ACPA	AMERICAN CONCRETE PIPE ASSOCIATION
ADDD	ADDITIONAL
ADOT	ARIZONA DEPARTMENT OF TRANSPORTATION
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISH GRADE
AGC	ASSOCIATED GENERAL CONTRACTORS OF AMERICA, INC.
AGG	AGGREGATE
AIEE	AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
ALT	ALTERNATE
ALUM	ALUMINUM
AMB	AMBIENT
AMPS	AMPERES
ANB	ANCHOR BOLT
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
APPROX	APPROXIMATE OR APPROXIMATELY
APWA	AMERICAN PUBLIC WORKS ASSOCIATION
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASP	ASPHALTIC PAVEMENT
ASPH	ASPHALT
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS
AVC	AVERAGE
AWSC	AMERICAN WELDING SOCIETY CODE
BC	BRASS CAP
BCR	BEGINNING OF CURB RETURN
BE	BASE ELEVATION
BEG	BEGINNING
BF	BLIND FLANGE
BFV	BUTTERFLY VALVE
BHP	BRAKE HORSEPOWER
BLD	BLIND
BLDG	BUILDING
BM	BENCHMARK OR BEAM
BOC	BEGINNING OF CURVE
BOF	BOTTOM OF FOOTING
BOT	BOTTOM
BOW	BOTTOM OF WALL
BRG	BEARING
BST	BITUMINOUS SURFACE TREATMENT
BTB	BITUMINOUS TREATED BASE
BTWN	BETWEEN
BUSH	BUSHING
BVC	BEGINNING OF VERTICAL CURVE
BV	BALL VALVE
C	CONDUIT
CB	CATCH BASIN
CBF&C	CATCH BASIN FRAME & COVER
CC OR C/C	CENTER TO CENTER
CEM	CEMENT
CF	CURB FACE
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CJ	CAST IRON
CIPP	CAST-IN-PLACE CONCRETE PIPE
CISP	CAST IRON SOIL PIPE
CJ	CONSTRUCTION JOINT
CL	CENTERLINE
CLR	CLEAR OR CLEARANCE
CM	CENTIMETER
CMP	CORRUGATED METAL PIPE
CMU	CEMENT MASONRY PIPE
CO	CLEAN OUT
CODP	CLEAN OUT DECK PLATE
COEF	COEFFICIENT
COL	COLUMN
COMP	COMPRESSION
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUATION
CORP	CORPORATION
CP	CONTROL PANEL
CPL	COUPLING
CTB	CEMENT TREATED BASE
CTR'D	CENTERED
CTW	COMBINED TREATED WATER
CU	CUBIC
CV	CHECK VALVE
DBL	DOUBLE
DCS	DISTRIBUTED CONTROL SYSTEM
DEG	DEGREE
DG	DECOMPOSED GRANITE
DI	DUCTILE IRON
DIA	DIAMETER
DIM	DIMENSION
DIP	DUCTILE IRON PIPE
DISCH	DISCHARGE
DJ	DISMANTLING JOINT
DIV	DIVISION
DL	DRAIN LINE
DR	DRIVE
DRWG	DRAWING
DTL	DETAIL
DTLS	DETAILS
DV	DRAIN VALVE
DWL	DOWEL
DWY	DRIVEWAY
ELEC	ELECTRIC
E	EAST
EA	EACH
EASE	EASEMENT
EC	END OF CURVE
ECC	ECCENTRIC
ECR	END OF CURB RETURN
EDB	ELECTRIC DUCT BANK
EF	EACH FACE
EG	EXISTING GRADE
EJ	EXPANSION JOINT
EL	ELEVATION
EMBED	EMBEDMENT
EMER	EMERGENCY
EMH	ELECTRICAL MANHOLE
EOP	EDGE OF PAVEMENT

ABBREVIATION DESCRIPTION

EQUIP	EQUIPMENT
EQUIV	EQUIVALENT
ETC	ET CETERA
EVC	END OF VERTICAL CURVE
EWS	EYEWASH STATION
EXIST	EXISTING
F & C	FRAME & COVER
FAH	FAHRENHEIT
FB	FIELD BOOK
FC	FLEXIBLE CONNECTOR
FCA	FLANGED COUPLING ADAPTER
FDL	FLOOR DRAIN LINE
FDM	FOUNDATION
FE	FLOW ELEMENT
FF	FINISHED FLOOR
FG	FINISHED GRADE
FH	FIRE HYDRANT
FIN	FINISHED
FL	FLOOR LINE
FL EL	FLOOR ELEVATION
FLG	FLANGE
FLGD	FLANGED
FLTR	FILTER
FM	FLOW METER, FORCE MAIN
FND	FOUND
FOC	FACE OF CONCRETE
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FRR	FLOOR REINFORCED BOTTOM
FRP	FIBERGLASS REINFORCED POLYVINYL
FRT	FLOOR REINFORCED TOP
FS	FLOW SWITCH
FSS	FEDERAL SPECIFICATIONS AND STANDARDS
FT	FOOT OR FEET
FTG	FOOTING
FNTPT	FEMALE NATIONAL PIPE THREAD
G	GUTTER
GAL	GAGE
GALL	GALLON
GALV	GALVANIZED
GB	GRADE BREAK
GL	GROUND LINE
GPM	GALLONS PER MINUTE
GR	GRADE
GRV	GROOVED
GSN	GENERAL STRUCTURAL NOTES
H	HIGH OR HEIGHT
H2	WATERS
HCC	HOUSE CONNECTION
HCP	HORIZONTAL CONTROL POINT
HD	HEAD
HDWL	HEADWALL
HEX	HEXAGONAL
HG	HIGH
HORIZ	HORIZONTAL
HSS	HOLLOW STRUCTURAL SHAPE
HT	HEIGHT
HTR	HEATER
HWY	HIGHWAY
HZ	HERTZ
I	MOMENT OF INERTIA
ID	INTERNATIONAL BUILDING CODE
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IEEE	INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS
IHS	INDIAN HEALTH SERVICE
IMC	INTERNATIONAL MECHANICAL CODE
INCH	INCH
INA	INSTRUMENT AIR
INSUL	INSULATION
INV	INVERT
IP	IRON PIPE
IPS	IRON PIPE SIZE
IR	INNER RADIUS
IRRIG	IRRIGATION
IV	ISOLATION VALVE
JB	JUNCTION BOX
JCT	JUNCTION
JS	JUNCTION STRUCTURE
JT	JOINT
KSI	KIPS PER SQUARE INCH
L	LENGTH
LB	POUND
LF	LINEAR FEET/FOOT
LI	LEVEL INDICATOR
LIN	LINEAR
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LOC	LOCATION
LONG	LONGITUDINAL
LP	LOW POINT
LS	LEVEL SENSOR
LSH	LEVEL SWITCH HIGH
LSHH	LEVEL SWITCH HIGH HIGH
LSL	LEVEL SWITCH LOW
LT	LEVEL TRANSMITTER
LW	LONG WAY
M	MAP OR MAPS
MAX	MAXIMUM
MAG	MARICOPA ASSOCIATION OF GOVERNMENTS
MCC	MOTOR CONTROL CENTER
MCCJ	MASONRY CONTROL JOINT
MEAS	MEASURED
MECH	MECHANICAL
MG	MILLION GALLON
MFR	MANUFACTURER
MID	MIDDLE
MIN	MINUTES OR MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
ML	MONUMENT LINE
MM	MILLIMETER
MOPO	MAINTENANCE OF PLANT OPERATION
MON	MONOLITHIC OR MONUMENT
MPH	MILES PER HOUR
MVD	MOUNTED
MVC	MID POINT VERTICAL CURVE
MxPE	MECHANICAL JOINT x PLAIN END
N	NORTH
NBS	NATIONAL BUREAU OF STANDARDS
NC	NORMALLY CLOSED
NE	NORTHEAST
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NPT	NATIONAL PIPE THREAD
NSC	NATIONAL SAFETY COUNCIL

ABBREVIATION DESCRIPTION

NTS	NOT TO SCALE
NTUA	NAVAJO TRIBAL UTILITY AUTHORITY
NW	NORTHWEST
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OVERFLOW
OHE	OVERHEAD ELECTRIC POWER LINES
OPNG	OPENING
OR	OUTER RADIUS
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OZ	OUNCES
P	PRESSURE GAUGE
P&TP	POWER AND TELEPHONE POLE
PB	PULL BOX
PC	POINT OF CURVATURE
PCC	PORTLAND CEMENT CONCRETE
PDL	PROCESS DRAIN LINE
PI	POINT OF INTERSECTION
PL	PROPERTY LINE OR PLATE
PLC	PROGRAMMABLE LOGIC CONTROL
POS	POINT OF SPIRAL
PP	POWER POLE
PPM	PARTS PER MILLION
PRC	POINT OF REVERSE CURVE
PRES	PRESSURE
PREFAB	PREFABRICATED
PROD	PRODUCED
PROP	PROPERTY
PRD	PRESSURE RELIEF DRAIN
PSF	POUNDS PER SQUARE FOOT
PSH	PRESSURE SWITCH HIGH
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAGE
PT	POINT OF TANGENT
PV	PLUG VALVE
PVC	POLY VINYL CHLORIDE
PVMT	PAVEMENT
Q	RATE OF FLOW
R	RADIUS
R/W	RIGHT-OF-WAY
RC	REINFORCED CONCRETE
RD	ROAD
RDWY	ROADWAY
RED	REDUCER OR REDUCING
REINF	REINFORCED, REINFORCING, REINFORCEMENT
REQ'D	REQUIRED
RF	RIGHT FACE OF BEAM
RFB	RUBBER GASKETED REINFORCED CONCRETE PIPE
RGCRP	RESTRAINED MECHANICAL JOINT
RMJ	RESTRAINED MECHANICAL JOINT
RO	ROUGH OPENING OR ROUGH OPENING
ROW	RIGHT OF WAY
RPM	REVOLUTIONS PER MINUTE
RT	RIGHT
RTB	REMOTE TERMINAL BOARD
S	SOUTH OR SLOPE OR SECTION MODULES
SAN	SANITARY
SAS	SANITARY SEWER
SC	SPIRAL TO CURVE
SCADA	SUPERVISORY CONTROL & DATA ACQUISITION
SCH	SCHEDULE
SD	STORM DRAIN
SDL	SADDLE
SE	SOUTHEAST
SEC	SECONDS
SECT	SECTION
SHP	SOLIDS HANDLING PUMP
SHT	SHEET
SIM	SIMILAR
SPEC	SPECIFICATIONS
SP'G	SPACING
SPL	SAMPLE LINE
SPR	SPARE LINE
SQ	SQUARE
SQ FT YD	SQUARE FOOT YARD
SSD	SANITARY SEWER DRAIN
SST	STAINLESS STEEL
ST	STREET
STA	STATION
STD	STANDARD
STL	STEEL
STR GR	STRUCTURAL GRADE
STRUCT	STRUCTURE OR STRUCTURAL
SV-#	SOLENOID VALVE AND NUMBER (#=NUMBER)
SW	SOUTHWEST
T/	TOP OF
T	TANGENT DISTANCE
T&B	TOP AND BOTTOM
TBM	TEMPORARY BENCHMARK
TBOC	TOP BACK OF CURB
TEL	TELEPHONE
TEMP	TEMPERATURE OR TEMPORARY
TH	TEST HOLE
THK	THICK
THRU	THROUGH
TMH	TELEPHONE MANHOLE
TNK	TANK
TOC	TOP OF CURB
TOF	TOP OF FOOTING
TOG	TOP OF GRATING
TOP	TOP OF PAVEMENT
TOT	TOTAL
TOS	TOP OF SLAB
TOW	TOP OF WALL
TP	TELEPHONE POLE
TRANS	TRANSITION
TP	TYPICAL
UL	UNDERWRITERS' LABORATORIES INC.
UON & UNO	UNLESS OTHERWISE NOTED
V	VOLTS
VAC	VACUUM
VBC	VALVE BOX
VC	VERTICAL CURVE
VEL	VELOCITY
VERT	VERTICAL
VES	VESSEL
VFD	VARIABLE FREQUENCY DRIVE
VG	VALLEY GUTTER
W	WITH
W/O	WITHOUT
W	WEST
WD	WIDE
WI	WROUGHT IRON
WS	WATER SURFACE
WT	WEIGHT
YD	YARD

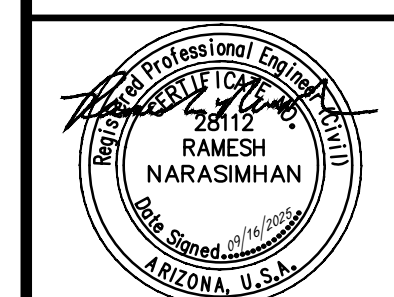
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Revision					
Note					
No.					

**NAVAJO TRIBAL UTILITY AUTHORITY
TOWN OF GANADO - WASTEWATER TREATMENT IMPROVEMENTS**

**GENERAL NOTES, ABBREVIATIONS,
AND DRAWING INDEX**

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EXPIRATION DATE: 09/30/27

Drawn by:	KWB
Design by:	LAH
Approved by:	RN
Date	09/16/25
Project No.	2344
Sheet No.	G-02

Sep 23, 2025 - 11:18am Z:_cod data transfer\2499 - ntua - lechee, az lift station design & cm\CAD\G-02.dwg

GENERAL STRUCTURAL NOTES

(IN CASE OF CONFLICT WITH DRAWINGS STRICTER REQUIREMENTS SHALL GOVERN.)

GENERAL REQUIREMENTS

CODE: SEE GENERAL NOTES

LOADS:

LIVE LOADS:
 CONCRETE WALKWAYS 300 PSF
 STAIRS 300 PSF
 STAIR TREADS 300 LB POINT LOAD
 PLATFORMS (GRATING, CHECKERED PLATE) 300 PSF

WIND: 90 MPH BASIC WIND. EXPOSURE "C". IMPORTANCE FACTOR 1.15

SEISMIC: SITE CLASS: AS THE LIMITED GEOTECHNICAL INVESTIGATION DID NOT INCLUDE IDENTIFICATION OF SEISMIC FACTORS, USE SITE CLASS E FOR IYANBITO. FOR OTHER SITES USE D. IMPORTANCE FACTOR = 1.25

SNOW: IMPORTANCE FACTOR 1.10

EARTHWORK AND FOUNDATION

- FOUNDATION DESIGN IS BASED ON THE FOLLOWING SOIL BEARING CAPACITIES:
BEARING - ALL DEPTHS 1,000 PSF
- DESIGN LATERAL AT-REST PRESSURES:
NOT APPLICABLE
- PLACE FOUNDATION CONCRETE ONLY ON SUBGRADE PREPARED PER RECOMMENDATIONS OF THE DRAWINGS AND SPECIFICATIONS. VERIFY THE SUITABILITY OF THE BEARING MATERIAL WITH THE ENGINEER. BEFORE PLACING FOUNDATIONS. ENGINEERED FILL SHALL MEET THE REQUIREMENT STATED IN THE DRAWINGS AND SPECIFICATIONS.
- PLACE DOWELS AND ANCHOR BOLTS BEFORE POURING CONCRETE. USE TEMPLATES TO ENSURE PROPER PLACEMENT.

REINFORCED CONCRETE:

- CONCRETE SHALL HAVE MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 3,500 PSI FOR STRUCTURES, FOUNDATIONS, AND SLABS ONGRADE UNLESS NOTED OTHERWISE ON DRAWINGS. ASTM C 150 TYPE II LOW ALKALI CEMENT. AIR CONTENT SHALL BE 5.5% PLUS OR MINUS 1%.
- ALL CONCRETE CONSTRUCTION, INCLUDING BENDING OF BARS, SHALL COMPLY WITH CURRENT ACI "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" (CURRENT ACI 318).
- UNLESS SHOWN OTHERWISE, MINIMUM REINFORCEMENT OF CONCRETE WALLS OR SLABS SHALL BE:
LESS THAN 10" THICKNESS - USE #5 @ 12" EW. SEE DRAWINGS FOR LOCATION OF REINFORCEMENT. MORE THAN 10" THICK - USE #5 @ 12" EW EF.
- ALL WALL REINFORCEMENT AT CORNERS OR JUNCTIONS OF WALLS SHALL BE CONTINUOUS, LAPPED, OR TERMINATED IN AN ACI STANDARD 90 DEGREE HOOK. LAP SPLICES SHALL CONFORM WITH NOTE 12.
- UNLESS OTHERWISE INDICATED ON THE DRAWINGS, ALL HORIZONTAL AND VERTICAL BARS SHALL BE DOWELED. DOWELS LAP AND MATCH LARGER DIAMETER BAR.
- ALL SLABS, BEAMS, AND COLUMN REINFORCING BARS SHALL HAVE A MINIMUM EXTENSION OR ANCHORAGE INTO SUPPORTS IN ACCORDANCE WITH ACI 318.
- STIRRUP SUPPORT BARS SHALL BE PROVIDED BETWEEN ENDS OF TOP BARS AS REQUIRED.
- UNLESS OTHERWISE INDICATED ON THE DRAWINGS, CONCRETE COVER FOR #11 AND SMALLER REINF BARS SHALL BE AS FOLLOWS:
 A. SLABS AND JOISTS:
 FORMED CONCRETE SURFACES FOR DRY CONDITIONS.....3/4"
 FORMED CONCRETE SURFACES EXPOSED TO EARTH, WATER, OR WEATHER, OR LOCATED OVER WATER
 #5 BARS AND SMALLER.....1 1/2"
 #6 BARS AND LARGER.....2"
 B. BEAMS AND COLUMNS:
 FORMED CONCRETE SURFACES FOR DRY CONDITIONS
 STIRRUPS, SPIRALS, AND TIES.....2"
 PRINCIPAL REINFORCEMENT.....2 1/2"
 FORMED CONCRETE SURFACES EXPOSED TO EARTH, WATER, OR WEATHER, OR BEAMS LOCATED OVER WATER
 STIRRUPS AND TIES.....2"
 PRINCIPAL REINFORCEMENT.....2 1/2"
 C. WALLS:
 FORMED CONCRETE SURFACES FOR DRY CONDITIONS....3/4"
 FORMED CONCRETE SURFACES EXPOSED TO EARTH, WATER, OR WEATHER.....2"
 D. FOOTINGS AND BASE SLABS AND FOUNDATIONS FOR SHADE CANOPIES, GENERATORS, AND FUEL TANKS FOR GENERATORS:
 FORMED VERTICAL CONCRETE SURFACES.....2"
 AT UNFORMED SURFACES AND BOTTOMS IN CONTACT WITH EARTH OR CONCRETE WORK MATS.....3"
 TOP OF FOOTINGS.....SAME AS SLABS
 E. REINFORCEMENT SHALL BE PLACED WITHIN A TOLERANCE OF ±1/4" OF POSITION SPECIFIED.
- KEYWAYS AND WATERSTOPS SHALL END 3" BELOW THE TOP OF WALLS, UNLESS THERE IS A SLAB ON TOP OF THE WALL, IN WHICH CASE IT SHALL END AT THE BOTTOM OF THE SLAB. IN JOINTS WHERE WATERSTOP TERMINATES AT ADJOINING SLAB OR WALL, WATERSTOP SHALL BE EMBEDDED IN ADJOINING SLAB OR WALL A MINIMUM OF 6".
- WATERSTOP SHALL BE PLACED IN ALL CONSTRUCTION, CONTRACTION, AND EXPANSION JOINTS IN ALL WATER BEARING SLABS AND WALLS UNLESS OTHERWISE INDICATED ON THE DRAWINGS, AND IN ALL WALLS AND SLABS SUBJECTED TO EARTH BACKFILL. WATERSTOP IN THE WALLS SHALL BE CARRIED INTO SLABS AND SHALL BE SPLICED WITH THE WATERSTOP IN THE SLABS.
- NO BACKFILL SHALL BE PLACED AGAINST WALLS UNTIL CONCRETE HAS REACHED THE SPECIFIED STRENGTH AND THE CONNECTING SLABS AND BEAMS HAVE BEEN CAST AND HAVE REACHED THE SPECIFIED STRENGTH.

12. LAP SPLICES:

- UNLESS OTHERWISE INDICATED ON THE DRAWINGS, THE LENGTH OF THE LAP SPICE SHALL BE CLASS "A" WHEN NO MORE THAN 1/2 THE BARS ARE LAP SPLICED WITHIN THE TABULATED LENGTH AND CLASS "B" WHEN MORE THAN 1/2 THE BARS ARE LAP SPLICED WITHIN THE TABULATED LENGTH.
- VALUES TABULATED BELOW FOR SPLICES ARE APPLICABLE ONLY WHEN THE COVER IS EQUAL TO ONE BAR DIAMETER OR MORE.
- WHEN MULTIPLE BARS ARE SPLICED AT THE SAME SECTION, THE CLEAR BAR SPACING IS THE MINIMUM CLEAR DISTANCE BETWEEN THE BARS OUTSIDE THE SPlice LENGTH MINUS ONE BAR DIAMETER.
- UNLESS OTHERWISE INDICATED ON THE DRAWINGS, THE BARS AT A LAP SPICE SHALL BE IN CONTACT WITH EACH OTHER.
- FOLLOWING TABULATED VALUES ARE CALCULATED FOR:
 Fy = 60,000 PSI
 Fc = 4,000 PSI
- TOP BARS ARE ALL HORIZONTAL REINFORCEMENT SO PLACED THAT MORE THAN 12 INCHES OF FRESH CONCRETE IS CAST IN THE MEMBER BELOW THE BAR.
- HORIZONTAL BARS IN CIRCULAR WALLS OF HYDRAULIC STRUCTURES SHALL BE SPLICED WITH CLASS "B" TOP BAR LAP SPLICES WITH THE SPLICES IN EACH LAYER OF REINFORCEMENT STAGGERED ONE SPlice LENGTH.
- WHERE HORIZONTAL BARS IN WALL CORNERS OR JUNCTIONS ARE LAPPED, LARGER BAR DIAMETER GOVERNS THE LENGTH ON DOWEL SEGMENTS.

REINFORCING BAR LAP SPICE					
BAR #	MINIMUM CLEAR BAR SPACING (BAR DIA)	LAP SPICE LENGTH (INCHES)			
		TOP BARS		OTHER BARS	
		CLASS "A"	CLASS "B"	CLASS "A"	CLASS "B"
REQUIREMENT FOR WALLS AND SLABS *					
#4	MORE THAN 2	18	24	14	18
#5	MORE THAN 2	23	30	18	23
	5	28	36	21	28
#7	MORE THAN 2	42	54	32	42
	5	33	43	26	33
#8	MORE THAN 2	54	71	42	54
	5	43	56	33	43
#9	MORE THAN 2	69	89	53	69
	5	55	71	42	55
#10	MORE THAN 2	88	114	67	88
	5	70	91	54	70
#11	MORE THAN 2	108	140	83	108
	5	86	112	66	86

* FOR INNER LAYER OF REINFORCEMENT IN WALLS AND SLABS, THE LAP SPICE LENGTH OF #9, #10, AND #11 BARS MAY BE REDUCED BY 25 PERCENT IF CLEAR SPACING IS THREE BAR DIAMETERS OR MORE.

- REFER TO MECHANICAL PROCESS SHEETS FOR CONCRETE WALL AND SLAB PENETRATIONS. ADDITIONAL REINFORCING SHALL BE PROVIDED AT CONCRETE WALL AND SLAB PENETRATIONS PER ^(TYP) 310

INCLUDE IN REINFORCING SHOP DRAWINGS REINFORCING DETAILS FOR CONCRETE WALL AND SLAB PENETRATIONS THAT ARE 6 INCH AND LARGER IN DIAMETER.

- IN CASE ANY CONSTRUCTION JOINT IS REQUIRED FOR WALLS OF STRUCTURE, CONTRACTOR MAY PROPOSE LOCATION FOR REVIEW AND APPROVAL BY ENGINEER OF RECORD PRIOR TO CONSTRUCTION.

- CONCRETE MIX DESIGNS SHALL BE SUBMITTED FOR ALL CONCRETE USED. CONCRETE MIX DESIGNS SHALL BE FURNISHED BY EITHER THE CONCRETE SUPPLIER OR AN INDEPENDENT TESTING LABORATORY, BASED ON THE CONCRETE SUPPLIER'S CURRENT PRODUCTION FACILITIES RECORD OF STRENGTH TESTS. THESE TESTS SHALL BE EVALUATED AND MIX DESIGNS PROPORTIONED TO MEET THE REQUIREMENTS BASED ON THE STANDARD DEVIATIONS AS OUTLINED IN ACI 318-89, SECTION 5.2. RESULTS OF CONCRETE CYLINDER COMPRESSION BREAK TESTS FOR PROPOSED DESIGN MIX SHALL BE INCLUDED IN THE SUBMITTAL. POZZOLAN "F" (FLY-ASH) SHALL BE USED PROVIDED THE CEMENT CONTENT OF THE ORIGINAL MIX WITHOUT FLY-ASH IS NOT REDUCED BY MORE THAN 20% BY WEIGHT AND THE FLY-ASH ADDED DOES NOT EXCEED 1.3 POUNDS FOR EACH POUND OF CEMENT REMOVED. OTHER ADMIXTURES MAY BE USED; HOWEVER, THEY SHALL NOT BE CONSIDERED AS REPLACING ANY PART OF THE CEMENT CONTENT FOR THE SPECIFIED CONCRETE STRENGTH. NO ALUMINUM CONDUITS OR PIPES SHALL BE EMBEDDED IN OR ATTACHED TO THE CONCRETE. COLD WEATHER AND HOT WEATHER CONCRETING SHALL BE PLACED ACCORDING TO RECOMMENDED PRACTICES IN ACI 306 AND ACI 305, RESPECTIVELY.

REINFORCING STEEL:
 ALL REINFORCING STEEL FOR THE PROJECT SHALL BE DEFORMED BARS AND SHALL CONFORM TO THE FOLLOWING ASTM STANDARD DESIGNATIONS:

#4 BAR AND LARGER IN CONCRETE.....A-615 GRADE 60
 MASONRY REINFORCING.....A-615 GRADE 60

CHAIRS AND SUPPORT BARS SHALL BE PROVIDED IN ACCORDANCE WITH ACI STANDARDS. REINFORCEMENT SHALL BE DETAILED TO MEET ACI 315 STANDARDS. SHOP DRAWINGS SHALL BE SUBMITTED SHOWING ALL REINFORCEMENT TO BE PLACED. SHOP DRAWINGS SHALL INCLUDE PLAN AND ELEVATIONS PERTAINING TO BAR LOCATION AND PLACEMENT WITHIN FOUNDATIONS, SLABS, BEAMS, COLUMNS AND WALLS.

METALS

- STRUCTURAL STEEL:** STRUCTURAL STEEL SHALL BE ASTM A 36 GRADE. BOLTS A 307. TUBE STEEL AND PIPE STEEL SHALL BE ASTM A 500 GRADE B, FY = 46 KSI FOR TUBE STEEL AND 42 KSI FOR PIPE STEEL AND WELDABLE PER AWS D1.4. LATEST AISC AND AWS CODES APPLY. FABRICATOR SHALL SUBMIT SHOP DRAWINGS FOR REVIEW BEFORE FABRICATION. MINIMUM EMBEDMENT OF ALL HORIZONTAL BOLTS IN GROUT OR CONCRETE SHALL BE 6" WITH 3" HOOK. VERTICAL BOLTS SHALL HAVE 10" EMBEDMENT WITH HEAVY HEX NUT AT EMBEDDED END, UNO.
- WELDING:** ALL CONSTRUCTION AND TESTING SHALL BE PER AWS CODES AND RECOMMENDATIONS. WELDING SHALL BE DONE IN SHOP UNLESS SHOWN OTHERWISE ON PLANS. FIELD WELDS SHALL BE APPROVED BY THE ENGINEER. ALL WELDING SHALL BE BY WELDERS HOLDING CURRENT VALID CERTIFICATES ISSUED BY AN ACCEPTED TESTING AGENCY AND HAVING EXPERIENCE IN THE TYPE OF WELD CALLED FOR.
- ALUMINUM:** ALUMINUM FOR THIS PROJECT SHALL BE OF TYPE 6063. ALUMINUM TO BE CAST INTO CONCRETE SHALL RECEIVE COATING OF COAL TAR EPOXY OR SIMILAR.
- STAINLESS STEEL:** STAINLESS STEEL SHALL BE 316 GRADE UNLESS NOTED OTHERWISE.

PRECAST WETWELL FLAT TOP SLAB:

- DESIGN LOADINGS: 1,500 POUND POINT LOAD AT CENTER OF SLAB OR 150 PSF, WHICHEVER RESULTS IN THE HIGHER LOADING CONDITION.

SUPPLEMENTARY NOTES:

- PROVIDE TEMPORARY BRACING, SHORING, GUYING OR OTHER MEANS TO AVOID EXCESSIVE STRESSES AND TO HOLD STRUCTURAL ELEMENTS IN PLACE DURING CONSTRUCTION.
- ANY MEMBERS REQUIRED TO SUPPORT EQUIPMENT FROM THE FRAMING SHOWN SHALL BE DESIGNED AND PROVIDED BY THE CONTRACTOR.
- FOR CONNECTIONS SEE DETAILS. IF NOT SHOWN OR NOTED, MINIMUM CONNECTIONS TO BE INCLUDED IN BID SHALL BE TWO 5/8" DIA. BOLTS OR 3/16" FILLET WELD 4" LONG USING 1/4" CONNECTION MATERIAL AND DETAILED TO MINIMIZE BENDING IN CONNECTION. PROCEED AFTER CLARIFICATION THROUGH SHOP DRAWING SUBMITTAL.
- ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BE BY A STRUCTURAL ENGINEER REGISTERED IN ARIZONA WITH CONTINUOUS FIVE YEARS EXPERIENCE IN THE TYPE OF DESIGN SUBMITTED.
- UNLESS NOTED OTHERWISE, DETAILS ON STRUCTURAL DRAWINGS ARE TYPICAL AS INDICATED BY CUTS, REFERENCES OR TITLES.
- IN CASE OF CONFLICTS, MORE COSTLY REQUIREMENTS GOVERN FOR BIDDING. SUBMIT CLARIFICATION REQUEST PRIOR TO PROCEEDING WITH WORK.
- VERIFY ALL DIMENSIONS WITH OTHER DISCIPLINE DRAWINGS.
- CONTRACTOR SHALL ESTABLISH AND VERIFY IN THE FIELD ALL EXISTING CONDITIONS AFFECTING NEW CONSTRUCTION.
- DO NOT SCALE DRAWINGS. IN CASE OF ANY CONFLICT VERIFY WITH ENGINEER PRIOR TO CONSTRUCTION.
- "TYP" INDICATES DETAIL OCCURS MORE THAN ONCE. CONTRACTOR SHALL DETAIL ALL SUCH OCCURRENCES ON SHOP DRAWINGS SUBMITTALS.
- SHOP DRAWINGS INVOLVING STRUCTURAL CALCULATIONS SHALL BE STAMPED AND SIGNED BY CIVIL OR STRUCTURAL ENGINEER REGISTERED IN THE STATE OF ARIZONA.
- A. SPECIAL INSPECTION IS REQUIRED PER CODE FOR ALL STRUCTURAL REINFORCED CONCRETE WORK.
 B. SPECIAL INSPECTION IS ALSO REQUIRED FOR FIELD WELDING, AND INSTALLATION OF EPOXY BOLTS.
 C. PER BUILDING CODES CH. 17 NOTE: SPECIAL INSPECTIONS DO NOT PRECLUDE ANY NTUA INSPECTIONS.

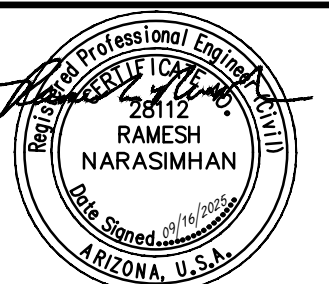
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NAVAJO TRIBAL UTILITY AUTHORITY
 TOWN OF GANADO - WASTEWATER TREATMENT IMPROVEMENTS

GENERAL STRUCTURAL NOTES



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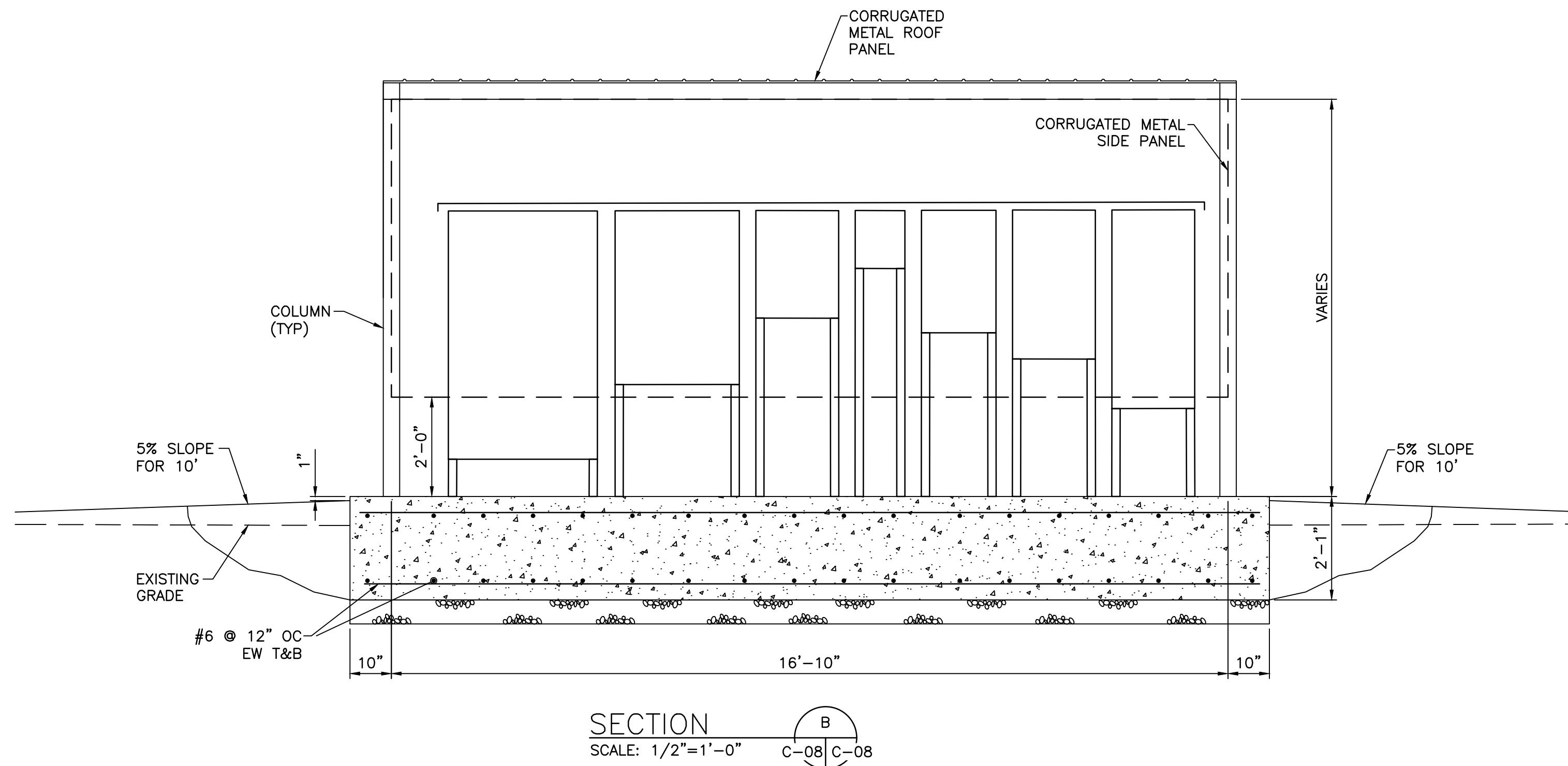
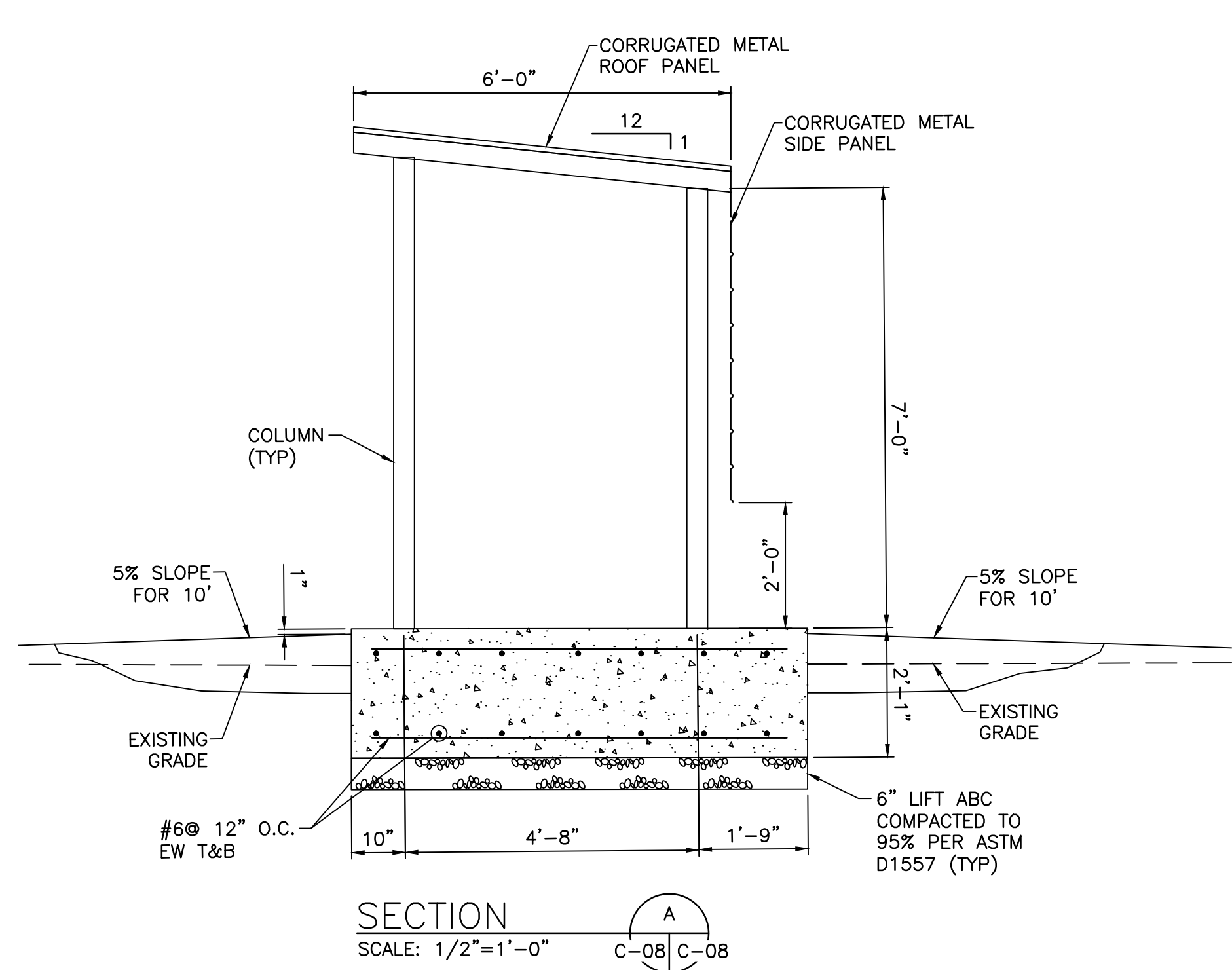
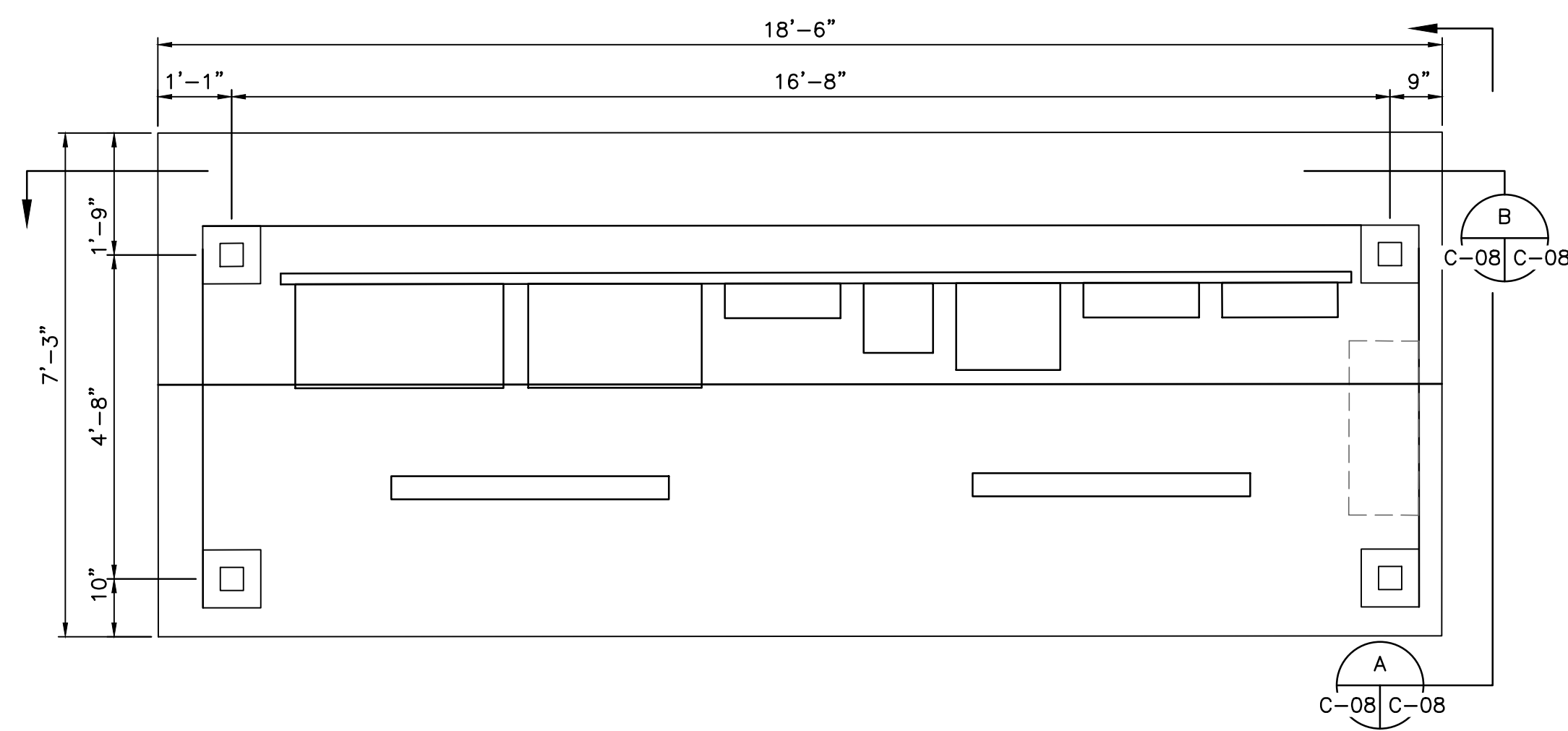
Design by: LAH

Approved by: RN

Date: 09/16/25
 Project No. 2344
 Sheet No. G-04

NOTES:

1. SHADE CANOPIES STRUCTURAL DESIGN AND ANCHORAGE SYSTEM TO FOUNDATION SHALL BE BY ALUMA-LINE (PHOENIX, AZ) INC OR APPROVED EQUAL. SHADE CANOPY MANUFACTURER SHALL DESIGN AND PROVIDE SHOP DRAWING FOR CANOPIES. DESIGN CALCULATION AND SHOP DRAWINGS SHALL BE SEALED BY AN ARIZONA LICENSED PROFESSIONAL ENGINEER.
2. CORRUGATED STEEL ROOF PANELS SHALL BE BY MBCI OR APPROVED EQUAL. COATING SHALL BE SIGNATURE 200 FACTORY APPLIED AND BAKED-ON OVER GALVALUME. COLOR WILL BE SELECTED BY NTUA.
3. FASTENERS SHALL BE NON-CORRODING MATERIAL.
4. EPOXY ANCHOR BOLTS DESIGN BY ALUMA-LINE'S STRUCTURAL DESIGNER.
5. SEE SHT G-04 FOR GENERAL STRUCTURAL NOTES. THE SCADA ANTENNA POLE SHALL BE MOUNTED ON THE SHADE CANOPY. SEE DETAIL ON SHT E-22.



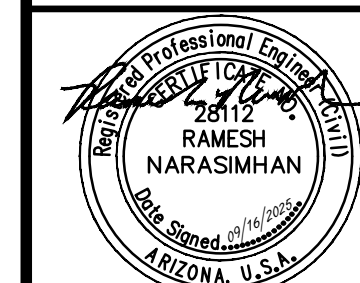
NAVAJO TRIBAL UTILITY AUTHORITY
DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES

SHADE CANOPY PLAN AND SECTIONS

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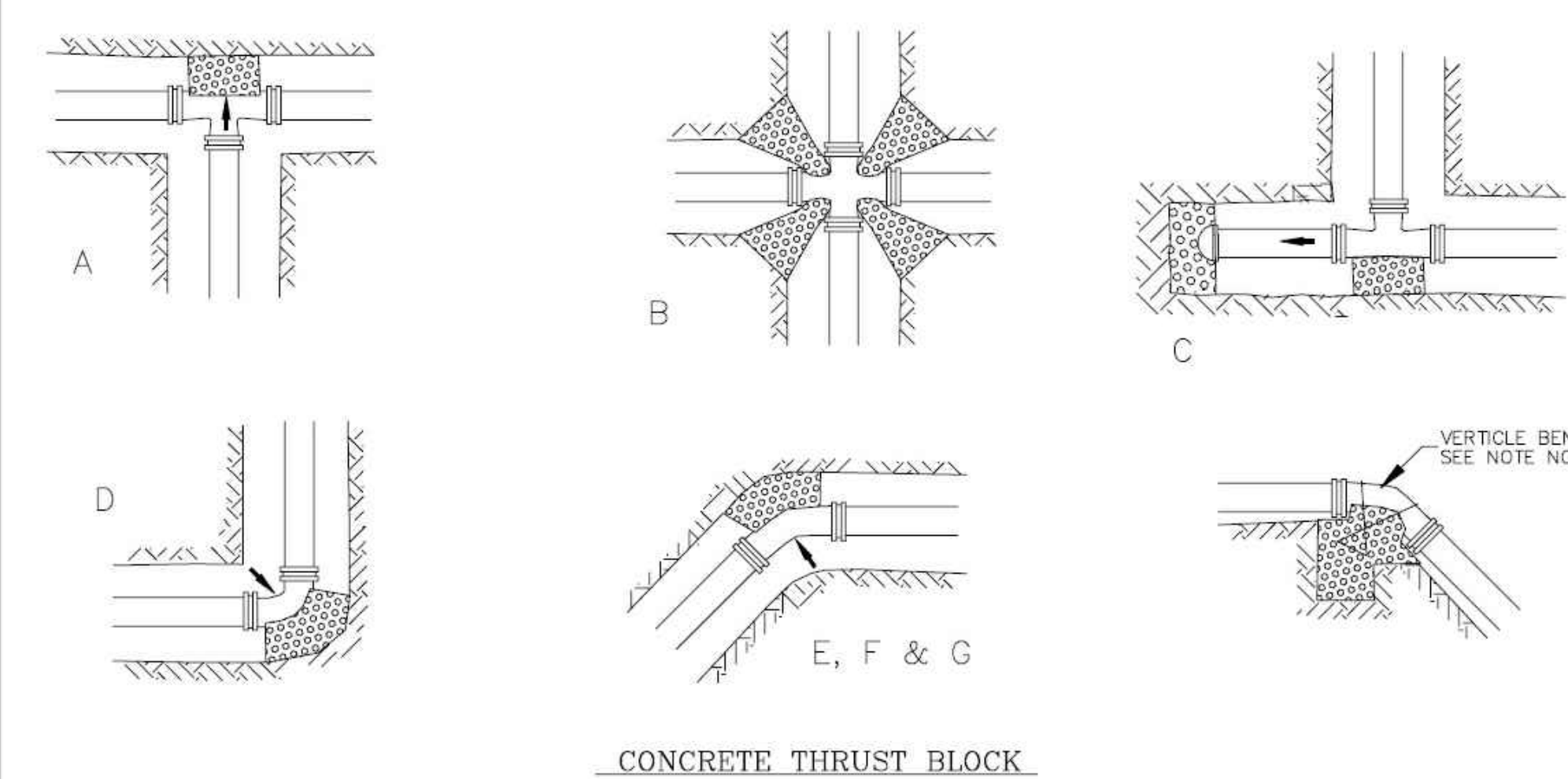
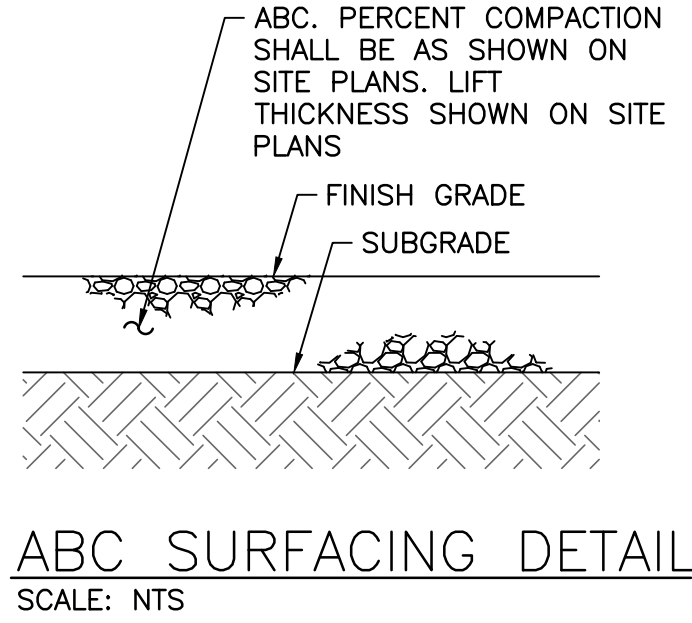
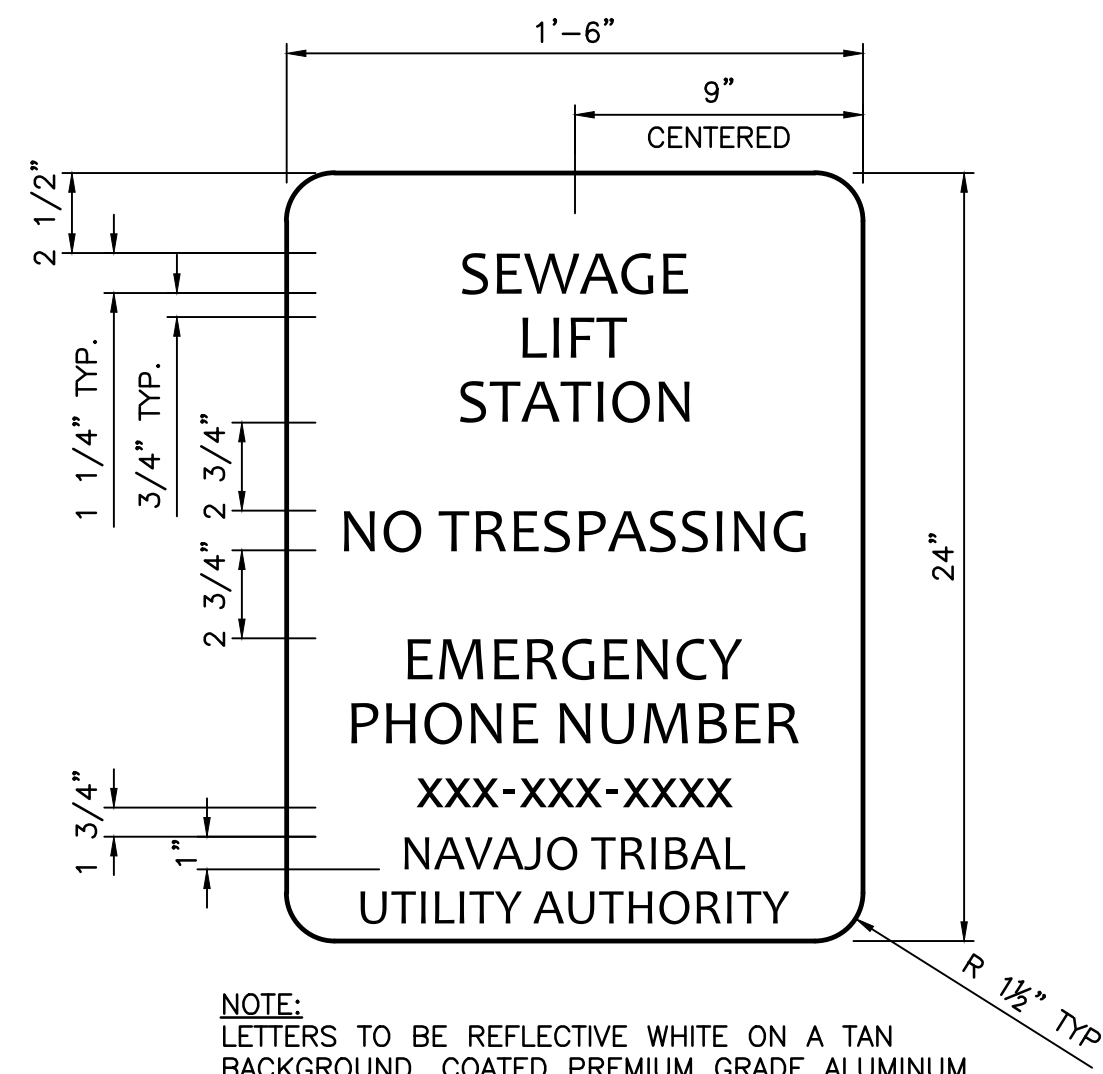
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Approved by: RN

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Sheet No.: C-08



PIPE NOM. SIZE	SIZE OF THRUST FACE							
	A TEE OR PLUG	B CROSS (EACH)	C CAP	D BEND	E BEND	F 22 1/2° BEND	G 11 1/4° BEND	
2"	7" X 7"	6" X 6"	7" X 7"	9" X 9"	6" X 6"	5" X 5"	4" X 4"	
4"	14" X 14"	12" X 12"	14" X 14"	16" X 16"	12" X 12"	9" X 9"	6" X 6"	
6"	20" X 20"	17" X 17"	20" X 20"	24" X 24"	18" X 18"	13" X 13"	9" X 9"	
8"	26" X 26"	22" X 22"	26" X 26"	31" X 31"	23" X 23"	16" X 16"	12" X 12"	
10"	33" X 33"	28" X 28"	33" X 33"	39" X 39"	29" X 29"	20" X 20"	14" X 14"	
12"	39" X 39"	33" X 33"	39" X 39"	47" X 47"	34" X 34"	25" X 25"	17" X 17"	
14"	43" X 43"	36" X 36"	43" X 43"	51" X 51"	37" X 37"	27" X 27"	19" X 19"	
16"	49" X 49"	41" X 41"	49" X 49"	58" X 58"	43" X 43"	30" X 30"	22" X 22"	
18"	55" X 55"	46" X 46"	55" X 55"	65" X 65"	48" X 48"	34" X 34"	24" X 24"	

NOTES: 1. SIZE OF THRUST FACE BASED ON 160 PSI PIPE LINE PRESSURE AND 2000 PSI SOIL BEARING
 2. AT VERTICAL BENDS, PROVIDE SUFFICIENT WEIGHT TO RESIST OUTWARD THRUST
 3. KEEP CONCRETE BEHIND BELL OF FITTING. DO NOT LET IT RUN AGAINST PIPE OR IN JOINT
 4. 48 HOURS IS MINIMUM CONCRETE CURE TIME BEFORE PRESSURIZING WATER MAIN

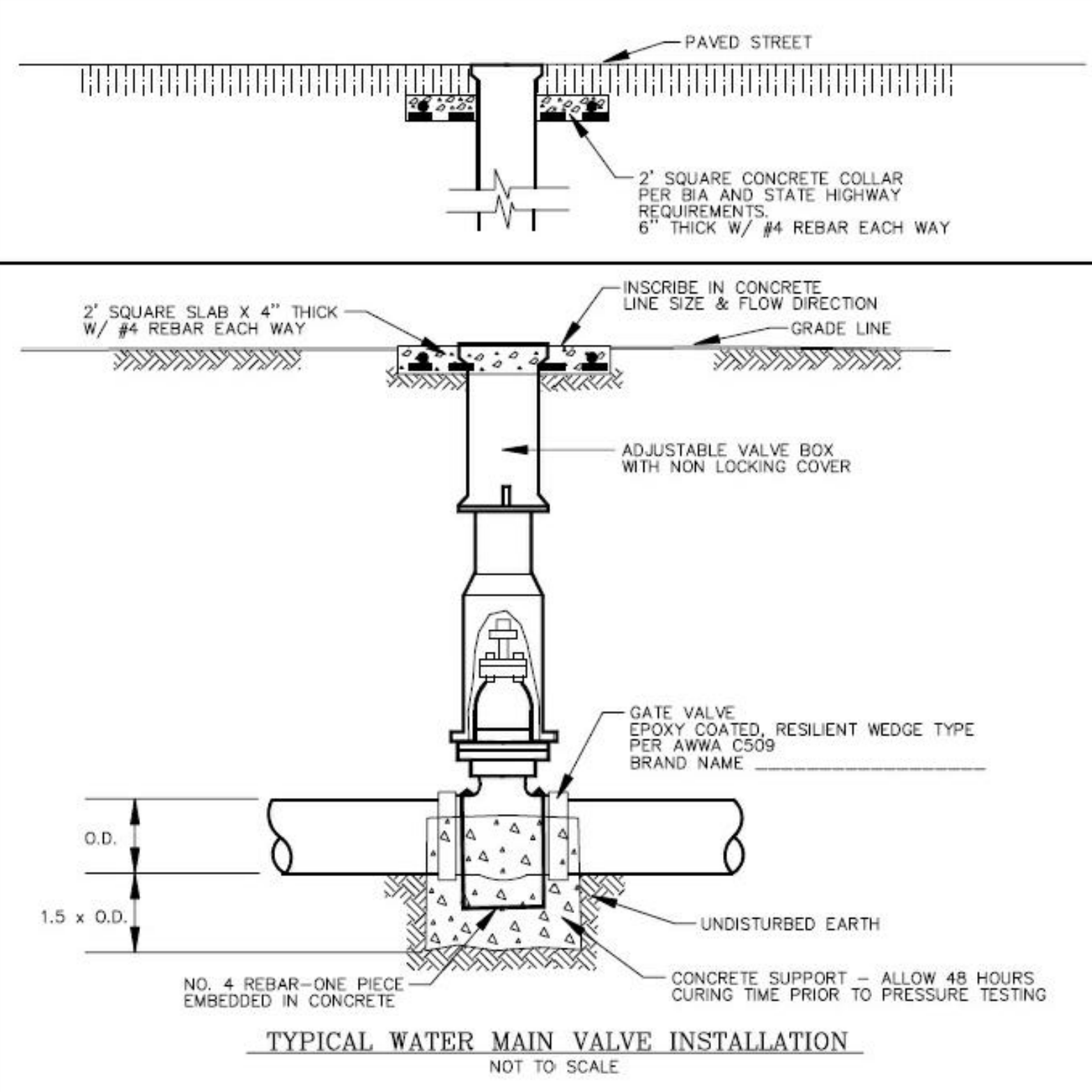
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NAVAJO NATION,
 STANDARD DRAWING NO. W-11
 CONCRETE THRUST BLOCK

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

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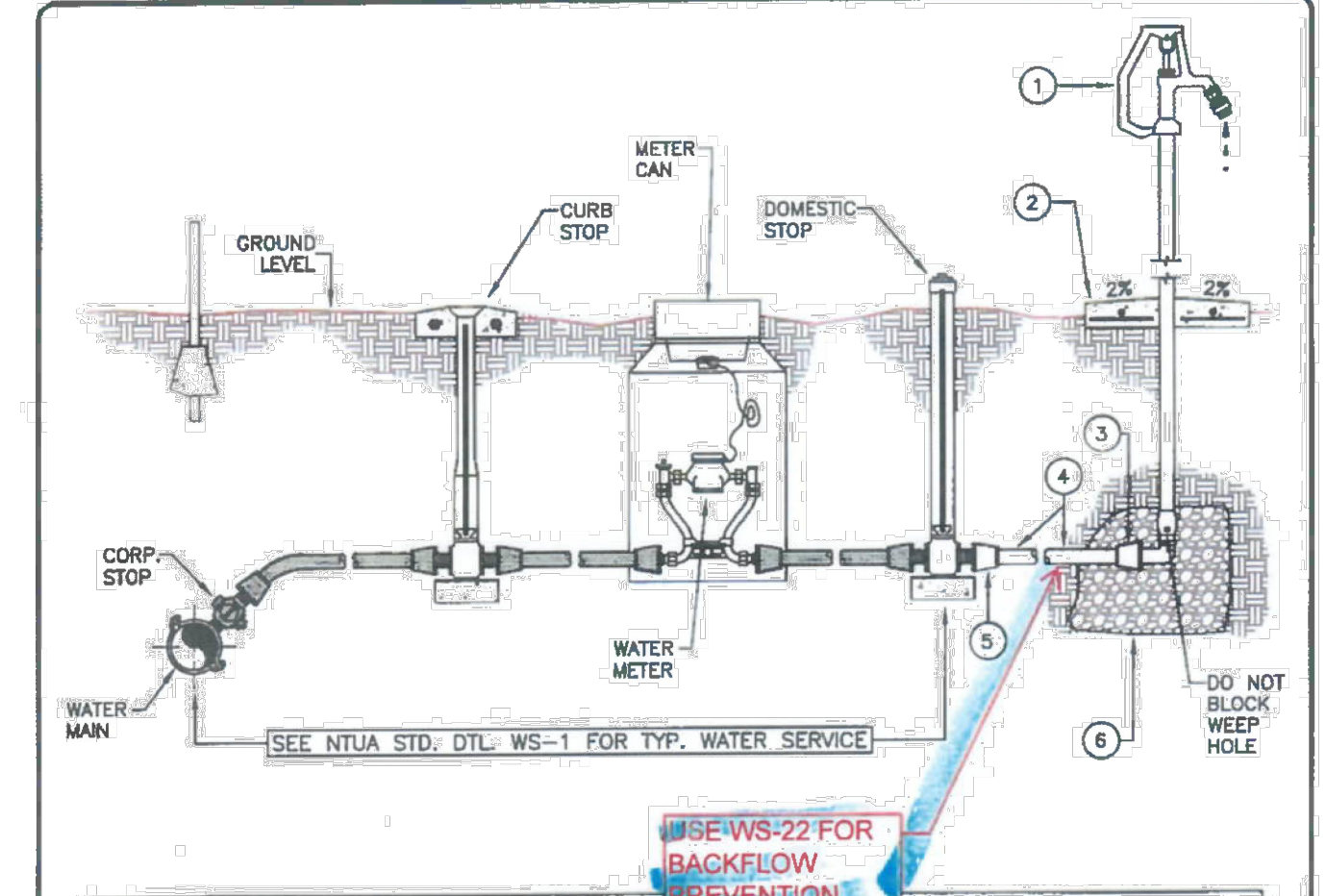
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NAVAJO NATION,
 STANDARD DRAWING NO. W-16
 TYPICAL WATER MAIN VALVE INSTALLATION

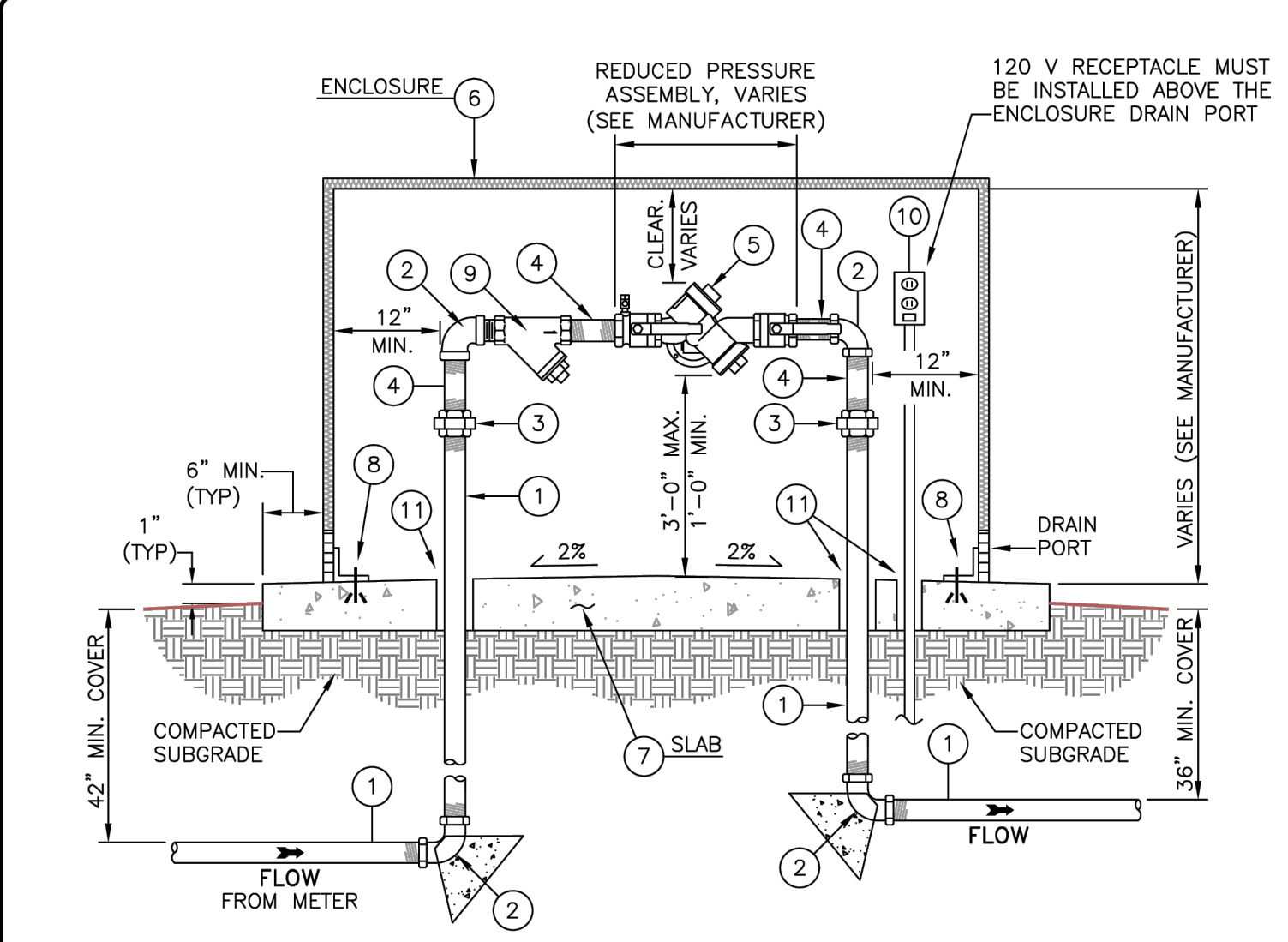
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ITEM	QTY	DESCRIPTION
1	1	SANITARY YARD HYDRANT, FREEZELESS, BACKFLOW PROTECTED, AUTOMATIC DRAINING
2	1	CONCRETE COLLAR, 24" x 24" x 4" THICK, W/ #4 REBAR, E.W.O.C.
3	1	CONNECTOR/ADAPTER, 1" MIPT x APPROPRIATE PIPE TYPE AND O.D.
4	A.R.	PIPE, 1" P.E., ASTM D-2239, SDR 7, 200 PSI, 200' MAX.
5	1	INSTA-TITE FITTING, 1" MIPT x 1" STAB FOR SDR 7 P.E. PIPE
6	1	CLEAN GRAVEL, ONE CUBIC YARD, MIN.

GENERAL NOTES:
 1. A.R. = AS REQUIRED
 2. NORMAL FLOW RATE = 1-20 GPM.
 3. NTUA WILL NOT PROVIDE WATER METERS FOR SUBDIVISIONS AND DEVELOPERS.



- GENERAL NOTES:
- REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY SHALL COMPLY WITH ASSE 1013, AWWA C511 & USC-FCCOHR.
 - NO WATERLINE CONNECTIONS ARE ALLOWED BETWEEN THE METER AND BACKFLOW PREVENTION ASSEMBLY.
 - BACKFLOW PREVENTION ASSEMBLY SHALL BE INSTALLED WITHIN 5-FT OF THE METER BOX.
 - BACKFLOW PREVENTION ASSEMBLY SHALL BE CENTERED ON CONCRETE PAD AND COVERED WITH AN ENCLOSURE.
 - MINIMUM INSULATED CLASS II, ASSE 1060 WEATHERPROOF ENCLOSURE REQUIRED.
 - PROTECT PIPES & BACKFLOW PREVENTION ASSEMBLY FROM FREEZING WITH INSULATION AND OPTIONAL HEATING SOURCE.
 - OPTIONAL 120V GFCI ELECTRICAL RECEPTACLE TO BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE FOR OUTDOOR AND DAMP ENCLOSURE OPERATION.
 - PIPE MATERIAL SHALL BE CLASS 350 OR BETTER COPPER (TYPE K) OR BRASS (ASTM B43).
 - INSTALLATION SHALL BE IN COMPLIANCE WITH ALL APPLICABLE SPECIFICATIONS.
 - PROPERTY OWNER SHALL BE RESPONSIBLE FOR MAINTENANCE AND OPERATION OF BACKFLOW PREVENTION ASSEMBLY AND COMPLIANCE WITH REPORTING AND TESTING REQUIREMENTS.
 - MINIMUM 24" CLEARANCE FROM WALL ON THE TEST PORTS SIDE OF THE ASSEMBLY FOR TESTING.
 - CLEARANCE FOR TOP OF ENCLOSURE TO ASSEMBLY VARIES PER ASSEMBLY MODEL AND ENCLOSURE MANUFACTURER.

1" - 2-1/2" OUTDOOR, REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY

ITEM	QTY	DESCRIPTION
1	A.R.	TYPE K COPPER OR BRASS (ASTM B-43) PIPE
2	4	TYPE K COPPER 90 DEGREE ELBOW OR BRASS 90 DEGREE THREADED ELBOWS
3	2	TYPE K COPPER OR BRASS THREADED UNIONS
4	A.R.	TYPE K COPPER OR BRASS THREADED PIPE NIPPLES
5	1	BACKFLOW PREVENTION ASSEMBLY, REDUCED PRESSURE PRINCIPLE
6	1	CLASS II, ASSE 1060 INSULATED WEATHERPROOF ENCLOSURE W/ DRAIN OUTLETS, ANCHORED TO CONCRETE MOUNTING PAD
7	1	4" - 3,000 PSI CONCRETE MOUNTING PAD, DIMENSIONS PER ENCLOSURE MANUFACTURER SPECIFICATION
8	A.R.	ANCHOR SYSTEM FOR ENCLOSURE (HARDWARE)
9	1	BRONZE WYE STRAINER (THREADED), WILKINS MODEL 'S' SERIES, OAE (OPTIONAL)
10	1	GFCI ELECTRICAL RECEPTACLE (OPTIONAL)
11	A.R.	MINIMUM 1" ANNULAR AREA AROUND PIPE & ELECTRICAL CONDUIT W/ PIPE SLEEVE

GENERAL NOTES:
 1. A.R. = AS REQUIRED
 2. OAE = OR APPROVED EQUAL

1" - 2-1/2" OUTDOOR, REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY

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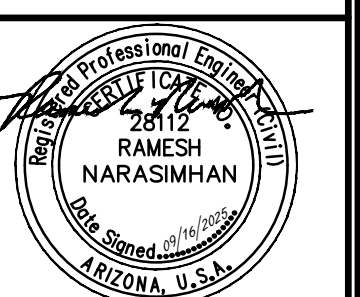
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 1" - 2-1/2" OUTDOOR, REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTION ASSEMBLY

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NAVAJO TRIBAL UTILITY AUTHORITY
 DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES
 GENERATOR FOUNDATION PLAN
 CIVIL DETAILS



Drawn by: JJC
 Design by: LAH
 Approved by: RN
 Date: 09/16/25
 Project No.: 2344
 Sheet No.: C-09

EQUIPMENT AND MATERIALS SPECIFICATIONS

DUCTILE IRON PIPE AND FITTINGS:

PIPE SHALL BE IN ACCORDANCE WITH ANSI/AWWA C-151/A21.51.
 FITTINGS SHALL BE IN ACCORDANCE WITH AWWA C-153/ANSI A21.53, AND AWWA C-115/ANSI A21.15 FOR FLANGED PIPE AND AWWA C-111/ANSI A21.11 FOR MECHANICAL JOINT PIPE.
 FOR PUMP-AROUND PORT SYSTEM: FITTINGS SHALL HAVE FUSION BONDED EPOXY INTERIOR COATING PER AWWA C116/ANSI A21.16. PIPE SHALL HAVE CERAMIC AMINE CURED NOVALAC EPOXY INTERIOR COATING, 40 MILS.

MEGA-LUG OR APPROVED EQUAL FOR RESTRAINING JOINTS.
 BURIED PIPING SHALL BE PROVIDED WITH POLYETHYLENE ENCASEMENT PER ASTM A674.

PVC PRESSURE PIPE:

PIPE SHALL BE IN ACCORDANCE WITH AWWA C-900. WHERE APPLICABLE, PIPE SHALL MATCH THE SDR OF EXISTING PIPE IT IS CONNECTING TO.

PVC GRAVITY SEWER PIPE:

PIPE SHALL BE SDR 35 IN ACCORDANCE WITH ASTM D-3024.

STAINLESS STEEL PIPE AND MISCELLANEOUS SUPPORTS:

PIPE SHALL BE SCHEDULE 40 IN ACCORDANCE WITH ANSI 36.19.
 MISCELLANEOUS SUPPORT BRACKETS SHALL BE IN ACCORDANCE WITH ASTM A-276.
 FASTENERS SHALL BE IN ACCORDANCE WITH ASTM A320: BOLTS GRADE L7, NUTS A194 GRADE 7 AND WASHERS F436.

STEEL PIPE:

PIPE SHALL BE SCHEDULE 40 IN ACCORDANCE WITH AWWA C-200/ASTM A53 AND AWWA C-206.

PLUG VALVES:

VALVES SHALL BE DEZURIK BULLETIN 12.00-1C OR APPROVED EQUAL; IN ACCORDANCE WITH AWWA C-517 AND C-111. CLASS 150 FLANGES SHALL BE IN ACCORDANCE WITH ANSI B16.5 VALVES SHALL BE FOR BURIED SERVICE WITH NUT OPERATOR.

ALUMINUM ACCESS HATCHES:

HATCHES SHALL BE HALLIDAY SERIES SERIES S, ALL STANDARD FEATURES WITH FALL THROUGH PROTECTION GRATING OR APPROVED EQUAL. HATCH DIMENSIONS SHALL BE AS SHOWN ON THE DRAWINGS. FOR FALL THROUGH PROTECTION PROVIDE HASP FOR NTUA TO UTILIZE PADLOCK.

PORTABLE PUMP LIFTING HOISTS:

HOISTS SHALL BE HALLIDAY SERIES DB WITH ALL STANDARD FEATURES OR APPROVED EQUAL. HOIST CAPACITY SHALL BE 1,330 LBS MINIMUM WITH THE DAVIT ARM EXTENDED PERPENDICULAR TO THE MAST, PARALLEL TO TOP OF WET WELL. PROVIDE HOISTS AS SHOWN FOR EACH LIFT STATION SITE (5 TOTAL).

POLYURETHANE COATINGS FOR WET WELLS:

COATING FOR INTERIOR OF LIFT STATIONS: REMOVE SEWERAGE FROM WETWELLS, CLEAN SURFACES, AND PREPARE SURFACES FOR COATING. SURFACE PREPARATION SHALL BE PER COATING MANUFACTURER'S RECOMMENDATIONS AND SHALL INCLUDE AT MINIMUM, ABRASIVE BLAST AND HIGH PRESSURE CLEANING. INCLUDE IN BID A MORTAR REPAIR OF TWO SQUARE FEET FOR EACH WETWELL TO RECEIVE COATING. PROVIDE ZEBRON PRIME (MIST) COAT AT 3 TO 5 WET MILS. PROVIDE TOP COAT OF ZEBRON SERIES 386 100% POLYURETHANE COATING AT MINIMUM OF 125 MILS. COATING SHALL BE APPLIED PER MANUFACTURER'S RECOMMENDATIONS. NTUA WILL SELECT THE COLOR OF THE TOP COAT.

PIPE PRESSURE TEST:

FOR PUMP-AROUND SYSTEM: BEFORE BACKFILLING THE PIPING, THE PIPING SYSTEM SHALL BE EXPOSED TO SYSTEM PRESSURE (THE PRESSURE IN THE FORCEMAIN). CONDUCT VISUAL EXAMINATION TO CONFIRM THERE IS NO LEAKAGE. FOR DISCHARGE PIPE REPLACEMENT IN WETWELL; CONDUCT VISUAL EXAMINATION TO CONFIRM THERE IS NO LEAKAGE.

COMBINATION AIR VALVE:

COMBINATION AIR VALVE SHALL BE SINGLE BODY STYLE AND SPECIFICALLY MANUFACTURED FOR WASTEWATER APPLICATIONS. THE BODY AND COVER OF THE VALVE SHALL BE CONSTRUCTED OF HEAVY-DUTY CAST IRON. BOLTS, NIPPLES, PLUGS SHALL BE TYPE 316 STAINLESS STEEL. FLOAT SHALL BE STAINLESS STEEL. VALVE SHALL BE DESIGNED FOR NO SPILLS AND NO SPURTS. STATIC PRESSURE IN THE PIPELINE AT LOCATION OF PROPOSED VALVE IS APPROXIMATE 22 PSI, PROVIDE APPROPRIATE SEAT. PROVIDE BACKFLUSHING ATTACHMENT. EXTERIOR PAINT SHALL BE SELECTED FOR A DAMP VAULT APPLICATION.

COMBINATION AIR VALVE SHALL BE VALMATIC VMC-301A OR APPROVED EQUAL.

PAINTING:

FOR FERROUS METALS, PRIMED OR UNPRIMED, SUCH AS BUT NOT LIMITED TO WETWELL VENT PIPES, ANTENNA POLE. PAINT MANUFACTURER SHALL BE SHERWIN-WILLIAMS OR APPROVED EQUAL.

PRIMER: ALKYD METAL PRIMER, ONE COAT, 1.3-1.5 DRY MILS.

GLOSS FINISH: URETHANE ALKYD GLOSS ENAMEL, TWO COATS, 2.0-2.2 DRY MILS.

EXISTING GENERATOR AT SAWMILL AND IYANBITO SITES:

RETAIN GENERATOR MANUFACTURER OR MANUFACTURER'S REPRESENTATIVE TO CONDUCT FIELD INSPECTION, CHECK-OUT, AND EVALUATION OF GENERATOR SYSTEM. PREPARE AND SUBMIT BRIEF WRITTEN REPORT WITH SUMMARY OF FIELD OBSERVATIONS AND EVALUATION, AND RECOMMENDATIONS FOR EQUIPMENT REPAIRS AND REPLACEMENTS FOR RETURNING GENERATORS TO OPERATING ORDER. STARTUP THE GENERATORS AND PROVIDE MINIMUM OF ONE HOUR OF ON-SITE TRAINING OF NTUA STAFF AT EACH SITE. EQUIPMENT REPAIRS AND REPLACEMENTS IF ANY, WILL BE AUTHORIZED BY CHANGE ORDER.

EQUIPMENT COATINGS:

ALL PUMPS, FITTINGS, PIPING ETC. SUPPLIED BY PUMP SYSTEM PACKAGE VENDOR SHALL HAVE MANUFACTURER'S STANDARD EPOXY INTERIOR AND EXTERIOR COATING. COATING SHALL BE DESIGNED FOR WASTEWATER APPLICATION.

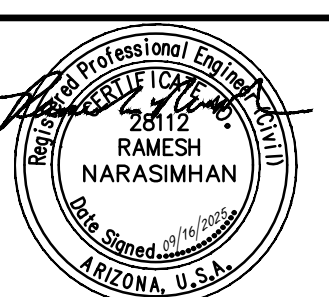
RADAR LEVEL SENSOR:

SENSOR SHALL BE MICRO PILOT FMR20, 80MM WITH FLOOD PROTECTION TUBE AND PIVOT-TYPE MOUNTING ARM PART NO. 919790-002, BY EDRESS-HOUSER OR APPROVED EQUAL.

Generator Schedule				
Site	Rated Output (KW)	Type of Fuel	Type of Enclosure	Output Voltage
Lechee	35	Propane	NEMA 4	Three Phase, 430V, 4 Wire

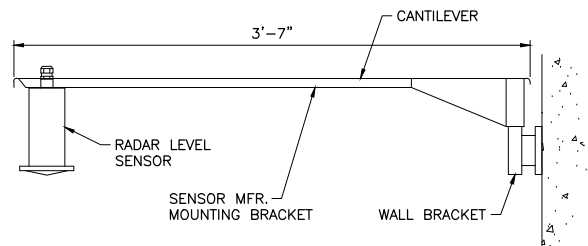
No.	Revision	Note	Date	Drawn	Check

NAVAJO TRIBAL UTILITY AUTHORITY
DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES
EQUIPMENT SCHEDULES AND SPECIFICATIONS



EXPIRATION DATE: 09/30/27

Drawn by: JJC
 Design by: LAH
 Approved by: RN
 Date: 09/16/25
 Project No.: 2344
 Sheet No.: M-01



RADAR LEVEL SENSOR MOUNTING DETAIL

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

NOTES:

1. WET WELL WALLS FOR COYOTE CANYON, COALMINE AND LECHEE ARE PRECAST CONCRETE. WET WELL WALLS FOR SAWMILL AND IYANBITO ARE FIBERGLASS. USE STAINLESS STEEL ANCHORS OR CONNECTORS AS APPROPRIATE.
2. MOUNTING SYSTEM SHALL BE FABRICATED FROM STAINLESS STEEL.

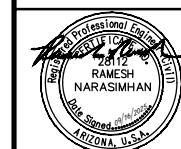
NAVAJO TRIBAL UTILITY AUTHORITY
DESIGN AND CONSTRUCTION OF FIVE LIFT STATION FACILITIES

MISCELLANEOUS DETAILS

No.	Revision Note	Date	Drawn	Check



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EXPIRATION DATE: 09/30/27

Drawn by: JJC

Design by: LAH

Approved by: RN

Date: 09/16/25

Project No.: 2344

Sheet No.: M-07

SCHEMATIC DIAGRAM SYMBOLS

POWER SINGLE LINE DIAGRAM SYMBOLS

ELECTRICAL ABBREVIATIONS

	CONTROL RELAY		2 POSITION SELECTOR SWITCH HAND - OFF - AUTO POSITION LEGEND: X=CLOSED O=OPEN
	TIME DELAY RELAY		3 POSITION SELECTOR SWITCH HAND - OFF - AUTO POSITION LEGEND: X=CLOSED O=OPEN
	ALARM RELAY		NORMALLY CLOSED PUSH BUTTON
	ELAPSED TIME METER		LOCKOUT STOP PUSH BUTTON
	MOTOR STARTER OR CONTACTOR COIL		NORMALLY OPEN PUSH BUTTON
	PHOTO CELL		EMERGENCY STOP PUSH BUTTON (MAINTAINED)
	BEACON ALARM LIGHT LETTER INDICATES COLOR R=RED, A=AMBER, B=BLUE, G=GREEN		DISCONNECT SWITCH SHOWN WITH RATING AND NUMBER OF POLES
	PILOT LIGHT LETTER INDICATES COLOR R=RED, A=AMBER, B=BLUE, G=GREEN		LIMIT OR POSITION SWITCH
	OUTPUT DV/DT FILTER		PRESSURE SWITCH HIGH
	HEATING ELEMENT		PRESSURE SWITCH LOW
	TRANSFORMER		FLOW SWITCH
	CURRENT TRANSFORMER		LEVEL FLOAT SWITCH
	GROUND CONNECTION		TIMER RELAY CONTACT INSTANTANEOUS CLOSE TIME DELAY OPEN
	GENERATOR		TIMER RELAY CONTACT NORMALLY OPEN TIME DELAY CLOSE
	HORN		TEMPERATURE SWITCH
	FULL VOLTAGE NON-REVERSING (FVNR) MOTOR STARTER OR CONTACTOR NUMBER DESIGNATES NEMA SIZE		FUSE
	NORMALLY OPEN CONTACT		FUSEHOLDER OR FUSEBLOCK
	NORMALLY CLOSED CONTACT		THERMAL OVERLOAD RELAY
	RTU OR PLC CONTACT		TERMINAL BLOCK
	DEVICE LOCATED AT REMOTE LOCATION		CONDUIT SEALOFF

	JUNCTION BOX WITH POWER DISTRIBUTION BLOCK OR LUGS		CIRCUIT BREAKER, SHOWN WITH TRIP RATING AND NUMBER OF POLES
	CONDUIT SEALOFF		MOTOR CIRCUIT PROTECTOR WITH TRIP RATING AND NUMBER OF POLES
	LTC CONNECTION		DISCONNECT SWITCH SHOWN WITH RATING AND NUMBER OF POLES
	MC CONNECTION		MOTOR MANAGEMENT RELAY
	BOND TO METALLIC WATER PIPE		SURGE PROTECTIVE DEVICE
	UTILITY METER		SOLID STATE STARTER
	MOTOR, NUMBER DESIGNATES NEMA HORSEPOWER SIZE		VARIABLE FREQUENCY DRIVE
	FUSE		HARMONIC FILTER
	FUSEHOLDER OR FUSEBLOCK		ELECTRONIC OVERLOAD RELAY
	GENERATOR		GROUND CONNECTION
			TRANSFORMER
			CONTACTOR

A	AMPERE	L, LO	LOW	PO	PULSE OUTPUT
AFD	ADJUSTABLE FREQUENCY DRIVE	LAN	LOCAL AREA NETWORK	PPB	POWER PULLBOX
AFF	ABOVE FINISHED FLOOR	LC	LOOP CONTROLLER	PPG	POUNDS PER GALLON
AFG	ABOVE FINISHED GRADE	LCL	LEVEL CONTROL, LOW	PPH	POUNDS PER HOUR
AI	ANALOG INPUT	LCP	LOCAL CONTROL PANEL	PPM	PARTS PER MILLION
AIC	AMPS INTERRUPTING CAPACITY	LOS	LOCK-OUT-STOP	PR	PAIR
AO	ANALOG OUTPUT	LOR	LOCAL/OFF/REMOTE	PRES	PRESSURE
AS	AIR SUPPLY	LS	LEVEL (i.e., FLOAT) SWITCH	PS	PRESSURE SWITCH
ATS	AUTOMATIC TRANSFER SWITCH	LTC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT	PSH	PRESSURE SWITCH, HIGH
BC	BYPASS CONTACTOR	M	MOTOR	PSI	POUNDS PER SQUARE INCH
C	CONDUIT	MA	MANUAL/AUTO	PV	PROCESS VARIABLE
CB	CIRCUIT BREAKER	mA	MILLIAMPERE	RAS	RETURN ACTIVATED SLUDGE
CCW	COUNTER CLOCKWISE	MAX	MAXIMUM	RW	RAW WATER
CL2	CHLORINE	MC	MANUFACTURER'S CABLE	RF	RADIO FREQUENCY
CON	CONTACTOR	MCB	MAIN CIRCUIT BREAKER	RIO	REMOTE INPUT OUTPUT
CPB	CONTROL PULLBOX	MCC	MOTOR CONTROL CENTER	RS	RAW SEWAGE
CP	COPPER, BARE	MCP	MOTOR CIRCUIT PROTECTOR	RSP	RAW SEWAGE PUMP
CV	CONTROL VALVE	MFR(S)	MANUFACTURER(S)	RST	RESET
CW	CLOCKWISE	MGD	MILLION GALLONS PER DAY	RTD	RESISTANCE TEMPERATURE DETECTOR
DCS	DISTRIBUTED CONTROL SYSTEM	MGL	MILLIGRAMS PER LITER	RTU	REMOTE TELEMETRY UNIT
DI	DISCRETE INPUT	MH	MANHOLE	RWT	REFLECTED WAVE TRAP
DO	DISCRETE OUTPUT	MIN	MINIMUM	SCA	SHORT CIRCUIT AMPS
DP	DISTRIBUTION PANEL	MOV	MOTOR OPERATED VALVE	SCCR	SHORT CIRCUIT CURRENT RATING
DV/DT	DIFFERENTIAL VOLTAGE/TIME	MMR	MOTOR MANAGEMENT RELAY	SEQ	SERVICE ENTRANCE EQUIPMENT
DWG	DRAWING	MTU	MASTER TELEMETRY UNIT	SES	SERVICE ENTRANCE SECTION
ETM	ELAPSED TIME METER	NEC	NATIONAL ELECTRICAL CODE	SLC	SINGLE LOOP CONTROLLER
EOL	ELECTRONIC OVERLOAD	NECA	NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION	SLOS	START-LOCK-OUT-STOP
EXIST	EXISTING	N.C.	NORMALLY CLOSED	SMC	SUBMERSIBLE MANUFACTURER CABLE
FA	FULL AIR	N.O.	NORMALLY OPEN	SO2	SULFUR DIOXIDE
FC	FAIL CLOSED	NIC	NOT IN CONTRACT	SP	SET POINT
FE	FLOW ELEMENT	NOTC	NORMALLY OPEN TIMED CLOSED	SPC	SPARE CONDUIT
FLA	FULL LOAD AMPS	NPW	NON-POTABLE WATER	SPD	SURGE PROTECTOR DEVICE
FS	FLOW SWITCH	NS	NITROGEN SUPPLY	SPR	SPARE
FVNR	FULL VOLTAGE NON-REVERSING	NTS	NOT TO SCALE	SS	START/STOP
FW	FINISHED WATER	NTU	TURBIDITY	SSS	SOLID STATE STARTER (SOFT START)
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	OC	OVERCURRENT	ST	SHUNT TRIP
GFP	GROUND FAULT PROTECTION	OTC	OPERATOR INTERFACE TERMINAL	TC	TELEPHONE CABLE
GND	GROUND	OIT	OPERATOR INTERFACE TERMINAL	TS	TEMPERATURE SWITCH
GPD	GALLONS PER DAY	OL	OVERLOAD	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
GPH	GALLONS PER HOUR	OLR	OVERLOAD RELAY	TYP	TYPICAL
GPM	GALLONS PER MINUTE	OO	ON/OFF (MAINTAINED)	UG	UNDERGROUND
GRS	GALVANIZED RIGID STEEL	OR	OFF-REMOTE	UL	UNDERWRITERS LABORATORIES
H, HI	HIGH	OSC	OPEN/STOP/CLOSE	UM	UTILITY METER
H2S	HYDROGEN SULFIDE	P	PHASE	UNO	UNLESS NOTED OTHERWISE
HMI	HUMAN MACHINE INTERFACE	PB	PULL BOX	V	VOLT
HOA	HAND-OFF-AUTO	PCP	PROCESS CONTROL PANEL	VFD	VARIABLE FREQUENCY DRIVE
HOR	HAND-OFF-REMOTE	PCV	PRESSURE CONTROL VALVE	W	WATT, WIRE
I	CURRENT	PFR	PHASE/POWER FAILURE RELAY	WAS	WASTE ACTIVATED SLUDGE
IC	INSTRUMENTATION CABLE	PI	PULSE INPUT	WP	WEATHERPROOF
ICR	INTERMITTENT CYCLE REACTOR	PLC	PROGRAMMABLE LOGIC CONTROLLER	XFMR	TRANSFORMER
IO	INPUT/OUTPUT	PLI	PLANT INFLUENT	XMR	TRANSFORMER
ISC	SHORT CIRCUIT CURRENT	PMP	PUMP	XMTR	TRANSMITTER
JB	JUNCTION BOX	PNL	PANEL	ZS	POSITION (i.e., LIMIT) SWITCH

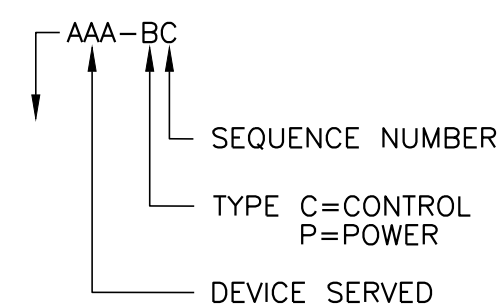
SITE PLAN SYMBOLS

ELECTRICAL LINETYPES

GENERAL NOTES

	TELEPHONE OUTLET		FIELD DEVICE
	SINGLE POLE SWITCH		GROUND ROD
	3 WAY SWITCH		DUPLEX RECEPTACLE
	4-WAY SWITCH		ANTENNA MAST
	MANUAL MOTOR STARTER		CONDUIT SEALOFF
	SPECIAL PURPOSE OR WELDING OUTLET		DISCONNECT SWITCH
	SMOKE DETECTOR		MOTOR
	THERMOSTAT		CONDUIT TURN UP
			CONDUIT TURN DOWN

CIRCUIT SCHEDULE LEGEND



	EXPOSED CONDUIT
	EXISTING EXPOSED CONDUIT
	UNDERGROUND CONDUIT
	EXISTING UNDERGROUND CONDUIT
	BARE COPPER GROUND CONDUCTOR
	EXISTING OR FUTURE
	NEW ELECTRICAL EQUIPMENT
	DEMOLITION
	DETAIL VIEW OR MATCHING
	CAPPED CONDUIT STUB OUT

PXXX
CXXX
 GROUPED CONDUIT AND CIRCUIT
 IDENTIFICATION TAGS. REFER TO THE
 POWER SINGLE-LINE, SCHEMATIC
 CONNECTION DIAGRAMS AND CIRCUIT
 SCHEDULE FOR CONDUIT SIZES AND
 CONTENTS.
 P=POWER
 C=CONTROL

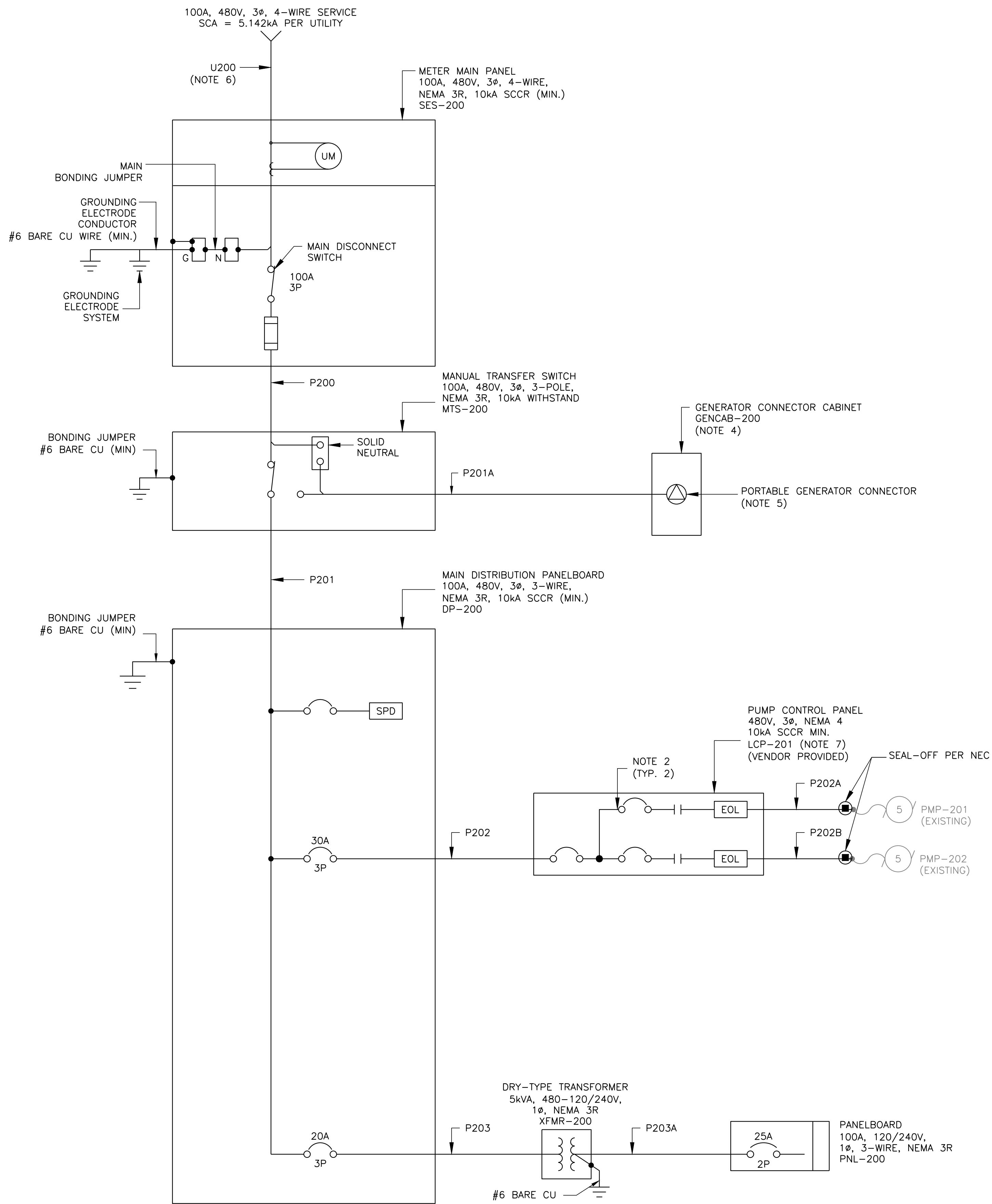
- THE COMPLETED INSTALLATION SHALL COMPLY WITH LATEST REVISION OF APPLICABLE FEDERAL, STATE, AND LOCAL CODES, ORDINANCES, AND REGULATIONS. THE CONTRACTOR SHALL OBTAIN NECESSARY PERMITS AND INSPECTIONS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION. ALL WORK SHALL BE COMPLETED IN A NEAT, WORKMANLIKE MANNER IN ACCORDANCE WITH THE LATEST NECA STANDARDS OF INSTALLATION UNDER COMPETENT SUPERVISION. INSTALL GROUNDING PER NEC.
- VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS AND OTHER FACTORS, WHICH MAY AFFECT THE EXECUTION OF THE WORK. INCLUDE ALL RELATED COSTS IN THE INITIAL BID PROPOSAL.
- THE CONTRACTOR SHALL COORDINATE WORK WITH THE UTILITIES PROVIDING SERVICES ON THIS PROJECT, AND SHALL COMPLY WITH ALL THEIR INSTALLATION REQUIREMENTS.
- ALL MATERIALS SHALL BE NEW AND OF THE BEST QUALITY, MANUFACTURED IN ACCORDANCE WITH THE LATEST REVISION OF NEMA, ANSI, UL, OR OTHER APPLICABLE STANDARDS. THE USE OF MANUFACTURERS' NAMES, MODELS, AND NUMBERS IS INTENDED TO ESTABLISH STYLE, QUALITY, APPEARANCE, USEFULNESS, AND BID PRICE.
- PROTECT ALL ELECTRICAL MATERIAL AND EQUIPMENT INSTALLED AGAINST DAMAGE BY OTHER TRADES, WEATHER CONDITIONS, OR ANY OTHER PREVENTABLE CAUSES. EQUIPMENT DAMAGED DURING SHIPPING OR CONSTRUCTION, PRIOR TO ACCEPTANCE BY THE ENGINEER OR THE OWNER, WILL BE REJECTED AS DEFECTIVE.
- LEAVE THE SITE CLEAN. REMOVE ALL DEBRIS, EMPTY CARTONS, TOOLS, CONDUIT, WIRE SCRAPS AND ALL MISCELLANEOUS SPARE EQUIPMENT AND MATERIALS USED IN THE WORK DURING CONSTRUCTION. ALL COMPONENTS SHALL BE FREE OF DUST, GRIT AND FOREIGN MATERIALS, LEFT AS NEW BEFORE FINAL ACCEPTANCE OF WORK. DAMAGED PAINT AND FINISHES SHALL BE TOUCHED UP OR REPAINTED WITH MATCHING COLOR PAINT AND FINISH.
- CIRCUIT CONDUCTORS #6 AWG OR SMALLER SHALL BE THWN STRANDED COPPER. #4 AWG THROUGH #2 AWG SHALL BE XHHW STRANDED COPPER. #1 AWG OR LARGER SHALL BE XHHW-2 STRANDED COPPER. MINIMUM POWER CONDUCTOR SIZE SHALL BE #12 AWG WITH #12 AWG GROUND.
- UNDERGROUND CONDUITS SHALL BE SCHEDULE 40 PVC. MINIMUM CONDUIT DEPTH SHALL BE 24 INCHES. MINIMUM UNDERGROUND CONDUIT SIZE SHALL BE 1 INCH.
- CONDUITS SHALL BE MARKED AT EACH END WITH MATCHING NUMBERED BRASS TAGS. SPARE CONDUITS SHALL HAVE A PULL STRING INSTALLED, SECURED, AND CAPPED.
- EXPOSED CONDUITS SHALL BE PVC COATED GALVANIZED RIGID STEEL (GRS). MINIMUM SIZE 3/4 INCH, UNLESS OTHERWISE NOTED ON THE PLANS.
- SAFETY SWITCHES, ELECTRICAL DISTRIBUTION EQUIPMENT, CONTROL PANELS, AND OTHER ELECTRICAL DEVICES SHALL BE UL LISTED, AND RATED FOR HEAVY DUTY SERVICE.
- WIRING DEVICES SHALL BE SPECIFICATION GRADE.
- THE CONTRACTOR IS RESPONSIBLE FOR MANAGING, SCHEDULING, DOCUMENTING, AND PERFORMING THE WORK SO THAT A COMPLETE ELECTRICAL, INSTRUMENTATION AND CONTROL SYSTEM FOR THE FACILITY IS PROVIDED. ACCURATE SHOP AND RECORD DRAWINGS, AND O&M MANUALS SHALL BE SUBMITTED PRIOR TO FINAL ACCEPTANCE OF THE WORK.
- TYPICAL DETAILS SHALL APPLY IN ALL CASES, WHETHER SPECIFICALLY REFERRED TO OR NOT.

NAVAJO TRIBAL UTILITY AUTHORITY
LECHEE LIFT STATION DESIGN ADDITION

ELECTRICAL NOTES, SYMBOLS, AND LEGEND



Drawn by:	ML
Design by:	CAR
Approved by:	BDD
Date:	09/18/25
Project No.:	2499
Sheet No.:	E-01



A SINGLE LINE DIAGRAM

CIRCUIT/DESCRIPTION	KVA	HP	FLA
MOTOR LOADS			
LIFT PUMP NO. 1 PMP-201 (EXISTING)		5.0	7.6
LIFT PUMP NO. 2 PMP-202 (EXISTING)		5.0	7.6
NON-MOTOR LOADS			
TRANSFORMER XFMR-200	5.0		10.4
SUBTOTAL			25.6
+ 25% OF LARGEST MOTOR			1.9
TOTAL AMPS @ 480V/3PHASE			27.5
SERVICE SIZE (AMPS)			100.0

B LOAD CALCULATIONS

CALLOUT NO.	NO. SETS	CONDUIT SIZE	CIRCUIT CONDUCTORS	CIRCUIT NO.'s
U200	1	2"	3 - #1, #1 NEUT, #8 GND	SES200-P1
P200	1	1 1/2"	3 - #1, #1 NEUT, #8 GND	MTS200-P1
P201	1	1 1/2"	3 - #1, #8 GND	DP200-P1
P201A	1	1 1/2"	3 - #1, #1 NEUT, #8 GND	GENCAB200-P1
P202	1	1"	3 - #10, #10 GND	LCP201-P1
P202A	1	1"	3 - #12, #12 GND	PMP201-P1
P202B	1	1"	3 - #12, #12 GND	PMP202-P1
P203	1	1"	2 - #12, #12 GND	XFMR200-P1
P203A	1	1"	2 - #6, #10 GND	PNL200-P1

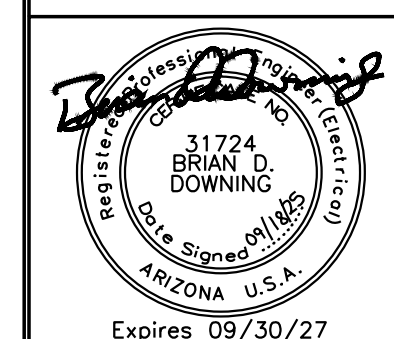
C CALLOUT SCHEDULE

NOTES:

- ALL SHORT CIRCUIT INTERRUPTING AND PROTECTING DEVICES SHALL HAVE A SHORT CIRCUIT INTERRUPTING RATING EQUAL TO OR GREATER THAN THE AVAILABLE SHORT CIRCUIT ON THE BUS
- UNSIZE OVERCURRENT PROTECTIVE DEVICES SHALL BE SIZED PER ASSOCIATED EQUIPMENT MANUFACTURER'S RECOMMENDATIONS
- ALL OVERCURRENT PROTECTIVE DEVICES SHALL BE PROPERLY COORDINATED SO AS ENSURE LOCALIZATION OF OVERCURRENT CONDITIONS TO THE CIRCUIT OR EQUIPMENT AFFECTED
- THE GENERATOR CONNECTION CABINET SHALL BE NEMA 3R RATED. IT SHALL CONTAIN A SIGN INDICATING THE FOLLOWING: 1) DO NOT INSTALL BONDING JUMPER AT THE PORTABLE GENERATOR AS SOLID NEUTRAL CONNECTION IS INSTALLED IN THE MTS. 2) ENSURE GENERATOR MAIN BREAKER RATING/SETTING DOES NOT EXCEED 100A.
- PORTABLE GENERATOR CONNECTOR SHALL BE COMPATIBLE WITH THE SELECTED STANDBY DIESEL GENERATOR (REFER TO THE GENERATOR SPECIFICATION).
- CONTRACTOR SHALL FURNISH AND INSTALL MATERIAL AS DEFINED IN NTUA OVERHEAD CONSTRUCTION STANDARDS. THIS INCLUDES, BUT IS NOT LIMITED TO, FURNISHING AND INSTALLING RISER POLE FITTINGS AND HARDWARE, AND RISER POLE GROUNDING. CONTRACTOR SHALL SUBMIT ALL MATERIAL TO NTUA FOR APPROVAL PRIOR TO PURCHASE OR INSTALLATION.
- THE CONTROL PANEL SHALL BE MANUFACTURED IN ACCORDANCE WITH NTUA STANDARDS.

NAVAJO TRIBAL UTILITY AUTHORITY
LECHEE LIFT STATION DESIGN ADDITION

SINGLE LINE DIAGRAM



Drawn by: ML
 Design by: CAR
 Approved by: BDD
 Date: 09/18/25
 Project No.: 2499
 Sheet No.: E-02

PANEL TAG No. PNL-200		NEMA TYPE/MOUNTING 3R/SURFACE	
LOCATION ELECTRICAL EQUIPMENT PAD		MAIN DEVICE 25A MCB	
BUS AMPACITY 100A		AIC RATING 10kA (MIN)	
VOLTS, PHASE, WIRE 240 /120V/1-PHASE/3-WIRE		FED FROM DP-200 VIA XFMR-200	
REMARKS		ACCESSORIES	


LOAD VA		LOAD DESCRIPTION	WIRE SIZE	DEMAND	BKR	BKR. NO.	BKR	DEMAND	WIRE SIZE	LOAD DESCRIPTION	LOAD VA	
PHASE A	PHASE B										PHASE A	PHASE B
200		SITE LTG	#12	1.25	20/1	1 2	20/1	1.25	#12	RTU-200	200	
	300	COMPRESSOR/MIXER RECEPTACLE	#12	1.25	20/1	3 4	20/1	1.00	#12	RECEPTACLE		180
800		BACK FLOW BOX RECEPTACLE	#12	1.25	20/1	5 6	20/1	1.25	#12	HYDRANT	180	
0	0	SPARE			20/1	7 8	20/1			SPARE	0	0
		SPARE			20/1	9 10				SPACE	0	0
		SPARE			20/1	11 12				SPACE	0	0
0	0	SPACE				13 14				SPACE	0	0
		SPACE				15 16				SPACE	0	0
0	0	SPACE				17 18				SPACE	0	0
1000	300	CONNECTED VA								CONNECTED VA	380	180
1250	375	DEMAND VA								DEMAND VA	475	180

* - Each branch circuit shall have an equipment grounding conductor sized per N.E.C. Article 250	TOTAL PANEL CONNECTED LOAD	VA	AMPS	TOTAL CONNECTED VA - PER PHASE	1380	480
	TOTAL PANEL DEMAND LOAD	1860	7.75	TOTAL DEMAND VA - PER PHASE	1725	555
	PANEL DEMAND FACTOR	2280	9.50	TOTAL DEMAND PHASE AMPS	14.4	4.6
		123%				

A
PNL-200 PANEL SCHEDULE

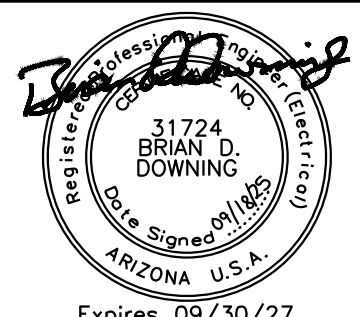
SHEET NO.	CIRCUIT	CONDUCTORS
E-05	ANT200-C1	1 - ANTENNA CABLE
E-05	LCP201-C1	32 - #14, #14 GND
E-05	LIT201-C2	1 - IC, #14 GND
E-05	TSH202-C1	2 - #14, #14 GND
E-05	YS202-C1	2 - #14, #14 GND
E-05	TSH201-C1	2 - #14, #14 GND
E-05	YS201-C1	2 - #14, #14 GND
E-05	LSSL201-C1	2 - #14, #14 GND
E-05	LSL201-C1	2 - #14, #14 GND
E-05	LSH201-C1	2 - #14, #14 GND
E-05	LSHH201-C1	2 - #14, #14 GND
E-05	LIT201-C1	1 - IC, #14 GND

B
CIRCUIT SCHEDULE

LIGHTING FIXTURE SCHEDULE					
SYMBOL	DESCRIPTION	MOUNTING	MANUFACTURER	LAMPS	REMARKS
	120V, 4", ENCLOSED AND GASKETED LED FIXTURE.	SURFACE OR SUSPENDED	COLUMBIA LIGHTING LXEM SERIES OR EQUAL	3.5K LUMEN OUTPUT (MIN.), 4000K COLOR TEMP.	50' C RATED, DAMP LOCATIONS, UL LISTED

C
FIXTURE SCHEDULE

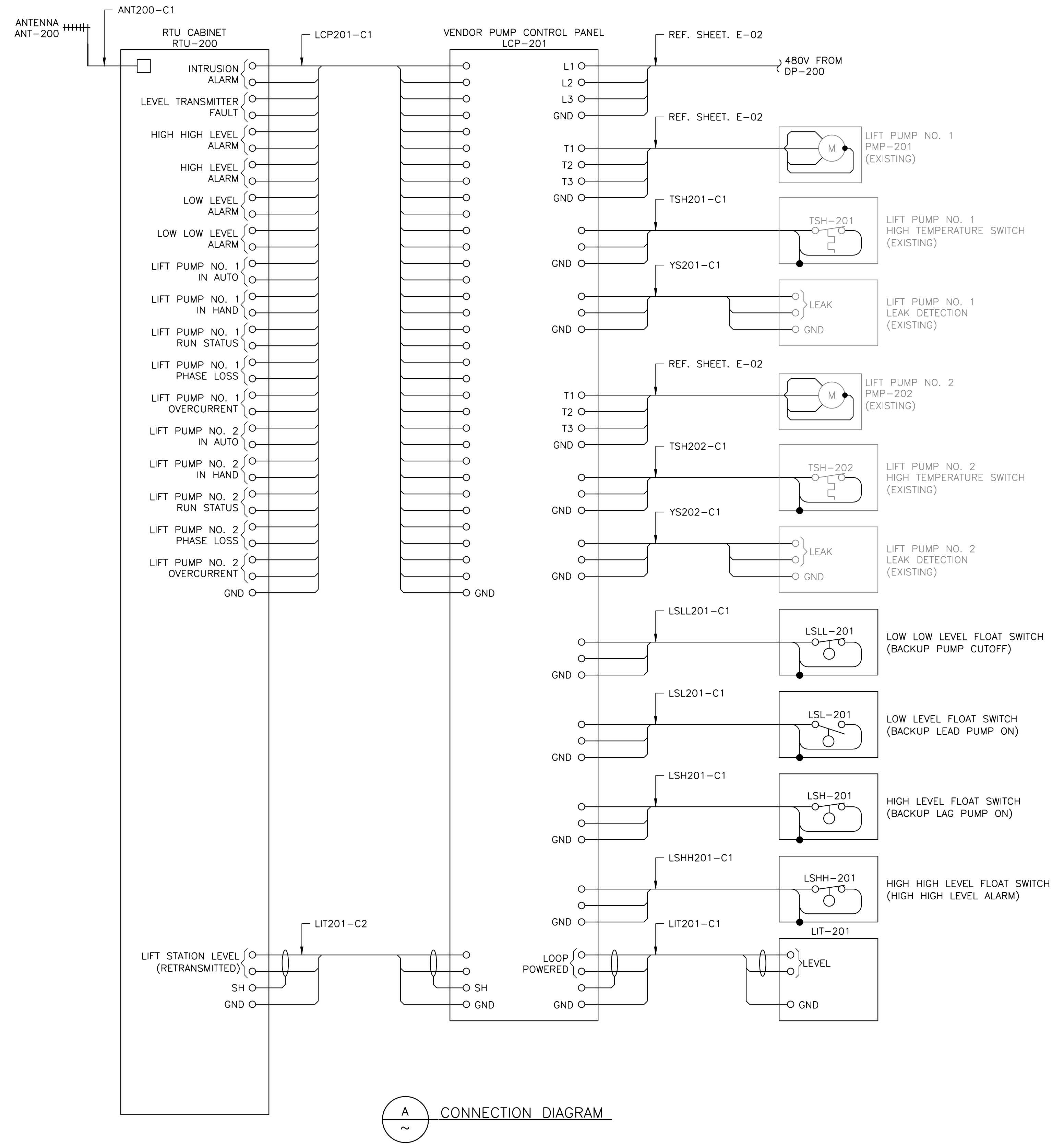
NAVAJO TRIBAL UTILITY AUTHORITY
LECHEE LIFT STATION DESIGN ADDITION
ELECTRICAL SCHEDULES



Drawn by: ML
Design by: GAR
Approved by: BDD
Date: 09/18/25
Project No.: 2499
Sheet No.: E-03

NOTES:

1. REFERENCE E-03 FOR CIRCUIT SCHEDULE.



NAVAJO TRIBAL UTILITY AUTHORITY
LECHEE LIFT STATION DESIGN ADDITION
SCHEMATIC/CONNECTION DIAGRAMS

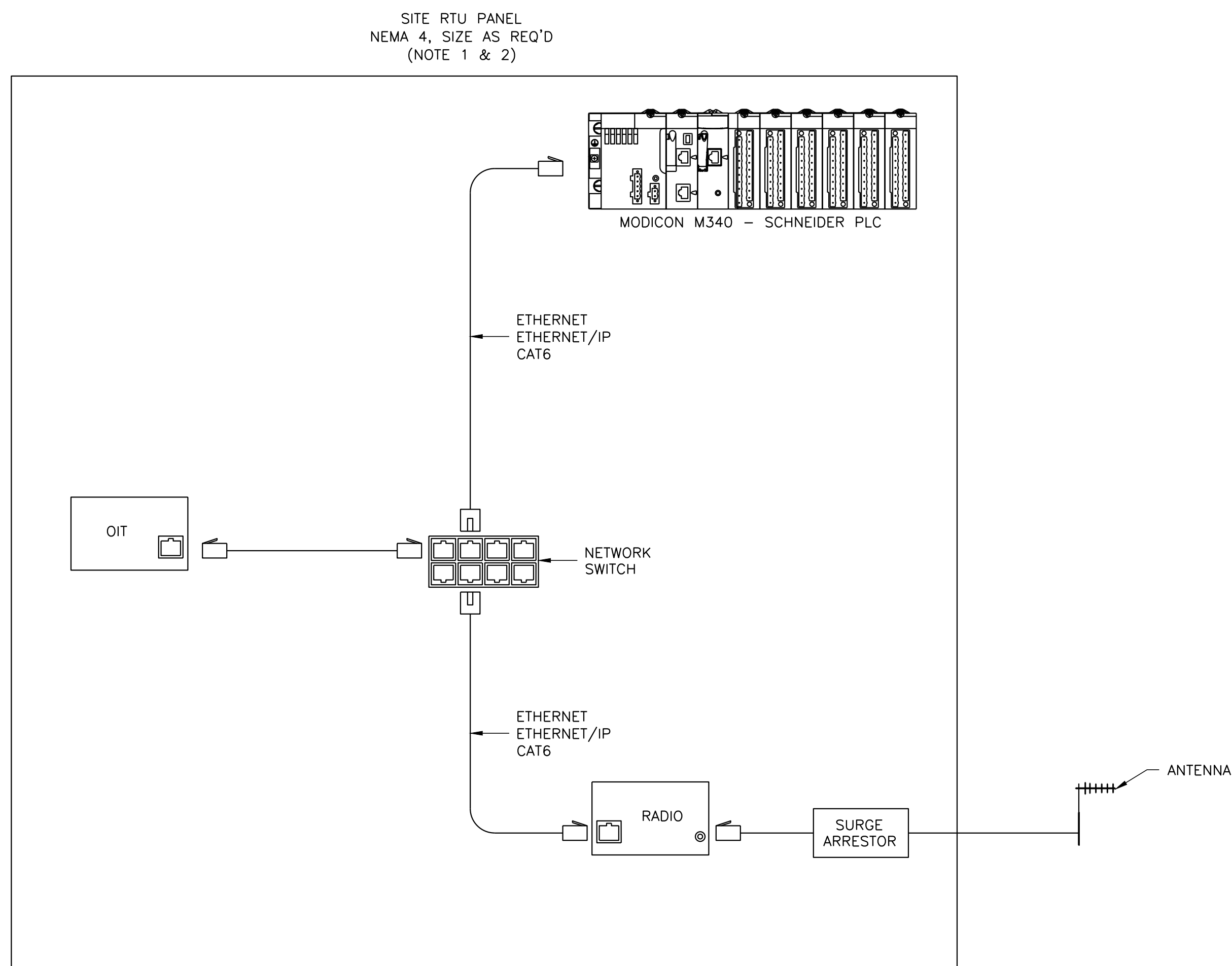
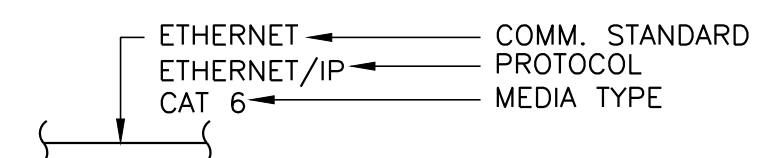


Drawn by:	ML
Design by:	CAR
Approved by:	BDD
Date:	09/18/25
Project No.:	2499
Sheet No.:	E-05

NOTES:

1. CONTRACTOR SHALL DEVELOP DESIGN/SHOP DRAWINGS FOR RTU PANEL. CONTRACTOR SHALL UTILIZE NTUA RTU STANDARD AND FORMAT. PLC AND SCADA PROGRAMMING SHALL BE BY OWNER UNLESS OTHERWISE SPECIFIED.
2. PANEL SHALL CONTAIN A UPS SIZED PER NTUA RTU PANEL STANDARDS.

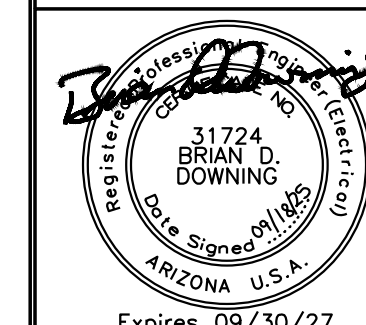
LEGEND:



A SYSTEM COMMUNICATION DIAGRAM
~ NETWORK

NAVAJO TRIBAL UTILITY AUTHORITY
LECHEE LIFT STATION DESIGN ADDITION

RTU COMMUNICATIONS DIAGRAM



Drawn by: ML

Design by: GAR

Approved by: BDD

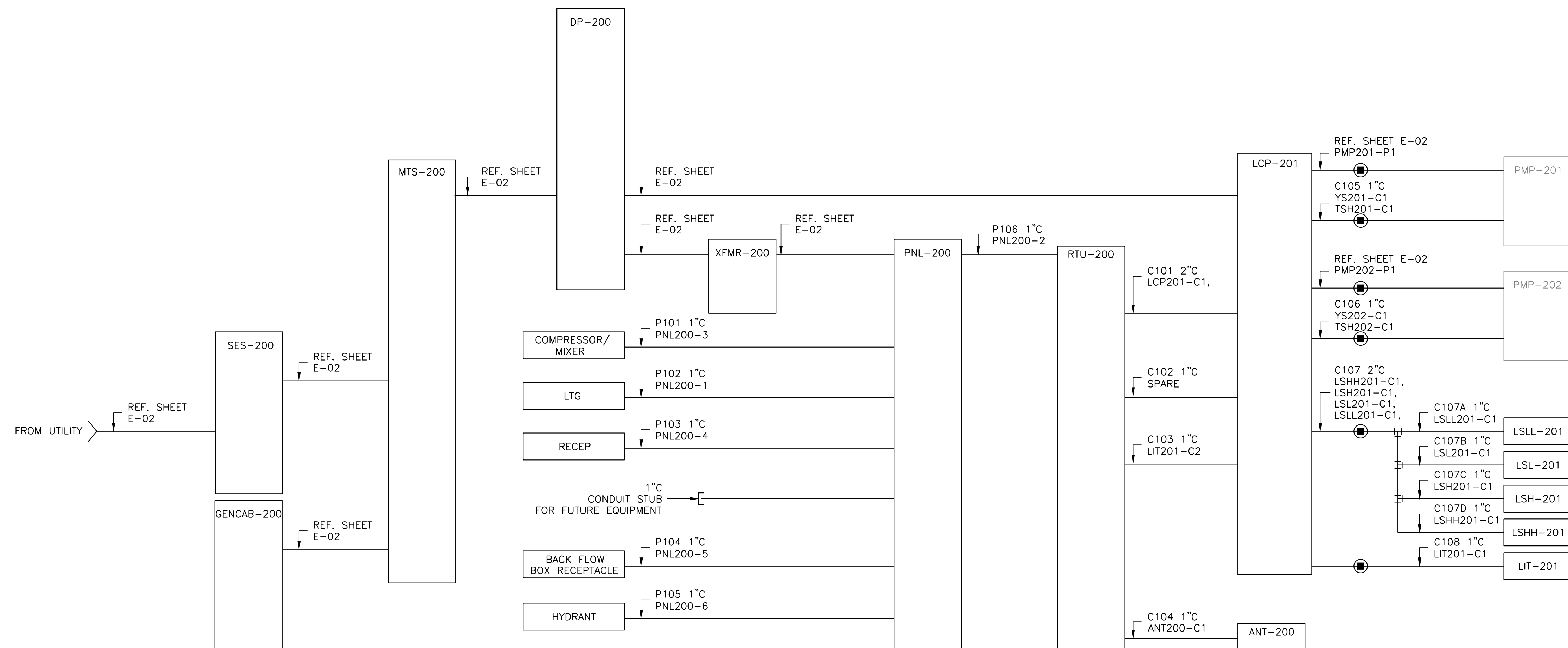
Date
09/18/25

Project No.
2499

Sheet No.
E-06

NOTES:

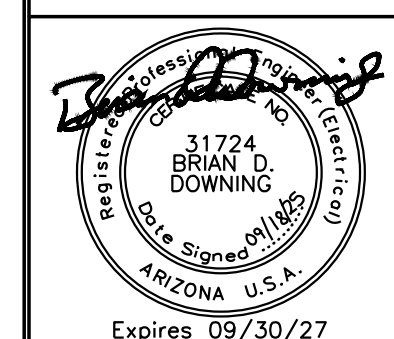
1. REFERENCE E-03 FOR CIRCUIT SCHEDULE.



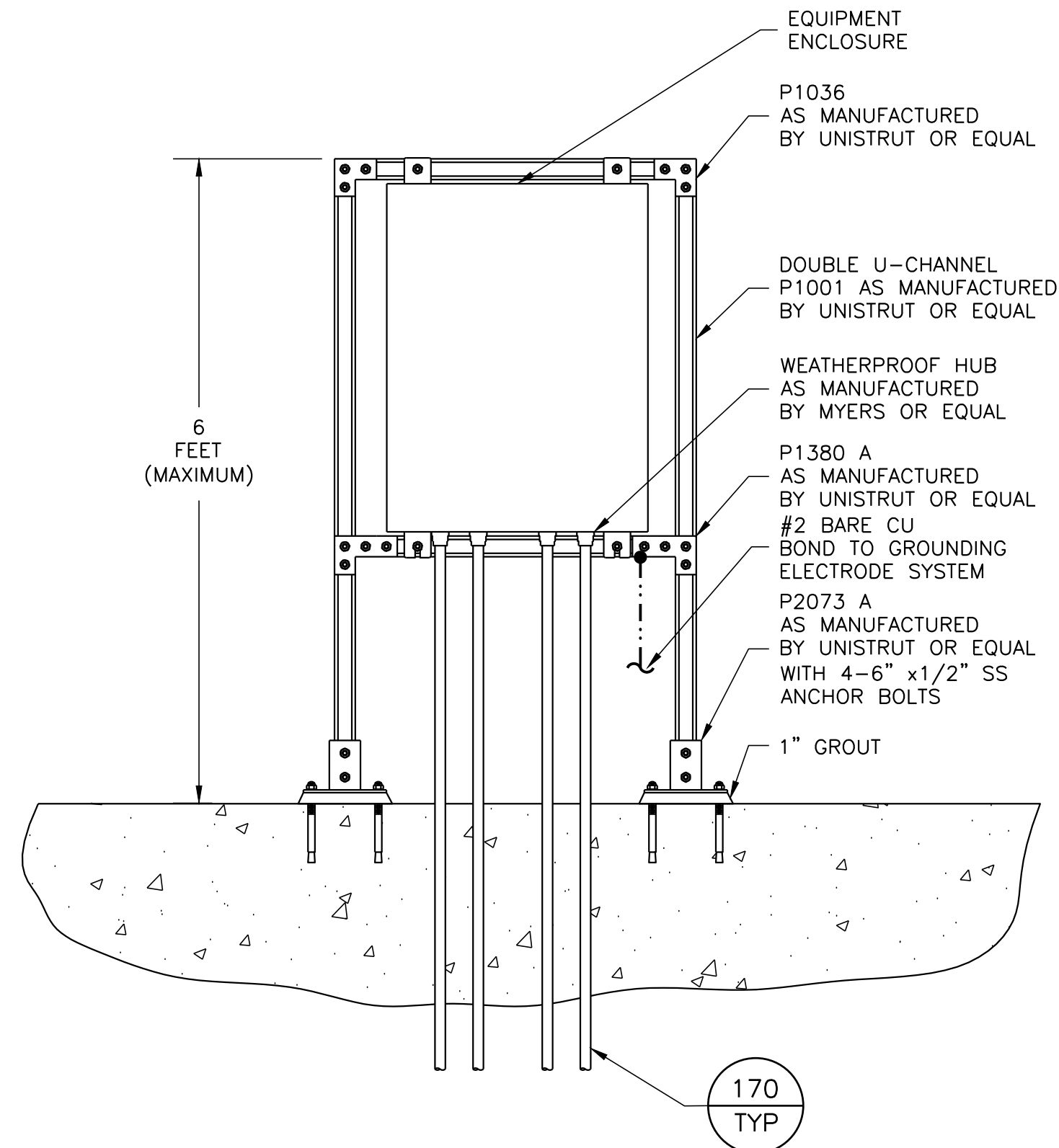
A CONDUIT BLOCK DIAGRAM

**NAVAJO TRIBAL UTILITY AUTHORITY
LECHEE LIFT STATION DESIGN ADDITION
CONDUIT BLOCK DIAGRAM**

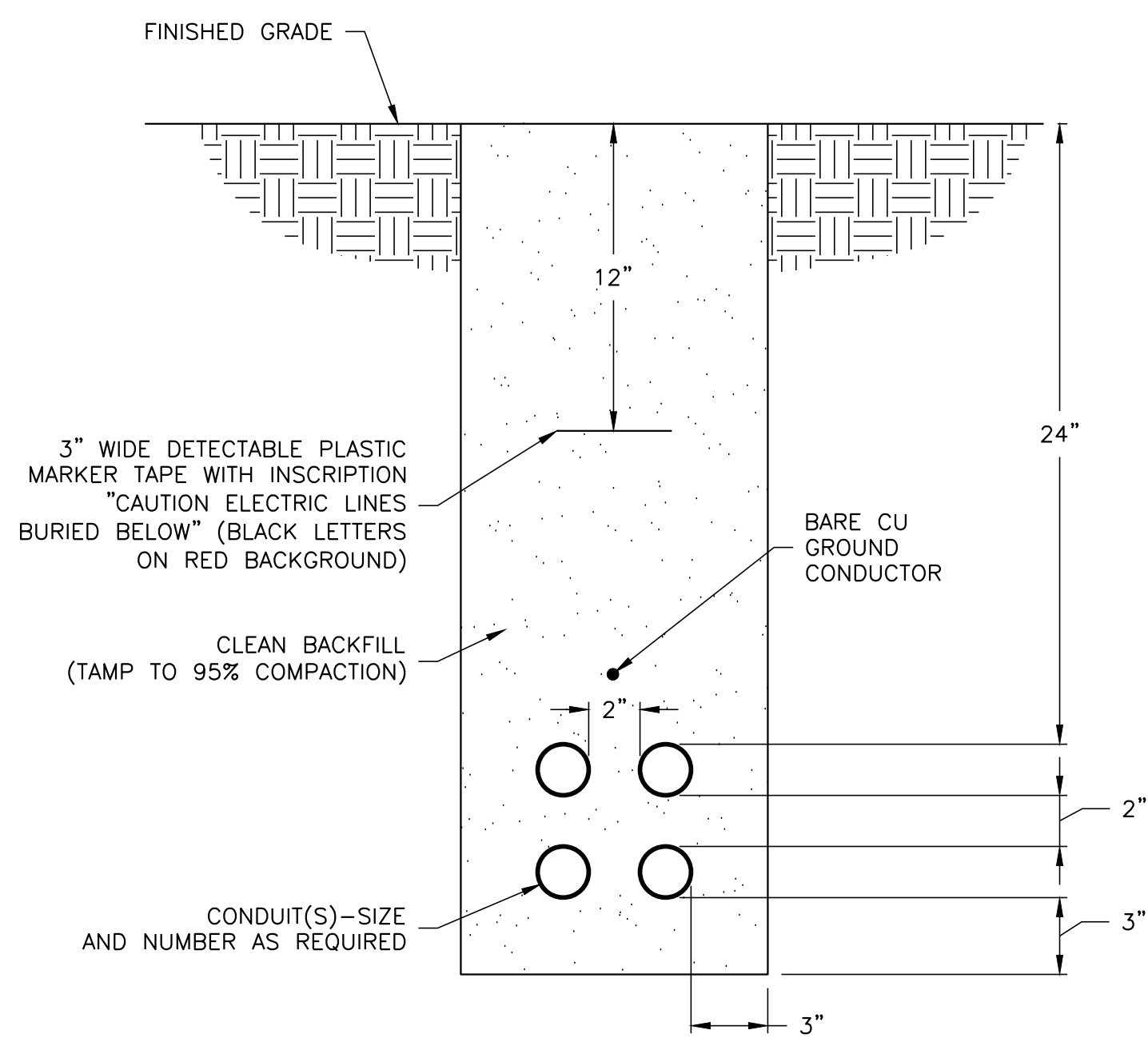
No.	Revision	Note	Date	Drawn	Check



Drawn by: ML
 Design by: CAR
 Approved by: BDD
 Date: 09/18/25
 Project No.: 2499
 Sheet No.: E-07

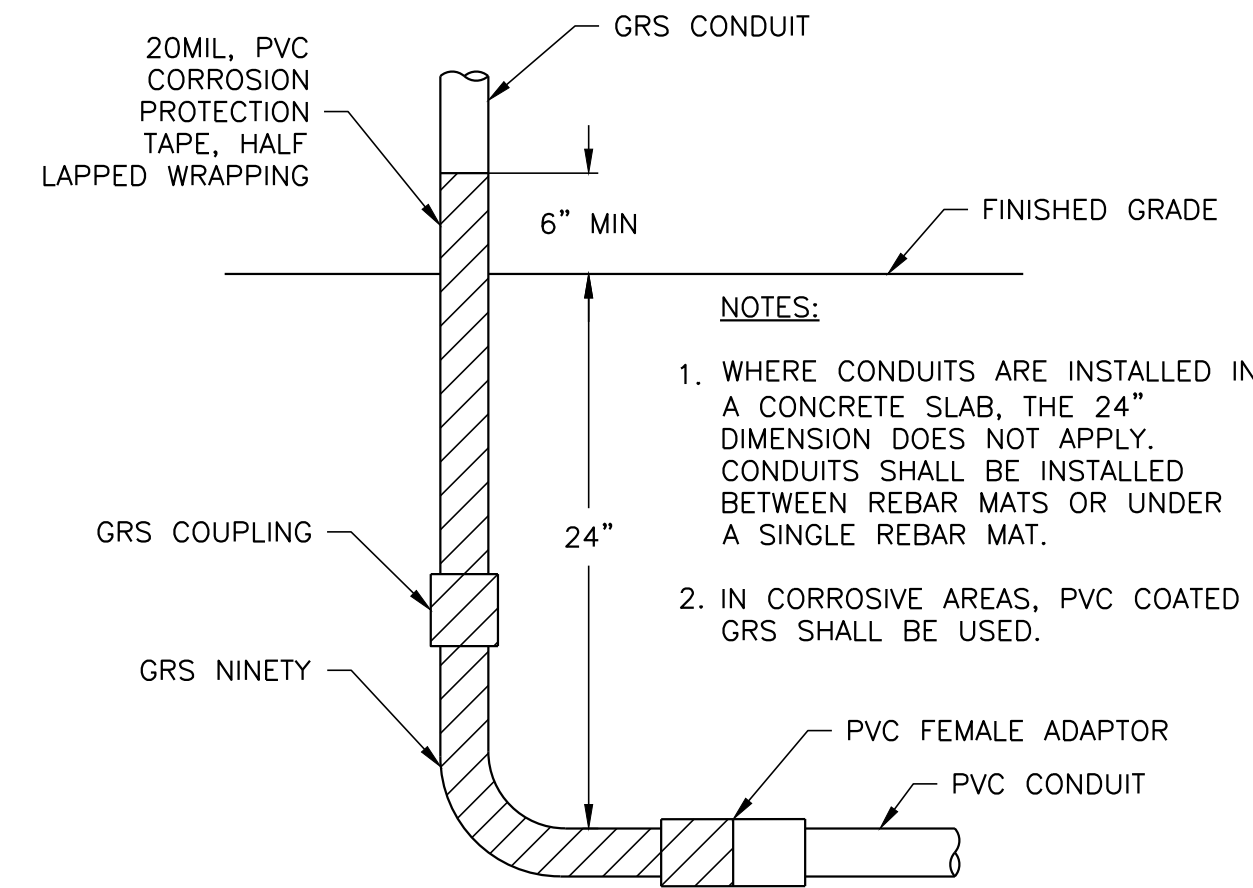


207 EQUIPMENT RACK DETAIL - NON-CLASSIFIED AREAS
TYP NOT TO SCALE



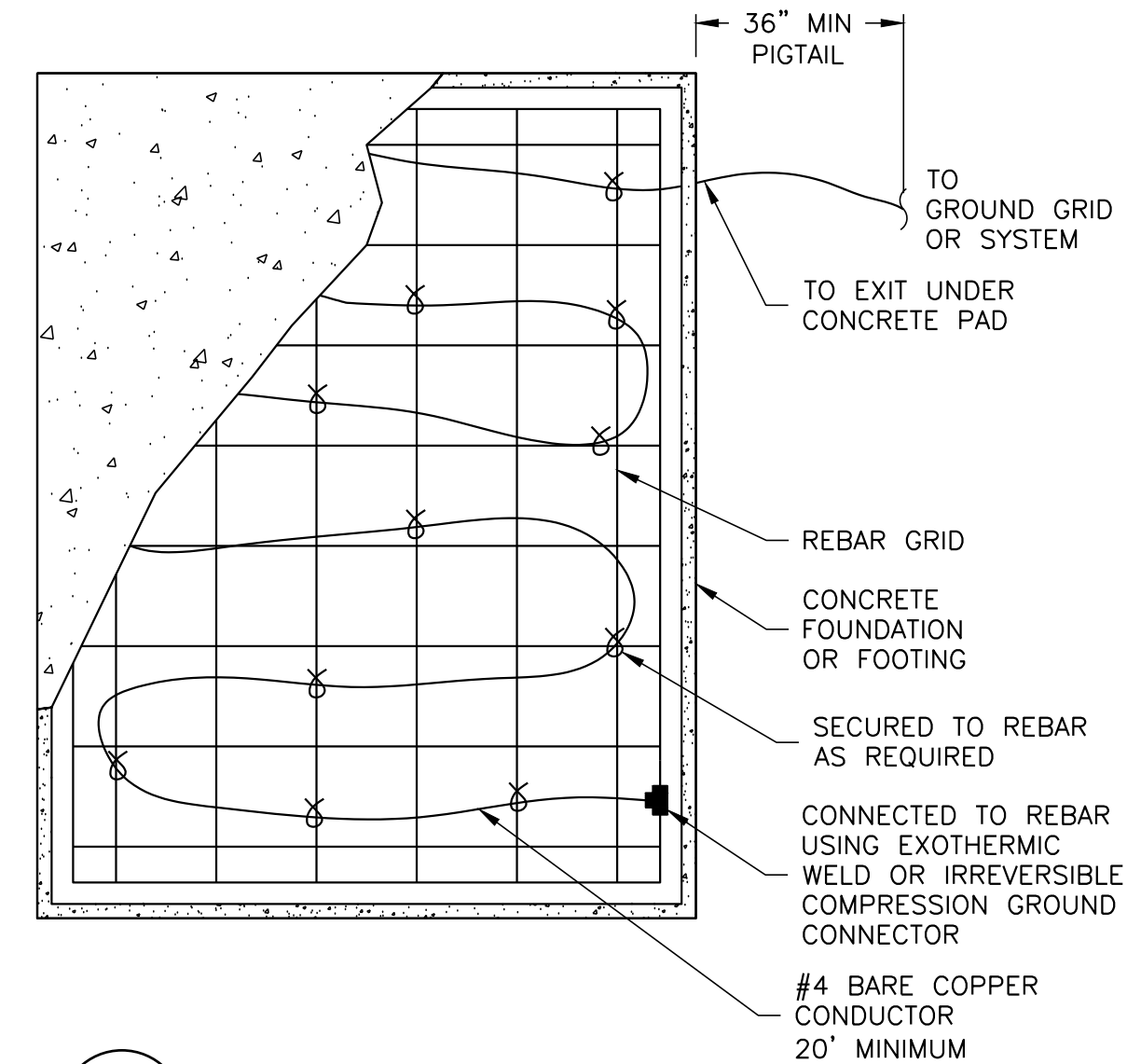
- NOTES:
- GROUND CONDUCTOR SHALL RUN CONTINUOUSLY THROUGH MANHOLES AND SHALL CONTINUE FROM DUCTBANK INTO SWITCHGEAR OR BUILDING GROUNDING SYSTEM AND SHALL BE BONDED TO EACH RIGID METAL CONDUIT. SIZE TO BE #2 (MIN.) UNLESS OTHERWISE INDICATED ON PLANS.
 - ALL DIMENSIONS ARE MINIMUM.

101 DUCTBANK - DIRECT BURIED
TYP NOT TO SCALE

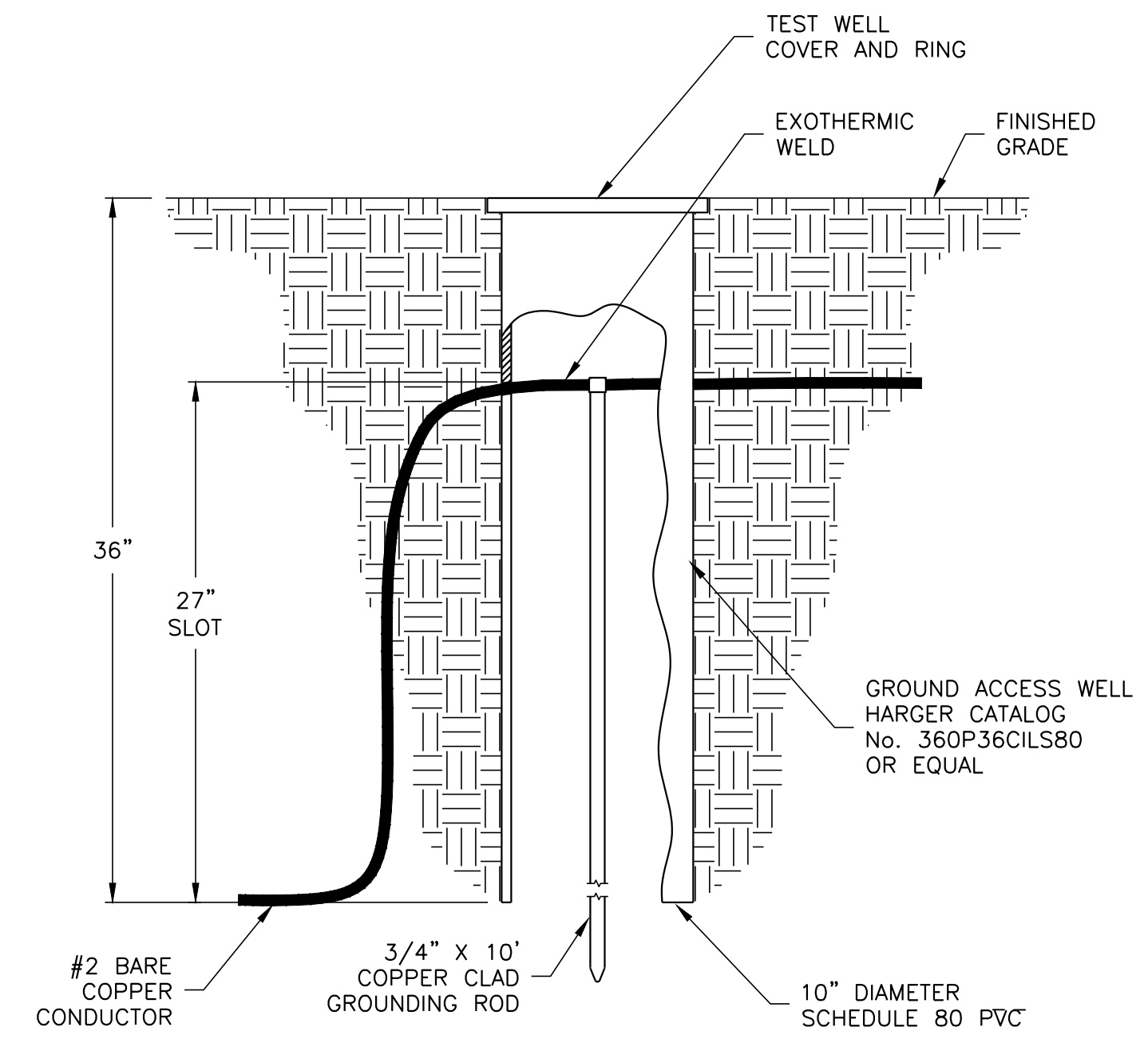


- NOTES:
- WHERE CONDUITS ARE INSTALLED IN A CONCRETE SLAB, THE 24" DIMENSION DOES NOT APPLY. CONDUITS SHALL BE INSTALLED BETWEEN REBAR MATS OR UNDER A SINGLE REBAR MAT.
 - IN CORROSIVE AREAS, PVC COATED GRS SHALL BE USED.

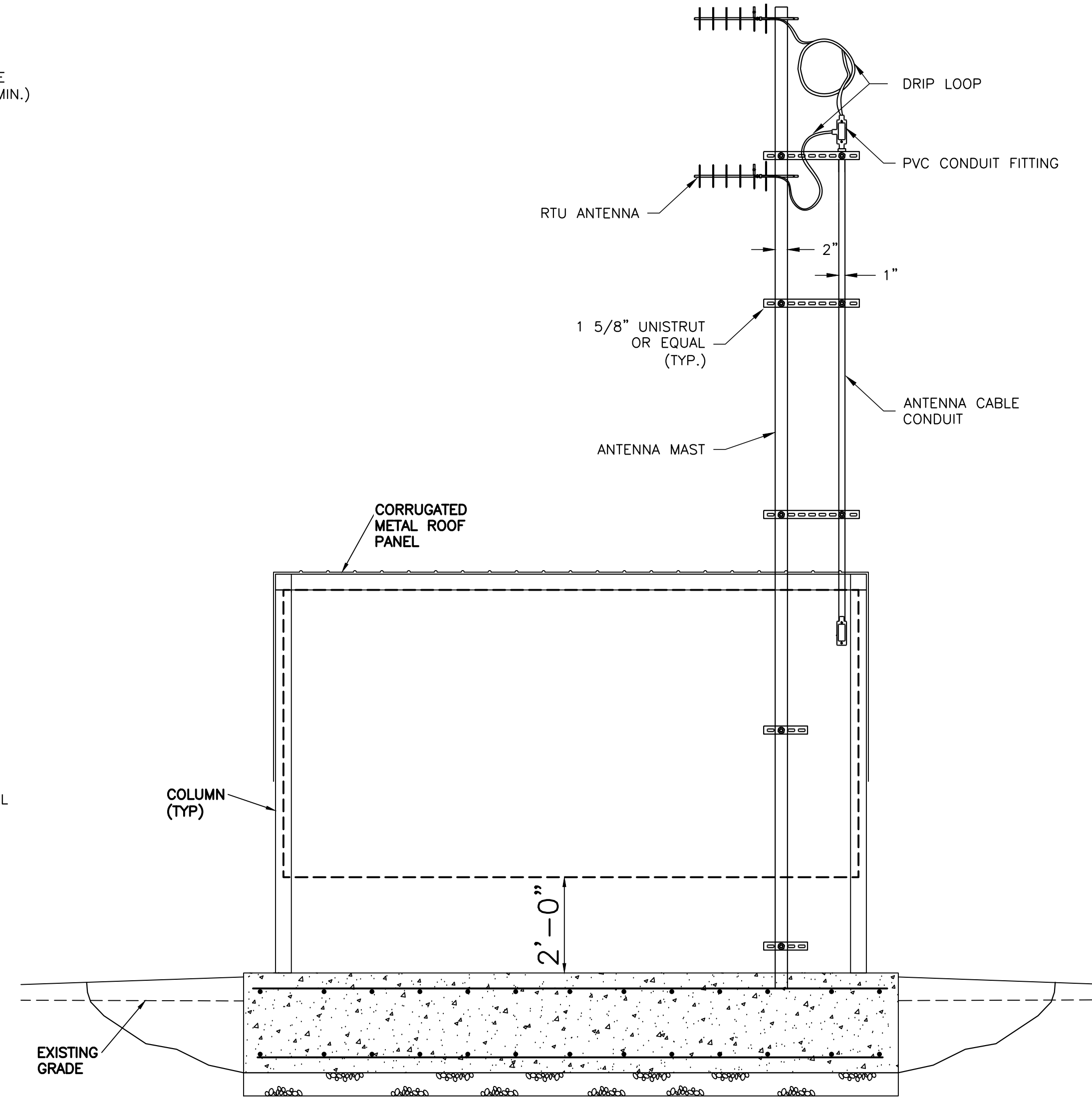
170 GRS STUB UP DETAIL
TYP NOT TO SCALE



402 "UFER" GROUNDING DETAIL
TYP NOT TO SCALE



406 GROUND ROD WITH TEST ACCESS WELL
TYP NOT TO SCALE



602 ANTENNA POLE MOUNTING
TYP NOT TO SCALE

NAVAJO TRIBAL UTILITY AUTHORITY
LECHEE LIFT STATION DESIGN ADDITION
ELECTRICAL DETAILS SHEET



Drawn by:	ML
Design by:	CAR
Approved by:	BDD
Date:	09/18/25
Project No.:	2499
Sheet No.:	E-08

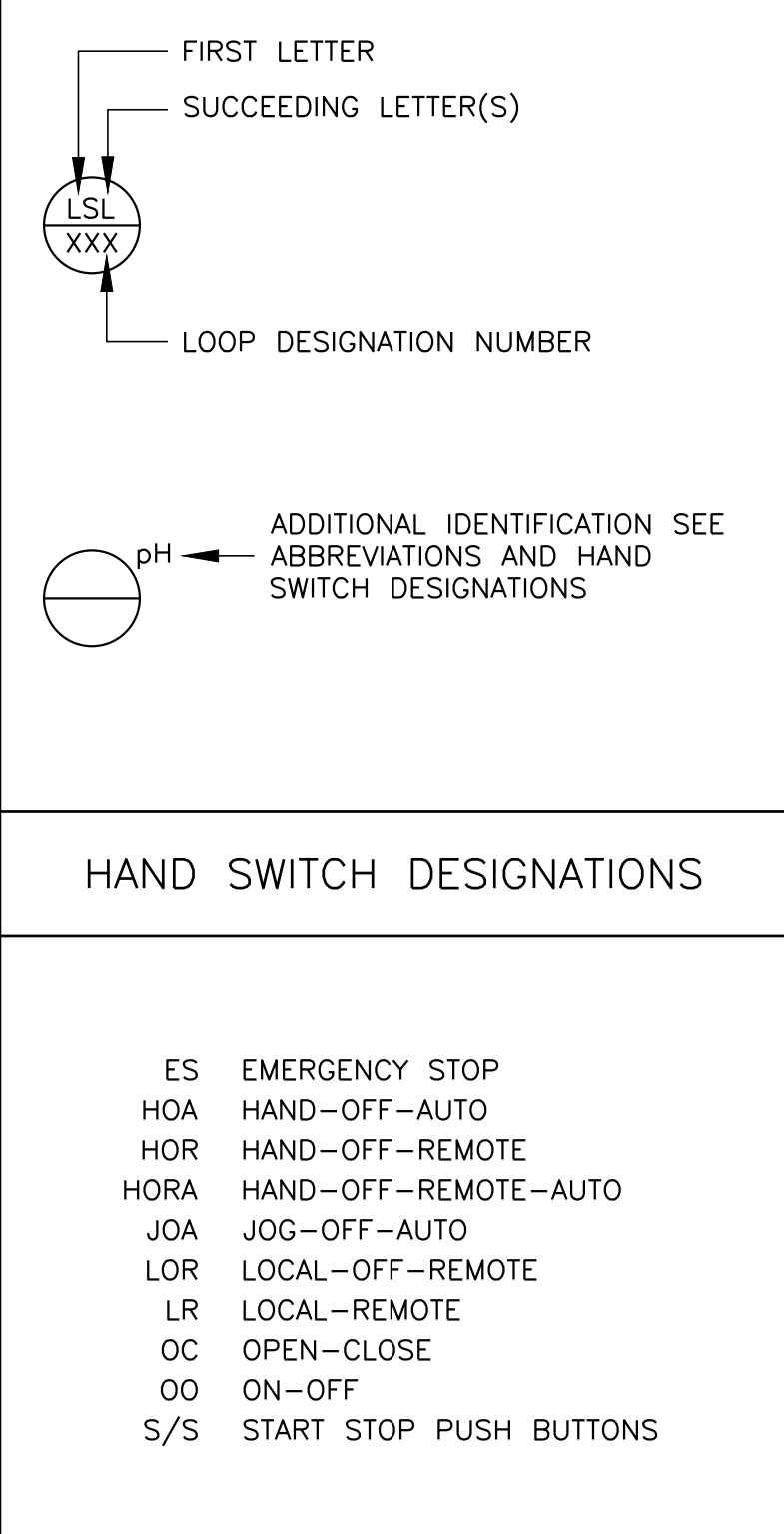
ISA INSTRUMENT IDENTIFICATION TABLE

Table with columns: FIRST LETTERS, SUCCEEDING LETTERS, MEASURED OR INITIATING VARIABLE, MODIFIER, READOUT OR PASSIVE FUNCTION, OUTPUT FUNCTION, MODIFIER. Lists ISA symbols like A (ANALYZER), B (BURNER), C (CONDUCTIVITY), etc.

P&ID ABBREVIATIONS

Table listing abbreviations for electrical symbols (A, AE, AFD), P&ID symbols (KW, LAN, LCP), and process symbols (PRES, PS, PSI).

TAG NUMBERS AND DESIGNATIONS



LINE SYMBOLS

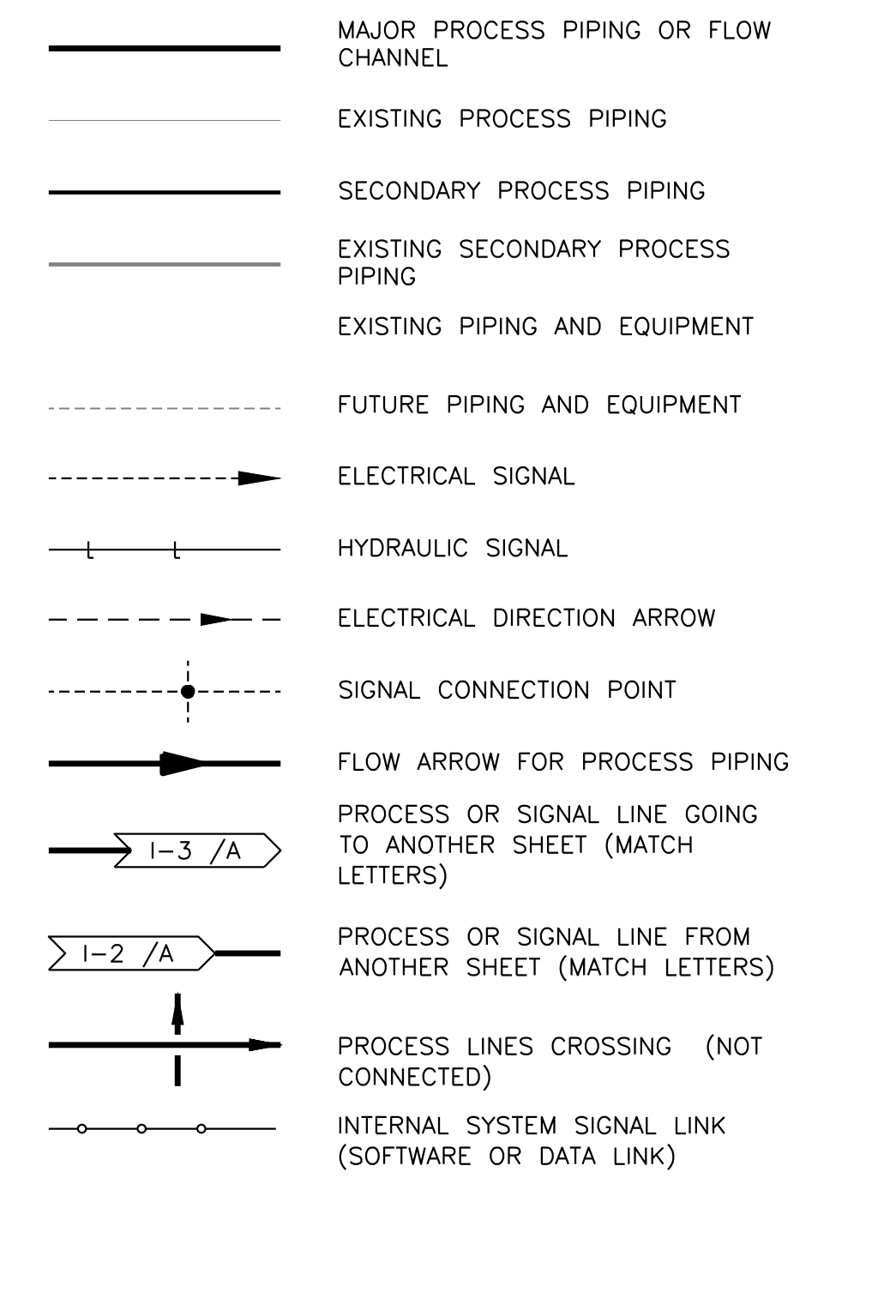
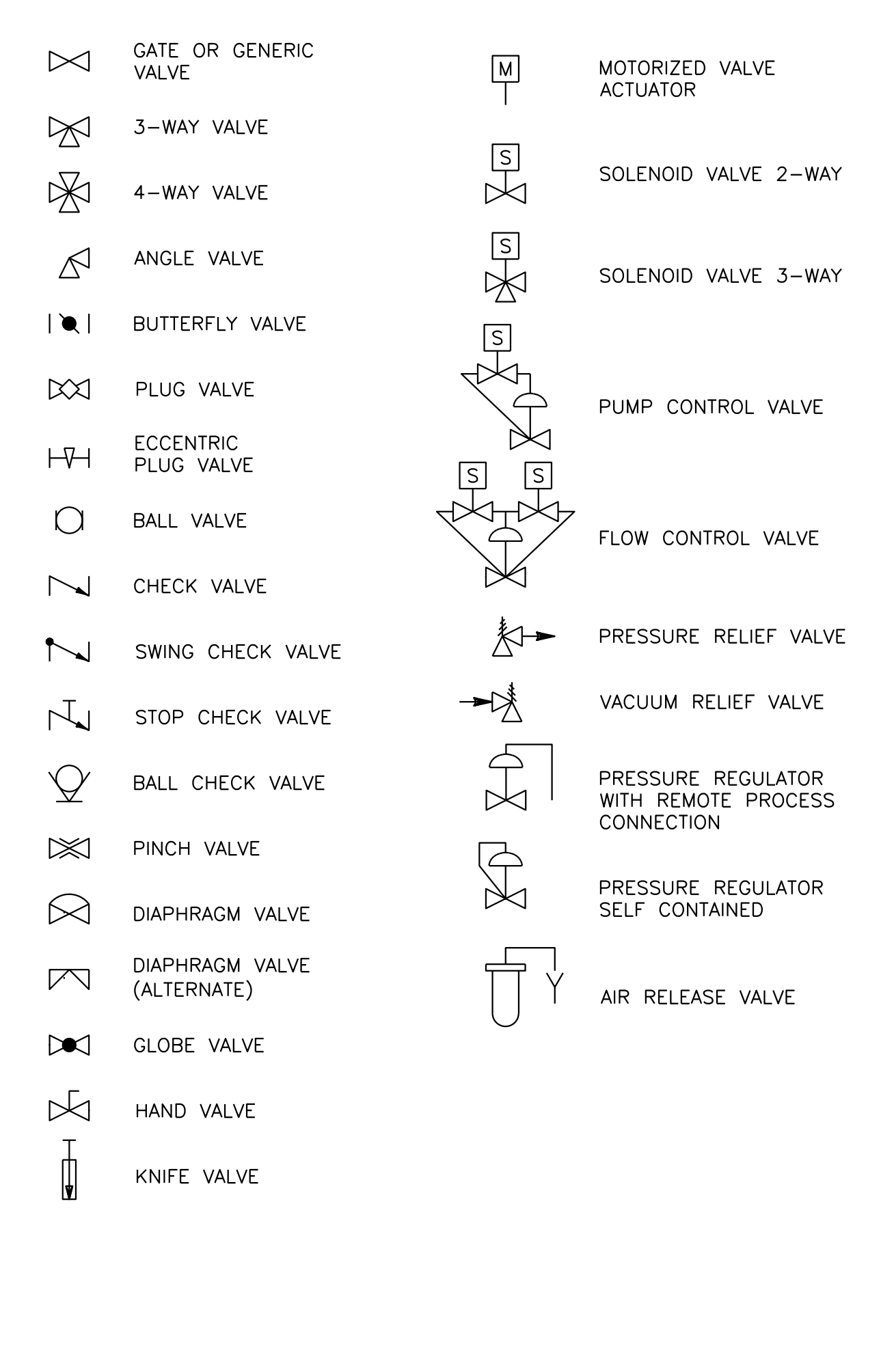


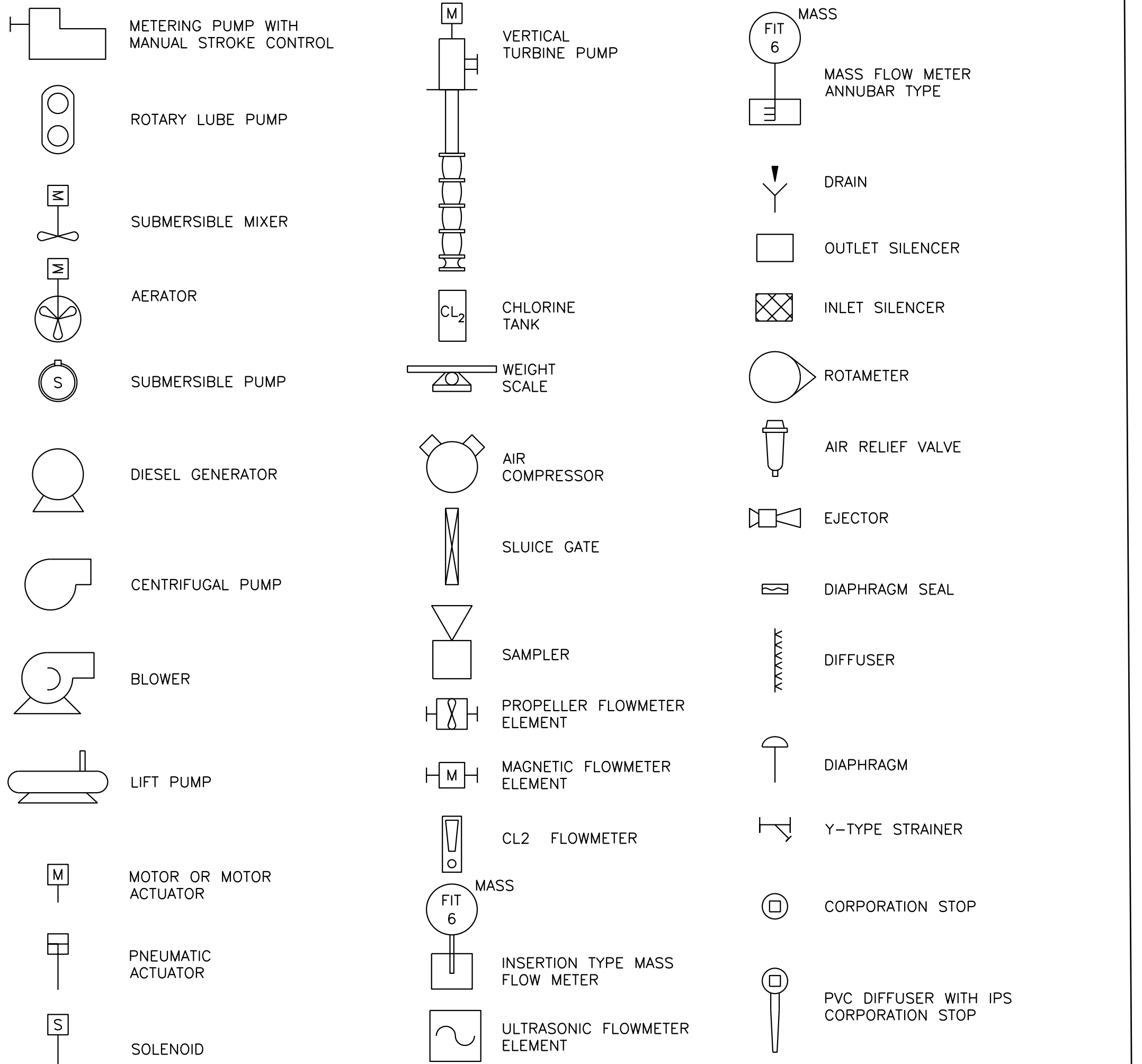
Table with columns: Check, Drawn, Date, Revision, Note. A grid for tracking document changes.

NAVAJO TRIBAL UTILITY AUTHORITY
LECHEE LIFT STATION DESIGN ADDITION
PROCESS AND INSTRUMENTATION DIAGRAM
SYMBOLS AND LEGEND

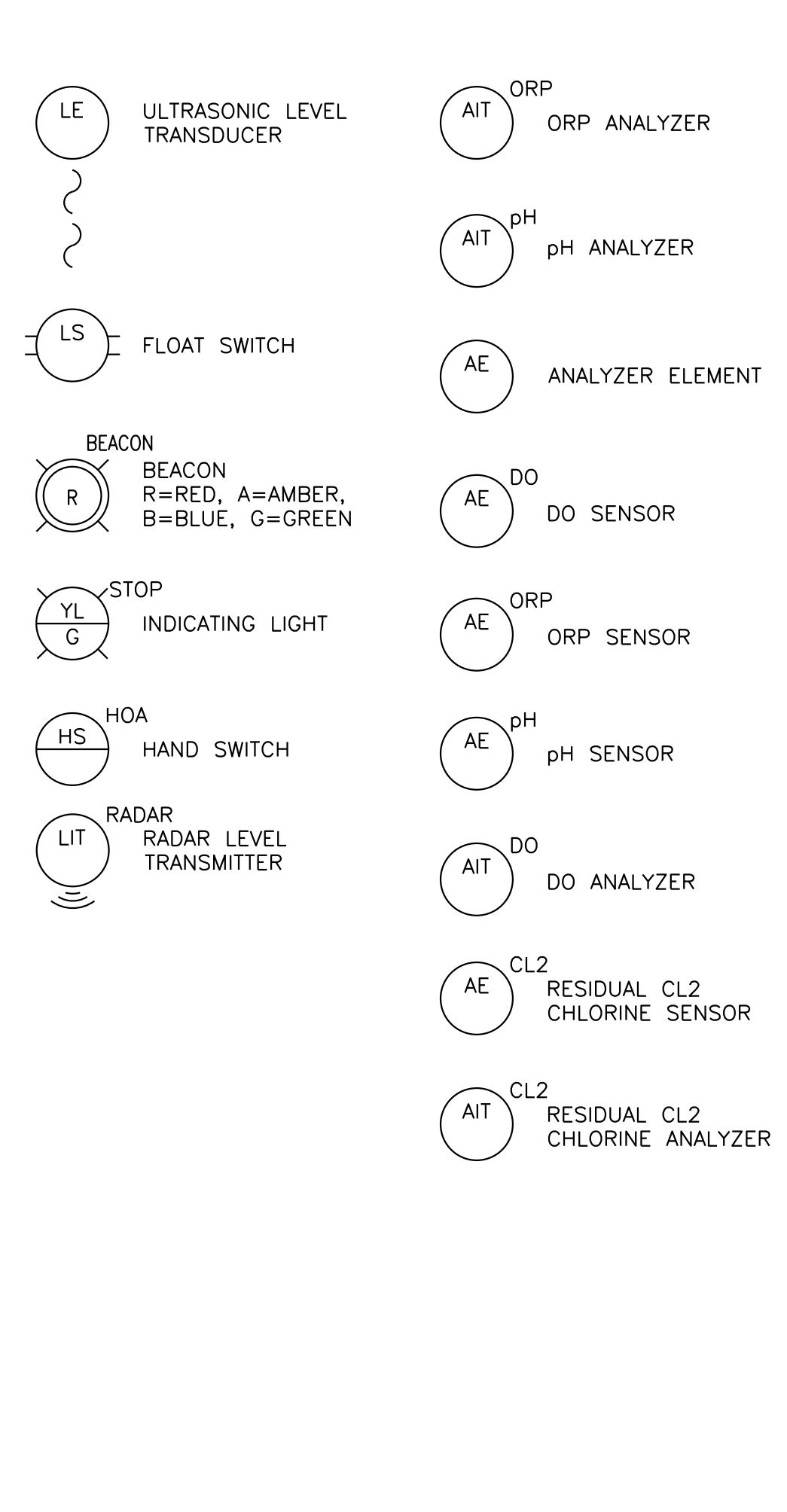
P&ID VALVE SYMBOLS



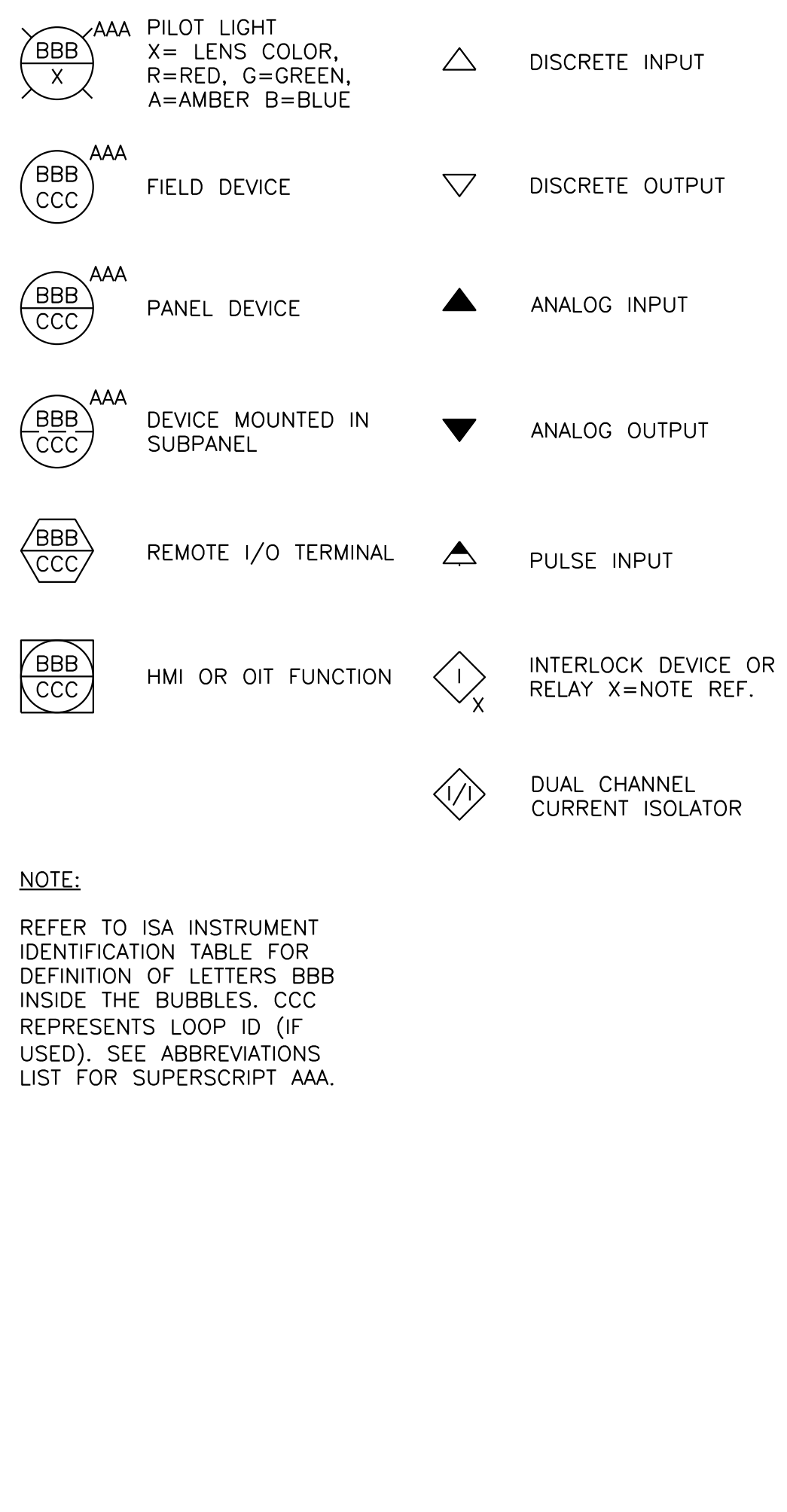
P&ID EQUIPMENT AND PROCESS SYMBOLS



SENSING, INDICATION, AND CONTROL SYMBOLS



P&ID INTERFACE SYMBOLS



11:22am
X:\2400\31724\99 NTA Lechee Lift Station Design Additions\100 - E&I Design\CAD Files\02499_25_01.dwg



Table with fields: Drawn by: ML, Design by: GAR, Approved by: BDD, Date: 09/18/25, Project No: 2499, Sheet No: 1-01

