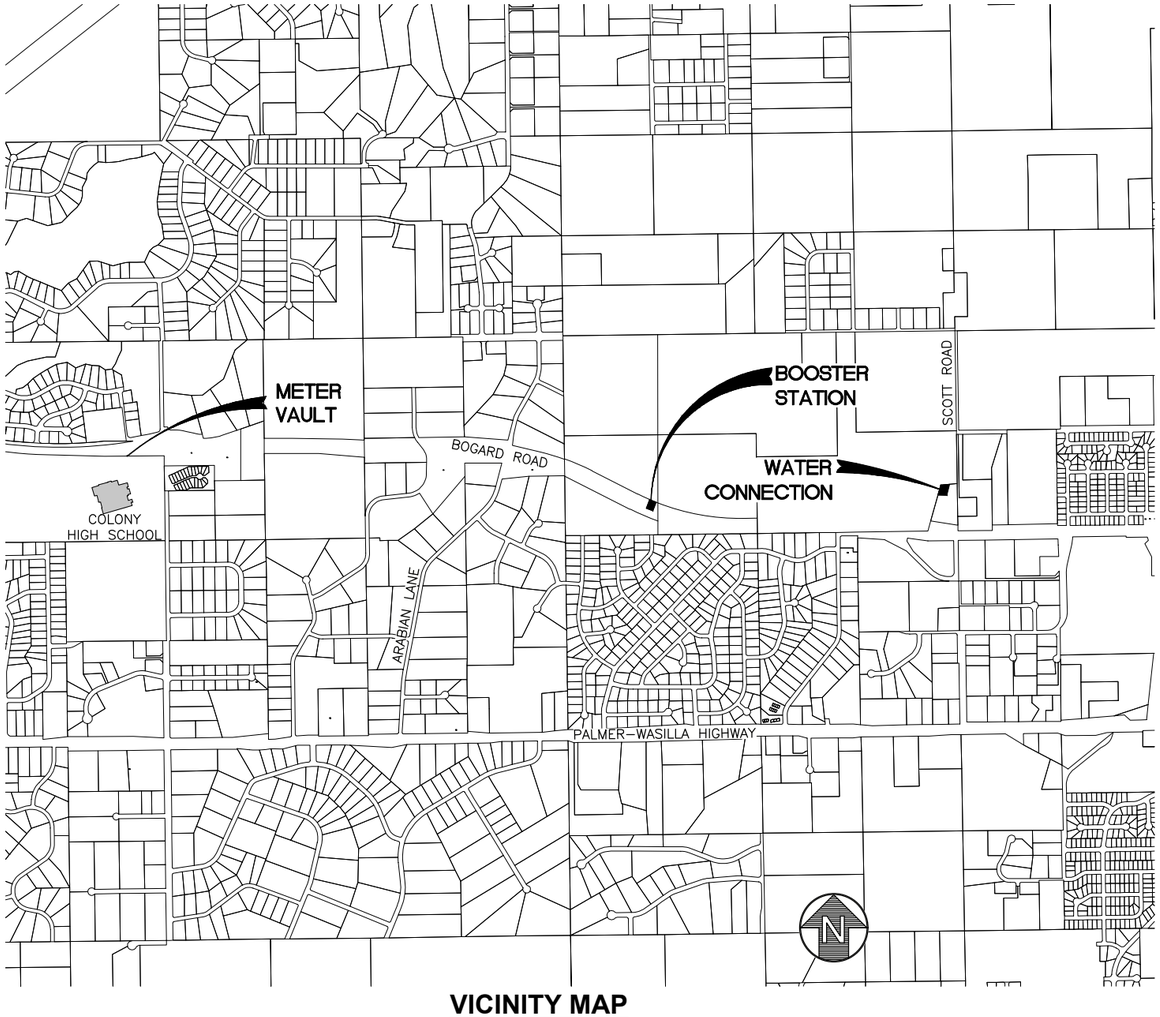
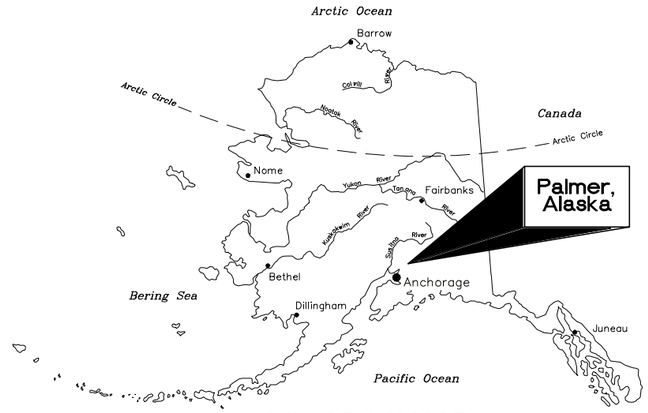
CONSTRUCT BOGARD ROAD BOOSTER STATION

CITY OF PALMER
PUBLIC WORKS DEPARTMENT

231 W. Evergreen Avenue
Palmer, Alaska 99645
(907) 745-3271



VICINITY MAP



LOCATION MAP

SHEET INDEX

REVISIONS

MARK	DATE	DESCRIPTION
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STATE OF ALASKA — CHRISTOPHER J. BROWN — No. CE-13577 — REGISTERED PROFESSIONAL ENGINEER

HDL ENGINEERING Consultants LLC
civil - geotechnical - surveying - environmental - material testing
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www.HDLalaska.com
AECL861

CONSTRUCT BOGARD ROAD BOOSTER STATION
CITY OF PALMER
PALMER, ALASKA

SHEET TITLE: COVER
SHEET: G1.01
DRAWN BY: TLC
CHECKED BY: CJB
DATE: JAN. 2024
SCALE: AS NOTED
JOB NUMBER: 16-033

LAYOUT G1.01
DATE, TIME 2/12/2024 6:54 AM
DRAWING LOCATION H:\Jobs\16-033 Palmer Bogard Rd Booster Station (COP)\CAD\Drawings\16033_00_PS_G101.dwg TCREARY

PROJECT NOTES

1. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE CITY OF PALMER STANDARD SPECIFICATIONS (CPSS) FOR STREET, DRAINAGE, UTILITIES AND PARKS, DATED 2018, SUPPLEMENTAL SPECIFICATIONS, AND ADEC REGULATIONS AND PERMIT REQUIREMENTS.
2. THE LOCATION OF EXISTING FEATURES, SERVICE LINES, UTILITIES, ETC. IN THE DRAWINGS ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING FIELD VERIFICATION OF ALL BURIED AND OVERHEAD UTILITIES FROM THE APPROPRIATE UTILITY COMPANIES OR AUTHORITIES. THE CONTRACTOR SHALL CONTACT THE LOCATE CALL CENTER OF ALASKA, AS WELL AS ANY NON-PARTICIPATING UTILITIES, TO FIELD LOCATE ALL UTILITIES PRIOR TO DIGGING. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO DIGGING, OTHERWISE CONTRACTOR IS RESPONSIBLE FOR ALL ADDITIONAL COSTS ASSOCIATED WITH WORKING AROUND UTILITIES DIFFERENT THAN WHAT IS SHOWN ON THESE PLANS.
3. THE CONTRACTOR AGREES THAT, IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES AND THE GENERAL REQUIREMENTS, THE CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
4. THE CONTRACTOR SHALL ACCEPT THE SITE IN ITS PRESENT CONDITION.
5. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, AND LAYOUT PRIOR TO PROCEEDING WITH THE WORK. ANY DISCREPANCY IN THE PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO PROCEEDING WITH THE WORK.
6. OTHER CONTRACTORS OR THE UTILITY COMPANIES MAY BE WORKING ON THE SAME PROJECT SITE OR IN THE VICINITY DURING THE PROGRESS OF THIS CONTRACT'S WORK. CONTRACTOR SHALL COORDINATE HIS WORK WITH ALL OTHER CONTRACTORS OR UTILITY COMPANIES WORKING IN THE AREA.
7. FIELD SURVEY WAS PERFORMED BY HDL ENGINEERING CONSULTANTS JANUARY 25 THROUGH FEBRUARY 8 OF 2017. CONTOURS AND OTHER EXISTING FEATURES WERE UPDATED BASED ON RECORD INFORMATION FOR THE "BOGARD ROAD BOOSTER STATION SITE PREPARATION" PROJECT.
8. ALL SURVEYING AND LAYOUT SHALL BE PROVIDED BY THE CONTRACTOR UNLESS NOTED OTHERWISE.
9. SEE SURVEY CONTROL DRAWINGS FOR BASIS OF HORIZONTAL AND VERTICAL CONTROL. OFFSETS SHOWN ARE TO CENTERLINE OF ALIGNMENT.
10. ALL CONSTRUCTION ACTIVITIES, EXCAVATED MATERIAL, EQUIPMENT STORAGE, ETC. SHALL REMAIN WITHIN THE WORK AREA LIMITS, TEMPORARY CONSTRUCTION EASEMENTS OR CONTRACTOR-ACQUIRED EASEMENTS, EXCEPT WHERE ALLOWED BY RIGHT-OF-ENTRY AGREEMENTS. SEE CONTRACT GENERAL CONDITIONS.
11. CONTRACTOR SHALL PROVIDE ALL PERMITS WHICH ARE NOT SPECIFICALLY INDICATED AS PROVIDED BY THE OWNER IN THE SPECIAL PROVISIONS.
12. CONTRACTOR SHALL COMPLY WITH THE REQUIREMENTS OF THE IBC, OSHA AND ALL OTHER FEDERAL, STATE AND LOCAL LAWS AND REGULATIONS PERTAINING TO THIS PROJECT. ANY WORK PERFORMED BY THE CONTRACTOR CONTRARY TO SUCH LAWS OR REGULATIONS SHALL BE AT THE CONTRACTOR'S SOLE RISK AND EXPENSE.
13. THE ENGINEER MAY DIRECT THE CONTRACTOR IN WRITING TO REMOVE ADDITIONAL MATERIAL BEYOND THE LIMITS OF EXCAVATION IF IT IS DETERMINED TO BE IN THE BEST INTEREST OF THE OWNER. CONTRACTOR SHALL REMOVE SAID MATERIAL AND REPLACE WITH SUITABLE MATERIAL AT THE CONTRACT UNIT PRICE, IN ACCORDANCE WITH THE SPECIFICATIONS.
14. THE CONTRACTOR SHALL PROVIDE ALL LIGHTS, SIGNS, BARRICADES, FLAG MEN OR OTHER DEVICES NECESSARY TO PROVIDE FOR SAFETY IN ACCORDANCE WITH THE LATEST VERSION OF THE MUTCD.
15. HAUL ROUTES FOR REMOVAL AND DELIVERY OF MATERIALS SHALL UTILIZE EXISTING ROADWAYS. MUD AND DEBRIS TRACKED ONTO ROADWAYS SHALL BE PROMPTLY REMOVED. TRAFFIC LAWS ARE TO BE OBEYED AT ALL TIMES.
16. REPAIR OF DAMAGE TO EXISTING PAVEMENT, SIDEWALKS, CURB & GUTTER, LANDSCAPING, FENCES, PARKING LOTS, AND OTHER IMPROVEMENTS CAUSED BY WATER SERVICE INSTALLATION, MAIN LINE INSTALLATION OR CONTRACTOR'S ACTIVITIES BEYOND THE AREAS SHOWN ON DRAWINGS SHALL BE AT NO COST TO OWNER.
17. CONTRACTOR SHALL PROTECT ALL MONUMENTS AND PROPERTY CORNERS. DAMAGED/MOVED MONUMENTS AND CORNERS, WHETHER OR NOT THEY ARE SHOWN ON THE DRAWINGS, SHALL BE REPLACED IN ACCORDANCE WITH CPSS SECTION 65.02.
18. A GEOTECHNICAL REPORT HAS BEEN PREPARED FOR THIS PROJECT AND IS INCLUDED WITH THE BIDDING AND CONTRACT DOCUMENTS.
19. CONTRACTOR SHALL ESTABLISH, PROVIDE AND MAINTAIN AN EFFECTIVE STORM WATER POLLUTION PREVENTION PROGRAM AND DUST CONTROL PROGRAM IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

ALIGNMENT DESIGNATIONS

"W"	WATER LINE

ABBREVIATIONS

AC	ASPHALT CONCRETE
AD	ALGEBRAIC DIFFERENCE
ADDN	ADDITION
ADEC	ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ADOT&PF	ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES
APPROX	APPROXIMATELY
ASTM	AMERICAN STANDARD TESTING MATERIALS
BFG	BELOW FINISHED GRADE
BLK	BLOCK
BOD	BOTTOM OF DITCH
BOP	BOTTOM OF PIPE, BEGINNING OF PROJECT
℄ ,CL	CENTERLINE
CG, C&G	CURB & GUTTER
CL	CLASS
CMP	CORRUGATED METAL PIPE
CONT'D	CONTINUED
CPEP	CORRUGATED POLYETHYLENE PIPE
CPSS	CITY OF PALMER STANDARD SPECIFICATIONS
CY	CUBIC YARDS
DEMO	DEMOLISH
Δ	DELTA
DIP	DUCTILE IRON PIPE
E	EAST, EASTING
EA	EACH
EL, ELEV	ELEVATION
ELEC	ELECTRICAL
EOA	EDGE OF ASPHALT
EOP	EDGE OF PAVEMENT, END OF PROJECT
EXIST	EXISTING
FF	FINISHED FLOOR
FG	FINISHED GRADE
FL	FLANGE, FLANGED
FO	FIBER OPTIC
FT	FEET
GALV	GALVANIZED
GRC	GALVANIZED RIGID CONDUIT
GV	GATE VALVE
HDPE	HIGH DENSITY POLYETHYLENE
HMA	HOT MIXED ASPHALT
HORZ	HORIZONTAL
IN	INCH
INV	PIPE INVERT
L	LENGTH
LIP	LIP OF CURB
LT	LEFT
LF	LINEAR FEET
MAX	MAXIMUM
MEA	MATANUSKA ELECTRIC ASSOCIATION
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MSB	MATANUSKA SUSITNA BOROUGH
MTA	MATANUSKA TELEPHONE ASSOCIATION
N	NORTH OR NORTHING
NE	NORTHEAST
NFS	NON FROST SUSCEPTIBLE
NIC	NOT IN CONTRACT
NO.	NUMBER
NTS	NOT TO SCALE
NW	NORTHWEST
OG	ORIGINAL GROUND
OHW	OVERHEAD WIRE
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
PI	POINT OF INTERSECTION
PC	POINT OF CURVATURE
PCC	PROFILE GRADE
PG	POINT OF COMPOUND CURVE OR PORTLAND CEMENT CONCRETE
PT	POINT OF TANGENT
PUE	PERMANENT UTILITY EASEMENT
PVMT	PAVEMENT
R, RAD	RADIUS
REQ'D	REQUIRED
RD	ROAD
ROW	RIGHT-OF-WAY
RP	RADIUS POINT
R&R	REMOVE AND REPLACE
RT	RIGHT
S	SOUTH
SCH	SCHEDULE
SST	STAINLESS STEEL
SD	STORM DRAIN
SE	SUPERELEVATION, SOUTHEAST
SF	SQUARE FOOT
SHLD	SHOULDER
SL	STREET LIGHT

ABBREVIATIONS CONTINUED

SPEC	CPSS SECTION
SS	SANITARY SEWER
SSCO	SANITARY SEWER CLEANOUT
SSMH	SANITARY SEWER MANHOLE
ST	STREET
STA	SURVEY STATION
STL	STEEL
SW	SOUTHWEST
SY	SQUARE YARDS
T	TANGENT
TB	THRUST BLOCK
TBC	TOP BACK OF CURB
TCE	TEMPORARY CONSTRUCTION EASEMENT
TCP	TRAFFIC CONTROL PLAN
TELE	TELEPHONE
TOA	TOP OF ASPHALT
TOG	TOP OF GRAVEL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VB	VALVE BOX
VC	VERTICAL CURVE
VERT	VERTICAL
VPC	VERTICAL POINT OF CURVATURE
VPI	VERTICAL POINT OF INTERSECTION
VPT	VERTICAL POINT OF TANGENT
W	WEST
W/	WITH
WS	WELDED STEEL

LEGEND (UNLESS NOTED OTHERWISE)

PROPOSED	EXISTING	
		PROPERTY LINE
		EASEMENT
		CENTERLINE
	ROW	RIGHT OF WAY
	244	MINOR CONTOUR
	250	MAJOR CONTOUR
		CULVERT
W	W	WATER MAIN
		HYDRANT
		REDUCER
		VALVE
C		WATER LINE CAP
LP LP		LIQUID PROPANE
	G	GAS LINE
		METER
		DELINEATOR
2.0%		NEW SLOPE GRADE
		GRADE TO DRAIN
	B#X	BORE HOLE LOCATION
		FENCE
		SIGN
		LIMITS OF TREES
		MONUMENT W/ALUMINUM CAP
		MONUMENT W/PLASTIC CAP
	TBM	TEMPORARY BENCH MARK
		REBAR
	####	POINT NUMBER
		BUILDING
		AC PAVEMENT
		GRAVEL ROADWAY
		INSULATION
		CUT CONDITION CATCH POINT
		FILL CONDITION CATCH POINT
		CUT/FILL SLOPE

CALL BEFORE YOU DIG!

THE CONTRACTOR SHALL NOTIFY ALL AREA UTILITY COMPANIES PRIOR TO COMMENCEMENT OF EXCAVATION

LOCATE CALL CENTER OF ALASKA	1-800-478-3121
CITY OF PALMER PUBLIC WORKS	745-3709
ADOT&PF - PALMER	745-2159

REVISIONS

MARK	DATE	DESCRIPTION
1		
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STATE OF ALASKA 49th — CHRISTOPHER J. BOWER — No. 12673 — REGISTERED PROFESSIONAL ENGINEER

HDL ENGINEERING Consultants LLC
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CONSTRUCT BOGARD ROAD BOOSTER STATION

CITY OF PALMER

PALMER, ALASKA

SHEET TITLE: PROJECT NOTES, ABBREVIATIONS, AND LEGEND

SHEET: G1.02

DRAWN BY:	CHECKED BY:
TLC	CJB
DATE:	SCALE:
JAN. 2024	NONE

JOB NUMBER: 16-033

LAYOUT G1.02
DATE, TIME 2/9/2024 2:06 PM
DRAWING LOCATION H:\Jobs\16-033 Palmer Bogard Rd Booster Station (COP)\CAD\Drawings\16033_00_PS_G102.dwg TCREARY

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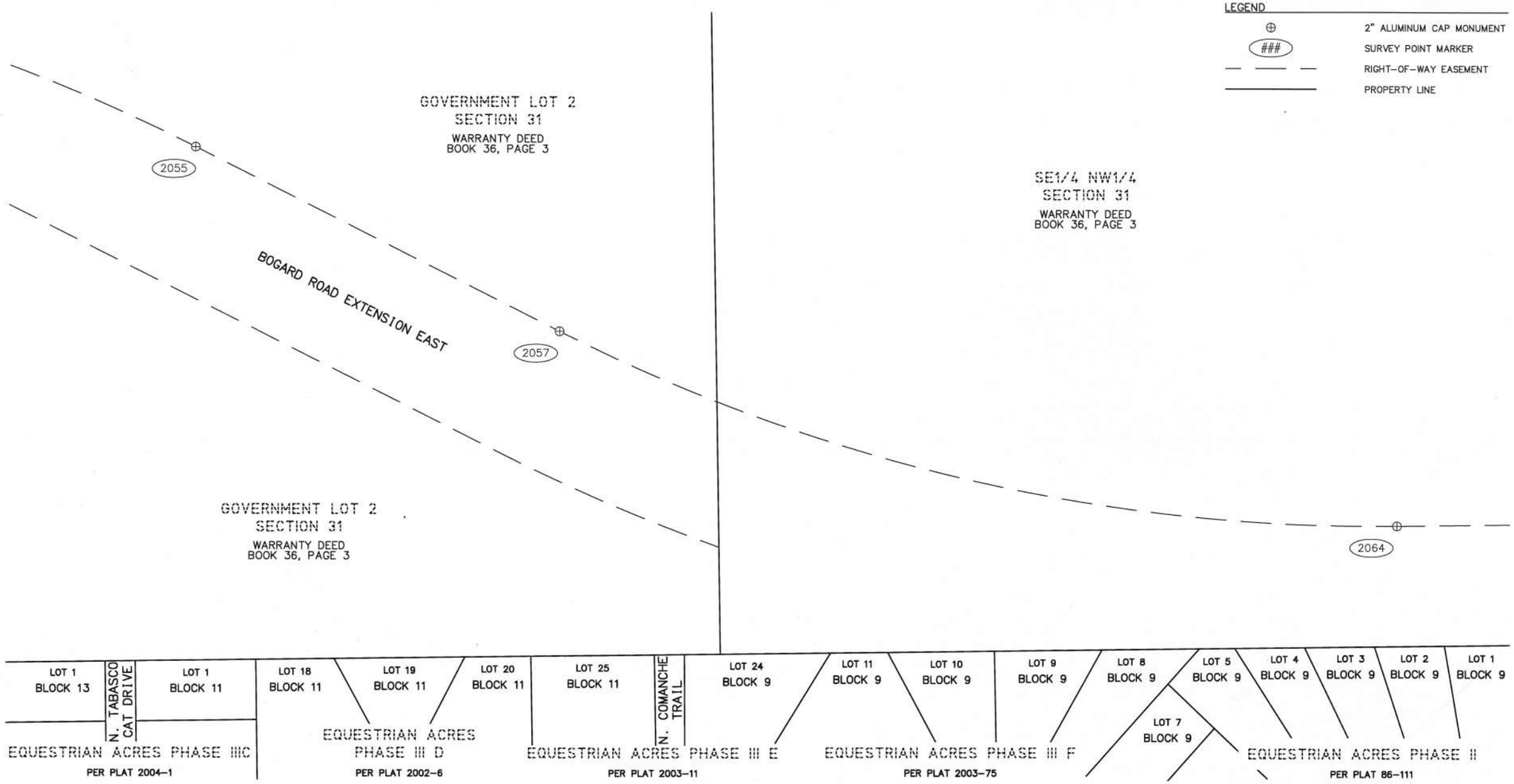

HORIZONTAL CONTROL STATEMENT

COORDINATE SYSTEM:
THIS PROJECT IS LOCATED ENTIRELY WITHIN THE MATANUSKA-SUSITNA VALLEY SV-1 ADJUSTMENT, A U.S. SURVEY FOOT LOCAL SURFACE GRID COORDINATE SYSTEM DEVELOPED BY THE ALASKA DEPARTMENT OF TRANSPORTATION AND PUBLIC FACILITIES (ADOT&PF)

BASIS OF COORDINATES:
THE BASIS OF COORDINATES IS CGS STATION S-1 (1922), A STANDARD DISK SET IN THE TOP OF AN ELEVEN-INCH SQUARE MONUMENT FLUSH WITH THE GROUND, IS LOCATED APPROXIMATELY 0.05 MILES WEST OF THE ALASKA RAILROAD STATION IN WASILLA. SAID STATION HAS SV-1 COORDINATES OF 145360.5554 N, 425361.4974 E.

BASIS OF BEARING:
THE BASIS OF BEARING IS A LOCAL PLANE BEARING BETWEEN CGS STATION S-1 (1922) AND AKDOT&PF STATION GPS 44 (1989). AKDOT&PF STATION GPS 44 (1989), A BRASS DISK CLAMPED TO THE TOP OF A STAINLESS STEEL ROD, WHICH IS LOCATED AT APPROXIMATE MILEPOST 46.1 OF THE PARKS HIGHWAY, BEARS N 87° 26' 59.7" W A DISTANCE OF 19969.57 U.S. FEET FROM CGS STATION S-1. AKDOT&PF STATION GPS 44 (1989) HAS SV-1 COORDINATES OF 146249.0589 N, 405411.7053 E.

TRANSLATION PARAMETERS:
TO CONVERT THE LOCAL SV-1 COORDINATES TO NAD83 (92), ALASKA STATE PLANE, ZONE 4, COORDINATES, EXPRESSED IN U.S. SURVEY FEET, TRANSLATE USING +2,624,946.5706 FEET NORTH, +1,312,508.8943 FEET EAST, AND SCALE USING 0.9998990458.

VERTICAL CONTROL STATEMENT

THE BASIS OF VERTICAL CONTROL FOR THIS PROJECT IS POINT 713 (AKDOT&PF BM TR-2R), A FOUND 3-1/4" BRASS DISC CLAMPED ON A STAINLESS STEEL ROD IN 6" STEEL CASE AS NOTED ON THE AKDOT&PF SURVEY CONTROL SHEET FOR THE TRUNK ROAD RECONSTRUCTION, FEDERAL PROJECT NO. HPRL-0001(378)/59301. POINT 713 HAS A MSL 1929 NGVD VALUE OF 264.66 FEET. ALL PROJECT CONTROL WERE ASSIGNED ELEVATIONS USING HIGH PRECISION POST PROCESSED VALUES DERIVED THROUGH LEICA GEO OFFICE VERSION 8.4. DIFFERENTIAL LEVELS WERE NOT PERFORMED.

VERTICAL CONTROL

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
713*	147787	459009	264.66'	FOUND 3-1/4" BRASS DISK ON STAINLESS STEEL ROD

*NOT SHOWN HEREON

RECOVERED MONUMENTS

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
2055	156268.1802	471488.2839	405.32'	FOUND 2" ALUMINUM CAP MONUMENT ON 5/8" REBAR
2057	155963.3180	472091.9116	379.60'	FOUND 2" ALUMINUM CAP MONUMENT ON 5/8" REBAR
2064	155641.4253	473483.6797	351.98'	FOUND 2" ALUMINUM CAP MONUMENT ON 5/8" REBAR

NOTES

1. FIELD SURVEY WAS PERFORMED BY HDL ENGINEERING CONSULTANTS, JANUARY 25 THROUGH FEBRUARY 8, OF 2017.
2. A TITLE REPORT WAS NOT PERFORMED.
3. ALL MEASUREMENTS ARE IN U.S. SURVEY FEET UNLESS OTHERWISE NOTED.
4. LINE WORK IS FOR ORIENTATION PURPOSES ONLY. REFER TO PLATS OF RECORD FOR BOUNDARY INFORMATION.

SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT I AM PROPERLY REGISTERED AND LICENSED TO PRACTICE LAND SURVEYING IN THE STATE OF ALASKA, AND THAT THIS DRAWING REPRESENTS A SURVEY MADE BY ME OR UNDER MY DIRECT SUPERVISION, AND THAT THE MONUMENTS SHOWN HEREON ACTUALLY EXIST AS DESCRIBED, AND THAT ALL DIMENSIONS AND OTHER DETAILS ARE CORRECT TO THE EXTENT SHOWN HEREON.

6.28.17

BRADFORD J. RINCKEY, LS-11299 DATE

REVISIONS

MARK	DATE	DESCRIPTION
1		
2		
3		
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STATE OF ALASKA · BRADFORD J. RINCKEY · No. 11299 · REGISTERED PROFESSIONAL

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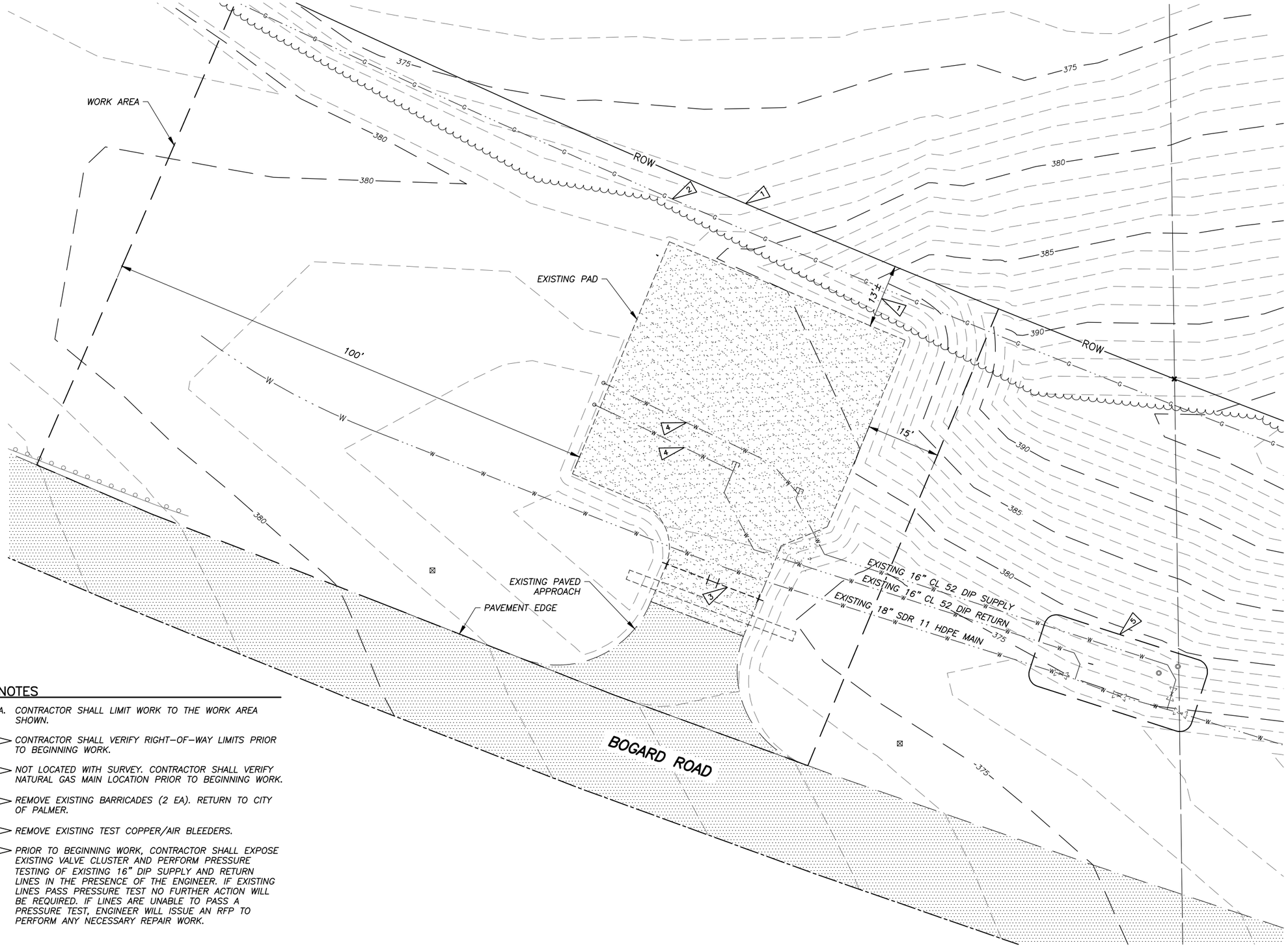
BOGARD ROAD BOOSTER STATION
SITE PREPARATION
CITY OF PALMER
PALMER, ALASKA

SHEET TITLE
SURVEY CONTROL DIAGRAM

SHEET
V1.01

DRAWN BY:	CHECKED BY:
MBD	BAM
DATE: JUNE, 2017	SCALE: 1" = 100'
JOB NUMBER: 16-033	



NOTES

A. CONTRACTOR SHALL LIMIT WORK TO THE WORK AREA SHOWN.

1. CONTRACTOR SHALL VERIFY RIGHT-OF-WAY LIMITS PRIOR TO BEGINNING WORK.
2. NOT LOCATED WITH SURVEY. CONTRACTOR SHALL VERIFY NATURAL GAS MAIN LOCATION PRIOR TO BEGINNING WORK.
3. REMOVE EXISTING BARRICADES (2 EA). RETURN TO CITY OF PALMER.
4. REMOVE EXISTING TEST COPPER/AIR BLEEDERS.
5. PRIOR TO BEGINNING WORK, CONTRACTOR SHALL EXPOSE EXISTING VALVE CLUSTER AND PERFORM PRESSURE TESTING OF EXISTING 16" DIP SUPPLY AND RETURN LINES IN THE PRESENCE OF THE ENGINEER. IF EXISTING LINES PASS PRESSURE TEST NO FURTHER ACTION WILL BE REQUIRED. IF LINES ARE UNABLE TO PASS A PRESSURE TEST, ENGINEER WILL ISSUE AN RFP TO PERFORM ANY NECESSARY REPAIR WORK.

REVISIONS		
MARK	DATE	DESCRIPTION
1		
2		
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STATE OF ALASKA — CHRISTOPHER J. BROWN — No. 13571 — REGISTERED PROFESSIONAL ENGINEER — 49th

HDL ENGINEERING Consultants LLC
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CONSTRUCT BOGARD ROAD BOOSTER STATION

CITY OF PALMER

PALMER, ALASKA

SHEET TITLE: EXISTING SITE CONDITIONS

SHEET: C1.01

DRAWN BY:	CHECKED BY:
TLC	CJB
DATE: JAN. 2024	SCALE: AS SHOWN
JOB NUMBER: 16-033	

LAYOUT C1.01
DATE, TIME 2/12/2024 6:56 AM
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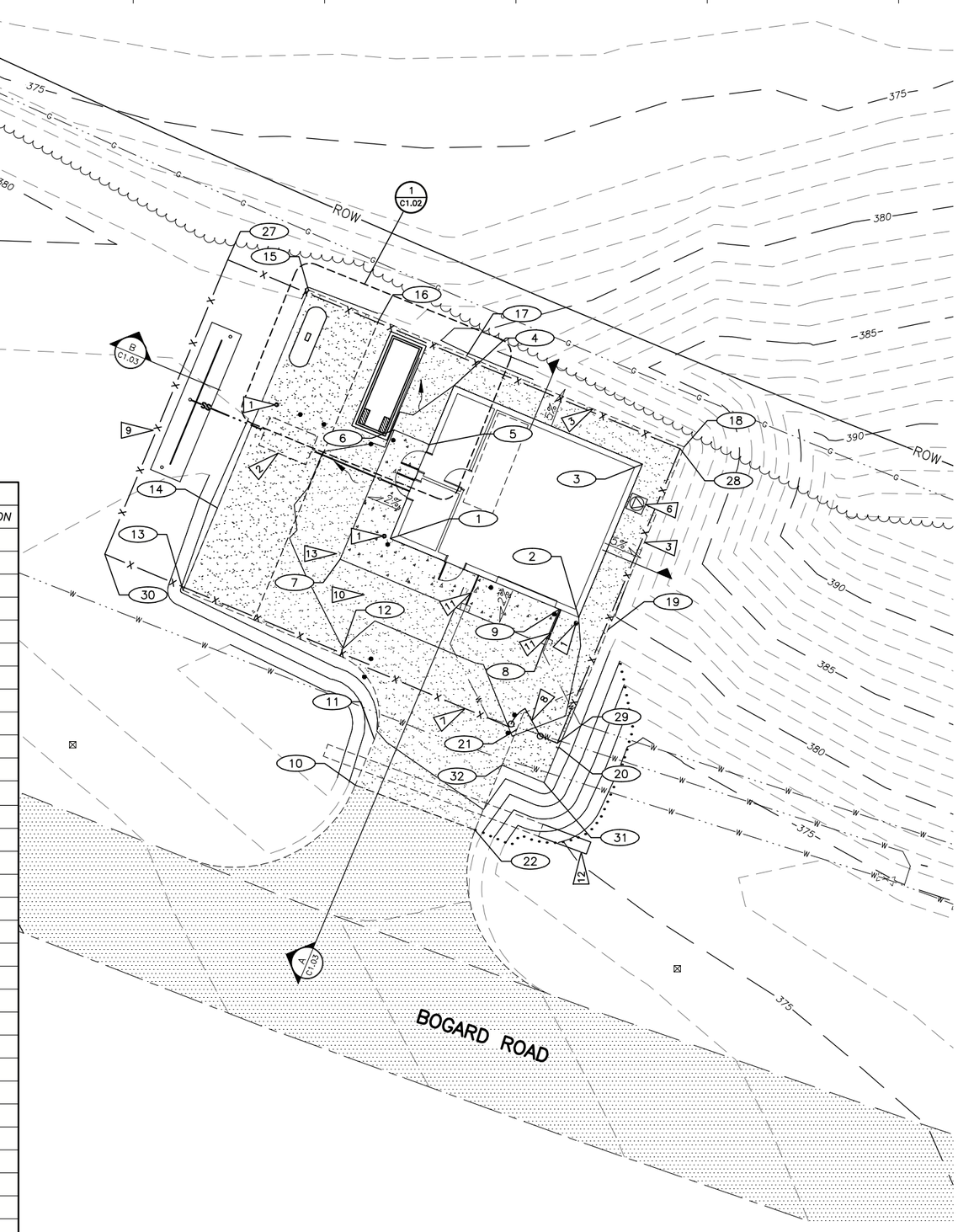


POINT TABLE				
POINT	DESCRIPTION	NORTHING	EASTING	ELEVATION
1	TOC @ BUILDING CORNER	155840.03	472252.73	380.50
2	FG @ BUILDING CORNER	155827.70	472282.26	380.00
3	FG @ BUILDING CORNER	155851.69	472292.28	380.20
4	FG @ BUILDING CORNER	155864.02	472262.75	380.00
5	FG @ BUILDING	155854.75	472258.88	380.50
6	CONCRETE CORNER	155857.06	472253.35	380.38
7	CONCRETE CORNER	155836.81	472244.89	380.26
8	CONCRETE CORNER	155823.43	472276.92	380.38
9	FG @ BUILDING CORNER	155828.97	472279.24	380.50
10	END EXISTING ASPHALT	155801.39	472247.26	ME
11	PC	155808.56	472250.25	378.91
12	PT, EDGE GRAVEL PAD	155821.64	472244.88	379.96
13	CORNER GRAVEL PAD	155831.92	472220.27	379.21
14	GRADING POINT	155844.83	472225.66	379.63
15	CORNER GRAVEL PAD	155878.98	472239.92	378.70
16	GRADING POINT	155874.35	472250.99	378.91
17	GRADING POINT	155868.64	472264.68	379.00
18	CORNER GRAVEL PAD	155854.38	472298.82	379.50
19	GRADING POINT	155825.78	472286.88	379.50
20	GRADING POINT	155807.32	472279.17	380.00
21	GRADING POINT	155810.08	472272.56	380.04
22	END EXISTING ASPHALT	155794.37	472266.02	ME
23	FG @ GENSET PAD	155872.50	472252.84	379.58
24	FG @ GENSET PAD	155870.19	472258.38	379.64
25	FG @ GENSET PAD	155855.42	472252.21	379.80
26	FG @ GENSET PAD	155857.73	472246.68	379.74
27	FENCE CORNER	155883.72	472227.27	–
28	FENCE CORNER	155854.11	472298.17	–
29	FENCE CORNER	155807.97	472278.90	–
30	FENCE CORNER	155837.58	472208.00	–
31	GRAVEL PAD CORNER	155801.78	472276.86	379.88
32	GRAVEL PAD CORNER	155804.54	472270.25	379.88

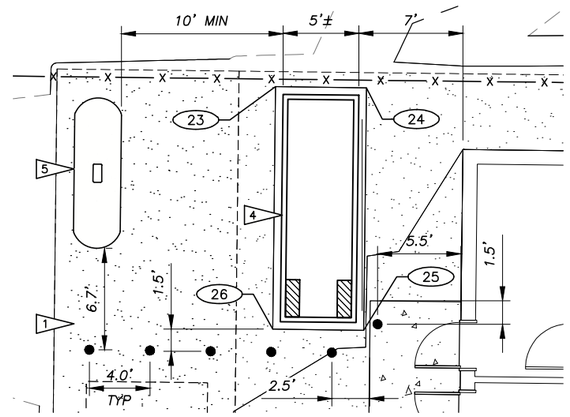
NOTES

A. CONTRACTOR SHALL LIMIT WORK TO THE WORK AREAS AS SHOWN ON SHEET C1.01.

1. BOLLARD. TYPICAL OF 15. SEE CPSS DETAIL 70–35.
2. INSTALL 1,000 GALLON SEPTIC TANK AND LEACH FIELD. SEE SHEET C2.01. INSULATION NOT SHOWN FOR CLARITY.
3. PULL BACK TOPSOIL, FILL SURFACE COURSE AGAINST EXISTING SLOPE, AND REAPPLY TOPSOIL AND SEED TO BACKSLOPE.
4. GENSET. SEE ELECTRICAL. TOP OF CONCRETE PAD ELEVATION = 380.9'.
5. PROPANE TANK. SEE MECHANICAL.
6. SCADA ANTENNA MAST, SEE ELECTRICAL.
7. (1) EACH 24' WIDE X 8' TALL 11 GAUGE CANTILEVER GATE WITH BARBED WIRE. SEE DETAIL 1/C2.02.
8. (1) EACH 4' WIDE x 8' TALL PEDESTRIAN GATE WITH BARBED WIRE. SEE DETAIL 1/C2.02.
9. 250± LF 8', 11 GAUGE CHAIN LINK FENCE W/ BARBED WIRE.
10. REGRADE EXISTING PAD AREA AS NECESSARY TO MEET GRADES SHOWN ON THIS SHEET. EXCESS MATERIAL MAY BE UTILIZED FOR PAD EXPANSION.
11. CONNECT TO EXISTING 16" DIP AND EXTEND TO CONNECT WITH PIPING SHOWN IN MECHANICAL. SEE SHEET M2.01. TYPICAL OF 2. BOP EL. = 366.9'± (SUPPLY) 367.4'± (RETURN).
12. EXTEND EXISTING CULVERT 8 LF.

ADDITIVE ALTERNATE 1

13. SITE PAVING. PAVE ALL SURFACES SCHEDULED TO RECEIVE GRAVEL SURFACING. SEE DETAIL 8/C2.01.



1 C1.02 **GENERATOR SITE PLAN**
SCALE: NONE

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www.HDLalaska.com
AECL861

CONSTRUCT BOGARD ROAD BOOSTER STATION
CITY OF PALMER
PALMER, ALASKA

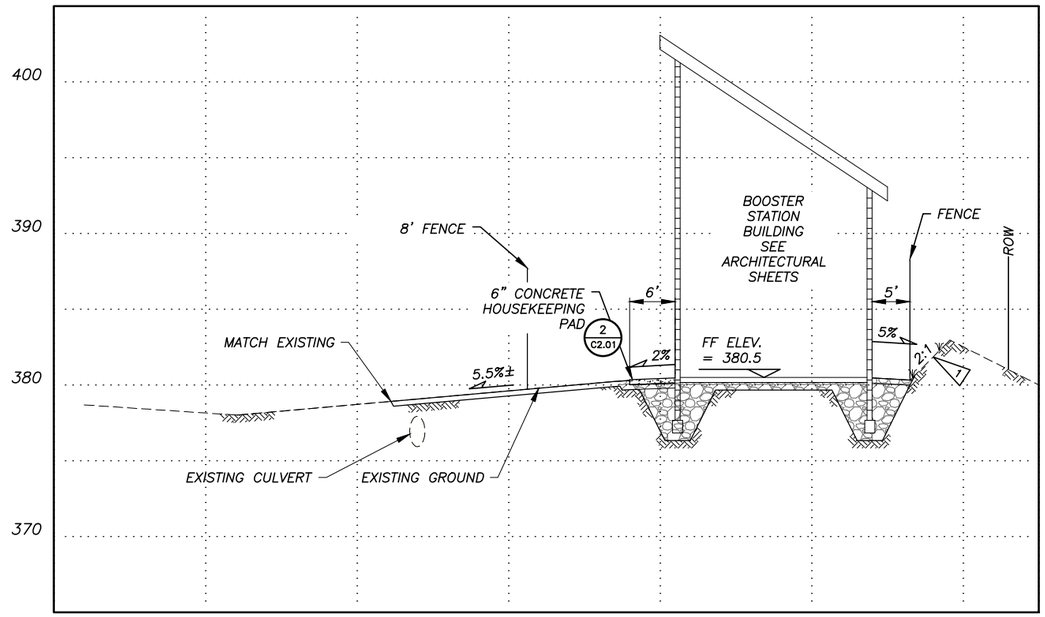
SHEET TITLE
GRADING/SITE PLAN

SHEET
C1.02

DRAWN BY:	CHECKED BY:
TLC	CJB
DATE:	SCALED:
JAN, 2024	AS SHOWN

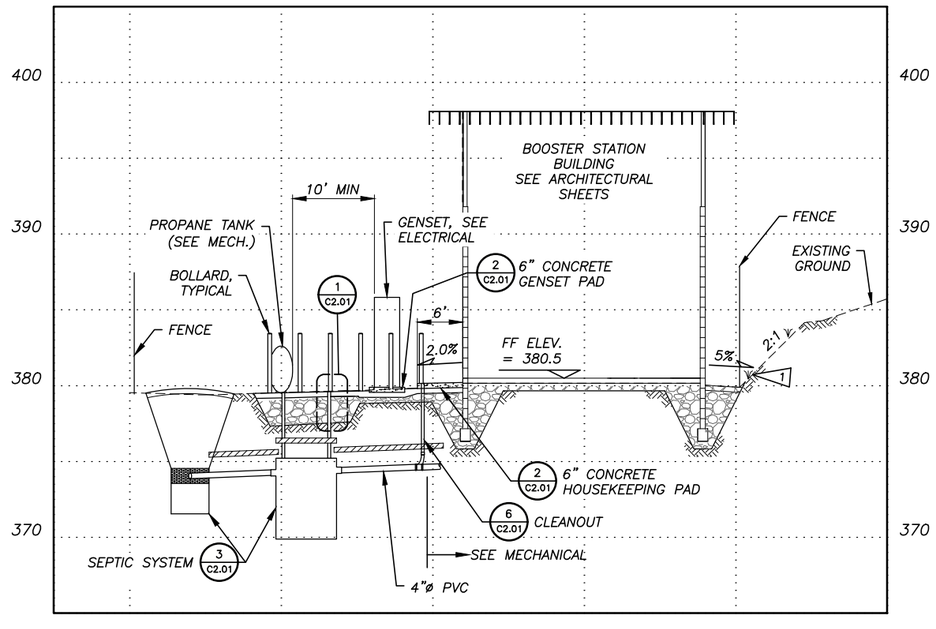
JOB NUMBER: 16–033

LAYOUT C1.02
DATE, TIME 2/10/2024 12:28 PM
DRAWING LOCATION H:\Jobs\16-033 Palmer Bogard Rd Booster Station (COP)\CAD\Drawings\16033_00_PS_C102-C103.dwg TOREARY



A C1.03 SCALE: NONE

SITE SECTION



B C1.03 SCALE: NONE

SITE SECTION

0 10 20
SCALE IN FEET

NOTES

A. SEE SHEET G1.02 FOR PROJECT NOTES, LEGEND, MISCELLANEOUS WORK ITEMS AND ABBREVIATIONS.

B. SEE SHEET V1.01 FOR BASIS OF HORIZONTAL AND VERTICAL CONTROL.

1 TOPSOIL AND SEED DISTURBED AREAS OUTSIDE OF BUILDING PAD/ ACCESS ROAD.

REVISIONS

MARK	DATE	DESCRIPTION
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STATE OF ALASKA — CHRISTOPHER J. BROWN — No. 13571 — REGISTERED PROFESSIONAL ENGINEER — 19th

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CONSTRUCT BOGARD ROAD BOOSTER STATION

CITY OF PALMER

PALMER, ALASKA

SHEET TITLE: SITE SECTIONS

SHEET: C1.03

DRAWN BY:	CHECKED BY:
TLC	CJB
DATE: JAN. 2024	SCALE: AS SHOWN

JOB NUMBER: 16-033

DRAWING LOCATION
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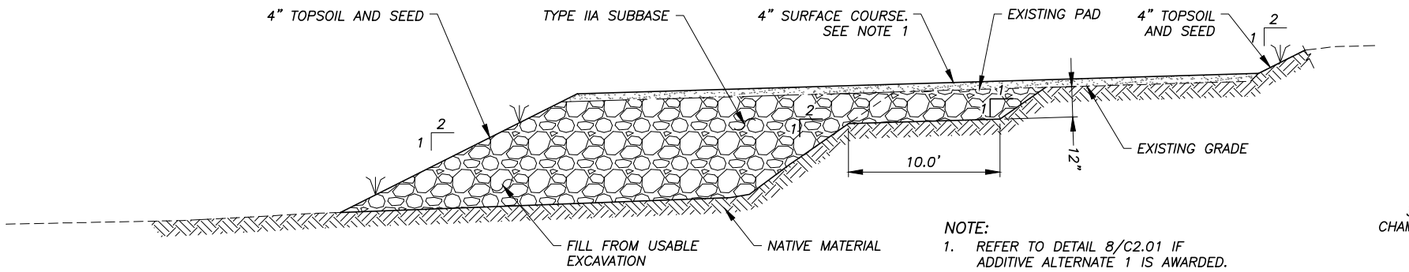
DATE TIME 2/10/2024 12:28 PM

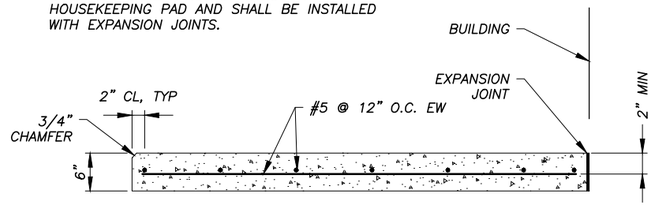
LAYOUT C1.03



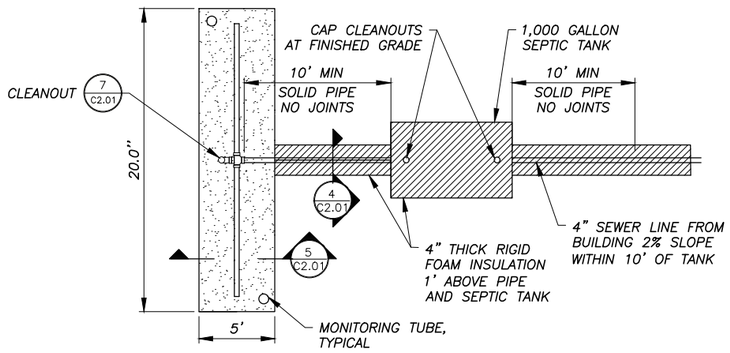
NOTE:
1. REFER TO DETAIL 8/C2.01 IF ADDITIVE ALTERNATE 1 IS AWARDED.

1 C2.01 PAD EXPANSION TYPICAL SECTION
SCALE: NONE

NOTE:
BOLLARDS SHALL PROJECT THROUGH HOUSEKEEPING PAD AND SHALL BE INSTALLED WITH EXPANSION JOINTS.



2 C2.01 HOUSEKEEPING PAD SECTION
SCALE: NONE

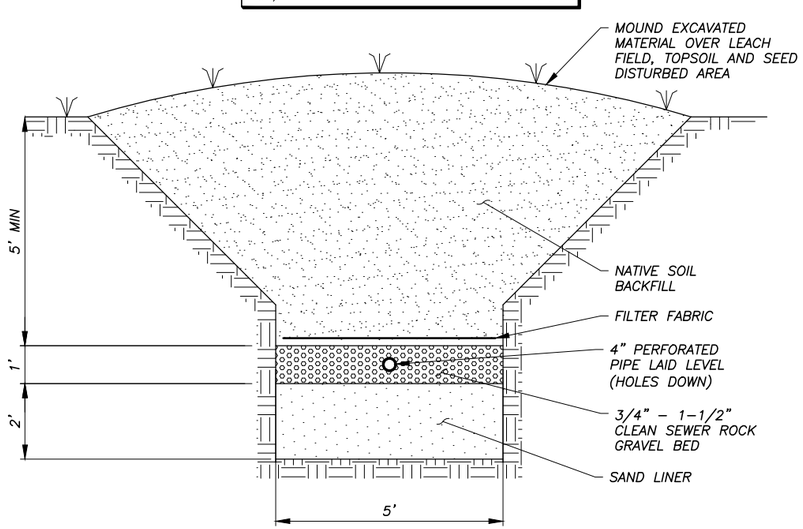


3 C2.01 SHALLOW TRENCH SEPTIC SYSTEM - PLAN
SCALE: NONE

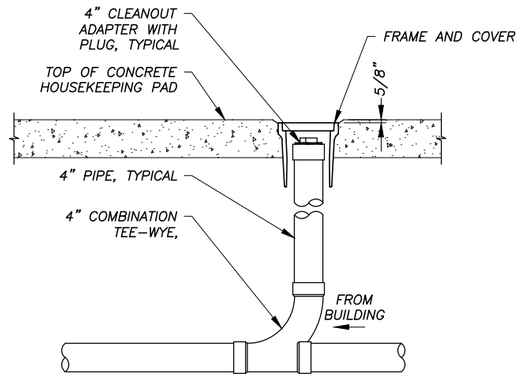
CALL BEFORE YOU DIG!

THE CONTRACTOR SHALL NOTIFY ALL AREA UTILITY COMPANIES PRIOR TO COMMENCEMENT OF EXCAVATION

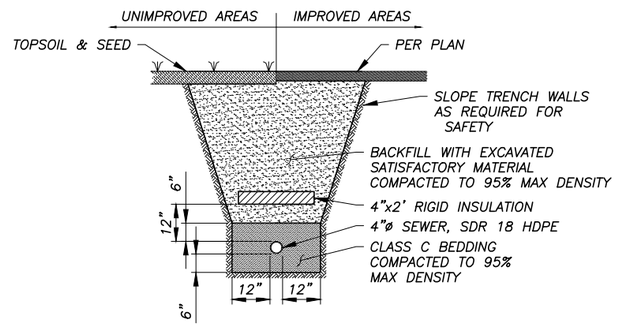
LOCATE CALL CENTER OF ALASKA	1-800-478-3121
CITY OF PALMER PUBLIC WORKS	745-3400
ADOT/PF - PALMER	745-2159



5 C2.01 SHALLOW TRENCH SEPTIC SYSTEM-SECTION
SCALE: NONE



6 C2.01 CLEANOUT
SCALE: NONE



4 C2.01 SEWER TRENCH SECTION
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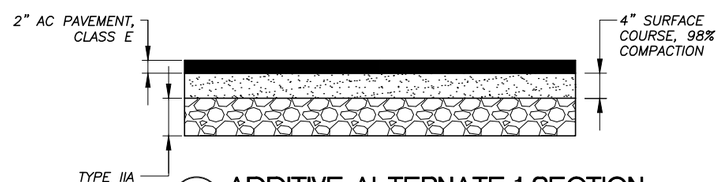
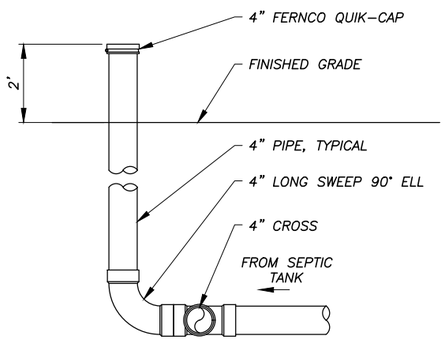


8 C2.01 ADDITIVE ALTERNATE 1 SECTION
SCALE: NONE



7 C2.01 CLEANOUT
SCALE: NONE

REVISIONS

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CONSTRUCT BOGARD ROAD BOOSTER STATION
CITY OF PALMER
PALMER, ALASKA

SHEET TITLE
TYPICAL SECTIONS AND DETAILS

SHEET
C2.01

DRAWN BY:	CHECKED BY:
TLC	CJB
DATE:	SCALE:
JAN. 2024	AS NOTED

JOB NUMBER: 16-033

LAYOUT C2.01
DATE, TIME 2/10/2024 12:28 PM
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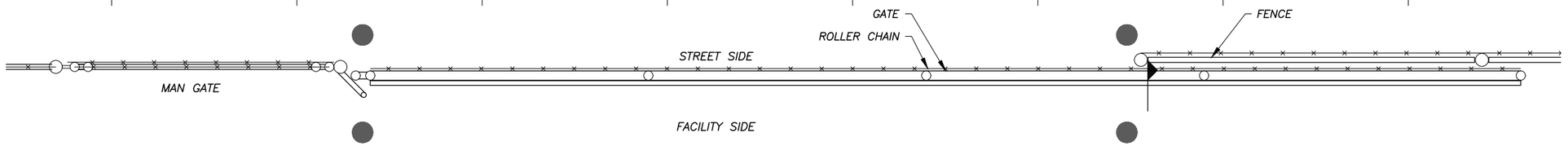
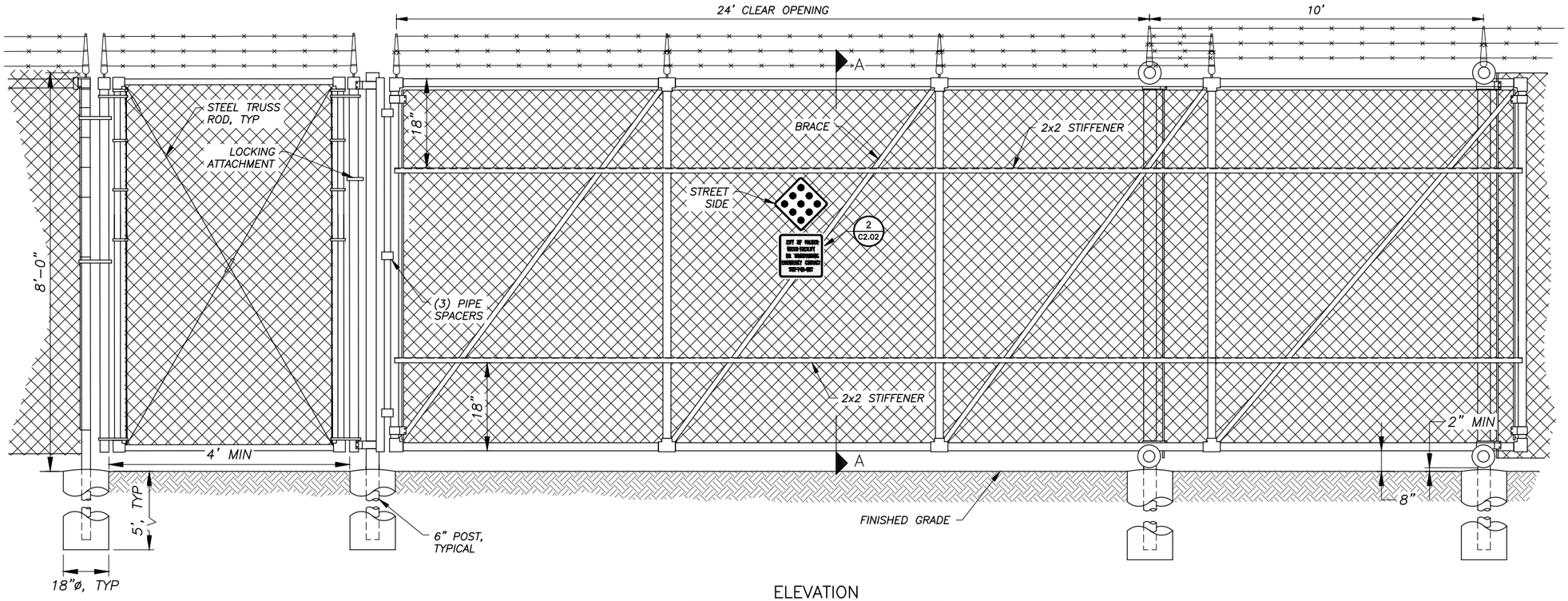


PLAN



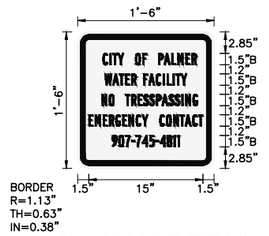
SECTION A–A

ELEVATION

(BOLLARDS NOT SHOWN FOR CLARITY)

1 C2.02 **CANTILEVER GATE DETAIL**

SCALE: NONE



2 C2.02 **SIGN DETAIL**

SCALE: NONE

NOTES:

1. *THIS DETAIL SHALL SUPERCEDE CITY OF PALMER STANDARD DETAIL 70–42.*
2. *DETAILS SHOWN ARE TO INDICATE GENERAL DESIGN ONLY. DIMENSIONS MAY VARY SLIGHTLY AMONG THE MANUFACTURERS.*
3. *GATE FABRIC SHALL BE OF THE SAME DESIGN AND HEIGHT OF LINE FENCE FABRIC.*
4. *GATE FABRIC SHALL BE FURNISHED WITH KNUCKLE SELVAGE TOP AND BOTTOM.*
5. *CONCRETE FOOTINGS SHALL BE 3000 PSI EXTERIOR CONCRETE.*
6. *CONCRETE FOOTINGS SHALL BE OF THE SAME DEPTH AS END POSTS WITH A DIAMETER 1 1/2 TIMES LARGER EXCEPT AS SHOWN FOR GATE STOP.*
7. *GATE FRAMES MAY BE FABRICATED BY WELDING OR RIVETING AND SHALL BE BRACED TO ELIMINATE SAGGING. HINGES, LATCHES AND OTHER GATE APPURTENANCES SHALL BE OF SUFFICIENT STRENGTH AND DESIGN TO ASSURE EASY TROUBLE FREE OPERATION.*
8. *SEE CITY OF PALMER STANDARD SPECIFICATIONS FOR OTHER FENCING REQUIREMENTS.*

REVISIONS		
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CONSTRUCT BOGARD ROAD BOOSTER STATION

CITY OF PALMER

PALMER, ALASKA

SHEET TITLE: GENERAL SITE DETAILS

SHEET: C2.02

DRAWN BY:	CHECKED BY:
TLC	CJB
DATE: JAN. 2024	SCALE: AS NOTED
JOB NUMBER: 16–033	

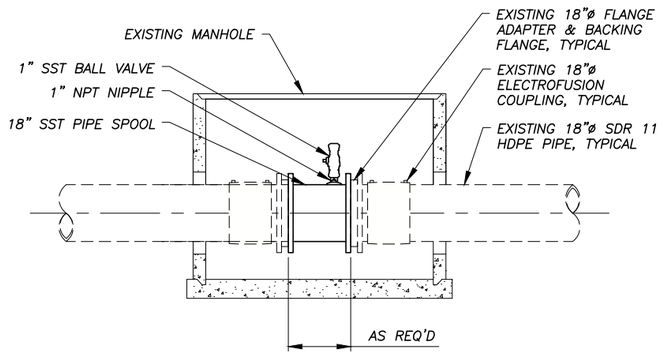
BOGARD WATER CONNECTION SITE PLAN

NOTES

A. *SEE SHEET G1.02 FOR PROJECT NOTES, ABBREVIATIONS, AND LEGEND.*

1 *REMOVE EXISTING 18" BLIND FLANGE AND INSTALL FABRICATED 18" STEEL SPOOL BETWEEN EXISTING PIPES. EXISTING FLANGE FACES MAY NOT BE PARALLEL. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.*

2 *FLUSH AND DISINFECT FROM 18" HDPE PIPE CONNECTION TO COLONY MIDDLE SCHOOL. SEE CPSS SECTION 60.02 AND SPECIAL PROVISIONS.*



1 / C3.01 **PIPE CONNECTION DETAIL**
SCALE: NONE

REVISIONS

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CONSTRUCT BOGARD ROAD BOOSTER STATION
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SHEET TITLE: BOGARD WATER CONNECTION
SHEET: C3.01
DRAWN BY: TLC | CHECKED BY: CJB
DATE: JAN. 2024 | SCALE: AS SHOWN
JOB NUMBER: 16-033

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LAYOUT C3.01
DATE, TIME 2/6/2024 8:58 PM

NOTES

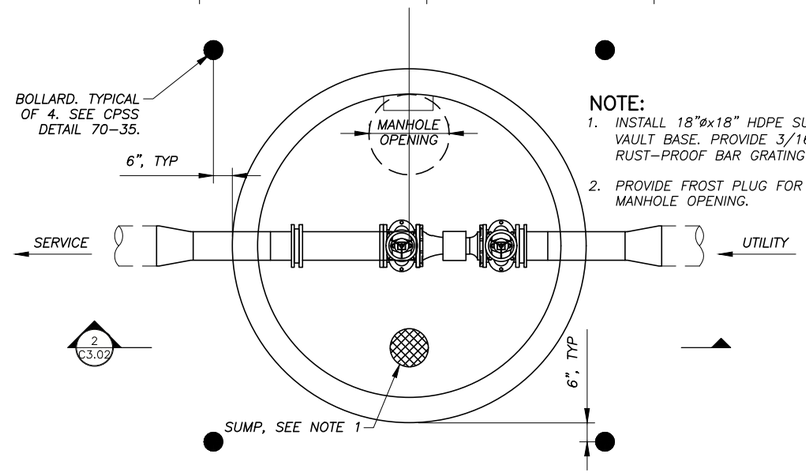
A. THE LOCATION OF EXISTING FEATURES ARE APPROXIMATE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING FIELD VERIFICATION OF ALL FEATURES.

B. TOPOGRAPHIC SURVEY WAS NOT CONDUCTED IN THIS AREA. DESIGN IS BASED ON RECORD INFORMATION FROM THE BOGARD ROAD EXTENSION EAST, PHASE II PROJECT.

1 REMOVE EXISTING 12" GV AND BLIND FLANGE.

2 LOCATE PROPOSED VAULT WITHIN ROW. VERIFY LAYOUT WITH ENGINEER IN FIELD PRIOR TO CONSTRUCTION.

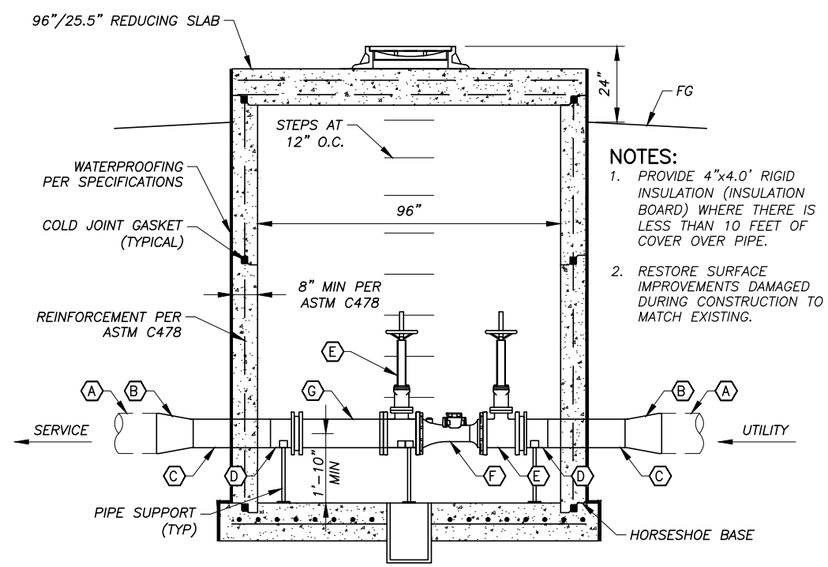
COLONY WATER CONNECTION SITE PLAN



NOTE:
1. INSTALL 18"ø x 18" HDPE SUMP IN VAULT BASE. PROVIDE 3/16" RUST-PROOF BAR GRATING COVER.
2. PROVIDE FROST PLUG FOR MANHOLE OPENING.

1 C3.02 COLONY METER VAULT PLAN

SCALE: NONE



NOTES:
1. PROVIDE 4"x4.0' RIGID INSULATION (INSULATION BOARD) WHERE THERE IS LESS THAN 10 FEET OF COVER OVER PIPE.
2. RESTORE SURFACE IMPROVEMENTS DAMAGED DURING CONSTRUCTION TO MATCH EXISTING.

2 C3.02 COLONY METER VAULT SECTION

SCALE: NONE

COMPONENTS LIST

TAG	DESCRIPTION
A	EXISTING 12" SDR 11 HDPE
B	8" X 12" HDPE CONCENTRIC REDUCER, BUTT FUSED
C	8" SDR 11 HDPE SPOOL
D	8" FLANGE ADAPTER WITH BACKING RING
E	8" OS&Y GATE VALVE
F	8" METER
G	8" DIP FL x FL SPOOL. COATING PER 09 92 00 SPECIFICATION

REVISIONS

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CONSTRUCT BOGARD ROAD BOOSTER STATION

CITY OF PALMER

PALMER, ALASKA

SHEET TITLE: COLONY WATER CONNECTION

SHEET: C3.02

DRAWN BY: LRK | CHECKED BY: CJB

DATE: JAN. 2024 | SCALE: AS SHOWN

JOB NUMBER: 16-033

LAYOUT C3.02

DATE, TIME 2/11/2024 9:13 AM

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CODE INFORMATION

PROJECT NAME: CONSTRUCT BOGARD ROAD BOOSTER STATION
AUTHORITY HAVING JURISDICTION (AHJ): CITY OF PALMER, ALASKA

GOVERNING CODES:

- Uniform Administrative Code 1997
- International Building Code (IBC) 2015
- International Fire Code (IFC) 2015
- International Mechanical Code (IMC) 2015
- National Electrical Code (NEC) 2014
- Standard for Portable Fire Extinguishers (NFPA) 10-2013
- Uniform Plumbing Code 2015
- International Energy Conservation Code 2015 (Incl. BEES amendments by SOA)
- Amendments by Palmer Municipal Code Title 15 Buildings & Construction

CHAPTER	REFERENCE	APPLICATION / REQUIREMENT	SUPPORT / NOTES / CALCULATIONS
IBC Chapter 3 Use and Occupancy Classification	Section 306.2	F-1 Moderate Hazard Factory Industrial	Storage of Sodium Hypochlorite 12.5% Concentration (Corrosives) 500 Lbs. Max.
IBC Chapter 4 Special Detailed Requirements Based on Use and Occupancy	n/a		
IBC Chapter 5 General Building Heights and Areas	Building Height Limitations Section 503 Section 504 Table 504.3 Table 504.4	Type V-B, Separated Occupancies OCC: F-1,NS — ALLOWABLE: 40' / 1 Stories — ACTUAL: 18'-8"	
	Building Area Limitations Section 506 Table 506.2	OCC: F-1, NS — ALLOWABLE: 8,500 SF — TOTAL WITH INCREASES: ---- — ACTUAL: 831 SF	
	Separated Occupancies Section 508.4	Occupancy separation not required	
	Accessory Occupancies Section 508.2	No accessory occupancies	
	Incidental Occupancies Section 509	No incidental occupancies	
IBC Chapter 6 Types of Construction	Fire-Resistance Rating for Building Elements Table 601	BUILDING ELEMENT: Type V-B Primary structural frame: 0 Interior bearing walls / Exterior bearing walls: 0 / 0 Nonbearing walls and partitions: 0 Floor construction and secondary members: 0 Roof construction and secondary members: 0	
	Fire-Resistance Rating for Exterior Walls Based on Fire Separation Distance Table 602	Occupancy: F-1 — Fire separation distance: X ≥ 30 — Type: V-B — Required rating: 0	
IBC Chapter 7 Fire and Smoke Protection Features	IBC Chapter 7 Maximum Area of Exterior Wall Openings Table 705.8	No Limit / Not Required	Fire Separation Distance: 30' or greater — Degree of Protection: Unprotected, Nonsprinklered — Allowable Area: Not Applicable
	Fire Walls Section 706	None required	
	Fire Barriers IBC Section 707 Separate Occupancies Section 707.3.9 Fire Areas Section 707.3.10	None required	
	Fire Partitions Section 708	None required	
IBC Chapter 8 Interior Finishes	Table 803.11	Group: F — Corridor Walls/Ceilings: N/A	Rooms Walls/Ceilings: A, B or C — Corridor Floors: N/A — Room Floors: A, B or C

CHAPTER	REFERENCE	APPLICATION / REQUIREMENT	SUPPORT / NOTES / CALCULATIONS
IBC Chapter 9 Fire Protection Systems	Fire Protection Systems Section 903	N/A	
	Fire Extinguishers Section 906.3(1) IFC Table	Ordinary Hazard	(1) Type 2-A placed to comply with 75' travel distance
IBC Chapter 10 Means of Egress	Table 1006.2.1	Required: 1 — Provided: 1	Occupant load < 49 Common path of travel < 75' - 0"
	Table 1004.1.2	Occ. Load 1:300 = 3	
	Travel Distance to Exits for Moderate Hazard Factory (F) Occupancies Section 1016	Travel distance shall not exceed 200'	
	Travel Distance to Exits for Storage (S-2) Occupancies Section 1017	N/A	
	Travel Distance to Exits for Assembly (A-3) Occupancies Section 1017	N/A	
	Corridors Section 1020	None required	
	Common Path of Travel Table 1006.2.1	F = 75 FT	Actual = 32'
	Dead-End Corridor Section 1020.4	n/a	
	Minimum Egress Width Section 1005	Not less than 36 inches unless otherwise specified.	
IBC Chapter 11 Accessibility	Scoping Requirements Section 1103	Not required per Section 1103.2.9 Equipment Spaces	
IBC Chapter 13 Energy Efficiency	IECC 2015 Table C402.1.4	Required: Floor - Heated Slab F-0.55; Wall - Mass R-14.1 (U-0.071); Roof - Attic R-47.6 (U-0.021); Windows N/A; Doors - Swinging U-0.37 Provided: Floor - Heated Slab F-0.55; Wall - Mass R-14.8 (U-0.068); Roof - Attic R-51.1 (U-0.020)	

REVISIONS

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STATE OF ALASKA — 49 TH — JAMES D. BARTLETT — 13-FEB-2024 — No. A10413 — REGISTERED PROFESSIONAL ARCHITECT — DESIGN ALASKA

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CONSTRUCT BOGARD ROAD BOOSTER STATION
CITY OF PALMER
PALMER, ALASKA

SHEET TITLE: CODE INFORMATION

SHEET: A1.00

DRAWN BY:	CHECKED BY:
WTG	JB

DATE:	SCALE:
DEC 2023	AS NOTED

JOB NUMBER: 16 - 033

12-Feb-24 4:40:01 PM

ARCHITECTURAL STANDARD ABBREVIATIONS

1. SEE OTHER DISCIPLINES FOR ADDITIONAL ABBREVIATIONS.
2. SEE GENERAL SHEETS FOR CODE ABBREVIATIONS.
3. SEE ASSEMBLY TYPES FOR HYPHENATED ASSEMBLY TAGS (I.E. C-A1, W01-3A, AND WX-3A).
4. SEE MATERIAL SCHEDULE FOR HYPHENATED MATERIAL TAGS (I.E. ACT-1, CPT-1, AND RB-1).
5. SEE ROOM AND DOOR SCHEDULE FOR SPECIFIC RELEVANT ABBREVIATIONS.
6. SOME ABBREVIATIONS LISTED BELOW MAY NOT BE USED IN THIS PROJECT.

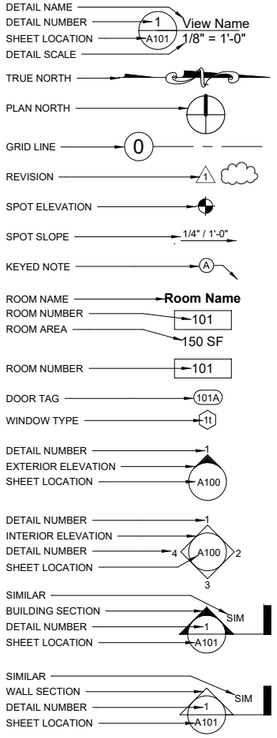
(E)	EXISTING
ADA	AMERICAN DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
CFOI	CONTRACTOR FURNISHED OWNER INSTALLED
CMU	CONCRETE MASONRY UNIT
CONC	CONCRETE
ELEC	ELECTRICAL
GA	GYPSUM ASSOCIATION
GYP	GYPSUM BOARD
IBC	INTERNATIONAL BUILDING CODE
INSUL	INSULATION
ITSP	INSULATED TRANSLUCENT SANDWICH PANEL
MAX	MAXIMUM
MECH	MECHANICAL
MFSD	MANUFACTURER'S STANDARD
MIN	MINIMUM
NIC	NOT IN CONTRACT
OC	ON CENTER
OD	OVERFLOW DRAIN
OFOI	OWNER FURNISHED OWNER INSTALLED
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OSB	ORIENTED STRAND BOARD
OTS	OPEN TO STRUCTURE
PLY	PLYWOOD
RD	ROOF DRAIN
SIP	STRUCTURAL INSULATED PANEL
SPEC	SPECIFICATION
STC	SOUND TRANSMISSION CLASS
STRUC	STRUCTURAL
TBD	TO BE DETERMINED
TYP	TYPICAL
UL	UNDERWRITERS LABORATORY
VTR	VENT THROUGH ROOF

ARCHITECTURAL PROJECT SPECIFIC ABBREVIATIONS

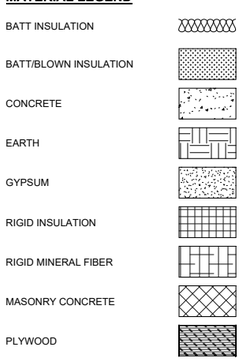
NA	NOT APPLICABLE

ARCHITECTURAL SYMBOL LEGEND

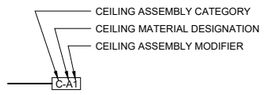
SEE OTHER DISCIPLINES FOR ADDITIONAL SYMBOLS



MATERIAL LEGEND



ASSEMBLY TAG LEGEND - CEILING



CEILING ASSEMBLY CATEGORY
PROJECTS MAY NOT INCLUDE ALL ASSEMBLY CATEGORIES.

- C CEILING

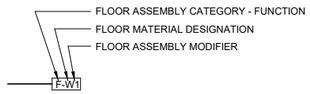
CEILING MATERIAL DESIGNATION
LETTERS A THRU Z REPRESENT DESCRIPTIONS OF ASSEMBLY TYPES. THE BELOW ARE COMMONLY USED EXAMPLES. SEE ASSEMBLY TYPES FOR ADDITIONAL DESIGNATIONS.

- A ACOUSTIC CEILING TILE
- G GYPSUM BOARD
- S SPECIALTY MATERIAL

CEILING ASSEMBLY MODIFIER
NUMBERS REPRESENT DESCRIPTIONS OF ASSEMBLY TYPES. THE BELOW ARE COMMONLY USED EXAMPLES. SEE ASSEMBLY TYPES FOR ADDITIONAL MODIFIERS.

- 1 TYPICAL

ASSEMBLY TAG LEGEND - FLOOR



FLOOR ASSEMBLY CATEGORY - FUNCTION
FLOORS ON GRADE OR THOSE COMPRISING THE EXTERIOR ENVELOPE OF THE BUILDING ARE CONSIDERED EXTERIOR. PROJECTS MAY NOT INCLUDE ALL ASSEMBLY CATEGORIES.

- F FLOOR - INTERIOR
- FX FLOOR - EXTERIOR

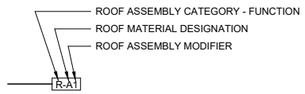
FLOOR MATERIAL DESIGNATION
LETTERS A THRU Z REPRESENT DESCRIPTIONS OF ASSEMBLY TYPES. THE BELOW ARE COMMONLY USED EXAMPLES. SEE ASSEMBLY TYPES FOR ADDITIONAL DESIGNATIONS.

- C CONCRETE
- W WOOD

FLOOR ASSEMBLY MODIFIER
NUMBERS REPRESENT DESCRIPTIONS OF ASSEMBLY TYPES. THE BELOW ARE COMMONLY USED EXAMPLES. SEE ASSEMBLY TYPES FOR ADDITIONAL MODIFIERS.

- 1 TYPICAL

ASSEMBLY TAG LEGEND - ROOF



ROOF ASSEMBLY CATEGORY - FUNCTION

- R ROOF
- RS ROOF - SOFFIT

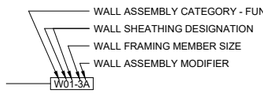
ROOF MATERIAL DESIGNATION
LETTERS A THRU Z REPRESENT DESCRIPTIONS OF ASSEMBLY TYPES. THE BELOW ARE COMMONLY USED EXAMPLES. SEE ASSEMBLY TYPES FOR ADDITIONAL DESIGNATIONS.

- A ASPHALT
- B BITUMINOUS
- E EPDM
- G GREEN
- M METAL

ROOF ASSEMBLY MODIFIER
NUMBERS REPRESENT DESCRIPTIONS OF ASSEMBLY TYPES. THE BELOW ARE COMMONLY USED EXAMPLES. SEE ASSEMBLY TYPES FOR ADDITIONAL MODIFIERS.

- 1 TYPICAL

ASSEMBLY TAG LEGEND - WALL INTERIOR



WALL ASSEMBLY CATEGORY - FUNCTION
PROJECTS MAY NOT INCLUDE ALL ASSEMBLY CATEGORIES.

- W WALL - INTERIOR

WALL SHEATHING DESIGNATION
ASSEMBLIES MAY NOT INCLUDE A SHEATHING DESIGNATION. THE SHEATHING DESIGNATION REFERS TO THE NUMBER OF SHEATHING LAYERS ON EACH SIDE OF THE FRAMING MEMBER.

- 00 FIRST SIDE (0 LAYERS) + SECOND SIDE (0 LAYERS)
- 01 FIRST SIDE (0 LAYERS) + SECOND SIDE (1 LAYERS)
- 02 FIRST SIDE (0 LAYERS) + SECOND SIDE (2 LAYERS)
- 03 FIRST SIDE (0 LAYERS) + SECOND SIDE (3 LAYERS)
- 04 FIRST SIDE (0 LAYERS) + SECOND SIDE (4 LAYERS)
- 11 FIRST SIDE (1 LAYERS) + SECOND SIDE (1 LAYERS)
- 12 FIRST SIDE (1 LAYERS) + SECOND SIDE (2 LAYERS)
- 13 FIRST SIDE (1 LAYERS) + SECOND SIDE (3 LAYERS)
- 14 FIRST SIDE (1 LAYERS) + SECOND SIDE (4 LAYERS)
- 22 FIRST SIDE (2 LAYERS) + SECOND SIDE (2 LAYERS)
- 23 FIRST SIDE (2 LAYERS) + SECOND SIDE (3 LAYERS)
- 24 FIRST SIDE (2 LAYERS) + SECOND SIDE (4 LAYERS)
- 33 FIRST SIDE (3 LAYERS) + SECOND SIDE (3 LAYERS)
- 34 FIRST SIDE (3 LAYERS) + SECOND SIDE (4 LAYERS)
- 44 FIRST SIDE (4 LAYERS) + SECOND SIDE (4 LAYERS)

WALL FRAMING MEMBER SIZE

FURRING AND METAL STUDS
- 0 7/8" FURRING CHANNELS
- 1 1 5/8" METAL STUDS
- 2 2 1/2" METAL STUDS
- 3 3 5/8" METAL STUDS
- 4 4" METAL STUDS
- 6 6" METAL STUDS
- 8 8" METAL STUDS

SHAFT WALLS
- 2 2 1/2" METAL CH STUDS
- 4 4" METAL CH STUDS
- 6 4" METAL CH STUDS

WOOD STUDS
- 4 2x4 WOOD STUDS
- 6 2x6 WOOD STUDS
- 8 2x8 WOOD STUDS

CMU
- 2 1 5/8" CMU
- 4 3 5/8" CMU
- 6 5 5/8" CMU
- 8 7 5/8" CMU
- 10 9 5/8" CMU
- 12 11 5/8" CMU

CONCRETE
- # CONCRETE THICKNESS

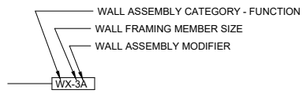
WALL ASSEMBLY MODIFIER
LETTERS A THRU Z REPRESENT DESCRIPTIONS OF ASSEMBLY TYPES. THE BELOW ARE COMMONLY USED EXAMPLES. SEE ASSEMBLY TYPES FOR ADDITIONAL MODIFIERS.

- A TYPICAL
- F FIRE RATED
- G FIRE AND SOUND RATED
- H FIRE AND SOUND RATED WITH TILE
- K TILE
- L TILE AND SOUND RATED
- P PLYWOOD
- S SOUND RATED
- W WOOD STUD
- X WOOD STUD, FIRE RATED
- Y WOOD STUD, FIRE AND SOUND RATED
- Z WOOD STUD, SOUND RATED

LETTERS AA THRU ZZ REPRESENT DESCRIPTIONS OF ASSEMBLY TYPES FOR CHASE WALLS. THE BELOW ARE COMMONLY USED EXAMPLES. SEE ASSEMBLY TYPES FOR ADDITIONAL MODIFIERS.

- FF FIRE RATED
- GG FIRE AND SOUND RATED
- HH FIRE AND SOUND RATED WITH TILE
- LL TILE AND SOUND RATED
- SS SOUND RATED
- XX WOOD STUD, FIRE RATED
- YY WOOD STUD, FIRE AND SOUND RATED
- ZZ WOOD STUD, SOUND RATED

ASSEMBLY TAG LEGEND - WALL EXTERIOR



WALL ASSEMBLY CATEGORY - FUNCTION
PROJECTS MAY NOT INCLUDE ALL ASSEMBLY CATEGORIES.

- WF WALL - FOUNDATION
- WR WALL - RETAINING
- WX WALL - EXTERIOR

WALL FRAMING MEMBER SIZE
ASSEMBLIES MAY NOT INCLUDE A FRAMING MEMBER SIZE.

FURRING AND METAL STUDS
- 0 7/8" FURRING CHANNELS
- 1 1 5/8" METAL STUDS
- 2 2 1/2" METAL STUDS
- 3 3 5/8" METAL STUDS
- 4 4" METAL STUDS
- 6 6" METAL STUDS
- 8 8" METAL STUDS

SHAFT WALLS
- 2 2 1/2" METAL CH STUDS
- 4 4" METAL CH STUDS
- 6 4" METAL CH STUDS

WOOD STUDS
- 4 2x4 WOOD STUDS
- 6 2x6 WOOD STUDS
- 8 2x8 WOOD STUDS

CMU
- 2 1 5/8" CMU
- 4 3 5/8" CMU
- 6 5 5/8" CMU
- 8 7 5/8" CMU
- 10 9 5/8" CMU
- 12 11 5/8" CMU

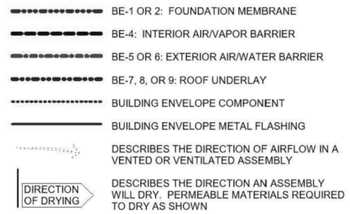
CONCRETE
- # CONCRETE THICKNESS

WALL ASSEMBLY MODIFIER
LETTERS A THRU Z REPRESENT DESCRIPTIONS OF ASSEMBLY TYPES. THE BELOW ARE COMMONLY USED EXAMPLES SEE ASSEMBLY TYPES FOR ADDITIONAL INFORMATION. SEE ASSEMBLY TYPES FOR ADDITIONAL MODIFIERS.

- A TYPICAL
- F FIRE RATED

BUILDING ENVELOPE LEGEND

SEE EXTERIOR ASSEMBLY TYPES, EXTERIOR DETAILS, MATERIAL SCHEDULE, AND SPECIFICATIONS FOR ADDITIONAL INFORMATION. PROJECTS MAY NOT INCLUDE ALL BUILDING ENVELOPE CATEGORIES.



ARCHITECTURAL SHEET SEQUENCE

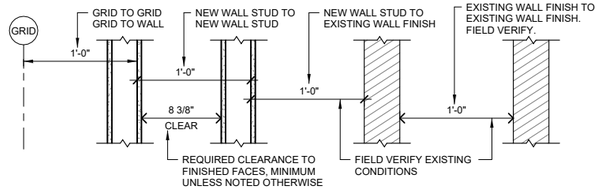
THIS REFERENCE IS INTENDED TO ASSIST WITH THE LOCATION OF INFORMATION IN A TYPICAL PROJECT. THIS PROJECT MAY VARY FROM THE REPRESENTATION BELOW. SEE THE SHEET INDEX FOR SPECIFIC SHEET SEQUENCE.

A0 SHEETS	ARCHITECTURAL INFORMATION
A1 SHEETS	ARCHITECTURAL DEMOLITION (NOT USED)
A2 SHEETS	FLOOR AND ROOF PLANS
A3 SHEETS	EXTERIOR ELEVATIONS
A4 SHEETS	SECTIONS AND VERTICAL CIRCULATION
A5 SHEETS	EXTERIOR DETAILS AND ASSEMBLIES
A6 SHEETS	INTERIOR PLANS (NOT USED)
A7 SHEETS	INTERIOR ELEVATIONS (NOT USED)
A8 SHEETS	INTERIOR DETAILS AND ASSEMBLIES (NOT USED)
A9 SHEETS	SCHEDULES

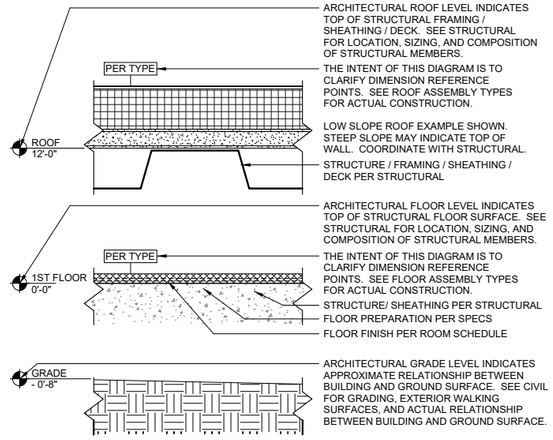
THE TWO CHARACTER ALPHANUMERIC DESIGNATIONS REPRESENT ALL SHEETS IN THE SERIES. FOR EXAMPLE, 'A1 SHEETS' DESCRIBES A100 THROUGH A199.

ARCHITECTURAL NOTES

A. ARCHITECTURAL NOTES CONVEY INTENT OF WORK COMPRISING THE ENTIRE ARCHITECTURAL DISCIPLINE.
B. SHEET NOTES CONVEY INTENT OF WORK COMPRISING THE ENTIRE SHEET ON WHICH THE NOTES APPEAR INCLUDING SHEETS ON WHICH THE NOTES ARE REFERENCED.
C. CONSTRUCTION DOCUMENTS ARE PREPARED FOR THE PURPOSES OF COMMUNICATING DESIGN INTENT.
D. DRAWINGS ARE GRAPHIC REPRESENTATIONS INTENDED TO CONVEY THE QUANTITATIVE EXTENT AND RELATIONSHIP BETWEEN ELEMENTS.
E. SPECIFICATIONS ARE WRITTEN REPRESENTATIONS INTENDED TO CONVEY THE QUALITATIVE REQUIREMENTS OF PROJECT ELEMENTS.
F. CONTRACTOR IS RESPONSIBLE FOR PROVIDING A COMPLETE AND FINISHED PRODUCT FULFILLING THE INTENT OF THE CONSTRUCTION DOCUMENTS.
G. THE TERM 'NEW' MAY BE USED TO DISTINGUISH NEW FROM EXISTING IN SOME INSTANCES. OMISSION OF THE TERM 'NEW' IS NOT NECESSARILY AN INDICATION THAT THE ELEMENT IS EXISTING.
H. THE TERM 'ALL' MAY BE USED TO CLARIFY SCOPE. OMISSION OF THE TERM 'ALL' IS NOT NECESSARILY AN INDICATION THAT THE SCOPE IS LIMITED.
I. SEE GENERAL CODE INFORMATION AND CODE PLAN.
J. PROVIDE CONSTRUCTION IN COMPLIANCE WITH OSHA.
K. COORDINATE ARCHITECTURAL WORK WITH STRUCTURAL AND OTHER DISCIPLINES.
L. SEE STRUCTURAL FOR SPECIFIC INFORMATION REGARDING LOAD BEARING MEMBERS, MECHANICAL FASTENERS, MASTIC ADHESION, AND STRUCTURE.
M. PATCH, REPAIR, AND REFINISH EXISTING SURFACES TO REMAIN, AFFECTED BY WORK.
N. FIELD VERIFY DIMENSIONS SHOWN TO EXISTING CONSTRUCTION. NOTIFY ARCHITECT WHERE DISCREPANCIES AFFECT DESIGN.
O. DIMENSIONS AT EXISTING CONSTRUCTION ARE MEASURED FROM FACE OF EXISTING FINISH UNLESS NOTED OTHERWISE.
P. DIMENSIONS AT NEW CONSTRUCTION ARE MEASURED FROM FACE OF FRAMING UNLESS NOTED OTHERWISE.
Q. DIMENSIONS INDICATED AS 'CLEAR' REQUIRE MINIMUM CLEARANCE MEASURED TO FINISHED FACES, UNLESS NOTED OTHERWISE.
R. DIMENSIONS INDICATED WITH '+/-' ARE INTENDED TO PROVIDE REASONABLE TOLERANCE APPROPRIATE TO THE CONTEXT OF THE ELEMENTS DIMENSIONED.



1 A1.01 INTERIOR FRAMING DETAIL - DIMENSION REFERENCE POINT CONVENTIONS
1 1/2" = 1'-0"



2 A1.01 INTERIOR FRAMING DETAIL - LEVEL REFERENCE POINT CONVENTIONS
6" = 1'-0"

REVISIONS

MARK	DATE	DESCRIPTION
1		
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4		
5		

STATE OF ALASKA
49 TH
JAMES D. BARTLETT
13-FEB-2024
No. A10413
REGISTERED PROFESSIONAL ARCHITECT

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CONSTRUCT BOGARD ROAD BOOSTER STATION
CITY OF PALMER
PALMER, ALASKA

SHEET TITLE: ARCHITECTURAL INFORMATION

SHEET: A1.01

DRAWN BY:	CHECKED BY:
JAC	WTG
DATE: FEB 2024	SCALE: AS NOTED
JOB NUMBER: 16 - 033	

FLOOR PLAN NOTES

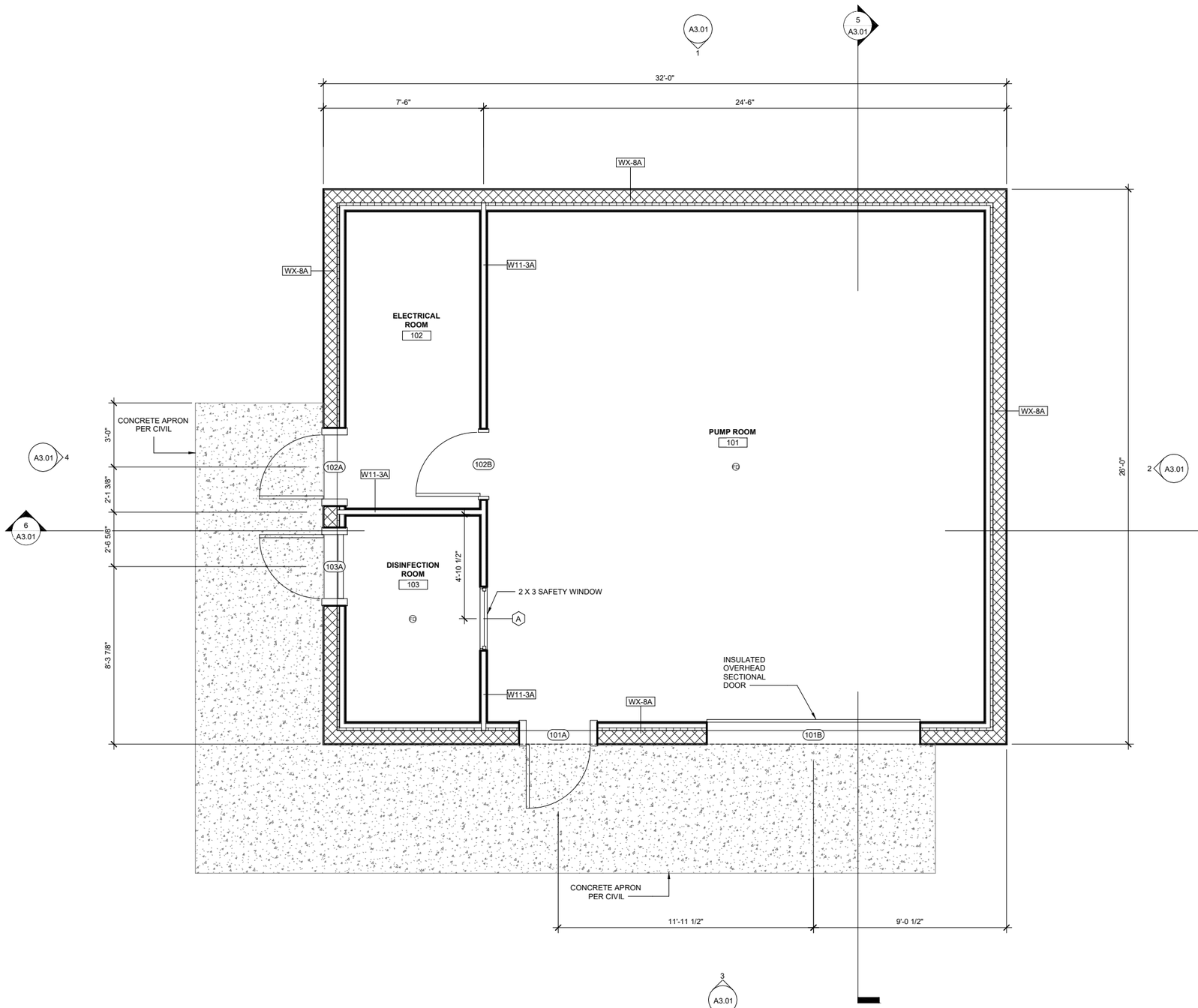
A. LOCATE DOORS MAINTAINING 4" CLEAR FROM THE WALL FINISH TO THE HINGE SIDE FACE OF FRAME UNLESS NOTED OTHERWISE.
B. PLUMBING FIXTURE DIMENSIONS ARE SHOWN TO CENTER OF FIXTURE. COORDINATE CENTER OF FIXTURE AND CENTER OF DRAIN WITH PRODUCT MANUFACTURER.

FLOOR PLAN LEGEND

EXTERIOR WALL PER EXTERIOR ASSEMBLY TYPES

INTERIOR WALL PER INTERIOR ASSEMBLY TYPES

(FD) 4" FLOOR DRAIN



1 A2.00 OVERALL PLAN - 1ST FLOOR
3/8" = 1'-0"

REVISIONS		
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SHEET TITLE: OVERALL PLAN - 1ST FLOOR

SHEET: A2.00

DRAWN BY:	CHECKED BY:
JAC	WTG
DATE: FEB 2024	SCALE: AS NOTED
JOB NUMBER: 16 - 033	

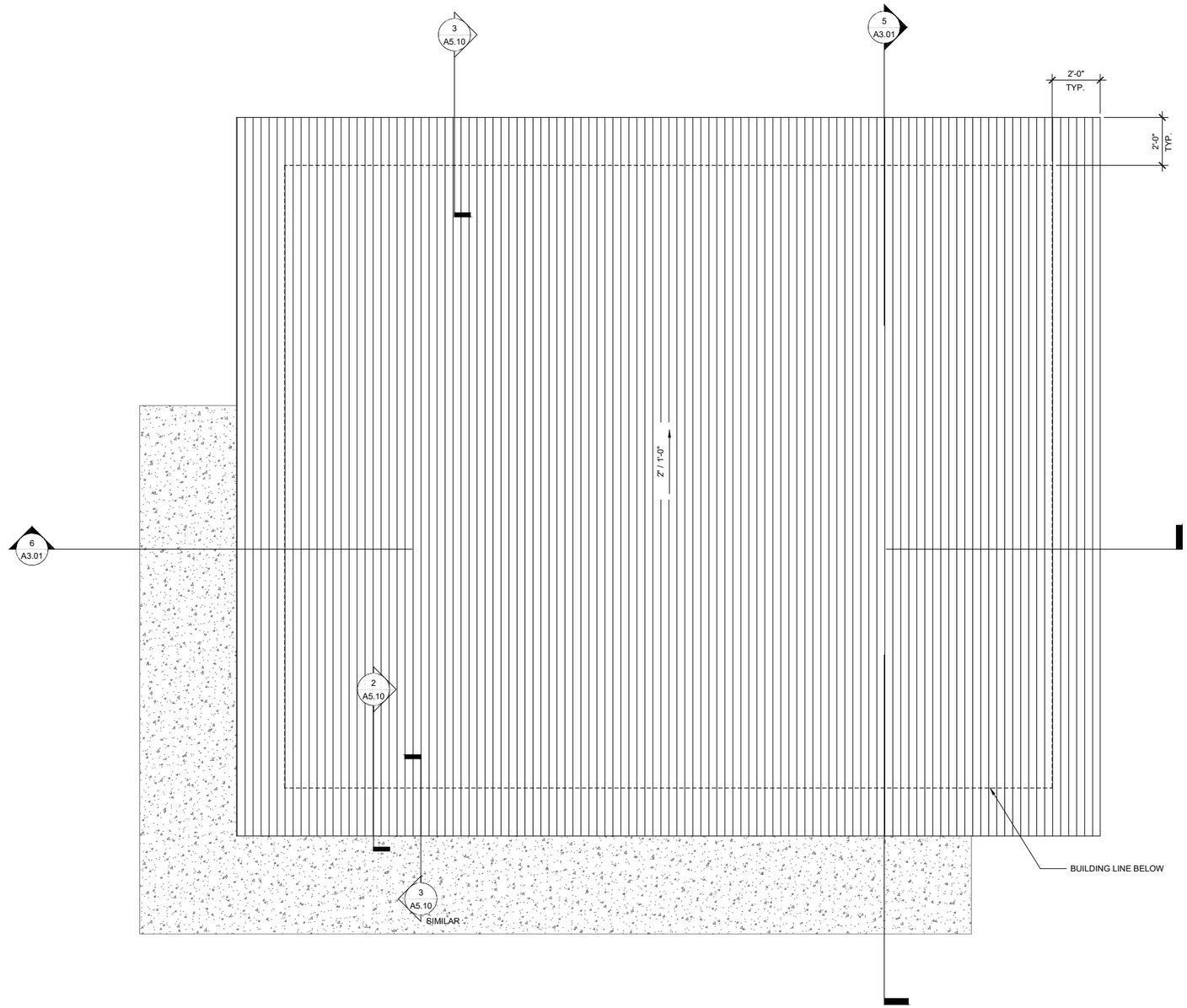
ONE INCH

ROOF PLAN NOTES

A. PROVIDE CONTINUITY OF BUILDING ENVELOPE PER ASSEMBLY TYPES AND BUILDING ENVELOPE NOTES ON A500; AND EXTERIOR DETAILS ON A5 SHEETS.
B. COORDINATE WALL PENETRATION LOCATIONS TO MAINTAIN 2'-0" MINIMUM ABOVE ADJACENT ROOF SURFACES INCLUDING, BUT NOT LIMITED TO; CURBS, PARAPETS, REGLETS, AND TERMINATION BARS.

ROOF PLAN LEGEND

SLOPE WITH STRUCTURE (SWS) 1/4" : 1'-0"



1 A2.01 OVERALL PLAN - ROOF
3/8" = 1'-0"

REVISIONS

MARK	DATE	DESCRIPTION
1		
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SHEET TITLE: OVERALL PLAN - ROOF

SHEET: A2.01

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JAC	WTG
DATE: FEB 2024	SCALE: AS NOTED
JOB NUMBER: 16 - 033	

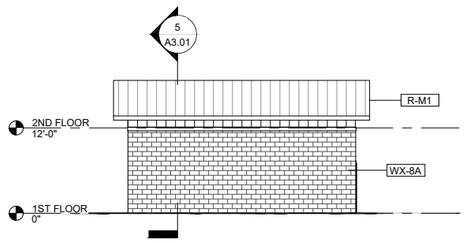
EXTERIOR ELEVATION NOTES

A. EXTERIOR ELEVATIONS ARE INTENDED TO SHOW EXTERIOR FINISHES, OPENING TYPES, AND CALLOUTS OF EXTERIOR ENVELOPE PENETRATIONS.

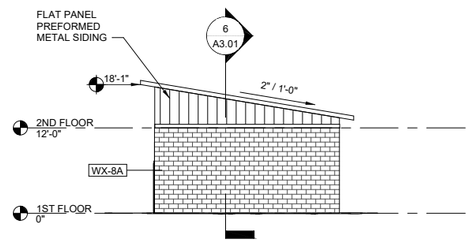
EXTERIOR FINISH LEGEND

CMU-1

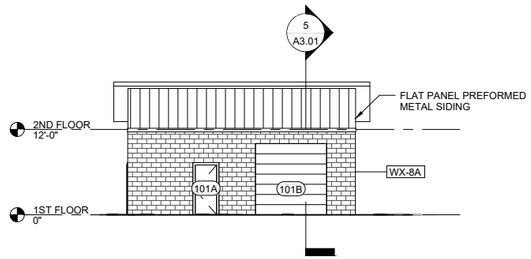
FLAT PANEL PREFORMED METAL SIDING



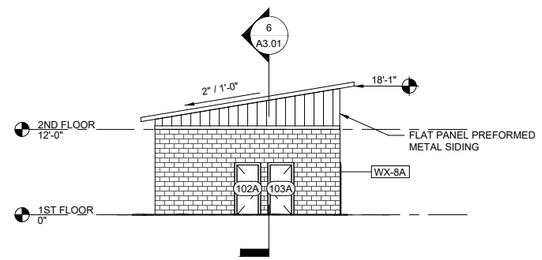
1 A3.01 EXTERIOR ELEVATION - NORTH
3/32" = 1'-0"



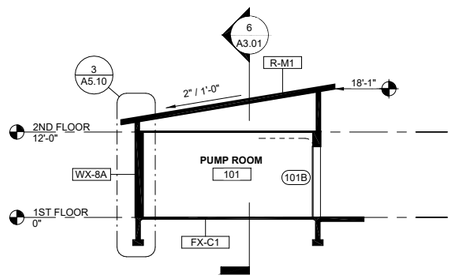
2 A3.01 EXTERIOR ELEVATION - EAST
3/32" = 1'-0"



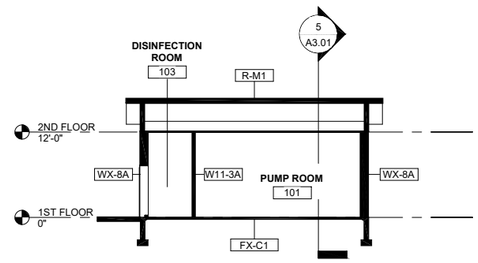
3 A3.01 EXTERIOR ELEVATION - SOUTH
3/32" = 1'-0"



4 A3.01 EXTERIOR ELEVATION - WEST
3/32" = 1'-0"



5 A3.01 BUILDING SECTION - WEST
3/32" = 1'-0"



6 A3.01 BUILDING SECTION - NORTH
3/32" = 1'-0"

REVISIONS		
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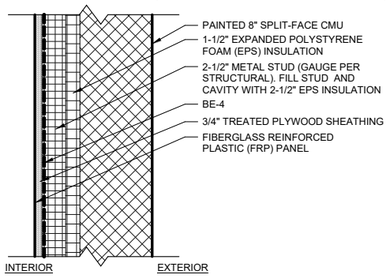
SHEET TITLE
EXTERIOR ELEVATIONS

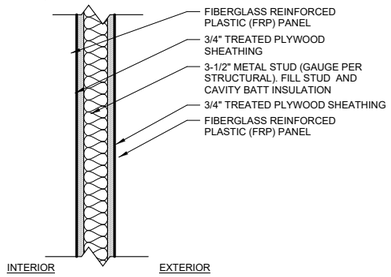
SHEET
A3.01

DRAWN BY:	CHECKED BY:
JAC	WTG
DATE: FEB 2024	SCALE: AS NOTED
JOB NUMBER: 16 - 033	

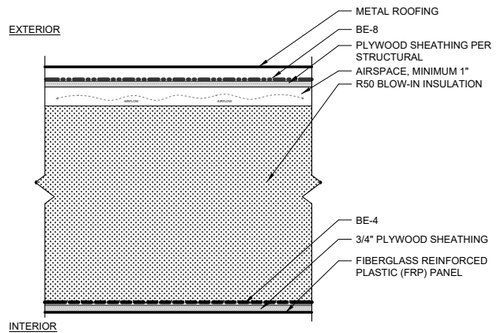


WX-8A WALL EXTERIOR - CMU

ASSEMBLY AVERAGE INSULATION VALUE: U-0.007 (~R-14)

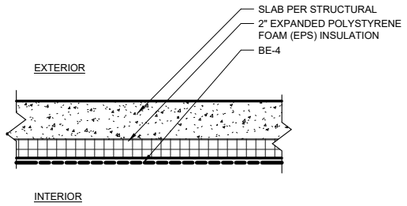


W11-3A WALL INTERIOR - 3 1/2" STUD



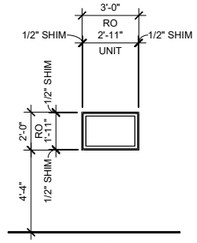
R-M1 ROOF - STEEP SLOPE - METAL STANDING SEAM - TYPICAL

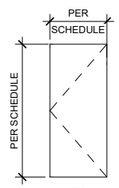
ASSEMBLY AVERAGE INSULATION VALUE: U-0.020 (~R-51)

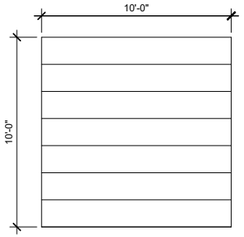


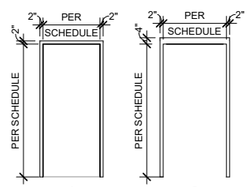
FX-C1 FLOOR EXTERIOR - CONCRETE SLAB ON GRADE - UNHEATED

ASSEMBLY AVERAGE INSULATION VALUE: F-0.392 (~R-8 FULLY INSULATED SLAB)









WINDOW TYPES **DOOR TYPES** **FRAME TYPES**

EXTERIOR ASSEMBLY NOTES

1 - TYPICAL
A. ASSEMBLIES ARE DIAGRAMS ONLY. DO NOT SCALE.
B. ASSEMBLIES ARE INTENDED TO DESCRIBE MATERIALS AND THEIR RELATIONSHIP WITHIN A GIVEN CEILING, FLOOR, ROOF, OR WALL. PENETRATIONS, JOINTS, FINISHES, AND INTERSECTIONS BETWEEN ASSEMBLIES ARE NOT SHOWN.
C. SEE A0 SHEETS FOR ARCHITECTURAL NOTES, SHEET SEQUENCE, AND ASSEMBLY TAG LEGENDS.
D. SEE A2 SHEETS FOR FLOOR PLAN ASSEMBLY LOCATIONS.
E. SEE A4 SHEETS FOR SECTION ASSEMBLY LOCATIONS.
F. SEE A5 SHEETS FOR EXTERIOR DETAILS.
G. SEE A8 SHEETS FOR INTERIOR ASSEMBLIES, INTERIOR ASSEMBLY NOTES, AND INTERIOR DETAILS.
H. SEE A9 SHEETS FOR ROOM SCHEDULE CEILING ASSEMBLY LOCATIONS.

2 - FRAMING
A. SEE STRUCTURAL FOR STUD GAUGE AND SPACING AT EXTERIOR, LOAD BEARING, AND STRUCTURAL WALLS.
B. PROVIDE 20 GAUGE (30 MIL) NON-STRUCTURAL METAL STUDS AT 24" ON CENTER FOR INTERIOR NON-BEARING WALLS UNLESS NOTED OTHERWISE, OR PER STUD MANUFACTURER.
C. PROVIDE 18 GAUGE (43 MIL) METAL STUDS AT 16" ON CENTER AT WALL HUNG CASEWORK AND EQUIPMENT, UNLESS NOTED OTHERWISE.
D. EXTEND CONTINUOUS STUDS FROM FLOOR TO STRUCTURE ABOVE UNLESS NOTED OTHERWISE.
E. PROVIDE MANUFACTURERS STANDARD DEFLECTION TRACK AT NON-BEARING STUD WALLS EXTENDING TO STRUCTURE.
F. PROVIDE BACKING AT ASSEMBLY MOUNTED ACCESSORIES, EQUIPMENT, AND FIXTURES.
G. PROVIDE BACKING AT OWNER FURNISHED AND/OR OWNER INSTALLED ASSEMBLY MOUNTED ACCESSORIES, EQUIPMENT, AND FIXTURES.

3 - SHEATHING
A. SEE STRUCTURAL FOR SHEATHING REQUIREMENTS.
B. PROVIDE TYPE 'X' GYPSUM BOARD PER SPECIFICATIONS.
C. PROVIDE CONTINUOUS GYPSUM BOARD FROM FLOOR TO STRUCTURE ABOVE UNLESS NOTED OTHERWISE.
D. PROVIDE GAP AT DEFLECTION TRACK PER MANUFACTURER RECOMMENDATION. COORDINATE FIRE RATED AND SOUND RATED CONDITIONS.
E. SEAL THROUGH WALL PENETRATIONS AT BOTH ABOVE CEILING AND BELOW CEILING CONDITIONS.
F. PROVIDE CONTROL JOINTS IN GYPSUM BOARD AT 30'-0" MAXIMUM SPACING OR PER UNITED STATES GYPSUM ASSOCIATION.

4 - EXTERIOR FINISHES
A. SEE A3 SHEETS FOR EXTERIOR FINISHES.
B. SEE ROOM SCHEDULE FOR FINISH INFORMATION.
C. SEE MATERIAL SCHEDULE FOR FINISH INFORMATION.

5 - WATER RESISTANT ASSEMBLIES
A. SEE A8 SHEETS INTERIOR ASSEMBLY NOTES - WATER RESISTANT ASSEMBLIES.

6 - FIRE RATED ASSEMBLIES
A. NOT USED.

7 - BUILDING ENVELOPE
A. SEE SPEC DIVISION 07 AND RELATED SPEC SECTIONS.
B. SEE A001 FOR BUILDING ENVELOPE LEGEND.
C. BARRIER / RETARDER CONTINUITY IS CRITICAL FOR THE PERFORMANCE AND DURABILITY OF THE ASSEMBLY.
D. FLASHING, SEALING, AND INSULATING TRANSITION SPACES ARE CRITICAL COMPONENTS OF WATER, AIR, AND THERMAL BARRIER CONTINUITY.
E. ROOF UNDERLAYMENT MUST BE INSTALLED IN A SHINGLE FASHION (WEATHER LAPPED), FROM FOOTING TO ROOF, WITH SUFFICIENT OVERLAP AND NO EXPOSED CORNERS. AVOID TRAPPING MOISTURE IN TIGHT SPACES OR CREATING FLAT HORIZONTAL AREAS THAT CAN COLLECT WATER.
F. NOTIFY ARCHITECT OF BUILDING ENVELOPE COMPONENT SUBSTITUTIONS. SOME PRODUCTS CAN SIMULTANEOUSLY ACT AS A WATER RESISTIVE BARRIER, AIR BARRIER, AND/ OR A VAPOR RETARDER. SUBSTITUTING ASSEMBLY COMPONENTS WITHOUT ARCHITECTS APPROVAL CAN DRASTICALLY ALTER THE DURABILITY AND ENERGY PERFORMANCE OF THE ASSEMBLY.

DOOR SCHEDULE

DOOR NUMBER	DIMENSIONS		DOOR		FRAME		REMARKS	DOOR NUMBER
	WIDTH	HEIGHT	TYPE	FINISH	TYPE	FINISH		
101A	3'-0"	7'-0"	F1	PNT-20	2	PNT-30	SEE HARDWARE SPEC	101A
101B	10'-0"	10'-0"	F2	MFSD	--	MFSD	MFSD LOCKSET	101B
102A	3'-0"	7'-0"	F1	PNT-20	2	PNT-30	SEE HARDWARE SPEC	102A
102B	3'-0"	7'-0"	F1	PNT-60	1	PNT-70	SEE HARDWARE SPEC	102B
103A	3'-0"	7'-0"	F1	PNT-20	2	PNT-30	SEE HARDWARE SPEC	103A

BUILDING ENVELOPE INDEX

TYPE	BASIS OF DESIGN - PER MATERIAL SCHEDULE
BE-4	POLYETHELYNE FILM (MIL PER SPEC)
BE-8	GRACE ICE AND WATER SHIELD

MATERIAL INDEX

TYPE	SPEC
BE-4	07 25 00
BE-8	07 25 00
CMU-1	04 22 00
FRP-1	09 77 33
MTR-1	07 41 13
MTS-1	07 42 13
PNT-30	09 91 13
PNT-70	09 91 23

MATERIAL SCHEDULE

SPEC	TYPE	DESCRIPTION	LOCATION	BASIS OF DESIGN			REMARKS		TYPE
				MANUFACTURER	MODEL	COLOR	LOW EMITTING	MISCELLANEOUS	
04 20 00 - MASONRY - UNIT MASONRY									
04 22 00	CMU-1	CONCRETE MASONRY UNIT SPLIT FACE	PER EXTERIOR ELEVATIONS	DAVIS BLOCK AND CONCRETE	STANDARD SMOOTH FACE	TO BE DETERMINED			CMU-1
07 25 00 - THERMAL AND MOISTURE PROTECTION - WEATHER BARRIERS									
07 25 00	BE-4	SHEETING - AIR / VAPOR BARRIER (AVB)	PER ASSEMBLY TYPES	HUSKY	POLYETHELYNE FILM (MIL PER SPEC)	NOT APPLICABLE			BE-4
07 25 00	BE-8	ROOF UNDERLAY - AIR / WATER / VAPOR BARRIER (AWVB)	PER ASSEMBLY TYPES	GCP APPLIED TECHNOLOGIES	GRACE ICE AND WATER SHIELD	NOT APPLICABLE			BE-8
07 40 00 - THERMAL AND MOISTURE PROTECTION - ROOFING AND SIDING PANELS									
07 41 13	MTR-1	METAL ROOF PANELS	PER EXTERIOR ELEVATIONS	THE BRYER COMPANY	PRE-FINISHED GALVALUME STEEL	EVERGREEN			MTR-1
07 42 13	MTS-1	METAL WALL SIDING - EXPOSED FASTENERS	PER EXTERIOR ELEVATIONS	METAL SALES	TLC SERIES - TLC-10	TO MATCH MTR-1			MTS-1
09 70 00 - FINISHES - WALL FINISHES									
09 77 33	FRP-1	FIBER REINFORCED PLASTIC	PER ROOM SCHEDULE	CRANE COMPOSITES	SEQUENTIA	TO BE DETERMINED	LE-C		FRP-1
09 90 00 - FINISHES - PAINTING AND COATING									
09 91 13	PNT-30	EXTERIOR PAINT - DOOR FRAME	PER DOOR SCHEDULE	SHERWIN WILLIAMS	EXTERIOR ACRYLIC LATEX	MATCH MTF-1			PNT-30
09 91 23	PNT-70	INTERIOR PAINT - DOOR FRAME	PER DOOR SCHEDULE	SHERWIN WILLIAMS	PROMAR 200 INTERIOR LATEX	MATCH RB-1	LE-F		PNT-70

REVISIONS

MARK	DATE	DESCRIPTION
1		
2		
3		
4		
5		

STATE OF ALASKA 49 TH
JAMES D. BARTLETT
13-FEB-2024
No. A10413
REGISTERED PROFESSIONAL ARCHITECT
DESIGN ALASKA

Design Alaska
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CONSTRUCT BOGARD ROAD BOOSTER STATION
CITY OF PALMER
PALMER, ALASKA

SHEET TITLE: EXTERIOR DETAILS - ASSEMBLY TYPES

SHEET: A5.01

DRAWN BY:	CHECKED BY:
JAC	WTG
DATE: FEB 2024	SCALE: AS NOTED
JOB NUMBER: 16 - 033	

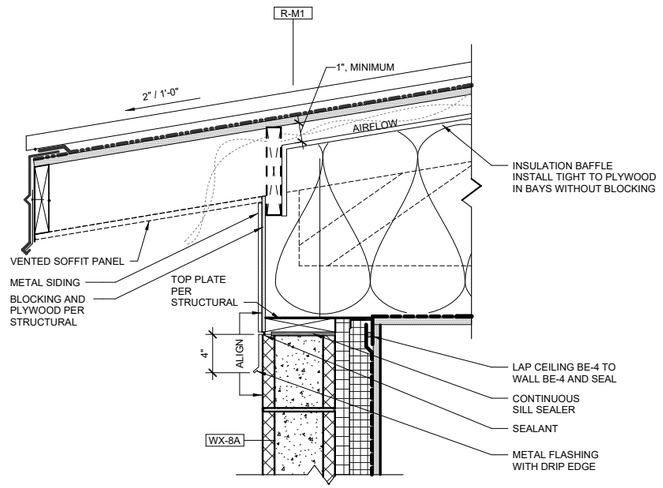
12-Feb-24 2:04:28 PM

EXTERIOR DETAIL NOTES

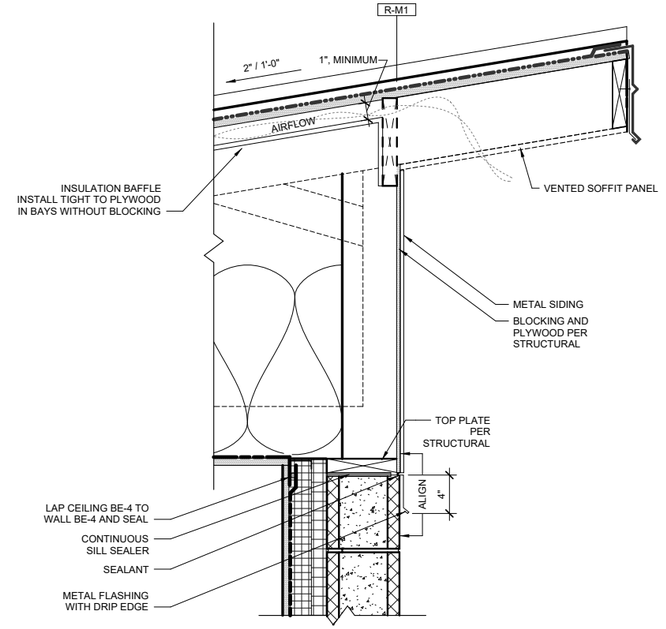
A. SEE A0 SHEETS FOR ASSEMBLY TAG LEGEND.
B. SEE A8 SHEETS FOR INTERIOR ASSEMBLIES AND DETAILS.
C. SEE STRUCTURAL FOR LOAD BEARING MEMBERS, MECHANICAL FASTENERS, AND MASTIC ADHESION.
D. PROVIDE PRE-FINISHED METAL FLASHING UNLESS NOTED OTHERWISE. PERFORATE AT VENTED ASSEMBLIES.
E. PROVIDE TREATED 2x WOOD BLOCKING AT ROUGH OPENINGS UNLESS NOTED OTHERWISE.
F. PROVIDE MOISTURE RESISTANT GYPSUM BOARD AT WINDOW, DOOR, AND OTHER OPENINGS AT HEAD, JAMB, AND SILL CONDITIONS UNLESS NOTED OTHERWISE.

BUILDING ENVELOPE INDEX

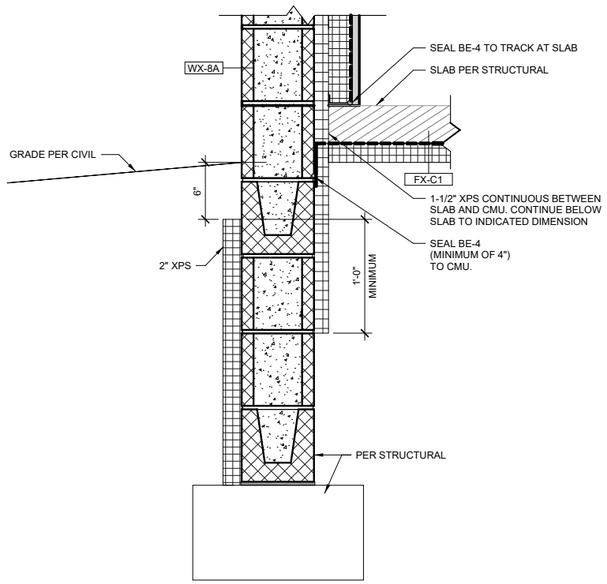
TYPE	BASIS OF DESIGN - PER MATERIAL SCHEDULE
BE-4	POLYETHELYNE FILM (MIL PER SPEC)
BE-8	GRACE ICE AND WATER SHIELD



1 A5.10 EXTERIOR DETAIL - EAVE - LOW
1 1/2" = 1'-0"



2 A5.10 EXTERIOR DETAIL - EAVE - HIGH
1 1/2" = 1'-0"



3 A5.10 EXTERIOR DETAIL - EAVE AND BASE OF WALL, TYPICAL
1 1/2" = 1'-0"

REVISIONS

MARK	DATE	DESCRIPTION
1		
2		
3		
4		
5		

STATE OF ALASKA
49 TH
JAMES D. BARTLETT
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CITY OF PALMER
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SHEET TITLE: EXTERIOR DETAILS

SHEET: A5.10

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JAC	WTG
DATE: FEB 2024	SCALE: AS NOTED
JOB NUMBER: 16 - 033	

GENERAL STRUCTURAL NOTES

A. DESIGN CRITERIA

1. BUILDING CODE ..... 2015 IBC (INTERNATIONAL BUILDING CODE)
   GOVERNING JURISDICTION ..... CITY OF PALMER
2. LIVE LOADS
   FLOOR LIVE LOAD (MECHANICAL ROOMS) ..... 125 PSF OR ACTUAL WEIGHT OF EQUIP.
3. SNOW LOADS
   GROUND SNOW LOAD P_g ..... 50 PSF
   FLAT ROOF SNOW LOAD P_f ..... 46.2 PSF
   SNOW EXPOSURE FACTOR C_e 1
   SNOW LOAD IMPORTANCE FACTOR I 1.2
   THERMAL FACTOR C_t 1.1
4. WIND LOADS
   ULTIMATE DESIGN WIND SPEED V_{ULT} ..... 125 MPH
   NOMINAL DESIGN WIND SPEED V_{ASD} ..... 97 MPH
   RISK CATEGORY IV
   EXPOSURE ..... B
   INTERNAL PRESSURE COEFFICIENT 0.18

   COMPONENTS AND CLADDING ULTIMATE DESIGN PRESSURE IN PSF FOR EFFECTIVE AREA OF 0-10 SF (SEE FIG 30.4-1 THROUGH 30.4-7, ASCE 7-10):

ZONE 1		ZONE 2		ZONE 3		ZONE 4		ZONE 5	
POSITIVE	NEGATIVE	POSITIVE	NEGATIVE	POSITIVE	NEGATIVE	POSITIVE	NEGATIVE	POSITIVE	NEGATIVE
12 PSF	-31 PSF	12 PSF	-36 PSF	12 PSF	-48 PSF	28 PSF	-31 PSF	28 PSF	-38 PSF

ZONE 2'		ZONE 3'	
POSITIVE	NEGATIVE	POSITIVE	NEGATIVE
12 PSF	-43 PSF	12 PSF	-67 PSF

5. SEISMIC LOADS
   S_S 1.57
   S_1 ..... 0.81
   S_{DS} 1.05
   S_{D1} 0.81
   C_S 0.32
   R 5
   SITE CLASS ..... D
   SEISMIC DESIGN CATEGORY ..... F
   RISK CATEGORY IV
   IMPORTANCE FACTOR 1.5
   BASIC SEISMIC FORCE RESISTING SYSTEM ..... SPECIAL REINFORCED MASONRY
   DESIGN BASE SHEAR ..... 25 KIPS
   ANALYSIS PROCEDURE ..... EQUIVALENT LATERAL FORCE METHOD

B. FOUNDATION

1. FOUNDATION DESIGN IS BASED ON A GEOTECHNICAL INVESTIGATION PREPARED BY HDL, LLC DATED JUNE, 2017.
2. ALLOWABLE SOIL BEARING PRESSURE: 4,000 PSF
3. ALL ORGANIC AND/ OR OTHER UNSUITABLE MATERIAL SHALL BE REMOVED FROM SUB-GRADE AND BACKFILLED WITH STRUCTURAL FILL
4. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY MEASURES TO PREVENT ANY FROST OR ICE FROM PENETRATING ANY FOOTING OR SLAB SUB-GRADE BEFORE AND AFTER PLACING CONCRETE UNTIL SUCH SUB-GRADES ARE PERMANENTLY PROTECTED BY THE BUILDING STRUCTURE.
5. AT PERIMETER FOUNDATION WALLS, BRING GRADE UP EVENLY (WITH MAXIMUM 6" LIFTS) ON EACH SIDE OF WALL TO FINAL ELEVATIONS.
6. STRUCTURAL FILL IS TO BE SELECT MATERIAL, TYPE A: NON-FROST SUSCEPTIBLE, CLEAN, FREE DRAINING, WELL GRADED BROKEN STONE, SAND GRAVEL OR OTHER INORGANIC SOIL MATERIALS MEETING THE FOLLOWING GRADATION AFTER COMPACTION:

SIZE	%PASSING
4 INCH	100
NO. 4	30-60
NO. 200	0-5

C. CONCRETE

1. GENERAL:
   A. ALL CAST-IN-PLACE CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH (f'c) OF 4,500 PSI.
   B. CONCRETE SHALL MEET ALL REQUIREMENTS OF ACI 301 SPECIFICATION FOR STRUCTURAL CONCRETE BUILDINGS.
   C. ALL PERMANENTLY EXPOSED CONCRETE EDGES TO BE CHAMFERED 3/4", UNO
   D. PROVIDE SLEEVES FOR ALL UTILITY OPENINGS.
   E. DIMENSIONS SHOWN ON DRAWING SHALL SUPERCEDE THOSE SHOWN ON GENERAL NOTES.
2. REINFORCING:
   A. REINFORCING BARS SHALL CONFORM TO ASTM A615 GRADE 60. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185.
   B. DETAIL REINFORCING BARS IN ACCORDANCE WITH THE ACI DETAILING MANUAL AND THE ACI BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE, LATEST EDITION.
   C. HORIZONTAL FOUNDATION AND WALL REINFORCING SHALL BE CONTINUOUS AROUND CORNERS AND INTERSECTIONS; PROVIDE CORNER BARS.
   D. PROVIDE ALL ACCESSORIES NECESSARY TO SUPPORT REINFORCING AT POSITIONS SHOWN ON THE DRAWINGS. PROVIDE SUFFICIENT TIE BARS TO SUPPORT ALL REINFORCING.
   E. DO NOT CUT ANY REINFORCEMENT AT OPENINGS.
   F. UNLESS A REINFORCING SPLICE, CLEAR DISTANCE BETWEEN REINFORCING SHALL NOT BE LESS THAN 1.5 BAR DIAMETERS NOR LESS THAN 1 1/2"
   G. MINIMUM LAP SPLICE LENGTHS FOR REINFORCING BARS SHALL BE AS FOLLOWS:
      a. SPLICES WITH 12" OR MORE OF FRESH CONCRETE PLACED BENEATH: 80 BAR DIAMETERS
      b. ALL OTHER SPLICES: 62 BAR DIAMETERS
   H. PROVIDE REINFORCEMENT COVER AS FOLLOWS (ACI 7.7), UNLESS NOTED OTHERWISE ON DRAWINGS:
      a. CONCRETE SLABS ON GRADE ..... PLACE REINFORCING AT SLAB MID-DEPTH
3. EMBEDDED ANCHORS:
   A. ANCHOR BOLTS FOR STEEL COLUMNS AND HOLD DOWNS SHALL BE ASTM F1554 GRADE 36 HEAVY HEX HEAD UNO. ANCHOR BOLTS ARE TO BE ACCURATELY PLACED WITH SETTING TEMPLATES.
   B. WHERE ANCHOR BOLT PROJECTION IS NOT SPECIFIED, BOLTS SHALL EXTEND PAST FACE OF NUT BY AT LEAST ONE FULL THREAD

D. POST-INSTALLED ANCHORS

POST-INSTALLED ANCHORS SHALL BE AS FOLLOWS, UNLESS NOTED OTHERWISE:

CONCRETE
ADHESIVE ANCHORS:
- INTERIOR: HILTI HIT-RE 500 V3 OR RED HEAD C6+, ASTM F1554 GRADE 36 THREADED ROD

SCREW ANCHORS
- INTERIOR: HILTI KH-EZ OR SIMPSON TITEN HD

MASONRY
GROUTED CMU CELLS:
- INTERIOR: HILTI KH-EZ OR SIMPSON TITEN HD

1. INSTALL POST-INSTALLED ANCHORS ONLY AS INDICATED ON THE DRAWINGS OR WITH SPECIFIC WRITTEN APPROVAL OF THE ENGINEER PRIOR TO INSTALLATION.
2. THE CONTRACTOR MAY NOT USE SUBSTITUTES FOR THE POST-INSTALLED ANCHORS WITHOUT PRIOR APPROVAL OF THE ENGINEER.
3. SEE DRAWINGS FOR ANCHOR TYPE, SIZE, AND EMBEDMENT DEPTHS. INSTALL ANCHORS AS OUTLINED IN MANUFACTURER'S SPECIFICATIONS AND ICC REPORTS. UTILIZE PROPER DRILL TYPE, BIT SIZE, AND HOLE CLEANING, DRIVING OR TIGHTENING TECHNIQUES, UNLESS NOTED OTHERWISE.

E. STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL WIDE FLANGE MEMBERS AND CHANNELS SHALL BE ASTM A572 - GRADE 50 (Fy = 50 KSI) OR A992.
2. SQUARE/ RECTANGULAR HOLLOW STRUCTURAL SECTIONS (HSS) SHALL CONFORM TO ASTM A500 GRADE B (Fy = 46 KSI).
3. ANGLES AND PLATES SHALL BE ASTM A36 (Fy = 36 KSI).
4. ALL STRUCTURAL STEEL SHALL BE DETAILED AND FABRICATED IN ACCORDANCE WITH THE LATEST EDITION OF THE AISC STEEL CONSTRUCTION MANUAL.
5. NON-SHRINK GROUT SHALL BE 5,000 PSI DAYTON SUPERIOR 1107 ADVANTAGE GROUT OR EQUIVALENT.
6. BOLTED CONNECTIONS SHALL BE ACCOMPLISHED WITH HIGH-STRENGTH BOLTS CONFORMING TO ASTM A325 IN STANDARD HOLES UNLESS NOTED OTHERWISE.
7. ALL BOLTED CONNECTIONS SHALL BE PRE-TENSIONED UNLESS NOTED OTHERWISE.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONTROL OF ALL ERECTION PROCEDURES AND SEQUENCES WITH REGARD TO TEMPERATURE DIFFERENTIALS.
9. WELDING SHALL BE PERFORMED WITH E70XX ELECTRODES. WELDING SHALL BE DONE BY QUALIFIED WELDERS AND SHALL CONFORM TO THE AWS D1.1 STRUCTURAL WELDING CODE-STEEL, LATEST EDITION. ALL WELDS ARE INTENDED TO BE CONTINUOUS UNLESS NOTED OTHERWISE.
10. FIELD WELDS NOTED THROUGHOUT THE CONTRACT DOCUMENTS ARE ACCEPTABLE LOCATIONS FOR FIELD WELDING AT THE CONTRACTOR'S OPTION. FIELD WELDS MAY BE PERFORMED IN THE SHOP.

F. WOOD CONSTRUCTION

1. ALL FRAME LUMBER SHALL BE DOUG FIR/ LARCH NO. 2 OR BETTER/ EQUAL.
2. BOLTS USED IN WOOD CONNECTIONS SHALL BE ASTM A307.
3. FASTENERS IN PRESERVATIVE-TREATED AND FIRE-RETARDANT-TREATED WOOD SHALL BE OF HOT DIPPED ZINC-COATED GALVANIZED STEEL, STAINLESS STEEL, SILICON BRONZE OR COPPER. THE COATING WEIGHTS FOR ZINC-COATED FASTENERS SHALL BE IN ACCORDANCE WITH ASTM A 153.
4. A PROTECTIVE COATING SHALL BE APPLIED TO FIELD-CUT ENDS OF TREATED, EXTERIOR-USE WOOD CONSISTENT WITH ITS NATURAL FINISH.

G. MASONRY

1. MASONRY CONSTRUCTION SHALL CONFORM TO TMS 402/602.
2. MASONRY SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'm) OF 2,000 PSI.
3. CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C90 WITH A MINIMUM BLOCK COMPRESSIVE STRENGTH OF 2,000 PSI.
4. MASONRY MORTAR TO BE TYPE S, WITH A MINIMUM COMPRESSIVE STRENGTH PER ASTM C270.
5. GROUT FOR MASONRY IS TO BE A PEA GRAVEL MIX WITH A MINIMUM COMPRESSIVE STRENGTH OF 3,000 PSI.
6. ALL MASONRY WALLS ARE TO BE FULLY GROUTED UNLESS NOTED OTHERWISE.
7. TOP COURSE OF ALL WALLS SHALL BE A BOND BEAM.
8. BOTTOM COURSE OF ALL WALLS SHALL BE A BOND BEAM.

H. GENERAL

1. CONTRACTOR IS TO FIELD VERIFY ALL DIMENSIONS AND ELEVATIONS TO MATCH NEW CONSTRUCTION TO EXISTING CONSTRUCTION.
2. THE STRUCTURAL CONSTRUCTION DOCUMENTS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OR SEQUENCE OF CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AND PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO: BRACING, SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT, ETC. THE STRUCTURAL ENGINEER SHALL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S MEANS, METHODS, TECHNIQUES, SEQUENCES FOR PROCEDURE OF CONSTRUCTION, OR THE SAFETY PRECAUTIONS AND THE PROGRAMS INCIDENT THERETO (NOR SHALL OBSERVATION VISITS TO THE SITE INCLUDE INSPECTION OF THESE ITEMS.)
3. STRUCTURAL DRAWINGS ARE A PORTION OF THE CONTRACT DOCUMENTS AND ARE INTENDED TO BE USED WITH ARCHITECTURAL, CIVIL, MECHANICAL, AND ELECTRICAL DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE REQUIREMENTS FROM THESE DISCIPLINES INTO THEIR SHOP DRAWINGS AND WORK.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND IMPLEMENTATION OF ALL SCAFFOLDING, BRACING AND SHORING.
5. CONSTRUCTION MATERIALS SHALL BE SPREAD OUT IF PLACED ON FRAMED CONSTRUCTION. LOADS SHALL NOT EXCEED THE DESIGN LIVE LOAD.
6. ESTABLISH AND VERIFY ALL OPENINGS AND INSERTS FOR ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL WITH THE APPROPRIATE TRADES, DRAWINGS AND SUBCONTRACTORS PRIOR TO CONSTRUCTION.
7. DO NOT USE SCALED DIMENSIONS TAKEN FROM STRUCTURAL DRAWINGS. CONTACT STRUCTURAL ENGINEER IF DIMENSIONAL INFORMATION IS MISSING.
8. ANY ENGINEERING DESIGN PROVIDED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE SEAL OF A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF ALASKA.

SPECIAL INSPECTIONS

THE FOLLOWING STRUCTURAL ITEMS REQUIRE SPECIAL INSPECTION PER IBC SECTIONS 1704-1707.
SEE PROJECT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS FOR INSPECTION AND TESTING THAT ARE NOT PART OF SPECIAL INSPECTIONS.

CONTINUOUS: SPECIAL INSPECTION BY THE SPECIAL INSPECTOR WHO IS PRESENT WHEN AND WHERE THE WORK TO BE INSPECTED IS BEING PERFORMED.

PERIODIC: SPECIAL INSPECTION BY THE SPECIAL INSPECTOR WHO IS INTERMITTENTLY PRESENT WHERE THE WORK TO BE INSPECTED HAS BEEN OR IS BEING PERFORMED.

SYSTEM or MATERIAL	INSPECTION		FREQUENCY		REMARKS
	IBC CODE REFERENCE	CODE or STANDARD REFERENCE	CONTINUOUS	PERIODIC	
DIVISION #03 - CONCRETE					
CONCRETE					
INSPECT REINFORCEMENT	TABLE 1705.3, 1908.4	ACI 318: CH. 20, 25.2, 25.3, 26.5.1 - 26.5.3		X	TOLERANCES AND REINFORCING PLACEMENT PER ACI CHAPTER 25
INSPECT ANCHORS CAST IN CONCRETE	TABLE 1705.3	ACI 318: 17.8.2		X	ALL BOLTS VISUALLY INSPECTED
INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE	TABLE 1705.3			X	SPECIAL INSPECTIONS APPLY TO ANCHOR PRODUCT NAME, TYPE, AND DIMENSIONS, HOLE DIMENSIONS, COMPLIANCE WITH DRILL BIT REQUIREMENTS, CLEANLINESS OF THE HOLE AND ANCHOR, ADHESIVE EXPIRATION DATE, ANCHOR/ADHESIVE INSTALLATION, ANCHOR EMBEDMENT, AND TIGHTENING TORQUE. INSPECTION FREQUENCY PER MANUFACTURER'S REQUIREMENTS BUT NOT LESS THAN 10% OF EACH ANCHOR, DOWEL, OR ADHESIVE TYPE
INSPECT CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES. VERIFY USE OF APPROVED MIX DESIGN	TABLE 1705.3, 1908.6, 1908.7, 1908.8	ACI 318: 26.4.5, 26.13.3	X		
DIVISION #04 - MASONRY					
TABLE 1.19.3 - LEVEL C QUALITY ASSURANCE					
INSPECTION					

INSPECTION TASK	REFERENCE CODE OR STANDARD FOR CRITERIA		FREQUENCY		REMARKS
	TMS 402/ ACI 530/ ASCE 5	TMS 602/ ACI 530.1/ ASCE 6	CONTINUOUS	PERIODIC	
PROPORTIONS OF SITE-MIXED MORTAR AND GROUT		ART. 2.1, 2.6 A, 2.6 B, 2.6 C, 2.4 G.1.b		X	
GRADE, TYPE, AND SIZE OF REINFORCEMENT, ANCHOR BOLTS, AND ANCHORAGES	SEC. 6.1	ART. 2.4, 3.4		X	
PLACEMENT OF MASONRY UNITS AND CONSTRUCTION OF MORTAR JOINTS		ART. 3.3 B		X	
PLACEMENT OF REINFORCEMENT, CONNECTORS AND ANCHORAGES	SEC. 6.1. 6.2.1, 6.2.6, 6.2.7	ART. 3.2 E, 3.4, 3.6 A	X		
GROUT SPACE PRIOR TO GROUTING		ART. 3.2 D, 3.2 F	X		
PLACEMENT OF GROUT, VISUAL VERIFICATION OF PROPER SLUMP		ART. 3.5, 3.6 C	X		SLUMP TESTING AS DEEMED NECESSARY BY INSPECTOR.
SIZE AND LOCATION OF STRUCTURAL ELEMENTS		ART. 3.3 F		X	
TYPE, SIZE, AND LOCATION OF ANCHORS INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION	SEC. 1.2.1 e, 6.1.4.3, 6.2.1		X		
PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS		ART. 1.4 B.2.a.3, 1.4 B.2.b.3, 1.4 B.2.c.3, 1.4 B.3, 1.4 B.4	X		
DIVISION #06 - WOOD					
NAILING, BOLTING, ANCHORING, AND OTHER FASTENING OF ELEMENTS OF THE SEISMIC FORCE-RESISTING SYSTEM, INCLUDING WOOD SHEAR WALLS, WOOD DIAPHRAGMS, DRAG STRUTS, BRACES, SHEAR PANELS, AND HOLD DOWNS	1705.12.2			X	ALL CONNECTIONS VISUALLY INSPECTED. SPECIAL INSPECTION IS NOT REQUIRED WHEN FASTENER SPACING IS GREATER THAN 4" ON CENTER FOR WOOD SHEAR WALLS, DIAPHRAGMS, NAILING, BUILDING AND OTHER COMPONENTS IN THE SEISMIC FORCE-RESISTING SYSTEM

REVISIONS

MARK	DATE	DESCRIPTION
1		
2		
3		
4		
5		

STATE OF ALASKA 49 TH
Patrick S. Brandon
12-FEB-2024
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CONSTRUCT BOGARD ROAD BOOSTER STATION
CITY OF PALMER
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SHEET TITLE: STRUCTURAL GENERAL NOTES

SHEET: S0.01

DRAWN BY: SMM | CHECKED BY: PSB
DATE: FEB 2024 | SCALE: AS NOTED
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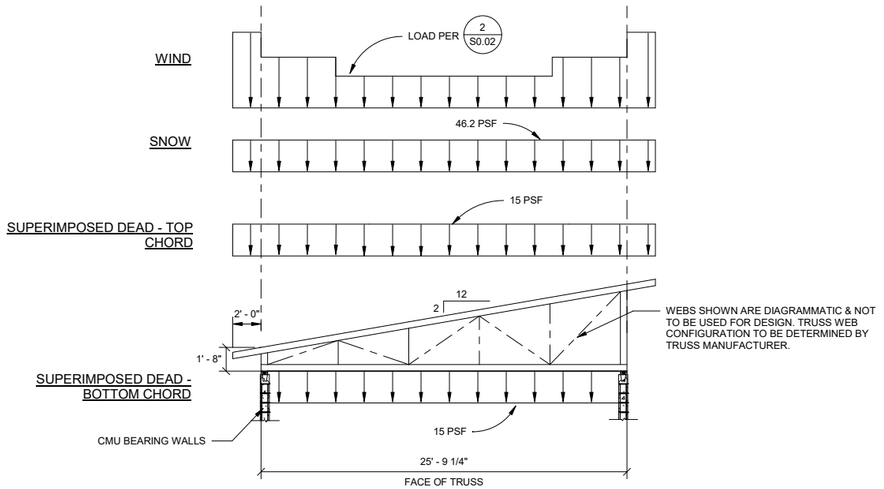
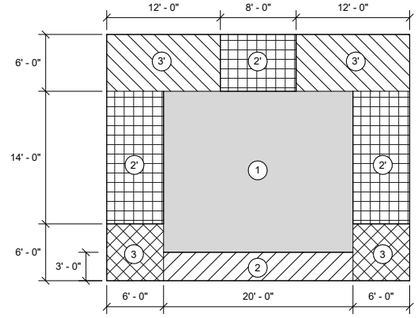
2/12/2024 2:05:22 PM

WOOD TRUSS NOTES:

1. DESIGN TRUSSES FOR ALL APPLICABLE ASCE 7-10 LOAD COMBINATIONS.
2. SUPERIMPOSED DEAD LOADS DO NOT INCLUDE TRUSS SELF WEIGHT.
3. SNOW LOADS AND SUPERIMPOSED DEAD LOADS ARE SPECIFIED AS SERVICE (ASD) LOADS, AND ARE TO BE INCREASED BY APPLICABLE LOAD FACTORS FOR LRFD DESIGNS.
4. MAXIMUM TOTAL LOAD DEFLECTIONS ARE TO BE THE SMALLER OF L/180 OR 1".
5. MAXIMUM SNOW LOAD DEFLECTIONS ARE TO BE L/240.
6. WIND LOADS ARE SPECIFIED AS LRFD-LEVEL FORCES, AND ARE TO BE REDUCED BY APPLICABLE LOAD FACTORS FOR ASD DESIGNS.
7. TRUSS MANUFACTURER TO DESIGN FOR EVE LOADING PER ASCE 7-10
8. PROVIDE GABLE END TRUSSES AT EACH END OF BUILDING. GABLE END TRUSSES TO BE COMPOSED OF VERTICAL 2x MEMBERS SPACED AT 2'-0" OC. DROP GABLE END TRUSS TOP CHORDS AS INDICATED ON PLAN.
9. IN ADDITION TO VERTICAL LOADING, GABLE END TRUSSES ARE TO RESIST END WALL OUT-OF-PLANE WIND LOADING, AS OUTLINED ON SHEET S001.
10. TRUSSES ARE TO BE DESIGNED FOR SPRINKLER CONCENTRATED LIVE LOAD OF 250 LBS. CONCENTRATED LIVE LOADS ARE TO BE APPLIED AT PANEL POINTS AND AT MID-PANEL POINTS OF TOP & BOTTOM CHORDS. CONCENTRATED SPRINKLER LIVE LOADS NEED NOT ACT CONCURRENTLY WITH OTHER LIVE LOADS.



1 S0.02 ROOF TRUSS LOADING DIAGRAM
3/16" = 1'-0"



NOTE:
SEE S0.01 FOR UPLIFT PRESSURES

2 S0.02 ROOF UPLIFT ZONES
1/8" = 1'-0"

3 S0.02 HORIZONTAL TRUSS LOADING DIAGRAM
3/16" = 1'-0"

REVISIONS

MARK	DATE	DESCRIPTION
1		
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49 TH
Patrick S. Brandon
12-FEB-2024
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CONSTRUCT BOGARD ROAD BOOSTER STATION
CITY OF PALMER
PALMER, ALASKA

SHEET TITLE
TRUSS LOADING DIAGRAMS

SHEET
S0.02

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DATE: FEB 2024	SCALE: AS NOTED
JOB NUMBER: 16 - 033	

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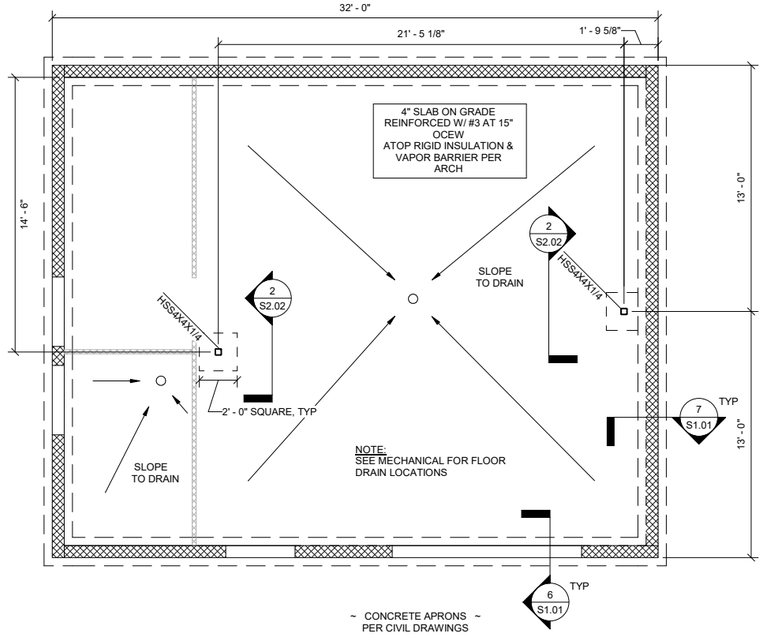
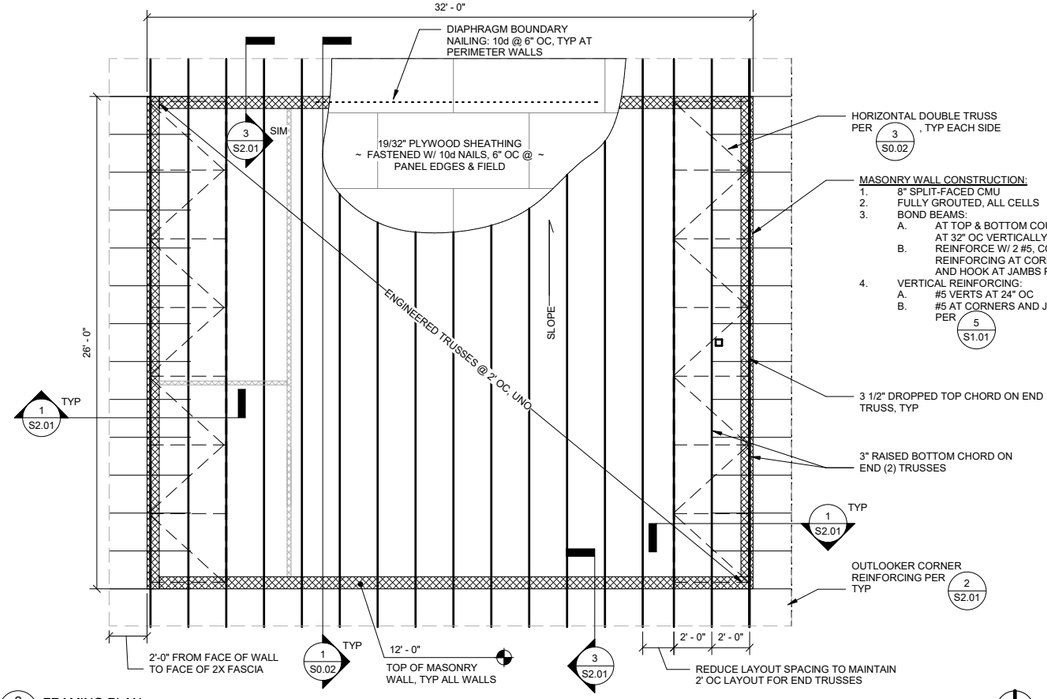
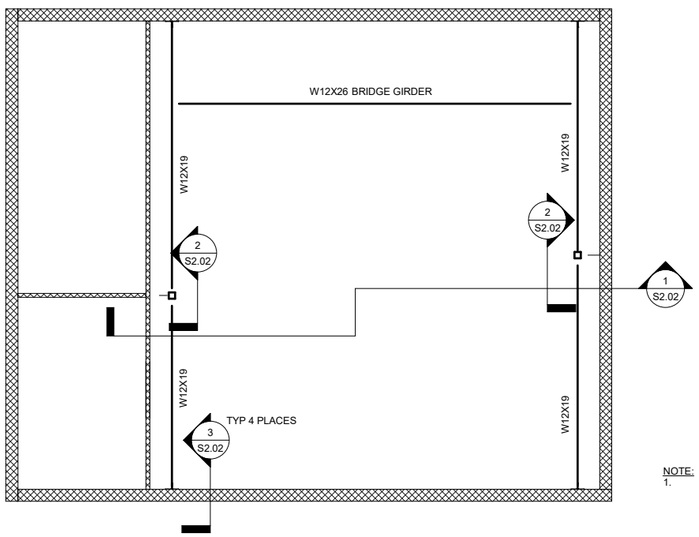


1 S1.01 FOUNDATION PLAN
1/4" = 1'-0"

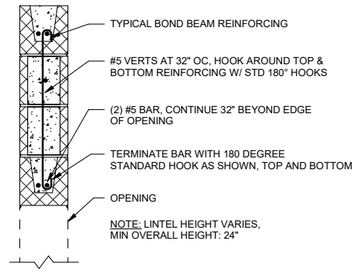


2 S1.01 FRAMING PLAN
1/4" = 1'-0"

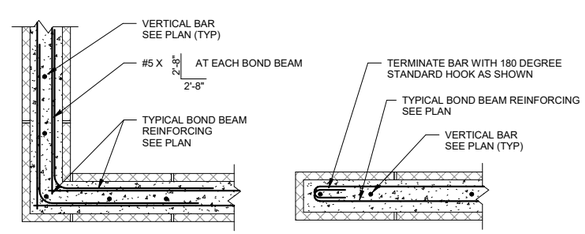


NOTE:
1. PROVIDE A MANUALLY POWERED 2,500 LB BRIDGE CRANE PER SPECIFICATION 14 47 00.
A. MIN HOOK HEIGHT TO BE 8'-0" AFF.

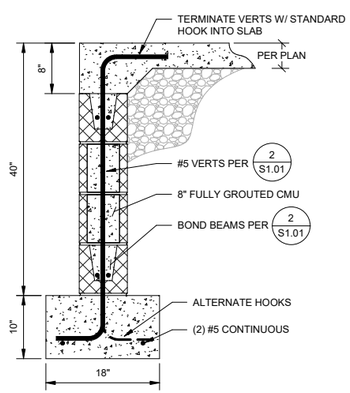
3 S1.01 BRIDGE CRANE FRAMING PLAN
1/4" = 1'-0"



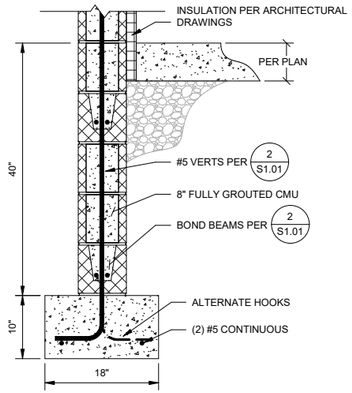
4 S1.01 MASONRY LINTEL
1" = 1'-0"



5 S1.01 MASONRY WALL REINFORCING
1" = 1'-0"



6 S1.01 FOUNDATION WALL AT OPENING
1" = 1'-0"



7 S1.01 FOUNDATION WALL SECTION
1" = 1'-0"

REVISIONS

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PALMER, ALASKA

SHEET TITLE: PLAN & DETAILS

SHEET: S1.01

DRAWN BY:	CHECKED BY:
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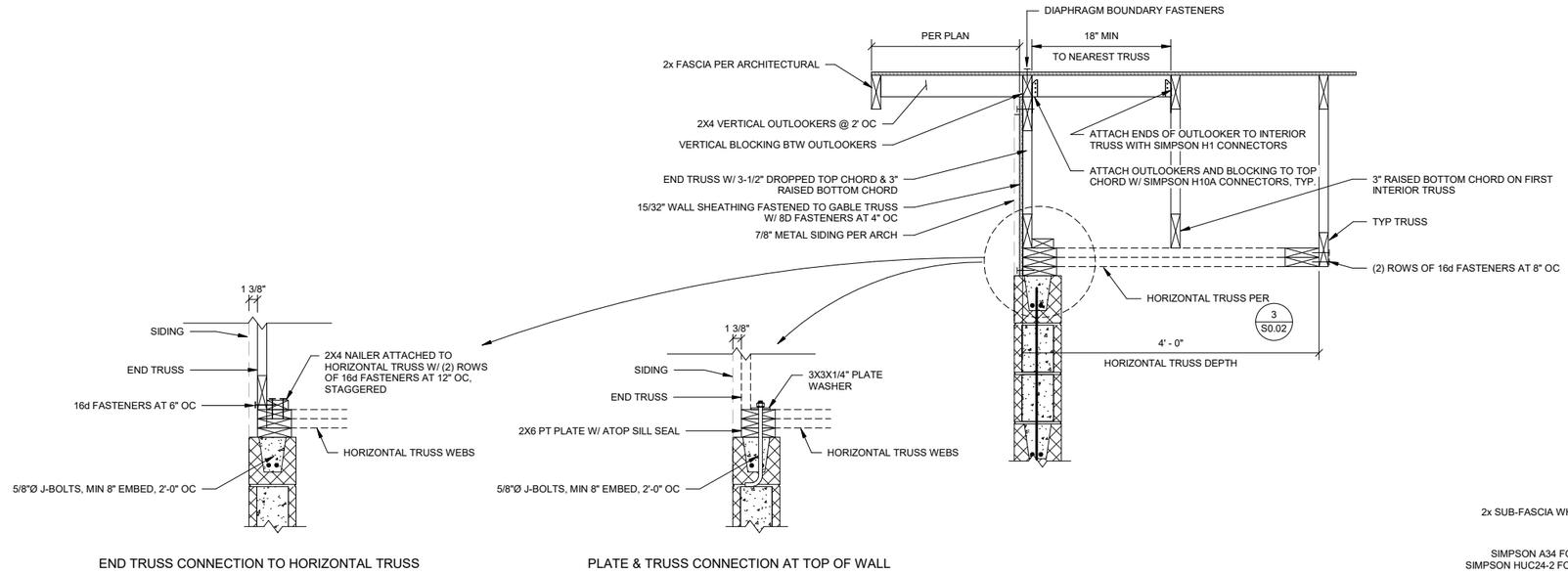
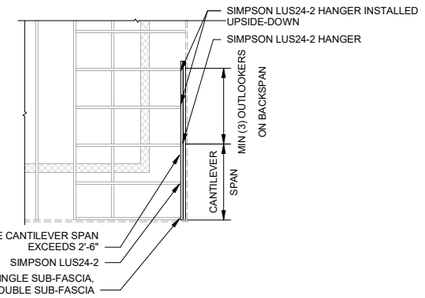
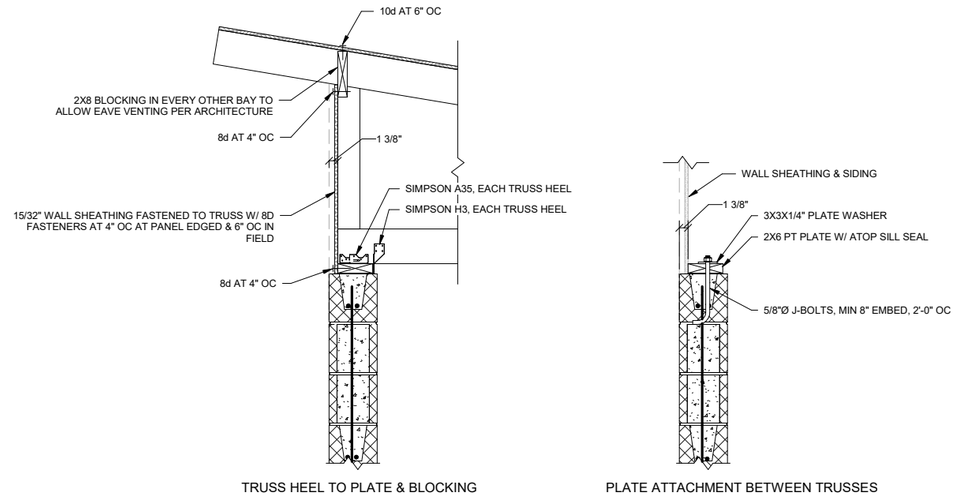


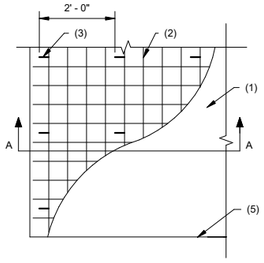
1 S2.01 END TRUSS & HORIZONTAL TRUSS ATTACHMENTS
1" = 1'-0"



2 S2.01 OUTLOOKER CORNER FRAMING
1/4" = 1'-0"



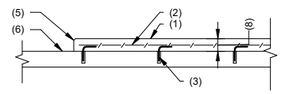
3 S2.01 TRUSS HEEL & PLATE ATTACHMENTS
1" = 1'-0"



PLAN

NOTES

1. HOUSEKEEPING PAD PLAN DIMENSIONS ARE DEPENDENT ON EQUIPMENT. SEE MECHANICAL / ELECTRICAL EQUIPMENT SCHEDULE
2. 6X6-W1.4XW1.4 WELDED WIRE REINFORCEMENT, CENTERED IN PAD
3. #3 DOWELS WITH 4 1/2" LEGS. DRILL AND EPOXY WITH HILTI-HY 200 EPOXY OR APPROVED EQUAL WITH 2 1/2" EMBED
4. DOWELS AT 24" ON CENTER EACH WAY
5. CHAMFER EXPOSED EDGES 3/4"
6. BASE SLAB
7. 3" EDGE DISTANCE FOR DOWELS
8. 4" PAD THICKNESS UNLESS NOTED OTHERWISE



SECTION A-A

4 S2.01 TYPICAL HOUSEKEEPING PAD
1/2" = 1'-0"

REVISIONS

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SHEET TITLE: FRAMING DETAILS

SHEET: S2.01

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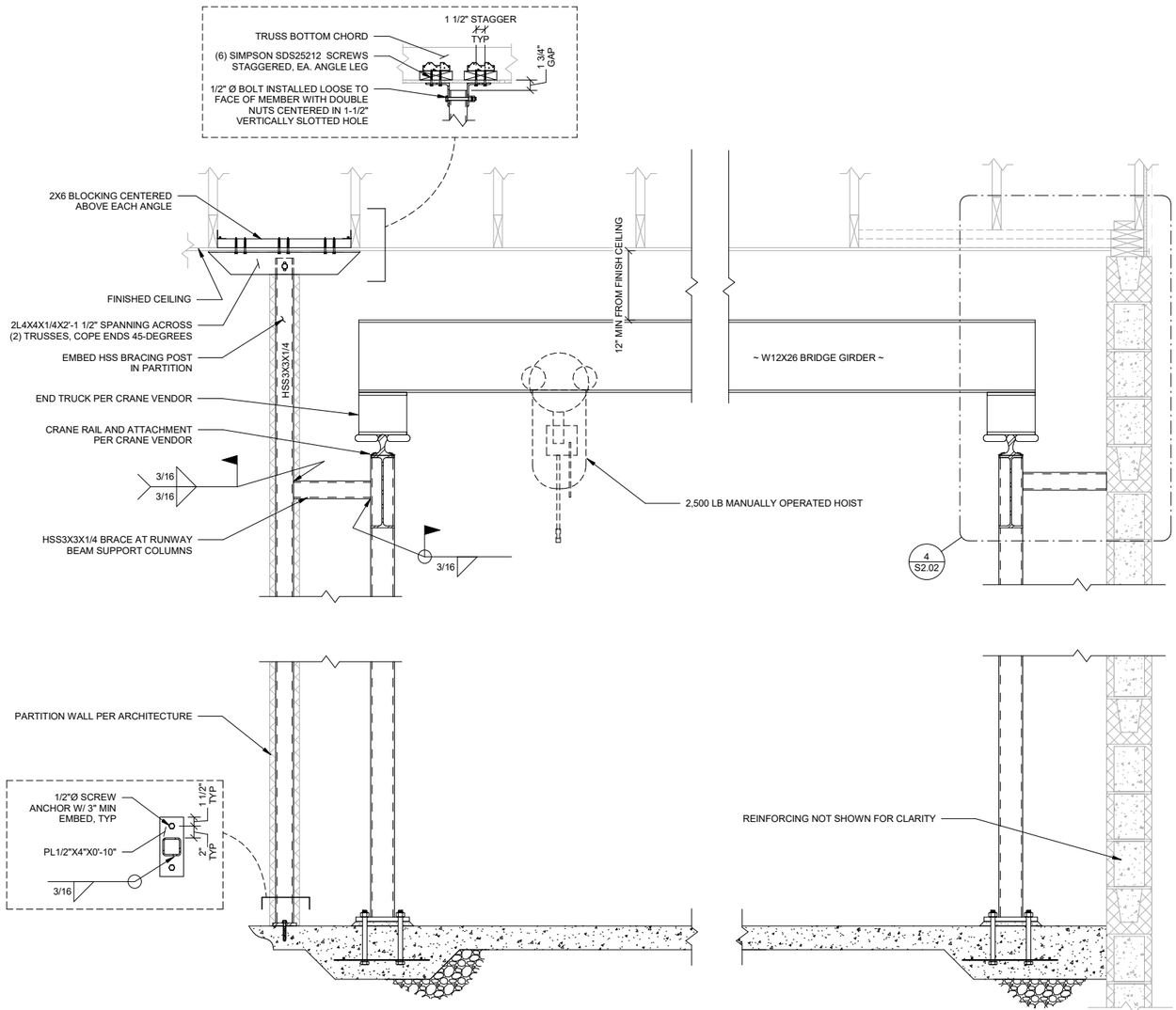
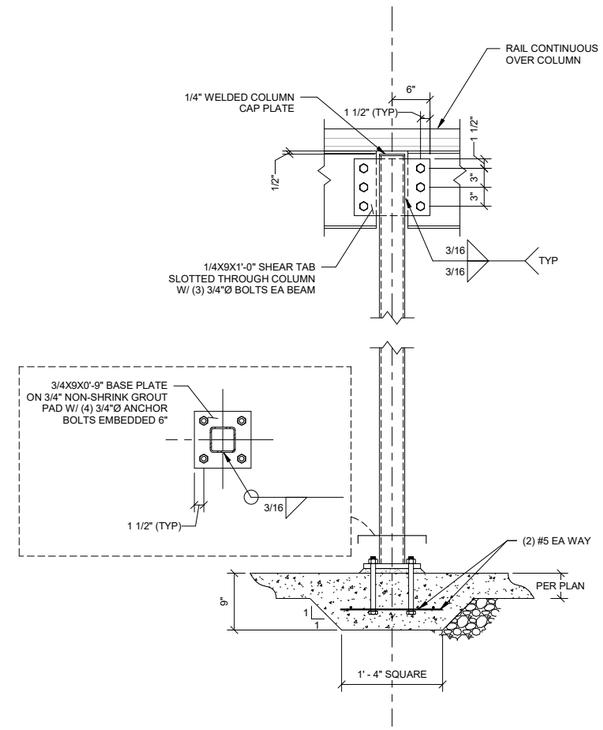
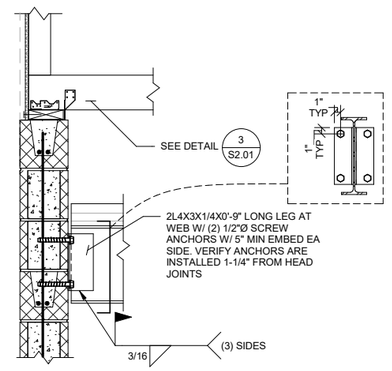


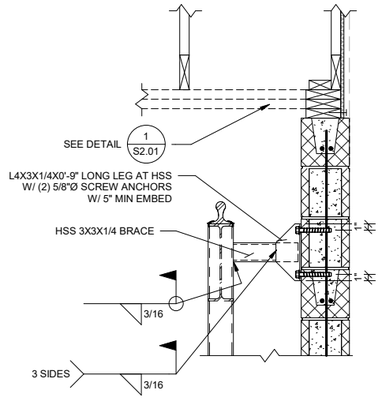
1 S2.02 BRIDGE CRANE ELEVATION
1" = 1'-0"



2 S2.02 CRANE COLUMN
1" = 1'-0"



3 S2.02 CRANE BEAM CONNECTION AT CMU WALL
1" = 1'-0"



4 S2.02 CRANE BEAM BRACE DETAIL
1" = 1'-0"

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SHEET TITLE
BRIDGE CRANE DETAILS

SHEET
S2.02

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GENERAL

ENLARGED PLAN CALLOUT — 1 / A101 — DETAIL IDENTIFICATION; DRAWING ON WHICH DETAIL IS SHOWN

SECTION CALLOUT — A / A101 — SECTION IDENTIFICATION; DRAWING ON WHICH SECTION IS SHOWN

MATCHLINE VIEW REFERENCE — 1/M-102A — DETAIL IDENTIFICATION; DRAWING ON WHICH CONTINUATION OF VIEW IS SHOWN

GENERAL SHEET NOTE — 1.

SHEET KEY NOTE — 1 OR 1

POINT OF CONNECTION

TO BE DEMOLISHED OR RELOCATED

EXISTING TO REMAIN

NEW

PLUMBING

WASTE (ABOVE GRADE)	W
COLD WATER	CW
HOT WATER	HW
HOT WATER CIRCULATING	HWC
VENT	V
VENT RISER	VR
VENT THROUGH ROOF	VTR
DOUBLE CHECK VALVE BACKFLOW PREVENTER	
REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER	
ROOF DRAIN	RD
OVERFLOW ROOF DRAIN	ORD
PULSATION DAMPENER	
HOSE BIBB	HB
CLEAN-OUT	CO
WALL CLEANOUT	WCO
FLOOR CLEANOUT	FCO
FLOOR DRAIN/FLOOR SINK	FD

FUEL

FUEL OIL SUPPLY	FOS
FUEL OIL RETURN	FOR
NATURAL GAS	NG
PROPANE	P
FUSIBLE VALVE	
FILTER	F
OIL SAFETY VALVE	OSV
ANTI-SIPHON VALVE	
TIGER LOOP	
SOLENOID VALVE	
FLEX CONNECT	
PRESSURE REGULATOR	

PIPE FITTINGS & VALVES

- ELBOW, TURNED DOWN
- ELBOW, TURNED UP
- TEE, OUTLET DOWN
- TEE, OUTLET UP
- FLOW DIRECTION
- ISOLATION VALVE
- BALL VALVE
- PRESSURE REDUCING VALVE
- CHECK VALVE
- STRAINER
- STRAINER W/ BLOWDOWN
- PRESSURE TEMPERATURE TAP ("PETE'S PLUG")
- AUTOMATIC FLOW CONTROL VALVE
- BALANCE VALVE
- MOTORIZED 2-WAY CONTROL VALVE
- MOTORIZED 3-WAY CONTROL VALVE
- RELIEF OR SAFETY VALVE
- DRAIN ISOLATION VALVE AND HOSE ADAPTOR
- DRAIN ISOLATION VALVE AND CAP
- UNION
- FLANGE CONNECTION
- PIPE ANCHOR
- PIPE GUIDE
- METER (M)
- TRIPLE-DUTY VALVE
- THERMOMETER
- PRESSURE GAUGE W/ ISOLATION VALVE
- PUMP - CIRC

CONTROLS LEGEND

DIFFERENTIAL PRESSURE SENSOR	DPS
MANUAL SWITCH	S
CARBON MONONIDE SENSOR	CO
CARBON DIOXIDE SENSOR	CO_2
PRESSURE SENSOR	P
TEMPERATURE SENSOR THERMOSTAT	T
VARIABLE FREQUENCY DRIVE	VFD

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AHAP	AS HIGH AS POSSIBLE
AHJ	AUTHORITY HAVING JURISDICTION
APPROX	APPROXIMATE
CA	COMPRESSED AIR
CFM	CUBIC FEET PER MINUTE
CIRC	CIRCULATION
CO	CARBON MONOXIDE
CO2	CARBON DIOXIDE
CONT	CONTINUATION, CONTINUED
CP	CIRCULATING PUMP
CU	COPPER
CW	COLD WATER
(D)	DEMOLISH
DDC	DIRECT DIGITAL CONTROLS
DEMO	DEMOLISH
DIA	DIAMETER
DN	DOWN
(E)	EXISTING
EA	EXHAUST AIR
EBB	ELECTRIC BASEBOARD
EF	EXHAUST FAN
ENT	ENTERING
EUH	ELECTRIC UNIT HEATER
EWT	ENTERING WATER TEMPERATURE
FCO	FLOOR CLEANOUT
FD	FLOOR DRAIN
FM	FORCED MAIN
FT	FEET
GAL	GALLONS
GALV	GALVANIZED
GPM	GALLONS PER MINUTE
HB	HOSE BIBB
IBC	INTERNATIONAL BUILDING CODE
ID	INSIDE DIAMETER
IFC	INTERNATIONAL FIRE CODE
IFGC	INTERNATIONAL FUEL GAS CODE
IMC	INTERNATIONAL MECHANICAL CODE
IN	INCHES
LF	LINEAL FEET
LVG	LEAVING
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	THOUSAND BTU's PER HOUR
MFGR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NO.	NUMBER
OA	OUTSIDE AIR
OC	ON CENTER
OSA	OUTSIDE AIR SUPPLY
P	PUMP
PD	PRESSURE DROP
PDI	PLUMBING & DRAINAGE INSTITUTE
PRV	PRESSURE RELIEF VALVE
PSIG	POUNDS PER SQUARE INCH GAUGE
PSI	POUNDS PER SQUARE INCH
PW	PUMPED WASTE
RPBP	REDUCED PRESSURE ZONE BACKFLOW PREVENTER
SCH	SCHEDULE
SF	SQUARE FEET
SF	SUPPLY FAN
SP	SUMP PUMP
SS	STAINLESS STEEL
TA	TRANSFER AIR
TEMP	TEMPERATURE
TDH	TOTAL DEVELOPED HEAD
TP	TRAP PRIMER
TYP	TYPICAL
UH	UNIT HEATER
UL	UNDERWRITER'S LABORATORY
UON	UNLESS OTHERWISE NOTED
UPC	UNIFORM PLUMBING CODE
VFD	VARIABLE FREQUENCY DRIVE
VTR	VENT THROUGH ROOF
V	VENT
W	WASTE
W/	WITH
W.C.	WATER COLUMN
WCO	WALL CLEANOUT
WH	WATER HEATER
WHA	WATER HAMMER ARRESTOR
WPD	WATER PRESSURE DROP
WRT	WITH RESPECT TO
YCO	YARD CLEANOUT

REVISIONS

MARK	DATE	DESCRIPTION
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STATE OF ALASKA — ZACHARY B. BALDWIN — 14281 — REGISTERED PROFESSIONAL ENGINEER — 2/13/24

EDC, INC.
1500 W. 33RD AVE, STE 100
ANCHORAGE, AK 99503
(907) 276-7933
LICENSE NO. AECC705

CONSTRUCT BOGARD ROAD BOOSTER STATION
CITY OF PALMER
PALMER, ALASKA

SHEET TITLE: MECHANICAL ABBREVIATIONS AND LEGEND

SHEET: M1.01

DRAWN BY: | CHECKED BY: ZB

DATE: FEB. 2024 | SCALE: AS NOTED

JOB NUMBER: 16-033

FILE PATH: p:\Projects\HDL\bogard rd booster station\Dwgs\Mech\M1.01 - MECHANICAL ABBREVIATIONS AND LEGEND.dwg
DATE SAVED: 1/16/2024 1:01 PM

PLUMBING FIXTURE SCHEDULE

NOTES:

MARK	FIXTURE DESCRIPTION	HW/TW	CW	TRAP	WASTE	VENT	BASIS OF DESIGN	COMMENTS
EW-1	EYE WASH	1/2"	-	1-1/4"	1-1/2"	1-1/2"	HAWS 7778B	CORROSION RESISTANT, WALL MOUNT
FD-1	FLOOR DRAIN	-	-	3"	3"	2"	ZURN Z415BZ	TRAP PRIMER CONNECTION
FD-2	FLOOR DRAIN - FUNNEL	-	-	2"	2"	1-1/2"	ZURN Z415E	FUNNEL DRAIN
HB-1	HOSE BIB - INTERIOR	-	1/2"	-	-	-	WOODFORD 24	ANTI-SYPHON, BRASS FINISH
SK-1	SERVICE SINK	1/2"	1/2"	2"	2"	2"	ELKAY ESS23192	WALL MOUNT

ELECTRIC WATER HEATER SCHEDULE

NOTES:

MARK	TYPE	RECOVERY, GPM @ 50 DEG F RISE	CAPACITY (GAL)	ELETRICAL			BASIS OF DESIGN		COMMENTS
				KW	V	PH	MFGR	MODEL	
EWH-1	TANK	0.3	6	2	120	1	RHEEM	XEO6PO6PU2OUO	FLOOR MOUNT. PROVIDE SEISMIC BRACING.

PUMP SCHEDULE

NOTES:

MARK	SERVICE	FLOW (GPM)	HEAD (FT)	FLUID	TYPE	RPM (MAX)	IMPELLER DIAMETER (IN)	VFD	ELECTRICAL			BASIS OF DESIGN		COMMENTS
									HP	V	PH	MFGR	MODEL	
IP-1	CL INJECTION	1.4 GPH	150 PSI	HYPO-CHLORITE	METERED	-	-		29W	120	1	STENNER	85MHP17	ADJUSTABLE STROKE FREQUENCY WITH FLOW PACING INPUT
P-1	LOW FLOW PUMP	25	90	WATER	CENTRIFUGAL	3500	-	YES	1.5	460	3	GRUNDFOS	CRN 5-4	STAINLESS STEEL CONSTRUCTION, NSF-61
P-2	MEDIUM FLOW PUMP	553	90	WATER	CENTRIFUGAL	1800	10.00	YES	20	460	3	PACO	5012C VL	VERTICAL SHAFT CENTRIFUGAL, 5X5, PUMP STAND
P-3	MEDIUM FLOW PUMP	553	90	WATER	CENTRIFUGAL	1800	10.00	YES	20	460	3	PACO	5012C VL	VERTICAL SHAFT CENTRIFUGAL, 5X5, PUMP STAND
P-4	HIGH FLOW PUMP	1500	120	WATER	CENTRIFUGAL	1800	12.15	YES	75	460	3	PACO	60157 VL	VERTICAL SHAFT CENTRIFUGAL, 6X6, PUMP STAND
SP-1	SUMP PUMP	10	23	WATER	CENTRIFUGAL	1800	-	NO	1/2	120	1	ZOELLER	98	WITH INTEGRATED FLOAT CONTROL

ELECTRIC SPACE HEATER SCHEDULE

NOTES:

Mark	TYPE	COLOR	ELECTRICAL DATA			BASIS OF DESIGN		COMMENTS
			MAX WATTS	VOLTS	PH	MANUFACTURER	MODEL	
EH-1	ELECTRIC SPACE HEATER	WHITE	1500	120	1	QMARK	CWH1202DSF	RECESSED, INTEGRAL THERMOSTAT
EH-2	ELECTRIC SPACE HEATER	WHITE	1500	120	1	QMARK	CWH1202DSF	RECESSED, INTEGRAL THERMOSTAT
EH-3	ELECTRIC SPACE HEATER	GRAY	3000	240	1	QMARK	MUH0321	WALL MOUNT, INTEGRAL THERMOSTAT

GAS FIRED UNIT HEATER SCHEDULE

NOTES:

MARK	TYPE	FUEL	MBH INPUT	MBH OUTPUT	CFM	ELECTRICAL			BASIS OF DESIGN		COMMENTS
						HP	V	PH	MANUFACTURER	MODEL	
UH-1	UNIT HEATER	NG	30	24	505	1/15	120	1	MODINE	HDS30	SEALED COMBUSTION

FAN SCHEDULE

NOTES:

MARK	SERVICE	CFM	ESP (IN. WC)	TYPE	DRIVE	ELECTRICAL			BASIS OF DESIGN		COMMENTS
						HP	V	PH	MFGR	MODEL	
EF-1	ELECTRICAL ROOM	245	0.25	CABINET	DIRECT	62 W	120	1	PANASONIC	FV-30VQ3	
EF-2	CHEMICAL STORAGE	75	0.25	INLINE	DIRECT	21 W	120	1	FANTECH	FR 100	ABS PLASTIC CONSTRUCTION

PRESSURE TANK SCHEDULE

NOTES:

TAG	SYSTEM	VOLUME (GAL)	ACCEPTANCE FACTOR	PRESSURE RANGE (PSIG)	DRAWDOWN (GAL)	BASIS OF DESIGN		COMMENTS
						MANUFACTURER	MODEL	
HT-1	WATER	119	.39	50/70	28.1	AMTROL	WX-350	

FLOW METER SCHEDULE

NOTES:

TAG	SERVICE	SIZE (IN)	FLOW RANGE		FLUID	TYPE	BASIS OF DESIGN		COMMENTS
			MIN FLOW (GPM)	MAX FLOW (GPM)			MANUFACTURER	MODEL	
M-1	OVERALL FLOW	6	8.4	3358	WATER	ELECTROMAGNETIC	BADGER	M-2000	
M-2	LOW FLOW	1-1/2	2	120	WATER	POSITIVE DISPLACEMENT	BADGER	M-120	

REVISIONS

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STATE OF ALASKA — 49TH — ZACHARY B. BALDWIN — LIC. 14281 — REGISTERED PROFESSIONAL ENGINEER — 2/13/24

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(907) 276-7933
LICENSE NO. AECC705

CONSTRUCT BOGARD ROAD BOOSTER STATION

CITY OF PALMER

PALMER, ALASKA

SHEET TITLE: MECHANICAL SCHEDULES

SHEET: M1.02

DRAWN BY: | CHECKED BY: ZB

DATE: FEB. 2024 | SCALE: AS NOTED

JOB NUMBER: 16-033

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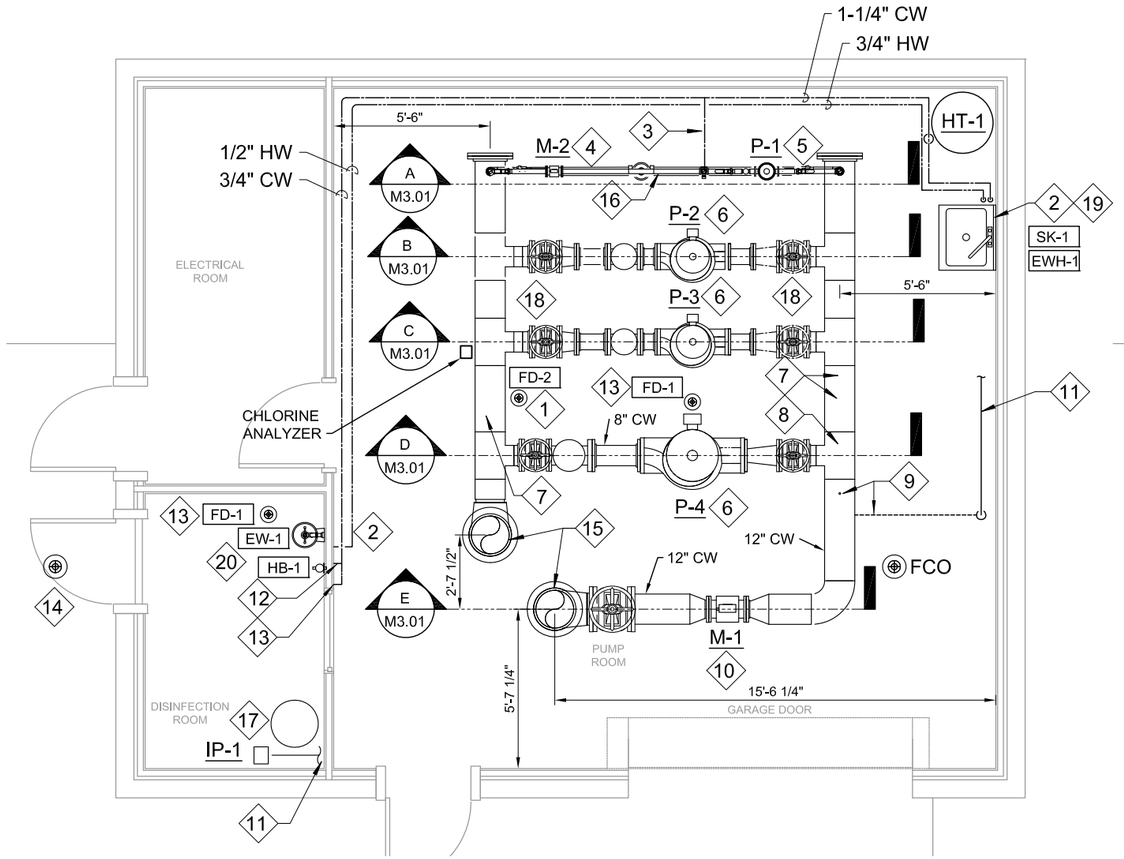
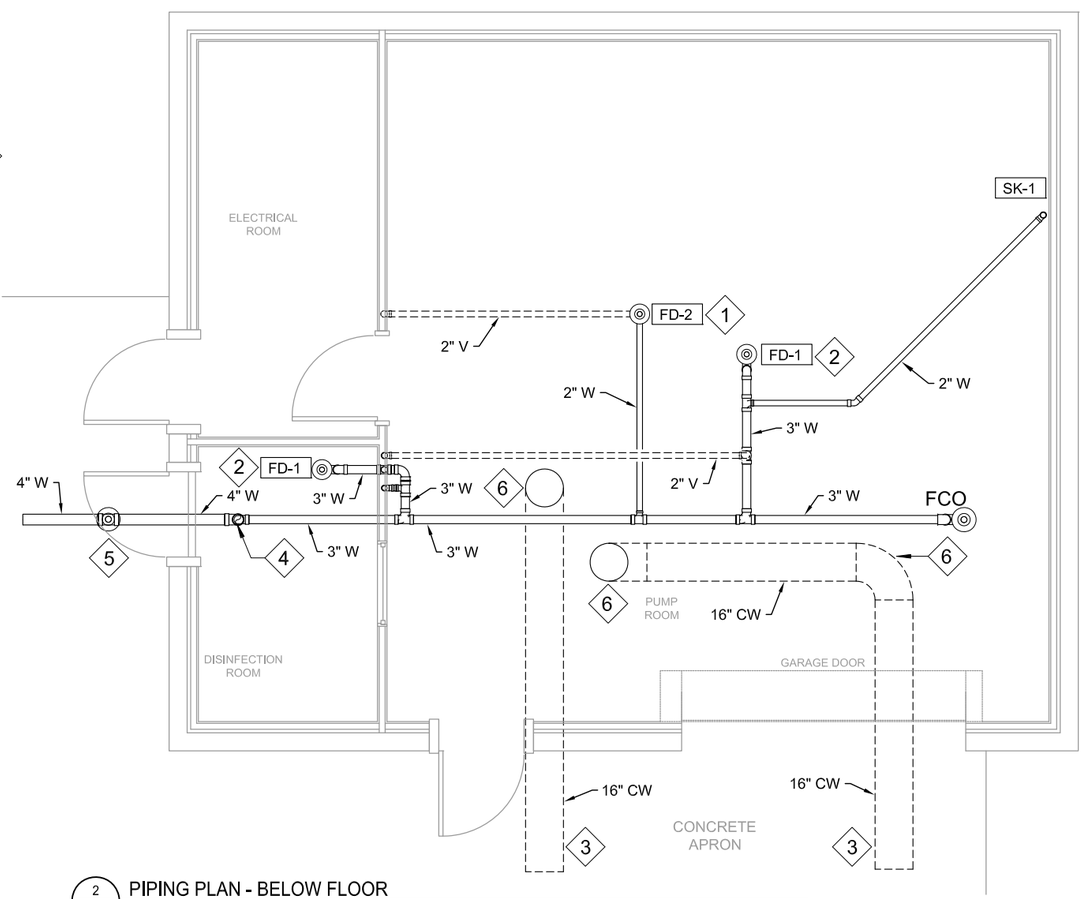
GENERAL SHEET NOTES

1. ALL WORK TO BE COMPLETED IN ACCORDANCE WITH CURRENT CODE.



1 M2.01 PIPING PLAN - ABOVE FLOOR
SCALE: 3/8" = 1'-0"
0' 2' 4'



2 M2.01 PIPING PLAN - BELOW FLOOR
SCALE: 3/8" = 1'-0"
0' 2' 4'

ABOVE FLOOR PLAN KEY NOTES

1. FD-2 FUNNEL RECEIVES CONSTANT WASTE FLOW AND DOES NOT REQUIRE TRAP PRIMER.
2. ROUTE VENT PIPING AROUND CRANE FRAME GATHER VENT LINES TO 4" VTR.
3. AIR VENT AT PIPING HIGH POINT. SUPPORT PIPE FROM WALL TO MAINTAIN CRANE PATH.
4. FLOWMETER, M-2, 1 INCH. MOUNTED IN THE VERTICAL PIPE. REFERENCE DIAGRAM 2/M5.01 FOR STRAIGHT PIPE REQUIREMENTS.
5. P-1: MOUNTED ON PIPE SUPPORTS ABOVE PRV.
6. P-2, P-3, AND P-4: SEISMICALLY FASTEN PUMP STANDS INTO CONCRETE SUPPORT BASE. CENTERLINE OF PUMP INLETS AT 3 FT AFF.
7. INSTRUMENTATION TAP, REFERENCE ELECTRICAL DRAWINGS.
8. AIR RELEASE VALVE.
9. DISINFECTION INJECTION PIPING FROM CHLORINE INJECTION PUMP IP-1, ROUTED UNDER SLAB. REFERENCE PIPING DIAGRAMS.
10. FLOWMETER, M-1, 6 INCH. REFERENCE DIAGRAM 2/M5.01 FOR STRAIGHT PIPE REQUIREMENTS.
11. CHLORINE INJECTION PIPING ROUTED WITHIN PVC CONDUIT HIGH OVERHEAD ALONG PERIMETER OF BUILDING.
    A. COORDINATE PIPE ROUTING ABOVE OVERHEAD DOOR COILING MECHANISM.
    B. PROVIDE BREAKS IN PVC CONDUIT TO FACILITATE 1/2" TUBING REPLACEMENT.
12. PROVIDE BALL VALVE ON 3/4" CW DN THAT SERVES HOSE BIBBS.
13. 1/2" CW DN TO TRAP PRIMER, EXPOSED IN PUMP ROOM. SERVES FD-1 FLOOR DRAINS IN CHEMICAL ROOM AND PUMP ROOM. PROVIDE SPLITTER AND ISOLATION VALVE.
14. YARD CLEANOUT, LOCATED WITHIN 2 FT OF THE BUILDING.
15. 16" TO 12" REDUCING ELBOW.
16. 3" BYPASS AND PRV BELOW, REFERENCE SECTION A/M3.01.
17. HYPO-CHLORITE DRUMS AND INJECTION PUMP ASSEMBLY, REFERENCE 3/M2.02.
18. 8" GATE VALVES, TO BE INSTALLED IN THE SAME LOCATION AS P-4 TO FACILITATE FUTURE PHASE UPGRADES.
19. UTILITY SINK W/ EWH-1 FLOOR MOUNTED BELOW, PROVIDE SEISMIC RESTRAINTS
20. PROVIDE ASSE 1071 MIXING VALVE FOR EYEWASH.

BELOW FLOOR PLAN KEY NOTES

1. FD-2 FUNNEL RECEIVES CONSTANT WASTE FLOW AND DOES NOT REQUIRE TRAP PRIMER.
2. TRAP PRIMER FOR FD-1 SERVED FROM EXPOSED TRAP PRIMER IN PUMP ROOM.
3. REFERENCE CIVIL DRAWINGS FOR TRANSITION TO 16 INCH PIPE.
4. 3" W DN TO SERVICE INVERT ELEVATION, TRANSITION TO 4". REFERENCE CIVIL DRAWINGS FOR INVERT ELEVATION.
5. YARD CLEANOUT, LOCATE WITHIN 2 FT OF THE BUILDING. SANITARY SEWER CONTINUES TO SEPTIC. REFERENCE CIVIL FOR CONTINUATION.
6. PROVIDE THRUST BLOCK AT 16" CW ELBOWS. REFERENCE SPECIFICATION SECTION 22 10 00.
7. 1/2" CHLORINE INJECTION PIPING ROUTED WITHIN 1-1/4" PVC CONDUIT BELOW GRADE. MINIMIZE CORNERS. PROVIDE ADDITIONAL PULL CORD.

REVISIONS		
MARK	DATE	DESCRIPTION
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STATE OF ALASKA
ZACHARY B. BALDWIN
16TH
LIC. NO. 14281
REGISTERED PROFESSIONAL ENGINEER
2/13/24

EDC, INC.
ENGINEERING CONSULTANTS
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(907) 276-7933
LICENSE NO. AECC705

CONSTRUCT BOGARD ROAD BOOSTER STATION
CITY OF PALMER
PALMER, ALASKA

SHEET TITLE
PIPING PLANS

SHEET
M2.01

DRAWN BY:	CHECKED BY:
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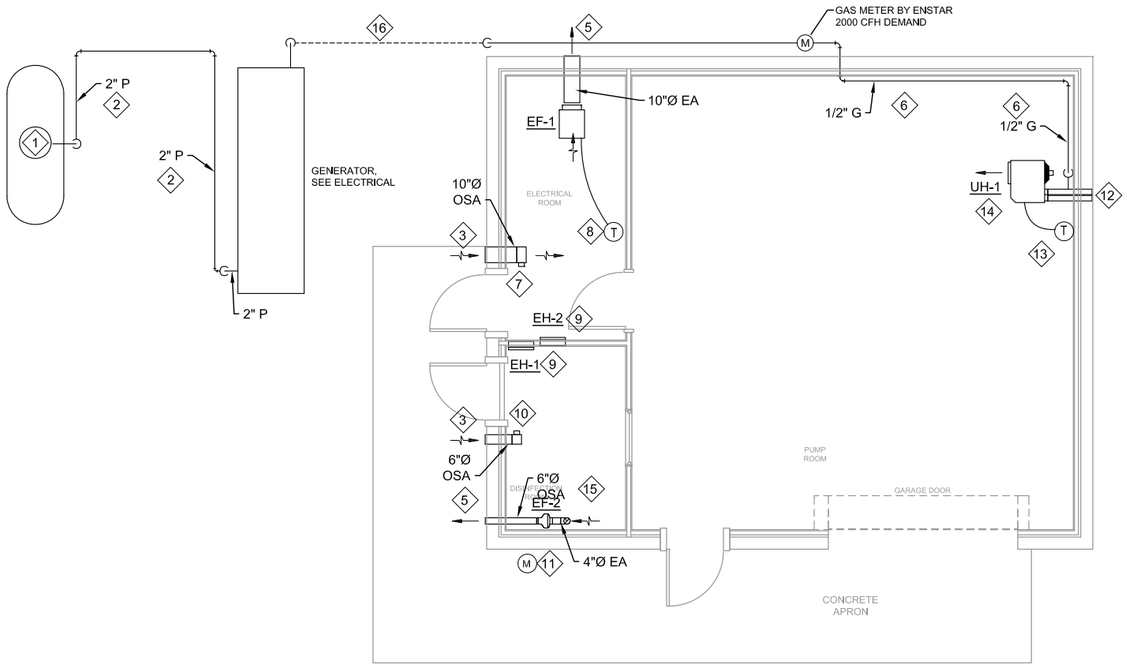
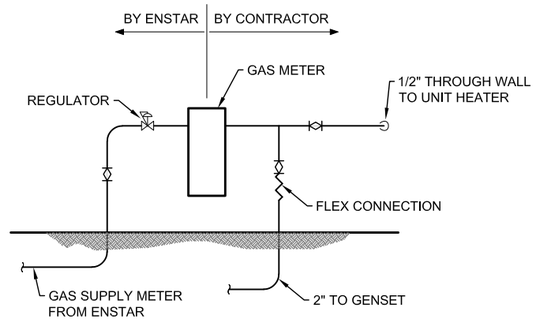


1 M2.02 HVAC PLAN
SCALE: 1/4" = 1'-0"

0 4' 8'



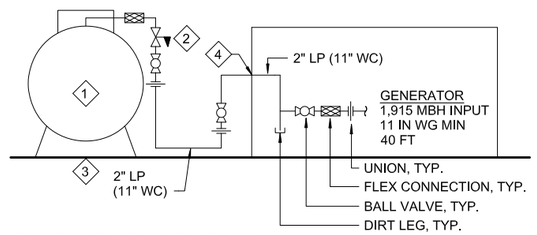
4 M2.02 NATURAL GAS PIPING DETAIL
SCALE: NTS

GENERAL SHEET NOTES

1. ALL WORK TO BE COMPLETED IN ACCORDANCE WITH CURRENT CODE.
2. FOR WATER PIPING DIAGRAM, SEE 3/M2.01.
3. FOR PROPANE PIPING DIAGRAM, SEE 2/M2.02.
4. COMBUSTION AIR FOR UH-1 PROVIDED THROUGH SEALED COMBUSTION AIR KIT.

⟨X⟩ HVAC PLAN KEY NOTES

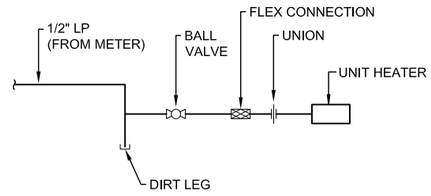
1. 500 GAL PROPANE TANK, REFERENCE PIPING DIAGRAM.
   A. LOCATE MIN 10 FT FROM BUILDING, GENERATOR, AND AIR INTAKES.
2. PROPANE PIPING ROUTED ALONG GRADE ON TREATED TIMBERS, MAX 5 FT ON CENTER.
3. INTAKE HOOD W/ BIRDSCREEN.
4. PROPANE PIPING ROUTED ALONG WALL, MIN 12" AFG.
5. EXHAUST HOOD W/ BACKDRAFT DAMPER AND BIRDSCREEN.
6. GAS PIPING ROUTED ALONG WALL 10 FT AFF.
7. LINE VOLTAGE CONTROL DAMPER, INTERLOCKED W/ EF-1 OPERATION.
8. CLOSE-ON-RISE, LINE VOLTAGE THERMOSTAT THAT ACTIVATES EF-1.
9. ELECTRIC SPACE HEATERS W/ INTEGRAL THERMOSTATS. MOUNT 18" AFF, RECESSED.
10. LINE VOLTAGE CONTROL DAMPER, INTERLOCKED W/ EF-2 OPERATION.
11. FUTURE NATURAL GAS METER LOCATION.
12. CONCENTRIC VENT TERMINATION FOR UH-1.
13. THERMOSTAT FOR UH-1.
14. UH-1, GAS FIRED UNIT HEATER.
    A. COORDINATE SEISMIC BRACING AND SUPPORTS W/ OVERHEAD CRANE.
15. EF-2 TO OPERATE CONTINUOUSLY.
    A. ROUTE 4" EXHAUST INTAKE TO WITHIN 12" OF FLOOR. PROVIDE BIRDSCREEN ON INTAKE.
16. BURIED NG PIPING. PROVIDE STEEL PIPING W/ CORROSION RESISTANT COATING SYSTEM



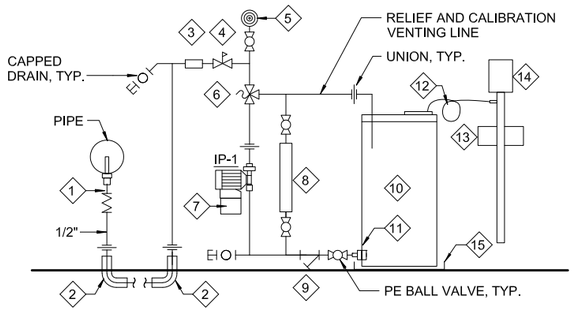
⟨X⟩ PIPING DIAGRAM KEY NOTES

1. PROPANE STORAGE TANK, INITIAL SIZING AT 500 GALLONS, TO BE LEASED BY THE CITY OF PALMER. COORDINATE W/ LOCAL DISTRIBUTOR FOR INSTALLATION AND CONNECTION. LOCATE MIN 10 FT FROM BUILDING. PROVIDE BOLLARD PROTECTION AS APPROPRIATE TO PROTECT FROM DAMAGE.
2. 11" W.C. REGULATOR
3. PROVIDE DENSE PAD BELOW TANK EITHER THROUGH COMPACTED GRAVEL, CONCRETE, OR TREATED TIMBERS.
4. SEAL WALL/MODULE PENETRATION VAPOR TIGHT.

2 M2.02 PROPANE PIPING DIAGRAM
SCALE: NTS



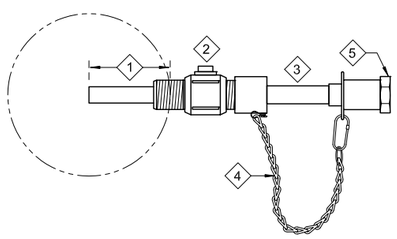
5 M2.02 UNIT HEATER GAS PIPING DIAGRAM
SCALE: NTS



⟨X⟩ PIPING DIAGRAM KEY NOTES

1. INJECTOR AND CORPORATION STOP, REFERENCE DETAIL 4/M2.02.
2. 1/2" PE DISCHARGE TUBING, ROUTED WITHIN 1-1/4" PVC SLEEVE BELOW GRADE. INSTALL EXTRA PULL CORD.
3. FLOW INDICATOR.
4. BACK PRESSURE/ANTI-SYPHON VALVE.
5. PULSATION DAMPENER.
6. PRESSURE RELIEF VALVE.
7. WALL MOUNTING BRACKET BY MANUFACTURER, 4 FT AFF MAX.
8. 500ml CALIBRATION COLUMN MOUNT TO WALL AT MID HEIGHT OF TANK.
9. WYE STRAINER, TURNED ON SIDE AS NEEDED TO REMOVE BASKET.
10. 30 GAL SOLUTION TANK W/ LEVEL LINES. PROVIDE SEISMIC RESTRAINTS.
11. PVC BULKHEAD FITTING, INSTALLED APPROXIMATELY 2 INCHES ABOVE THE BOTTOM OF THE TANK.
12. 1" DISCHARGE/TRANSFER TUBE.
13. TRANSFER PUMP WALL BRACKET.
14. HYPOCHLORITE SOLUTION TRANSFER PUMP.
15. SECONDARY CONTAINMENT BASIN.

3 M2.02 CHLORINE INJECTION PIPING DIAGRAM
SCALE: NTS



⟨X⟩ DETAIL KEY NOTES

1. INSERTION EQUAL TO PIPE RADIUS.
2. BRASS BALL VALVE CORPORATION STOP W/ INTEGRAL CHECK VALVE.
3. CPVC QUILL.
4. "HOT TAP" AND REMOVAL PRESSURE RESTRAINT CHAIN.
5. 1/2" FPT TO RECEIVE CHEMICAL PUMP DISCHARGE.

6 M2.02 CHEMICAL INJECTION DETAIL
SCALE: NTS

REVISIONS

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STATE OF ALASKA — 19TH — ZACHARY B. BALDWIN — LIC. NO. 14281 — REGISTERED PROFESSIONAL ENGINEER — 2/13/24

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LICENSE NO. AECC705

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CITY OF PALMER
PALMER, ALASKA

SHEET TITLE
HVAC PLAN AND DIAGRAMS

SHEET
M2.02

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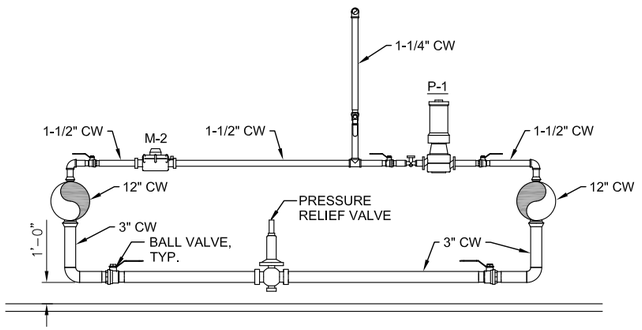
FILE PATH: p:\Projects\HDL\bogard rd booster station\Dwgs\Mech\M2.02 - HVAC PLAN AND DIAGRAMS.dwg

GENERAL SHEET NOTES

1. SECTIONS SHOWN TO PROVIDE GENERAL PIPE LAYOUT. NOT ALL ACCESSORIES ARE SHOWN.
2. PUMP AND PIPE STANDS AND CONCRETE BASES NOT CURRENTLY SHOWN.
3. FOR WATER PIPING DIAGRAM, SEE 3/M2.01 FOR ADDITIONAL INFORMATION AND REQUIREMENTS.



A M3.01 SECTION A
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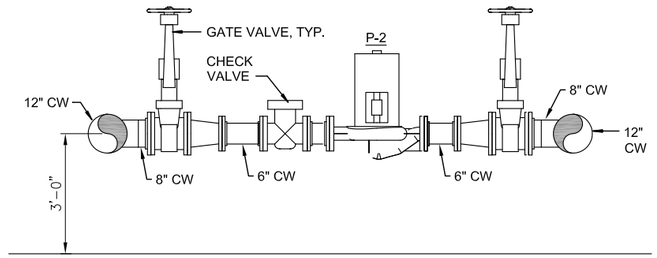

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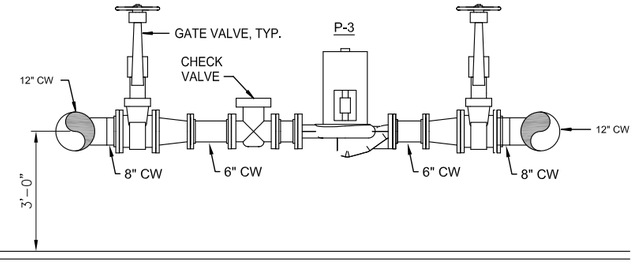
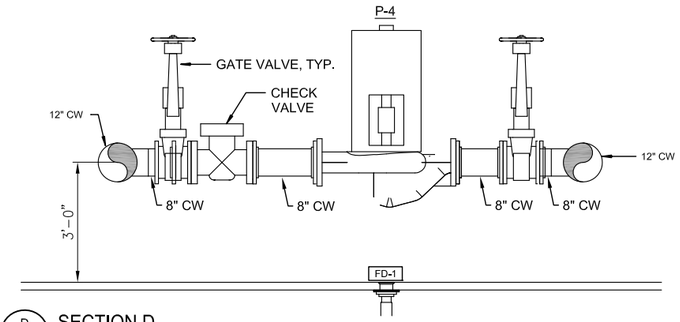


C M3.01 SECTION C
SCALE: NTS



D M3.01 SECTION D
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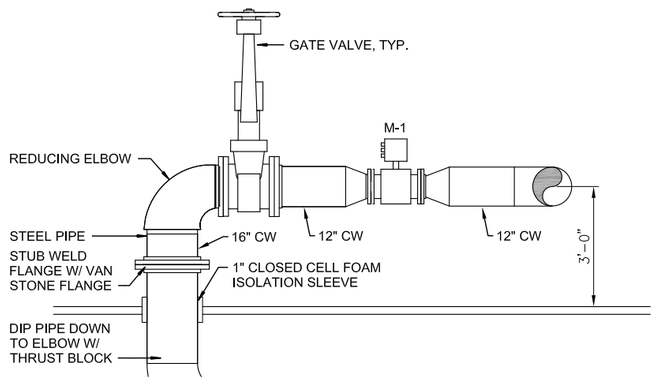

E M3.01 SECTION E
SCALE: NTS

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CONSTRUCT BOGARD ROAD BOOSTER STATION

CITY OF PALMER

PALMER, ALASKA

SHEET TITLE
SECTIONS

SHEET
M3.01

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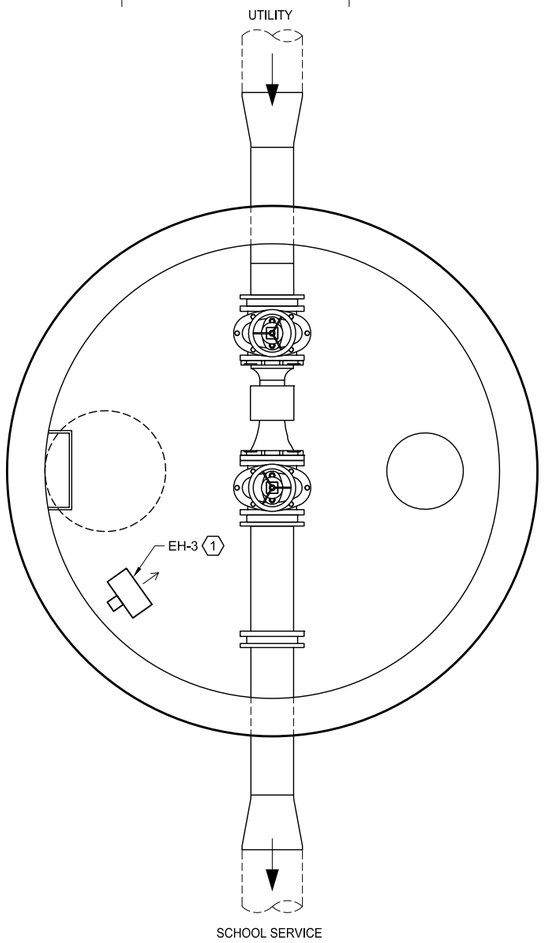
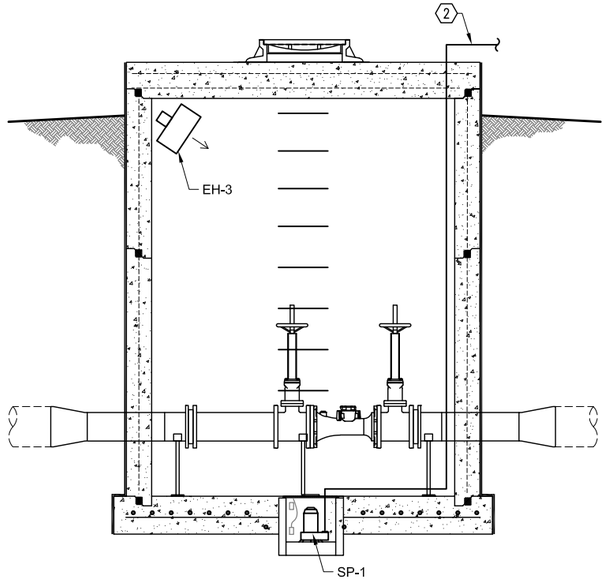


1 M4.01 METER VAULT PLAN

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

0' 1' 2'

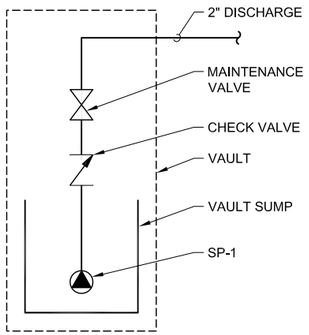


3 M4.01 METER VAULT ELEVATION

SCALE: NTS

SHEET NOTES

1. WALL MOUNT UNIT HEATER AS HIGH AS POSSIBLE.
2. ROUTE SUMP PUMP DISCHARGE PIPING 5-FEET FROM VAULT. SECURE TO WALL EVERY 6 FEET.



2 M4.01 SUMP PUMP PIPING DIAGRAM

SCALE: NTS

REVISIONS

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CITY OF PALMER

PALMER, ALASKA

SHEET TITLE: METER VAULT MECHANICAL PLAN

SHEET: M4.01

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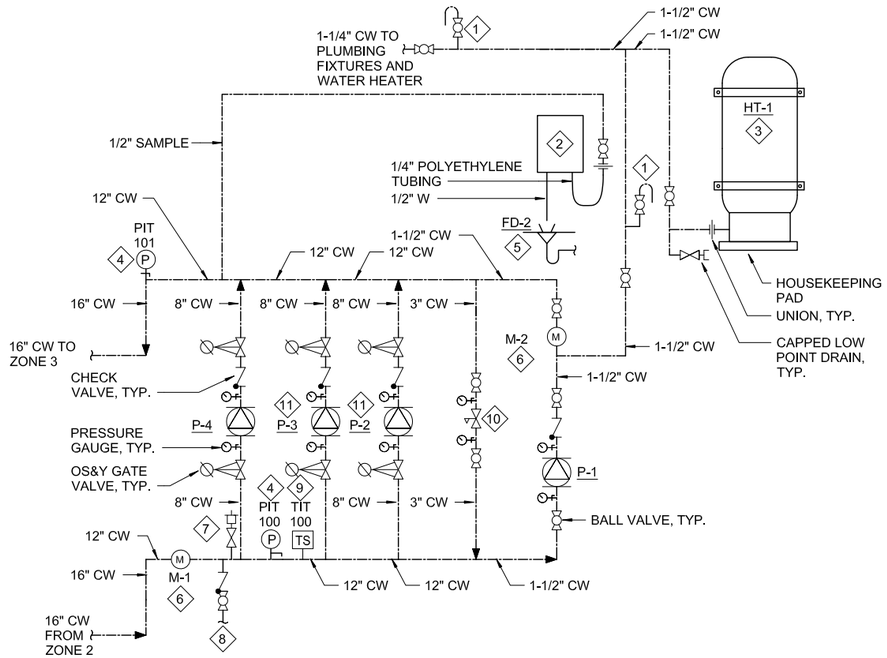
DATE: FEB. 2024 | SCALE: AS NOTED

JOB NUMBER: 16-033

FILE PATH: p:\Projects\HDL\bogard rd booster station\Dwgs\Mech\M4.01 METER VAULT MECHANICAL PLAN.dwg DATE SAVED: 2/9/2024 2:04 PM



⟨X⟩ PIPING DIAGRAM KEY NOTES

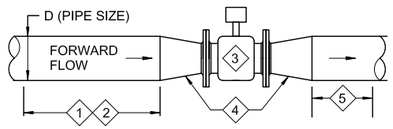
1. PROVIDE AIR VENT ON WATER PIPING HIGH POINTS. VENT CONSISTS OF BALL VALVE AND 180 DEG PIPE TURN TO ALLOW BUCKET TO CATCH WATER DURING PURGE.
2. CHLORINE ANALYZER, REFERENCE ELECTRICAL.
3. HT-1 SEISMICALLY STRAP TO WALL.
4. PRESSURE TRANSMITTER, TYP. REFERENCE ELECTRICAL.
5. ROUTE DISCHARGE FROM CHLORINE ANALYZER TO FUNNEL DRAIN W/ AIR BREAK.
6. FLOW METER. REFERENCE DIAGRAM 2/M5.01 FOR MINIMUM STRAIGHT PIPE DIMENSIONS. REFERENCE ELECTRICAL FOR PID TAG.
7. AIR RELEASE VALVE.
8. 1/2" PE TUBING FROM HYPOCHLORITE DOSING PUMP, IP-1. ROUTED WITHIN PVC CONDUIT IN SLAB, REFERENCE 3/M2.02.
9. TEMPERATURE TRANSMITTER, TYP. REFERENCE ELECTRICAL.
10. PRESSURE RELIEF VALVE TO ALLOW FLOW TO GO FROM ZONE 3 TO ZONE 2.
11. FUTURE HIGH FLOW PUMP INSTALLED IN LOCATION OF P-2 AND AT P-3. LOCATE 8" GATE VALVES FOR P-2 AND P-3 IN SAME LOCATION AS P-4 TO FACILITATE FUTURE RENOVATION.

1 / M5.01 WATER PIPING DIAGRAM

SCALE: NTS

⟨X⟩ PIPING DIAGRAM KEY NOTES

1. MINIMUM 3D STRAIGHT PIPE DIAMETERS FROM THE JOINT OF ELBOWS, TEES, AND FULL OPEN GATE VALVES.
2. MINIMUM 5D STRAIGHT PIPE DIAMETERS FROM THE JOINT OF CHECK VALVES, GLOBE VALVES, BUTTERFLY VALVES, AND PUMPS.
3. FLOW METER. DIMENSIONS BASED ON BADGER M-2000. REFERENCE INSTALLATION MANUAL FOR STRAIGHT PIPE DIMENSIONS PRIOR TO FABRICATION.
4. STANDARD CONCENTRIC REDUCERS.
5. MINIMUM 2xD STRAIGHT PIPE DIAMETERS FROM THE JOINT OF ELBOWS, TEES, AND ANY VALVE.



2 / M5.01 METER PIPING DIAGRAM

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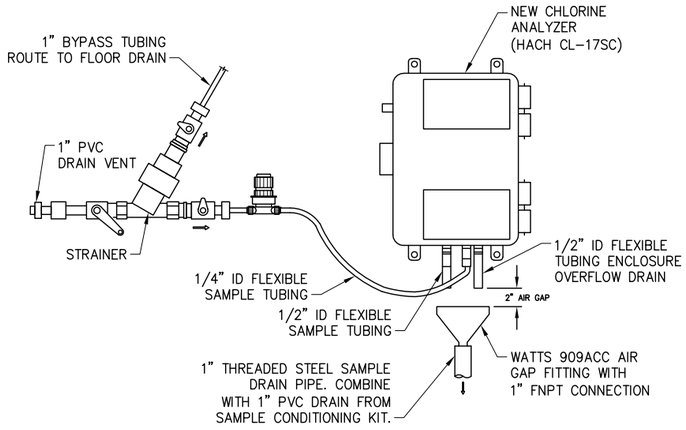

3 / M5.01 CHLORINE ANALYZER DETAIL

SCALE: NTS

GENERAL SHEET NOTES

1. ALL WORK TO BE COMPLETED IN ACCORDANCE WITH CURRENT CODE.

REVISIONS		
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STATE OF ALASKA — 19TH — ZACHARY B. BALDWIN — LIC. 14281 — REGISTERED PROFESSIONAL ENGINEER — 2/13/24

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CONSTRUCT BOGARD ROAD BOOSTER STATION

CITY OF PALMER

PALMER, ALASKA

SHEET TITLE: PIPING DETAILS

SHEET: M5.01

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ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
———	EXPOSED CONDUIT
- - - -	UNDERGROUND CONDUIT
⌀ ⏚	3/4" X 10' COPPER CLAD STEEL GROUND ROD
—⊃—	CONDUIT RUN – CHANGE IN ELEVATION
	LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT
M	KILOWATT–HOUR METER
X/Y	MOLDED CASE CIRCUIT BREAKER, X = AMPERE RATING, Y = NO. OF POLES
M	MOTOR, 3–PHASE
M	MOTOR, SINGLE PHASE
	DISCONNECT – UNFUSED
	GROUND FAULT INTERRUPTING (GFI) RECEPTACLE
	120V DUPLEX RECEPTACLE NEMA 5–20R
$	SINGLE POLE SWITCH
$3	THREE–WAY SWITCH
S	SMOKE DETECTOR
J	JUNCTION BOX OR FITTING
SV	SOLENOID VALVE
MV	MOTORIZED VALVE
M	MOTORIZED DAMPER
OTHER SYMBOLS ARE AS DEFINED BY NOTE.	

GENERAL NOTES

1. ALL ELECTRICAL WORK SHALL BE INSTALLED IN ACCORDANCE WITH ALL REQUIREMENTS OF THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE AND THE CITY OF PALMER'S REQUIREMENTS GOVERNING THE PROJECT. ALL WORK SHALL BE PERFORMED UNDER THE SUPERVISION OF A STATE OF ALASKA LICENSED JOURNEYMAN ELECTRICIAN.

2. ALL ELECTRICAL EQUIPMENT SHALL INCLUDE THE SEAL OF A NATIONALLY RECOGNIZED TESTING LABORATORY FOR THE PURPOSE FOR WHICH IT IS INSTALLED.

3. CALCULATE, COORDINATE AND PROVIDE EQUIPMENT RATED FOR THE AVAILABLE SHORT CIRCUIT CURRENT AT THE POINT OF THE SYSTEM WHERE INSTALLED IN ACCORDANCE WITH NEC SECTION 110.10. CALCULATE, COORDINATE AND PROVIDE EQUIPMENT MARKINGS IN ACCORDANCE WITH NEC SECTIONS 110.16 AND 110.24.

4. DIMENSIONS OF EQUIPMENT ARE APPROXIMATE. INSTALLATION SHALL BE VERIFIED BASED ON ACTUAL MANUFACTURER'S DATA AND SHOP DRAWINGS.

5. ALL SITE WORK AND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS. VERIFY ALL INSTALLATIONS PRIOR TO COMMENCEMENT OF WORK. COORDINATE ALL WORK WITH UTILITIES AS REQUIRED.

6. ALL SINGLE PHASE BRANCH CIRCUITS SHALL BE 3/4"C, 3#12, AND ALL THREE PHASE BRANCH CIRCUITS SHALL BE 3/4"C, 4#12, UNLESS OTHERWISE NOTED. ALL CIRCUITS SHALL HAVE AN EQUIPMENT GROUNDING CONDUCTOR.

7. PROVIDE SEISMIC SUPPORT AND DESIGN PER IBC REQUIREMENTS.

8. WHERE EXISTING UNDERGROUND UTILITIES ARE SHOWN ON THE PLANS, MULTIPLE PARALLEL LINES MAY BE ENCOUNTERED IN THE SAME TRENCH OR GENERAL AREA. SINGLE LINES WERE SHOWN FOR CLARITY.

10. CALL BEFORE YOU DIG. ALL UTILITIES MAY NOT BE SHOWN IN THE PLANS. THE CONTRACTOR SHALL FIELD LOCATE ALL UTILITIES WITHIN WORK AREA PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF ANY UTILITY CONFLICTS BETWEEN PROPOSED STRUCTURES & UTILITIES. ADJUSTMENTS OF ALL STRUCTURES MAY BE NECESSARY TO AVOID UTILITY CONFLICTS. ADJUSTMENTS SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION. HAND DIG WITHIN 36" OF ALL UTILITIES NOT SCHEDULED FOR DEMOLITION.

ABBREVIATIONS

A	ANALOG SIGNAL, AMPERE
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISH GRADE
AI	ANALOG INPUT
AO	ANALOG OUTPUT
BCU	BARE COPPER
C	CONDUIT
SCP	SCADA CONTROL PANEL
CT	CURRENT TRANSFORMER
CU	COPPER
D	DIGITAL SIGNAL
DEG	DEGREES
DI	DIGITAL INPUT
DO	DIGITAL OUTPUT
E	EMERGENCY
(E)	EXISTING
FLA	FULL LOAD AMPERES
FS	FLOW SWITCH
G	GROUND CONDUCTOR
GFI	GROUND FAULT INTERRUPTING
GRC	GALVANIZED RIGID (STEEL) CONDUIT
GRD	GROUND
HDPE	HIGH DENSITY POLYETHYLENE CONDUIT
HL	HIGH LEVEL
HP	HORSEPOWER
KVA	KILO–VOLT–AMPERES
LTF	LIQUID TIGHT FLEXIBLE CONDUIT (METALLIC)
MBJ	MAIN BONDING JUMPER
MCC	MOTOR CONTROL CENTER
MEA	MATANUSKA ELECTRIC ASSOCIATION
MLO	MAIN LUG ONLY
MOV	MOTOR OPERATED VALVE
MTA	MATANUSKA TELEPHONE ASSOCIATION
(N)	NEW
N.I.C.	NOT IN CONTRACT
NC	NORMALLY CLOSED
NO	NORMALLY OPEN, NUMBER
PH	PHASE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PM	POWER MONITOR
POE	POWER OVER ETHERNET
PR	PAIR
RVSS	REDUCED VOLTAGE SOFT START
SIG	SIGNAL
SS	STAINLESS STEEL
TWSH	TWISTED WIRE SHIELDED
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
V	VOLTS
W	WATTS
WP	WEATHERPROOF
XFMR	TRANSFORMER
XP	EXPLOSION PROOF (HAZARDOUS AREA)
ZS	LIMIT SWITCH

INSTRUMENTATION LEGEND

XX / YY	FIELD MOUNTED INSTRUMENT XX = FUNCTION; YY = TAG NO.
XX / YY	MCC MOUNTED INSTRUMENT XX = FUNCTION; YY = TAG NO.
XX / YY	PANEL MOUNTED INSTRUMENT XX = FUNCTION; YY = TAG NO.
XX / YY	PLC MOUNTED INSTRUMENT XX = FUNCTION; YY = TAG NO.
XX / YY	PLC FUNCTION XX = FUNCTION; YY = TAG NO.
XX / YY	PLC CONTROL PANEL XX = CONTROL PANEL NAME / TAG NO.

XX / YY INSTRUMENT IDENTIFIER

XX = FUNCTION / YY = LOOP

BS	SMOKE DETECTOR
BYC	GAS HEATER
DPT	DIFFERENTIAL PRESSURE TRANSMITTER
EACA	CONTROL POWER FAILURE
ECA	EMERGENCY POWER AVAILABLE/UPS FAULT
EDCA	BATTERY CHARGER ALARM
EDCC	BATTERY SYSTEM TEST
EDCT	DC SYSTEM VOLTAGE
FI	FLOW INDICATOR
FIT	FLOW INDICATING TRANSMITTER
FQ	FLOW TOTALIZATION
HS	HAND SWITCH
LAH	HIGH LEVEL ALARM (FLOOD, WET WELL)
PCV	MOTORIZED PILOT CONTROL VALVE
PI	PRESSURE INDICATION
PIT	PRESSURE INDICATING TRANSMITTER
PT	PRESSURE TRANSMITTER
SC	SPEED CONTROL
SI	SPEED INDICATION
TE	TEMPERATURE ELEMENT
TT	TEMPERATURE TRANSMITTER
YA	FAULT INDICATION
YAL	PILOT LAMP
YC	RUN REQUEST
YCC	VALVE CLOSE REQUEST
YCO	VALVE OPEN REQUEST
YL	RUN STATUS
YFC	VALVE FLOW MODE REQUEST
YPC	VALVE PRESSURE MODE REQUEST
YS	HOA SWITCH POSITION
YSC	VALVE SHUTDOWN REQUEST
YYC	SOLENOID VALVE OPEN/CLOSE REQUEST
ZC	VALVE POSITION CONTROL
ZS	INTRUSION/POSITION SWITCH
ZSC	VALVE FULLY CLOSED
ZSE	SWITCH IN EMERGENCY POSITION
ZSN	SWITCH IN NORMAL POSITION
ZSO	VALVE FULLY OPEN
ZI	POSITION INDICATION
ZT	POSITION TRANSMITTER

EQUIPMENT TAG LEGEND

LUMINAIRES: L1 – LUMINAIRE TYPE; H–3a – UPPERCASE LETTER DENOTES PANEL NAME, NUMBER DENOTES CIRCUIT NUMBER(S), LOWERCASE LETTER DENOTES SWITCH LEG

SNAP SWITCHES: $3,a – NUMBER DENOTES SWITCH CONFIGURATION. LOWER CASE LETTER DENOTES SWITCH LEG.

EQUIPMENT CONNECTIONS: P–1 – EQUIPMENT TAG; H–1,3,5 – LETTER DENOTES PANEL NAME, NUMBER DENOTES CIRCUIT NUMBER(S)

RECEPTACLES: +48" – HEIGHT ABOVE FINISH FLOOR; L–1 – LETTER DENOTES PANEL NAME, NUMBER DENOTES CIRCUIT NUMBER(S)

MOUNTING HEIGHT SCHEDULE

EQUIPMENT	HEIGHT
PANELBOARDS (TOP)	72"
POWER METER BASE (CENTER LINE OF METER)	PER UTILITY
VFDs, MOTOR STARTERS, DISCONNECT SWITCHES (TOP)	66"
RECEPTACLES IN NON-FINISHED AND MECH. SPACES (CENTER)	48"
WALL MOUNTED SWITCHES (CENTER)	46"

FIXTURE SCHEDULE

SYMBOL	TYPE	LAMP SIZE	MOUNTING	DESCRIPTION
	F1	LED	CEILING OR PENDANT MOUNT PUMP RM – 15' AFF ELECTRICAL RM – 12' AFF CHLORINE RM – 12' AFF	WET LOCATION, INDUSTRIAL, LOW PROFILE, 48" LED LINEAR. LITHONIA #FEM–L48–6000LM–LPAFL –WD–MVOLT–GZ10–5000K–80CRI
	S1	45W LED	WALL MOUNT @ 12' AFG	LED WALLPACK WITH MOTION SENSOR. LITHONIA #TWP LED–20C–50K–T3M–MVOLT–PE–DDBXD
	EX1	1.5W X 2 LED	WALL MOUNT ABOVE DOOR	EXIT SIGN/EMERGENCY FIXTURE, 2 LAMP HEADS, SINGLE FACE, RED LETTERS, 90–MIN. NI–CAD BATTERY. LITHONIA #LHQM LED R
	EM1	3.3W LED	WALL MOUNT ABOVE EXTERIOR DOORS	EXTERIOR EMERGENCY FIXTURE REMOTE HEAD, LED, 1–LAMP, 9.6V. REMOTE HEAD POWERED BY INTERIOR BATTERY PACK. LITHONIA #ELMRW–SP640L–SGL. BATTERY OPTION #ELM4L LTP.

NOTES:

REVISIONS		
MARK	DATE	DESCRIPTION
1		
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STATE OF ALASKA – 19TH – ENGINEER – JOHN A. PAPE – CE 11307 – REGISTERED PROFESSIONAL ENGINEER – 2/13/24

EDC, INC.
5500 W. 88th AVE. STE. 100
ANCHORAGE, AK 99503
(907) 276-7933
LICENSE NO. AECC705

CONSTRUCT BOGARD ROAD BOOSTER STATION

CITY OF PALMER

PALMER, ALASKA

SHEET TITLE: LEGENDS AND ABBREVIATIONS

SHEET: E1.01

DRAWN BY: | CHECKED BY: JP

DATE: FEB. 2024 | SCALE: AS NOTED

JOB NUMBER: 16–033

DATE SAVED: 2/13/2024 10:45 AM

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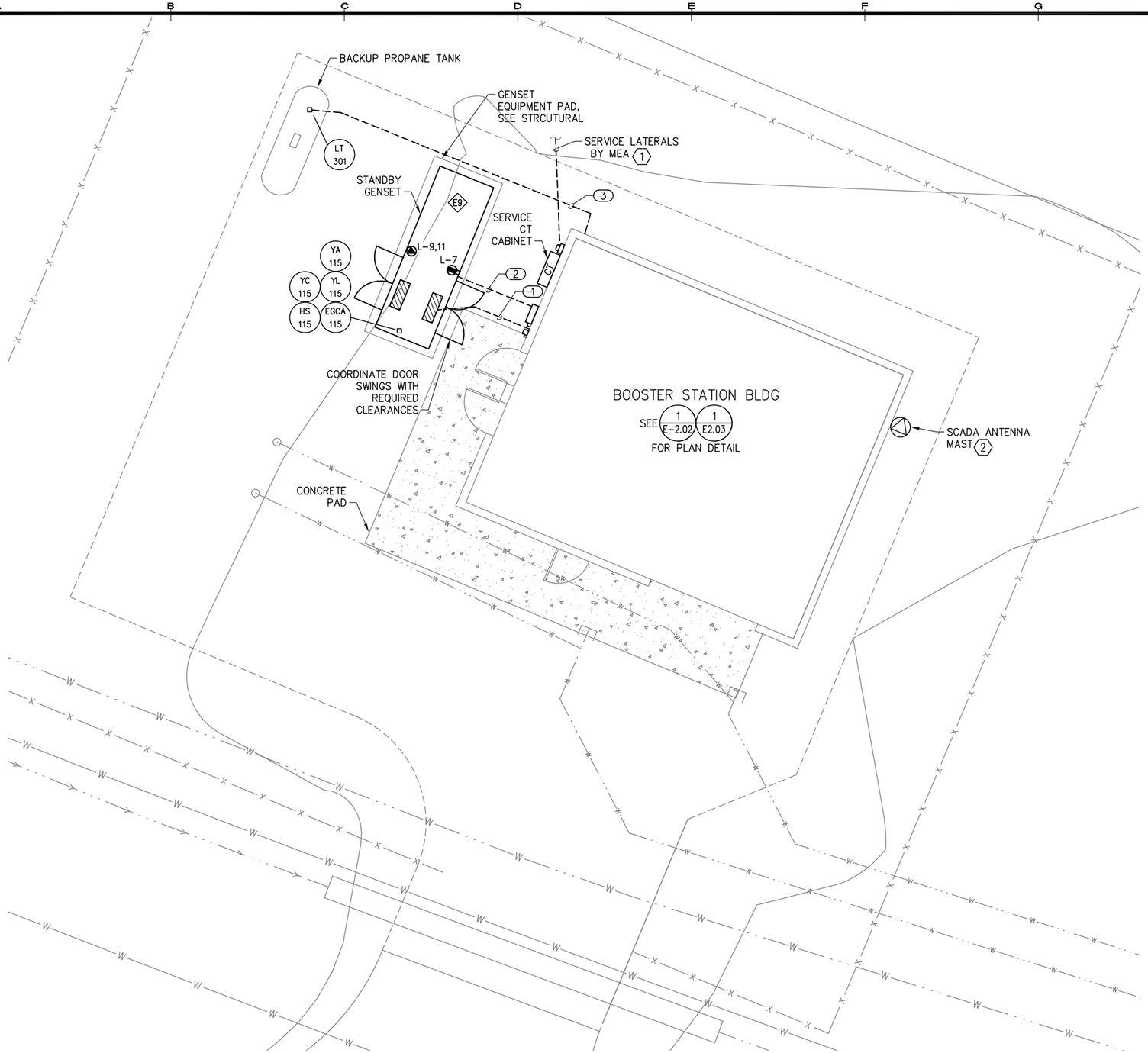

1 E2.01 ELECTRICAL SITE PLAN

SCALE: 1:5

SHEET NOTES

1. ELECTRICAL UTILITY (MEA) SERVICE. PROVIDE SERVICE EQUIPMENT IN ACCORDANCE WITH UTILITY SERVICE REQUIREMENTS. COORDINATE ALL WORK WITH UTILITY.
2. SCADA RADIO ANTENNA. EVALUATION, INSTALLATION AND CONNECTIVITY/INTEGRATION TO THE CITY'S COMMUNITY-WIDE SCADA SYSTEM NETWORK TO BE PROVIDED BY THE DIVISION 40 CONTRACTOR. SEE SHEET E5.02, DETAIL 3 FOR OTHER REQUIRMENTS.

E# SEE SHEET E3.01 FOR ELECTRICAL EQUIPMENT SCHEDULE

INSTRUMENT CONNECTION SCHEDULE

TAG ID	SIGNAL CIRCUIT SIZE	DESTINATION	POWER CIRCUIT SIZE (IF REQUIRED)	DESTINATION	NOTES
LT-301	3/4"C, 2C#18 TWSH(SIG), 1#14 EGC	SCP			PROPANE TANK LEVEL
YA-115 YC-115 YL-115 HS-115 RC-115	3/4"C, 5 EACH: 2#14(2SIG),1#14 EGC	SCP			GENSET

CIRCUIT / CABLE SCHEDULE

TAG	DESCRIPTION
1	GENERATOR FEEDER. SEE POWER ONE-LINE ON SHEET E3.01.
2	GENSET BATTERY AND HEATER CIRCUITS AS REQUIRED. SEE PANEL 'L' SCHEDULE ON SHEET E3.01.
3	SEE INSTRUMENT SCHEDULE ON THIS SHEET SHEET.

REVISIONS		
MARK	DATE	DESCRIPTION
1		
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STATE OF ALASKA 19TH JOHN A. PAPE 13,580 REGISTERED PROFESSIONAL ENGINEER 2/13/24

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CONSTRUCT BOGARD ROAD BOOSTER STATION

CITY OF PALMER

PALMER, ALASKA

SHEET TITLE: ELECTRICAL SITE PLAN

SHEET: E2.01

DRAWN BY:	CHECKED BY:
	JP
DATE: FEB. 2024	SCALE: AS NOTED
JOB NUMBER: 16-033	

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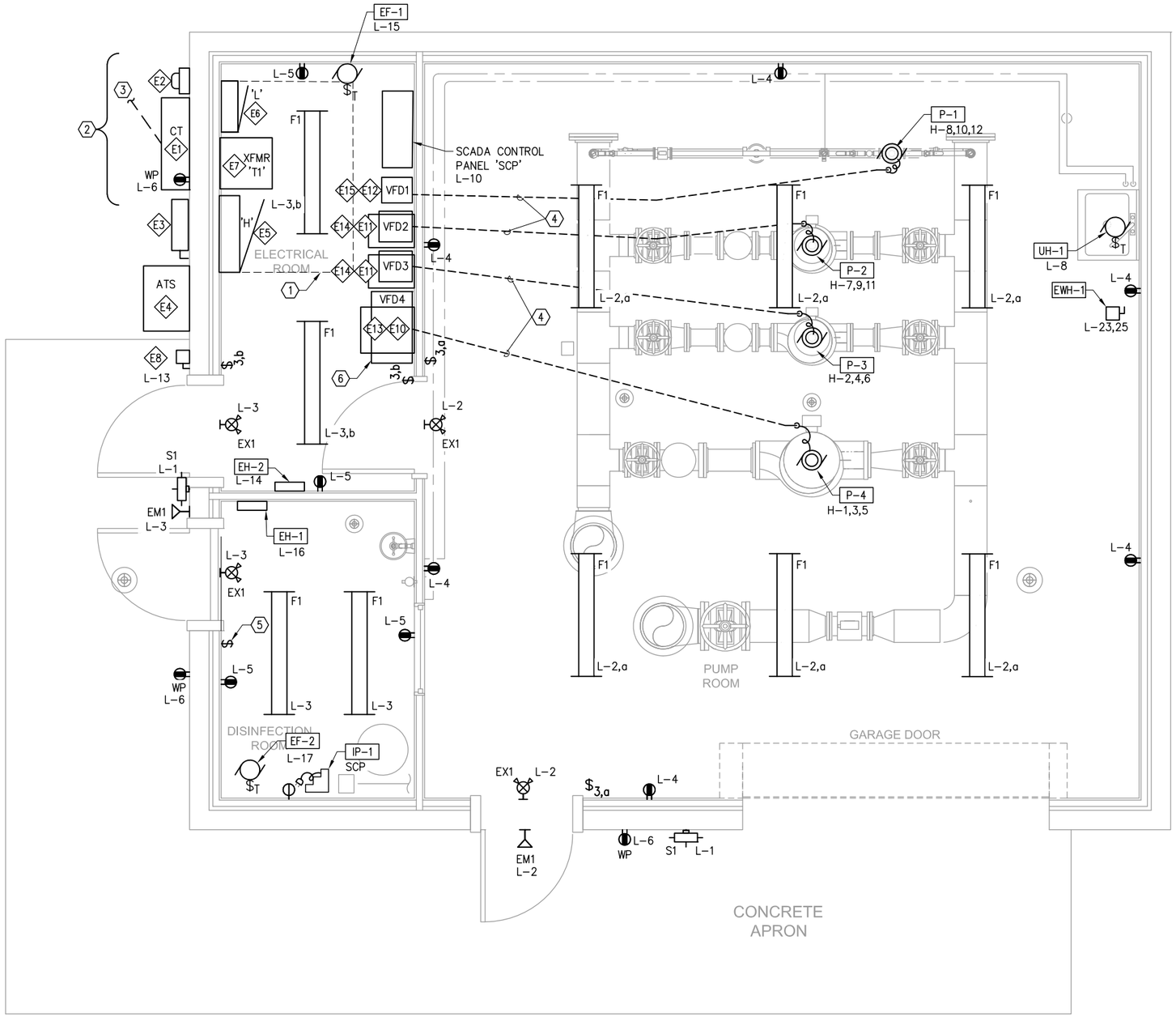

1 E2.02 **LIGHTING AND POWER FLOOR PLAN**
SCALE: 1/2" = 1'-0"

0 2' 4'

SHEET NOTES

1. MAINTAIN ELECTRICAL CLEARSPACE ABOUT EQUIPMENT IN ACCORDANCE WITH NEC 110.26.
2. COORDINATE AND INSTALL SERVICE EQUIPMENT IN ACCORDANCE WITH MATANUSKA ELECTRIC ASSOCIATION (MEA) REQUIREMENTS.
3. TO MEA TRANSFORMER. PROVIDE CONDUIT STUB-OUTS PER MEA REQUIREMENTS. TRANSFORMER AND SERVICE LATERALS BY MEA.
4. POWER CONDUITS SHALL BE ROUTED UNDER THE FLOOR SLAB TO THE EQUIPMENT. NO CONDUITS WILL BE LAID ON THE FLOOR. COORDINATE INSTALLATION WITH CONCRETE SLAB LAYOUT AND CONSTRUCTION. CONTRACTOR SHALL PROVIDE THE ENGINEER AN UNDERSLAB CONDUIT LAYOUT PLAN DRAWINGS, A MINIMUM OF 30 DAYS PRIOR TO THE START OF ANY WORK. THIS PLAN SHALL BE REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO THE START OF WORK.
5. DISINFECTION ROOM LIGHTING AND EXHAUST FAN (EF-2) CONTROL. SEE SHEET E5.02, DETAIL 4.
6. PROVIDE FLOOR MOUNTED STRUCTURAL SUPPORT FOR WALL MOUNTED VFD FILTERS ABOVE DRIVES AS REQUIRED. TYPICAL OF 3.

◇E# SEE E3.01 FOR ELECTRICAL EQUIPMENT SCHEDULE

EQUIPMENT CONNECTION SCHEDULE

TAG ID	LOAD					CIRCUIT SIZE	NOTES
	KVA	HP	FLC	V	PH		
EWH-1	2			208	1	1/2"C, 2#12(2H), 1#12 EGC	
UH-1	–	1/15	–	120	1	1/2"C, 2#12(H,N), 1#12 EGC	
EH-1	1.5	–	–	120	1	1/2"C, 2#12 (2H), 1#12 EGC	
EH-2	1.5	–		120	1	1/2"C, 2#12 (2H), 1#12 EGC	
EF-1	0.062	–	–	120	1	1/2"C, 2#12(H,N), 1#12 EGC	
EF-2	0.021	–	–	120	1	1/2"C, 2#12(H,N), 1#12 EGC	
IP-1	–	F	–	120	1	SEE INSTRUMENT CONNECTION SCHEDULE ON SHEET E2.03	1
P-1	–	1.5	3	480	3	SEE POWER ONE-LINE ON SHEET E3.01	
P-2	–	20	27	480	3	SEE POWER ONE-LINE ON SHEET E3.01	
P-3	–	20	27	480	3	SEE POWER ONE-LINE ON SHEET E3.01	
P-4	–	75	96	480	3	SEE POWER ONE-LINE ON SHEET E3.01	

1. INJECTION PUMP CONNECTED VIA CORD AND PLUG

REVISIONS		
MARK	DATE	DESCRIPTION
1		
2		
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STATE OF ALASKA 19TH JOHN A. PAPE 11307 REGISTERED PROFESSIONAL ENGINEER 2/13/24

EDC, INC.
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CONSTRUCT BOGARD ROAD BOOSTER STATION
CITY OF PALMER
PALMER, ALASKA

SHEET TITLE: LIGHTING AND POWER FLOOR PLAN

SHEET: E2.02

DRAWN BY:	CHECKED BY:
	JP
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JOB NUMBER: 16-033	

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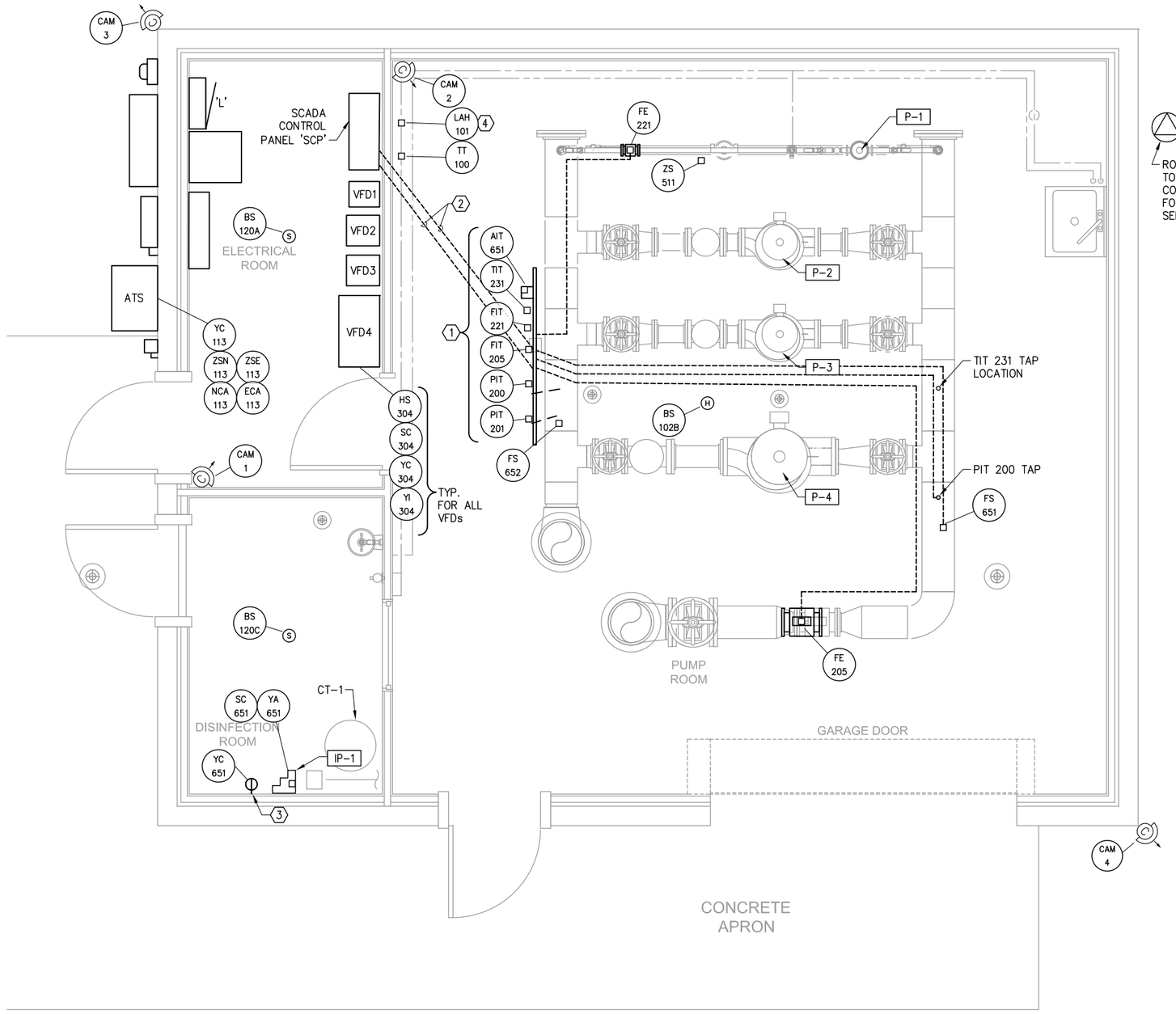

1 E2.03 **INSTRUMENTATION FLOOR PLAN**
SCALE: 1/2" = 1'-0"

0 2' 4'

SHEET NOTES

1. UNISTRUT INSTRUMENTATION RACK. CONSOLIDATE ALL INSTRUMENT INDICATING DISPLAYS AT THIS LOCATION. SEE SHEET E5.01 FOR DETAILS.
2. INSTRUMENT CONDUITS SHALL BE ROUTED UNDER THE FLOOR SLAB TO THE EQUIPMENT. NO CONDUITS SHALL BE LAID ON THE FLOOR. CONDUITS CAN BE ROUTED ALONG PIPES ON STRUCTURED SUPPORTS. COORDINATE INSTALLATION WITH CONCRETE SLAB LAYOUT AND CONSTRUCTION. CONTRACTOR SHALL PROVIDE THE ENGINEER AN UNDER SLAB CONDUIT LAYOUT PLAN DRAWING A MINIMUM OF 30 DAYS PRIOR TO THE START OF ANY WORK. THIS PLAN SHALL BE REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO THE START OF WORK.
3. CHLORINE FEED PUMP (IP-1) SIMPLEX RECEPTACLE POWERED FROM SCADA CONTROL PANEL 'SCP'.
4. FLOOD DETECTOR, SEE SHEET E5.01, DETAIL 1.

E# SEE SHEET E3.01 FOR ELECTRICAL EQUIPMENT SCHEDULE

EQUIPMENT CONNECTION SCHEDULE

TAG ID	SIGNAL CIRCUIT SIZE	SOURCE	POWER CIRCUIT SIZE (IF REQUIRED)	SOURCE
CAM-1	3/4"C, CAT 6A CABLE	SCP	POE	
CAM-2	3/4"C, CAT 6A CABLE	SCP	POE	
CAM-3	3/4"C, CAT 6A CABLE	SCP	1/2"C, 2#12 AND 1#12 EGC	SCP
CAM-4	3/4"C, CAT 6A CABLE	SCP	1/2"C, 2#12 AND 1#12 EGC	SCP

INSTRUMENT CONNECTION SCHEDULE

TAG ID	SIGNAL CIRCUIT SIZE	DESTINATION	POWER CIRCUIT SIZE (IF REQUIRED)	DESTINATION	NOTES
AIT-651	3/4"C, 1 EACH: 1PR#18 TWSH; 1#14 EGC	SCP	3/4"C, (1) EACH: 2#14: 1#14 EGC	PANEL 'L'	CHLORINE ANALYZER
BS-102A, 102B, 102C	3/4"C, 3 EACH: 2#14(2SIG); 1#14 EGC	SCP			
FS-651 FS-652	3/4"C, 1 EACH: 2#14(2SIG); 1#14 EGC	SCP			FLOW SWITCH
FE-205 FE-221	3/4"C, MANUFACTURER'S SUPPLIED CABLE	FIT			
FIT-205 FIT-221	3/4"C, 1 EACH: 1PR#18 TWSH; 1#14 EGC	SCP	3/4"C, (1) EACH: 2#14: 1#14 EGC	SCP	SYSTEM FLOW
PIT-200 PIT-201	3/4"C, 1 EACH: 1PR#18 TWSH, 1#14 EGC	SCP			SYSTEM PRESS.
LAH-101	3/4"C, 1 EACH: 1PR#18 TWSH, 1#14 EGC	SCP			
TT-100	3/4"C, 1PR#18 TWSH	SCP			BLDG TEMP
TIT-231	3/4"C, 1PR#18 TWSH	SCP			WATER TEMP
YA-651 YC-651	3/4"C, 1 EACH: 2#14(2SIG); 1#14 EGC	SCP	3/4"C, (1) EACH: 2#14: 1#14 EGC	SCP	CL FEED PUMP, IP-1
SC-651	3/4"C, 1PR#18 TWSH	SCP			CL FEED PUMP, IP-1
YC-113 ZSN-113 ZSE-113 NCA-113 ECA-113	1"C, 5 EACH: 2#14(2SIG), 1#14 EGC	SCP			ATS
ZS-511	3/4"C, 1 EACH: 2#14(2SIG); 1#14 EGC	SCP			PRV
HS-301,2,3,4 SC-301,2,3,4 YC-301,2,3,4 YI-301,2,3,4	3/4"C, 1 EACH: CAT 4A 1#14 EGC	SCP			VFDs

REVISIONS

MARK	DATE	DESCRIPTION
1		
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STATE OF ALASKA 19TH ENGINEERS REGISTERED PROFESSIONAL 2/13/24 John A. Pape EE 11307

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LICENSE NO. AECC705

CONSTRUCT BOGARD ROAD BOOSTER STATION
CITY OF PALMER
PALMER, ALASKA

SHEET TITLE: INSTRUMENTATION FLOOR PLAN
SHEET: E2.03
DRAWN BY:
CHECKED BY: JP
DATE: FEB. 2024
SCALE: AS NOTED
JOB NUMBER: 16-033

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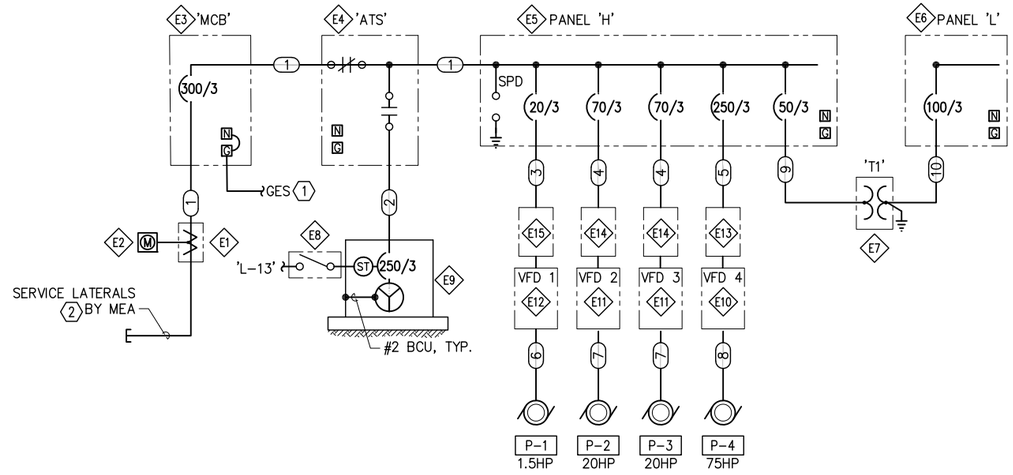

1 POWER ONE-LINE DIAGRAM
E3.01 SCALE: NTS

SHEET NOTES

1. GROUNDING ELECTRODE SYSTEM (GES). SYSTEM SHALL BE ACCORDANCE WITH ALL REQUIREMENTS OF THE NEC. SEE SHEET E5.02 FOR DETAILS.
2. ELECTRICAL UTILITY (MEA) SERVICE. PROVIDE SERVICE CONDUIT STUB-OUT IN ACCORDANCE WITH UTILITY'S REQUIREMENTS. COORDINATE ALL WORK WITH THE UTILITY.

ELECTRICAL EQUIPMENT SCHEDULE

ITEM NO.	DESCRIPTION	MANUFACTURER OR EQUAL
E1	400A, 480V, 3ø, 4W, NEMA 3R CT CABINET	PER MEA REQUIREMENTS
E2	13-JAW, CT-RATED METER BASE, NEMA 3R	PER MEA REQUIREMENTS
E3	400A, 480V, 3PST DISCONNECT SWITCH CIRCUIT BREAKER, NEMA 3R	SQUARE D
E4	400A, 480V, 3ø, 4W WITH SOLID NEUTRAL, NEMA 3R/12, CLOSED TRANSITION, AUTOMATIC TRANSFER SWITCH (ATS)	CUMMINS
E5	400A, 480Y/277V, 3ø, 4W, 42 SPACE, NEMA 1 PANELBOARD 'H' WITH SPD TYPE 2	SQUARE D NF
E6	100A, 208Y/120V, 3ø, 4W, 42 SPACE, NEMA 1 PANELBOARD 'L'	SQUARE D NQ
E7	30KVA, 480:208/120V, 3ø DRY TYPE TRANSFORMER 'T1'	SQUARE D
E8	30A, 120V, SPST, NEMA 3R, LOCKABLE GENERATOR DISCONNECT. PROVIDE SIGNAGE INDICATING 'GENERATOR SHUNT TRIP'.	SQUARE D
E9	150KW, 480Y/277V, 3ø, 4W NATURAL GAS/PROPANE-FIRED PAD MOUNTED, STANDBY GENERATOR IN WEATHERPROOF AND SOUND ATTENUATED ENCLOSURE.	CUMMINS C150N6. SEE SHEET E2.01, 5.02 AND SPECIFICATIONS
E10	75HP RATED, 480V, 3ø, VARIABLE FREQUENCY DRIVE (VFD), NEMA 1	ABB ACQ580-01. SEE SHEET E6.03
E11	20HP RATED, 480V, 3ø, VARIABLE FREQUENCY DRIVE (VFD), NEMA 1	ABB ACQ580-01. SEE SHEET E6.03
E12	1.5HP RATED, 480V, 3ø, VARIABLE FREQUENCY DRIVE (VFD), NEMA 1	ABB ACQ580-01. SEE SHEET E6.03
E13	75HP RATED, 480V, 3ø, INPUT LINE REACTOR, NEMA 1	MTE MATRIX AP
E14	20HP RATED, 480V, 3ø, INPUT LINE REACTOR, NEMA 1	MTE MATRIX AP
E15	1.5HP RATED, 480V, 3ø, INPUT LINE REACTOR, NEMA 1	MTE MATRIX AP

CIRCUIT SCHEDULE

TAG	DESCRIPTION
1	2 EACH: 2-1/2"C, 4#3/0 & 1#1/0 EGC
2	3"C, 4#250 MCM (3H,N), 1#2 EGC
3	3/4"C, 3C#12 (3H), 1#12 EGC
4	1"C, 3C#8 (3H), 1#8 EGC
5	2"C, 3C#1/0 (3H), 1#6 EGC
6	1"C, 3C#12 VFD RATED CABLE, 1#12 EGC
7	2"C, 3C#8 VFD RATED CABLE, 1#8 EGC
8	2-1/2"C, 3C#1/0 VFD RATED CABLE, 1#6 EGC
9	1"C, 3#8(3H), 1#10 EGC
10	1-1/2"C, 4#2(3H,N), 1#6 EGC

VOLTAGE: 480/277 | BUS: 400A | MAIN: MLO | **PANEL 'H' SCHEDULE** | LOCATION: ELECTRICAL ROOM | MIN. A.I.C. RATING: 65,000 | ENCLOSURE: NEMA 1 | MOUNTING: SURFACE

CKT	AMP TRIP	LOAD DESCRIPTION	KVA	LOAD	A	B	C	LOAD	KVA	LOAD DESCRIPTION	AMP TRIP	CKT
1			26.6	LM	34.1			M	7.5			2
3	250/3	HIGH DEMAND PUMP 'P-4' (75HP)	26.6	LM		34.1		M	7.5	BOOSTER PUMP 'P-3' (20HP)	70/3	4
5			26.6	LM			34.1	M	7.5			6
7			7.5	M	8.3			M	0.8			8
9	70/3	BOOSTER PUMP 'P-2' (20HP)	7.5	M		8.3		M	0.8	JOCKEY PUMP 'P-1' (1.5HP)	20/3	10
11			7.5	M			8.3	M	0.8			12
13					3.5			F	3.5			14
15						3.9		F	3.9	PANEL 'L' FEEDER	50/3	16
17							2.7	F	2.7			18
19					0.0							20
21						0.0						22
23							0.0					24
25					0.0							26
27						0.0						28
29							0.0					30
31					0.0							32
33						0.0						34
35							0.0					36
37					0.0							38
39						0.0						40
41							0.0					42
					45.9	46.3	45.1					

* TOTAL KVA: 137.4 | AMPS: 165.3

SUMMARY BY LOAD TYPE		CONNECTED KVA PH A	PH B	PH C	FEED	TOTAL KVA	NEC%	NEC TOTAL	NOTES:
L	LIGHTING	0.0	0.0	0.0		0.0	1.25	0.0	
R	RECEPTACLES	0.0	0.0	0.0		0.0	10K+50%	0.0	
M	MOTORS	15.8	15.8	15.8		47.5	1.00	47.5	
LM	LARGEST MOTOR	26.6	26.6	26.6		79.8	1.25	99.8	
C	CONTINUOUS	0.0	0.0	0.0		0.0	1.25	0.0	
N	NON-CONTINUOUS	0.0	0.0	0.0		0.0	1.00	0.0	
S	SPARE	0.0	0.0	0.0		0.0	1.00	0.0	
X	NON-COINCIDENT	0.0	0.0	0.0		0.0	0.00	0.0	
O	OTHER	0.0	0.0	0.0		0.0	1.00	0.0	
F	FEEDER	3.5	3.9	2.7		10.1	1.00	10.1	
TOTAL KVA (PHASE)		45.9	46.3	45.1		127.3		147.2	
TOTAL AMPERES		165.8	167.3	162.9		153.1		177.1	
PHASE BALANCE, ABC		A-B	B-C	C-A					
PERCENT									

VOLTAGE: 208/120 | BUS: 100A | MAIN: 100A | **PANEL 'L' SCHEDULE** | LOCATION: ELECTRICAL ROOM | MIN. A.I.C. RATING: 10,000 | ENCLOSURE: NEMA 1 | MOUNTING: SURFACE

CKT	AMP TRIP	LOAD DESCRIPTION	KVA	LOAD	A	B	C	LOAD	KVA	LOAD DESCRIPTION	AMP TRIP	CKT
1	20/1	EXTERIOR LTG	0.1	L	0.3			L	0.2	PUMP RM LTG	20/1	2
3	20/1	DISINF AND ELEC RM LTG	0.2	L		1.1		R	0.9	PUMP RM RECEPT	20/1	4
5	20/1	DISINF AND ELEC RM RECEPT	0.4	R			0.8	R	0.4	EXTERIOR RECEPT	20/1	6
7	20/1	GENERATOR BATTERY CHARGER	0.4	C	0.6			N	0.2	PUMP RM HEATER (UH-1)	20/1	8
9	20/2	GENERATOR BLOCK HEATER	0.7	C		1.2		N	0.5	SCADA CONTROL PANEL 'SCP'	20/1	10
11			0.7	C			0.7	S		SPARE	20/1	12
13	20/1	GENERATOR SHUNT TRIP	0.1	N	1.6			C	1.5	ELECTRIC RM HEATER (EH-1)	20/1	14
15	20/1	ELEC RM EXHAUST FAN (EF-1)	0.1	M		1.6		C	1.5	DISINF RM HEATER (EH-2)	20/1	16
17	20/1	DISINF RM EXHAUST FAN (EF-2)	0.1	M			0.1	C				18
19	20.0	SPARE		S	0.0							20
21	20.0	SPARE		S		0.0						22
23	20/2	ELECTRIC WATER HEATER (EWH-1)	1.0	N			1.0					24
25			1.0	N	1.0							26
27						0.0						28
29							0.0					30
31					0.0							32
33						0.0						34
35							0.0					36
37					0.0							38
39	20/1	SPARE				0.0				SPARE	20/1	40
41	20/1	SPARE					0.0			SPARE	20/1	42
					3.5	3.9	2.6					

* TOTAL KVA: 10.0 | AMPS: 27.8

SUMMARY BY LOAD TYPE		CONNECTED KVA PH A	PH B	PH C	FEED	TOT AL	NEC%	NEC TOTAL	NOTES:
L	LIGHTING	0.3	0.2	0.0		0.5	1.25	0.6	
R	RECEPTACLES	0.0	0.9	0.8		1.7	10K+50%	1.7	
M	MOTORS	0.0	0.1	0.1		0.2	1.00	0.2	
LM	LARGEST MOTOR	0.0	0.0	0.0		0.0	1.25	0.0	
C	CONTINUOUS	1.9	2.2	0.7		4.8	1.25	6.0	
N	NON-CONTINUOUS	1.3	0.5	1.0		2.8	1.00	2.8	
S	SPARE	0.0	0.0	0.0		0.0	1.00	0.0	
X	NON-COINCIDENT	0.0	0.0	0.0		0.0	0.00	0.0	
O	OTHER	0.0	0.0	0.0		0.0	1.00	0.0	
F	FEEDER	0.0	0.0	0.0		0.0	1.00	0.0	
TOTAL KVA (PHASE)		3.5	3.9	2.6		10.0		11.3	
TOTAL AMPERES		29.2	32.5	21.7		27.8		31.4	
PHASE BALANCE, ABC		A-B	B-C	C-A					
PERCENT									

REVISIONS MARK	DATE	DESCRIPTION
1		
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ALASKA 19TH JOHN A. PAPE 13,580 REGISTERED PROFESSIONAL ENGINEER 2/13/24

EDC, INC.
ENGINEERING
1500 W. 33RD AVE, SUITE 100
ANCHORAGE, AK 99503
(907) 276-7933
LICENSE NO. AECC705

CONSTRUCT BOGARD ROAD BOOSTER STATION
CITY OF PALMER
PALMER, ALASKA

SHEET TITLE: POWER ONE-LINE AND PANEL SCHEDULES
SHEET: E3.01
DRAWN BY: | CHECKED BY: JP
DATE: FEB. 2024 | SCALE: AS NOTED
JOB NUMBER: 16-033

DATE SAVED: 2/13/2024 1:32 PM
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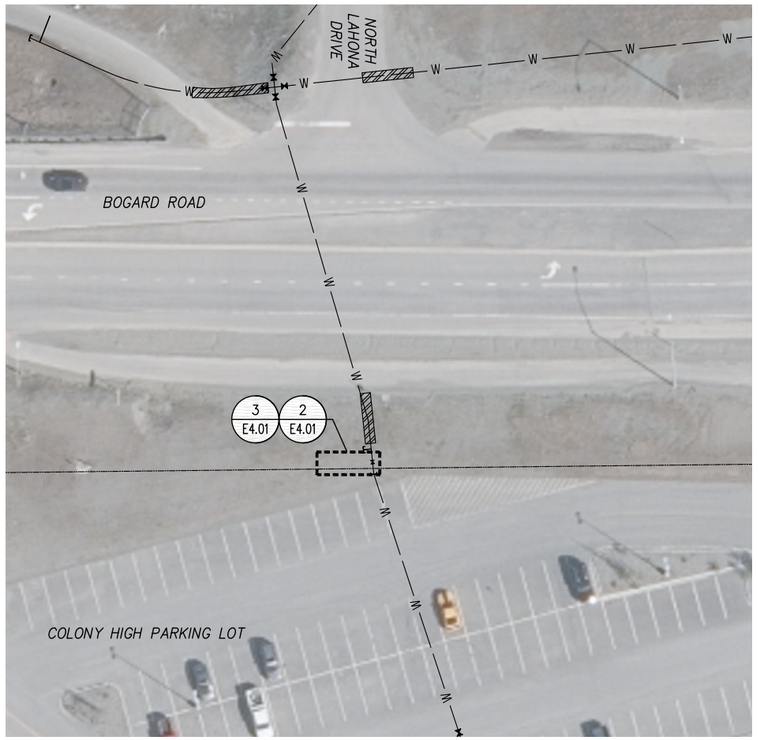
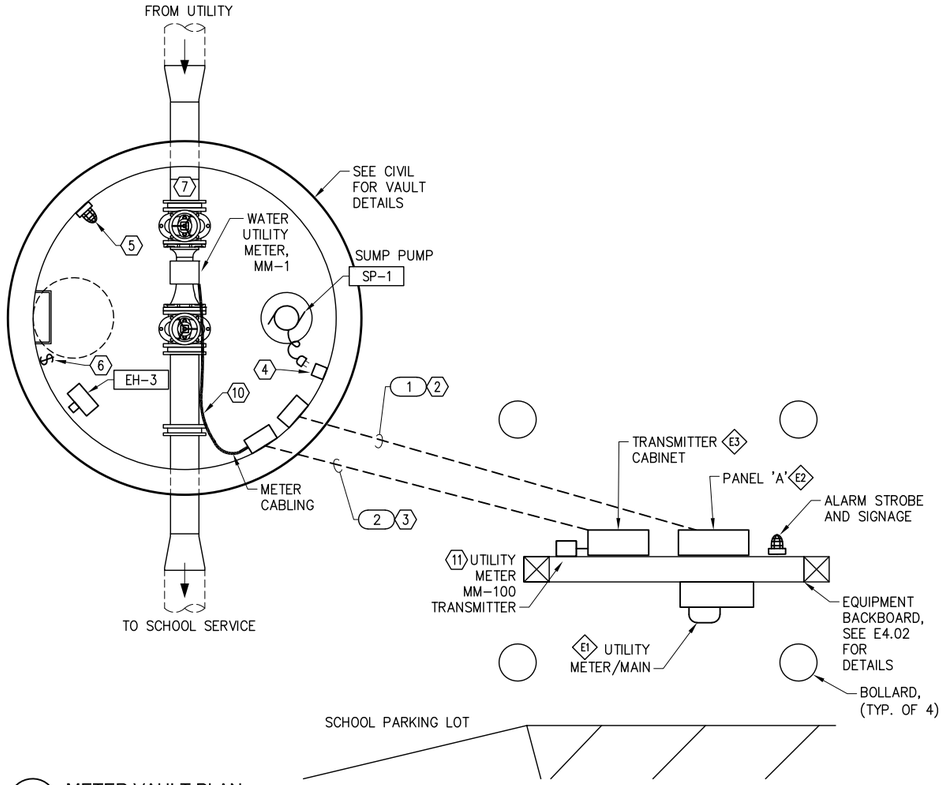


1 E4.01 ELECTRICAL METER VAULT SITE PLAN

SCALE: 1"=30'-0"

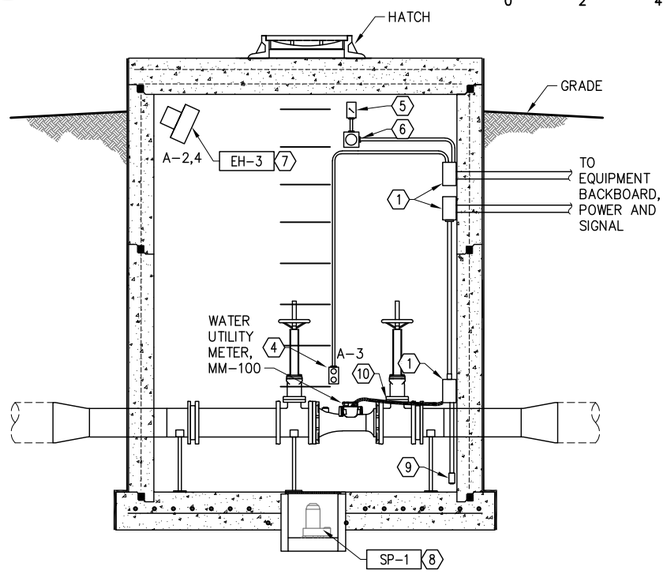
0 30' 60'



2 E4.01 METER VAULT PLAN

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

0 2' 4'



3 E4.01 METER VAULT ELEVATION

SCALE: NTS

SHEET NOTES

1. NEW NEMA 6X JUNCTION BOXES FOR POWER AND SIGNAL. TAP BOX BOTTOM TO DRAIN.
2. POWER CONDUIT FROM VAULT TO ABOVE GRADE AT NEW POWER AND CONTROL BACKBOARD. PROVIDE POWER CIRCUITS AS INDICATED ON SHEET E4.02.
3. INSTRUMENTATION CONDUIT FROM VAULT TO ABOVE GRADE AT NEW POWER AND CONTROL BACKBOARD. PROVIDE INSTRUMENTATION CABLING AS INDICATED ON SHEET E4.02.
4. GFCI DUPLEX RECEPTACLE WITH WEATHERPROOF 'WHILE-IN-USE' METALLIC COVER. MOUNT +48" AFF.
5. WATERPROOF LED LIGHT FIXTURE, RIGHT ANGLE MOUNTED. CLEAR LEXAN LENSE AND DIE-CAST WIRE GUARD. CROUSE-HINDS SERIES TP OR EQUAL.
6. SNAP-SWITCH IN WATERPROOF BOX AND COVER.
7. ELECTRIC UNIT HEATER (EUH-3) WITH INTEGRAL THERMOSTAT, SEE MECHANICAL.
8. SUMP PUMP WITH LEVEL FLOAT CONTROL. SEE SHEET E4.02 AND MECHANICAL FOR DETAILS.
9. FLOOD SWITCH WITH SIGNAL CONNECTION TO SENSAPHONE TRANSMITTER CABINET AT EQUIPMENT BACKBOARD. SEE SHEET E4.03 FOR DETAILS. MOUNT SWITCH 2" AFF.
10. PROVIDE UTILITY METER CABLING AND CONNECTORS FROM METER TO METER TRANSMITTER AT THE EQUIPMENT BACKBOARD. USE BADGER METER TWIST TIGHT IN-LINE CONNECTORS AND CABLING.
11. CELLULAR WATER DATA ENDPOINT. PROVIDE ORION/BADGER METER TWO-WAY ENDPOINT TRANSMITTER. ORION CELLULAR LTE-M.

E# SEE SHEET 4.02 FOR ELECTRICAL EQUIPMENT SCHEDULE

CIRCUIT SCHEDULE

TAG	DESCRIPTION
1	2"C, 6#12(HEATER, SUMP RECEPTACLE, LIGHT), 1#12 EGC
2	2"C, 2C#14 (FLOOD SW), 2C#18 TWSH (UTILITY WATER METER), 1#14 EGC

INSTRUMENT CONNECTION SCHEDULE

TAG ID	SIGNAL CIRCUIT SIZE	DESTINATION	POWER CIRCUIT SIZE (IF REQUIRED)	DESTINATION	NOTES
MM-100	2", 2C#18 TWSH(SIG), 1#14(G)	TRANSMITTER ON BACKBOARD			

EQUIPMENT CONNECTION SCHEDULE

TAG ID	LOAD					CIRCUIT SIZE	NOTES
	KVA	HP	FLA	V	PH		
SP-1		1/2	–	120	1	1/2"C, 2#12(H,N), 1#12 EGC	
EH-3	3			240	1	1/2"C, 2#12(2H), 1#12 EGC	

REVISIONS		
MARK	DATE	DESCRIPTION
1		
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3		
4		
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STATE OF ALASKA — 19TH — JOHN A. PEPE — 15,130 — REGISTERED PROFESSIONAL ENGINEER — 2/13/24

EDC, INC.
ENGINEERING SERVICES
3335 ARCTIC BLVD., STE. 100
ANCHORAGE, AK 99503
(907) 276-7933
LICENSE NO. AECC705

CONSTRUCT BOGARD ROAD BOOSTER STATION

CITY OF PALMER

PALMER, ALASKA

SHEET TITLE: METER VAULT SITE PLAN AND ELEVATION

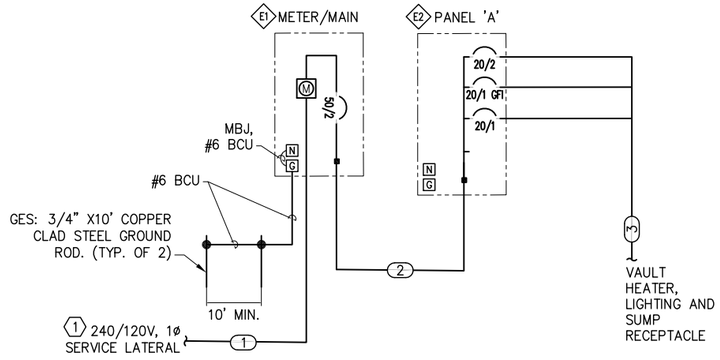
SHEET: E4.01

DRAWN BY: | CHECKED BY: JP

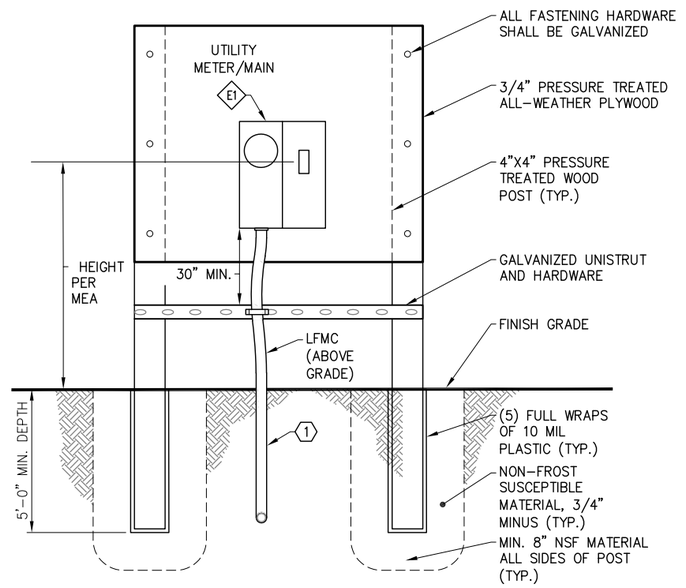
DATE: FEB. 2024 | SCALE: AS NOTED

JOB NUMBER: 16-033

FILE PATH: p:\Projects\HDL\bogard rd booster station\Dwgs\Elec\E4.01 METER VAULT SITE PLAN AND ELEVATION.dwg DATE SAVED: 2/9/2024 2:04 PM



1 E4.02 METER VAULT POWER ONE-LINE DIAGRAM
SCALE: NTS



2 E4.02 NEW POWER AND CONTROL BACKBOARD MOUNTING DETAIL - SIDE A
SCALE: NTS

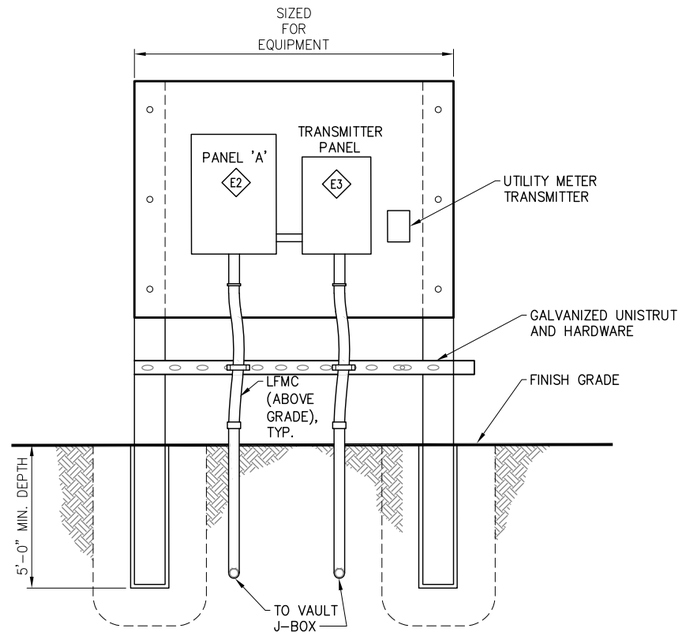
VOLT: 120/240V	PANEL 'A' SCHEDULE	A.I.C. RATING: 10,000
BUS: 125A		ENCLOSURE: NEMA 3R
MAIN: MLO	LOCATION: COLONY HS METER VAULT	MOUNTING: SURFACE

CKT	AMP	LOAD DESCRIPTION	KVA	LOAD	A	B	LOAD	KVA	LOAD DESCRIPTION	AMP	CKT
1	15/1	LIGHTING	0.2	L	1.7		N	1.5	ELECTRIC UNIT HEATER (UH-3)	20/2	2
3	*20/1	SUMP PUMP (SP-1)	1.2	LM		2.7	N	1.5			4
5	15/1	SENSAPHONE PANEL	0.5	N	0.7		N	0.2	UTILITY METER TRANSMITTER	15/1	6
7	20/1	SPARE				0.0			SPARE	20/1	8
9	20/1	SPARE			0.0				SPARE	20/1	10
11						0.0					12
13					0.0						14
15						0.0					16
17					0.0						18
19						0.0					20
21					0.0						22
23						0.0					24
					2.4	2.7					

* INDICATES 30mA GFCI CIRCUIT BREAKER

TOTAL KVA: 5.1
AMPS: 21.3

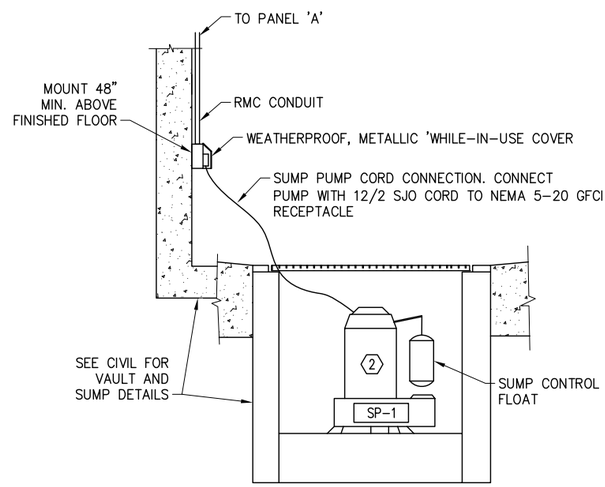
SUMMARY BY LOAD TYPE		CONNECTED KVA PH A	PH B	FEED	TOTAL KVA	NEC%	NEC TOTAL	NOTES:
L	LIGHTING	0.2	0.0		0.2	1.25	0.3	
R	RECEPTACLES	0.0	0.0		0.0	10K+50%	0.0	
M	MOTORS	0.0	0.0		0.0	1.00	0.0	
LM	LARGEST MOTOR	0.0	1.2		1.2	1.25	1.5	
C	CONTINUOUS	0.0	0.0		0.0	1.25	0.0	
N	NON-CONTINUOUS	2.2	1.5		3.7	1.00	3.7	
S	SPARE	0.0	0.0		0.0	1.00	0.0	
X	NON-COINCIDENT	0.0	0.0		0.0	0.00	0.0	
O	OTHER	0.0	0.0		0.0	1.00	0.0	
F	FEEDER	0.0	0.0		0.0	1.00	0.0	
TOTAL KVA (PHASE)		2.4	2.7		5.1		5.5	
TOTAL AMPERES		20.0	22.5		21.3		22.7	
PHASE BALANCE, AB		A-B	B-A					
PERCENT		47	53					



3 E4.02 NEW POWER AND CONTROL BACKBOARD MOUNTING DETAIL - SIDE B
SCALE: NTS

SHEET NOTES

1. ELECTRICAL UTILITY (MEA) SERVICE. PROVIDE SERVICE EQUIPMENT AND CONDUIT STUB-OUT IN ACCORDANCE WITH UTILITY SERVICE REQUIREMENTS. COORDINATE ALL WORK WITH UTILITY.
2. ELECTRIC SUMP PUMP (SP-1) TO BE POWERED FROM ADJACENT RECEPTACLE. SEE MECHANICAL FOR EQUIPMENT DETAILS.



4 E4.02 TYPICAL SUMP PUMP CONCEPT DETAIL
SCALE: NTS

ELECTRICAL EQUIPMENT SCHEDULE		
ITEM NO.	DESCRIPTION	MANUFACTURER OR EQUAL
E1	100A METER/MAIN, 240/120V, 1ø, NEMA 3R	CIRCLE AW. EQUIPMENT IN ACCORDANCE WITH MEA STANDARDS.
E2	125A, 240/120V, 1ø, NEMA 3R, 24 SPACE LOADCENTER	SQUARE D QO TYPE
E3	TRANSMITTER PANEL. SEE SHEET E4.01 AND E4.03 FOR DETAILS	SENSAPHONE SENTINEL

CIRCUIT SCHEDULE	
TAG	DESCRIPTION
1	2"C, INSTALLED IN ACCORDANCE WITH UTILITY (MEA) REQUIREMENTS
2	2"C, 3#6, 1#8 EGC
3	2"C, 2#12 AWG (LIGHTS), 2#12 (SUMP RECEPT), 2#12 (HEATER), 1#12 EGC

REVISIONS		
MARK	DATE	DESCRIPTION
1		
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STATE OF ALASKA — JOHN A. PAPE — 19TH — REGISTERED PROFESSIONAL ENGINEER — 2/13/24

EDC, INC.
810 N STREET, STE. 100
ANCHORAGE, AK 99503
(907) 276-7933
LICENSE NO. AECC705

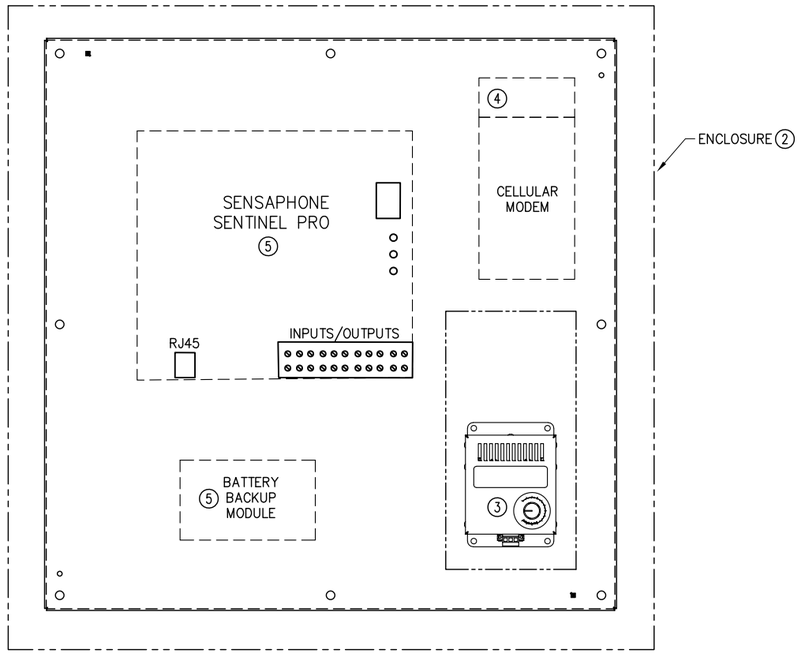
CONSTRUCT BOGARD ROAD BOOSTER STATION
CITY OF PALMER
PALMER, ALASKA

SHEET TITLE: METER VAULT POWER ONE-LINE AND DETAILS
SHEET: E4.02
DRAWN BY:
CHECKED BY: JP
DATE: FEB. 2024
SCALE: AS NOTED
JOB NUMBER: 16-033

FILE PATH: p:\Projects\HDL\bogard rd booster station\Dwgs\Elec\E4.02 METER VAULT POWER ONE-LINE AND DETAILS.dwg
DATE SAVED: 2/7/2024 12:32 PM

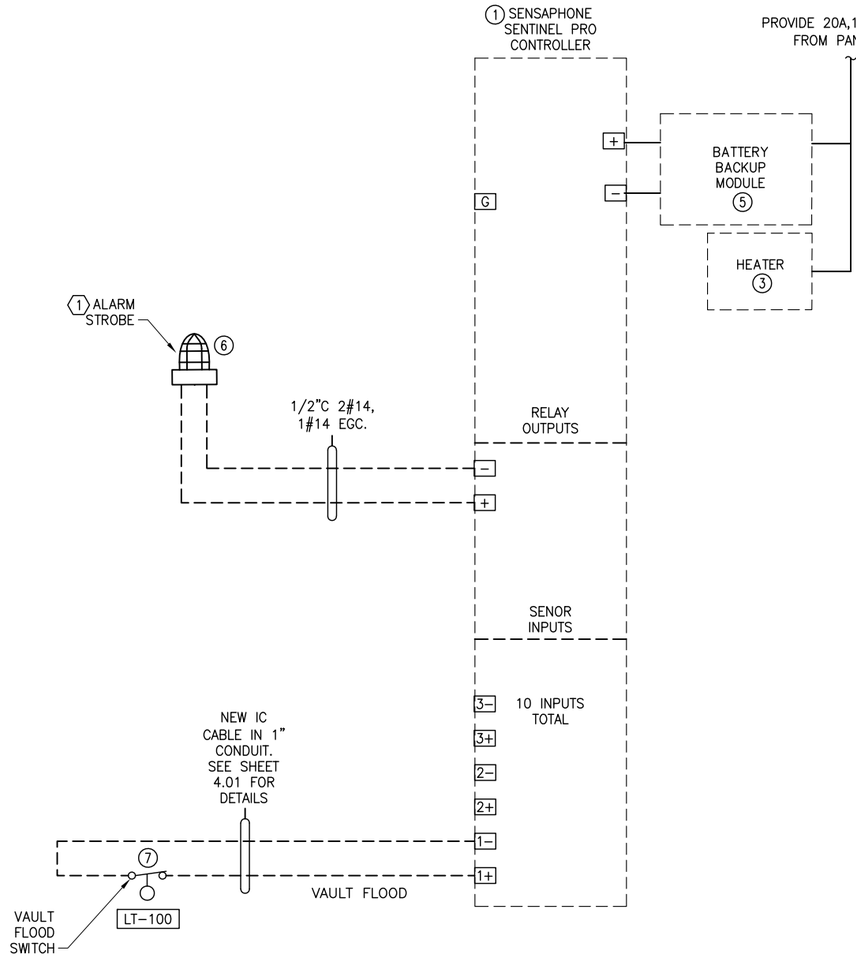
SHEET NOTES

1. ALARM STROBE MOUNTED ON BACKBOARD WITH SIGNAGE. SEE SHEET E4.01 FOR LOCATION AND SECTION 26 05 00 FOR DETAILS.



	COMPONENT SCHEDULE	
ITEMS	EQUIPMENT / MATERIAL	MANUFACTURER, OR EQUAL
(1)	SENSAPHONE SENTINEL PRO MONITORING SYSTEM WITH CELLULAR MODEM. PROVIDED AS A PACKAGED PANEL FROM SENSAPHONE.	SENSAPHONE SENTINEL PRO
(2)	NEMA 4X ENCLOSURE	SENSAPHONE
(3)	100W, 120V, ENCLOSURE HEATER WITH INTEGRAL THERMOSTAT	HOFFMAN
(4)	CELLULAR ANTENNA. OMNI-DIRECTIONAL, PEAK GAIN 5dBI	SENSAPHONE
(5)	BATTERY BACKUP (8HRS) 2000mAH MIN.	SENSAPHONE
(6)	ALARM STROBE, RED LED WITH LEXAN LENSE	FEDERAL SIGNAL
(7)	VAULT FLOOD DETECTOR, N.C.	MADISON M4300. SEE SHEET E5.01, DETAIL 1.

1 E4.03 TRANSMITTER PANEL LAYOUT DETAIL
SCALE: NTS



2 E4.03 TRANSMITTER PANEL SCHEMATIC
SCALE: NTS

REVISIONS

MARK	DATE	DESCRIPTION
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STATE OF ALASKA — 49TH — REGISTERED PROFESSIONAL ENGINEER — John A. Pape — CE 11307 — 2/13/24

EDC, INC.
ENGINEERING
550 W. 7TH AVE, STE. 100
ANCHORAGE, AK 99503
(907) 276-7933
LICENSE NO. AECC705

CONSTRUCT BOGARD ROAD BOOSTER STATION
CITY OF PALMER
PALMER, ALASKA

SHEET TITLE: METER VAULT ELECTRICAL DETAILS
SHEET: E4.03
DRAWN BY:
CHECKED BY: JP
DATE: FEB. 2024
SCALE: AS NOTED
JOB NUMBER: 16-033

DATE SAVED: 2/7/2024 12:35 PM
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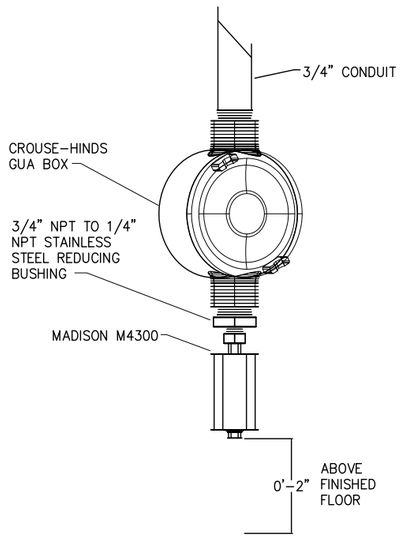
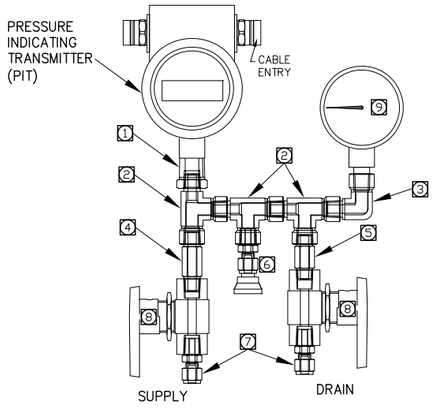


1 E5.01 FLOOD DETECTOR DETAIL

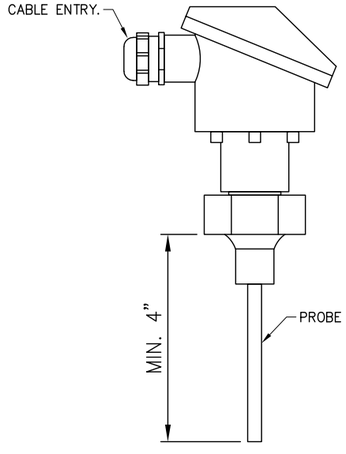
SCALE: NTS



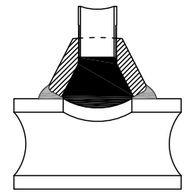
1. SWAGELOK SS-8-RB-4 REDUCING BUSHING AS REQUIRED
2. SWAGELOK SS-4-SE STREET TEE
3. SWAGELOK SS-4-SE STREET ELBOW
4. SWAGELOK SS-4-HLN-2.00 NIPPLE
5. SWAGELOK SS-4-HLN-1.50 NIPPLE
6. SWAGELOK SS-QC4-B-4PM FEMALE QUICK CONNECT
7. SWAGELOK SS-400-1-4 TUBING CONNECTOR
8. INLINE 204F-02S6-M-01 BALL VALVE
9. 2-1/2" LIQUID FILLED SS GAUGE, SAME RATING AS INSTRUMENT

2 E5.01 RACK MTD PRESSURE TRANSMITTER DETAIL

SCALE: NTS

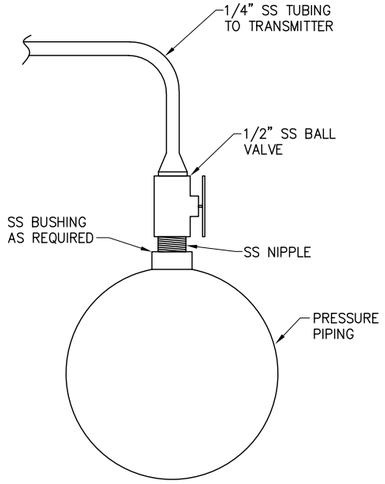


THREADOLET, USE NON-CORROSIVE THREADSET. USE APPROVED WELDING PROCEDURE FOR METALS BEING WELDED. CONTRACTOR TO DETERMINE CONSTRUCTION OF PIPE TO BE WELDED BEFORE COMMENCING WORK.



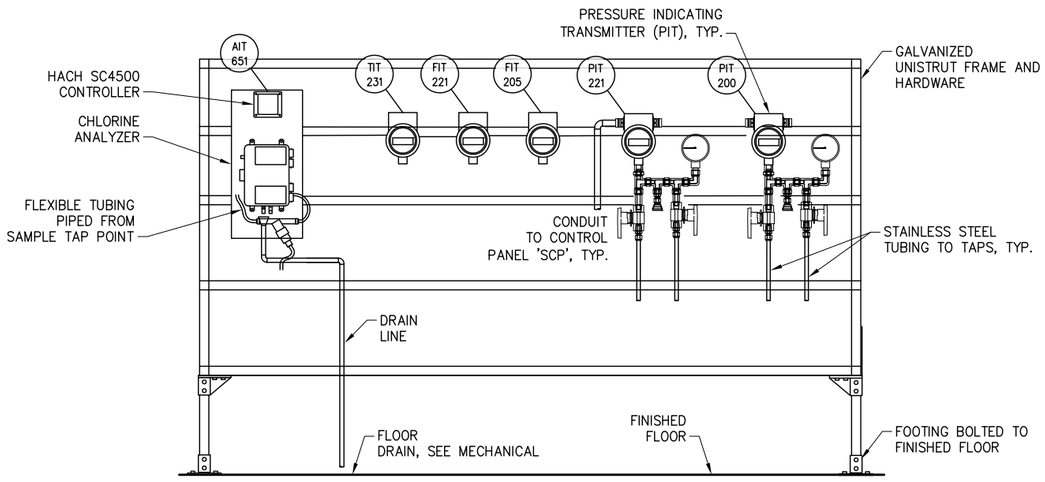
3 E5.01 TEMPERATURE SENSOR DETAIL

SCALE: NTS



4 E5.01 INSTRUMENTATION PRESSURE TAP DETAIL

SCALE: NTS



5 E5.01 INSTRUMENTATION RACK DETAIL

SCALE: NTS

REVISIONS		
MARK	DATE	DESCRIPTION
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STATE OF ALASKA — 49TH — REGISTERED PROFESSIONAL ENGINEER — John A. Pape — CE 11307 — 2/13/24

EDC, INC.
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1500 W. 33RD AVE, SUITE 100
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(907) 276-7933
LICENSE NO. AECC705

CONSTRUCT BOGARD ROAD BOOSTER STATION

CITY OF PALMER

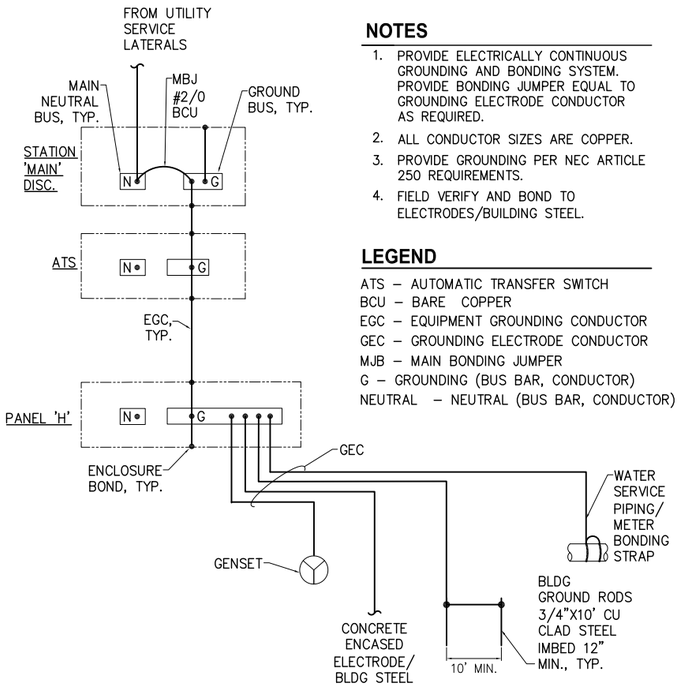
PALMER, ALASKA

SHEET TITLE: ELECTRICAL DETAILS

SHEET: E5.01

DRAWN BY:	CHECKED BY: JP
DATE: FEB. 2024	SCALE: AS NOTED
JOB NUMBER: 16-033	

FILE PATH: p:\Projects\HDL\bogard rd booster station\Dwgs\Elec\E5.01 ELECTRICAL DETAILS.dwg DATE SAVED: 2/12/2024 3:35 PM



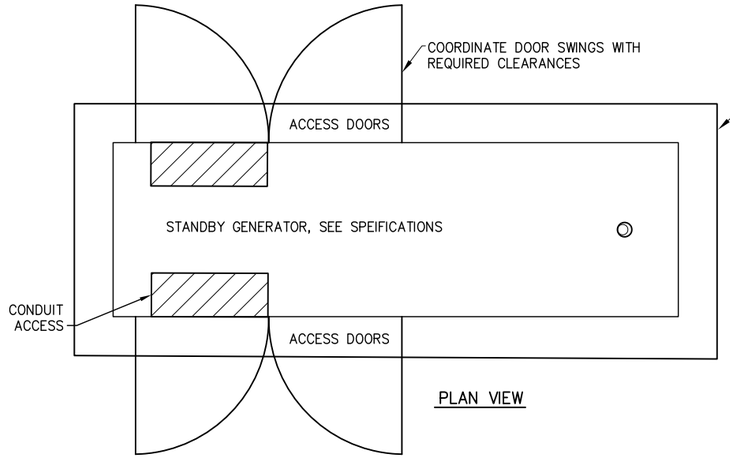
NOTES

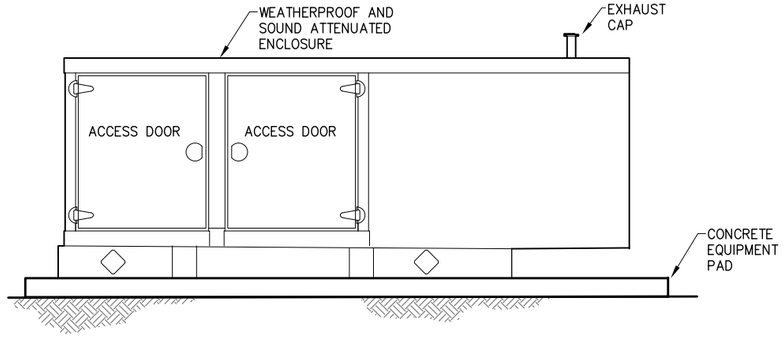
1. PROVIDE ELECTRICALLY CONTINUOUS GROUNDING AND BONDING SYSTEM. PROVIDE BONDING JUMPER EQUAL TO GROUNDING ELECTRODE CONDUCTOR AS REQUIRED.
2. ALL CONDUCTOR SIZES ARE COPPER.
3. PROVIDE GROUNDING PER NEC ARTICLE 250 REQUIREMENTS.
4. FIELD VERIFY AND BOND TO ELECTRODES/BUILDING STEEL.

LEGEND

ATS – AUTOMATIC TRANSFER SWITCH
BCU – BARE COPPER
EGC – EQUIPMENT GROUNDING CONDUCTOR
GEC – GROUNDING ELECTRODE CONDUCTOR
MJB – MAIN BONDING JUMPER
G – GROUNDING (BUS BAR, CONDUCTOR)
NEUTRAL – NEUTRAL (BUS BAR, CONDUCTOR)

1 E5.02 BOOSTER STATION GROUNDING DETAIL
SCALE: NTS



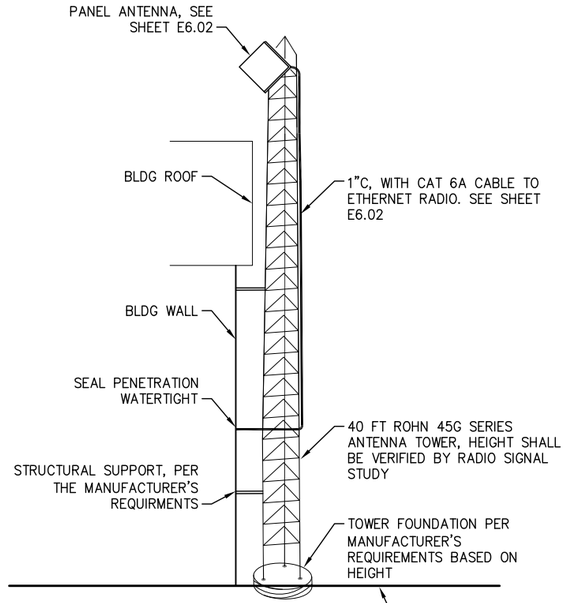


ELEVATION VIEW

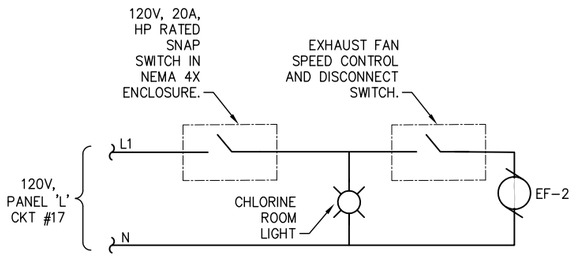
2 E5,02 GENERATOR EQUIPMENT DETAIL
SCALE: NTS

NOTES

1. CONTRACTOR SHALL PROVIDE TOWER DESIGN DETAILS INCLUDING STRUCTURAL CALCULATIONS, STAMPED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF ALASKA.



3 E5.02 SCADA ANTENNA TOWER DETAIL
SCALE: NTS



4 E5.02 DISINFECTION ROOM EXHAUST FAN, EF-2 SCHEMATIC
SCALE: NTS

REVISIONS		
MARK	DATE	DESCRIPTION
1		
2		
3		
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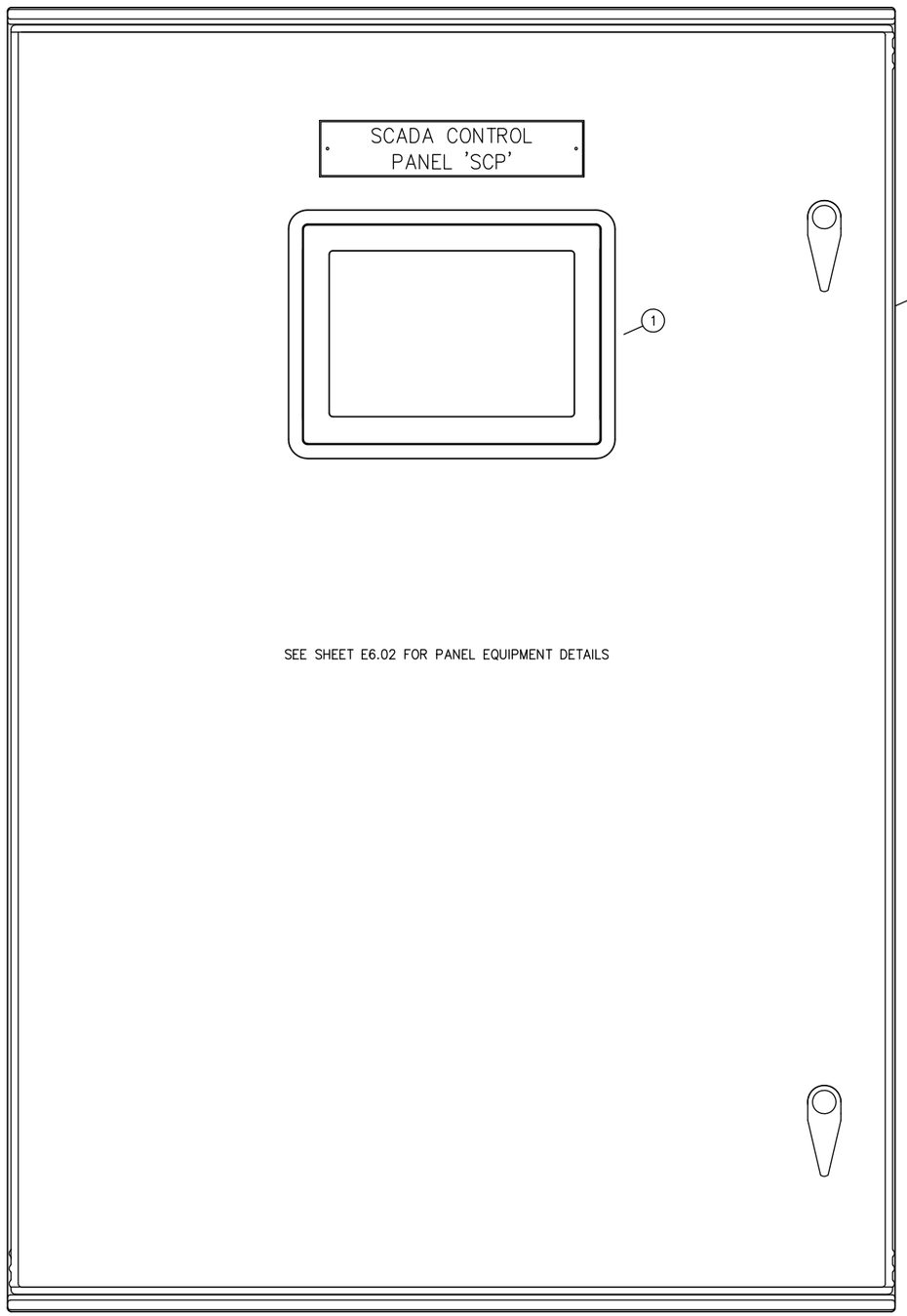
STATE OF ALASKA — 19TH — PROFESSIONAL ENGINEER — John A. Pape — EE 11387 — REGISTERED — 2/13/24

EDC, INC.
ENGINEERING
550 W 7TH AVE, SUITE 100
ANCHORAGE, AK 99503
(907) 276-7933
LICENSE NO. AECC705

CONSTRUCT BOGARD ROAD BOOSTER STATION
CITY OF PALMER
PALMER, ALASKA

SHEET TITLE: ELECTRICAL DETAILS
SHEET: E5.02
DRAWN BY: | CHECKED BY: JP
DATE: FEB. 2024 | SCALE: AS NOTED
JOB NUMBER: 16-033

FRONT PANEL VIEW



SEE SHEET E6.02 FOR PANEL EQUIPMENT DETAILS

FUNCTIONAL NARRATIVE
CITY OF PALMER BOGARD ROAD BOOSTER STATION

A. OVERVIEW:

THE FUNCTION OF THE BOOSTER STATION IS TO DELIVER WATER FROM THE EXISTING ZONE 2 TO ZONE 3. THE BOOSTER STATION INITIALLY PROVIDES FLOW TO COLONY HIGH SCHOOL AND COLONY MIDDLE SCHOOL. INTERMEDIATE DEVELOPMENT HAS A FUTURE WATER MAIN EXTENDED TO THE WESTERN EDGE OF ZONE 3. FINAL DEVELOPMENT INCLUDES ADDING A RESERVOIR AT THE WESTERN EDGE OF ZONE 3. AT FINAL DEVELOPMENT, THE LOW AND MEDIUM DEMAND PUMPS WILL BE REMOVED AND REPLACED WITH A SECOND HIGH DEMAND PUMP THAT WILL BE USED TO FILL THE RESERVOIR AND THE RESERVOIR WILL BACK-FEED THE SYSTEM.

THE BOOSTER STATION INITIALLY CONSISTS OF A LOW-FLOW JOCKEY PUMP WITH HYDRO-PNEUMATIC TANK, TWO MEDIUM-FLOW PUMPS (500 GPM EACH) TO PROVIDE WATER UNDER NORMAL OPERATION AND A HIGH-FLOW PUMP (1,500 GPM). ALL PUMPS OPERATE ON VARIABLE FREQUENCY DRIVES, STAGING ON AS DEMAND INCREASES. IN TOTAL, THE BOOSTER STATION IS CAPABLE OF PROVIDING 2,500 GPM OF FLOW. ON LOW DEMAND, THE LOW-FLOW PUMP WILL SHUT DOWN AND THE HYDRO-PNEUMATIC TANK WILL SUPPLY WATER TO ZONE 3 TO REDUCE PUMP CYCLE TIME. WHEN RUNNING, THE VFDS WILL VARY PUMP SPEED TO MAINTAIN A ZONE 3 PRESSURE OF 75 PSI AT THE PUMP HOUSE DISCHARGE.

LEAD: LOW FLOW PUMP P-1
1ST LAG MEDIUM-FLOW LEAD PUMP P-2/P-3
2ND LAG MEDIUM-FLOW LAG PUMP P-2/P-3
3RD LAG HIGH-FLOW PUMP P-4

A 3-INCH PRESSURE RELIEF VALVE WILL OPEN IF ZONE 3 PRESSURE EXCEEDS 85 PSI ALLOWING WATER FLOW BACK TO ZONE 2.

FLOW IS MONITORED AT TWO LOCATIONS. TOTAL BOOSTER STATION FLOW IS MONITORED AT THE WATER ENTRANCE. A SECOND WATER METER IS PROVIDED AT THE LOW FLOW PUMP TO PROVIDE MORE FLOW ACCURACY AT LOWER FLOW CONDITIONS.

CHLORINE RESIDUAL IS CONTINUOUSLY MONITORED AT THE BOOSTER STATION OUTLET PIPING WITH CAPABILITY TO ADD DISINFECTANT (SODIUM HYPOCHLORITE) TO MEET DESIRED RESIDUAL CONTENT.

B. PUMP OPERATION:

1. GENERAL

A DELAY, INITIALLY SET AT 1 MINUTE, SHALL BE UTILIZED BETWEEN THE ACTIVATION AND DEACTIVATION OF PUMPS TO ALLOW ADJUSTMENT IN THE VFDS TO MAINTAIN SYSTEM PRESSURE.

VFDS ARE TO BE PROGRAMMED TO HAVE GRADUAL RAMPS WHEN THE PUMPS ARE ACTIVATED AND DEACTIVATED.

2. LOW FLOW P-1

PUMP WILL START WHEN ZONE 3 PRESSURE IS 73 PSI AND OPERATE AT VARIABLE SPEED TO MAINTAIN 75 PSI DISCHARGE. WHEN PUMP SPEED DROPS TO MINIMUM SET SPEED OF 700 RPM FOR 30 SECONDS, P-1 WILL SHUT DOWN AND THE SYSTEM DEMAND WILL BE MET BY HYDRO-PNEUMATIC TANK HT-1. WHEN PRESSURE AGAIN FALLS TO 73 PSI, P-1 WILL RESTART.

3. BOOSTER PUMPS P-2 AND P-3

PUMPS P-2 AND P-3 WILL OPERATE IN A LEAD/LAG CONFIGURATION. THE LEAD DESIGNATION WILL CHANGE EVERY 500 HOURS OF OPERATION.

THE LEAD PUMP WILL START WHEN P-1 IS RUNNING AT 100% SPEED AND PRESSURE DROPS TO 73 PSI. BOTH P-1 AND LEAD PUMP WILL OPERATE AT VARIABLE SPEED TO MAINTAIN 75 PSI DISCHARGE. WHEN LEAD PUMP IS RUNNING AT 100% SPEED AND PRESSURE DROPS TO 73 PSI, THE LAG PUMP WILL BE ACTIVATED AND P-1 DEACTIVATED. PUMPS P-2, AND P-3 WILL OPERATE AT VARIABLE SPEED TO MAINTAIN 75 PSI DISCHARGE.

WHEN THE LEAD PUMP DROPS TO MINIMUM SET SPEED OF 20 HZ FOR 30 SECONDS, P-1 WILL BE ACTIVATED AND THE LAG PUMP DEACTIVATED. THE LEAD PUMP AND P-1 CONTINUE TO RUN AT VARIABLE SPEED TO MAINTAIN 75 PSI DISCHARGE.

WHEN LEAD PUMP SPEED DROPS TO MINIMUM SET SPEED OF 20 HZ FOR 30 SECONDS, LEAD PUMP WILL BE DEACTIVATED AND P-1 CONTINUES TO RUN AT VARIABLE SPEED TO MAINTAIN 75 PSI DISCHARGE.

4. HIGH FLOW PUMP P-4

IF PUMPS P-2 AND P-3 ARE RUNNING AT 100% SPEED AND DISCHARGE PRESSURE DROPS TO 73 PSI FOR 30 SECONDS, PUMP P-4 WILL BE ACTIVATED. PUMPS P-2, P-3, AND P-4 WILL RUN AT VARIABLE SPEED TO MAINTAIN 75 PSI. WHEN P-4 DROPS TO MINIMUM SET SPEED OF 20 HZ FOR 30 SECONDS, IT SHALL BE DEACTIVATED.

C. CHLORINE RESIDUAL CONTROL

A CHLORINE RESIDUAL ANALYZER RECEIVE SAMPLES FROM THE DISCHARGE OF THE BOOSTER PUMPS.

CHLORINE RESIDUAL ANALYZER AIT-651 SAMPLES WATER BEING DELIVERED TO ZONE 3 AND CAN BE USED TO CONTROL INJECTION PUMP IP-2 THAT DOSES SODIUM HYPOCHLORITE SOLUTION AT THE INLET OF THE PUMP HOUSE. A CONTROL LOOP MAY BE USED TO MAINTAIN AN OPERATOR ADJUSTABLE RESIDUAL SETPOINT (PPM). ALTERNATIVELY, IP-2 CAN BE OPERATED AT A FLOW-PACED OPERATOR ADJUSTABLE SETPOINT.

D. PROCESS ALARMS

1. HIGH / LOW PRESSURES
2. PRV CHECK / RELIEF VALVE OFF-SEAT
3. HIGH / LOW CHLORINE RESIDUAL
4. PRESSURE PUMP FAILURE (P-1, 2, 3, 4)
5. SMOKE DETECTORS IN ALARM
6. COORDINATE ADDITIONAL ALARM REQUIREMENTS WITH THE OWNER

COMPONENT SCHEDULE

ITEMS	PROVIDE MATERIALS SPECIFIED (EQUAL SUBSTITUTIONS ALLOWED)
1	HUMAN MACHINE INTERFACE (HMI) TOUCH SCREEN. SEE SHEET E6.02 FOR DETAILS.
2	NEMA 4X ENCLOSURE WITH REMOVABLE STEEL BACK PANEL, INNER DEAD-FRONT HINGED DOOR AND OUTER DOOR. SIZE AS REQUIRED. HOFFMAN.

REVISIONS

MARK	DATE	DESCRIPTION
1		
2		
3		
4		
5		

STATE OF ALASKA — 19TH — JOHN A. PAPE — 11307 — REGISTERED PROFESSIONAL ENGINEER — 2/13/24

EDC, INC.
ENGINEERING CONSULTANTS
1500 W. 33RD AVE. SUITE 100
ANCHORAGE, AK 99503
(907) 276-7933
LICENSE NO. AECC705

CONSTRUCT BOGARD ROAD BOOSTER STATION

CITY OF PALMER

PALMER, ALASKA

SHEET TITLE: CONTROL PANEL LAYOUT AND FUNCTIONAL NARRATIVE

SHEET: E6.01

DRAWN BY: | CHECKED BY: JP

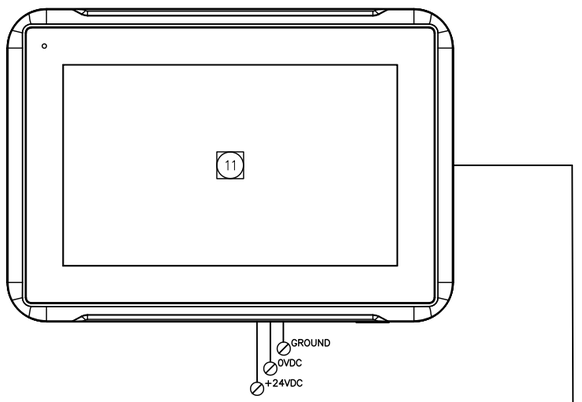
DATE: FEB. 2024 | SCALE: AS NOTED

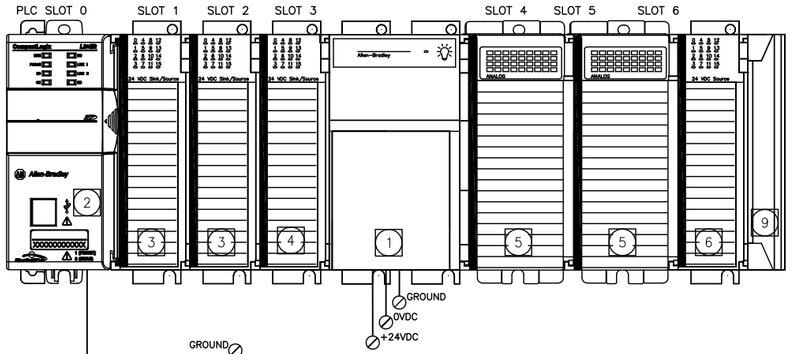
JOB NUMBER: 16-033

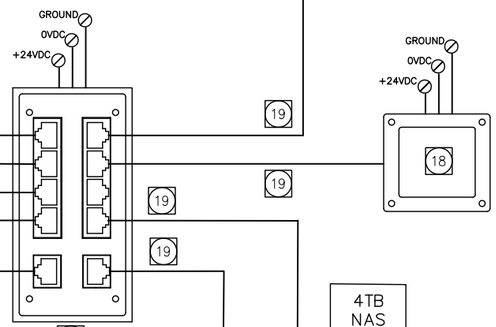
FILE PATH: P:\Projects\HDL\Bogard Rd Booster Station\Dwgs\Elec\E6.01 CONTROL PANEL LAYOUT AND FUNCTIONAL NARRATIVE.dwg DATE SAVED: 2/13/2024 3:02 PM

REF	PART NUMBER	MFGR	MODULE USE / TYPE	REF	PART NUMBER	MFGR	MODULE USE / TYPE	REF	PART NUMBER	MFGR	MODULE USE / TYPE
1	1769–PB4	AB	24 VDC POWER SUPPLY	8	1769–ECL	AB	LEFT END CAP	15	HORIZON 4.9	ESTEEM	4.9GHZ ETHERNET RADIO
2	1769–L30ER	AB	COMPACT LOGIX PROCESSOR (CPU)	9	1769–ECR	AB	RIGHT END CAP	16	AA20EP	ESTEEM	23DBI DIRECTIONAL ANTENNA
3	1769–IQ16	AB	16 POINT DISCRETE INPUT MODULE	10	–	–		17	–	TPL	ANTHENA CABLE
4	1769–OB16	AB	16 POINT DISCRETE OUTPUT MODULE	11	X2PR021	BEIJER	21" TOUCHSCREEN HMI	18	SC4500	HACH	DIGITAL CONTROLLER (CHLORINE ANALYZER)
5	1769–IF8	AB	8 POINT ANALOG INPUT MODULE	12	PSP12–DC24–2	RHINO	24VDC – 12VDC CONVERTER	19	–	–	CAT 6 ETHERNET CABLE, 2 PAIR, RJ 45.
6	1769–QF4	AB	4 POINT ANALOG OUTPUT MODULE	13	JET NET 3810G	KORENIX	POE ETHERNET SWITCH	20	–	–	4TB NAS DRIVE
7	–	–		14	JET NET 3008G	KORENIX	GB ETHERNET SWITCH	21	MX–	MOBOTIX	IP SECURITY CAMERA (TYP. OF 4)

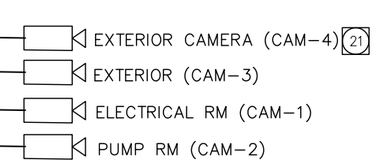
OPERATOR INTERFACE (HMI)

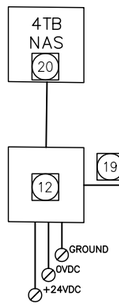


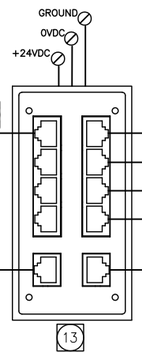


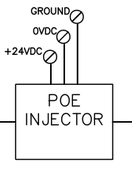


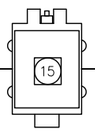
**SEE TECPRO DRWGS 20–018/DATED 2–10–24 FOR ADDITIONAL DETAILS

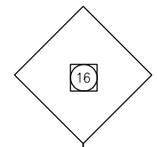












JOCKEY PUMP P–1 VFD

BOOSTER PUMP P–2 VFD

BOOSTER PUMP P–3 VFD

HIGH VOLUME PUMP P–4 VFD

POWER MONITOR

REVISIONS		
MARK	DATE	DESCRIPTION
1		
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STATE OF ALASKA — 19TH — REGISTERED PROFESSIONAL ENGINEER — John A. Pape — IE 11301 — 2/13/24

EDC, INC.
ENGINEERING DESIGN CONSULTANTS
1500 W. 33RD AVE. SUITE 100
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LICENSE NO. AECC705

CONSTRUCT BOGARD ROAD BOOSTER STATION

CITY OF PALMER

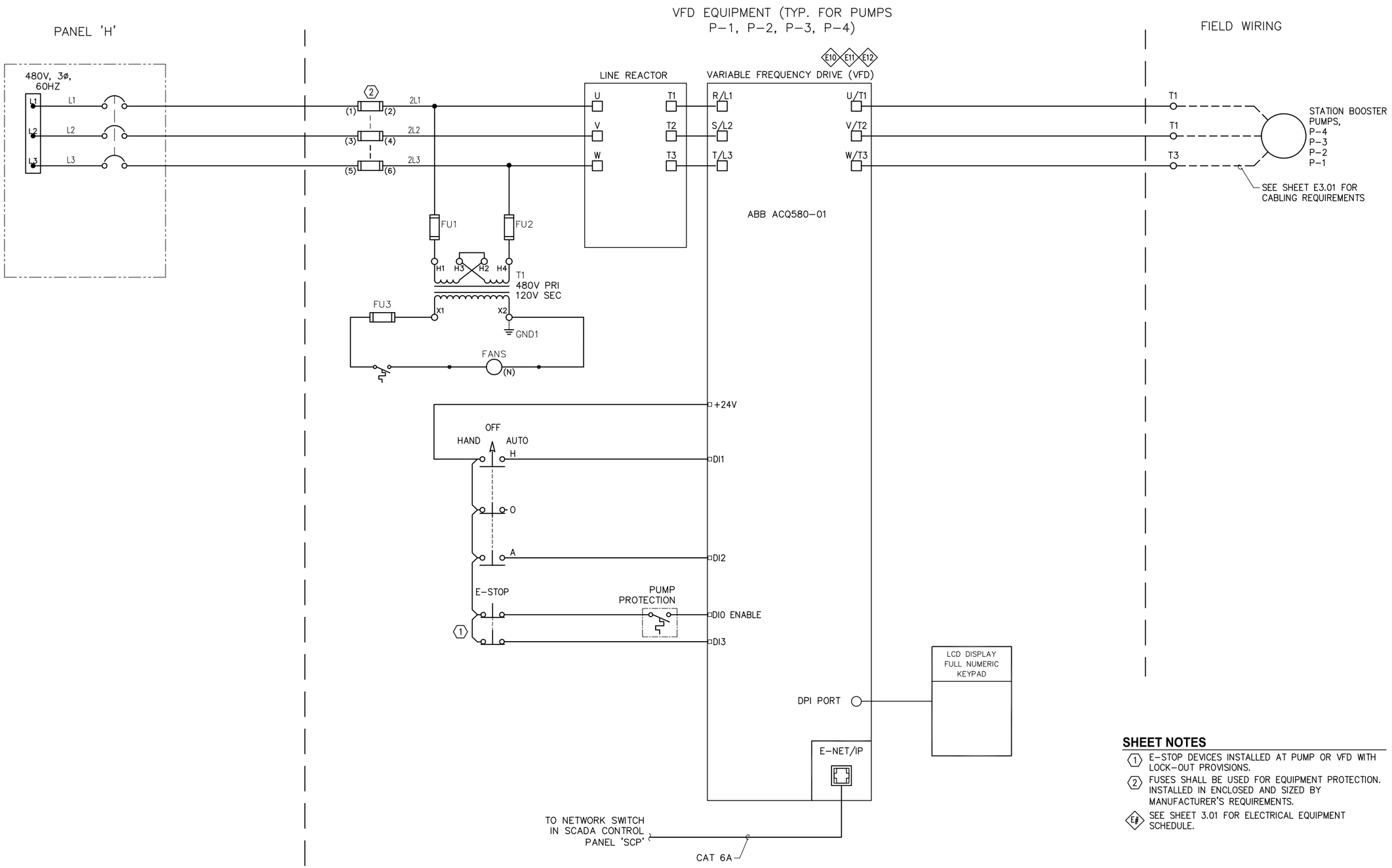
PALMER, ALASKA

SHEET TITLE: PLC PANEL LAYOUT

SHEET: E6.02

DRAWN BY:	CHECKED BY:
	JP
DATE: FEB. 2024	SCALE: AS NOTED
JOB NUMBER: 16–033	

FILE PATH: p:\Projects\HDL\bogard rd booster station\Dwgs\Elec\E6.02 PLC PANEL LAYOUT.dwg DATE SAVED: 2/12/2024 3:34 PM



SHEET NOTES

1. E-STOP DEVICES INSTALLED AT PUMP OR VFD WITH LOCK-OUT PROVISIONS.
2. FUSES SHALL BE USED FOR EQUIPMENT PROTECTION. INSTALLED IN ENCLOSED AND SIZED BY MANUFACTURER'S REQUIREMENTS.
3. SEE SHEET 3.01 FOR ELECTRICAL EQUIPMENT SCHEDULE.

REVISIONS		
MARK	DATE	DESCRIPTION
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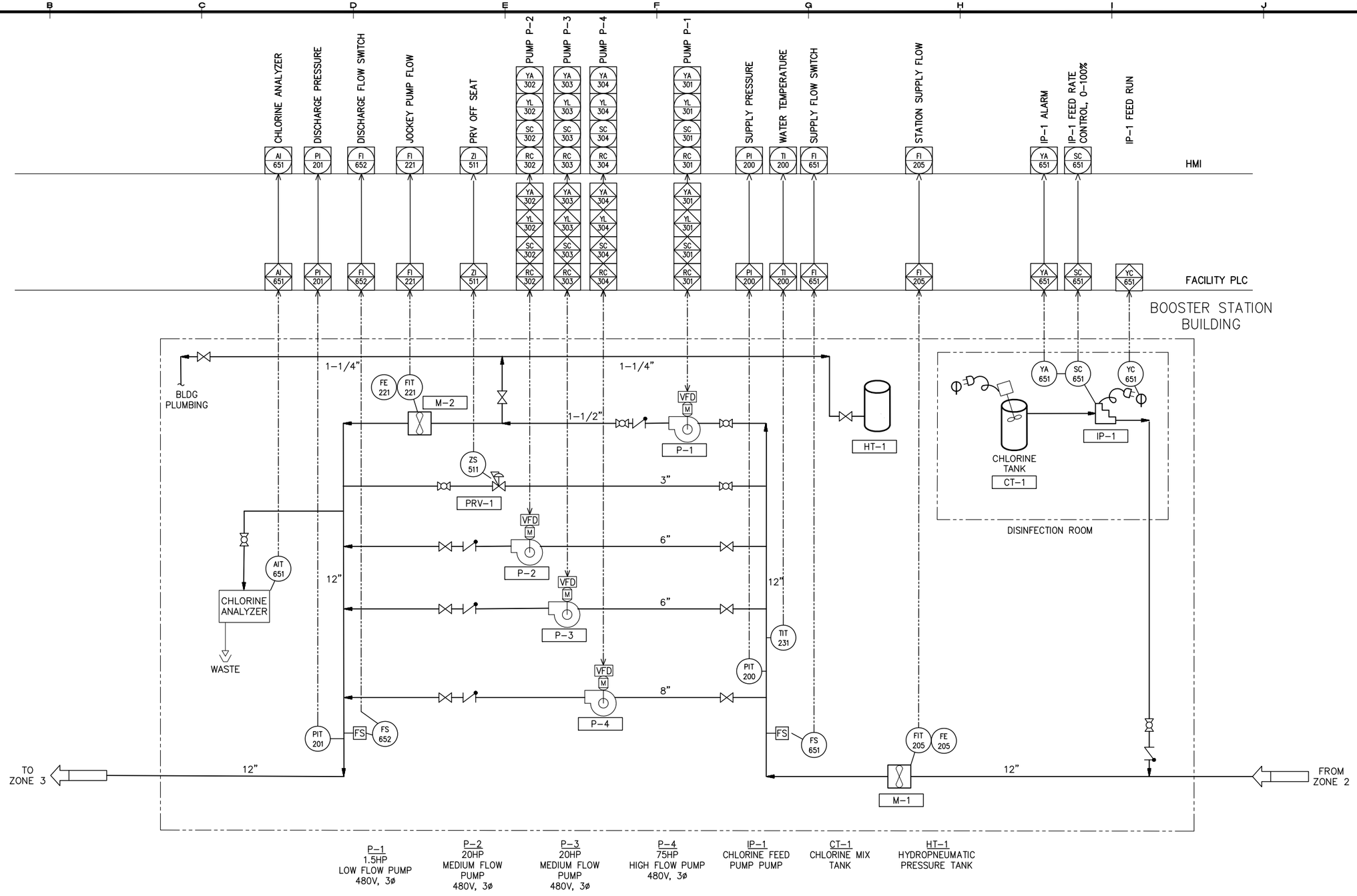
STATE OF ALASKA — 19TH — JOHN A. PAPE — LIC. 11307 — REGISTERED PROFESSIONAL ENGINEER — 2/13/24

EDC, INC.
1500 W. 33RD AVE, STE 100
ANCHORAGE, AK 99503
(907) 276-7933
LICENSE NO. AECC705

CONSTRUCT BOGARD ROAD BOOSTER STATION
CITY OF PALMER
PALMER, ALASKA

SHEET TITLE: VFD DIAGRAM
SHEET: E6.03
DRAWN BY:
CHECKED BY: JP
DATE: FEB. 2024
SCALE: AS NOTED
JOB NUMBER: 16-033

FILE PATH: p:\Projects\HDL\bogard rd booster station\Dwgs\Elec\E6.03 VFD DIAGRAM.dwg DATE SAVED: 2/12/2024 6:10 PM



1 D1.01 **PROCESS AND INSTRUMENTATION DIAGRAM**
SCALE: NTS

REVISIONS		
MARK	DATE	DESCRIPTION
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STATE OF ALASKA — JOHN A. PAPE — 11581 — REGISTERED PROFESSIONAL ENGINEER — 2/13/24

EDC, INC.
ENGINEERING CONSULTANTS, LLC
1500 W. 33RD AVE, STE. 100
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(907) 276-7933
LICENSE NO. AECC705

CONSTRUCT BOGARD ROAD BOOSTER STATION
CITY OF PALMER
PALMER, ALASKA

SHEET TITLE: PROCESS AND INSTRUMENTATION DIAGRAM
SHEET: D1.01
DRAWN BY: | CHECKED BY: JP
DATE: FEB. 2024 | SCALE: AS NOTED
JOB NUMBER: 16-033

DATE SAVED: 2/7/2024 11:21 AM
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CITY OF PALMER
BOGARD RD BOOSTER STATION

SCADA CONTROL PANEL

FOR REFERENCE ONLY

WARNING 0 1/2 IF BAR IS NOT 1/2 INCH, ADJUST DRAWING SCALE ACCORDINGLY.

FULL SIZE SCALE:

REV	DATE	DESCRIPTION	BY
A	2/10/24	ISSUED FOR APPROVAL	CC
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REVISIONS

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

1. DATA PROVIDED BY: _____
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   CONTRACTOR: _____
   BY: _____ TITLE: _____
   DATE: _____
2. DATA TRANSFERRED BY: _____
   COMPANY: _____
   DATE: _____
3. Based on periodic field observations by the Engineer (or an individual under his/her direct supervision), the Contractor–provided data appears to represent the project as constructed.
   DATA TRANSFER CHECKED BY: _____
   COMPANY: _____
   BY: _____ TITLE: _____
   DATE: _____

TECPRO
Wasilla, Alaska
907.348.1800

DESIGNED: CC DRAWN: CC
CHECKED: CC JOB: BBS

FOR REFERENCE ONLY

CITY OF PALMER
PALMER, AK

WATER DISTRIBUTION FACILITIES
BOGARD BOOSTER STATION
SCADA CONTROL PANEL
TITLE PAGE

SCALE: NONE | DATE: 2/10/24 | GRID:

20–018

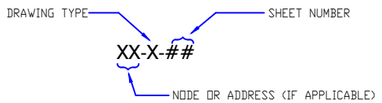
DRAWING
BBS
T–01

SHEET – OF –

LEGEND

GROUND	LIMIT SWITCH HELD OPEN (SPECIFY WHEN OPERATED)
CONTROL RELAY	LIMIT SWITCH HELD CLOSED (SPECIFY WHEN OPERATED)
RTU/PLC CONTROL INPUT	LIMIT SWITCH NORMALLY CLOSED (SPECIFY WHEN OPERATED)
RTU/PLC CONTROL OUTPUT	LIMIT SWITCH NORMALLY OPEN (SPECIFY WHEN OPERATED)
SOLENOID VALVE	PULLCORD NORMALLY OPEN (SPECIFY WHEN OPERATED)
RELAY CONTACT, NORMALLY OPEN	TEMPERATURE SWITCH OPEN ON RISE
RELAY CONTACT, NORMALLY CLOSED	TEMPERATURE SWITCH CLOSE ON RISE
INDICATING LIGHT-G,A,W (LETTER INDICATES COLOR)	VACUUM OR PRESSURE SWITCH OPEN ON RISE
POSITIVE	VACUUM OR PRESSURE SWITCH CLOSE ON RISE
NEGATIVE	FLOAT SWITCH OPEN ON RISE
FUSED & NONFUSED TERMINALS	FLOAT SWITCH CLOSE ON RISE
	FLOW SWITCH NORMALLY CLOSED
TERMINAL BLOCK (FIELD WIRING)	FLOW SWITCH NORMALLY OPEN
IN PANEL DEVICE TERMINAL	TIMED CONTACT NORMALLY CLOSED TIME CLOSING
RADIO FREQUENCY PATH	TIMED CONTACT NORMALLY OPEN TIME OPENING
PUSH BUTTON NORMALLY OPEN	TIMED CONTACT NORMALLY CLOSED TIME OPENING
PUSH BUTTON NORMALLY CLOSED	TIMED CONTACT NORMALLY OPEN TIME CLOSING
FUSE	TWO POSITION SELECTOR SWITCH, ONE WIRE
TERMINAL BLOCK FUSE/SWITCH	
FUSE	2 POSITION SELECTOR SWITCH (SPECIFY WHEN OPERATED)
RECEPTACLE	ADDITIONAL SWITCH CONTACT 3 POSITION SELECTOR SWITCH (SPECIFY WHEN OPERATED)
INSTRUMENT TAG	(SPECIFY WHEN OPERATED)
LADDER CONTINUATION	PULSED CONTACT
SEPARABLE CONNECTORS (ENGAGED)	CONTROL CIRCUIT TRANSFORMER
EXTERIOR DEVICE	THERMAL OVERLOAD ELEMENT
INTERIOR DEVICE	CIRCUIT BREAKER
FIELD WIRING	AUDIBLE ALARM - H = HORN, B = BELL
CROSSING OF CONDUCTORS (NO CONNECTION)	STROBE ALARM LIGHT
CONNECTION OF CONDUCTORS	WIRE LABEL NUMBER
HAPPY CIRCUIT	ANTENNA
	NOTE IDENTIFIER

SHEET NAMING



N6-T-02

DRAWING TYPES

A – ARCHITECTURAL
B – BURNER MANAGEMENT
C – CONTROL WIRING & PANEL VIEW DRAWINGS
D – DEVICE PALMER, AK, DESCRIPTIONS AND OTHER DIAGRAMS
E – ELECTRICAL
F - FIRE
H – HYDRAULIC
I – INTER CONNECTIVITY AND CONTROLS
L – LOOP DIAGRAMS AND LOGICAL CONTROLLERS (PLC I/O DRAWINGS)
M – MECHANICAL
N – COMPUTER NETWORK OR NODE ADDRESSES
P – PIPING AND INSTRUMENTATION DIAGRAM
R – REFERENCE DRAWINGS
S - SITE
T – TITLE PAGE & LEGENDS
U – UNDEFINED
V – VESSELS
X – DRAWING INDEX

WIRE TAGGING

I:00.1.1

LIST OF ABBREVIATIONS

A = AMP
AI = ANALOG INPUT
AO = ANALOG OUTPUT
AUX = AUXILIARY
C = COMMON
CB = CIRCUIT BREAKER
DI = DISCRETE INPUT
DO = DISCRETE OUTPUT
CCT = CONTROL CIRCUIT TRANSFORMER
CR = CONTROL RELAY
ETM = ELAPSE TIME METER
F = FUSE
FLR = FIELD LOSS RELAY
G = GROUND
GFI = GROUND FAULT INTERRUPTER
ISR = INTRINSICALLY SAFE RELAY
ITC = INSTRUMENT TERMINAL CABINET
MS = MOTOR STARTER
MTU = MASTER TELEMETRY UNIT
MV = MAINLINE VALVE
NC = NORMALLY CLOSED
NIC = NOT IN CONTRACT
NO = NORMALLY OPEN
OL = OVERLOAD RELAY
PLC = PROGRAMMABLE LOGIC CONTROLLER
PMR = POWER MONITOR RELAY
PRV = PRESSURE REGULATING VALVE
PTT = PUSH TO TEST
R = RUN
RTU = REMOTE TELEMETRY UNIT
S = START
SA = SURGE ARRESTER
SW = SWITCH
TB = TERMINAL BLOCK
UON = UNLESS OTHERWISE NOTED
VCP = VALVE CONTROL PANEL

WARNING 0 1/2 — IF BAR IS NOT 1/2 INCH, ADJUST DRAWING SCALE ACCORDINGLY. FULL SIZE SCALE:

REV.	DATE	DESCRIPTION	BY
A	2/10/24	ISSUED FOR APPROVAL	CC
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REVISIONS

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   COMPANY: _____
   BY: _____ TITLE: _____
   DATE: _____

TECPRO
Wasilla, Alaska
907.348.1800

DESIGNED: CC DRAWN: CC
CHECKED: CC JOB: BBS

FOR REFERENCE ONLY

CITY OF PALMER
PALMER, AK

WATER DISTRIBUTION FACILITIES
BOGARD BOOSTER STATION
SCADA CONTROL PANEL
LEGEND

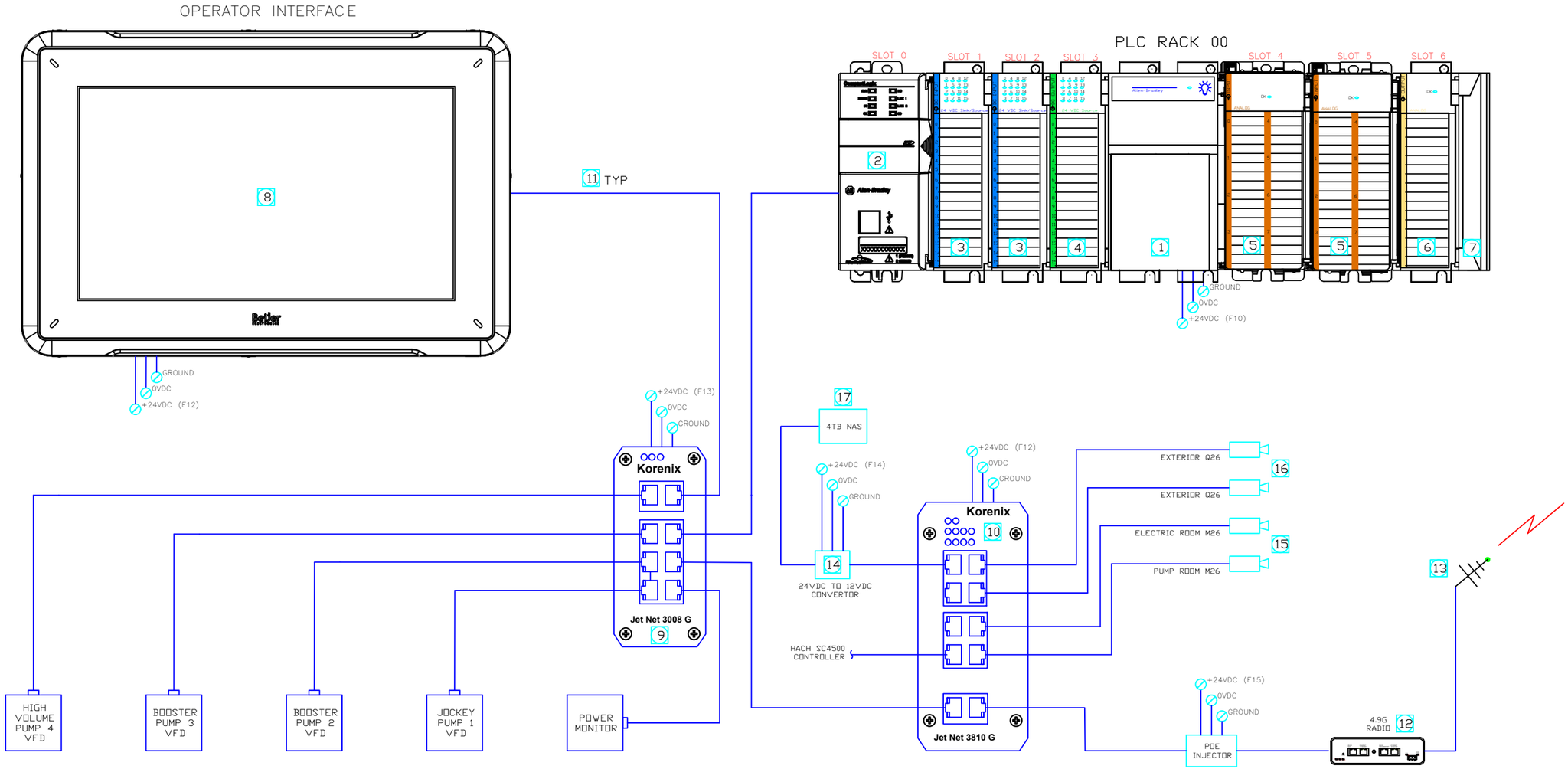
SCALE: NONE | DATE: 2/10/24 | GRID:

20-018

DRAWING
BBS
T–02

SHEET – OF –

REF	PART NO	MFGR	MODULE USE / TYPE
1	1769-PB4	AB	24 VDC POWER SUPPLY
2	1769-L30ER	AB	COMPACT LOGIX PROCESSOR (CPU)
3	1769-IQ16	AB	16 POINT DISCRETE INPUT MODULE
4	1769-OB16	AB	16 POINT DISCRETE OUTPUT MODULE
5	1769-IF8	AB	8 POINT ANALOG INPUT MODULE
6	1769-OF8C	AB	8 POINT ANALOG OUTPUT MODULE
7	1769-ECR	AB	RIGHT END CAP
8	X2PR021	BEIJER	21" TOUCHSCREEN HMI
9	JETNET 3008G	KORENIX	GB ETHERNET SWITCH
10	JETNET 3810G	KORENIX	POE ETHERNET SWITCH
11	-	-	CAT 6 ETHERNET CABLE W/ RJ 45
12	HORIZON 4.9	ESTEEM	WIRELESS RADIO 4.9GHz
13	AA204EP	ESTEEM	23DBI DIRECTIONAL ANTENNA
14	PSP12-DC24-2	RHINO	24VDC - 12VDC CONVERTER
15	M26	MOBOTIX	INTERIOR CAMERA
16	Q26	MOBOTIX	EXTERIOR CAMERA
17	-	MOBOTIX	4TB NAS
18	-	-	-
19	-	-	CAT 6 ETHERNET CABLE W/ RJ 45
20	-	-	
21	-	-	



REV	DATE	DESCRIPTION	BY
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REVISIONS

WARNING 0 1/2 IF BAR IS NOT 1/2 INCH, ADJUST DRAWING SCALE ACCORDINGLY. FULL SIZE SCALE:

RECORD DRAWING

Note: To be filled out on original drawings upon project completion.

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   DATE: _____

TECPRO
Wasilla, Alaska
907.348.1800

DESIGNED: CC DRAWN: CC
CHECKED: CC JOB: BBS

FOR REFERENCE ONLY

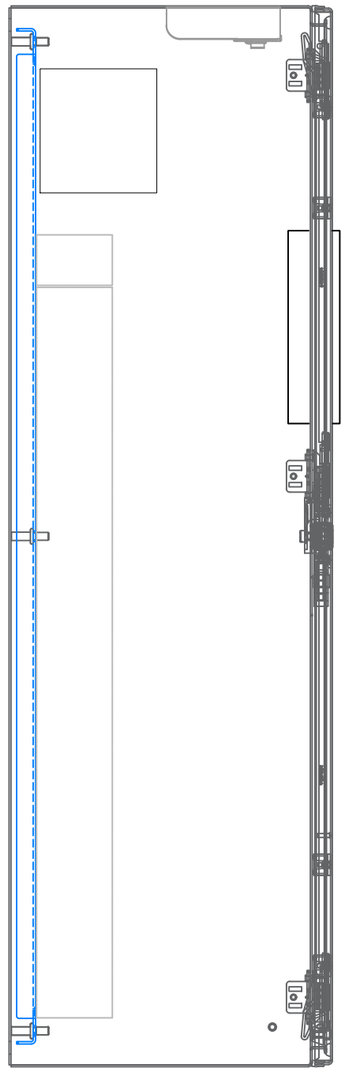
CITY OF PALMER
PALMER, AK

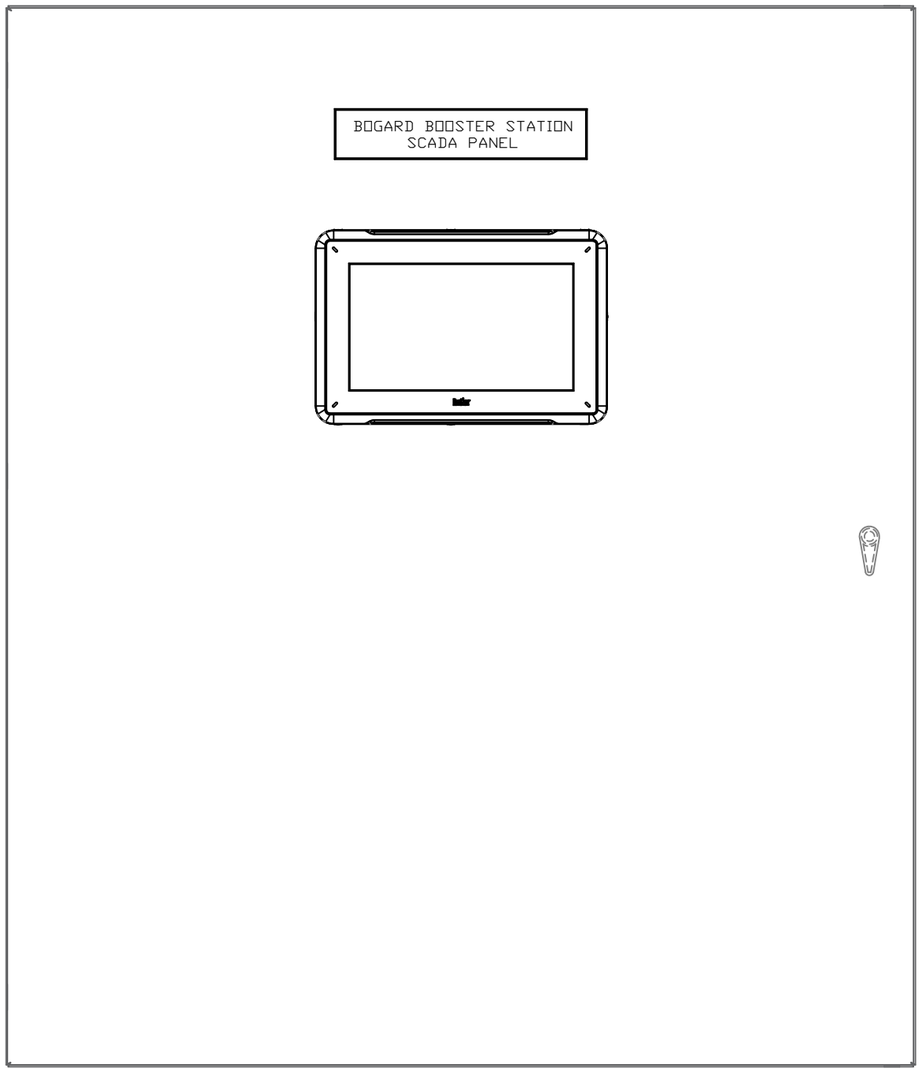
WATER DISTRIBUTION FACILITIES
BOGARD BOOSTER STATION
SCADA CONTROL PANEL
NETWORK DIAGRAM

SCALE: NONE | DATE: 2/10/24 | GRID:
20-018

DRAWING
BBS
EI-01

SHEET – OF –





WARNING 0 1/2 IF BAR IS NOT 1/2 INCH, ADJUST DRAWING SCALE ACCORDINGLY.

FULL SIZE SCALE:

REV	DATE	DESCRIPTION	BY
A	2/10/24	ISSUED FOR APPROVAL	CC
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REVISIONS

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TECPRO
Wasilla, Alaska
907.348.1800

DESIGNED: CC DRAWN: CC
CHECKED: CC JOB: BBS

FOR REFERENCE ONLY

CITY OF PALMER
PALMER, AK

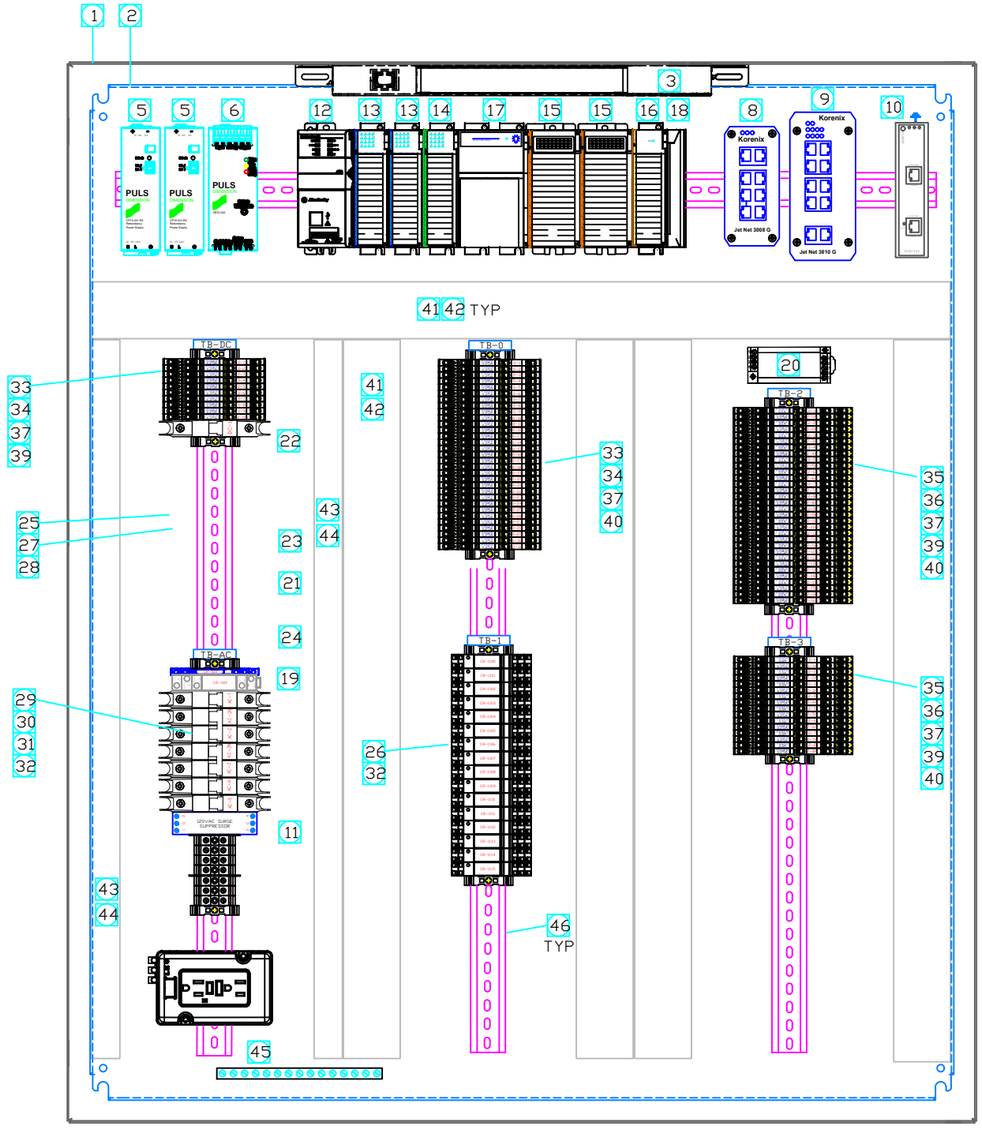
WATER DISTRIBUTION FACILITIES
BOGARD BOOSTER STATION
SCADA CONTROL PANEL
FRONT VIEW

SCALE: 2" = 1' DATE: 2/10/24 GRID:

20–018

DRAWING
BBS
EI–02

SHEET – OF –



BILL OF MATERIALS				
ITEM	PART NO	MFG	DESCRIPTION	QTY
1	CSD423612	HOFFMAN	ENCLOSURE, NEMA 4/12, 42" X 36" X 12"	1
2	CP4236	HOFFMAN	BACK PANEL	1
3	CEL550M	HOFFMAN	LIGHT, LED, 15", 24V	1
4	X2PRO21	BEIJER	21" TOUCHSCREEN HMI	1
5	CP20.241-R2	PULS	POWER SUPPLY, 120VAC:24VDC, 20A, 480W	2
6	UB20.242	PULS	UPS MODULE, 20A	1
7	PS-12110	POWERSONIC	SEALED LEAD ACID BATTERY, 12V, 12AH	1
8	JETNET 3008G	KORENIX	ETHERNET SWITCH, 8-PORT	2
9	JETNET3810G	KORENIX	POE ETHERNET SWITCH, 8+2 PORT	1
10	IPOE-162	PLANET TECH	POE INJECTOR	1
11	1492-REC15	ALLEN-BRADLEY	RECEPTACLE, 15A, 120V	1
12	1769-L30ER	ALLEN-BRADLEY	COMPACTLOGIX PROCESSOR (CPU)	1
13	1769-IQ16	ALLEN-BRADLEY	DISCRETE INPUT, 16PT	2
14	1769-OB16	ALLEN-BRADLEY	DISCRETE OUTPUT, 16PT	1
15	1769-IF8	ALLEN-BRADLEY	ANALOG INPUT, 8PT	2
16	1769-OF4C	ALLEN-BRADLEY	ANALOG OUTPUT, 4PT	1
17	1769-PB4	ALLEN-BRADLEY	POWER SUPPLY, 24V	1
18	1769-ECR	ALLEN-BRADLEY	END CAP, RIGHT	1
19	2907919	PHOENIX CONTACT	SURGE ARRESTOR, 120V	1
20	CR5320-50	CR MAGNETICS	DC TRANSDUCER, 24V	1
21	1492-SPM1B050N	ALLEN-BRADLEY	CIRCUIT BREAKER, 5A + NEUTRAL	2
22	1492-SPM1B200	ALLEN-BRADLEY	CIRCUIT BREAKER, 20A	1
23	1492-SPM1B150	ALLEN-BRADLEY	CIRCUIT BREAKER, 15A	2
24	1492-SPM1B050	ALLEN-BRADLEY	CIRCUIT BREAKER, 5A	3
25	700-HLT1U1	ALLEN-BRADLEY	RELAY, SPDT, 120VAC, 6A, W/ LED	1
26	700-HLT12Z24	ALLEN-BRADLEY	RELAY, DPDT, 24VDC/VAC, 6A, W/ LED	15
27	2961192	PHOENIX CONTACT	RELAY, DPDT, 24VDC, 8A	1
28	2900930	PHOENIX CONTACT	RELAY BASE FOR 2961192	1
29	3211776	PHOENIX CONTACT	TERMINAL BLOCK, 26-10AWG	2
30	3211766	PHOENIX CONTACT	GROUND TERMINAL BLOCK, 26-10AWG	1
31	3030420	PHOENIX CONTACT	END PLATE	1
32	800886	PHOENIX CONTACT	END ANCHOR	13
33	3211886	PHOENIX CONTACT	FUSED & FEED-THRU 2 LEVEL TERMINAL BLOCK	50
34	3211918	PHOENIX CONTACT	END PLATE FOR 2 LEVEL TERMINAL BLOCK	3
35	3002602	PHOENIX CONTACT	FUSED & FEED-THRU 3 LEVEL TERMINAL BLOCK W/ GROUND	16
36	3211918	PHOENIX CONTACT	END PLATE FOR 3 LEVEL TERMINAL BLOCK W/ GROUND	3
37	3032208	PHOENIX CONTACT	TERMINAL BLOCK PLUG IN BRIDGE	3
38	1004348	PHOENIX CONTACT	TERMINAL STRIP MARKER	5
39	GGM3	FERRAZ SHAWMUT	FUSE, 3A, 250V, 5X20MM	23
40	GGM1/4	FERRAZ SHAWMUT	FUSE, 1/4A, 250V, 5X20MM	40
41	F2X3LG6	PANDUIT	2X3 WIRING DUCT	3
42	C2LG6	PANDUIT	2" WIRING DUCT COVER	3
43	F1X3LG6	PANDUIT	1"X3" WIRING DUCT	12
44	C1LG6	PANDUIT	1" WIRING DUCT COVER	12
45	PK15GTA	SQUARE D	GROUND BAR	1
46	DR1	ALLEN-BRADLEY	DIN RAIL	3
47				

NOTES:
1. USE ONLY HUBS OR FITTINGS WITH THE SAME ENVIRONMENTAL RATING AS THE ENCLOSURE.
2. MAINTAIN 2" OF CLEARANCE ABOVE AND BELOW RACK 00 PLC HARDWARE PER MANUFACTURER'S REQUIREMENTS.
3. USE MINIMUM 14 AWG FOR ALL POWER WIRING.
4. USE MINIMUM 18AWG FOR ALL I/O AND CONTROL WIRING.
5. PROVIDE 10% SPARE FUSES, MINIMUM OF FIVE EACH SIZE.

WARNING 0 1/2 — IF BAR IS NOT 1/2 INCH, ADJUST DRAWING SCALE ACCORDINGLY.

FULL SIZE SCALE:

REV	DATE	DESCRIPTION	BY
A	2/10/24	ISSUED FOR APPROVAL	CC
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REVISIONS

RECORD DRAWING Note: To be filled out on original drawings upon project completion.

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TECPRO
Wasilla, Alaska
907.348.1800

DESIGNED: CC DRAWN: CC
CHECKED: CC JOB: BBS

FOR REFERENCE ONLY

CITY OF PALMER
PALMER, AK

WATER DISTRIBUTION FACILITIES
BOGARD BOOSTER STATION
SCADA CONTROL PANEL
FRONT VIEW

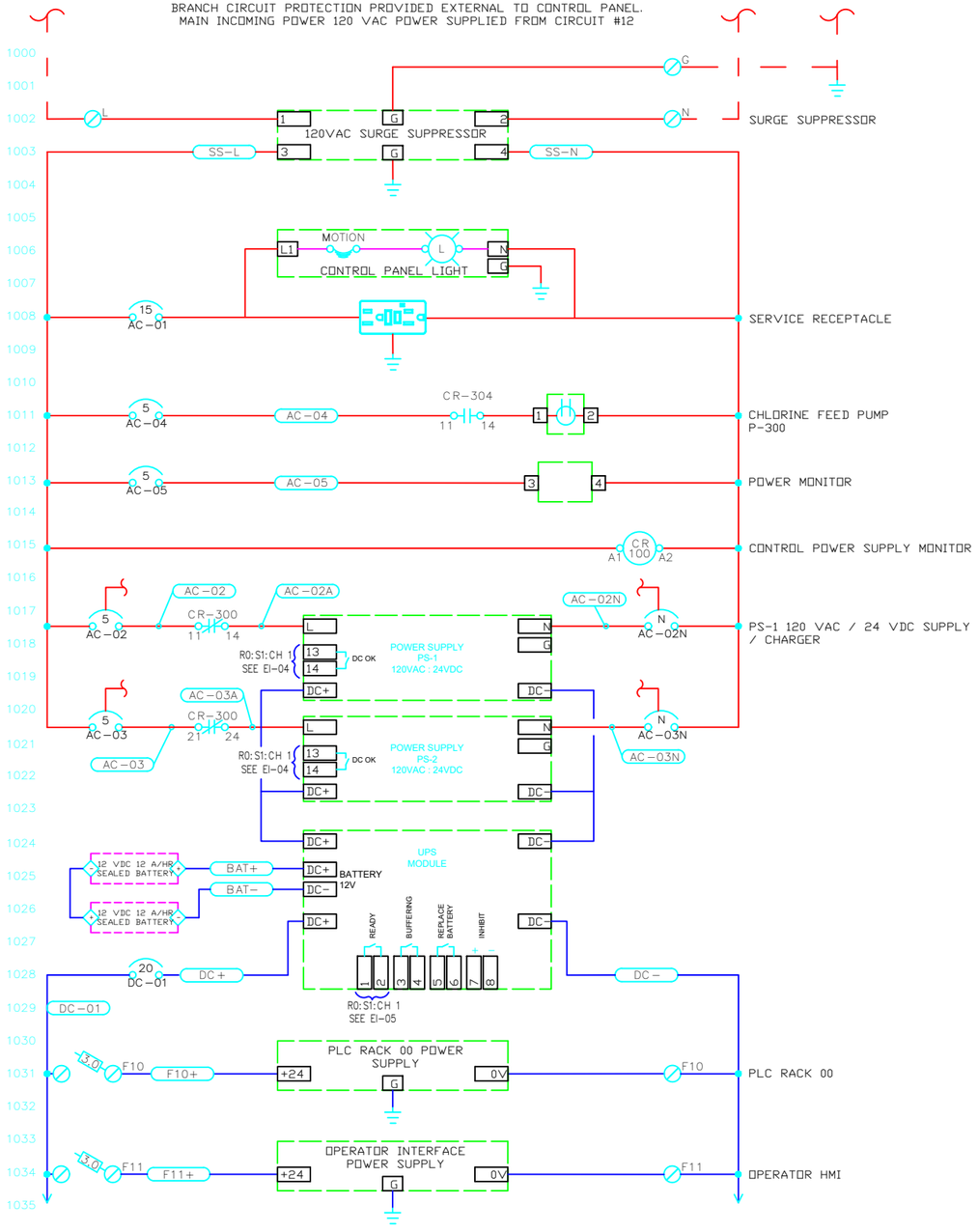
SCALE: 2" = 1' DATE: 2/10/24 GRID:

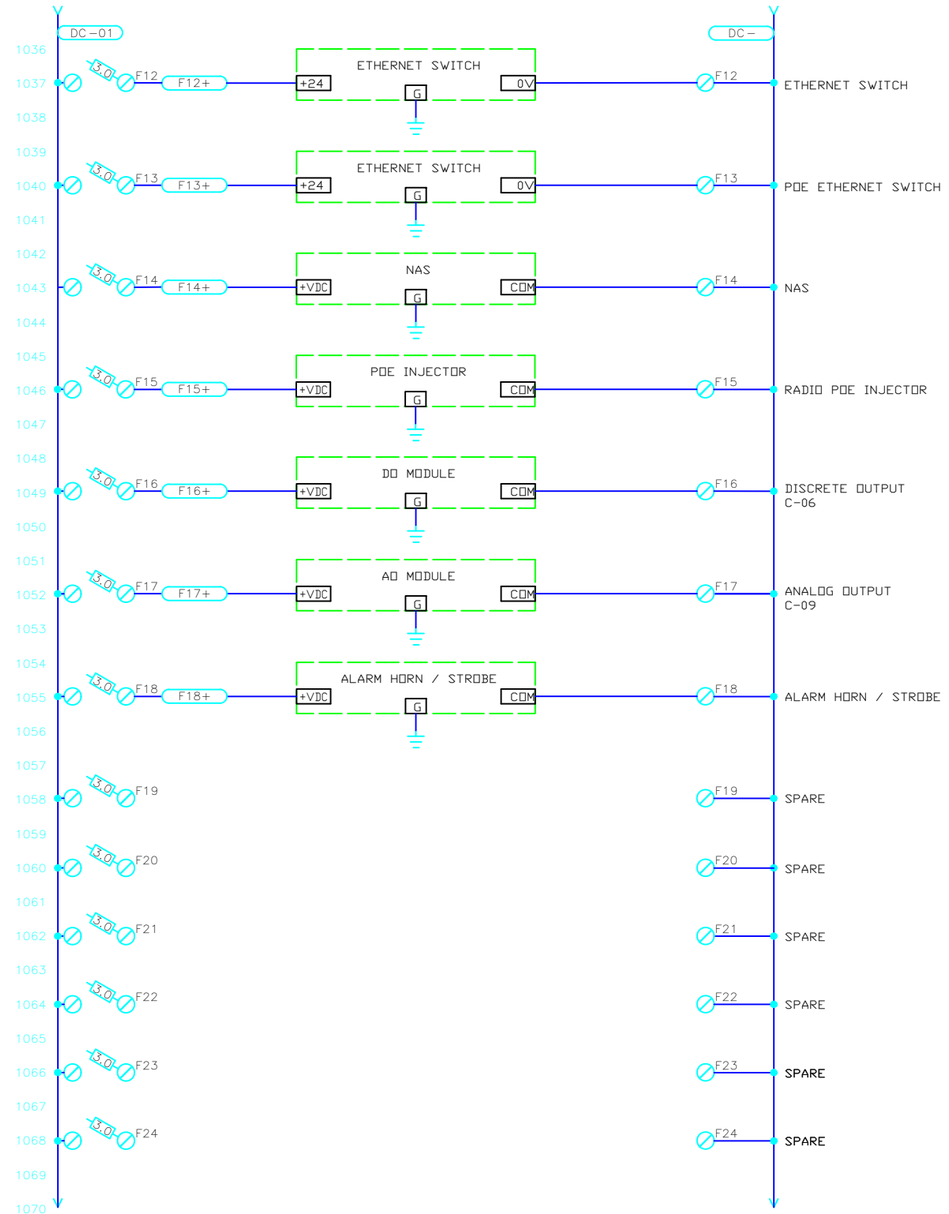
20-018

DRAWING
BBS
EI-02

SHEET – OF –

BRANCH CIRCUIT PROTECTION PROVIDED EXTERNAL TO CONTROL PANEL.
MAIN INCOMING POWER 120 VAC POWER SUPPLIED FROM CIRCUIT #12





CONTINUED ON SHEET EI-05

SPRUCE WELLHOUSE

WARNING 0 1/2 INCH — IF BAR IS NOT 1/2 INCH, ADJUST DRAWING SCALE ACCORDINGLY. FULL SIZE SCALE:

REV	DATE	DESCRIPTION	BY
A	2/10/24	ISSUED FOR APPROVAL	CC
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REVISIONS

RECORD DRAWING

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TECPRO
Wasilla, Alaska
907.348.1800

DESIGNED: CC DRAWN: CC
CHECKED: CC JOB: BBS

FOR REFERENCE ONLY

CITY OF PALMER
PALMER, AK

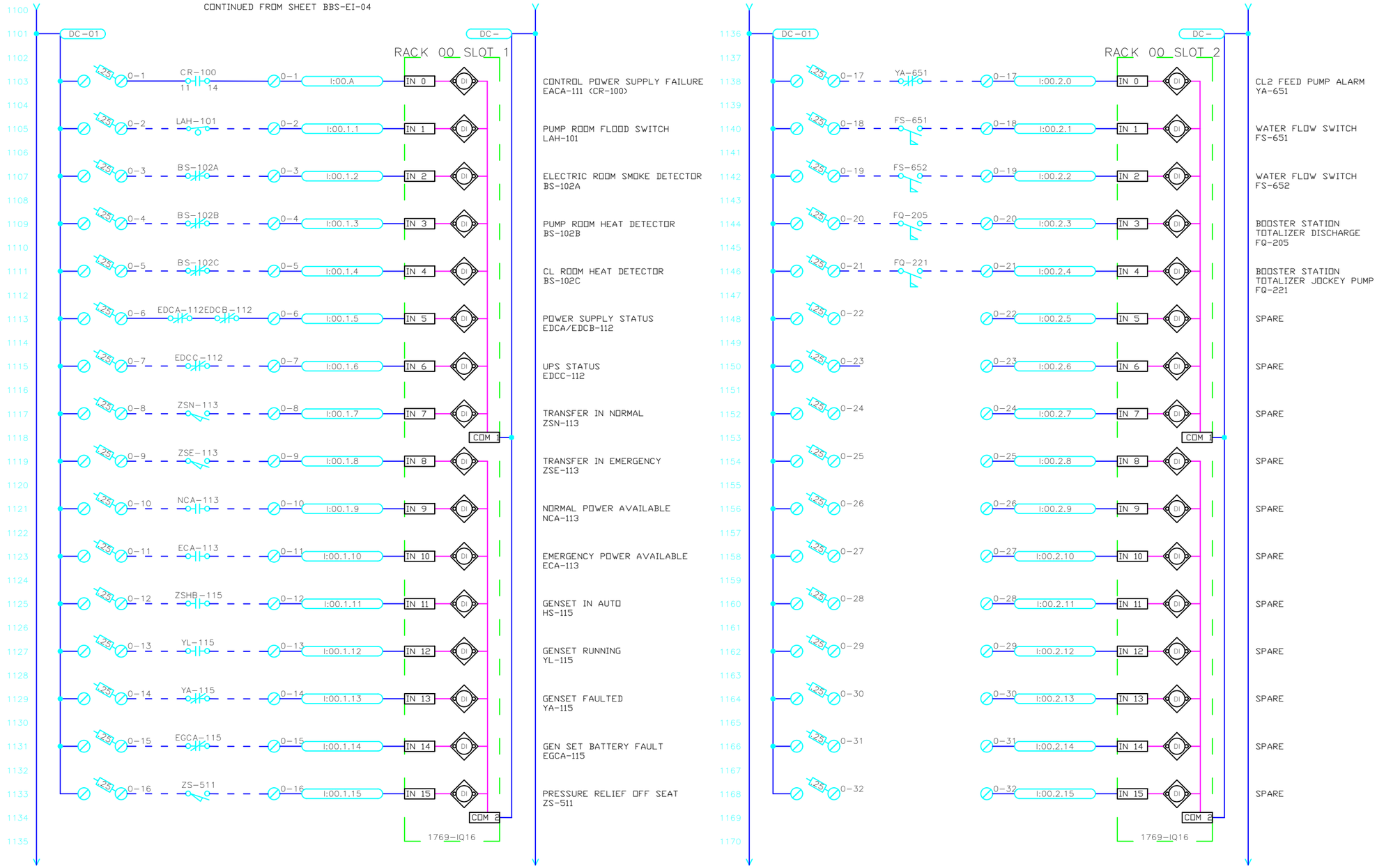
WATER DISTRIBUTION FACILITIES
BOGARD BOOSTER STATION
SCADA CONTROL PANEL
POWER DISTRIBUTION

SCALE: NONE | DATE: 2/10/24 | GRID:
20-018

DRAWING
BBS
EI-04

SHEET – OF –

CONTINUED FROM SHEET BBS-EI-04



CONTINUED ON SHEET BBS-EI-06

SPRUCE WELLHOUSE

WARNING 0 1/2 IF BAR IS NOT 1/2 INCH, ADJUST DRAWING SCALE ACCORDINGLY. FULL SIZE SCALE:

REV	DATE	DESCRIPTION	BY
A	2/10/24	ISSUED FOR APPROVAL	CC
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REVISIONS

RECORD DRAWING

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TECPRO
Wasilla, Alaska
907.348.1800

DESIGNED: CC DRAWN: CC
CHECKED: CC JOB: BBS

FOR REFERENCE ONLY

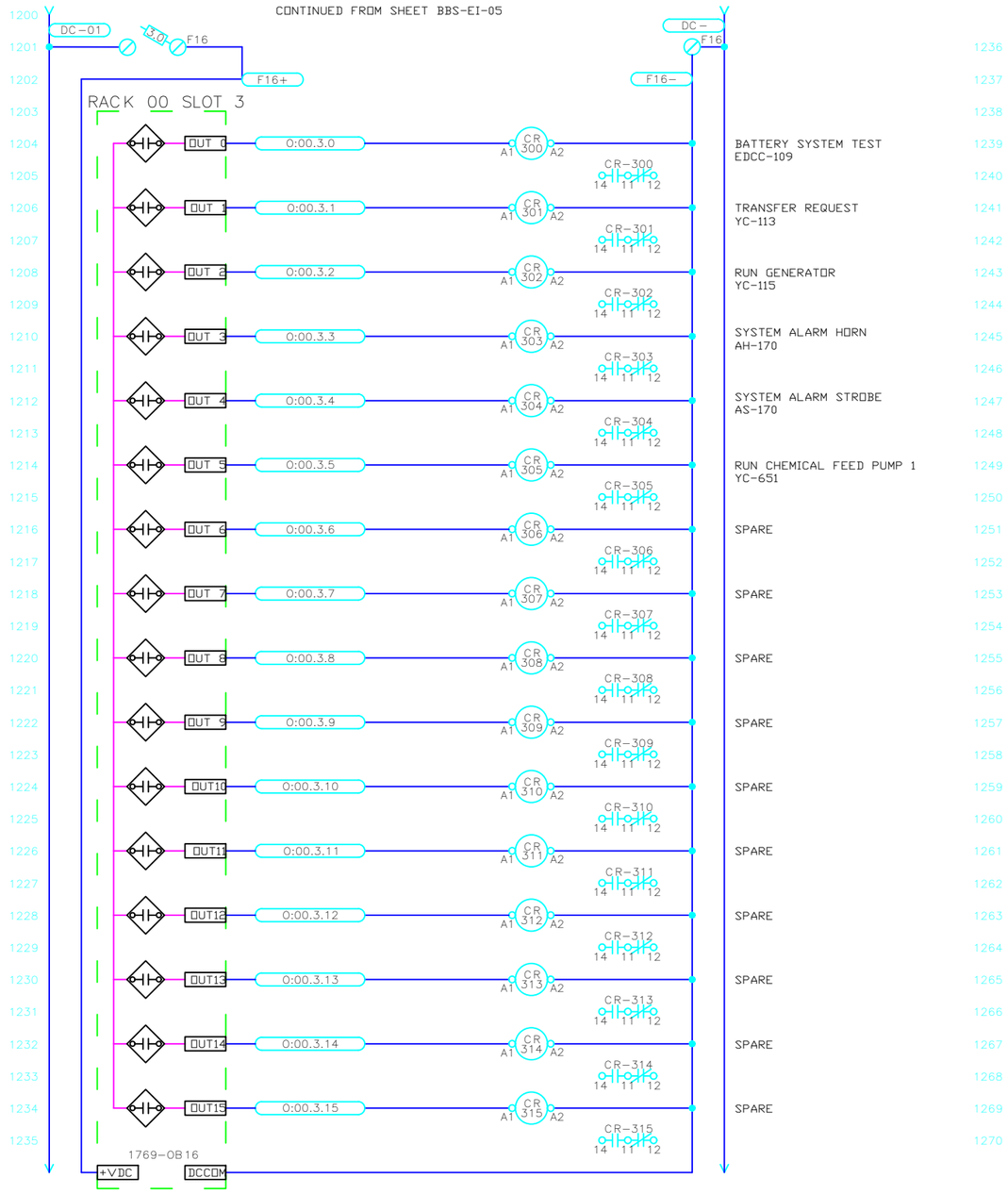
CITY OF PALMER
PALMER, AK

WATER DISTRIBUTION FACILITIES
BOGARD BOOSTER STATION
SCADA CONTROL PANEL
DISCRETE INPUT

SCALE: NONE DATE: 2/10/24 GRID:
20-018

DRAWING
BBS
EI-05
SHEET – OF –

CONTINUED FROM SHEET BBS-EI-05



CONTINUED ON SHEET BBS-EI-07

SPRUCE WELLHOUSE

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FULL SIZE SCALE:

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REVISIONS

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TECPRO
Wasilla, Alaska
907.348.1800

DESIGNED: CC DRAWN: CC
CHECKED: CC JOB: BBS

FOR REFERENCE ONLY

CITY OF PALMER
PALMER, AK

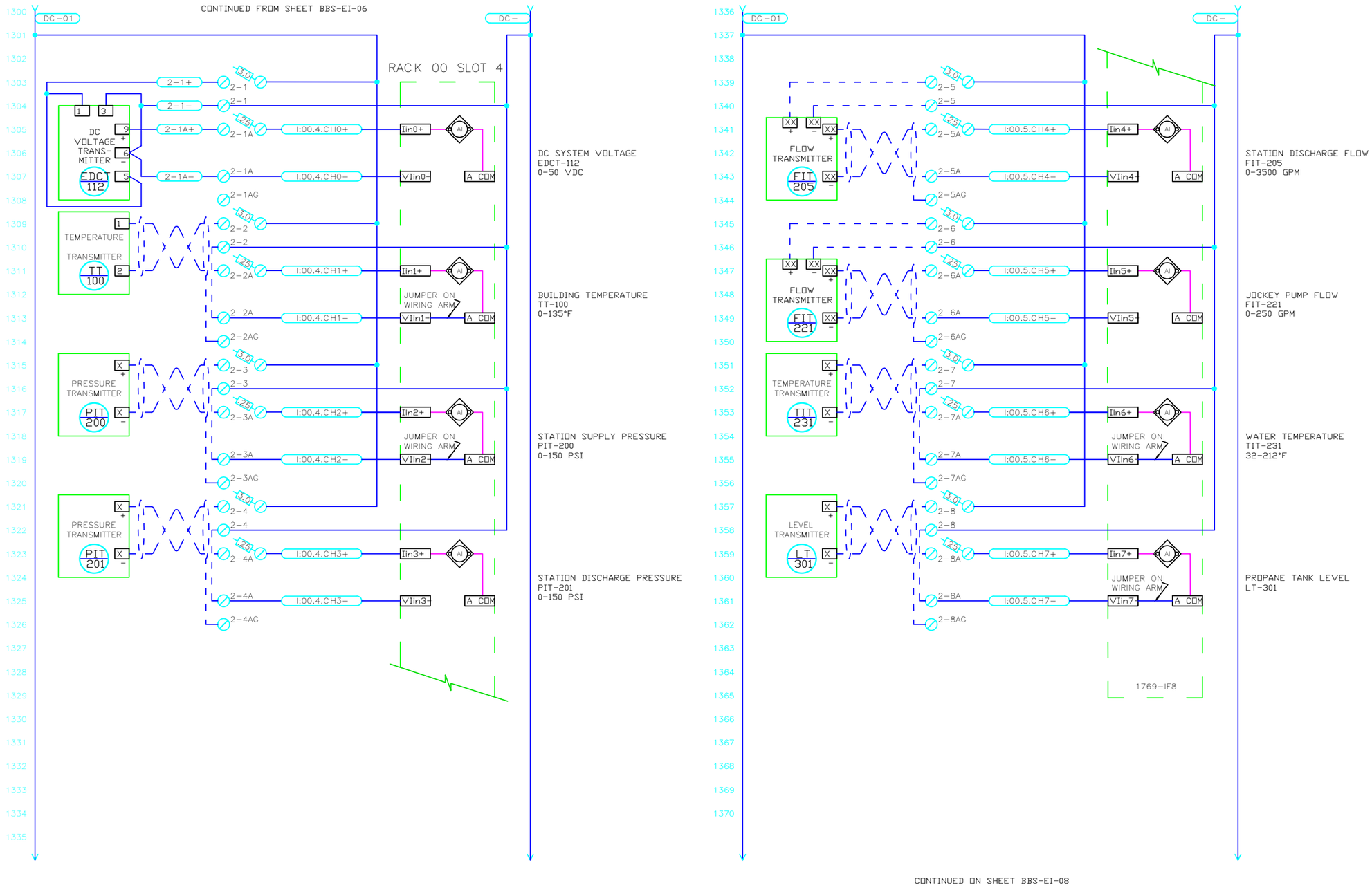
WATER DISTRIBUTION FACILITIES
BOGARD BOOSTER STATION
SCADA CONTROL PANEL
DISCRETE OUTPUT

SCALE: NONE | DATE: 2/10/24 | GRID:

20-018

DRAWING
BBS
EI-06

SHEET – OF –



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TECPRO
Wasilla, Alaska
907.348.1800

DESIGNED: CC DRAWN: CC
CHECKED: CC JOB: BBS

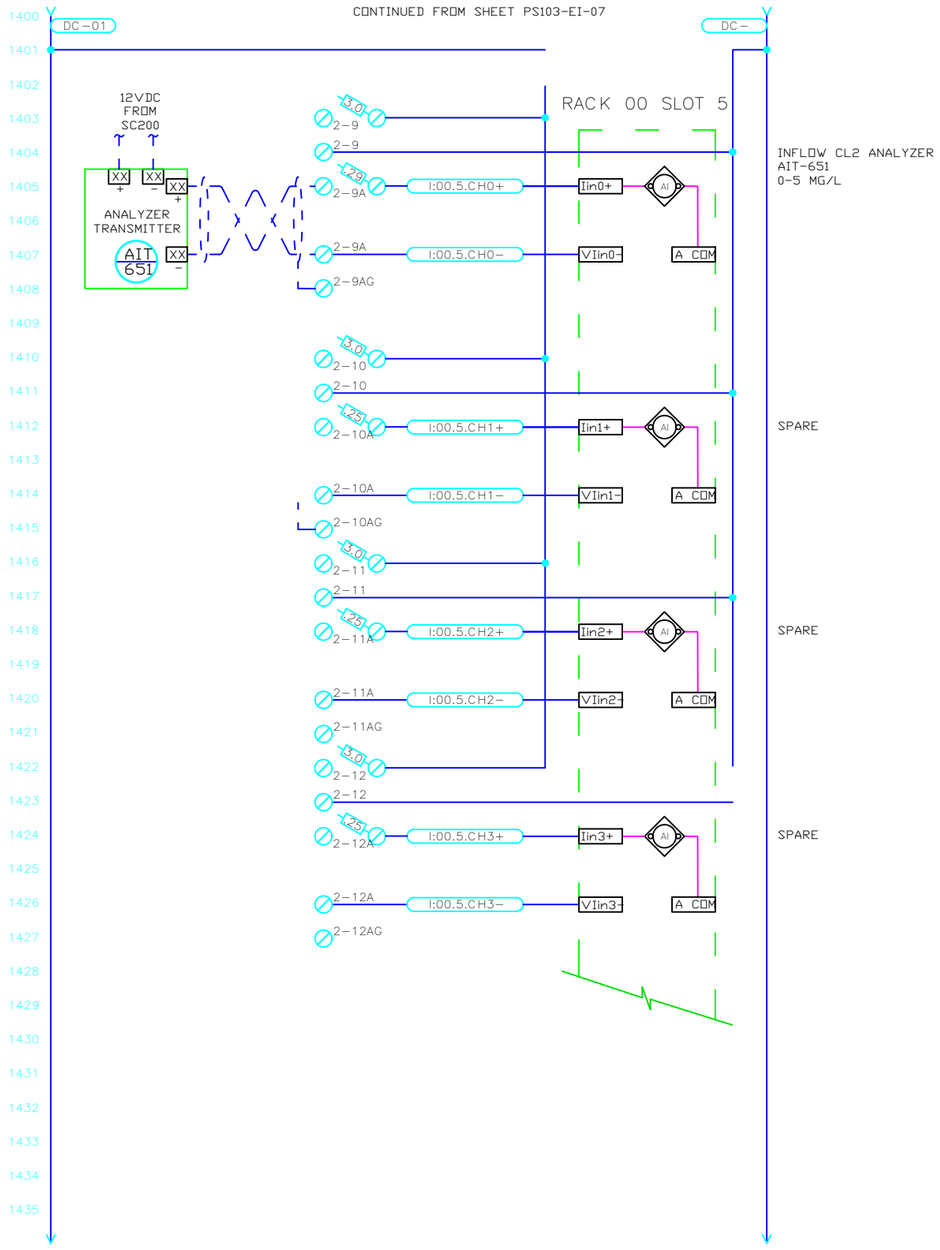
FOR REFERENCE ONLY

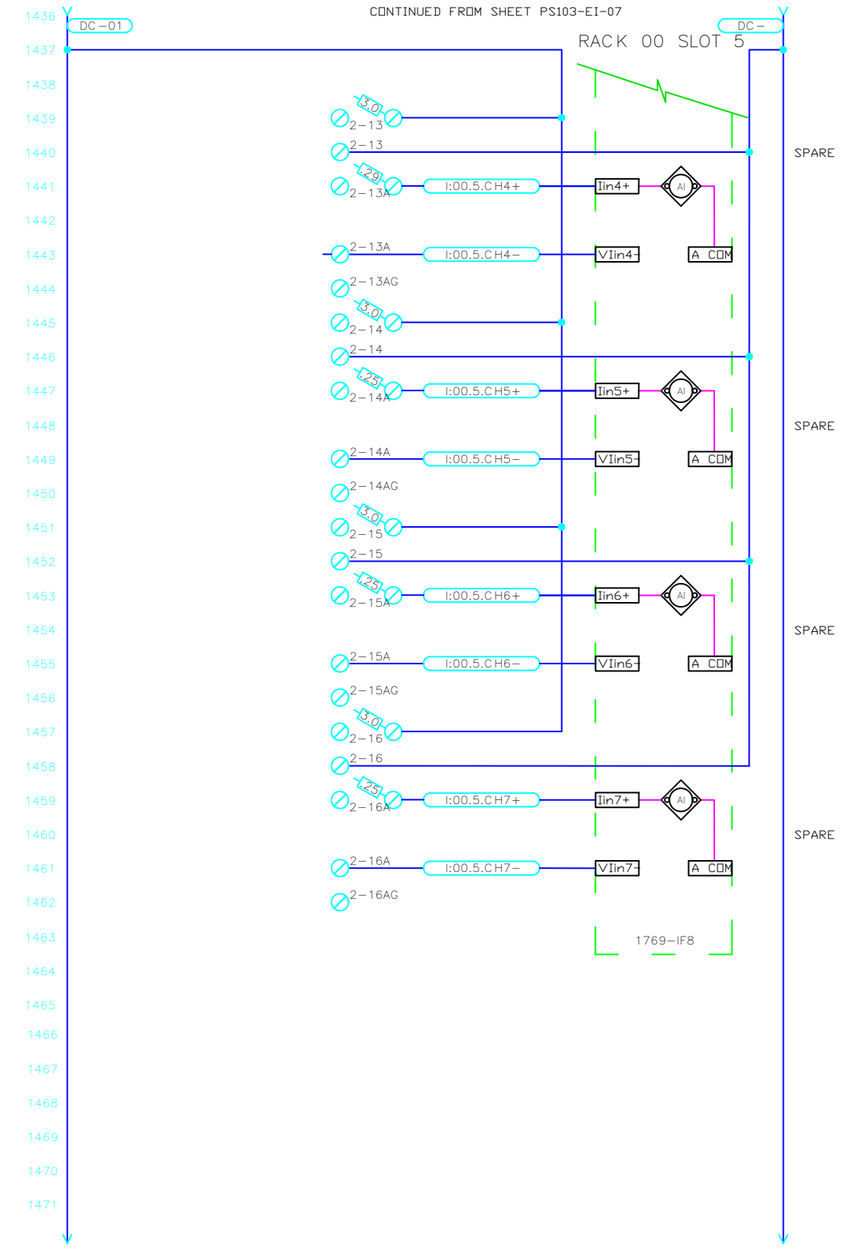
CITY OF PALMER
PALMER, AK

WATER DISTRIBUTION FACILITIES
BOGARD BOOSTER STATION
SCADA CONTROL PANEL
ANALOG INPUT

SCALE: NONE DATE: 2/10/24 GRID:
20-018

DRAWING
BBS
EI-07
SHEET – OF –





SPRUCE WELLHOUSE

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REVISIONS

RECORD DRAWING

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TECPRO
Wasilla, Alaska
907.348.1800

DESIGNED: CC DRAWN: CC
CHECKED: CC JOB: BBS

FOR REFERENCE ONLY

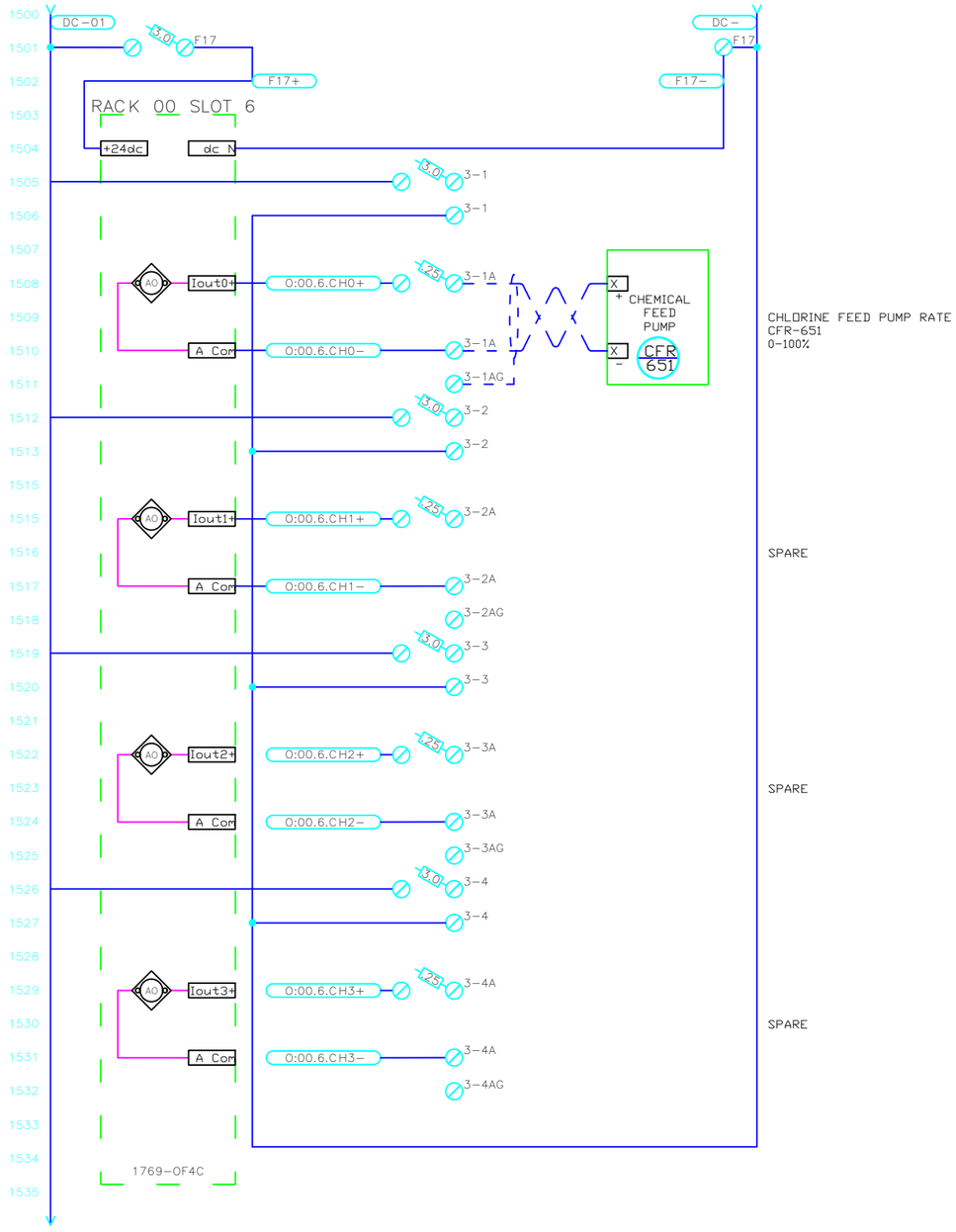
CITY OF PALMER
PALMER, AK

WATER DISTRIBUTION FACILITIES
BOGARD BOOSTER STATION
SCADA CONTROL PANEL
ANALOG INPUT

SCALE: NONE | DATE: 2/10/24 | GRID:
20-018

DRAWING
BBS
EI-08

SHEET – OF –



WARNING 1/2

IF BAR IS NOT 1/2 INCH, ADJUST DRAWING SCALE ACCORDINGLY.

FULL SIZE SCALE:

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REVISIONS

RECORD DRAWING

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TECPRO
Wasilla, Alaska
907.348.1800

DESIGNED: CC DRAWN: CC
CHECKED: CC JOB: BBS

FOR REFERENCE ONLY

CITY OF PALMER
PALMER, AK

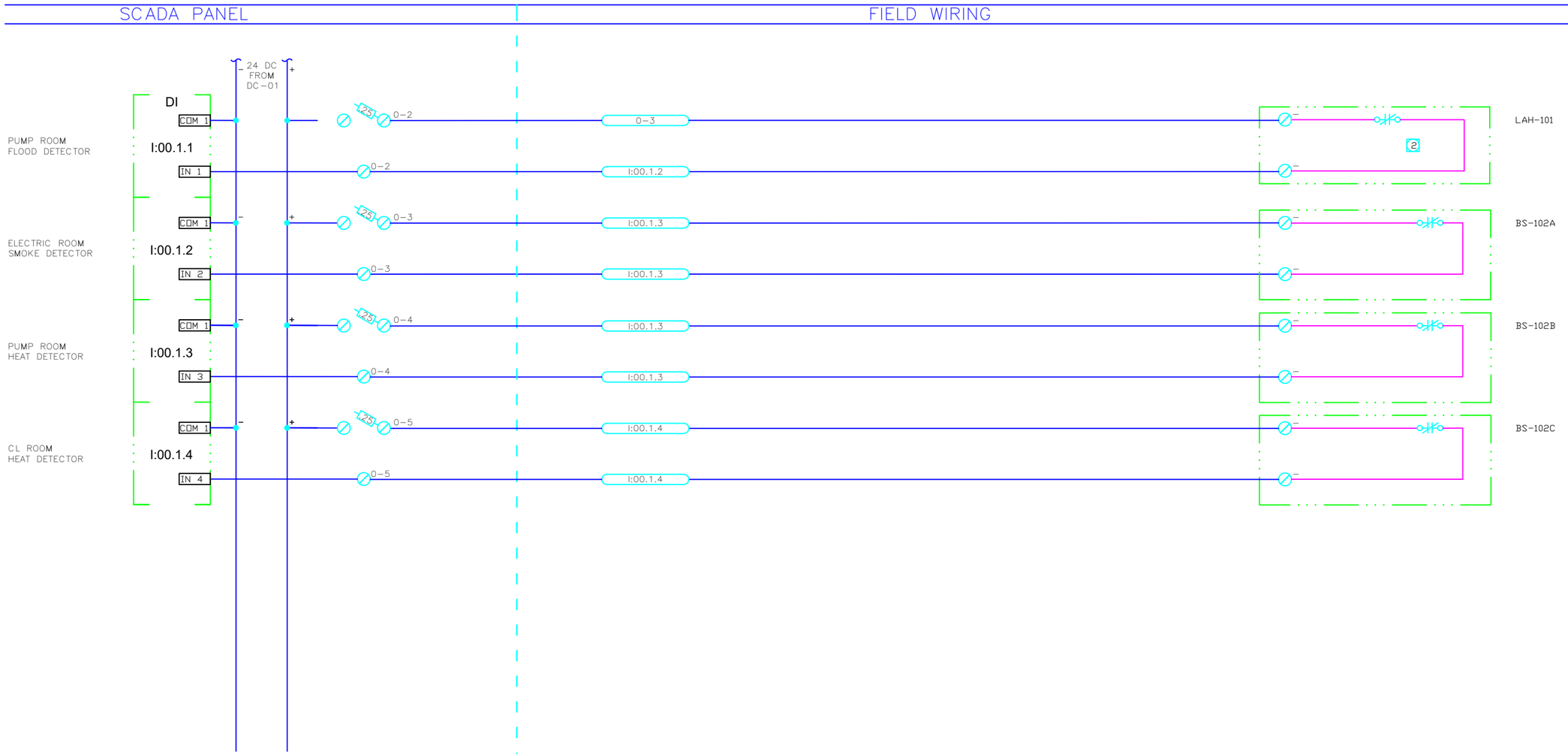
WATER DISTRIBUTION FACILITIES
BOGARD BOOSTER STATION
SCADA CONTROL PANEL
ANALOG OUTPUT

SCALE: NONE | DATE: 2/10/24 | GRID:

20-018

DRAWING
BBS
EI-09

SHEET - OF -



SPRUCE WELLHOUSE

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REVISIONS

RECORD DRAWING

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TECPRO
Wasilla, Alaska
907.348.1800

DESIGNED: CC DRAWN: CC
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FOR REFERENCE ONLY

CITY OF PALMER
PALMER, AK

WATER DISTRIBUTION FACILITIES
BOGARD BOOSTER STATION
SCADA CONTROL PANEL
FACILITY

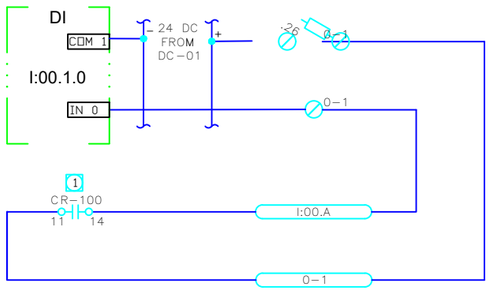
SCALE: NONE DATE: 2/10/24 GRID:

20-018

DRAWING
BBS
IL-01

SHEET – OF –

SCADA PANEL

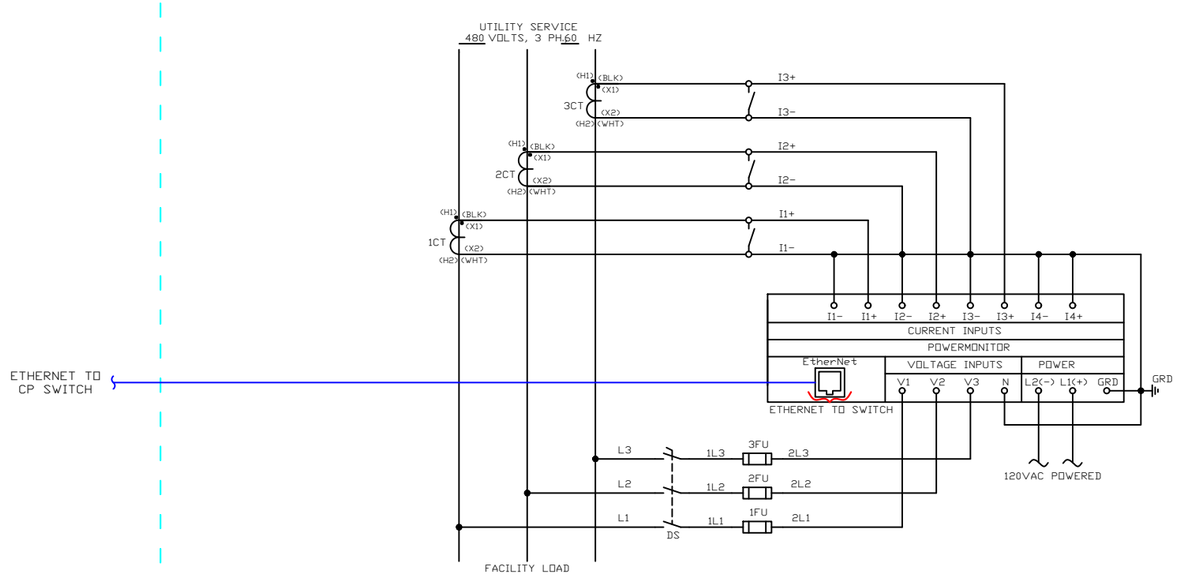


FACILITY POWER MONITOR

EACA-110

ETHERNET TO CP SWITCH

FIELD WIRING



SPRUCE WELLHOUSE

WARNING 1/2 — IF BAR IS NOT 1/2 INCH, ADJUST DRAWING SCALE ACCORDINGLY. FULL SIZE SCALE:

REV	DATE	DESCRIPTION	BY
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REVISIONS

RECORD DRAWING

Note: To be filled out on original drawings upon project completion.

1. DATA PROVIDED BY: _____
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   BY: _____ TITLE: _____
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2. DATA TRANSFERRED BY: _____
   COMPANY: _____
   DATE: _____
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   DATA TRANSFER CHECKED BY: _____
   COMPANY: _____
   BY: _____ TITLE: _____
   DATE: _____

TECPRO
Wasilla, Alaska
907.348.1800

DESIGNED: CC DRAWN: CC
CHECKED: CC JOB: BBS

FOR REFERENCE ONLY

CITY OF PALMER
PALMER, AK

WATER DISTRIBUTION FACILITIES
BOGARD BOOSTER STATION
SCADA CONTROL PANEL
AC POWER MONITORING

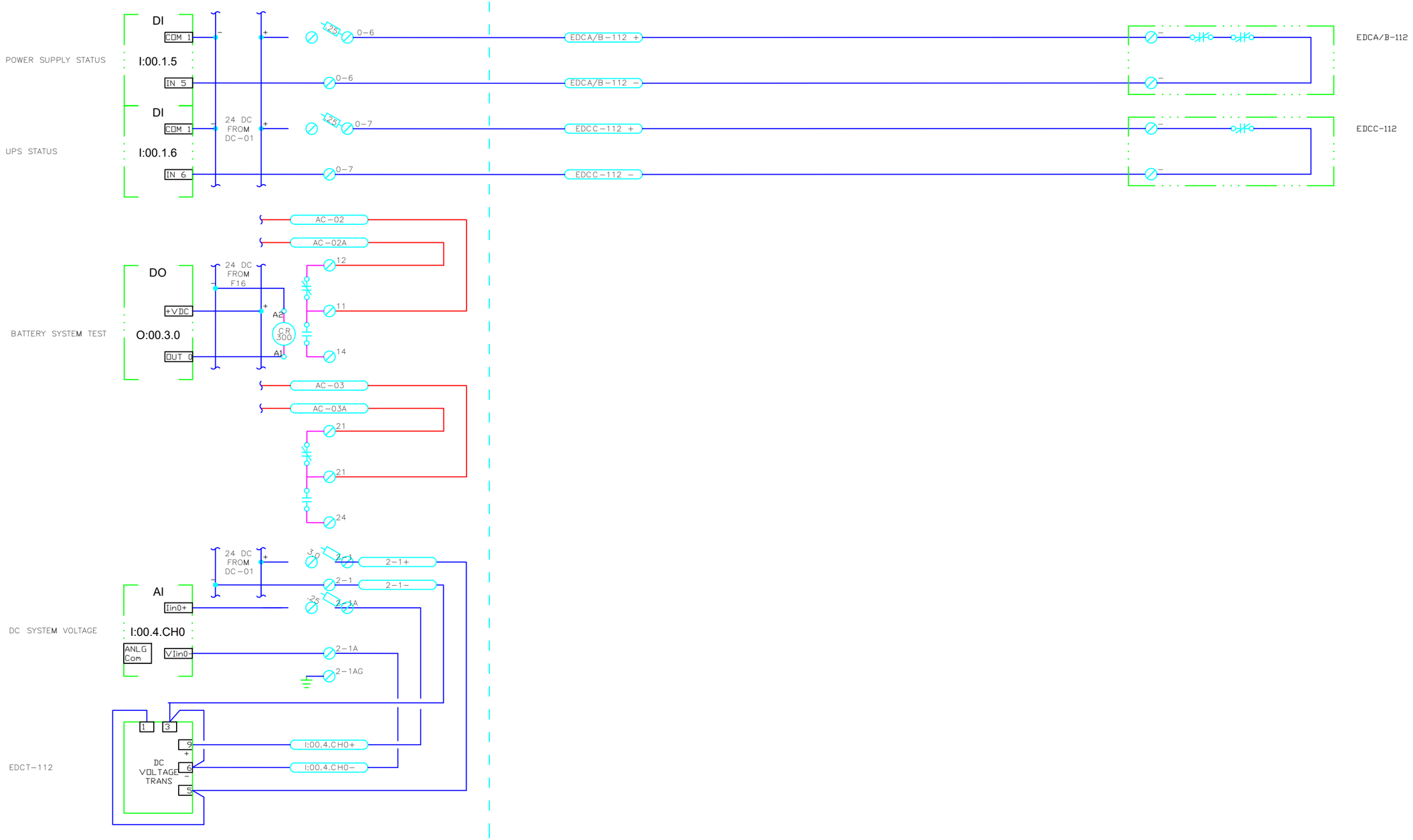
SCALE: NONE | DATE: 2/10/24 | GRID:
20-018

DRAWING
BBS
IL-02

SHEET – OF –

SCADA PANEL

FIELD WIRING



SPRUCE WELLHOUSE

WARNING 0 1/2 IF BAR IS NOT 1/2 INCH, ADJUST DRAWING SCALE ACCORDINGLY.

FULL SIZE SCALE:

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REVISIONS

RECORD DRAWING

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   COMPANY: _____
   BY: _____ TITLE: _____
   DATE: _____

TECPRO
Wasilla, Alaska
907.348.1800

DESIGNED: CC DRAWN: CC
CHECKED: CC JOB: BBS

FOR REFERENCE ONLY

CITY OF PALMER
PALMER, AK

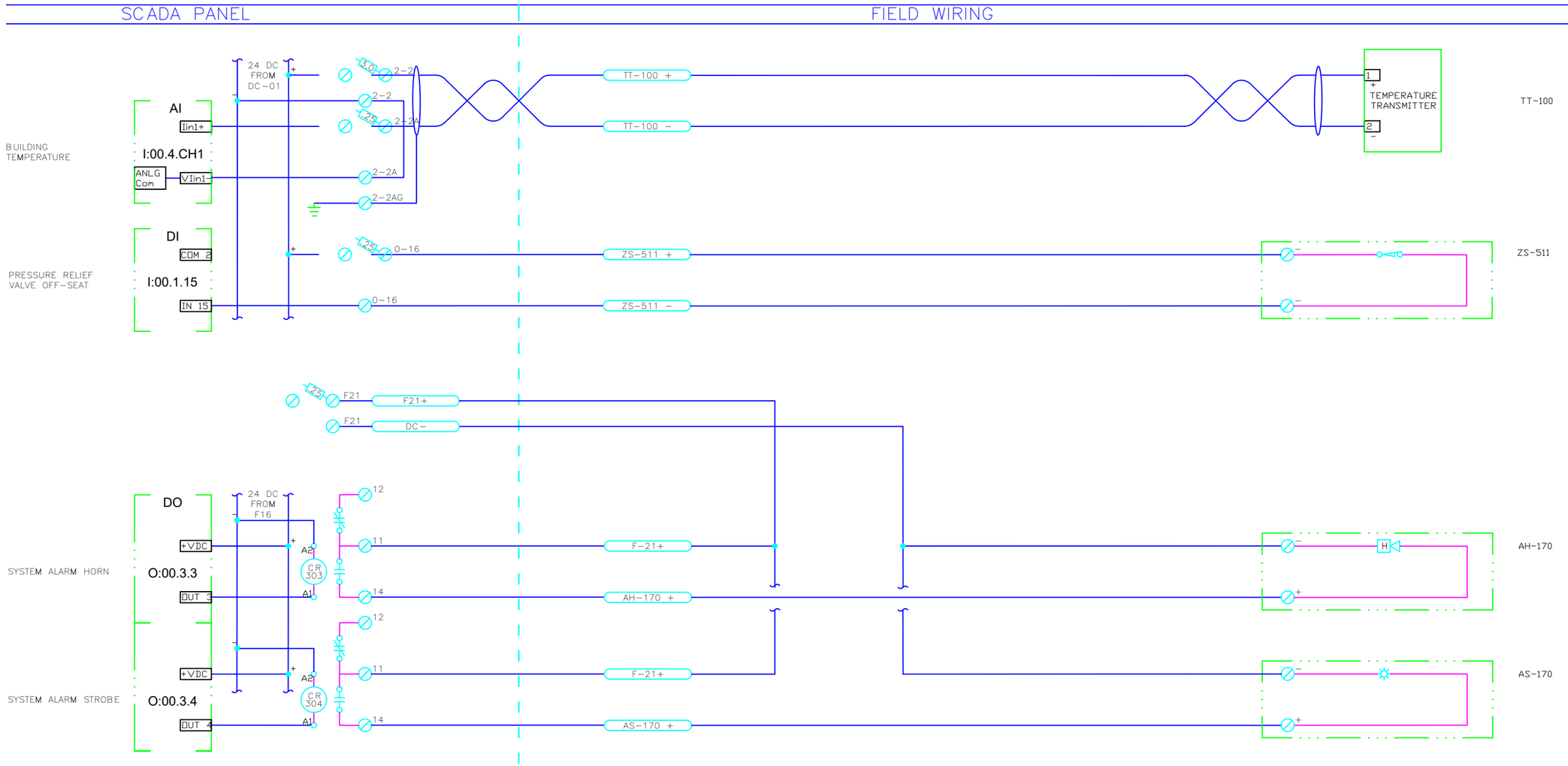
WATER DISTRIBUTION FACILITIES
BOGARD BOOSTER STATION
SCADA CONTROL PANEL
DC POWER MONITORING

SCALE: NONE | DATE: 2/10/24 | GRID:

20-018

DRAWING
BBS
IL-03

SHEET – OF –



0 WARNING 1/2

IF BAR IS NOT 1/2 INCH, ADJUST DRAWING SCALE ACCORDINGLY.

FULL SIZE SCALE:

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REVISIONS

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Wasilla, Alaska
907.348.1800

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CHECKED: CC JOB: BBS

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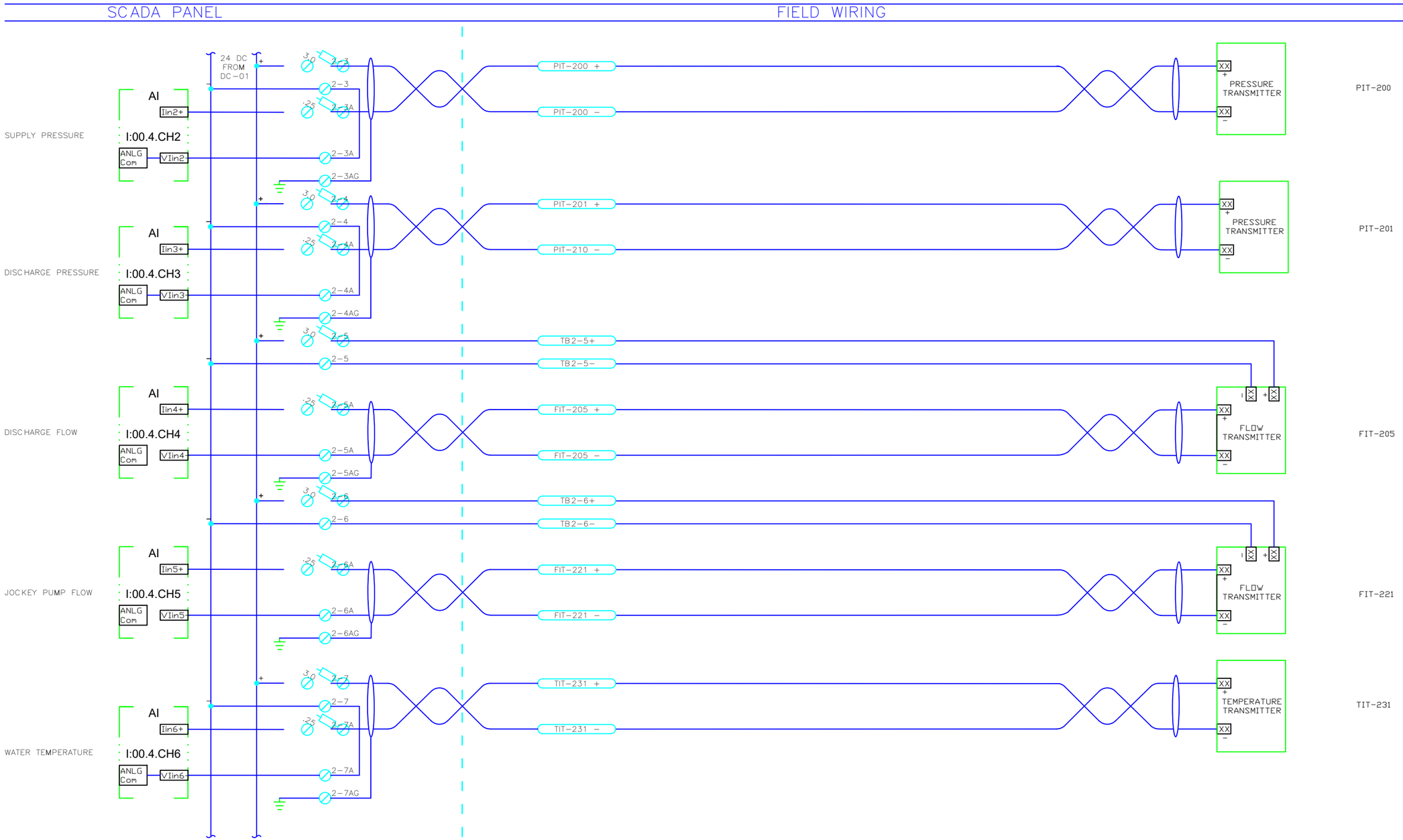
CITY OF PALMER
PALMER, AK

WATER DISTRIBUTION FACILITIES
BOGARD BOOSTER STATION
SCADA CONTROL PANEL
DC POWER MONITORING'

SCALE: NONE | DATE: 2/10/24 | GRID:

DRAWING
BBS
IL-04

SHEET – OF –



WARNING 0 1/2 IF BAR IS NOT 1/2 INCH, ADJUST DRAWING SCALE ACCORDINGLY. FULL SIZE SCALE:

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REVISIONS

RECORD DRAWING

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   COMPANY: _____
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   COMPANY: _____
   BY: _____ TITLE: _____
   DATE: _____

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Wasilla, Alaska
907.348.1800

DESIGNED: CC DRAWN: CC
CHECKED: CC JOB: BBS

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CITY OF PALMER
PALMER, AK

WATER DISTRIBUTION FACILITIES
BOGARD BOOSTER STATION
SCADA CONTROL PANEL
TREATED WATER

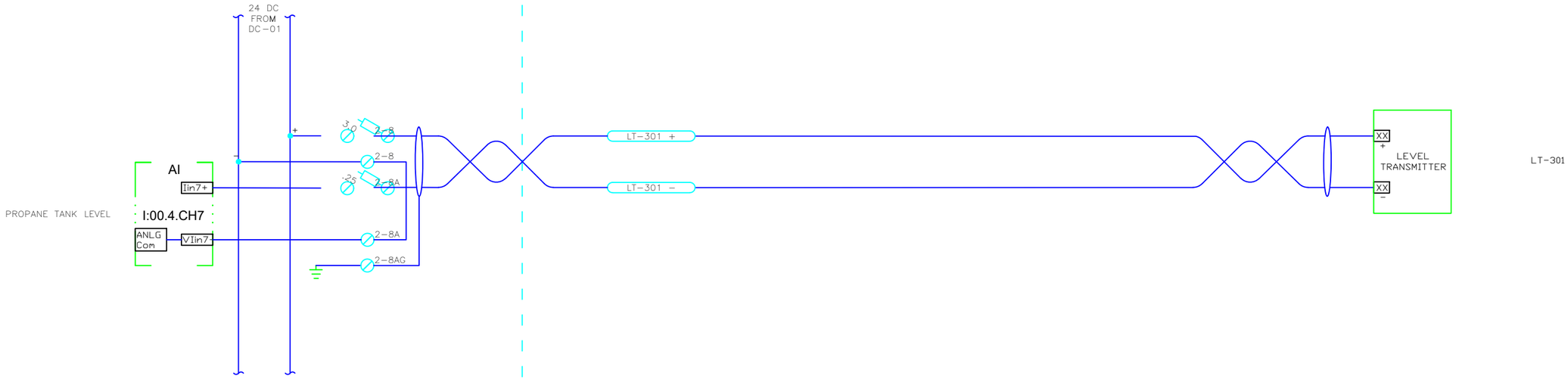
SCALE: NONE DATE: 2/10/24 GRID:

DRAWING
BBS
IL-05

SHEET – OF –

SCADA PANEL

FIELD WIRING



WARNING 0 1/2 IF BAR IS NOT 1/2 INCH, ADJUST DRAWING SCALE ACCORDINGLY.

FULL SIZE SCALE:

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REVISIONS

RECORD DRAWING

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   COMPANY: _____
   BY: _____ TITLE: _____
   DATE: _____

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907.348.1800

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CHECKED: CC JOB: BBS

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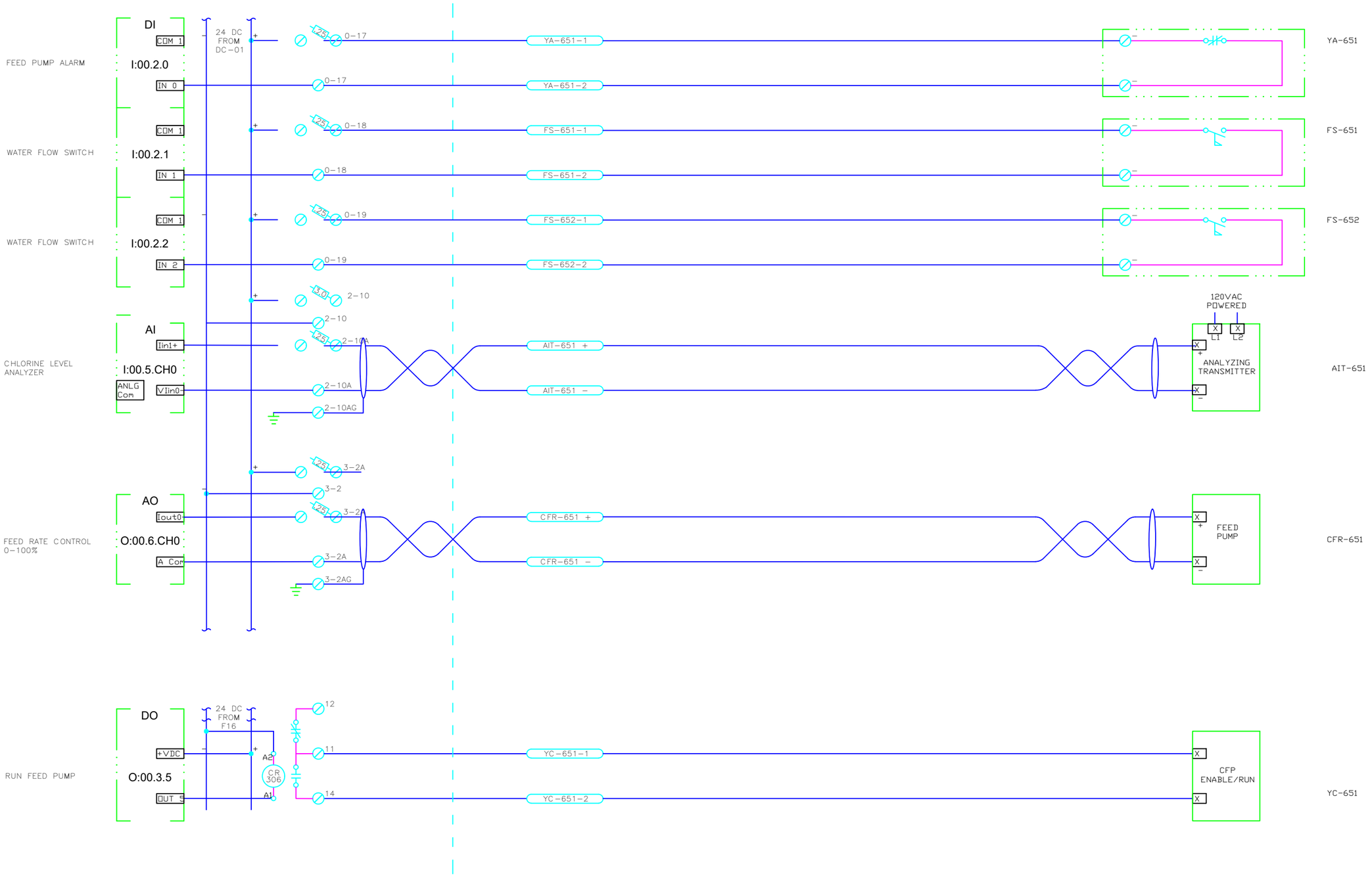
CITY OF PALMER
PALMER, AK

WATER DISTRIBUTION FACILITIES
BOGARD BOOSTER STATION
SCADA CONTROL PANEL
WELL 1

SCALE: NONE DATE: 2/10/24 GRID:

DRAWING
BBS
IL-06

SHEET – OF –



WARNING 1/2 — IF BAR IS NOT 1/2 INCH, ADJUST DRAWING SCALE ACCORDINGLY. FULL SIZE SCALE:

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REVISIONS

RECORD DRAWING

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   DATE: _____
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   DATA TRANSFER CHECKED BY: _____
   COMPANY: _____
   BY: _____ TITLE: _____
   DATE: _____

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Wasilla, Alaska
907.348.1800

DESIGNED: CC DRAWN: CC
CHECKED: CC JOB: BBS

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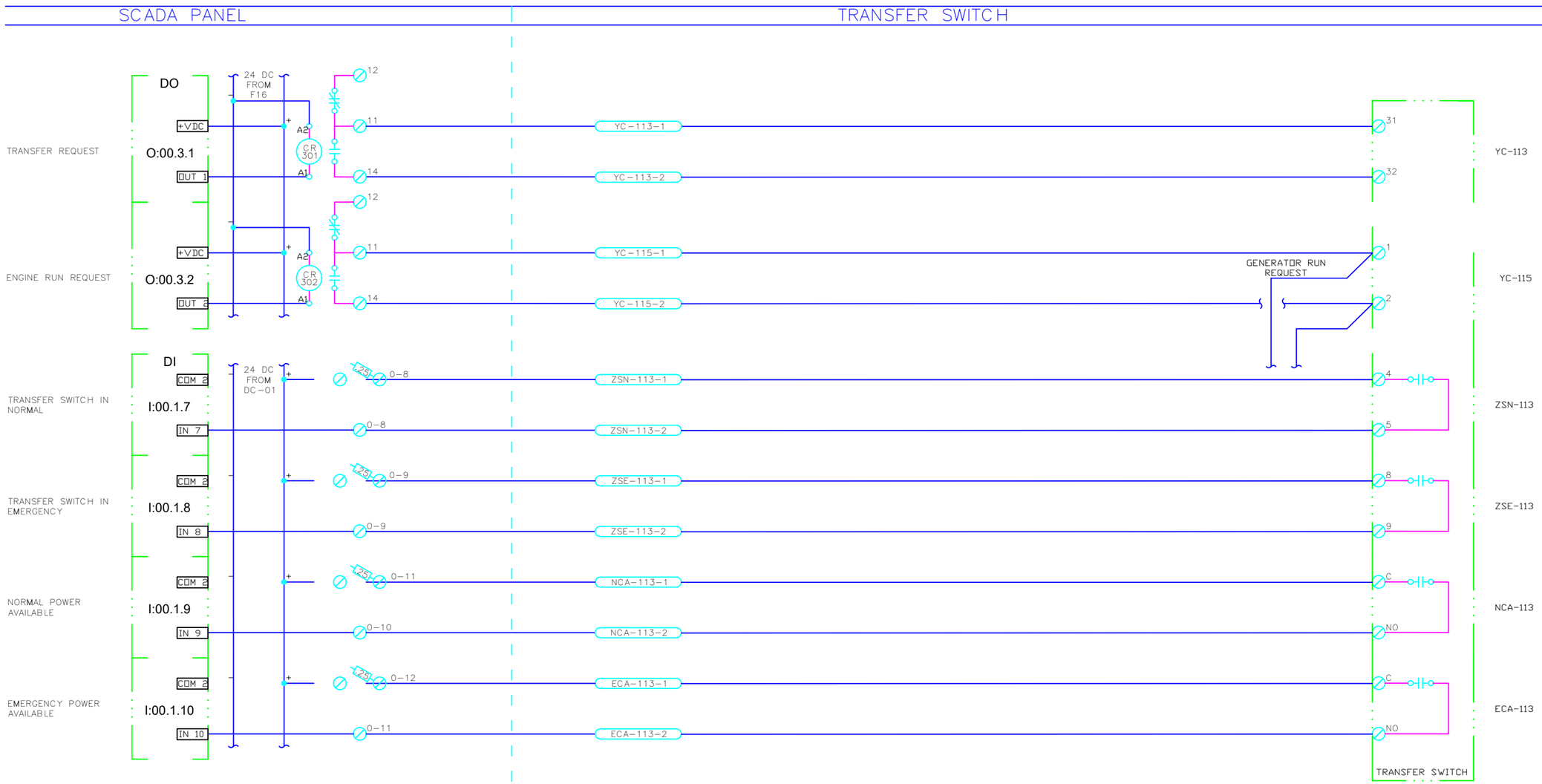
CITY OF PALMER
PALMER, AK

WATER DISTRIBUTION FACILITIES
BOGARD BOOSTER STATION
SCADA CONTROL PANEL
WELL 2

SCALE: NONE | DATE: 2/10/24 | GRID:

DRAWING
BBS
IL-07

SHEET – OF –



WARNING 0 1/2 — IF BAR IS NOT 1/2 INCH, ADJUST DRAWING SCALE ACCORDINGLY. FULL SIZE SCALE:

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REVISIONS

RECORD DRAWING

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   COMPANY: _____
   BY: _____ TITLE: _____
   DATE: _____

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Wasilla, Alaska
907.348.1800

DESIGNED: CC DRAWN: CC
CHECKED: CC JOB: BBS

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CITY OF PALMER
PALMER, AK

WATER DISTRIBUTION FACILITIES
BOGARD BOOSTER STATION
SCADA CONTROL PANEL
CHEMICAL FEED

SCALE: NONE | DATE: 2/10/24 | GRID:

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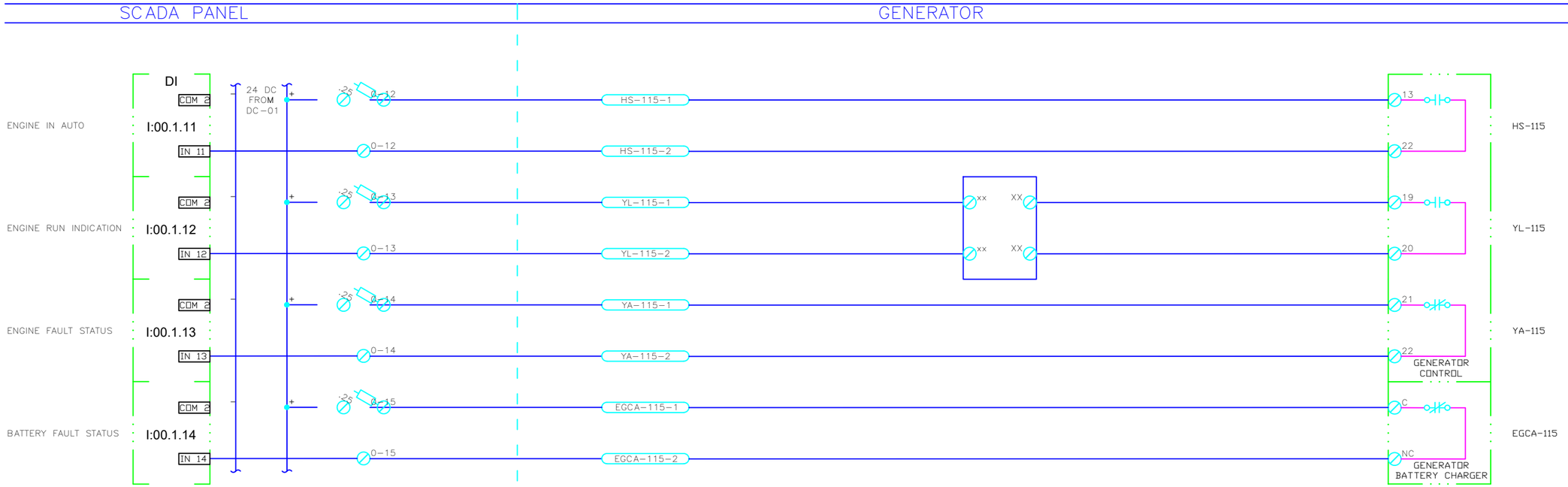
BBS
IL-08

SHEET – OF –



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REVISIONS

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   DATE: _____

TECPRO
Wasilla, Alaska
907.348.1800

DESIGNED: CC DRAWN: CC
CHECKED: CC JOB: BBS

FOR REFERENCE ONLY

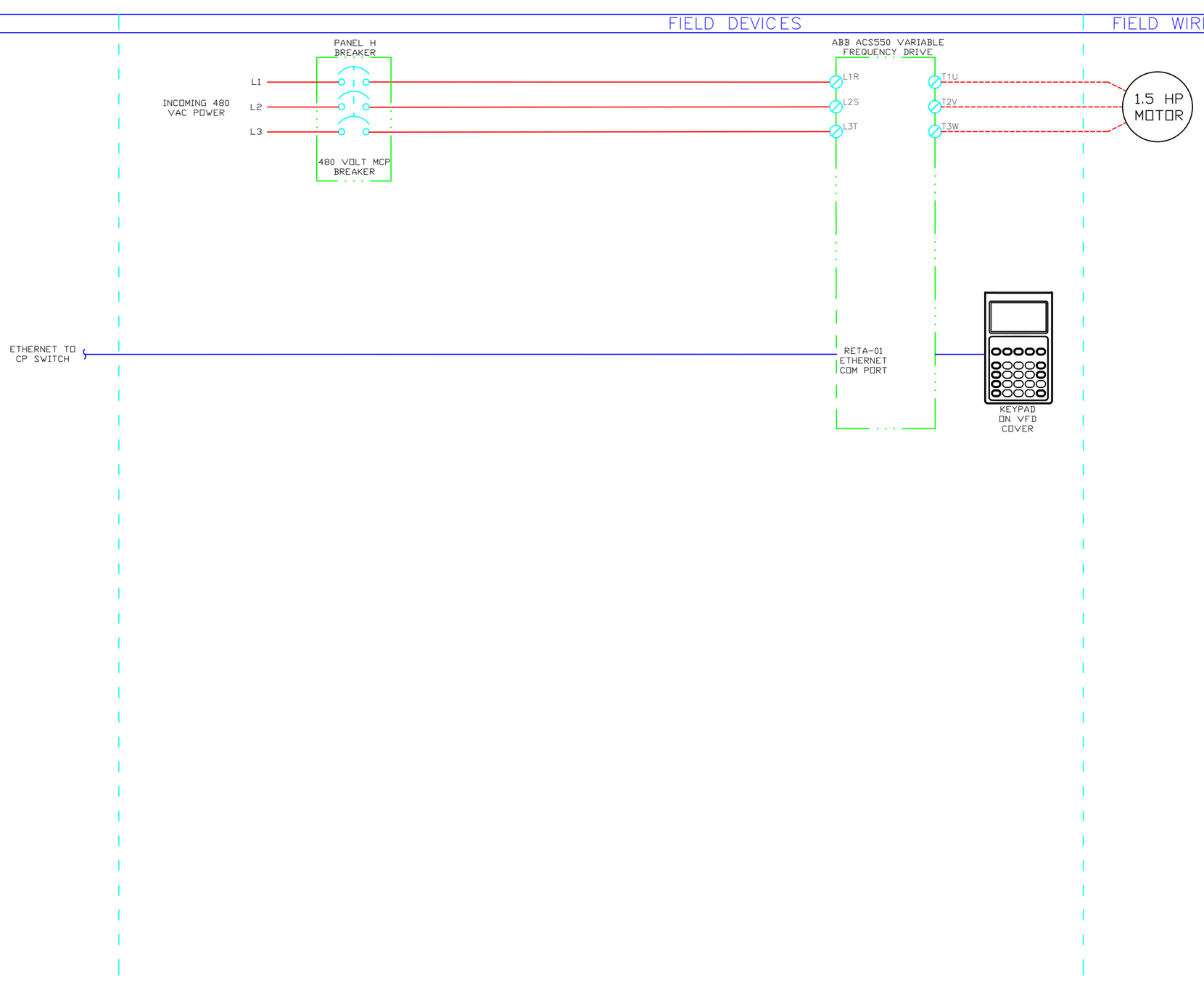
CITY OF PALMER
PALMER, AK

WATER DISTRIBUTION FACILITIES
BOGARD BOOSTER STATION
SCADA CONTROL PANEL
TRANSFER SW AND GENERATOR

SCALE: NONE | DATE: 2/10/24 | GRID:

DRAWING
BBS
IL-09

SHEET – OF –



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TECPRO
Wasilla, Alaska
907.348.1800

DESIGNED: CC DRAWN: CC
CHECKED: CC JOB: BBS

FOR REFERENCE ONLY

CITY OF PALMER
PALMER, AK

WATER DISTRIBUTION FACILITIES
BOGARD BOOSTER STATION
SCADA CONTROL PANEL
EXHAUST FAN

SCALE: NONE DATE: 2/10/24 GRID:

DRAWING
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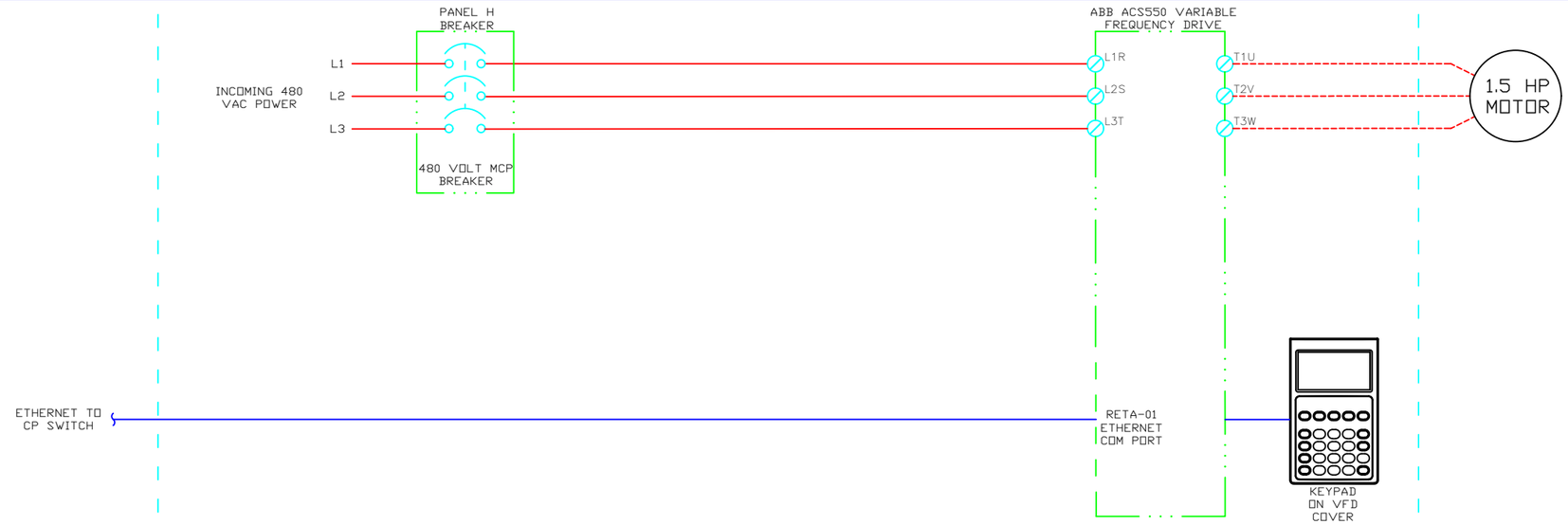
IL–10

SHEET – OF –



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TECPRO
Wasilla, Alaska
907.348.1800

DESIGNED: CC DRAWN: CC
CHECKED: CC JOB: BBS

FOR REFERENCE ONLY

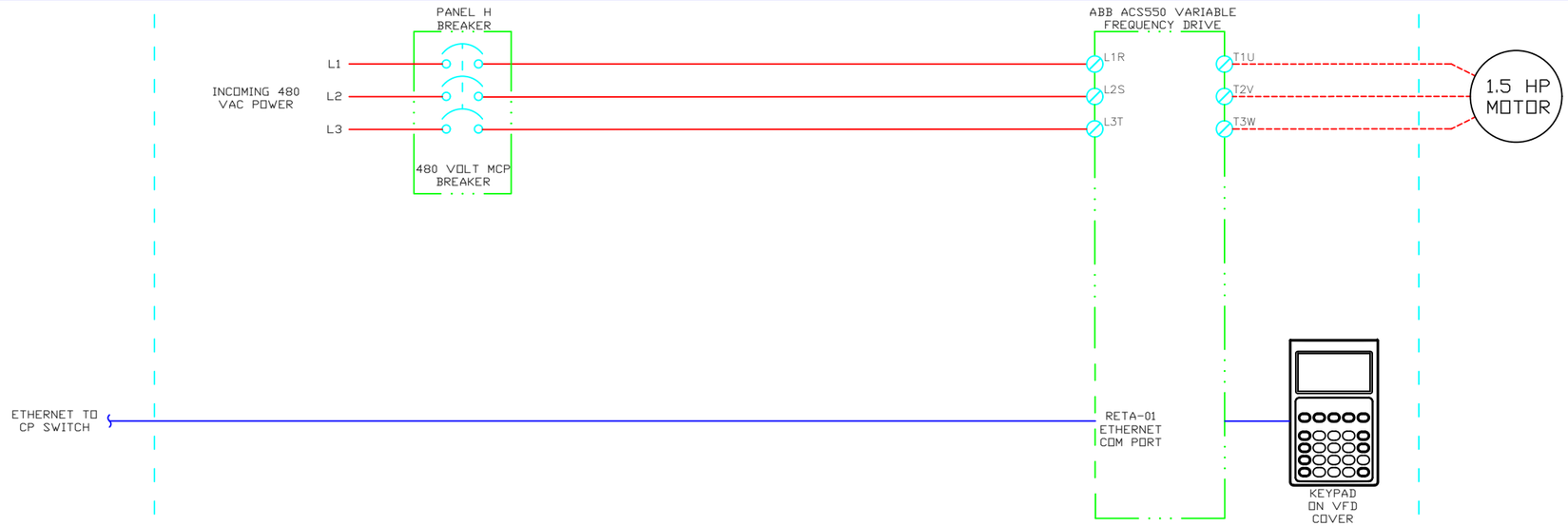
CITY OF PALMER
PALMER, AK

WATER DISTRIBUTION FACILITIES
BOGARD BOOSTER STATION
SCADA CONTROL PANEL
EXHAUST FAN

SCALE: NONE | DATE: 2/10/24 | GRID:

DRAWING
BBS
IL–11

SHEET – OF –



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TECPRO
Wasilla, Alaska
907.348.1800

DESIGNED: CC DRAWN: CC
CHECKED: CC JOB: BBS

FOR REFERENCE ONLY

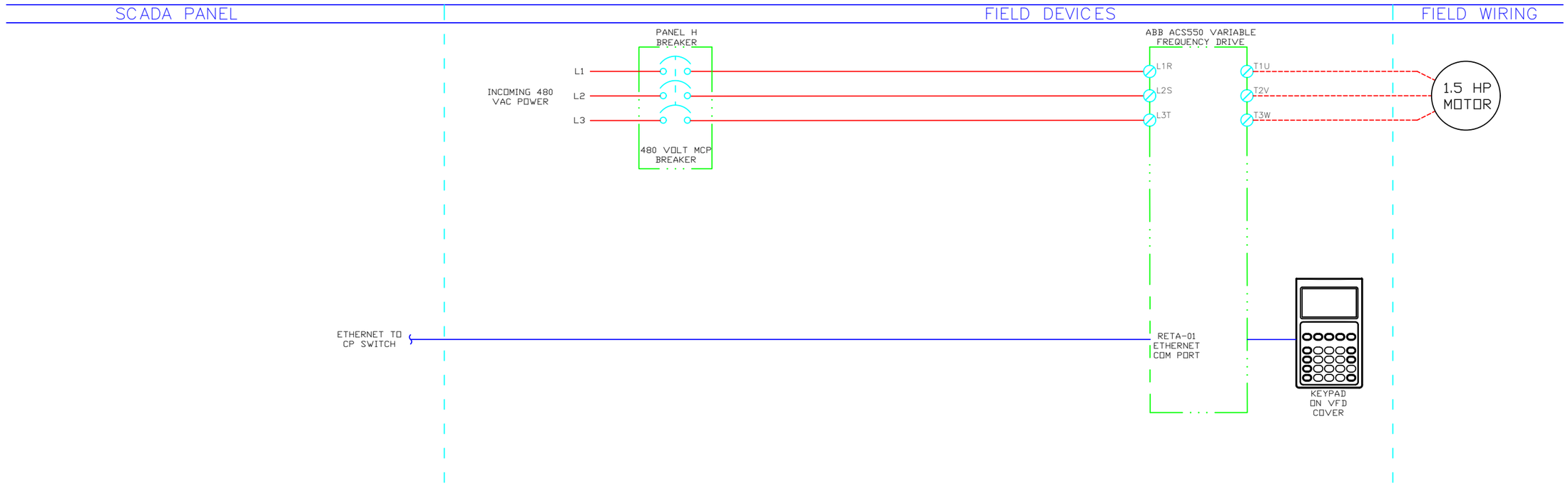
CITY OF PALMER
PALMER, AK

WATER DISTRIBUTION FACILITIES
BOGARD BOOSTER STATION
SCADA CONTROL PANEL
EXHAUST FAN

SCALE: NONE | DATE: 2/10/24 | GRID:

DRAWING
BBS
IL–12

SHEET – OF –



WARNING 0 1/2

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TECPRO
Wasilla, Alaska
907.348.1800

DESIGNED: CC DRAWN: CC
CHECKED: CC JOB: BBS

FOR REFERENCE ONLY

CITY OF PALMER
PALMER, AK

WATER DISTRIBUTION FACILITIES
BOGARD BOOSTER STATION
SCADA CONTROL PANEL
EXHAUST FAN

SCALE: NONE | DATE: 2/10/24 | GRID:

DRAWING
BBS
IL–13

SHEET – OF –