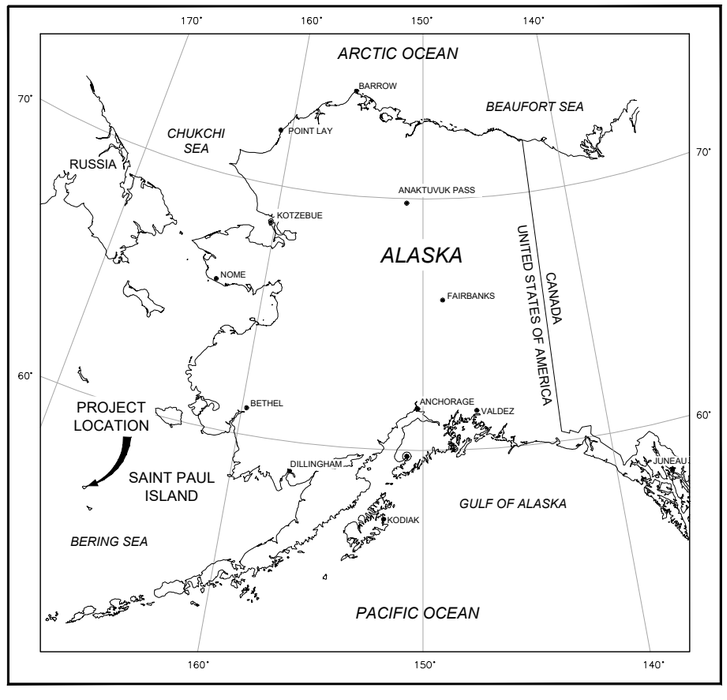
SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
100% SUBMITTAL - FEBRUARY 23, 2024

IN COOPERATION WITH THE STATE OF ALASKA
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
VILLAGE SAFE WATER PROGRAM
U.S. DEPARTMENT OF AGRICULTURE, RURAL
ECONOMIC AND COMMUNITY DEVELOPMENT



LOCATION MAP

PROJECT NUMBER (CONSULTANT) 165.030540 (VSW) 22-VSW-SNP-034
VSW PROJECT ENGINEER AARON WHEATALL
CONSTRUCTION FOREMAN –
FINAL DESIGN (DATE)
ADEC APPROVAL (DATE)
CONSTRUCTION PERIOD (FROM) – (TO) –
AS-BUILTS (DATE) –

STATE OF ALASKA
49 TH
Daniel E Nichols
No. CE 11012
REGISTERED PROFESSIONAL ENGINEER

100% SUBMITTAL

PROJECT STATUS: 100% SUBMITTAL
DATE: FEBRUARY 2024

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CONSULTANT

SHEET INDEX

SHEET NUMBER
G-000

VICINITY MAP

CIVIL LINEWORK LEGEND

EXISTING	PROPOSED	DESCRIPTION
		BUILDING
		EDGE OF CONCRETE
		EDGE OF GRAVEL
		UTILITY EASEMENT
U/G-E		BURIED ELECTRIC
X	X	FENCE
F		FUEL LINE
10		MAJOR CONTOURS
10		MINOR CONTOURS
		PROPERTY LINES
W	W	WATER PIPE
S	S	SEWER PIPE
FM	FM	SEWER FORCE MAIN
		ROADWAY EASEMENT

ABBREVIATIONS

AEC	ALEUT CORPORATION
ADEC	STATE OF ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION
ASTM	AMERICAN SOCIETY OF TESTING & MATERIALS
AVG	AVERAGE
AWG	AMERICAN WIRE GAUGE
C	CIVIL
CI	CAST IRON
CIR	CIRCLE
COMP	COMPARTMENT
DEMO	DEMOLITION
DIA, Ø	DIAMETER
DR	DRIVE
DRW	DRAWING
E	EAST, ELECTRICAL
EA	EACH
ELEV	ELEVATION
EO	ELECTRIC OVERHEAD
FM	FORCE MAIN
FL	FLANGE
FT	FEET
FPS	FEET PER SECOND
G	GENERAL
GPCD	GALLONS PER CAPITA DAY
GPD	GALLONS PER DAY
GPM	GALLONS PER MINUTE
HMWPE	HIGH MOLECULAR WEIGHT POLYETHYLENE
HDPE	HIGH DENSITY POLYETHYLENE
HP	HIGH POINT
ID	INSIDE DIAMETER
IN	INCH
LF	LINEAL FEET
LN	LANE
LP	LOW POINT
LT	LEFT
MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
MJ	MECHANICAL JOINT
N	NORTH
OC	OFF CENTER
OD	OUTSIDE DIAMETER
OFF	OFFSET
PER	PRELIMINARY ENGINEERING REPORT
PC	POINT OF CURVATURE
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
RD	ROAD
ROW	RIGHT OF WAY
RT	RIGHT
S	SOUTH
SEC	SECOND
SS	SANITARY SEWER
TDX	TANADGUSIX CORPORATION
TYP	TYPICAL
UG/E	UNDERGROUND ELECTRIC
VB	VALVE BOX
VSW	VILLAGE SAFE WATER PROGRAM
W	WATER
YRS	YEARS

SYMBOL LEGEND

EXISTING	PROPOSED	DESCRIPTION
		UTILITY POLE
		FIRE HYDRANT
		POST / BOLLARD
MH	MH	MANHOLE
E		ELECTRICAL JUNCTION
		SURVEY MONUMENT
		STREET LIGHT
		DEMOLITION AREAS
		FLOW DIRECTION
		CONCRETE PAD

DETAIL AND SECTION CALLOUT LEGEND

# / XX	DETAIL #, LOCATED ON SHEET XX
# / XX	SECTION #, LOCATED ON SHEET XX

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REVISIONS & ADDENDUMS

#	DATE	REMARKS

MANAGEMENT

DESIGNED	BJK
DRAWN	BJK
CHECKED	BJD
APPROVED	DEN
LAST EDIT	2/20/24
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SUBMITTAL	02/19/24

SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
LEGEND, ABBREVIATIONS & VICINITY MAP

DRAWING SCALE: AS SHOWN
PROJECT NUMBER: 165.030540
DRAWING FILE NAME: 030540-G-001.DWG

SHEET NUMBER
G-001

SCOPE OF WORK:

1. THIS PROJECT IS INITIATED BY THE CITY OF SAINT PAUL AND STATE OF ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION (ADEC) VILLAGE SAFE WATER PROGRAM (VSW) TO IMPROVE THE SAINT PAUL WASTEWATER COLLECTION SYSTEM.
2. BASED ON THE 2020 PRELIMINARY ENGINEERING REPORT (PER) COMPLETED BY POLARCONSULT ALASKA, THE COMMUNITY OF SAINT PAUL SELECTED OPTION (D) WHICH IS TO REPLACE THE EXISTING LIFT STATIONS AT ELLERMAN HEIGHTS AND SANDY LANE.
3. KUNA WILL PRODUCE CONSTRUCTION DOCUMENTS FOR THE REPLACEMENT OF THE EXISTING LIFT STATIONS AT ELLERMAN HEIGHTS AND SANDY LANE.
4. BOTH PROPOSED LIFT STATIONS WILL CONTAIN CONCRETE WET WELLS, ADJACENT TO A LIFT STATION FACILITY TO HOUSE PUMPS, INSTRUMENTATION, AND COMPONENTS.

COMMUNITY DATA:

THE CITY OF SAINT PAUL IS A SECOND CLASS CITY LOCATED ON SAINT PAUL ISLAND IN THE BERING SEA OFF THE WEST COAST OF ALASKA. IT IS APPROXIMATELY 750 MILES WEST OF ANCHORAGE AND IS ONLY ACCESSIBLE BY AIR OR SEA. THE COMMUNITY IS LOCATED ABOUT 3 MILES FROM THE 6500-FOOT LONG STATE-OWNED AIRPORT (FAA IDENTIFIER: SNP, IATA IDENTIFIER: PASN). THE CITY IS HOME TO APPROXIMATELY 360 RESIDENTS AND HOSTS 145 NON-SEASONAL HOMES. THERE ARE APPROXIMATELY 190 SERVICE CONNECTIONS THAT ARE SERVED BY THE TWO LIFT STATIONS. ACCORDING TO THE ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION, THE SAINT PAUL WASTEWATER COLLECTION SYSTEM IS CLASSIFIED AS CLASS 1. THE COMMUNITY OF SAINT PAUL OFTEN REFERS TO SANDY LANE AS "OLD TOWN" AS IDENTIFIED IN PREVIOUS REPORTS AND DRAWINGS.

THE FIRST SEWER SYSTEM WAS INSTALLED IN THE COMMUNITY OF SAINT PAUL PRIOR TO THE 1950'S. THE SEWER SYSTEM SERVED SANDY LANE. IN 1969, ELLERMAN HEIGHTS SEWER SYSTEM WAS INSTALLED. IN 1978, THE ELLERMAN HEIGHTS COLLECTION SYSTEM WAS EXPANDED, AND AGAIN IN 1985, WHEN THE EXISTING LIFT STATION WAS INSTALLED. THE SANDY LANE LIFT STATION WAS INSTALLED IN 1988.

SINCE THE ORIGINAL CONSTRUCTION, THE LIFT STATIONS HAVE DEGRADED DUE TO CORROSION OF THE STEEL TANKS, PIPING AND OBSOLETE CONTROL SYSTEMS. THE DRY WELLS DO NOT ALLOW EASE OF ACCESS TO THE INDIVIDUAL COMPONENTS AND ARE CONSIDERED CONFINED SPACES.

TDX (TANADGUSIX) CORPORATION OWNS THE LAND AT THE ELLERMAN AND SANDY LANE LIFT STATION SITES. THE ALEUT CORPORATION (AEC), THE REGIONAL NATIVE CORPORATION, OWNS THE SUBSURFACE RIGHTS TO THE LAND UNDERLYING BOTH THE ELLERMAN AND SANDY LANE LIFT STATION SITES. BOTH EXISTING LIFT STATIONS ARE WITHIN EASEMENTS PROVIDED TO THE CITY OF SAINT PAUL BY TDX AND ARE ON PREVIOUSLY DISTURBED PROPERTIES.

IMPROVEMENTS:

ALL PROPOSED WORK WILL FIT WITHIN THE EXISTING EASEMENT AREA AND NO ADDITIONAL EASEMENTS WOULD BE REQUIRED.

THE IMPROVED SYSTEM WILL INCREASE RELIABILITY AND CONFIDENCE TO CUSTOMERS AND WILL SIGNIFICANTLY REDUCE POTENTIAL FOR SYSTEM INTERRUPTIONS DURING MAINTENANCE. THE NEW LIFT STATIONS WILL ALSO PROVIDE LESS-HAZARDOUS OPERATING CONDITIONS FOR MAINTENANCE PURPOSES.

REFERENCES:

1. 2020 PRELIMINARY ENGINEERING REPORT FOR CITY OF SAINT PAUL WASTEWATER LIFT STATION, POLARCONSULT ALASKA, FEBRUARY 2020.
2. 2005 REPORT IS ASSUMED TO HAVE BEEN COMPLETED BY POLARCONSULT ALASKA.

DESIGN CRITERIA:

1. SYSTEM NAME: SAINT PAUL WASTEWATER COLLECTION SYSTEM.
2. DESIGN AND CONSTRUCTION MUST MEET THE STATE OF ALASKA DOMESTIC WASTEWATER TREATMENT AND DISPOSAL STANDARDS (18 AAC 72). CONTRACTOR WILL COMPLY WITH REQUIREMENTS OF ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION'S APPROVAL TO CONSTRUCT. CONTRACTOR WILL CONTACT ENGINEER OF RECORD WITH ANY VARIATIONS FROM THE STANDARDS OR APPROVAL.

LIFT STATION DESIGN CRITERIA	ELLERMAN HEIGHTS		SANDY LANE	
	2004 FLOWS	DESIGN	2004 FLOWS	DESIGN
AVERAGE INFLOW (GPM)	15.0	19.0	17.2	12.8
PEAK INFLOW (GPM)	46.4	58.9	51.6	39.8
INFLOW PEAKING FACTOR	3.09	3.10	3.00	3.11
PERIOD OF RECORD (DAYS)	5.80	-	1.04	-
PUMP RUN TIMES	0.29	1.09	0.12	1.07
AVERAGE PUMP RATE (GPM)	46.10	280	121.1	310
PEAK PUMP RATE (GPM)	128.40	560	203.7	620

TABLE NOTES:

1. WASTEWATER FLOW FOR FULL DEVELOPMENT SCALED FROM EXISTING DEVELOPMENT, WITH CONSTANT PER CAPITA WASTEWATER GENERATION, TO FULL DEVELOPMENT UNDER CURRENT ZONING.
2. PEAKING FACTOR OF 3.1 TIMES AVERAGE FLOW WAS OBSERVED IN ELLERMAN LIFT STATION AND USED FOR ESTIMATING FLOWS IN ALL SERVICE AREAS DUE TO SIGNIFICANTLY LONGER PERIOD OF RECORD.
3. TABLE FROM 2020 PER, TABLE 4-1. THESE ARE THE RECOMMENDED DESIGN CRITERIA.

DESCRIPTION	UNITS	LIFT STATION	
		ELLERMAN HEIGHTS	SANDY LANE
RESIDENTIAL POPULATION DISTRIBUTION	PERSON	231	159
COMMERCIAL POPULATION DISTRIBUTION	PERSON	60	30
APPROXIMATE POPULATION AT PLANTS	PERSON	0	0
EXISTING ESTIMATED DAILY FLOW	GPD	27351	18488
EXISTING AVERAGE DAILY FLOWS	GPM	19.0	12.8
PEAKING FACTOR	-	3.1	3.1
EXISTING PEAK FLOW	GPM	58.9	39.8
FUTURE DAILY FLOWS	GPD	28171	19043
FUTURE AVERAGE LIFT STATION FLOW	GPM	19.6	13.2
FUTURE PEAK LIFT STATION FLOW	GPM	60.6	41.0

TABLE NOTES:

1. PER CAPITA WASTEWATER FLOW OF RESIDENTIAL IS 100 GPCD AND COMMERCIAL IS 50 GPCD. THESE ARE THE MEASURED VALUES FROM THE 2005 REPORT.

LIFT STATION	ELLERMAN HEIGHTS		SANDY LANE	
	VALUE	UNIT	VALUE	UNIT
RECOMMENDED WET WELL DIAMETER:	9	FEET	9	FEET
PUMPED DEPTH REASONABLE GROWTH	4	FEET	4	FEET
CYCLE TIME (AVG/PEAK) REASONABLE GROWTH	97	MINUTES	105	MINUTES
STATIC HEAD	9.7	FEET	18.7	FEET
RECOMMENDED PUMP SIZE	121	GPM	123	GPM
FORCE MAIN DIAMETER	6	INCHES	6	INCHES
FORCE MAIN LENGTH	2901	FEET	1195	FEET
VOLUME PUMPED	1903	GALLONS	1391	GALLONS
% OF LINE VOLUME PUMPED	63%	-	100%	
FORCE MAIN LIQUID VELOCITY	4.00	FT/SEC	4.43	FT/SEC

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REVISIONS & ADDENDUMS

#	DATE	REMARKS

MANAGEMENT

DESIGNED	BJK
DRAWN	BJK
CHECKED	BJD
APPROVED	DEN
LAST EDIT	2/19/24
PLOT DATE	2/19/24
SUBMITTAL	02/19/24

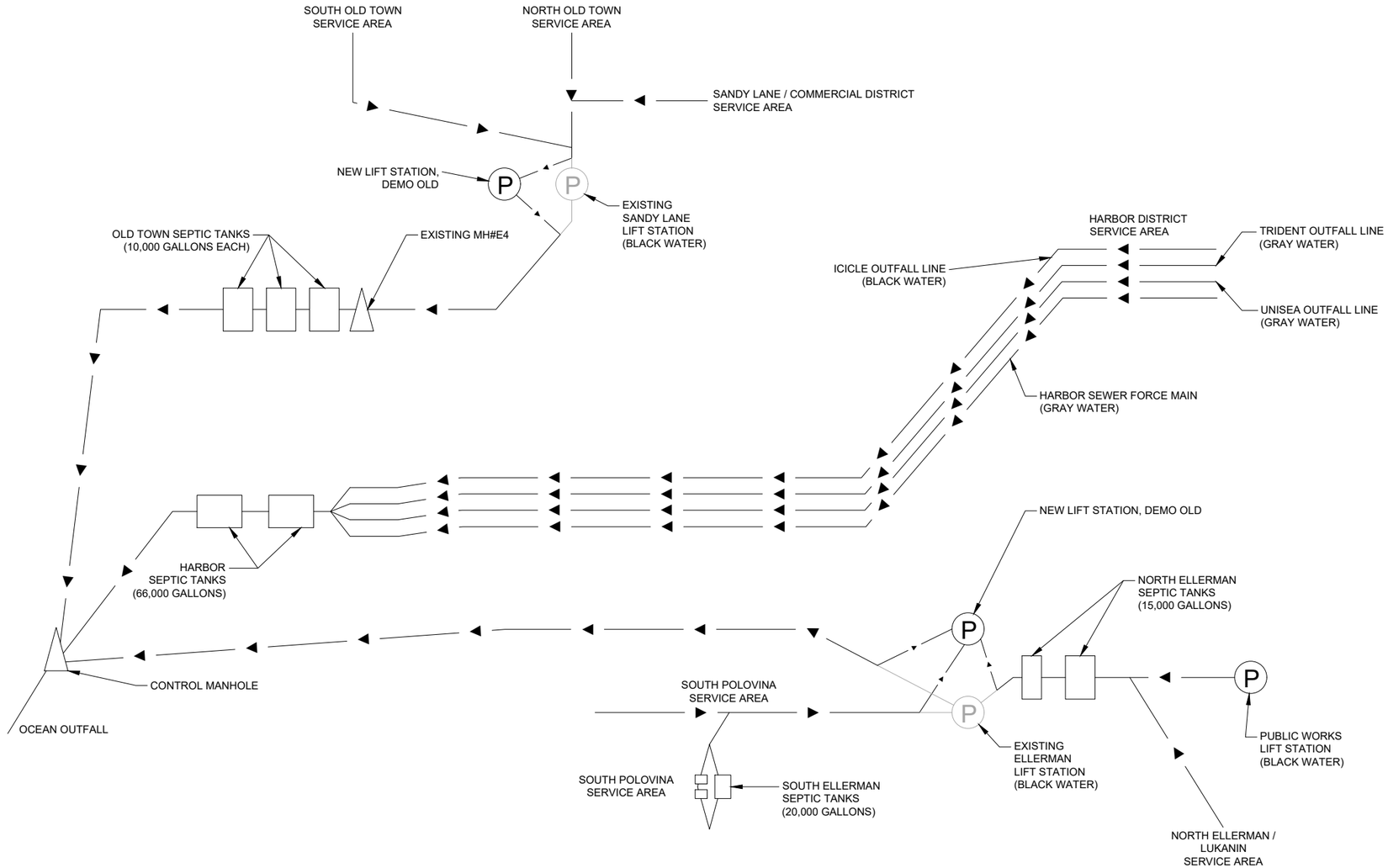
SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
SCOPE OF WORK & DESIGN CRITERIA

DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: 030540-G-002.DWG
PROJECT NUMBER: 165.030540

SHEET NUMBER
G-002

NOTES:

1. SEWER SYSTEM SCHEMATIC CONTAINS BOTH EXISTING AND NEW SEWER SYSTEMS FOR INFORMATIVE PURPOSES ONLY.
2. THE EXISTING, DENOTED AS SHADED, ARE TO BE REMOVED. SEE DEMOLITION SHEET (C-200).



1 SEWER SYSTEM PROCESS DIAGRAM
SCALE: N.T.S.

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SUBMITTAL	02/19/24

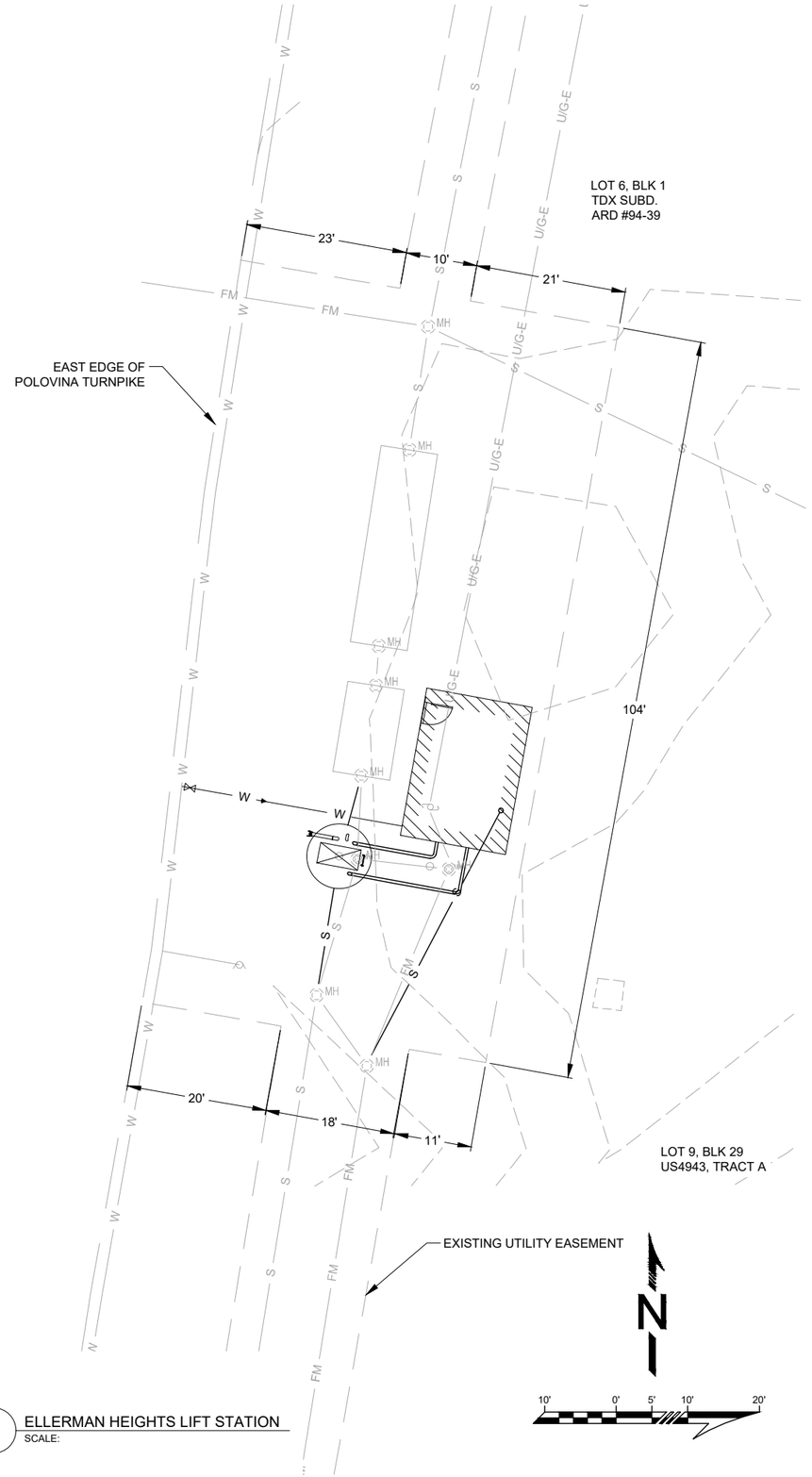
SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
SEWER SYSTEM SCHEMATIC

DRAWING SCALE: AS SHOWN
PROJECT NUMBER: 165.030540
DRAWING FILE NAME: 030540-G-003.DWG

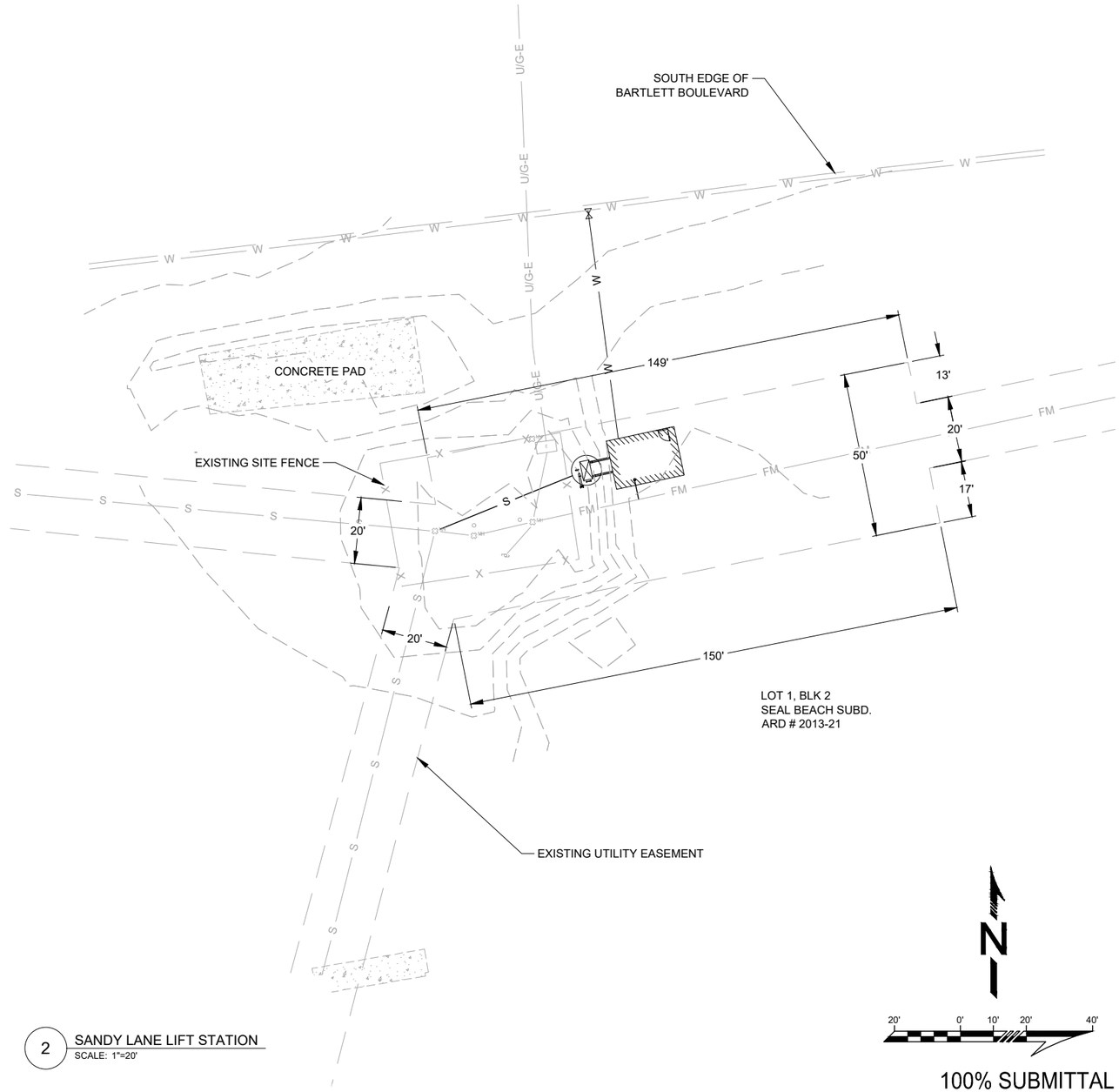
SHEET NUMBER
G-003

NOTES:

1. CONTOUR LINES SHOWN ARE FROM FIELD COLLECTED SURVEY.
2. CONTOUR INTERVALS ARE 1 FOOT.
3. HORIZONTAL DATUM IS ALASKA STATE PLANE, ZONE 9, NAD83, U.S. SURVEY FEET.
4. GRID NORTH WAS HELD AS PER ALASKA STATE PLANE ZONE 9, NAD83.
5. THE VERTICAL CONTROL IS BASED ON THE RECORD VALUES PROVIDED FOR THE MONUMENT IN THE PREVIOUS SURVEY.
6. NO ADDITIONAL LAND IS REQUIRED FOR THIS PROJECT.
7. ELLERMAN EASEMENTS FROM UNRECORDED "FINAL SETTLEMENT AGREEMENT" SECTION 3.2, DATED SEPTEMBER 12, 2013 IN EXHIBIT 26, DATED MARCH 29, 2013.
8. SANDY LANE EASEMENT: NOVEMBER 24, 1987, ALEUTIAN RECORDING DISTRICT, BOOK 27, PAGE 391.



1 ELLERMAN HEIGHTS LIFT STATION
SCALE:



2 SANDY LANE LIFT STATION
SCALE: 1"=20'

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CASEY W. WITT
R87356
REGISTERED PROFESSIONAL LAND SURVEYOR

REVISIONS & ADDENDUMS

#	DATE	REMARKS

MANAGEMENT	
DESIGNED	BJK
DRAWN	BJK
CHECKED	TM
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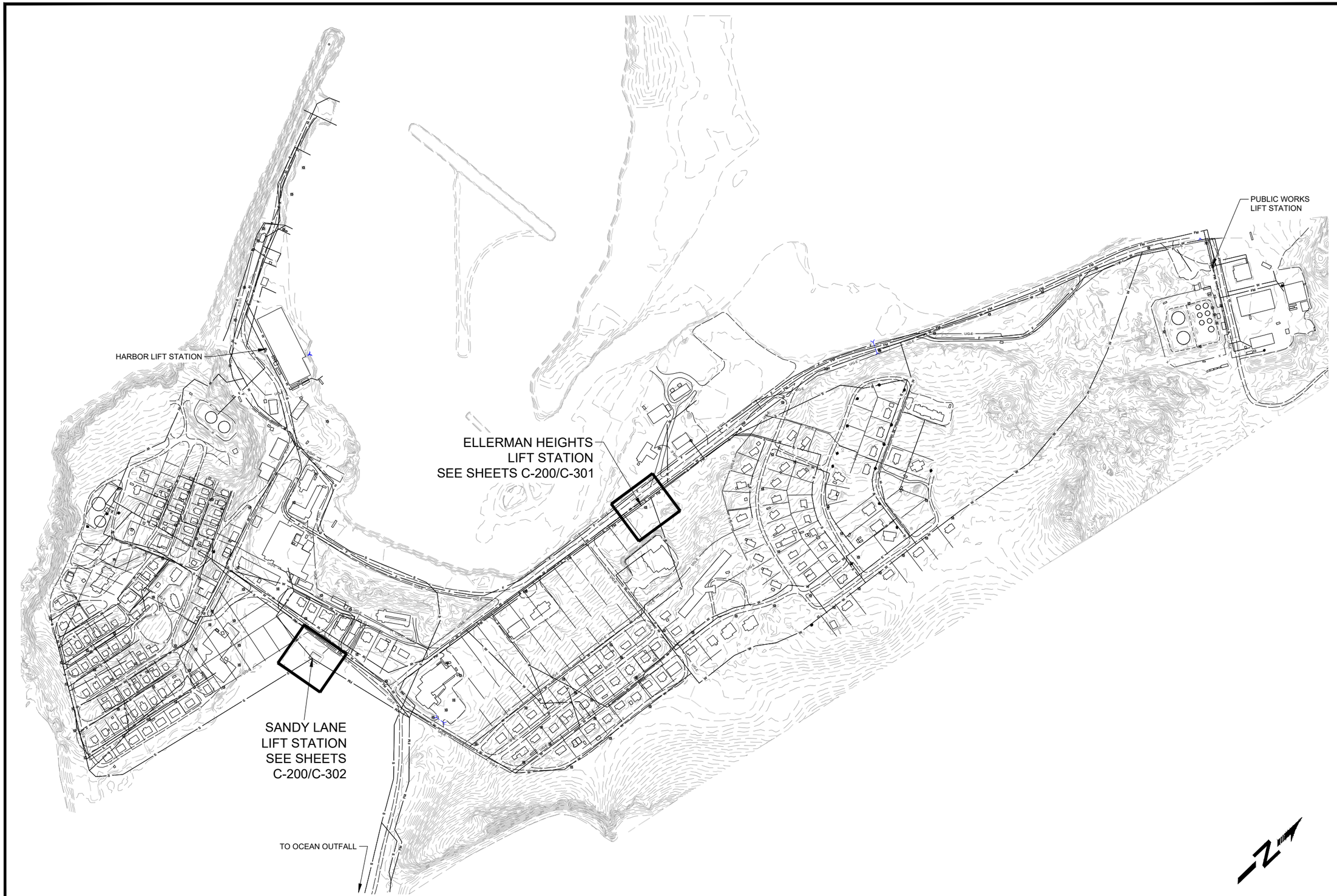
SUBMITTAL	02/19/24

SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
RIGHT-OF-WAY MAPS

DRAWING SCALE: AS SHOWN
PROJECT NUMBER: 165.030540
DRAWING FILE NAME: 030540-V-100.DWG

SHEET NUMBER
V-100



250' 0' 125' 250' 500'

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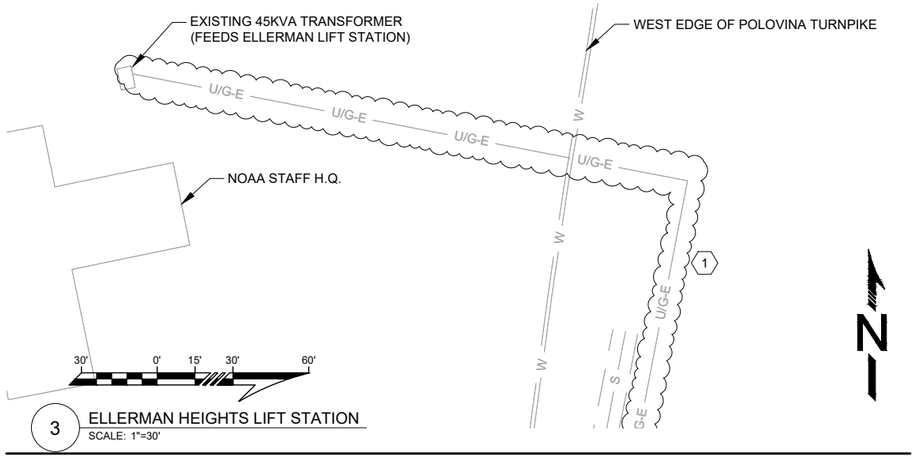
SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
SITE PLAN & TOPOGRAPHY

DRAWING SCALE: AS SHOWN

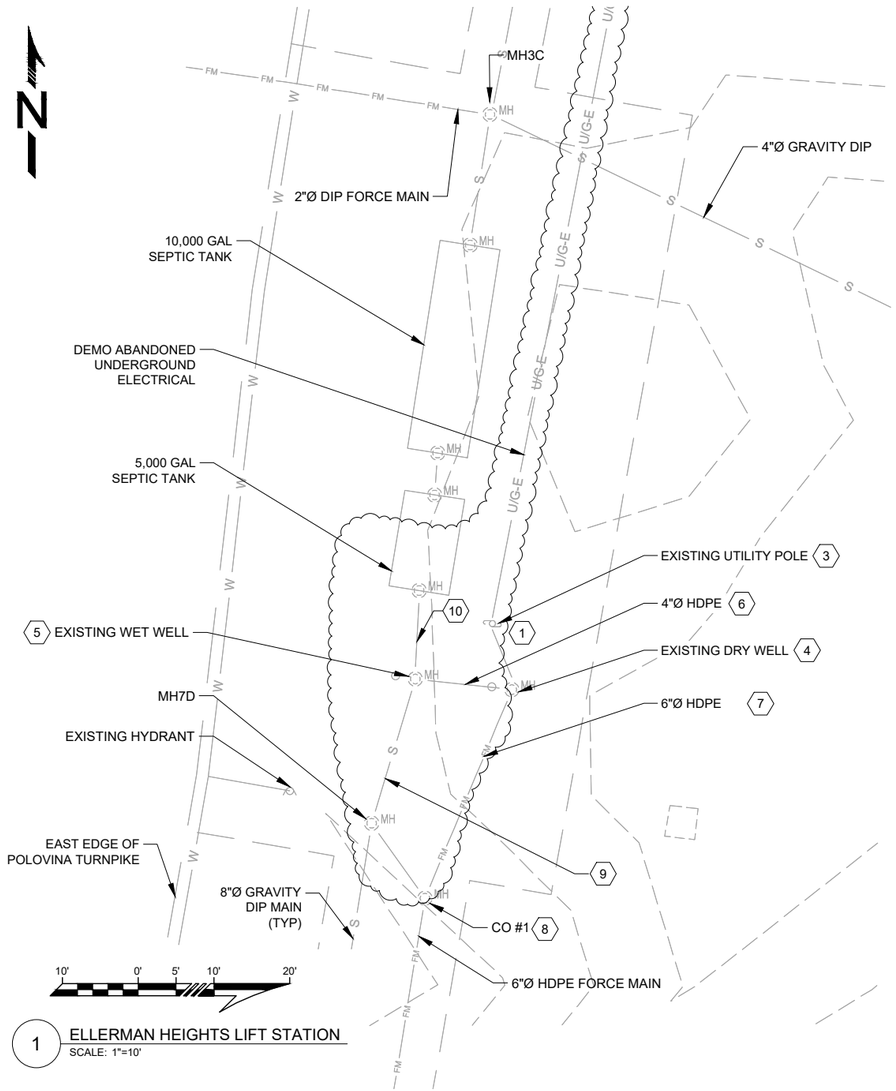
PROJECT NUMBER: 165.030540

DRAWING FILE NAME: 030540-C-100.DWG

SHEET NUMBER
C-100



3 ELLERMAN HEIGHTS LIFT STATION
SCALE: 1"=30'



1 ELLERMAN HEIGHTS LIFT STATION
SCALE: 1"=10'

DEMOLITION NOTES: (##)

ELLERMAN HEIGHTS

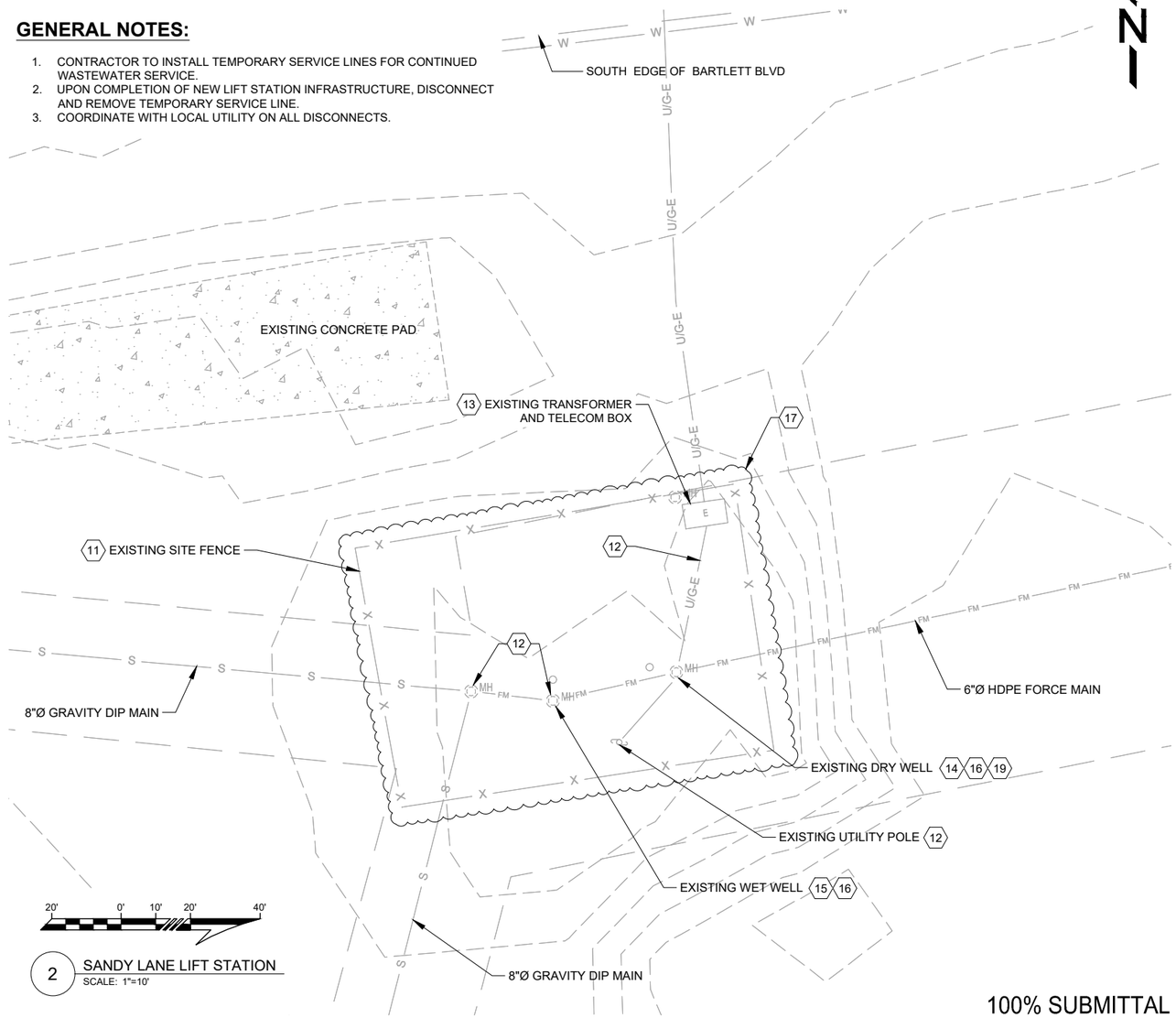
1. ABANDON EXISTING LIFT STATION UNDERGROUND WIRING FROM TRANSFORMER TO THE LIFT STATION ELECTRICAL SERVICE, APPROXIMATELY 350 FEET.
2. COORDINATE WITH THE LOCAL UTILITY AND THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION (NOAA) SITE TO TURN OFF THE TRANSFORMER POWER TO DISCONNECT THE EXISTING LIFT STATION CONDUCTORS.
3. REMOVE UTILITY POLE AND ALL EQUIPMENT. REMOVE ELECTRICAL WIRING BETWEEN UTILITY POLE, DRY WELL, AND WET WELL.
4. REMOVE DRY WELL, INCLUDING ALL PIPING, PUMPS, WIRING, AND PUMPS.
5. REMOVE WET WELL, INCLUDING ALL PIPING, FLOATS, AND WIRING.
6. REMOVE PIPING BETWEEN DRY WELL AND WET WELL.
7. REMOVE PIPING BETWEEN DRY WELL AND CO#1.
8. REMOVE VALVING IN CO #1.
9. REMOVE PIPING BETWEEN MH7D AND WET WELL.
10. REMOVE PIPING BETWEEN SEPTIC TANK AND WET WELL.

SANDY LANE

11. REMOVING ALL FENCING, INCLUDING POST AND FOOTINGS.
12. REMOVE ALL ABOVEGROUND AND BELOWGROUND WIRING BETWEEN TRANSFORMER, UTILITY POLE, DRY WELL, AND WET WELL. REMOVE UTILITY POLE AND ALL EQUIPMENT.
13. COORDINATE WITH LOCAL UTILITY TO TURN OFF TRANSFORMER POWER DURING DEMO.
14. REMOVE ALL PIPING, PUMPS, WIRING, AND PUMPS FROM DRY WELL.
15. REMOVE ALL PIPING, FLOATS, AND WIRING FROM WET WELL.
16. ABANDONED WET WELL AND DRY WELL IN PLACE. WASHDOWN AND VACUUM WET WELLS. REMOVE LIDS AND GRADE RINGS TO 12-INCHES BELOW GRADE. FILL IN PIPES AND MANHOLES WITH COMPACTED BORROW MATERIAL.
17. REMOVE LARGE RIP RAP WHEN ENCOUNTERED AND STORE FOR USE ON PAD EXPANSION.
18. CAP AND ABANDON IN PLACE PIPING BETWEEN MH17F, WET WELL, AND DRY WELL.
19. CAP AND ABANDON IN PLACE FORCE MAIN PIPING BETWEEN DRY WELL AND NEW LIFT STATION.

GENERAL NOTES:

1. CONTRACTOR TO INSTALL TEMPORARY SERVICE LINES FOR CONTINUED WASTEWATER SERVICE.
2. UPON COMPLETION OF NEW LIFT STATION INFRASTRUCTURE, DISCONNECT AND REMOVE TEMPORARY SERVICE LINE.
3. COORDINATE WITH LOCAL UTILITY ON ALL DISCONNECTS.



2 SANDY LANE LIFT STATION
SCALE: 1"=10'

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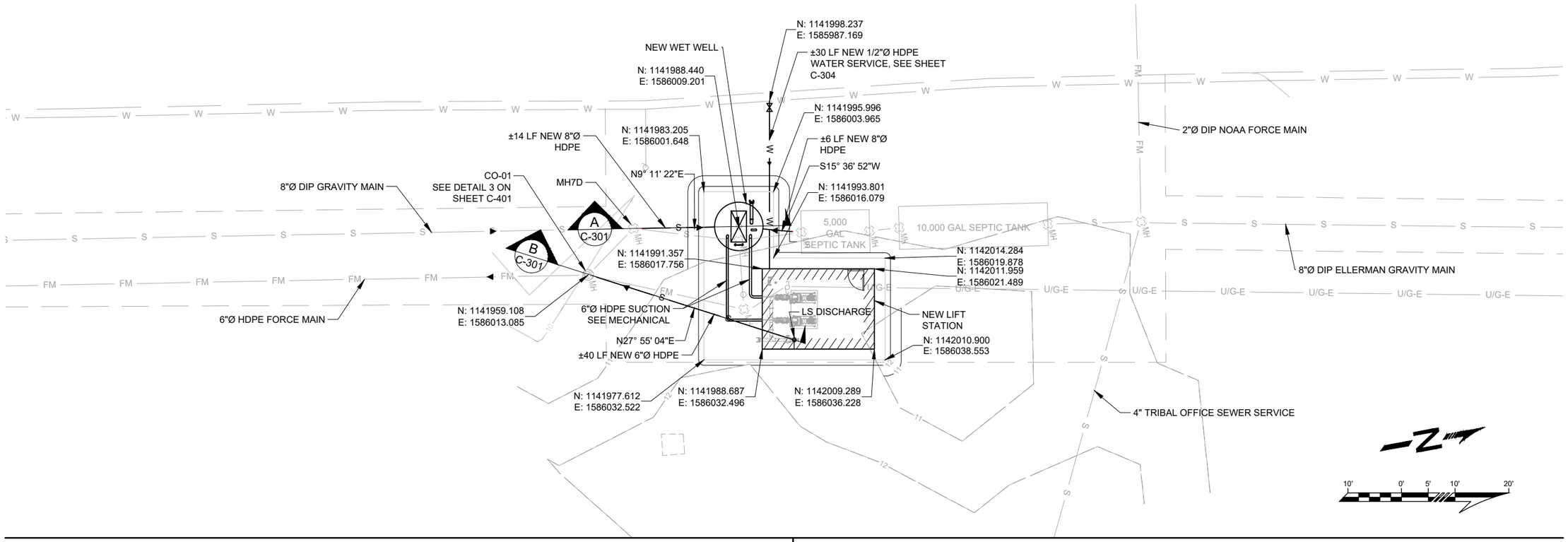
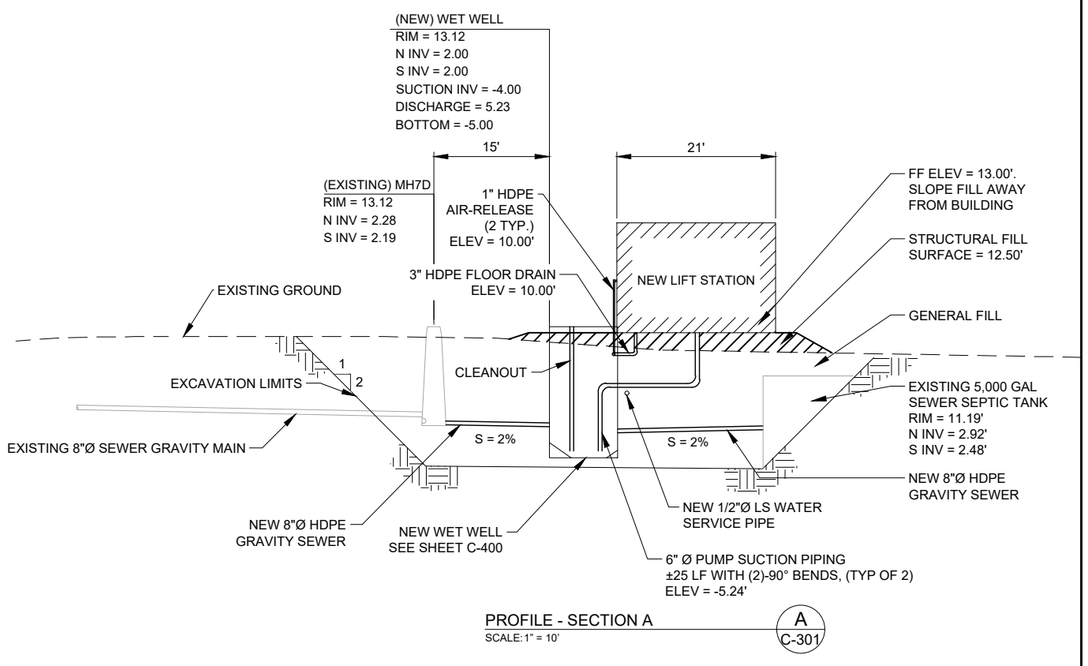
SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
DEMOLITION PLANS

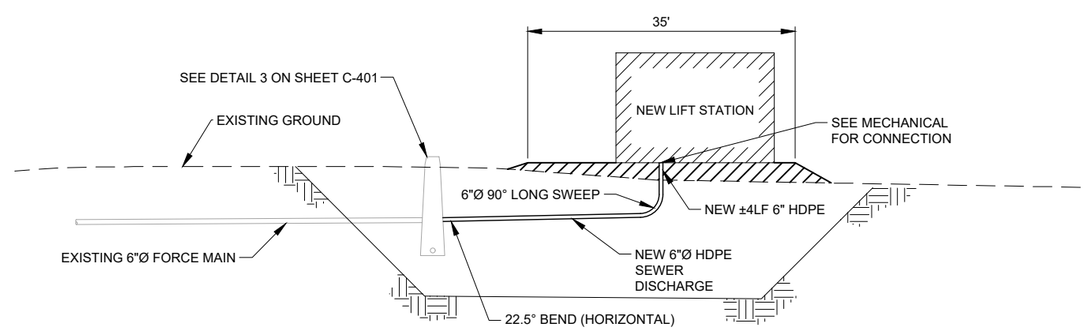
DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: 030540-C-200.DWG
PROJECT NUMBER: 165.030540

SHEET NUMBER
C-200





PROFILE - SECTION A
SCALE:1" = 10'
A C-301



PROFILE - SECTION B
SCALE:1" = 10'
B C-301

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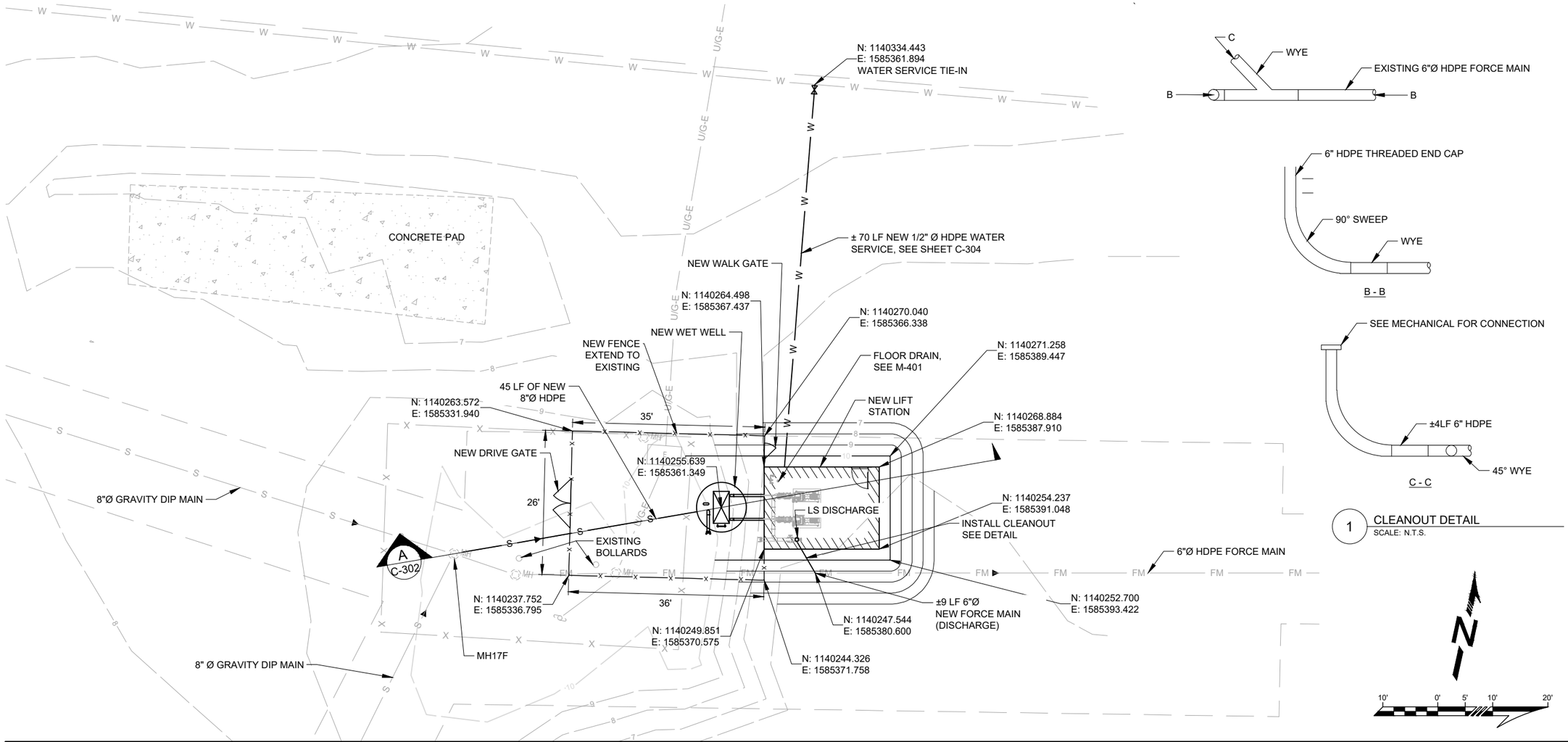
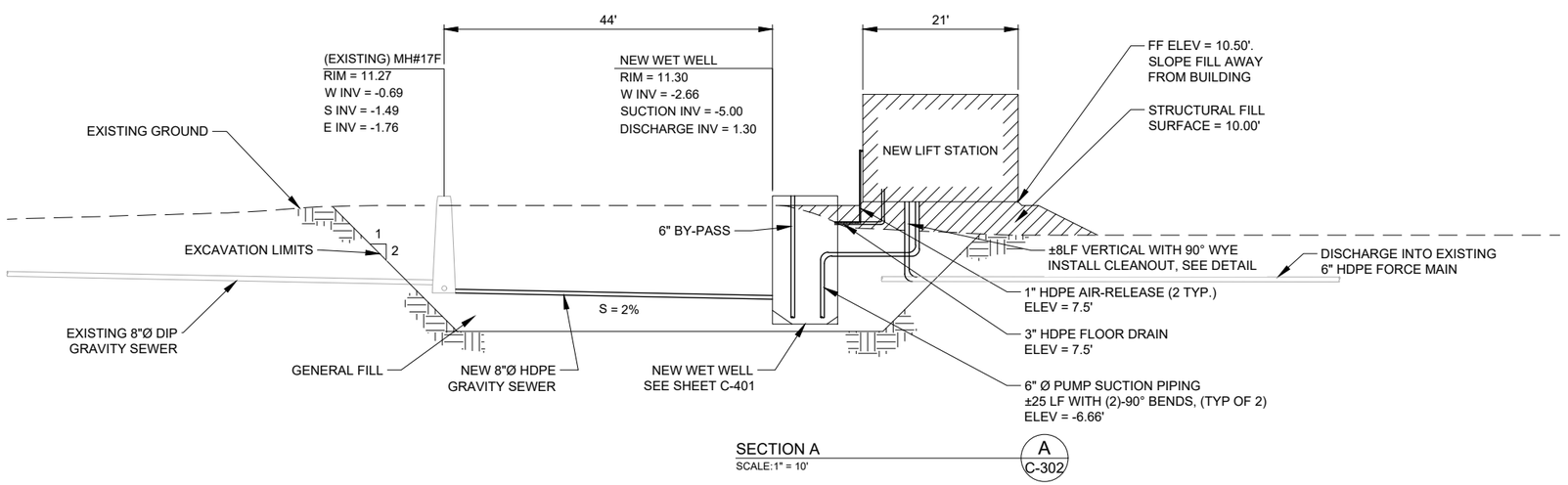
SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
PLAN AND PROFILE - ELLERMAN HEIGHTS

PROJECT NUMBER 165.030540
DRAWING FILE NAME 030540-C-301.DWG
DRAWING SCALE AS SHOWN

SHEET NUMBER
C-301



1 CLEANOUT DETAIL
SCALE: N.T.S.



SECTION A
SCALE:1" = 10'
A
C-302

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STATE OF ALASKA 49 TH
Daniel E Nichols
No. CE 11012
REGISTERED PROFESSIONAL ENGINEER

REVISIONS & ADDENDUMS

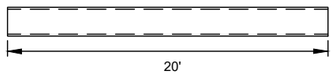
#	DATE	REMARKS

MANAGEMENT		
DESIGNED	BJK	
DRAWN	BJK	
CHECKED	BJD	
APPROVED	DEN	
LAST EDIT	2/19/24	
PLOT DATE	2/19/24	
SUBMITTAL	02/19/24	

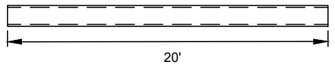
SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
PLAN AND PROFILE - SANDY LANE

DRAWING SCALE: AS SHOWN
PROJECT NUMBER: 165.030540
DRAWING FILE NAME: 030540-C-302.DWG

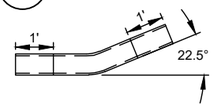
SHEET NUMBER
C-302



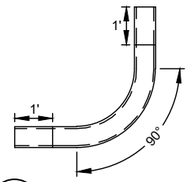
1 8" HDPE PIPE
SCALE: N.T.S.



2 6" HDPE PIPE
SCALE: N.T.S.



3 6" 22.5-ANGLE FITTING
SCALE: N.T.S.



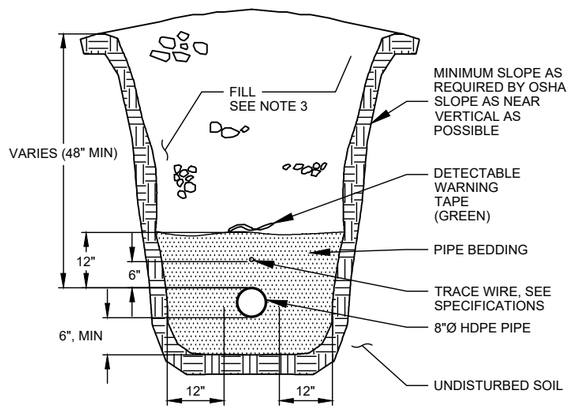
4 6" 90-ANGLE FITTING
SCALE: N.T.S.

8" HDPE GRAVITY PIPE

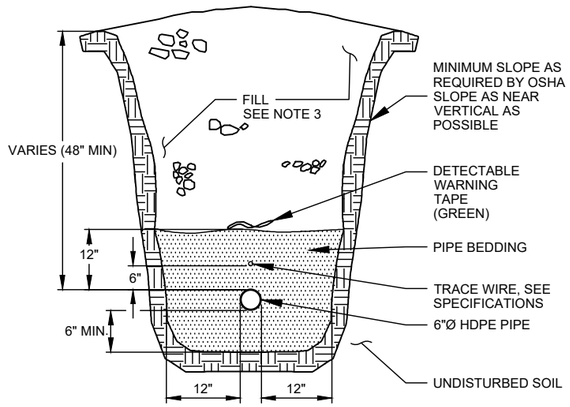
NOMINAL CORE PIPE DIAMETER (TYP)	LOCATION
8"	MAINLINES

6"Ø HDPE FORCE MAIN PIPE

NOMINAL CORE PIPE DIAMETER (TYP)	LOCATION
6"	FORCE MAINS



1 SEWER MAIN TRENCH DETAIL
SCALE: N.T.S.



2 SEWER PIPING TRENCH DETAIL
SCALE: N.T.S.

NOTES:

1. NO PIPES SHALL BE INSTALLED WITH LESS THAN 48 INCHES OF COVER.
2. COMPACT WILL BE NATIVE BACKFILL EXCAVATED FROM TRENCH.
3. IF NATIVE BACKFILL MATERIAL IS DEEMED NOT FIT FOR REINSTALLATION, USE STRUCTURAL FILL IN PLACE.

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STATE OF ALASKA 49TH
Daniel E Nichols
No. CE 11012
REGISTERED PROFESSIONAL ENGINEER

REVISIONS & ADDENDUMS

#	DATE	REMARKS

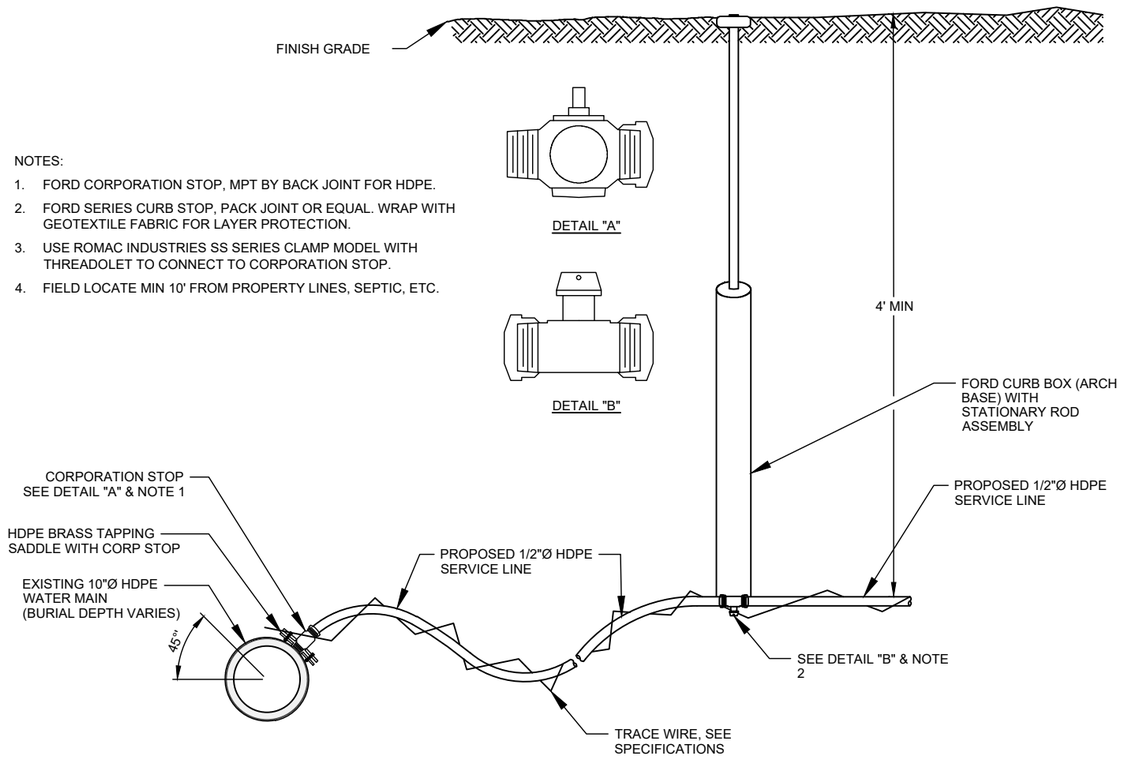
MANAGEMENT

DESIGNED	BJK
DRAWN	BJK
CHECKED	BJD
APPROVED	DEN
LAST EDIT	2/16/24
PLOT DATE	2/16/24
SUBMITTAL	02/19/24

SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
SEWER PIPE FITTINGS & TRENCHING PLAN

PROJECT NUMBER 165.030540
DRAWING FILE NAME 030540-C-303-304.DWG
DRAWING SCALE AS SHOWN

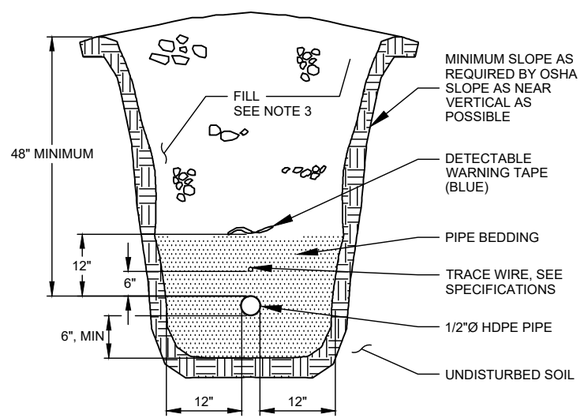
SHEET NUMBER
C-303



1 1/2" WATER SERVICE CONNECT
SCALE: N.T.S.

NOTES:

1. NO PIPES SHALL BE INSTALLED WITH LESS THAN 48 INCHES OF COVER.
2. COMPACT WILL BE NATIVE BACKFILL EXCAVATED FROM TRENCH.
3. IF NATIVE BACKFILL MATERIAL IS DEEMED NOT FIT FOR REINSTALLATION, USE STRUCTURAL FILL IN PLACE.



2 WATER SERVICE TRENCH DETAIL
SCALE: N.T.S.

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STATE OF ALASKA 49TH
Daniel E Nichols
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PROFESSIONAL ENGINEER

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PLOT DATE	2/19/24
SUBMITTAL	02/19/24

SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
WATER CONNECTION & TRENCHING PLAN

PROJECT NUMBER 165.030540
DRAWING FILE NAME 030540-C-303-304.DWG
DRAWING SCALE AS SHOWN

SHEET NUMBER
C-304

REINFORCING BAR HOOK & LAP SCHEDULE

BAR SIZE	LAP SPLICE		STANDARD HOOK	
	VERT & HORIZ	TOP BAR	HOOK LENGTH 'A'	DEVELOPMENT LENGTH (dh)
#3	1'-3"	1'-7"	0'-6"	0'-6"
#4	1'-8"	2'-1"	0'-8"	0'-8"
#5	2'-1"	2'-7"	0'-10"	0'-10"
#6	2'-6"	3'-1"	1'-0"	1'-0"

DESIGN CRITERIA (DC):

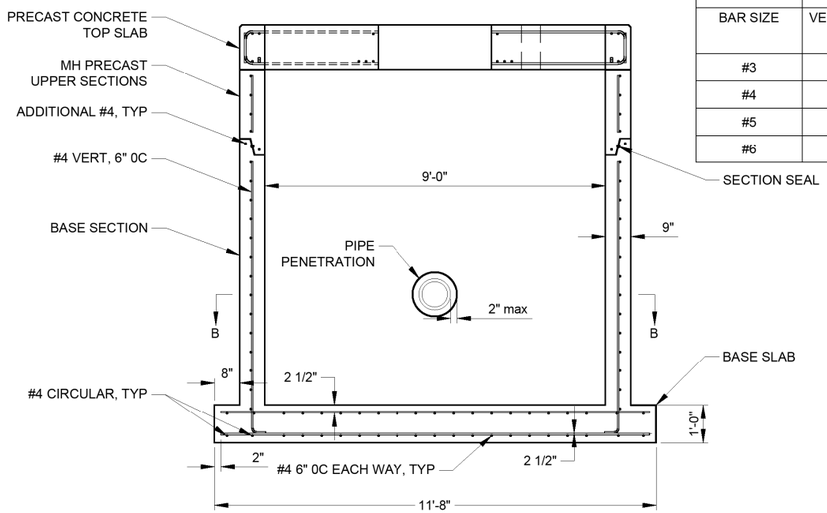
1. MAX DEPTH OF BURY = 35 FEET.
2. SNOW LOAD = 40 PSF.
3. DEAD LOAD = 100 PSF.
4. CONCRETE DESIGNED IN ACCORDANCE WITH ACI 318-14.
5. BACKFILL MATERIAL MINIMUM REQUIREMENT IS NON FROST SUSCEPTIBLE GRANULAR FILL WITH COMPACTED DENSITY 110 PCF MIN AND MINIMUM ANGLE OF FRICTION = 30 DEGREES.

REBAR NOTES:

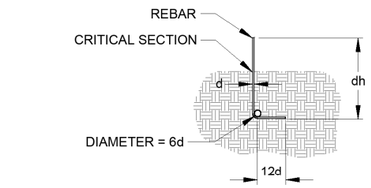
1. LAP LENGTHS ARE BASES ON MINIMUM COVER REQUIREMENTS INDICATED.
2. TOP BAR LAPS ARE HORIZONTAL LAPS WHERE MORE THAN 12" OF FRESH CONCRETE IS PLACED BELOW THE BARS.

GENERAL NOTES:

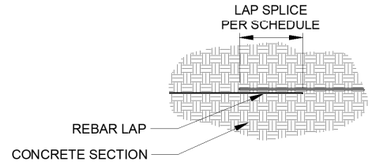
1. ALL DRAINAGE STRUCTURES SHALL MEET THE REQUIREMENTS OF ASTM C-478 AND ACI 318-14.
2. RUBBER GASKET JOINTS, GROUTED JOINTS, OR PREFORMED PLASTIC TYPE GASKET JOINTS ARE TO BE USED ON MANHOLE JOINTS AND PENETRATIONS TO PROVIDE WATER TIGHT SEALING.
3. REDUCING SLAB CONCRETE EXPOSURE CLASS F3/S3/W1/C2, MINIMUM COMPRESSIVE STRENGTH (f'c) = 5000 PSI, MAXIMUM WATER CONTENT (W/CM) = 0.40, TYPE V CEMENT WITH POZZOLAN OR SLAG CEMENT OR ASTM C595 IP, IS, OR IT WITH (HS) DESIGNATION PLUS POZZOLAN OR SLAG CEMENT, IN ACCORDANCE WITH ASTM C1012, 3/4" MAXIMUM AGGREGATE SIZE, 6% MINIMUM AIR CONTENT, AND LESS THAN 0.15 CHLORIDE ION MIX WATER BY WEIGHT OF CEMENT. MAXIMUM PERCENTAGE OF POZZOLANS SHALL CONFORM WITH ACI 318 TABLE 26.4.2.2(b).
4. ALL OTHER CONCRETE EXPOSURE CLASS F2/S1/W1/C1 MINIMUM COMPRESSIVE STRENGTH (F'c) = 4500 PSI, TYPE V CEMENT, MAXIMUM WATER CONTENT (W/CM) = 0.45, 3/4" MAXIMUM AGGREGATE SIZE, 6% MINIMUM AIR CONTENT, AND LESS THAN 0.30 CHLORIDE ION MIX WATER BY WEIGHT OF CEMENT.
5. ALL BARS SHALL BE CONTINUOUS. CIRCULAR BARS LAPPED A MINIMUM OF 48 BAR DIAMETERS.
6. MAINTAIN A MINIMUM OF 1 1/2" OF CONCRETE COVER OVER ALL REBAR.
7. EXTEND PIPE A MINIMUM OF 2" INTO MANHOLE.
8. PLACE MANHOLE BASE ON 12" MINIMUM COMPACTED AGGREGATE BASE COURSE, GRADING D-1.
9. WALL PENETRATION DIAMETER "D" SHALL NOT EXCEED PIPE O.D.+4 INCHES.
10. LIFTING INSERTS SHALL BE DESIGNED FOR A LOAD EQUIVALENT TO FOUR TIMES THE MAXIMUM LOAD TRANSMITTED TO THE INSERT.
11. REINFORCEMENT SHALL BE GRADE 60 CONFORMING TO ASTM A615/A 615M.
12. CONTRACTOR TO SUBMIT FOR APPROVAL DESIGNS FOR BASE SEAL, SECTION SEAL, ACCESS HATCH, PIPE SEAL, SENSOR HANGERS, AND PIPE SUPPORTS.



MANHOLE SECTION 1 C-400
SCALE:1/2" = 1'



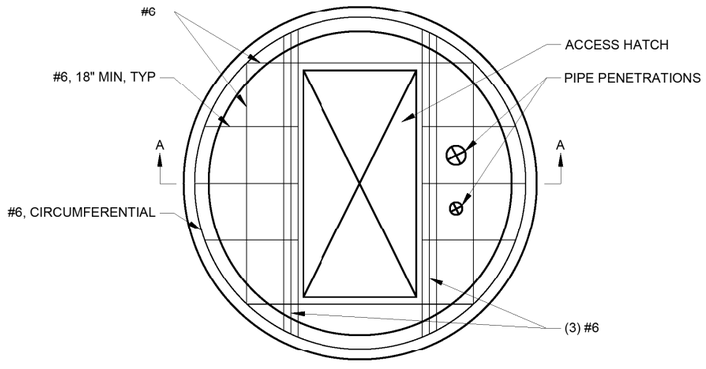
A STANDARD HOOK
SCALE: N.T.S.



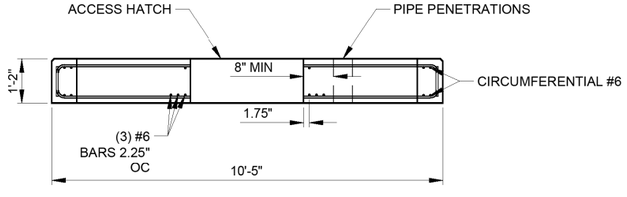
B STANDARD REBAR LAP
SCALE: N.T.S.

PIPE DIA INCH	MIN ANGLE DEG	PIPE DIA INCH	MIN ANGLE DEG
60	120	30	70
56	115	28	65
52	105	26	65
48	100	24	60
46	95	22	60
44	90	20	55
42	90	18	50
40	85	16	50
38	80	14	45
36	80	12	45
34	75	10	40
32	70	8	40

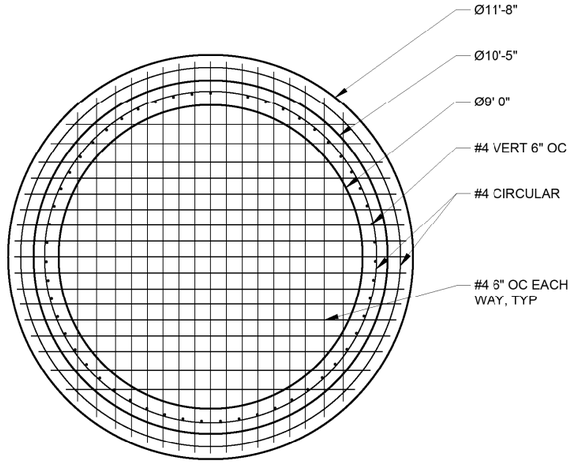
TYPICAL REINFORCING HOOK & LAP BAR SCHEDULE 3 C-400
SCALE:1/2" = 1'



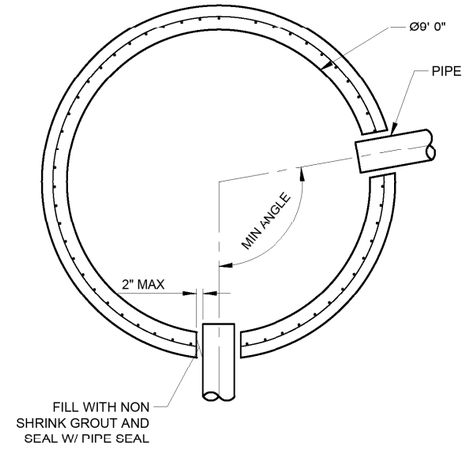
TOP SLAB REINFORCING - PLAN 2 C-400
SCALE:1/2" = 1'



A SECTION A-A
TOP SLAB REINFORCING
SCALE: 1/2" = 1'



BASE SLAB PLAN
TOP AND BOTTOM REINFORCEMENT LAYERS 4 C-400
SCALE:1/2" = 1'



B SECTION B-B
MANHOLE PIPE PENETRATIONS
SCALE: 1/2" = 1'

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STATE OF ALASKA 49 TH
DANIEL HERTRICH
19 FEB 2024
SEP 126439
REGISTERED STRUCTURAL ENGINEER

REVISIONS & ADDENDUMS

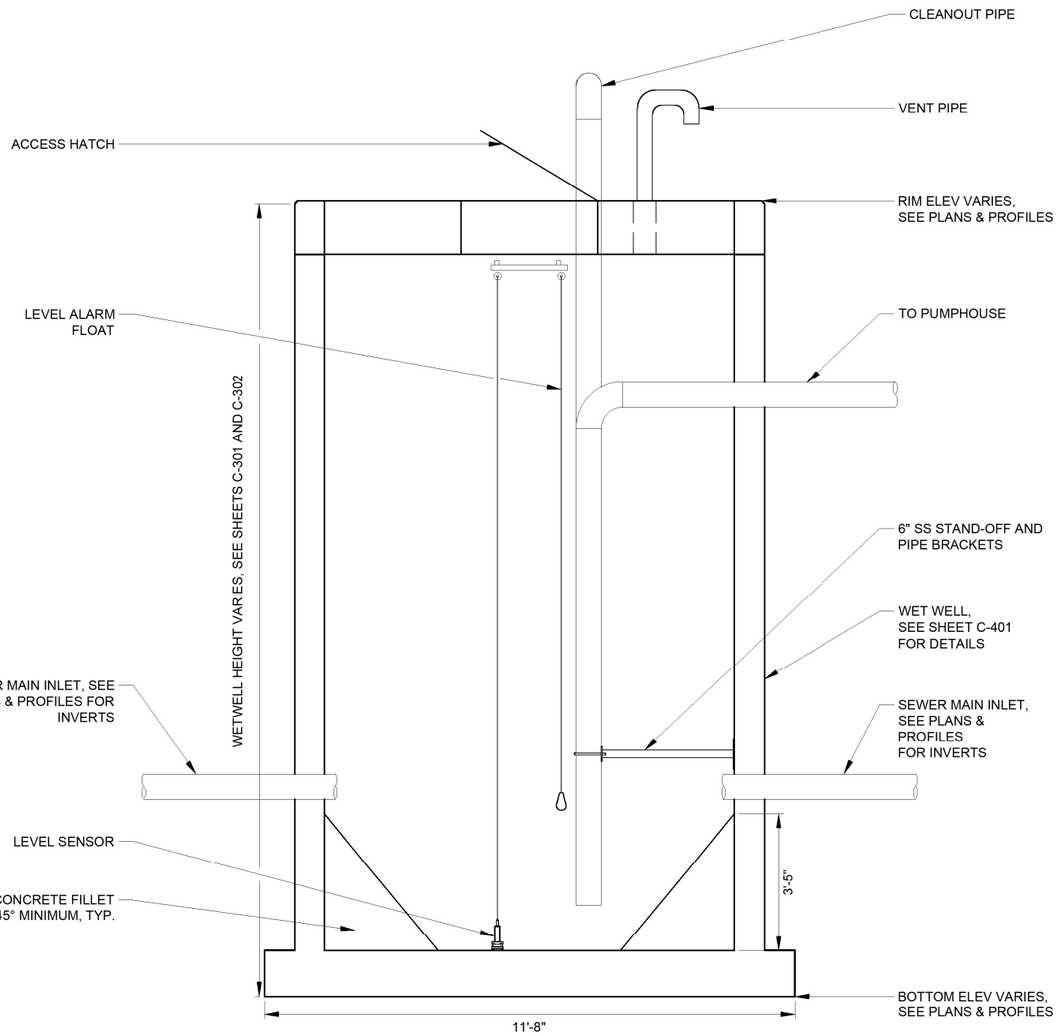
#	DATE	REMARKS

MANAGEMENT	
DESIGNED	RW
DRAWN	RW
CHECKED	BJD
APPROVED	DEN
LAST EDIT	2/16/24
PLOT DATE	2/16/24
SUBMITTAL	02/19/24

SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
WET WELL DETAILS

DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: 030540-C-400X.DWG
PROJECT NUMBER: 165.030540

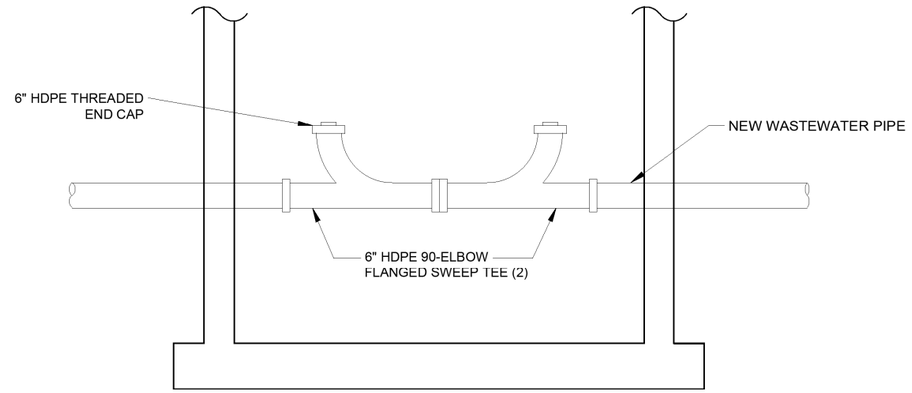
SHEET NUMBER
C-400



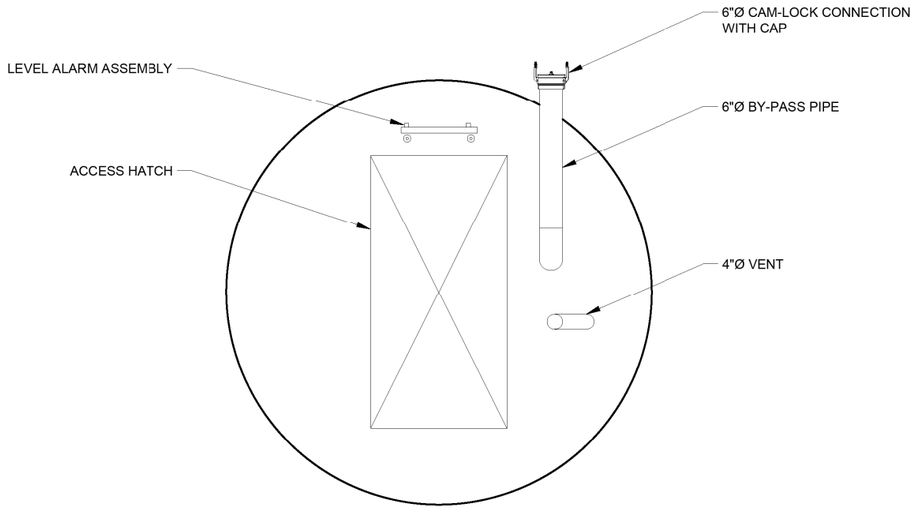
WET WELL ELEVATION - GENERAL ARRANGEMENT 1/401
SCALE:1/2" = 1'

NOTES:

1. THIS DETAIL APPLIES TO CO-01 ON SHEET C-301.



WASTEWATER CLEANOUT DETAIL 3/C-401
SCALE:N.T.S.



WET WELL PLAN - GENERAL ARRANGEMENT 2/401
SCALE:1/2" = 1'

100% SUBMITTAL

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STATE OF ALASKA 49TH
DANIEL HERTRICH
SE# 12643
REGISTERED STRUCTURAL ENGINEER
2 FEB 24

REVISIONS & ADDENDUMS

#	DATE	REMARKS

MANAGEMENT	
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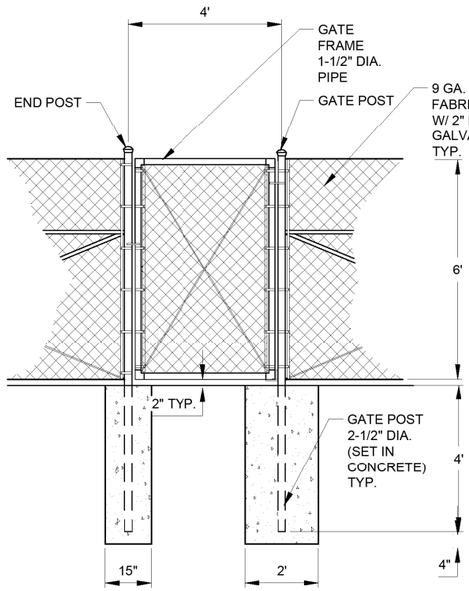
SUBMITTAL	02/19/24

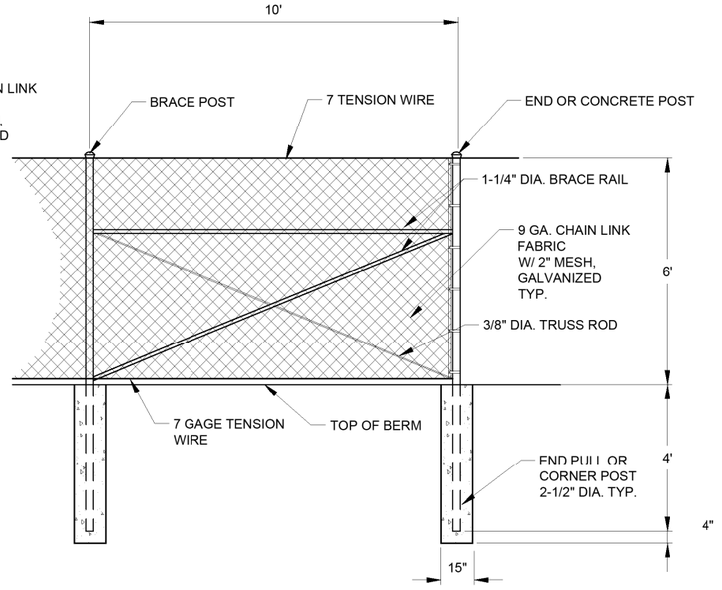
SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
WET WELL PLAN - GENERAL ARRANGEMENT

PROJECT NUMBER 165.030540
DRAWING FILE NAME 030540-C-400X.DWG
DRAWING SCALE AS SHOWN

SHEET NUMBER
C-401



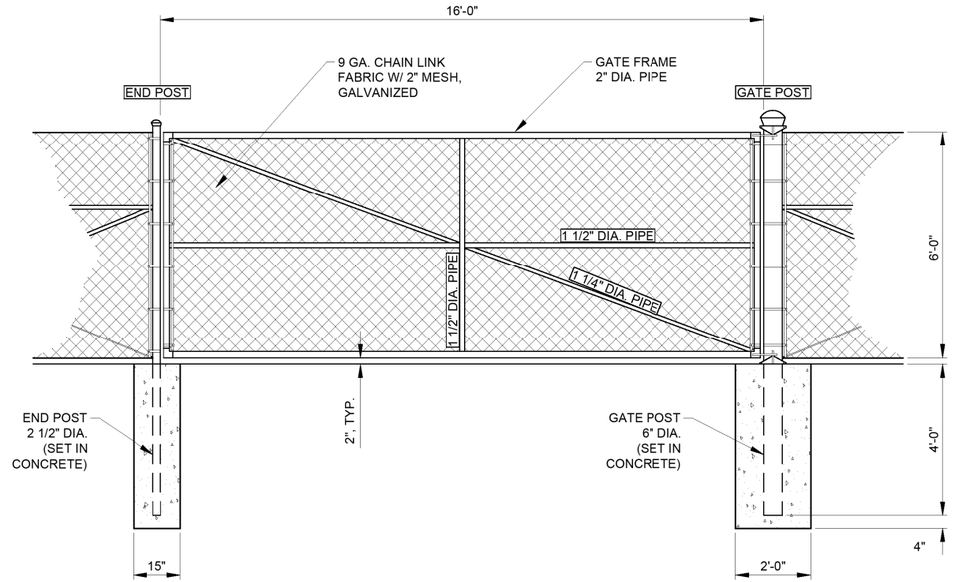
WALK GATE DETAIL
SCALE:N.T.S.
1
C-402



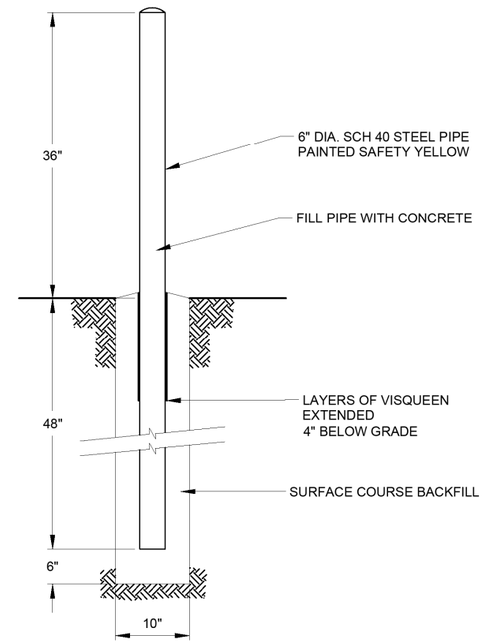
CHAIN LINK FENCE DETAIL
SCALE:N.T.S.
2
C-402

FENCE AND GATE NOTES:

1. DETAILS SHOWN ARE TO INDICATE GENERAL DESIGN, ONLY. DIMENSIONS MAY VARY SLIGHTLY AMONG MANUFACTURERS.
2. POSTS SHALL BE SPACED EQUAL DISTANCES APART. MAXIMUM SPACING SHALL BE 10 FEET, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
3. POST TOPS SHALL BE SECURELY FASTENED TO POSTS.
4. BRACE RAILS AND TRUSS RODS SHALL BE SECURELY FASTENED TO POSTS WITH BRACE BANDS WITH THREADED TAKE-UP ADAPTER FOR TRUSS RODS.
5. FABRIC SHALL BE STRETCHED TO A SMOOTH UNIFORM APPEARANCE.
6. BRACE, PULL, END, CORNER, AND GATE POSTS SHALL BE SET IN CONCRETE.
7. GATE FABRIC SHALL BE OF SAME DESIGN AND HEIGHT AS THE LINE FENCE FABRIC.
8. LINE FENCE FABRIC SHALL BE FURNISHED WITH BARBED SELVAGE, TOP AND BOTTOM.
9. GATE FABRIC SHALL BE FURNISHED WITH KNUCKLE SELVAGE, TOP AND BOTTOM.
10. CONCRETE FOR FOOTINGS SHALL BE CLASS W CONCRETE (2,500 PSI)
11. 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.



DRIVE GATE DETAIL
SCALE:N.T.S.
1
C-402



BOLLARD DETAIL
SCALE:N.T.S.
3
C-402

BOLLARD DETAIL NOTE:

1. MOUND CONCRETE ON TOP TO SHED WATER

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STATE OF ALASKA 49TH
DANIEL HERTRICH
SE# 126439
REGISTERED STRUCTURAL ENGINEER

REVISIONS & ADDENDUMS

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MANAGEMENT	
DESIGNED	FW
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APPROVED	DEN
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SUBMITTAL	02/19/24

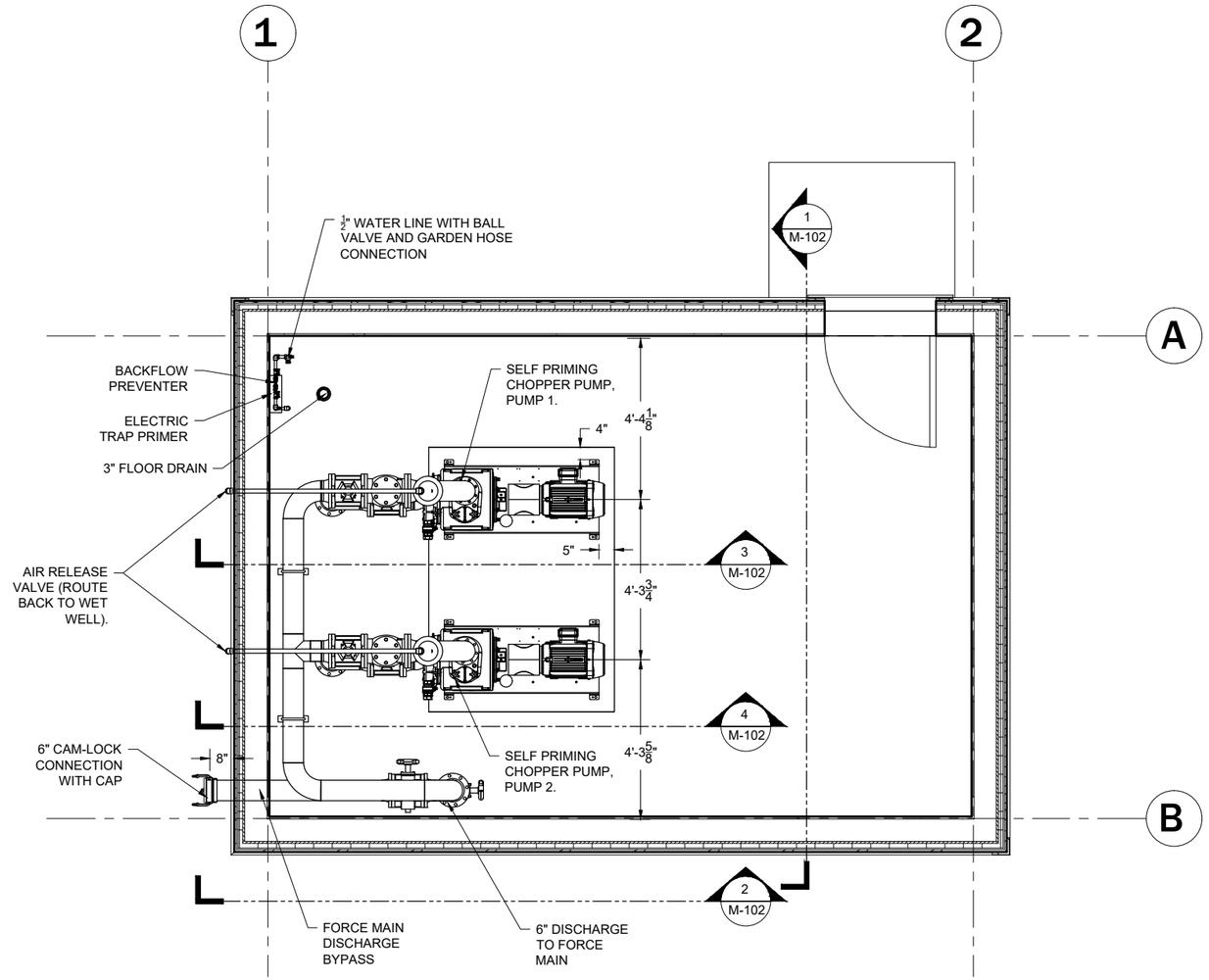
SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
CHAIN LINK FENCE & BOLLARD DETAIL

PROJECT NUMBER 165.030540
DRAWING FILE NAME 030540-C-400X.DWG
DRAWING SCALE AS SHOWN

SHEET NUMBER
C-402

GENERAL NOTES:

1. CONTRACTOR SHALL VERIFY DIMENSIONS PRIOR TO THE BEGINNING OF CONSTRUCTION.
2. ADDITIONAL FLANGE CONNECTIONS CAN BE UTILIZED IF REQUIRED FOR FABRICATION REQUIREMENTS.
3. SEE CIVIL DRAWINGS FOR WET WELL PLACEMENT AND PIPE ROUTING IN RELATION TO BUILDING.
4. CONNECT TRAP PRIMER LINE TO DRAIN LINE UNDERGROUND.



1 / M-101 LIFT STATION PLUMBING PLAN
SCALE: 1/2" = 1'-0"

2' 0' 1' 2' 4'

100% SUBMITTAL

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STATE OF ALASKA 49 TH
SAMUEL LEE STRICKLAND
ME - 14721
02-02-2024
REGISTERED PROFESSIONAL ENGINEER

REVISIONS & ADDENDUMS

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MANAGEMENT	
DESIGNED	JDD
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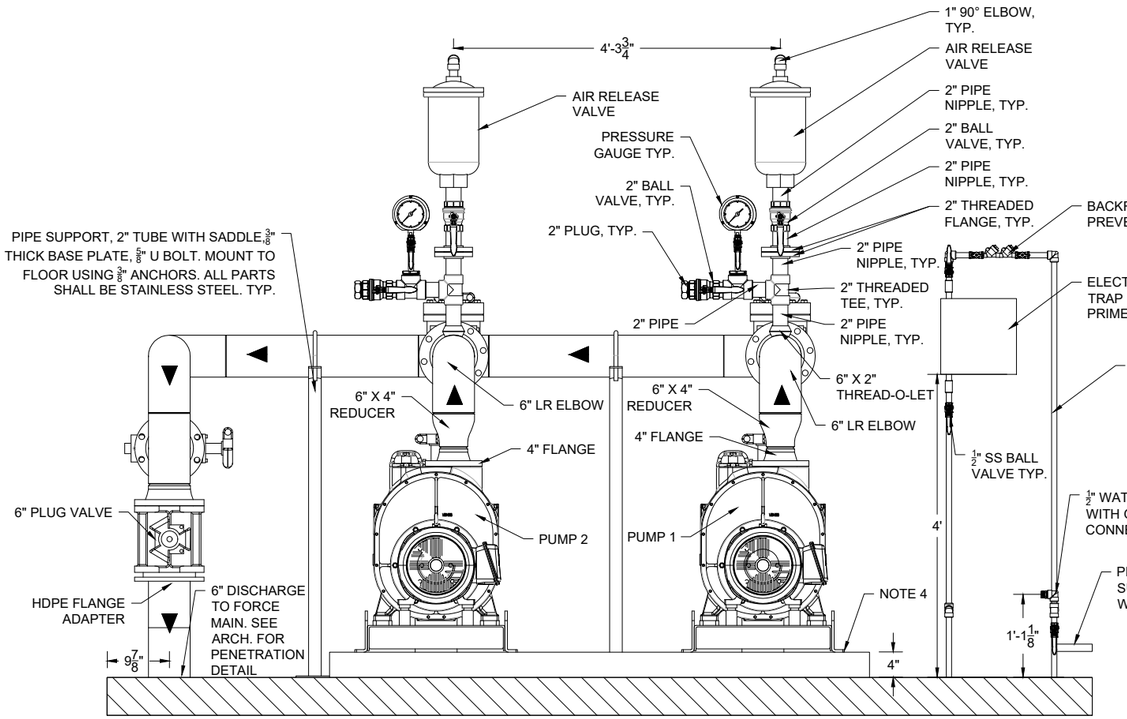
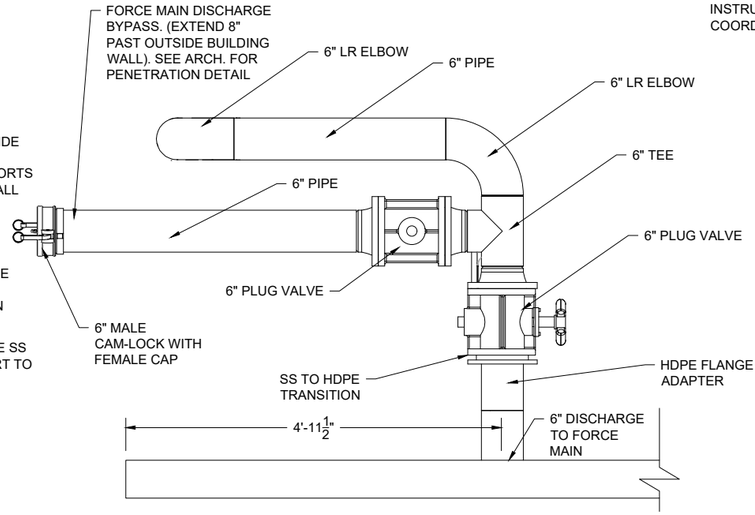
SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
LIFT STATION PIPING & EQUIPMENT PLAN

DRAWING SCALE: AS SHOWN
PROJECT NUMBER: 165.030540
DRAWING FILE NAME: M-101

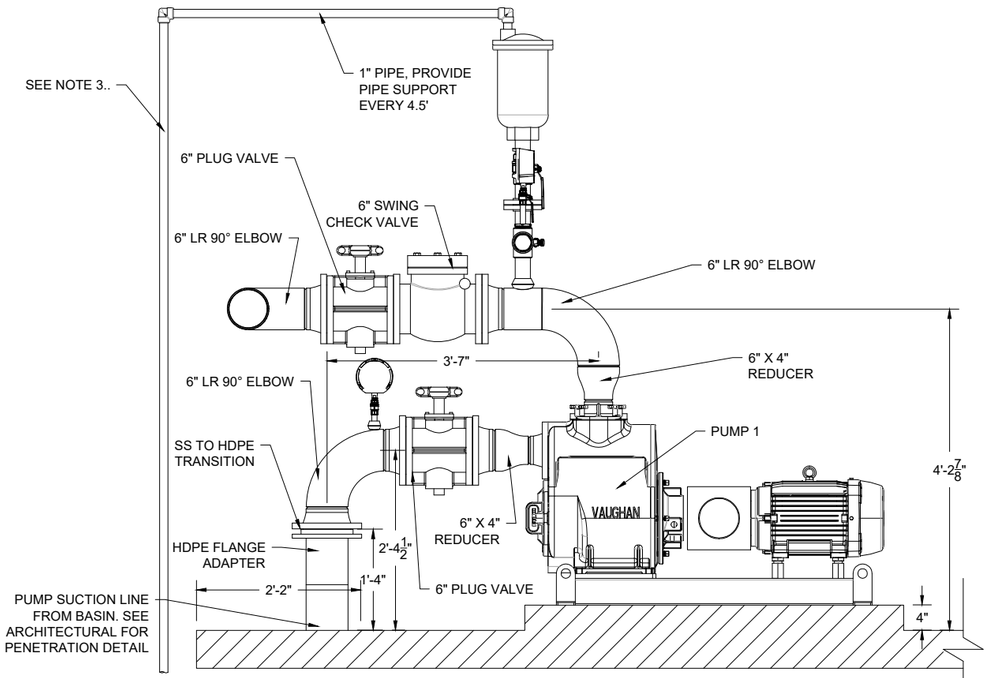
SHEET NUMBER
M-101



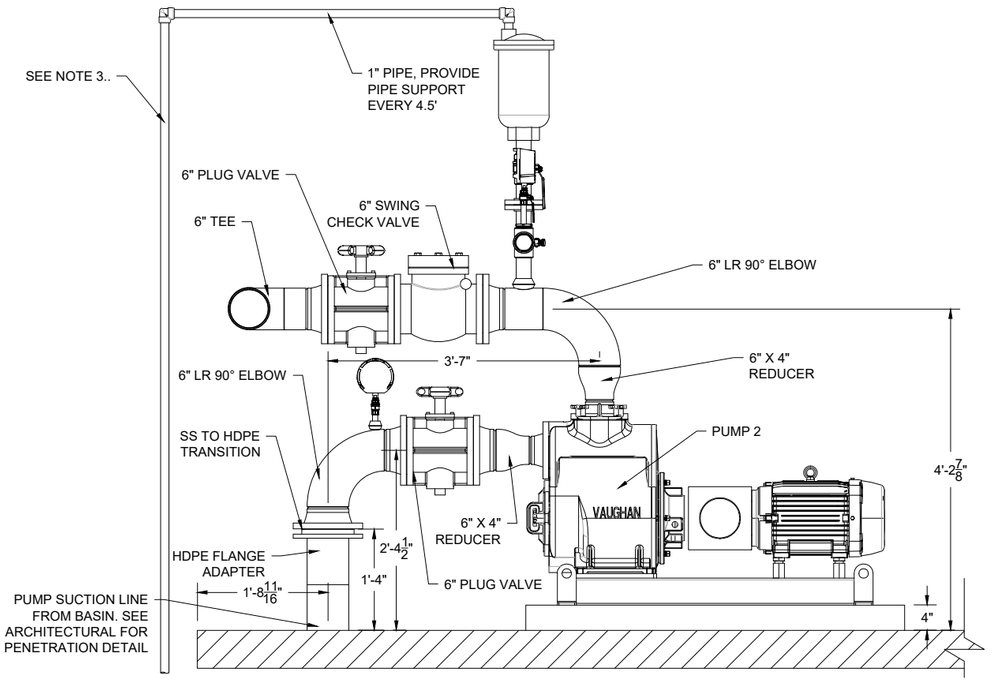
1 M-102 ELEVATION SECTION
SCALE: 1" = 1'-0"



2 M-102 DISCHARGE PARTIAL SECTION
SCALE: 1" = 1'-0"



3 M-102 PUMP 1 ELEVATION SECTION
SCALE: 1" = 1'-0"



4 M-102 PUMP 2 ELEVATION SECTION
SCALE: 1" = 1'-0"

GENERAL NOTES:

1. CONTRACTOR SHALL VERIFY DIMENSIONS PRIOR TO THE BEGINNING OF CONSTRUCTION.
2. ADDITIONAL FLANGE CONNECTIONS CAN BE UTILIZED IF REQUIRED FOR FABRICATION .
3. ROUTE 1" AIR RELEASE LINE DOWN ALONG BUILDING, PROVIDE SUPPORTS. ROUTE LINE TO WET WELL AT A 2% SLOPE WITH MINIMUM 3' COVER. SEE ARCH. DRAWINGS FOR BUILDING PENETRATION DETAIL.
4. MOUNT PUMPS WITH ANCHOR BOLTS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTION. SEE STRUCTURAL FOR COORDINATION WITH HOUSE KEEPING PAD.

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STATE OF ALASKA 49 TH
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ME - 14721
02-02-2024
REGISTERED PROFESSIONAL ENGINEER

REVISIONS & ADDENDUMS

#	DATE	REMARKS

MANAGEMENT	
DESIGNED	JDD
DRAWN	JDD
CHECKED	-
APPROVED	-
LAST EDIT	2/2/24
PLOT DATE	2/2/24
SUBMITTAL	02/02/24

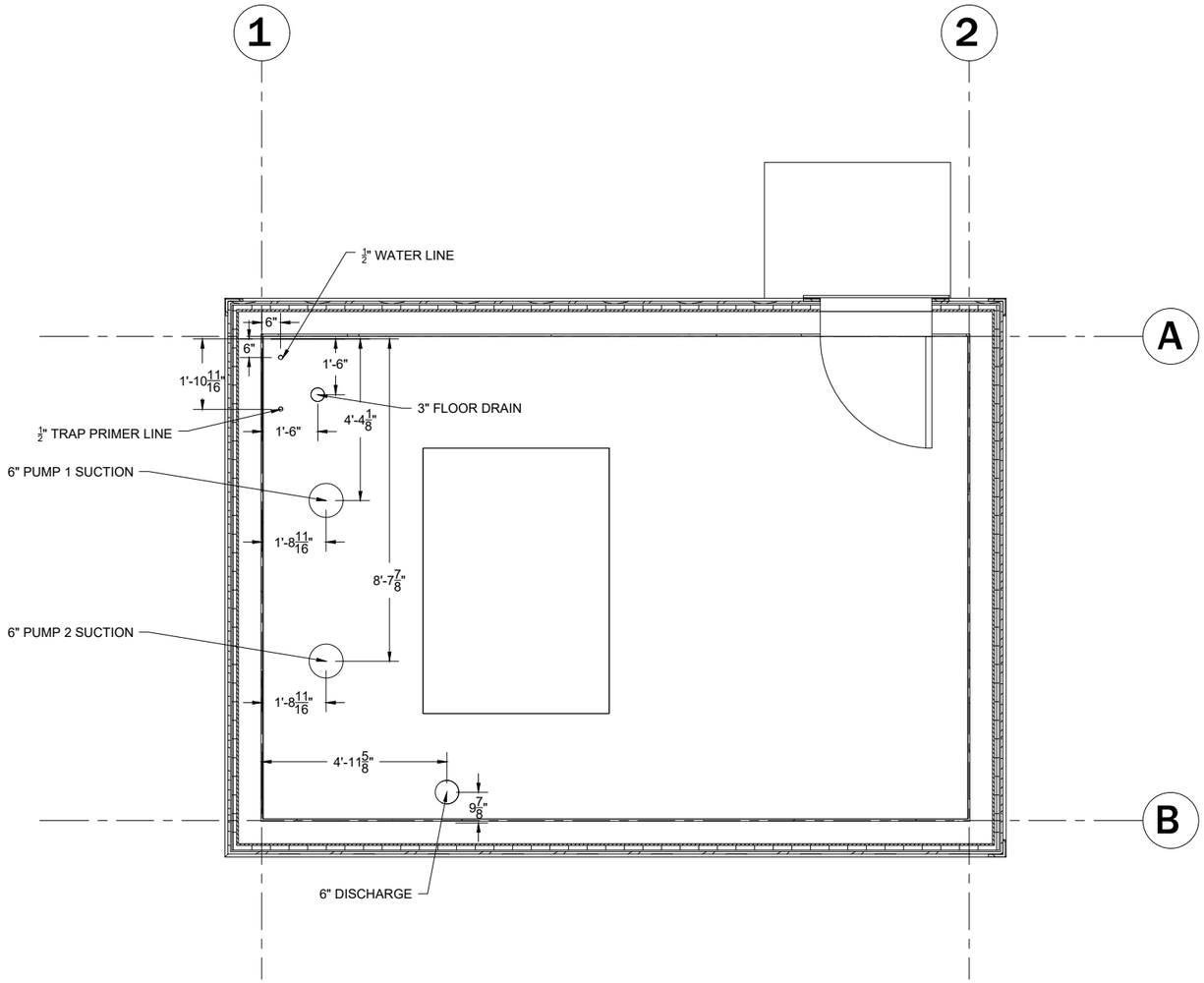
SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
PIPING AND EQUIPMENT SECTIONS

DRAWING SCALE: AS SHOWN
PROJECT NUMBER: 165.030540
DRAWING FILE NAME: M-102

SHEET NUMBER
M-102

GENERAL NOTES:

1. CONTRACTOR SHALL VERIFY DIMENSIONS PRIOR TO THE BEGINNING OF CONSTRUCTION.
2. SEE ARCHITECTURAL DRAWINGS FOR PENETRATION DETAILS.
3. SEE CIVIL DRAWINGS FOR WET WELL PLACEMENT AND PIPE ROUTING IN RELATION TO BUILDING.



1 M-103 LIFT STATION PIPING PENETRATION PLAN
SCALE: 1/2" = 1'-0"

2' 0' 1' 2' 4'

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SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
LIFT STATION PIPING PENETRTION PLAN

DRAWING SCALE: AS SHOWN
PROJECT NUMBER: 165.030540
DRAWING FILE NAME: M-103

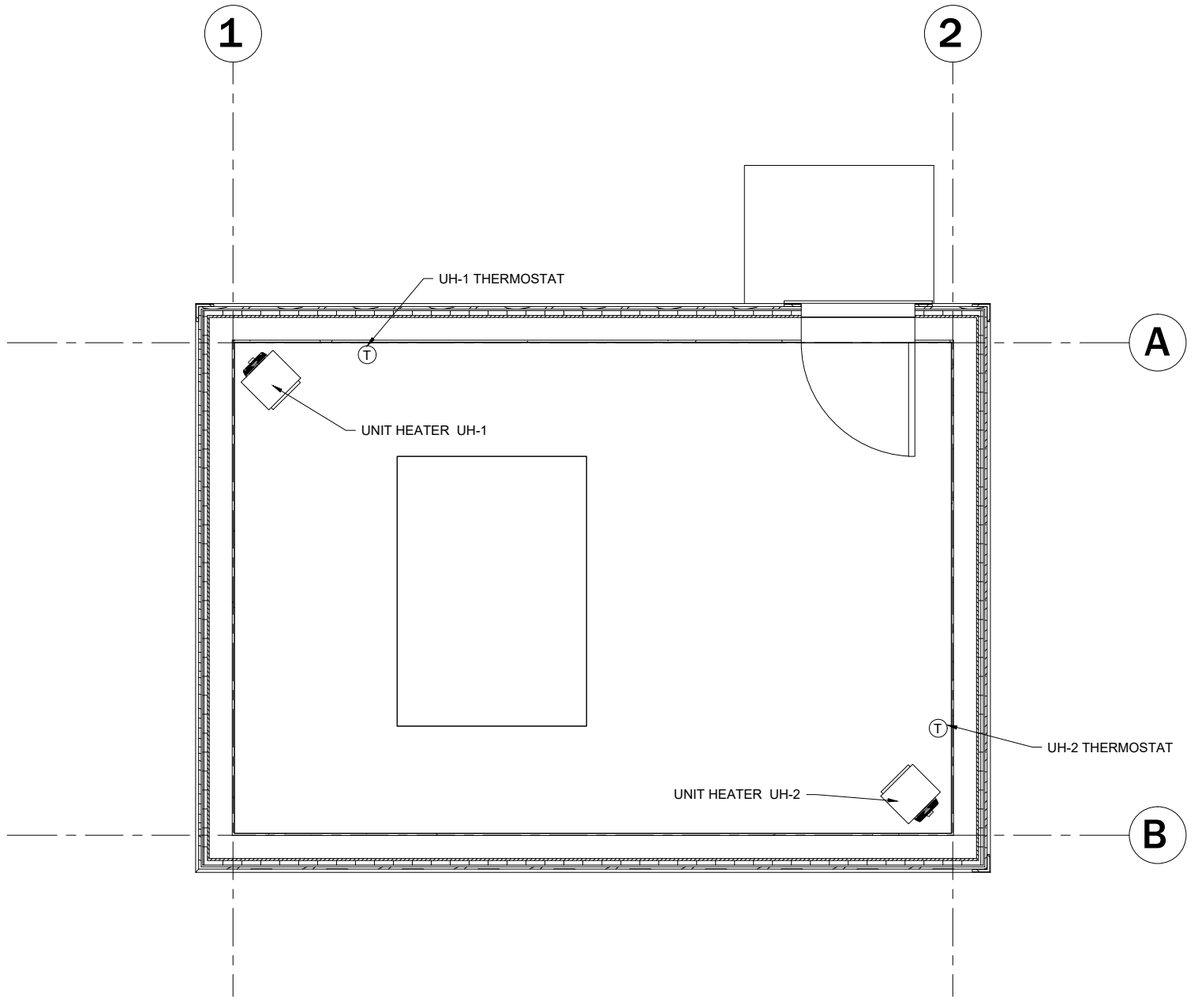
SHEET NUMBER
M-103

UNIT HEATER SCHEDULE										
ITEM	TYPE	RATED CAPACITY (BTU/HR)	DESIGN CAPACITY (BTU/HR)	CFM	ELECTRICAL DATA				BASIS OF DESIGN		NOTE
					HP	V	PH	HZ	MAKE	MODEL	
UH-1	HORIZONTAL ELECTRIC	10,200	4,028	380	1/40	208	3	60	MODINE	HER 30B 3101	1,2
UH-2	HORIZONTAL ELECTRIC	10,200	4,028	380	1/40	208	3	60	MODINE	HER 30B 3101	1,2

NOTES:
1. HEATER LISTED IS BASIS OF DESIGN, ANY SUBSTITUTION SHALL BE REQUIRED TO BE APPROVED BY ENGINEER.
2. THERMOSTAT SHALL BE PROVIDED WITH UNIT AND FIELD MOUNTED

GENERAL NOTES:

1. HEATERS SHALL BE WALL MOUNTED



1 M-201 HVAC BUILDING PLAN
SCALE: 1/2" = 1'-0"

2' 0' 1' 2' 4'

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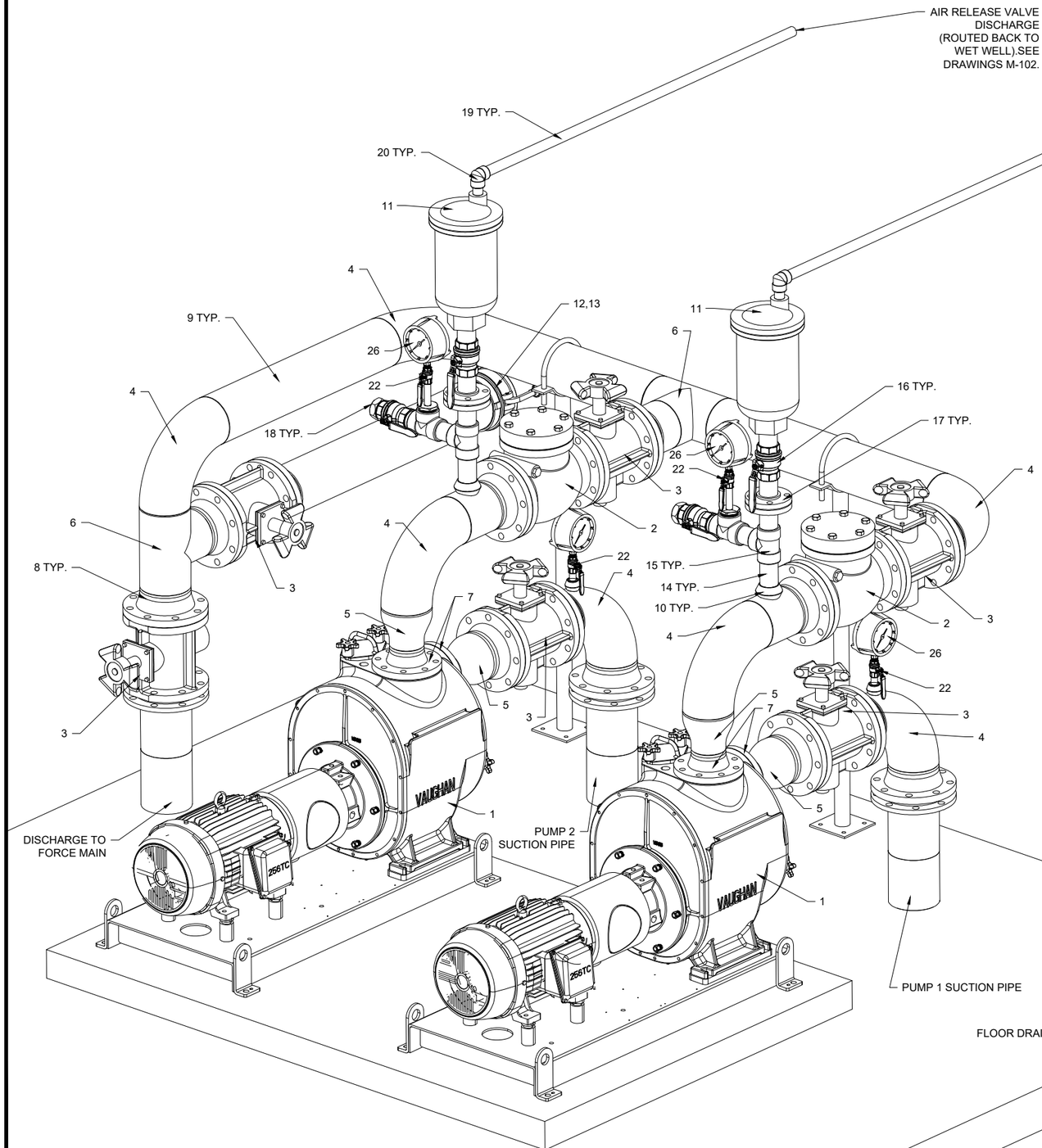
SUBMITTAL	02/02/24

SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
LIFT STATION HVAC PLAN

DRAWING SCALE: AS SHOWN
PROJECT NUMBER: 165.030540
DRAWING FILE NAME: M-201

SHEET NUMBER
M-201



1 M-301 PIPING & EQUPMENT ISOMETRIC
SCALE:NTS

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BOM

TAG	DESCRIPTION	SIZE	CLASS/SCH.	MATERIAL	QTY.	NOTES
1	CHOPPER PUMP	-	-	-	2	2
2	SWING CHECK VALVE	6"	CLASS 150	STAINLESS STEEL	2	5
3	PLUG VALVE	6"	CLASS 150	STAINLESS STEEL	6	
4	LR 90° ELBOW	6"	SCH. 40	ASTM A403	7	
5	REDUCER	6" X 4"	SCH. 40	ASTM A403	4	
6	TEE	6"	SCH. 40	ASTM A403	2	
7	WN FF FLANGE	4"	CLASS 150	ASTM A182	4	
8	WN RF FLANGE	6"	CLASS 150	ASTM A182	13	
9	PIPE	6"	SCH. 40	ASTM A312	20 Ft	1
10	THREAD-O-LET	6" X 2"	CLASS 3000	ASTM A182	6	
11	AIR RELEASE VALVE	2" X 1"	75 psi	ASTM A351 GR. CF8M	2	
12	MALE CAM-LOCK	6"	75 psi	STAINLESS STEEL	1	3
13	CAM-LOCK CAP	6"	75 psi	STAINLESS STEEL	1	4
14	PIPE	2"	SCH. 40	ASTM A312	4 FT	1
15	THREADED TEE	2"	CLASS 3000	ASTM A182	2	
16	FP BALL VALVE	2"	CLASS 3000	STAINLESS STEEL	4	
17	THREADED FLANGE	2"	CLASS 150	ASTM A182	4	
18	THREADED PLUG	2"	CLASS 3000	CLASS 3000	2	
19	PIPE	1"	SCH. 40	ASTM A312	20 FT	1
20	THREADED 90° ELBOW	1"	CLASS 3000	ASTM A182	2	
21	PIPE	1/2"	SCH.40	ASTM A312	10 Ft	1
22	BALL VALVE	1/2"	CLASS 3000	STAINLESS STEEL	7	
23	THREADED 90° ELBOW	1/2"	CLASS 3000	ASTM A182	6	
24	MNPT TO GH FITTING	1/2"	-	STAINLESS STEEL	1	
25	THREADED TEE	1/2"	CLASS 3000	ASTM A182	4	
26	PRESSURE GAUGE	1/2"	-	-	4	8
27	BACKFLOW PREVENTER	1/2"	-	CAST BRONZE		
28	ELECTRIC TRAP PRIMER	1/2"	-	-		9

NOTES:
1. APPROXIMATE LENGTH
2. SEE DRAWING M-401 FOR PUMP SCHEDULE
3. FEMALE NPT PIPE CONNECTION
4. WITH LOCKING TABS
5. PROVIDED SEWAGE RATED CHECK VALVE
6. CONTRACTOR SHALL PROVIDE ASTM A193 B8 STUDS OR BOLTS AND ASTM A194 GR.8 NUTS FOR ALL FLANGE CONNECTIONS.
7. ADDITIONAL FITTINGS MAY BE REQUIRED, CONTRACTOR TO VERIFY.
8.1/2" BOTTOM CONNECTION, 4.5" FACE. SEE SPECS FOR ADDITIONAL INFORMATION.
9. SEE SPECS FOR ADDITIONAL INFORMATION.

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SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
PIPING AND EQUIPMENT ISOMETRIC

DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: M-301
PROJECT NUMBER: 165.030540

SHEET NUMBER
M-301

SEQUENCE OF OPERATION

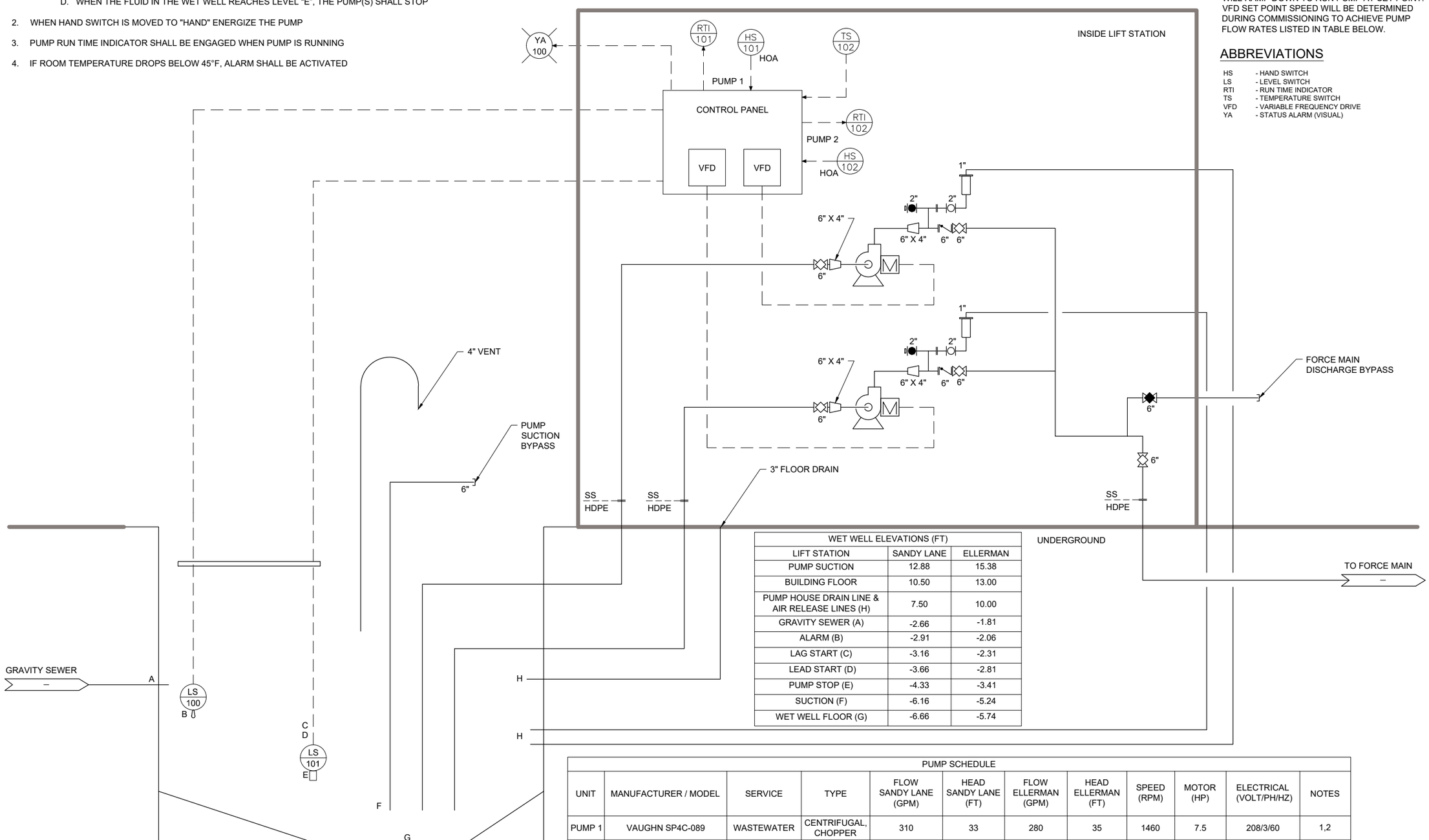
1. WHEN HAND SWITCH IS IN "AUTO" THE PUMP(S) WILL OPERATE AS FOLLOWS;
   A. WHEN THE FLUID IN THE WET WELL REACHES LEVEL "D", THE LEAD PUMP SHALL START
   B. WHEN THE FLUID IN THE WET WELL REACHES LEVEL "C", THE LAG PUMP SHALL START
   C. WHEN THE FLUID IN THE WET WELL REACHES LEVEL "B", THE HIGH LEVEL ALARM SHALL BE INITIATED
   D. WHEN THE FLUID IN THE WET WELL REACHES LEVEL "E", THE PUMP(S) SHALL STOP
2. WHEN HAND SWITCH IS MOVED TO "HAND" ENERGIZE THE PUMP
3. PUMP RUN TIME INDICATOR SHALL BE ENGAGED WHEN PUMP IS RUNNING
4. IF ROOM TEMPERATURE DROPS BELOW 45°F, ALARM SHALL BE ACTIVATED

GENERAL NOTES:

1. SEE ELECTRICAL FOR DETAILS OF CONTROL PANEL.
2. VFD USED TO RAMP PUMPS TO FULL SPEED TO ACHIEVE PRIME. ONCE PRIME IS ACHIEVED VFD WILL RAMP DOWN TO RUN PUMP AT SET POINT. VFD SET POINT SPEED WILL BE DETERMINED DURING COMMISSIONING TO ACHIEVE PUMP FLOW RATES LISTED IN TABLE BELOW.

ABBREVIATIONS

HS	- HAND SWITCH
LS	- LEVEL SWITCH
RTI	- RUN TIME INDICATOR
TS	- TEMPERATURE SWITCH
VFD	- VARIABLE FREQUENCY DRIVE
YA	- STATUS ALARM (VISUAL)



WET WELL ELEVATIONS (FT)		
LIFT STATION	SANDY LANE	ELLERMAN
PUMP SUCTION	12.88	15.38
BUILDING FLOOR	10.50	13.00
PUMP HOUSE DRAIN LINE & AIR RELEASE LINES (H)	7.50	10.00
GRAVITY SEWER (A)	-2.66	-1.81
ALARM (B)	-2.91	-2.06
LAG START (C)	-3.16	-2.31
LEAD START (D)	-3.66	-2.81
PUMP STOP (E)	-4.33	-3.41
SUCTION (F)	-6.16	-5.24
WET WELL FLOOR (G)	-6.66	-5.74

PUMP SCHEDULE

UNIT	MANUFACTURER / MODEL	SERVICE	TYPE	FLOW SANDY LANE (GPM)	HEAD SANDY LANE (FT)	FLOW ELLERMAN (GPM)	HEAD ELLERMAN (FT)	SPEED (RPM)	MOTOR (HP)	ELECTRICAL (VOLT/PH/HZ)	NOTES
PUMP 1	VAUGHN SP4C-089	WASTEWATER	CENTRIFUGAL, CHOPPER	310	33	280	35	1460	7.5	208/3/60	1,2
PUMP 1	VAUGHN SP4C-089	WASTEWATER	CENTRIFUGAL, CHOPPER	310	33	280	35	1460	7.5	208/3/60	1,2

NOTES:
1. VFD CONTROLLED 19' OF SUCTION LIFT
2. PUMP LISTED IS BASIS OF DESIGN, ANY PUMP SUBSTITUTION SHALL BE REQUIRED TO BE APPROVED BY ENGINEER.

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STATE OF ALASKA 49 TH SAMUEL LEE STRICKLAND JR. ME - 14221 02-02-2024 REGISTERED PROFESSIONAL ENGINEER

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SUBMITTAL	02/02/24

SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
PIPING AND INSTRUMENTATION DIAGRAM

DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: M-401
PROJECT NUMBER: 165.030540

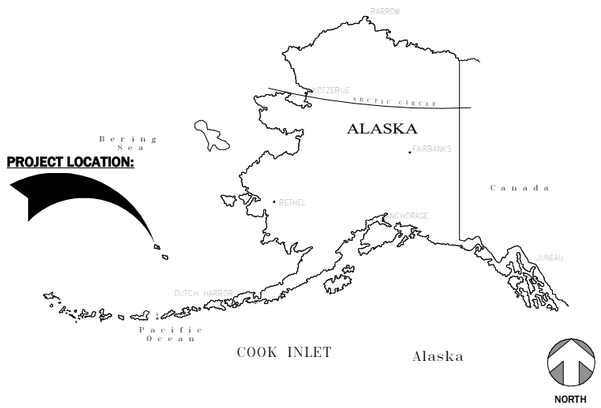
SHEET NUMBER
M-401

ST. PAUL LIFT STATIONS

LIFT STATION REPLACEMENTS

SAINT PAUL, ALASKA

LOCATION MAP



PROJECT LOCATION:

ARCH. ABBREVIATIONS

1. SEE OTHER DISCIPLINES FOR ADDITIONAL ABBREVIATIONS.
2. SOME ABBREVIATIONS LISTED BELOW MAY NOT BE USED IN THIS PROJECT.

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

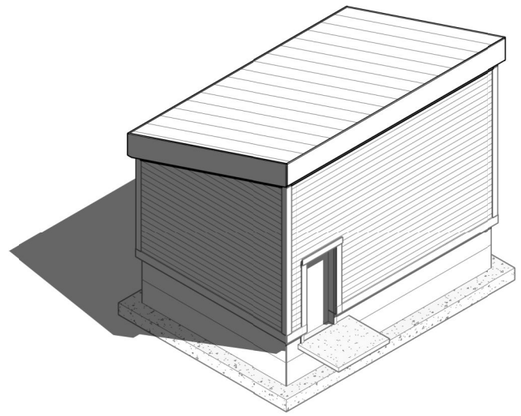
GENERAL NOTES

1. ALL CONSTRUCTION SHALL COMPLY WITH APPLICABLE CODES AS ADOPTED AND AMENDED BY AK DEPT. OF PUBLIC SAFETY.
2. THESE DRAWINGS ARE SUPPLIED TO THE CONTRACTOR AND OTHERS FOR THEIR USE FOR THIS SPECIFIC PROJECT. COPYRIGHT KUNA ENGINEERING.
3. THE ORGANIZATION OF THE DOCUMENTS ARE NOT INTENDED TO CONTROL THE DIVISION OF WORK. DIVISION OF WORK SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
4. DIMENSIONS ARE TO FACE OF FRAMING, OR GRID LINE, UNLESS OTHERWISE NOTED.
5. CONTRACTOR SHALL VERIFY DIMENSIONS, REQUIRED CLEARANCES, AND POWER, HVAC AND PLUMBING REQUIREMENTS FOR ALL OWNER AND N.I.C. ITEMS. NOTIFY ARCHITECT OF ANY DISCREPANCY PRIOR TO COMMENCEMENT OF WORK.
6. ALL VAPOR RETARDER IS TO BE SEALED VAPOR TIGHT AT ALL LOCATIONS.
7. IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSPECT THE JOB SITE TO FAMILIARIZE HER/HIMSELF WITH ALL THE EXISTING CONDITIONS THAT COULD AFFECT THE INSTALLATION OF ANY WORK SET FORTH IN THESE PLANS.
8. THE JOB SITE AT THE COMPLETION OF CONSTRUCTION SHALL BE CLEANED OF ANY DEBRIS OR SPOIL RESULTING FROM THE CONSTRUCTION. AT NO TIME SHALL THIS MATERIAL OBSTRUCT THE NORMAL OPERATION OF THE OWNER.
9. ALL EQUIPMENT OR MATERIALS NOT SHOWN OR SPECIFIED ON THE PLANS OR IN THE SPECIFICATIONS, BUT REQUIRED TO COMPLETE THIS INSTALLATION SHALL BE SUPPLIED BY THE CONTRACTOR AS PART OF THE CONTRACT WORK.
10. ALL MATERIALS SHALL BE NEW AND OF A GRADE AND QUALITY CONSISTENT WITH THE INTENDED USE AS SPECIFIED AND APPROVED BY THE ARCHITECT.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE EXISTENCE AND LOCATION OF ANY UNDERGROUND OR CONCEALED UTILITY LINES THAT MAY BE REQUIRED, OR AVOIDED DURING CONSTRUCTION.
12. REFER TO CODE ANALYSIS, PLANS, AND WALL TYPES FOR COMPLETE DESCRIPTIONS OF WALL ASSEMBLIES.
13. INSTALL A CONTINUOUS BEAD OF SEAL AT ALL GAP/SEAMS BETWEEN FIXED EQUIPMENT AND WALLS, OR OTHER ASSEMBLIES.
14. ALL COLOR SELECTIONS SHALL BE PER COLOR SCHEDULE, ISSUED BY ARCHITECT, AFTER CONTRACTOR SUBMITS SAMPLES.
15. REFERENCE ALL DISCIPLINE DRAWINGS FOR COORDINATION WORK.
16. INSTALL 2X BLOCKING OR BACKING MATERIAL FOR ALL WALL MOUNTED ITEMS.
17. REFER TO STRUCTURAL SHEETS FOR FRAMING DETAILS.

VICINITY MAP

11"X17" SHEETS ARE HALF INDICATED SCALE

PROJECT RENDERING



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MANAGEMENT		
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DRAWN	VM	
CHECKED	WTG	
APPROVED		
LAST EDIT		
PLOT DATE		02/16/24
SUBMITTAL		

SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
COVER SHEET

PROJECT NUMBER 165.030540
DRAWING FILE NAME 165.030540- A-000
DRAWING SCALE As indicated

SHEET NUMBER
A-000

PROJECT INFORMATION

Project name: Saint Paul Lift Station

APPLICABLE CODES (WITH STATE OF ALASKA AMENDMENTS)

International Building Code 2021 (IBC 2021), International Fire Code 2021 (IFC 2021), International Mechanical Code 2021 (IMC 2021), Electrical Code 2020, Fire Wall Code 2021, Plumbing Code 2018, Structural Concrete Code 2019, and the Concrete Construction Tolerance Code 2010

BUILDING DATA

Story	Space Name	Occupancy Group	Function of Space	Designed Area (gross sq. ft.)	Area Per Story
1	Equipment Room	S-2	Accessory storage areas, mechanical equipment room	315	315
				Total Gross Area:	315

Sprinkler type	Type of Construction	Fire Separation	High-Rise
Not Sprinklered	VB	-	No

HEIGHTS AND AREAS

Building Area 503

Single Occupancy

Occupancy Group	Designed Area (sq. ft.)	Allowed Area (Aa) (sq. ft.)
S-2	315	28,755

Factor Increase was determined by interpolation
Per Section 508.3.1, use area requirements for most restrictive occupancy group per story. Occupancy group with most restrictive area: S-2 = 28,755 sq. ft.

Building Height in Stories 504.4

Single Occupancy

Occupancy Group	Highest Story Above Grade Plane Occupancy Appears On	Highest Allowable Story Above Grade Plane
S-2	1	2

Building Height in Feet 504.3

Single Occupancy

Occupancy Group	Highest Elevation Above Grade Plane Occupancy Appears On	Highest Allowable Elevation Above Grade Plane
S-2	12.0 ft.	40 ft.

Average Roof Surface Height	Highest Allowable Elevation Above
Above Grade Plane	Grade Plane
12.0 ft.	40 ft.

EGRESS INFORMATION

Occupant Loads

Story	Space Name	Occupancy Group	Function of Space	Designed Area (gross sq. ft.)	Designed Area (net sq. ft.)	OLF	Occupant Load
1	Equipment Room	S-2	Accessory storage areas, mechanical equipment room	315	-	300	2

Min. Exits per Space 1006.2.1 1006.3.3

More than one exit must be provided if the space occupant load or maximum common path of egress travel distance are exceeded. More exits may be required under high occupant load or other special conditions (see notes below).

Story	Space Name	Occupancy Group	Function of Space	Cum. Occupant Load of Space	Max Single Exit Cumulative Load of Space	Min. Number of Exits per Space	Max. Common Path of Egress Allowed for Single Exit
1	Equipment Room	S-2	Accessory storage areas, mechanical equipment room	2	29	1	100

Min. Exits per Story 1006.3.3

Story	Total Occupancy Load by Story	Minimum Number of Exits or Exit Accesses	Max Exit Access Travel Distance for 1 Exit
1	2	1	75

In addition to single exit eligibility shown above, one exit may be permitted where all spaces are permitted to have one exit or access to a single exit and the exit discharges directly to the exterior at the level of exit discharge

Max. Exit Access Travel Distance 1017.2

Maximum exit access travel distance serving each space should be at a maximum the values below for each occupancy group.

Occupancy Group	Max Exit Access Travel Distance
S-2	300 ft.

FIRE-RESISTANCE RATINGS

Interior Building Element Fire-Resistance R 704.1

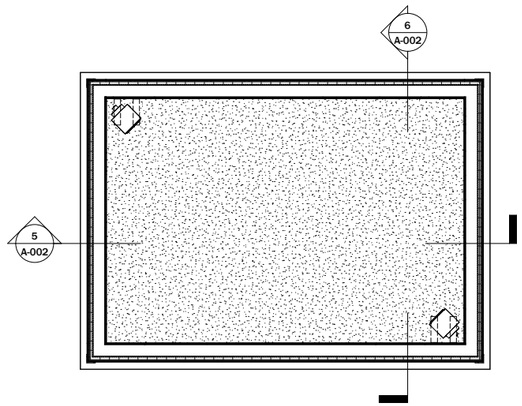
Story	Interior Building Element Type	Min. Fire Resistance Ratings (hrs.)
All	Primary structural frame	0
	Interior Bearing Walls	0
	Interior Nonbearing walls and partitions	0
	Floor construction and associated secondary structural members	0
	Roof construction and associated secondary structural members	0

Required Occupancy Separations 508.4

PLUMBING

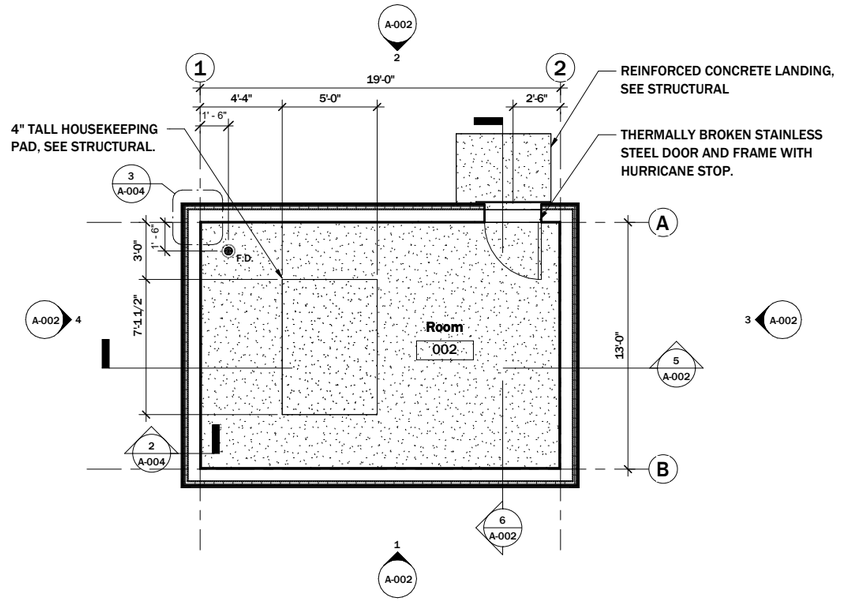
N/A - Not Occupied 1210

11"X17" SHEETS ARE HALF INDICATED SCALE



2 REFLECTED CEILING PLAN

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



1 FLOOR PLAN

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

****SEE CIVIL FOR SITE LAYOUT**
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William T. Guevremont
A140256
REGISTERED PROFESSIONAL ARCHITECT

REVISIONS & ADDENDUMS

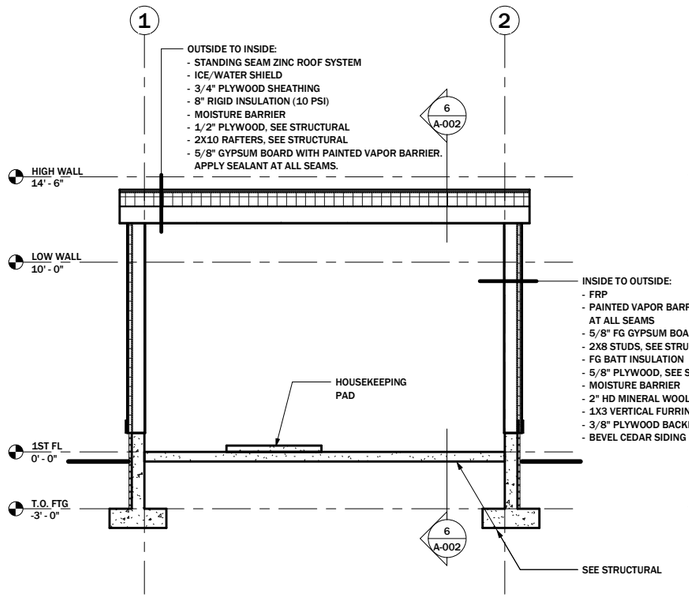
#	DATE	REMARKS

MANAGEMENT	
DESIGNED	WTG
DRAWN	VM
CHECKED	WTG
APPROVED	
LAST EDIT	
PLOT DATE	02/16/24
SUBMITTAL	

SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
CODE ANALYSIS AND PLANS

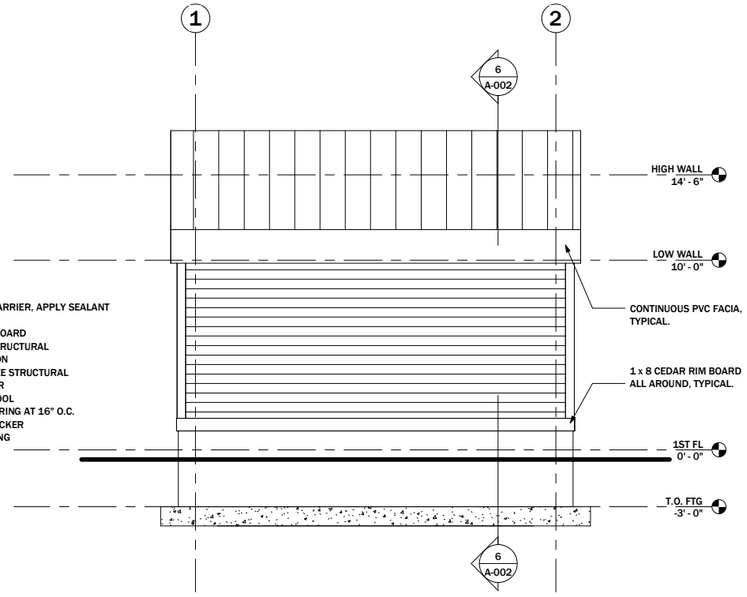
PROJECT NUMBER 165.030540
DRAWING FILE NAME 165.030540- A-001
DRAWING SCALE 1/4" = 1'-0"

SHEET NUMBER
A-001



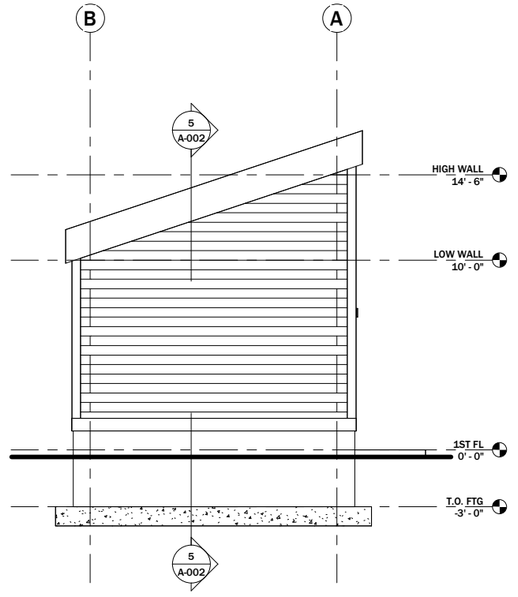
5 BUILDING SECTION - LONG

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



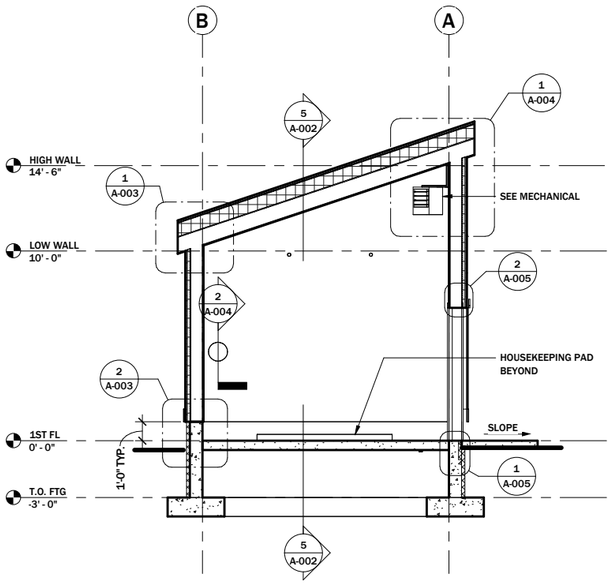
1 SOUTH ELEVATION

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



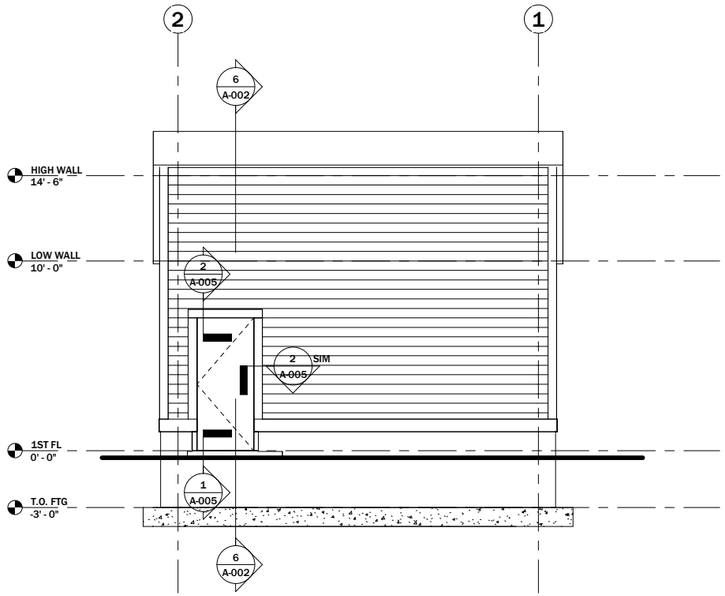
3 EAST ELEVATION

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



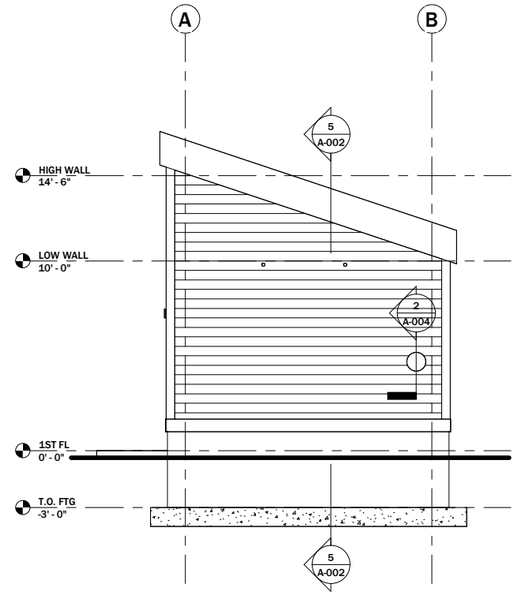
6 BUILDING SECTION - SHORT

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



2 NORTH ELEVATION

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



4 WEST ELEVATION

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

100% SUBMITTAL

11"X17" SHEETS ARE HALF INDICATED SCALE

KUNA ENGINEERING
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STATE OF ALASKA 49 TH
William T. Guevremont A140256
REGISTERED PROFESSIONAL ARCHITECT

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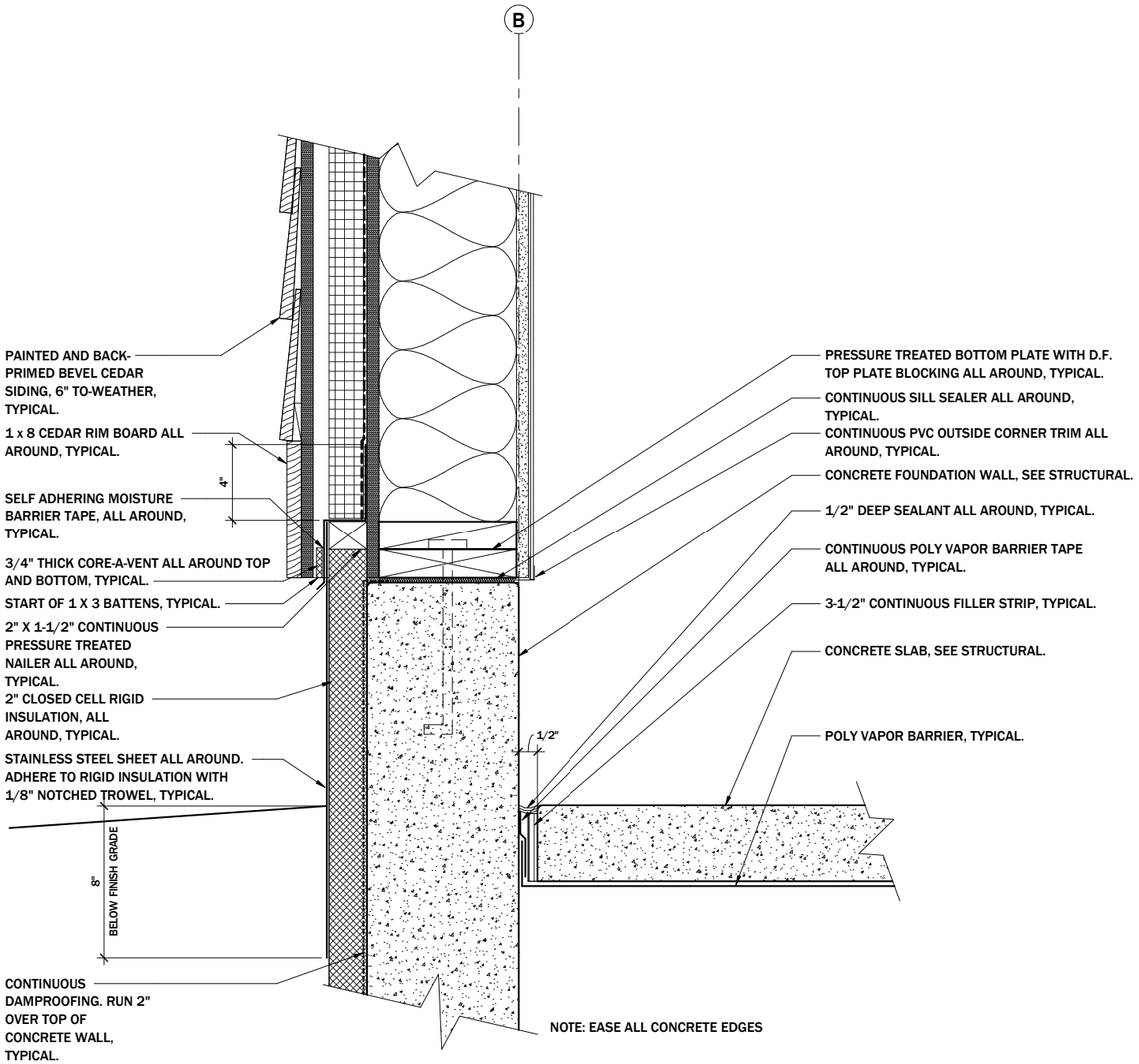
SAINT PAUL, ALASKA

LIFT STATION REPLACEMENTS

SECTIONS AND ELEVATIONS

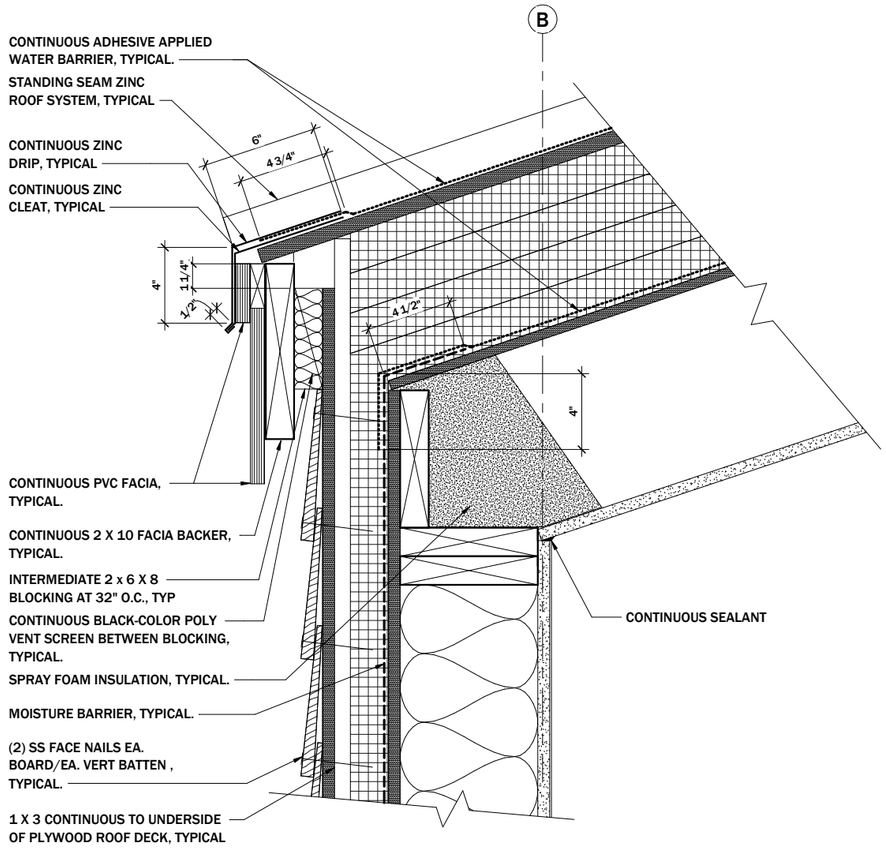
PROJECT NUMBER 165.030540
DRAWING FILE NAME 165.030540- A-002
DRAWING SCALE 1/4" = 1'-0"

SHEET NUMBER
A-002



2 DETAIL AT WALL BASE

SCALE: 3" = 1'-0"



1 DETAIL AT EAVE

SCALE: 3" = 1'-0"

11"X17" SHEETS ARE HALF INDICATED SCALE

100% SUBMITTAL

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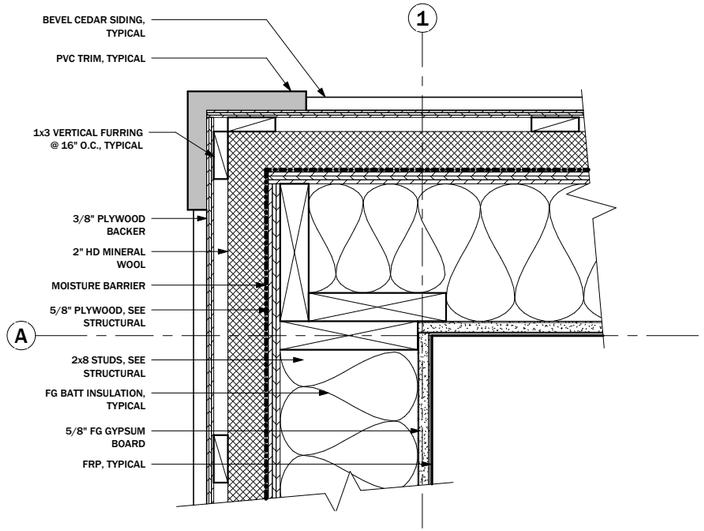
SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
DETAILS

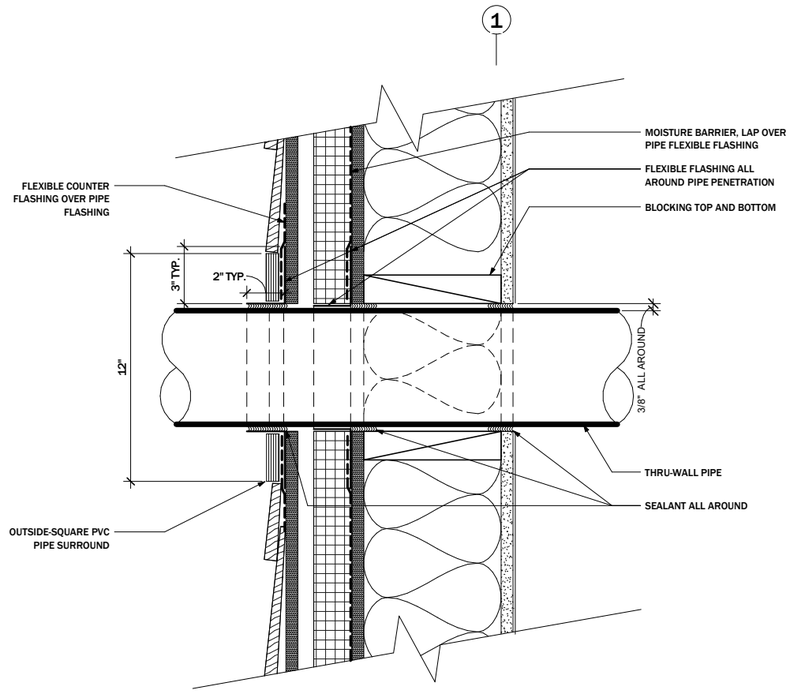
PROJECT NUMBER 165.030540
DRAWING FILE NAME 165.030540- A-003
DRAWING SCALE 3" = 1'-0"

SHEET NUMBER
A-003



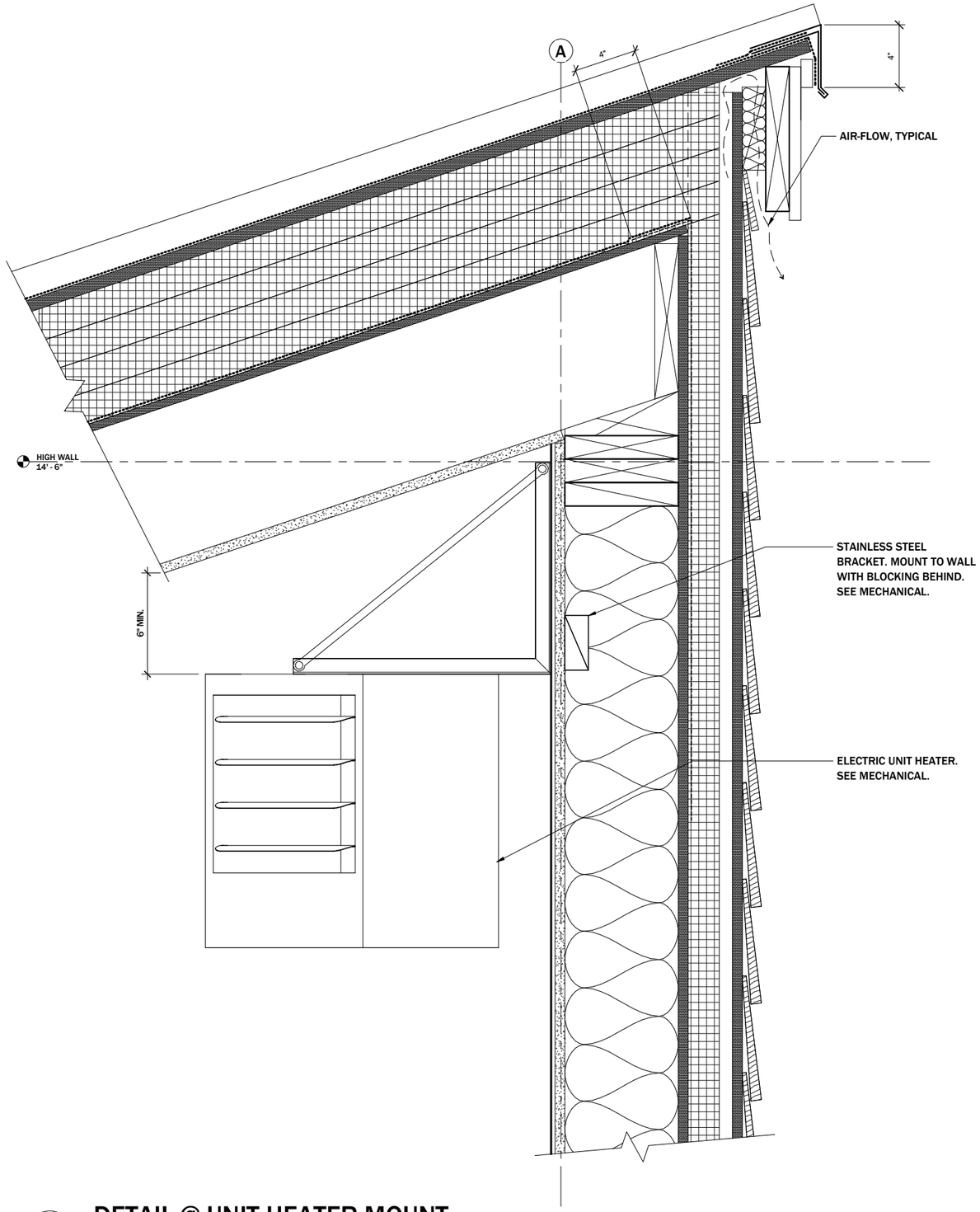
3 EXTERIOR CORNER TRIM AND FLASHING DETAIL

SCALE: 3" = 1'-0"



2 WALL PENETRATION DETAIL, TYPICAL

SCALE: 3" = 1'-0"



1 DETAIL @ UNIT HEATER MOUNT

SCALE: 3" = 1'-0"

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100% SUBMITTAL

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SAINT PAUL, ALASKA

LIFT STATION REPLACEMENTS

DETAILS

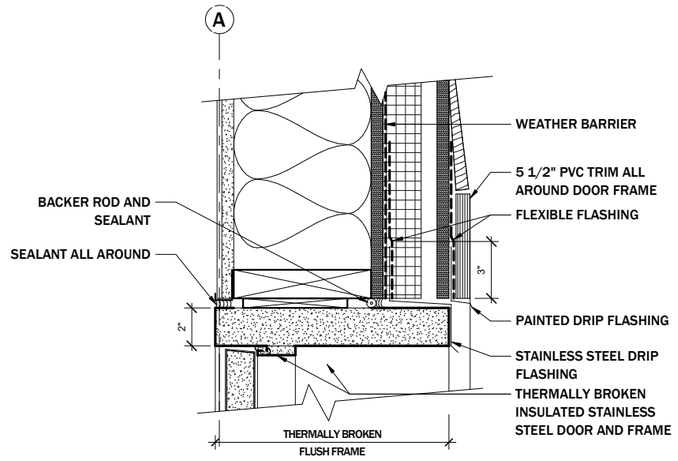
PROJECT NUMBER 165.030540

DRAWING FILE NAME 165.030540- A-004

DRAWING SCALE 3" = 1'-0"

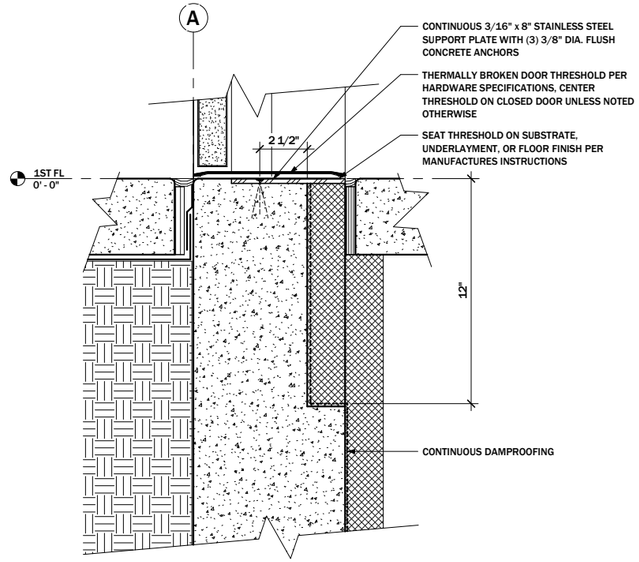
SHEET NUMBER

A-004



2 DETAIL@ DOOR HEAD / JAMB SIM.

SCALE: 3" = 1'-0"



1 DETAIL @ DOOR THRESHOLD

SCALE: 3" = 1'-0"

100% SUBMITTAL

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SAINT PAUL, ALASKA

LIFT STATION REPLACEMENTS

DETAILS

PROJECT NUMBER 165.030540

DRAWING FILE NAME 165.030540- A-005

DRAWING SCALE 3" = 1'-0"

SHEET NUMBER

A-005

STRUCTURAL DESIGN DATA:

1. CODES

ICC 2021 AS AMENDED BY STATE OF ALASKA.

ASCE 7-16.

1.1. SITE AND BUILDING PARAMETERS:
- OCCUPANCY CATEGORY.....III
- SITE TERRAIN/EXPOSURE CATEGORY.....C
- SITE SOIL CLASS.....D

1.2. LIVE LOADS:
- ROOF.....20 PSF
- FLOOR.....NA

1.3. SNOW LOADS:
- GROUND SNOW LOAD, P_g.....40 PSF
- EXPOSURE FACTOR, C_e.....1.00
- THERMAL FACTOR, C_t.....1.10
- SNOW IMPORTANCE FACTOR, I_s.....1.10
- FLAT ROOF SNOW LOAD, P_f.....34 PSF
- ROOF SLOPE FACTOR, C_s.....1.00
- SLOPED ROOF SNOW LOAD, P_s.....34 PSF
- DRIFT SURCHARGE LOAD, P_d.....NA
- DRIFT SURCHARGE WIDTH, W.....NA

1.4. WIND LOADS:
- BASIC WIND SPEED, V.....170 MPH
- BASIC WIND SPEED ASD, V_{ASD}.....132 MPH
- RISK CATEGORY.....III
- EXPOSURE CLASSIFICATION.....C
- INTERNAL PRESSURE COEFFICIENT.....0.18
- DESIGN WIND VELOCITY PRESSURE (26-10.2).....53 PSF

1.5. SEISMIC LOADS:
- RISK CATEGORY.....III
- SEISMIC IMPORTANCE FACTOR, I_E.....1.25
- MAPPED SHORT-PERIOD ACCELERATION, S_s.....0.24
- MAPPED 1-SECOND PERIOD ACCELERATION, S_1.....0.13
- SITE CLASS
- SHORT-PERIOD DESIGN ACCELERATION, S_{DS}.....0.26
- 1-SECOND PERIOD DESIGN ACCELERATION, S_{D1}.....0.20
- SEISMIC DESIGN CATEGORY.....D
- BASIC SEISMIC FORCE-RESISTING SYSTEM
- DESIGN BASE SHEAR.....0.72 K
- SEISMIC RESPONSE COEFFICIENT, CS.....0.05
- RESPONSE MODIFICATION COEFFICIENT, R.....6.5

1.6. GEOTECHNICAL DATA
- DESIGN LOAD BEARING VALUE.....2000 PSF

1.6.1. FOUNDATIONS ARE DESIGNED FOR A MAXIMUM SOIL BEARING PRESSURE OF 2000 PSF UNDER SUSTAINED LOADING.

1.6.2. FOUNDATION SOILS SHALL BE PREPARED IN ACCORDANCE WITH IBC 2021.

1.7. RAIN INTENSITY.....0.57 IN/HR

2. GENERAL

2.1. ALL WORK IS TO BE IN ACCORDANCE WITH THE 2021 EDITION OF THE INTERNATIONAL BUILDING CODE (IBC) AS AMENDED BY THE STATE OF ALASKA, LOCAL CODE AMENDMENTS, AND GOOD STANDARD PRACTICE. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF THESE DRAWINGS WITH THE ARCHITECTURAL SHEETS FOR OPENING SIZES, PROPER LOCATION OF BEARING WALLS AND BEAMS, AND LOCATION OF MECHANICAL AND ELECTRICAL ITEMS NOT SHOWN ON THE STRUCTURAL DRAWINGS. PROVIDE ADDITIONAL STUDS, JOISTS, OR OTHER FRAMING AS REQUIRED TO PERMIT PROPER INSTALLATION OF MECHANICAL. ELECTRICAL, AND PLUMBING PENETRATIONS.

2.2. PRIOR TO STARTING ANY WORK OR FABRICATION, THE CONTRACTOR SHALL COORDINATE ALL DIMENSIONS AMONG THE DRAWINGS. ANY DISCREPANCIES FOUND AMONG THE DRAWINGS, SITE CONDITIONS, AND THESE NOTES SHALL BE REPORTED TO THE ARCHITECT/ENGINEER.

2.3. THE CONTRACTOR IS RESPONSIBLE FOR MEETING ALL OSHA AND DOSH SAFETY STANDARDS. THE CONTRACTOR IS IN CHARGE OF ALL SAFETY MATTERS ON AND AROUND THE JOB SITE. PROVIDE TEMPORARY ERECTION BRACING AND SHORING AS REQUIRED FOR STABILITY OF THE STRUCTURE DURING ALL PHASES OF THE CONSTRUCTION.

3. QUALITY ASSURANCE:

3.1. SPECIAL INSPECTION IS REQUIRED IN ACCORDANCE WITH IBC SECTION 1704. THE OWNER SHALL ENGAGE THE SERVICES OF AN INDEPENDENT, QUALIFIED SPECIAL INSPECTOR. THE FOLLOWING ITEMS REQUIRE SPECIAL INSPECTION: PERIODIC INSPECTION OF THE LATERAL FORCE RESISTING SYSTEM - WOOD DIAPHRAGM NAILING AND ATTACHMENTS TO PERIMETER SHEAR WALLS. CONTINUOUS INSPECTION OF POST INSTALLED ANCHORS.

3.2. SPECIAL INSPECTION IS IN ADDITION TO THE CONTRACTOR'S REQUIRED QUALITY CONTROL INSPECTIONS AND TESTING. THE CONTRACTOR'S QUALITY CONTROL INSPECTIONS AND TESTING SHALL OCCUR PRIOR TO SPECIAL INSPECTION AND REPORTS SHALL BE AVAILABLE TO THE SPECIAL INSPECTOR.

4. DEFERRED SUBMITTALS:

4.1. THE FOLLOWING ITEMS ARE NOT INCLUDED IN THESE DRAWINGS AND REQUIRE STRUCTURAL DESIGN TO BE FURNISHED BY THE CONTRACTOR:

4.1.1. ROOFING ATTACHMENT

4.1.2. SEISMIC ANCHORAGE OF MECHANICAL AND ELECTRICAL EQUIPMENT DRAWINGS AND CALCULATIONS FOR BUILDER-DESIGNED COMPONENTS, SEALED BY AN ENGINEER REGISTERED IN THE STATE OF ALASKA, SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO SUBMITTING TO BUILDING SAFETY FOR REVIEW. SUBMITTALS OF BUILDER-DESIGNED ITEMS SHALL INCLUDE LOCATIONS, MAGNITUDES, AND DIRECTIONS OF ALL FORCES TRANSFERRED TO THE STRUCTURE. DEFERRED SUBMITTALS MUST BE REVIEWED AND APPROVED PRIOR TO INSTALLATION/CONSTRUCTION.

5. SUBMITTALS:

5.1. THE CONTRACTOR SHALL REVIEW, STAMP WITH HIS APPROVAL, DATE AND SIGN ALL SHOP DRAWINGS AND SUBMITTALS REQUIRED BY THE CONTRACT DRAWINGS PRIOR TO SUBMITTAL TO THE ENGINEER. AT THE TIME OF SUBMISSION, THE CONTRACTOR SHALL INFORM THE ENGINEER IN WRITING OF ANY DEVIATION IN THE SHOP DRAWINGS FROM THE REQUIREMENTS OF THE CONTRACT DRAWINGS. DIMENSIONS AND QUANTITIES ARE THE CONTRACTOR'S RESPONSIBILITY AND WILL NOT BE REVIEWED.

6. CONCRETE WORK:

6.1. STRUCTURAL CONCRETE SHALL HAVE A 28 DAY STRENGTH, F'cOF 4,000 PSI. MIX SHALL NOT CONTAIN LESS THAN 5-1/2 SACKS OF CEMENT PER CUBIC YARD. MAXIMUM WATER TO CEMENT RATIO EQUALS 0.50. MAXIMUM UN-PLASTICIZED SLUMP SHALL BE 5 INCHES. TOTAL ENTRAINED AIR CONTENT OF 6%.

6.2. REINFORCING STEEL: SHALL BE ASTM A615, GRADE 60 DETAILED OR IN ACCORDANCE WITH ACI 318.BAR LAP SHALL BE IN ACCORDANCE WITH ACI 318 (44 BAR DIAMETER MINIMUM), OR AS DETAILED, IF MORE RESTRICTIVE.

6.3. SUPPORT ALL REBAR ON CHAIRS, DOBIES, OR OTHER APPROVED MEANS. CONTRACTOR SHALL TAKE SPECIAL CARE TO PREVENT DISTURBANCE DURING CONCRETE PLACEMENT TO ENSURE THAT REINFORCEMENT REMAINS AT ITS PROPER ELEVATION AND POSITION.

6.4. ALL CONCRETE WORK SHALL CONFORM TO THE LATEST STANDARDS AND SPECIFICATIONS OF THE AMERICAN CONCRETE INSTITUTE.

7. WOOD:

7.1. ALL DIMENSIONAL LUMBER SHALL BE DOUG FIR #2 OR BETTER FOR ALL 2X JOISTS, STUDS, AND PLATES, AND DOUG FIR #1 FOR ALL 4X OR 6X WOOD POSTS AND BEAMS UNLESS NOTED OTHERWISE. WOOD SHALL BE GRADED IN ACCORDANCE WITH THE WESTERN WOODS PRODUCTS ASSOCIATION (WWPA) OR WEST COAST LUMBER INSPECTION BUREAU (WCLIB) LUMBER GRADING CRITERIA. MAXIMUM MOISTURE CONTENT SHALL BE 15%. MINIMUM HEADER SIZE UNLESS NOTED OTHERWISE SHALL BE (2)2X8 HEM-FIR #2.

7.2. ROOFING: 5/8" PLYWOOD ROOF SHEATHING SHALL BE CDX WITH EXTERIOR GLUE, OR BETTER AND SHALL HAVE A PANEL SPAN RATING OF 32/16 - BLOCKED EDGES, MINIMUM NAILING FOR ROOF PANELS SHALL BE (0.148")10d NAILS AT 6"0.C. ALONG PANEL EDGES AND 12"0.C. IN THE FIELD.

7.3. WALLS: PLYWOOD WALL SHEATHING SHALL BE 7/16" MIN CDX OR OSB WITH EXTERIOR GLUE, OR BETTER, AND SHALL HAVE A SPAN RATING OF 24/16 - MINIMUM NAILING FOR WALL PANELS SHALL BE 8d (0.131) NAILS AT 6" O.C. ALONG PANEL EDGES AND 12" O.C. IN THE FIELD. BLOCK ALL PANEL EDGES FOR VERTICAL PLYWOOD DIAPHRAGMS. REFER TO SHEARWALL SCHEDULE FOR ADDITIONAL NAILING REQUIREMENTS.

7.4. ALL METAL TO WOOD OR WOOD TO WOOD CONNECTIONS SHALL BE STANDARD OR AS DETAILED ON THE DRAWINGS USING A307 BOLTS. ALL BOLTS AND LAG SCREW HEADS IN CONTACT WITH WOOD SHALL HAVE PLATES OR WASHERS AS DETAILED AND OR SPECIFIED.

7.5. ALL FRAMING ANCHORS AND HANGERS INDICATED ON THE DRAWINGS ARE "SIMPSON STRONG-TIE" OR EQUAL. UNLESS OTHERWISE DETAILED, ALL BEAMS AND JOISTS SHALL RECEIVE HANGERS WITH A NORMAL LOAD CAPACITY EQUAL TO THE SHEAR CAPACITY OF THE SUPPORTED MEMBER. HANGERS LOCATED IN CONTACT WITH TREATED WOOD OR WET CONDITIONS SHALL BE Z-MAX, STAINLESS STEEL OR HOT DIPPED GALVANIZED.

7.6. LAG SCREWS SHALL BE PRE-DRILLED WITH LEAD HOLES AS FOLLOWS:

7.6.1. THE LEAD HOLE FOR THE SHANK SHALL HAVE THE SAME DIAMETER AS THE SHANK, AND THE SAME DEPTH AS THE LENGTH OF THE UNTHREADED SHANK.

7.6.2. THE LEAD HOLE FOR THE THREADED PORTION SHALL HAVE A DIAMETER EQUAL TO 60% TO 70% OF THE SHANK DIAMETER AND A LENGTH EQUAL TO AT LEAST THE LENGTH OF THE THREADED PORTION.

7.7. MINIMUM NAILING SHALL EQUAL THAT INDICATED IN IBC TABLE 2304.9.1 UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

7.7.1. RAFTER TO TOP PLATE w/ (3) 16d COMMON (3-1/2" x 0.162") TOENAIL

7.7.2. BLOCKING BETWEEN RAFTERS w/ (3) 16d COMMON (3-1/2" X 0.162") EACH END, TOENAIL

7.7.3. TOP PLATE TO TOP PLATE w/ (3) 16d COMMON (3-1/2" X 0.162") 16" O.C. FACE NAIL

7.7.4. STUD TO TOP OR BOTTOM PLATE w/ (4) 16d COMMON (3-1/2" X 0.162") EACH NAIL

7.8. LAMINATED VENEER LUMBER (LVL) MEMBERS ARE TO BE "VERSA-LAM 2.0E" AS MANUFACTURED BY BOISE CASCADE OR OR APPROVED EQUAL. MINIMUM ALLOWABLE DESIGN STRESSES. Fb=2,800 PSI, E=2,000,000 PSI, Fv=285 PSI.

7.9. GLUED-LAMINATED BEAMS (GLB) ARE TO BE 24F-1.8E, BALANCED LAY-UP WITH MINIMUM ALLOWABLE DESIGN STRESSES OF Fb2,400 PSI, E=1,800,000 PSI, Fv=265 PSI. ALL GLUED-LAMINATED LUMBER TO BE FABRICATED IN ACCORDANCE WITH AITC 117 AND PRODUCT STANDARD PS-56.

100% SUBMITTAL

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STATE OF ALASKA 49TH
DANIEL HERTRICH
EXP 12/6439
REGISTERED STRUCTURAL ENGINEER

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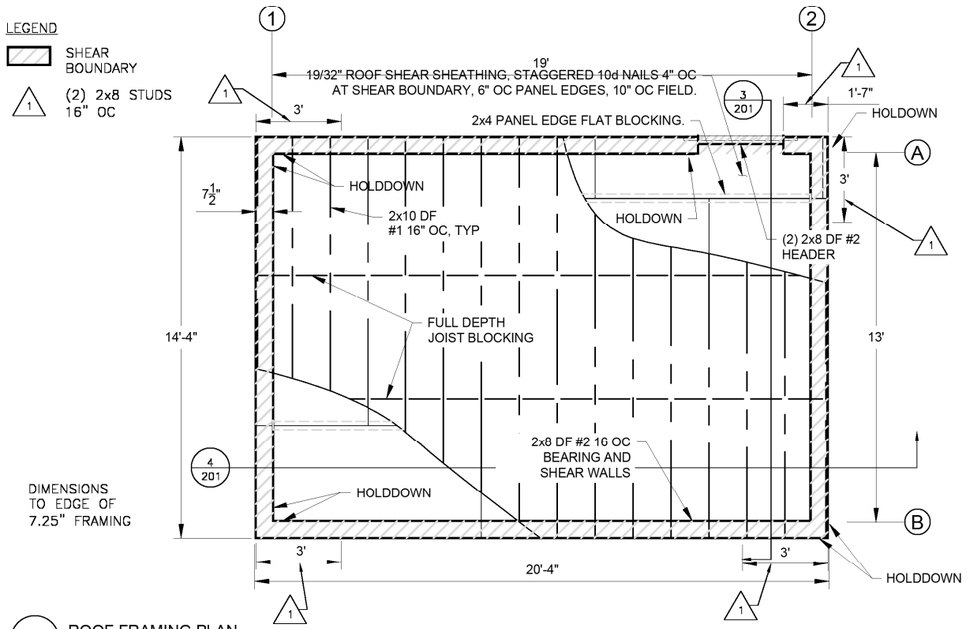
SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
SPECIFICATIONS & DESIGN DATA

DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: S100.DWG
PROJECT NUMBER: 165.030540

SHEET NUMBER
S-100



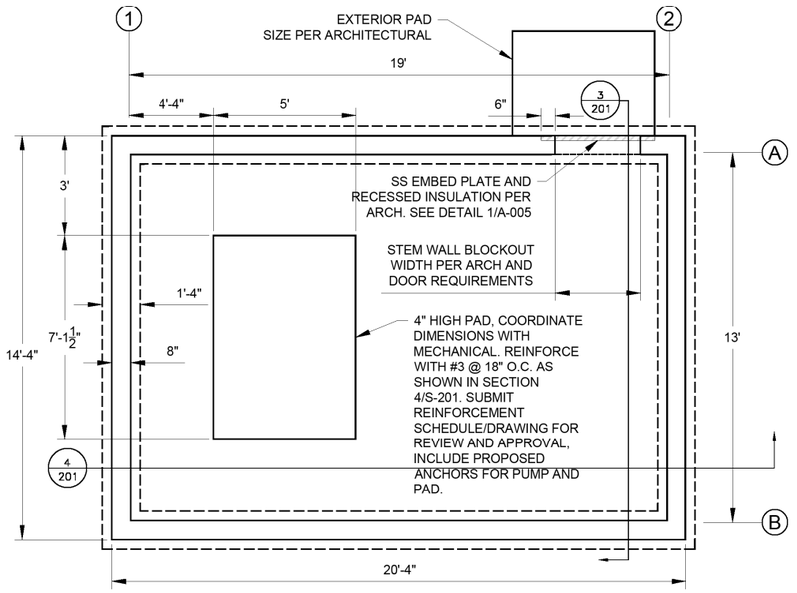
1 ROOF FRAMING PLAN
SCALE: 3/8" = 1'-0"

NOTES

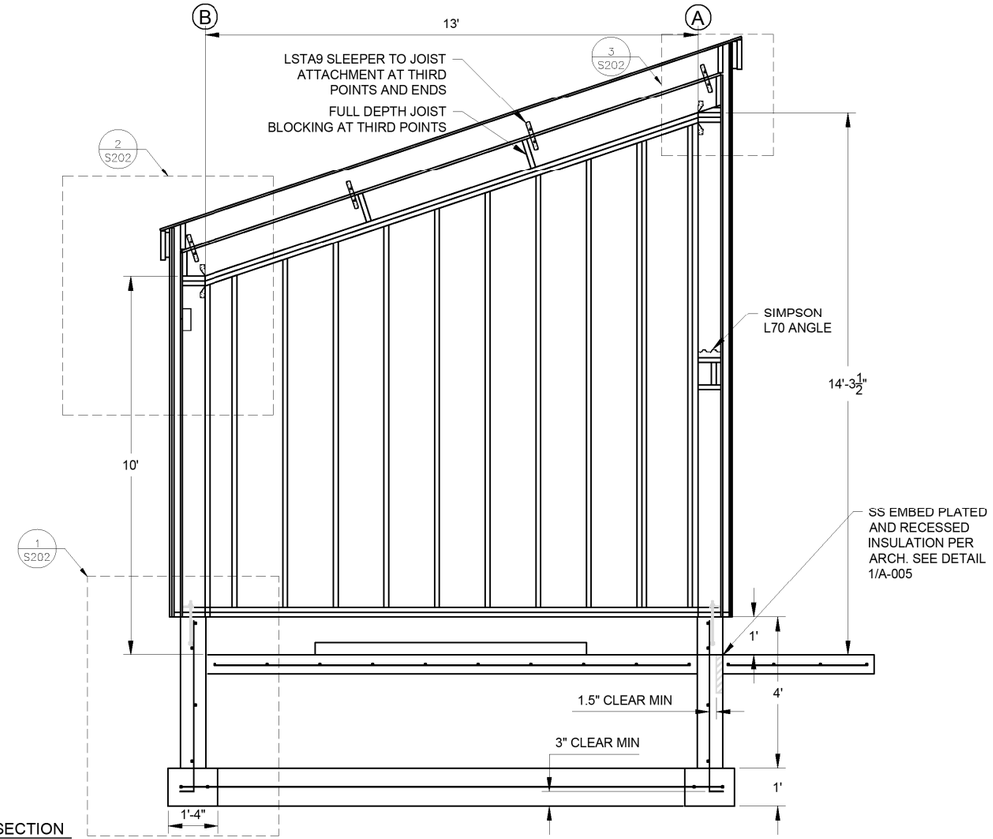
SHEAR WALLS NAILED WITH 8d @ 6" OC PANEL EDGES, 12" FIELD. PANEL EDGES REQUIRE BLOCKING. PANEL ORIENTATION EITHER DIRECTION. END PANELS (AT BUILDING CORNERS) NAILED WITH 10d AT 4" OC. BASE PLATE NAILING (2) ROWS OF 8d NAILS SPACED 4" OC, STAGGERED. HDU5 HOLDDOWN IN DOUBLE STUD AT EA WALL END w/ SB5/8x24 ANCHOR BOLT w/ 18" MIN EMBED. CORNER WALLS CAN SHARE HOLDDOWN IF PANEL EDGES OF THE INTERSECTING WALLS ARE NAILED TO THE SAME HOLDDOWN COLUMN.

SHEAR WALL BASE PLATES BOLTED TO CONCRETE WITH 5/8" ANCHOR BOLTS SPACED 36" OC AND EMBEDDED IN CONCRETE A MINIMUM OF 8". 3"x3"x0.25" PLATE WASHERS INSTALLED SUCH THAT ONE EDGE IS WITHIN 1/2" OF SHEAR WALL SHEATHING.

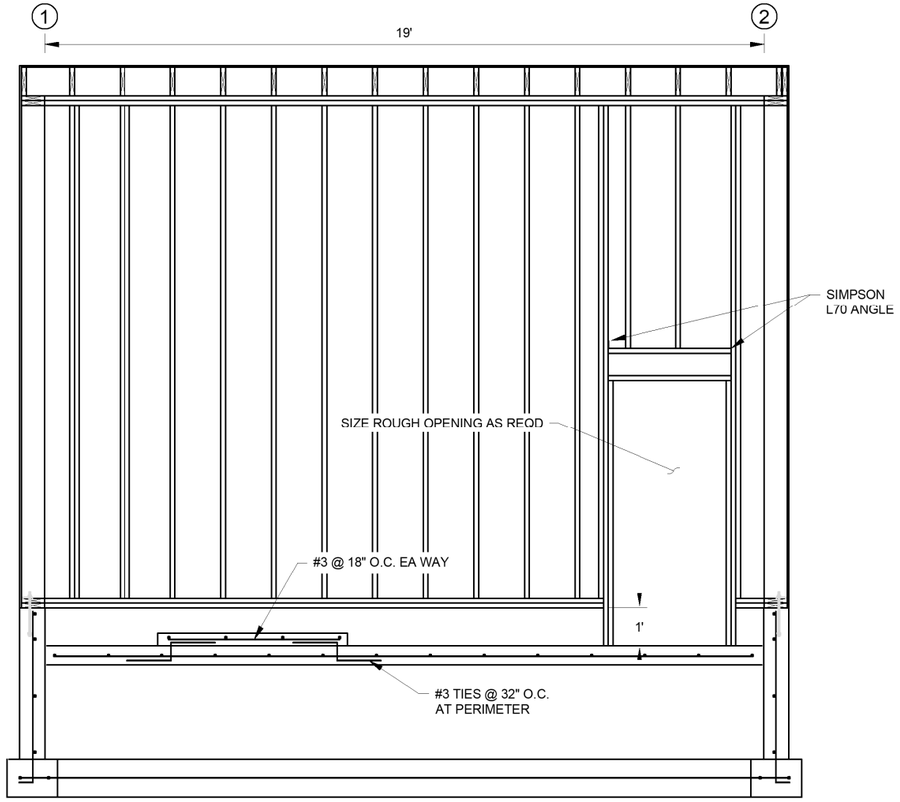
SLEEPERS, BATTENS, AND OUTER SHEATHING NOT SHOWN



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



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



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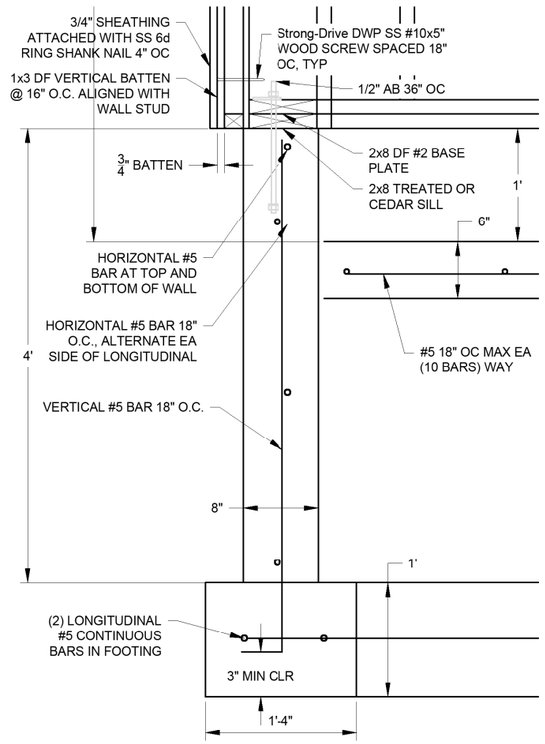
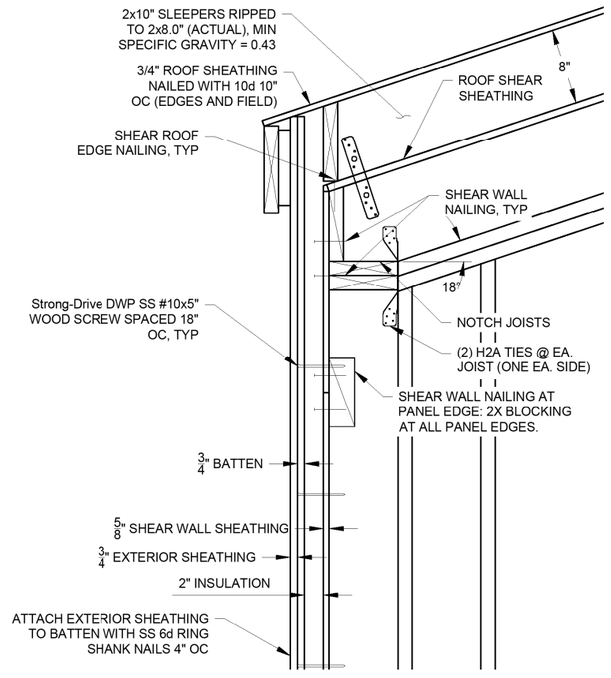
SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
FRAMING AND FOUNDATION PLAN

DRAWING SCALE: AS SHOWN
PROJECT NUMBER: 165.030540
DRAWING FILE NAME: S-200.DWG

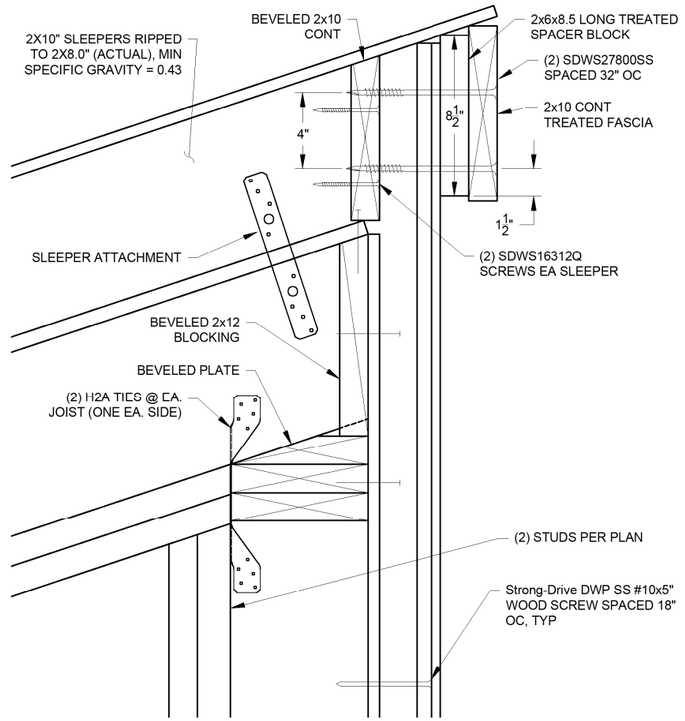
SHEET NUMBER
S-201



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



2 FRAMING DETAIL - LOW WALL
SCALE: 1'-1/2" = 1'-0"



3 ROOF FRAMING DETAIL - HIGH WALL
SCALE: 1'-1/2" = 1'-0"

100% SUBMITTAL

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STATE OF ALASKA 49 TH
DANIEL HERTRICH
9 FEB 24
SE# 126439
REGISTERED STRUCTURAL ENGINEER

REVISIONS & ADDENDUMS

#	DATE	REMARKS

MANAGEMENT	
DESIGNED	DJH
DRAWN	RW
CHECKED	JM
APPROVED	JM
LAST EDIT	2/16/24
PLOT DATE	2/16/24
SUBMITTAL	02/19/24

SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
FRAMING SECTIONS AND DETAILS

DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: S-200.DWG
PROJECT NUMBER: 165.030540

SHEET NUMBER
S-202

LIGHTING LEGEND

	LIGHTING FIXTURE - SURFACE (CEILING)
	COMB. EXHAUST FAN, LIGHT FIXTURE - SURFACE (CEILING)
	LIGHTING FIXTURE - RECESSED
	WALL MOUNTED FIXTURE
	2x2 RECESSED FIXTURE
	2x4 RECESSED FIXTURE
	1x4 RECESSED FIXTURE
	2x2 SURFACE MOUNTED FIXTURE
	2x4 SURFACE MOUNTED FIXTURE
	1X4 SURFACE MOUNTED FIXTURE
	PENDANT MOUNTED FIXTURE
	WALL MOUNTED FIXTURE
	STRIP FIXTURE
	TRACK LIGHTING SYSTEM
	POLE MOUNTED AREA LIGHT
	WALL MOUNTED BUILDING LIGHT
	FLOOD LIGHT
	EXIT SIGN - CEILING MOUNTED (SOLID INDICATES EXIT SIGN FACING)
	EXIT SIGN - WALL MOUNTED (SOLID INDICATES EXIT SIGN FACING)
	EMERGENCY LIGHT
	LIGHT FIXTURE W/ EMERGENCY BATTERY
P	PHOTOCELL
$	SINGLE POLE SWITCH +48" U.O.N.
$D	SWITCH WITH DESIGNATION (D - DIMMABLE) +48" U.O.N.
$K3	THREE WAY KEY OPERATED SWITCH +48" U.O.N.
$3 $4	3-WAY & 4-WAY SWITCH +48" U.O.N.
$PL	SINGLE POLE SWITCH W/ PILOT LIGHT (PL "ON" WHEN LIGHT IS "OFF" - U.O.N.) + 48" U.O.N.
$OS	OCCUPANCY SENSOR - WALL MOUNTED
OS	OCCUPANCY SENSOR - CEILING MOUNTED
MS	MOTION SENSOR - WALL MOUNTED

POWER LEGEND

M	ELECTRIC METER
	NEW PANELBOARD - SURFACE MOUNTED
	EXISTING PANELBOARD - SURFACE MOUNTED
	NEW PANELBOARD - FLUSH MOUNTED
	EXISTING PANELBOARD - FLUSH MOUNTED
G	MOTOR CONNECTION
G	GENERATOR
$MS	MOTOR RATED DISCONNECT SWITCH (FRACTIONAL HP) W/ ITP
	DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	COMBINATION MOTOR STARTER DISCONNECT
S	SOLENOID
T	TRANSFORMER

WIRING CIRCUITS LEGEND

	CONDUIT - CONCEALED
	CONDUIT - EXPOSED
	CONDUIT - UNDERGROUND
	CONDUIT - FLEX
	CONDUIT - LIQUID TIGHT FLEX
	SEAL OFF FOR CLASSIFIED LOCATIONS
A-2	HOMERUN (GROUND, NUETRAL,# OF HOT)
	CONDUIT STUB-UP
	CONDUIT STUB-DN
T	THERMOSTAT (LINE VOLTAGE)
	HEAT TRACE
P	HEAT TRACE POWER POINT

WIRING DEVICES LEGEND

	RECEPTACLE - SINGLE +18" U.O.N.
	RECEPTACLE - DUPLEX +18" U.O.N.
	RECEPTACLE - QUAD +18" U.O.N.
	RECEPTACLE - SPLIT WIRED +18" U.O.N.
	RECEPTACLE - GFCI RECEPTACLE
WP	RECEPTACLE - GFCI WEATHER PROOF RECEP
	RECEPTACLE - SPECIAL +18" U.O.N.
	RECEPTACLE - FLOOR MOUNTED
	RECEPTACLE - CEILING MOUNTED
J	JUNCTION BOX
	PUSH BUTTON (DOORBELL, GARAGE)
W	PLUG MOLD
	RECEPTACLE - GFCI QUAD +18" U.O.N.

COMMUNICATIONS LEGEND

	TELECOM OUTLET, 2 JACKS UON
	TELECOM OUTLET - FLOOR MOUNTED, 2 JACKS UON
	TELECOM OUTLET - CEILING MOUNTED, 2 JACKS UON
	EXISTING TELECOM AND/OR DATA OUTLET
TV	TELEVISION OUTLET
S	SPEAKER - WALL MOUNTED
S	SPEAKER - CEILING MOUNTED
	BELL
	DOOR-BELL WITH ADA COMPLIANT VISUAL NOTIFICATION DEVICE
S	SPEAKER / CLOCK
	CLOCK - WALL MOUNTED
	CLOCK - CEILING MOUNTED
TTB	TELEPHONE TERMINAL BOARD

FIRE ALARM SYSTEM LEGEND

	FA MANUAL PULL STATION
	FA HORN STROBE
	FA / ADA STROBE
M	MAGNETIC DOOR HOLD OPEN
135°F	FA HEAT DETECTOR (FIXED TEMP. NOTED)
I	SMOKE DETECTOR - IONIZATION TYPE
P/CO/A	SMOKE /CO DETECTOR - PHOTO ELECTRIC TYPE W/AUDIO AND CONNECTED TO A STROBE.
P	SMOKE DETECTOR - PHOTO ELECTRIC TYPE
D	SMOKE DETECTOR - DUCT MOUNTED
S	FA SPEAKER
FACP	FIRE ALARM CONTROL PANEL
FAAP	FIRE ALARM ANNUNCIATOR PANEL

SECURITY LEGEND

	WALL MOUNT CCTV
	RECESSED CEILING MOUNT CCTV WITH DOME
	CEILING MOUNT DOME
	RACK
G	GLASS BREAK SENSOR
D	MAGNETIC DOOR SENSOR
M	MOTION SENSOR
KP	KEYPAD
RIM	REMOTE ALARM INPUT MODULE
CR	CARD READER
ACU	NETWORKED INTELLIGENT CONTROLLER

ELECTRICAL ABBREVIATIONS LIST

AC	ABOVE COUNTER
AFCI	ARC FAULT CIRCUIT INTERRUPTER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AMP	AMPERES
ATS	AUTOMATIC TRANSFER SWITCH
BB	BASEBOARD (HEATER)
BCU	BARE COPPER
BFC	BELOW FINISH CEILING (BOTTOM OF DEVICE)
BLDG	BUILDING
CB	CIRCUIT BREAKER
CFF	CLEARANCE FINISH FLOOR (SURFACE TO SURFACE)
CFC	CLEARANCE FINISH CEILING (SURFACE TO SURFACE)
CLG	CEILING
CKT	CIRCUIT
CO	CONDUIT ONLY
C	CONDUIT
CP	CONTROL PANEL
CT	CURRENT TRANSFORMER
DC	DIRECT CURRENT
DCS	DIGITAL CONTROL SYSTEM
DIST	DISTANCE
(E)	EXISTING
EGC	EQUIPMENT GROUNDING CONDUCTOR
EM	EMERGENCY
EMCS	ENERGY MANAGMENT CONTROL SYSTEM
EO	ELECTRICALLY OPERATED
EP	EXPLOSION PROOF
EKSU	ELECTRONIC KEY SWITCH UNIT
ETR	EXISTING TO REMAIN
EWC	ELECTRIC WATER COOLER
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FA	FIRE ALARM
FBO	FURNISHED BY OTHERS
FWP	FACTORY WIRED PANEL
GFI	GROUND FAULT INTERRUPTER
GND	GROUND
HID	HIGH INTENSITY DISCHARGE
HIT	HIGH INTENSITY TUNGSTEN
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HWH	HOT WATER HEATER
IBO	INSTALLED BY OTHERS
INC	INCANDESCENT
ITB	INTERCOM TERMINAL BOX
KEA	KODIAK ELECTRIC ASSOCIATION
KSU	KEY SWITCH UNIT
LC	LIGHTING CONTACTOR
LPS	LOW PRESSURE SODIUM
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MDS	MAIN DISTRIBUTION SWITCHBOARD
MH	MOUNTING HEIGHT
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MTS	MANUAL TRANSFER SWITCH
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NTS	NOT TO SCALE
OC	ON CENTER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OL	OVERLOAD
PA	PUBLIC ADDRESS
PC	PHOTOCELL
PH	PHASE
PL	PILOT LIGHT
PNL	PANEL
PTZ	PAN, TILT, ZOOM
QTZ	QUARTZ
RIB	RELAY IN BOX
ROW	RIGHT OF WAY
SEC	SECTION
SSBJ	SUPPLY SIDE BONDING JUMPER
SSP	SECURITY SYSTEM PANEL
TC	TIME CLOCK
TTB	TELEPHONE TERMINAL BOARD
TTC	TELEPHONE TERMINAL CABINET
UON	UNLESS OTHERWISE NOTED
VEL	VERIFY EXACT LOCATION
VOS	VERIFY ON SITE
W/	WITH
W/O	WITHOUT
WP	WEATHER PROOF
XFRM	TRANSFORMER

THIS IS A STANDARD (TYPICAL) ABBREVIATIONS LIST. NOT ALL ABBREVIATIONS ARE NECESSARILY USED ON THIS PROJECT. ALSO, ADDITIONAL ABBREVIATIONS MAY BE INTRODUCED ON DRAWINGS AND DEFINED THEREIN.

LINE TYPES

EXISTING EQUIPTMENT

NEW EQUIPTMENT

NOTES

SHEET NOTES (#)

CONSTRUCTION NOTES (#)

SYMBOL NOTES:

1. SYMBOLS DO NOT NECESSARLIY APPEAR ON PLANS IN THE SAME SIZE OR PROPORTION AS SHOWN ON THIS LEGEND.
2. PLANS DO NOT NECESSARILY USE ALL OF THE SYMBOLS DISPLAYED ON THIS LEGEND.

MOUNTING HEIGHTS

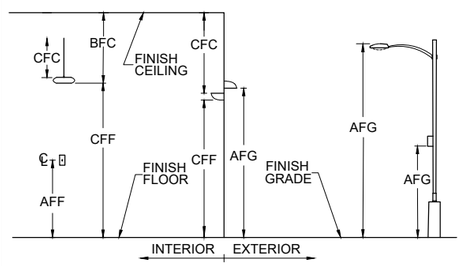
MOUNTING HEIGHTS APPLY TO ALL ELECTRICAL DRAWINGS

THE FOLLOWING HEIGHTS ARE ABOVE FINISHED FLOOR OR GRADE, AND SHALL BE USED UNLESS OTHERWISE NOTED

LIGHT SWITCHES & LIGHT DIMMERS	℄ 45"	VOLUME CONTROLS (WALL-MTD.)	℄ 45"
DUPLEX RECEPTACLE	℄ 18" U.O.N.	TELEPHONE OUTLETS (FOR DESK PHONES)	℄ 18"
DULPEX RECEPTACLE GFI	℄ 18" U.O.N.	MICROPHONE OUTLETS	℄ 45"
DUPLEX RECEPTACLE SPLIT-WIRED	℄ 18" U.O.N.	TV OUTLETS	℄ 18" UON
SPECIAL PURPOSE RECEPTACLES	AS REQ. BY EQUIP. SERVED	FIRE ALARM MANUAL STATIONS	℄ 45"
COMPUTER (DATA) OUTLETS	℄ 18"	FIRE ALARM SIGNALS	℄ 80" (A)
WALL-PHONE OUTLETS (LOCATIONS W/ WHEELCHAIR SIDE ACCESS)	℄ 50"	PANELBOARDS	TOP OF BOX 72"
DUPLEX RECEPTACLES (RESTROOMS)	℄ 36"	DISCONNECTS, STARTERS, CONTACTORS	TOP OF BOX 66"

VERIFY ALL M.H. WITH OWNER'S REPRESENTATIVE WHEN IN CONFLICT. MODIFY M.H. AS REQUIRED BY LOCAL CONDITIONS AND TYPE OF OCCUPANCY - TYPICAL OF ALL DRAWINGS.

MOUNTING LEGEND



DRAWING SYMBOLS

SEE SECTION #, ON SHEET XX — # / XX

SECTION #/DETAIL # — # SCALE:

NORTH ARROW

SCALE BAR — 20' 0' 10' 20' 40'

100% SUBMITTAL

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License Number: AELS 129381

STATE OF ALASKA 49 TH — CARL I. OLSON No. EE 14398 — 2-19-2024 — REGISTERED PROFESSIONAL ENGINEER

REVISIONS & ADDENDUMS	#	DATE	REMARKS

MANAGEMENT		
DESIGNED	WDF	2/19/24
DRAWN	WDF	PLOT DATE
CHECKED	CIO	SUBMITTAL 02/19/24
APPROVED		LAST EDIT

SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
ELECTRICAL LEGEND AND ABBREVIATIONS

DRAWING SCALE: AS SHOWN

PROJECT NUMBER: 165.030540

DRAWING FILE NAME: 030540-E-001 ELECTRICAL LEGEND.DWG

SHEET NUMBER: E-001

ELLERMAN EQUIPMENT SCCR SCHEDULE

ALL EQUIPMENT TO HAVE SCCR EXCEEDING THE AVAILABLE SCA AT THE CALCULATED X/R RATIO. WHERE X/R RATIO IS GREATER THAN THE INDUSTRY STANDARD TEST X/R RATIOS, THE APPROPRIATE MULTIPLICATION FACTOR SHALLBE APPLIED TO PROPERLY RATE THE EQUIPMENT. DOWNSTREAM EQUIPMENT AND ASSOCIATED CIRCUIT BREAKER RATINGS MAY BE SATISFIED BY USING FULLY RATED EQUIPMENT OR MANUFACTURER TESTED COMBINATIONS FOR BRANCH CIRCUITS RATED 100AMPS OR LESS PER NEC 240.86(B) TO SERIES RATE FOR THE AVAILABLE SCA AT EQUIPMENT. ALL SERIES RATED EQUIPMENT TO BE CLEARLY LABELED & IDENTIFIED PER NEC 110.22(C). SERIES RATED EQUIPMENT MOTOR LOADS CANNOT EXCEED 1% OF AIC RATING PER NEC 240.86(C).

CONTRACTOR TO VERIFY ACTUAL EQUIPMENT TO BE PROVIDED WITH SERVING UTILITY PRIOR TO EQUIPMENT PROCUREMENT. ANY DECREASE OF TRANSFORMER %Z, CONDUCTOR LENGTH, OR INCREASE IN TRANSFORMER KVA OR CABLE SIZES TO BE REPORTED TO ENGINEER FOR RECALCULATION OF AVAILABLE FAULT CURRENT PRIOR TO PROCUREMENT OF EQUIPMENT. PROVIDE WARNING PLACARD INSTALLED ON SERVICE DISCONNECT PER NEC 110.24 DENOTING ALL PROJECT PARAMETERS REQUIRED BY NEC.

ASSUMED UTILITY SYSTEM CONFIGURATION FOR CALCUALTION PURPOSES

SERVICE TRANSFORMER

KVA	%Z	PF	DATE	SCA (SEC.)
45	3.2	1	1/27/2023	3,903

SERVICE AMPS	FOR FAULT CURRENT CALCUATIONS ONLY SERVICE LATERAL	FT
125	4#1, 1#6EGC, 2"C	50

EQUIPMENT ID	SC AMPS
SERVICE DISCONNECT	3,192
PANEL 'MDP'	3,102

SCHEDULE DISTRIBUTION PANEL 'MDP'

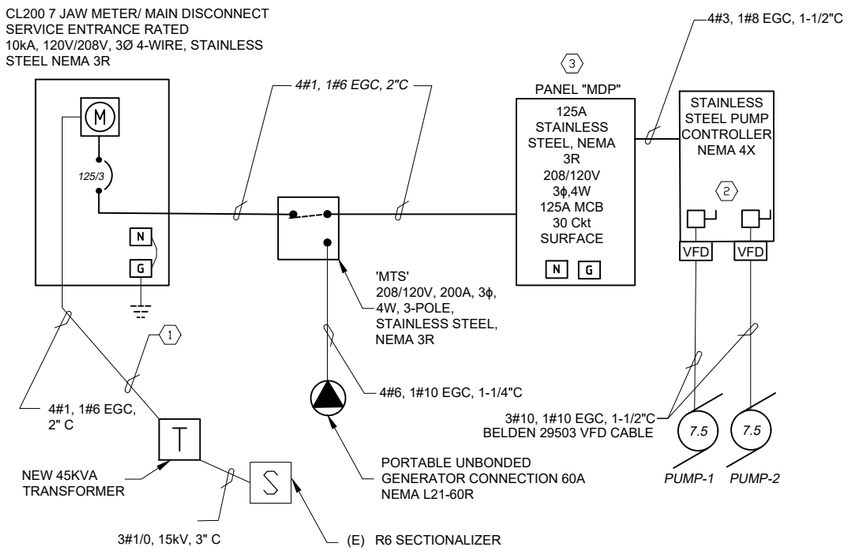
TYPE	SPACE #	NO. OF POLES	TRIP RATING	LOAD DESCRIPTION	BRANCH LOAD VA	CONNECTED LOAD (kVA) A	B	C	BRANCH LOAD VA	LOAD DESCRIPTION	TRIP RATING	NO. OF POLES	SPACE #	TYPE
G	1	3	100	PUMP CONTROLLER	7,071	8.07			1,000		20	3	2	G
G	3	"	"		7,071		8.07		1,000	UNIT HEATER 3KW		"	4	G
G	5	"	"		7,071			8.07	1,000			"	6	G
G	7	1	20	SPARE		1.00			1,000		20	3	8	G
L	9	1	20	INTERIOR LIGHTS	112		1.11		1,000	UNIT HEATER 3KW		"	10	M
L	11	1	20	EXTERIOR LIGHTS	140			1.14	1,000			"	12	G
G	13	1	20	SPARE		0.00				SPACE	-		14	G
R	15	1	20	EXTERIOR RECEPTACLE	360		0.36			SPACE	-		16	G
R	17	1	20	INTERIOR RECEPTACLES/ TRAP PRIMER	370			0.37		SPACE	-		18	G
R	19	1	20	INTERIOR RECEPTACLES	360	0.36				SPACE	-		20	G
G	21	1	20	SPARE			0.00			SPACE	-		22	G
G	23	1	20	SPARE				0.00		SPACE	-		24	G
G	25	1	20	SPARE		0.00				SPACE	-		26	G
G	27	1	20	SPARE			0.00			SPACE	-		28	G
G	29	1	20	SPARE				0.00		SPACE	-		30	G
				CONNECTED LOAD 28.6 KVA / 79 AMPS		9.43 / 78.5	9.54 / 79.5	9.58 / 79.8						
				NEC DEMAND 28.9 KVA / 80 AMPS										

PANEL NOTES
1. "**" INDICATES GFI CIRCUIT BREAKER W/ 30 mA TRIP SETTING
2. PROVIDE 160kA SURGE PROTECTIVE DEVICE IN THIS PANEL
3. PROVIDE EQUIPMENT GROUNDING CONDUCTORS FOR ALL CIRCUITS
4.

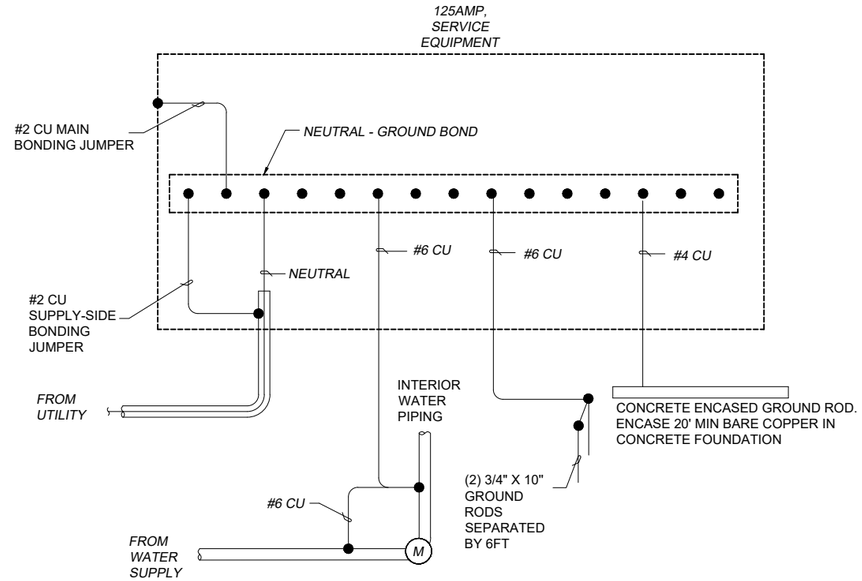
PANEL SPECIFICATIONS

MAINS RATING AMPS	-	125
MAIN CIRCUIT BREAKER	-	MCB
SYSTEM VOLTAGE	-	208Y 120 V
PHASE, NO. OF WIRES	-	3 PH 4. WIRE
AIC RATING	-	10,000
MOUNTING	-	SURFACE
CAPACITY ONE-POLE CIRCUITS	-	30
LOCATION NEMA TYPE	-	STAINLESS STEEL 3R

LOAD TYPES: G=GENERAL, L=LIGHTING, M=MOTOR, A=APPLIANCE, F=FEEDER, S=SPARE OR SPACE, R=RECEPTACLE



1 RISER LIFT STATION DIAGRAM
E-101 SCALE: NTS



2 LIFT STATION GROUNDING SYSTEM
E-101 SCALE: NTS

SHEET NOTES (X)

1. UNDERGROUND 120/208VAC SERVICE TO PAD MOUNTED UTILITY TRANSFORMER.
2. PUMP CONTROL PANEL 'PCP' WITH LOCAL DISCONNECTS AND CO-LOCATED VFDS FOR PUMPS 1 AND 2.
3. PANELBOARDS WITH DROP DOORS ARE NOT ALLOWED.

ELLERMAN LIFT STATION

100% SUBMITTAL

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STATE OF ALASKA 49TH
CARL I. OLSON
No. EE 14398
2-19-2024
REGISTERED PROFESSIONAL ENGINEER

REVISIONS & ADDENDUMS

#	DATE	REMARKS

MANAGEMENT	
DESIGNED	WDF
DRAWN	WDF
CHECKED	CIO
APPROVED	CIO
LAST EDIT	2/19/24
PLOT DATE	2/19/24
SUBMITTAL	02/19/24

SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
RISER DIAGRAMS - ELLERMAN

DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: 030540-E-100 RISER DIAGRAMS
PROJECT NUMBER: 165.030540

SHEET NUMBER
E-101

SANDY LANE EQUIPMENT SCCR SCHEDULE

ALL EQUIPMENT TO HAVE SCCR EXCEEDING THE AVAILABLE SCA AT THE CALCULATED X/R RATIO. WHERE X/R RATIO IS GREATER THAN THE INDUSTRY STANDARD TEST X/R RATIOS, THE APPROPRIATE MULTIPLICATION FACTOR SHALLBE APPLIED TO PROPERLY RATE THE EQUIPMENT. DOWNSTREAM EQUIPMENT AND ASSOCIATED CIRCUIT BREAKER RATINGS MAY BE SATISFIED BY USING FULLY RATED EQUIPMENT OR MANUFACTURER TESTED COMBINATIONS FOR BRANCH CIRCUITS RATED 100AMPS OR LESS PER NEC 240.86(B) TO SERIES RATE FOR THE AVAILABLE SCA AT EQUIPMENT. ALL SERIES RATED EQUIPMENT TO BE CLEARLY LABELED & IDENTIFIED PER NEC 110.22(C). SERIES RATED EQUIPMENT MOTOR LOADS CANNOT EXCEED 1% OF AIC RATING PER NEC 240.86(C).

CONTRACTOR TO VERIFY ACTUAL EQUIPMENT TO BE PROVIDED WITH SERVING UTILITY PRIOR TO EQUIPMENT PROCUREMENT. ANY DECREASE OF TRANSFORMER %Z, CONDUCTOR LENGTH, OR INCREASE IN TRANSFORMER KVA OR CABLE SIZES TO BE REPORTED TO ENGINEER FOR RECALCULATION OF AVAILABLE FAULT CURRENT PRIOR TO PROCUREMENT OF EQUIPMENT. PROVIDE WARNING PLACARD INSTALLED ON SERVICE DISCONNECT PER NEC 110.24 DENOTING ALL PROJECT PARAMETERS REQUIRED BY NEC.

ASSUMED UTILITY SYSTEM CONFIGURATION FOR CALCUALTION PURPOSES

SERVICE TRANSFORMER

KVA	%Z	PF	DATE	SCA (SEC.)
45	1.8	1	1/27/2023	6,940

SERVICE AMPS	FOR FAULT CURRENT CALCUATIONS ONLY SERVICE LATERAL	FT
125	4#1, 1#6EGC, 2"C	70

EQUIPMENT ID	SC AMPS
SERVICE DISCONNECT	4,464
PANEL 'MDP'	4,289

SCHEDULE DISTRIBUTION PANEL 'MDP'

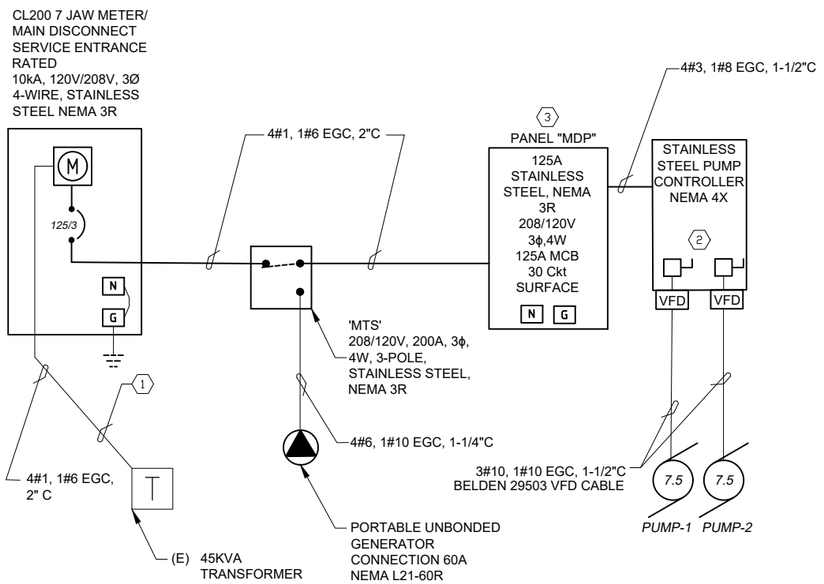
TYPE	SPACE #	NO. OF POLES	TRIP RATING	LOAD DESCRIPTION	BRANCH LOAD VA	CONNECTED LOAD (kVA) A	B	C	BRANCH LOAD VA	LOAD DESCRIPTION	TRIP RATING	NO. OF POLES	SPACE #	TYPE
G	1	3	100		7,071	8.07			1,000		20	3	2	G
G	3	"	"	PUMP CONTROLLER	7,071		8.07		1,000	UNIT HEATER 3KW		"	4	G
G	5	"	"		7,071			8.07	1,000			"	6	G
G	7	1	20	SPARE		1.00			1,000		20	3	8	G
L	9	1	20	INTERIOR LIGHTS	112		1.11		1,000	UNIT HEATER 3KW		"	10	G
L	11	1	20	EXTERIOR LIGHTS	140			1.14	1,000			"	12	G
G	13	1	20	SPARE	0	0.00				SPACE	-		14	G
R	15	1	20	EXTERIOR RECEPTACLES	360		0.36			SPACE	-		16	G
R	17	1	20	INTERIOR RECEPTACLES	360			0.36		SPACE	-		18	G
R	19	1	20	INTERIOR RECEPTACLES/ TRAP PRIMER	370	0.37				SPACE	-		20	G
G	21	1	20	SPARE			0.00			SPACE	-		22	G
G	23	1	20	SPARE				0.00		SPACE	-		24	G
G	25	1	20	SPARE		0.00				SPACE	-		26	G
G	27	1	20	SPARE			0.00			SPACE	-		28	G
G	29	1	20	SPARE				0.00		SPACE	-		30	G
				CONNECTED LOAD	28.6 KVA / 79 AMPS	9.44 / 78.6	9.54 / 79.5	9.57 / 79.7						
				NEC DEMAND	28.6 KVA / 79 AMPS									

PANEL NOTES
1. "**" INDICATES GFI CIRCUIT BREAKER W/ 30 mA TRIP SETTING
2. PROVIDE 160kA SURGE PROTECTIVE DEVICE IN THIS PANEL
3. PROVIDE EQUIPMENT GROUNDING CONDUCTORS FOR ALL CIRCUITS
4.

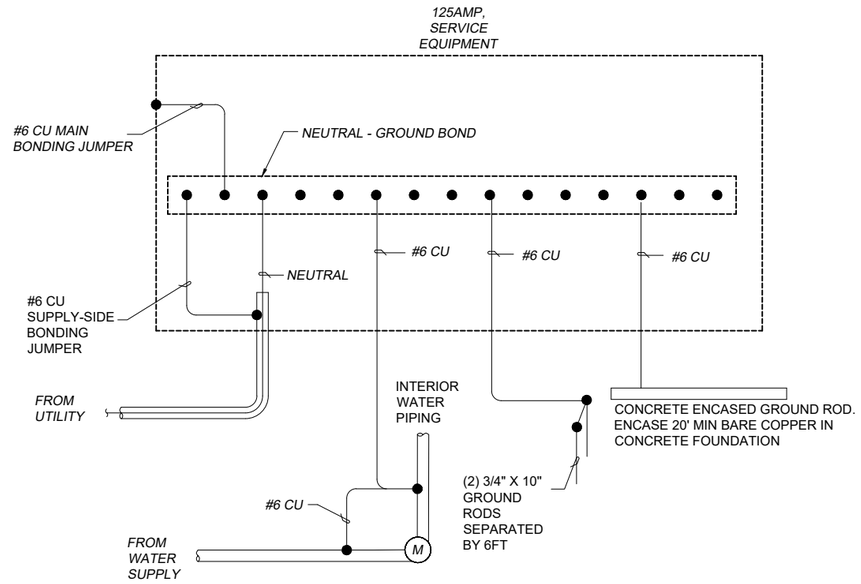
PANEL SPECIFICATIONS

MAINS RATING AMPS	-	125
MAIN CIRCUIT BREAKER	-	MCB
SYSTEM VOLTAGE	-	208Y 120 V
PHASE, NO. OF WIRES	-	3 PH. 4. WIRE
AIC RATING	-	10,000
MOUNTING	-	SURFACE
CAPACITY ONE-POLE CIRCUITS	-	30
LOCATION NEMA TYPE	-	STAINLESS STEEL 3R

LOAD TYPES: G=GENERAL, L=LIGHTING, M=MOTOR, A=APPLIANCE, F=FEEDER, S=SPARE OR SPACE, R=RECEPTACLE



1 RISER LIFT STATION DIAGRAM
E-102 SCALE: NTS



2 LIFT STATION GROUNDING SYSTEM
E-102 SCALE: NTS

SHEET NOTES: (X)

1. UNDERGROUND 120/208VAC SERVICE TO PAD MOUNTED UTILITY TRANSFORMER.
2. PUMP CONTROL PANEL 'PCP' WITH LOCAL DISCONNECTS AND CO-LOCATED VFDS FOR PUMPS 1 AND 2.
3. PANELBOARDS WITH DROP DOORS ARE NOT ALLOWED.

SANDY LANE LIFT STATION

100% SUBMITTAL

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STATE OF ALASKA 49TH
CARL I. OLSON
No. EE 14398
2-19-2024
REGISTERED PROFESSIONAL ENGINEER

REVISIONS & ADDENDUMS

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DRAWN	WDF
CHECKED	CIO
APPROVED	CIO
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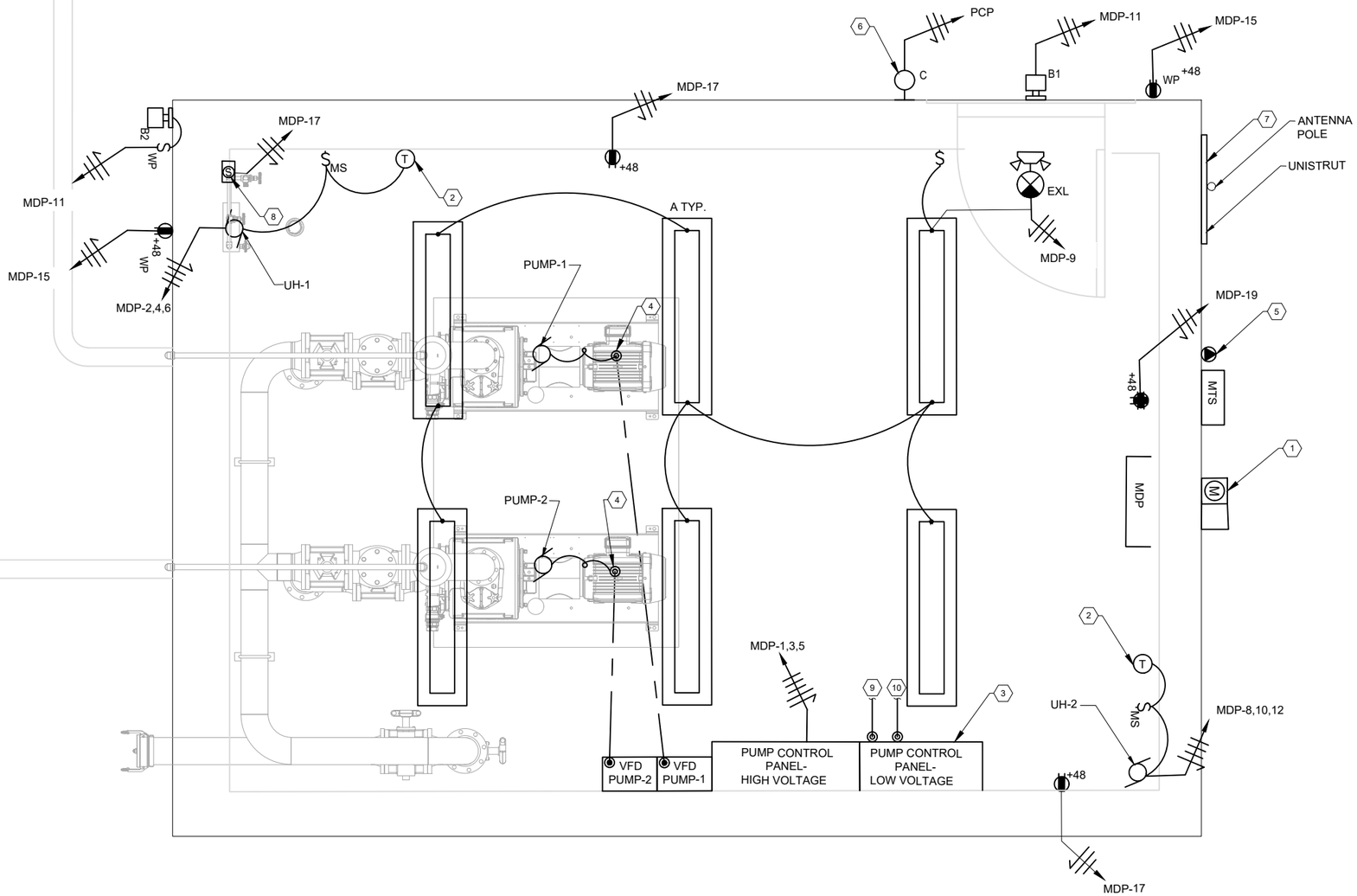
SUBMITTAL	02/19/24

SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
RISER DIAGRAMS - SANDY LANE

DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: 030540-E-100 RISER DIAGRAMS
PROJECT NUMBER: 165.030540

SHEET NUMBER
E-102



SHEET NOTES: (X)

1. METER/ MAIN.
2. LINE VOLTAGE THERMOSTAT.
3. PROVIDE STAINLESS STEEL PUMP CONTROL PANEL WITH BUILT IN DISCONNECTS AND EXTERNALLY MOUNTED HEAVY DUTY VFDS. BASIS OF DESIGN IS DUTYMASTER MULTIPUMP CONTROLLER WITH BUILT IN SCADA. PROVIDE WET WELL FLOAT SWITCH AND 4-20MA SUBMERSIBLE LEVEL TRANSDUCER WITH PUMP CONTROLLER.
4. STUB-UP WHERE CONDUIT COME OUT OF SLAB AND CONNECTS TO PUMP.
5. GENERATOR RECEPTACLE.
6. CONNECT TO PCP 120 VOLT WARNING LIGHT OUTPUT CIRCUIT.
7. 10', 2" IPS SCHEDULE 80 ALUMINUM SCADA ANTENNA POLE MOUNTED WITH UNISTRUT TO THE OUTSIDE OF THE BUILDING WITH 4' CLEARING THE HIGHEST POINT OF THE ROOF.
8. TRAP PRIMER SOLENOID.
9. CONNECTION FROM PCP'S INTRINSICALLY SAFE BARRIER TO WET WELL 4-20MA SUBMERSIBLE LEVEL TRANSDUCER.
10. CONNECTION FROM PCP'S INTRINSICALLY SAFE BARRIER TO WET WELL HIGH LEVEL ALARM FLOAT.

1 E-201 ELLERMAN LIFT STATION POWER PLAN

SCALE: 3/4" = 1'

1' 0' 6" 1' 2'

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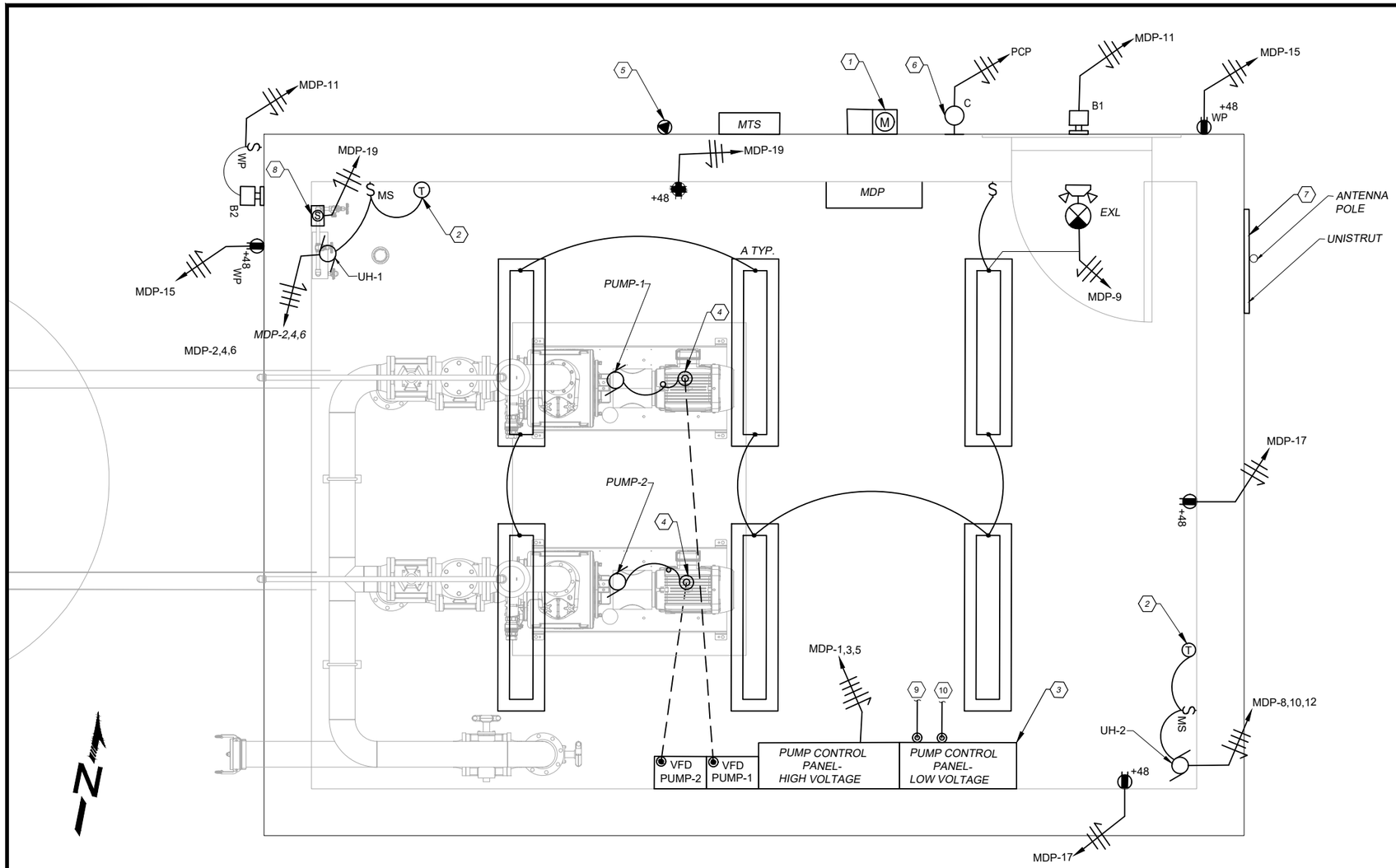
SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
LIFT STATION ELECTRICAL PLAN - ELLERMAN

DRAWING SCALE: AS SHOWN

PROJECT NUMBER: 165.030540

DRAWING FILE NAME: 030540-E-201 ELLERMAN LIFT STATION ELECTRICAL PLAN.DWG

SHEET NUMBER
E-201



1 E-202 SANDY LANE LIFT STATION POWER PLAN

SCALE: 3/4" = 1'

SHEET NOTES: (X)

1. METER/ MAIN.
2. LINE VOLTAGE THERMOSTAT.
3. PROVIDE STAINLESS STEEL PUMP CONTROL PANEL WITH BUILT IN DISCONNECTS AND EXTERNALLY MOUNTED HEAVY DUTY VFDS. BASIS OF DESIGN IS DUTYMASTER MULTIPUMP CONTROLLER WITH BUILT IN SCADA. PROVIDE WET WELL FLOAT SWITCH AND 4-20MA SUBMERSIBLE LEVEL TRANSDUCER WITH PUMP CONTROLLER.
4. STUB-UP WHERE CONDUIT COME OUT OF SLAB AND CONNECTS TO PUMP.
5. GENERATOR RECEPTACLE.
6. CONNECT TO PCP 120 VOLT WARNING LIGHT OUTPUT CIRCUIT.
7. 10', 2" IPS SCHEDULE 80 ALUMINUM SCADA ANTENNA POLE MOUNTED WITH UNISTRUT TO THE OUTSIDE OF THE BUILDING WITH 4' CLEARING THE HIGHEST POINT OF THE ROOF.
8. TRAP PRIMER SOLENOID.
9. CONNECTION FROM PCP'S INTRINSICALLY SAFE BARRIER TO WET WELL 4-20MA SUBMERSIBLE LEVEL TRANSDUCER.
10. CONNECTION FROM PCP'S INTRINSICALLY SAFE BARRIER TO WET WELL HIGH LEVEL ALARM FLOAT.

LUMINAIRE SCHEDULE FOR SANDY LANE AND ELLERMAN LIFT STATIONS

QTY	TYPE	ELECTRICAL		DESCRIPTION	LAMPS	MOUNTING	MANU-FACTURER	MODEL	NOTES
		WATTS	VOLTAGE						
	A	27	MVOLT	SURFACE MOUNTED .5'X2' GASKETED LIGHT FIXTURE	4,000LM LED	SURFACE CEILING	LITHONIA	DMW2 L24 2000LM PFL WD MVOLT 010V 40K 80CRI JSB	
	B1	51	MVOLT	OUTDOOR LIGHT WITH MOTION SENSOR & EMERGENCY BATTERY	7,000LM LED	WALL +11 AFF	LITHONIA	DSXW1 LED 20C 700 40K T3M MVOLT PIR1FC3V E20WC DDBXD	
	B2	72	MVOLT	OUTDOOR FLOODLIGHT	10,000LM LED	WALL +9' AFF	LITHONIA	RSXF1LED P2 40K AWFD MVOLT AAWB CCE DDBXD	
	C	17	MVOLT	METALLIC VAPORPROOF LED WITH RED LENSE	1,300LM LED	WALL +7'6" AFF	PHOENIX	VA W 17LED CW FGC / GHR	
	EXL	4.3	MVOLT	LED EXIT SIGN WITH EMERGENCY EGRESS LIGHTS		WALL +7'6" AFF	LITHONIA	LHQM LED R HO SD	

GENERAL NOTES:

A.	VERIFY CEILING TYPES THROUGHOUT. PROVIDE ALL MOUNTING HARDWARE AS RECOMMENDED BY THE LIGHTING MANUFACTURER FOR SPECIFIC CEILING TYPES.
B.	COORDINATE ALL FIXTURE MOUNTING LOCATIONS WITH OTHER TRADES PRIOR TO INSTALLATION TO ENSURE THAT CONFLICTS DO NOT EXIST. WHERE CONFLICTS EXIST, NOTIFY ENGINEER.
C.	LIGHT FIXTURE PACKAGE TO GENERALLY MATCH OWNER'S SUPPLIED SAMPLE DRAWINGS. SUBMIT FULL LIGHTING PACKAGE FOR OWNER REVIEW.

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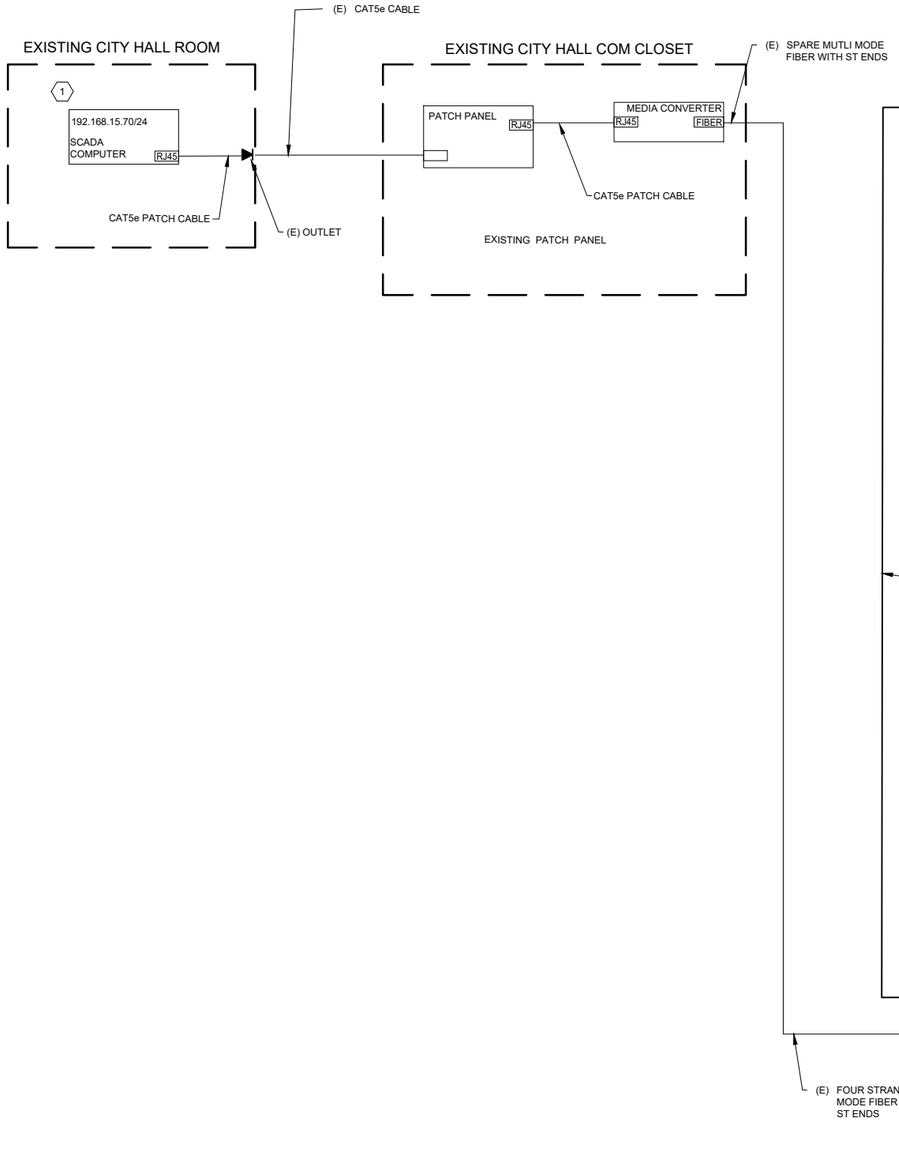
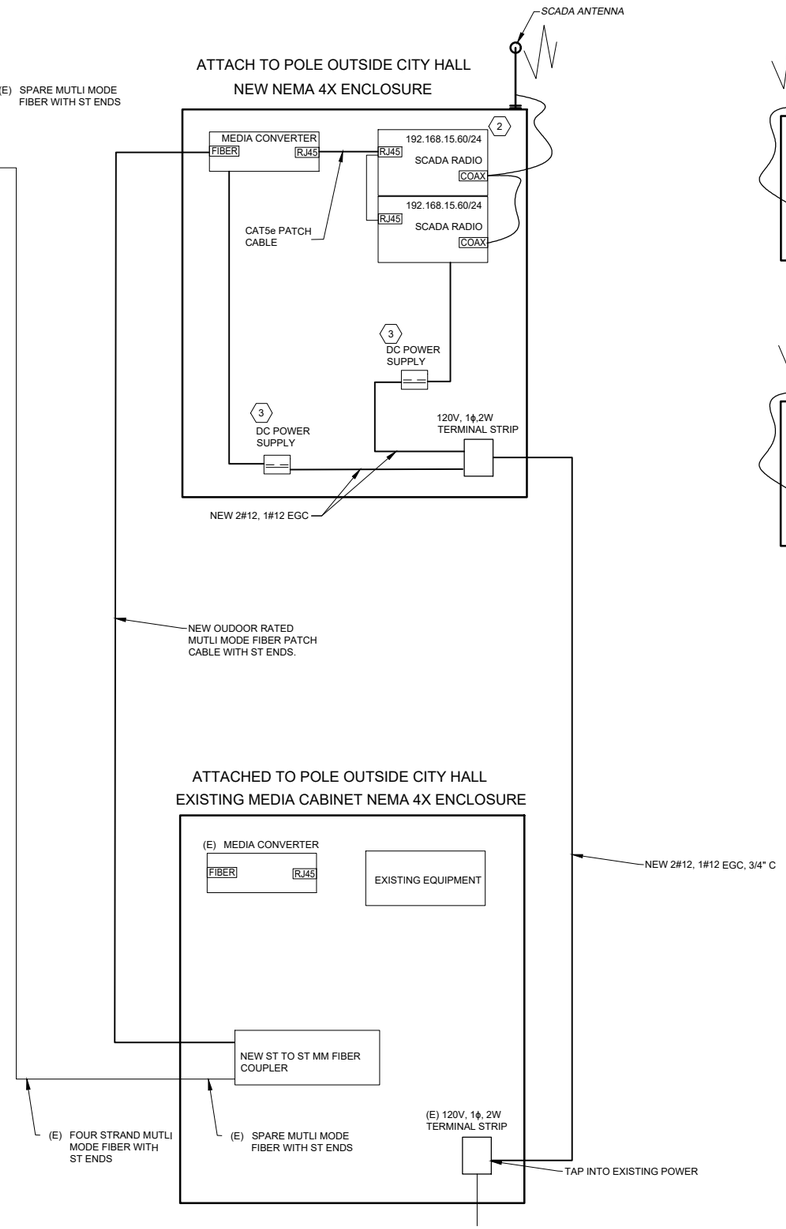
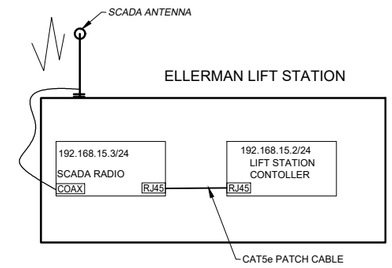
SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
LIFT STATION ELECTRICAL PLAN - SANDY LANE

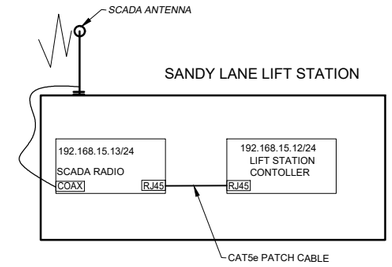
DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: 030540-E-202 SANDY LANE LIFT STATION ELECTRICAL PLAN.DWG
PROJECT NUMBER: 165.030540

SHEET NUMBER
E-202









SHEET NOTES: (X)

1. COMPUTER WILL BE PROVIDED BY OWNER.
2. DUAL REDUNDANT SCADA RADIOS WITH FAIL OVER.
3. PROVIDE POWER SUPPLY BASED ON EQUIPMENT LOAD'S VOLTAGE AND POWER REQUIREMENTS. POWER SUPPLY WILL BE FED FROM 120V 1ϕ,2W TERMINAL STRIP.

GENERAL NOTES:

1. ALL ETHERNET SCADA RADIOS ARE GENERAL ELECTRIC'S MDS 900 SERIES RADIOS.
2. COORDINATE WITH OWNER FOR LOCATION OF SCADA COMPUTER.
3. PROVIDE 10/100Mbps MEDIA CONVERTERS RATED FOR WHERE THEY ARE INSTALLED. MEDIA CONVERTER MUST BE OUTDOOR RATED. BASIS OF DESIGN IS STARTECH MODEL # MCM110ST2.

1 E-203 SCALE:NTS SCADA PLAN

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SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
ELECTRICAL SCADA PLAN

DRAWING SCALE: AS SHOWN
DRAWING FILE NAME: 030540-E-203 SCADA PLAN.DWG
PROJECT NUMBER: 165.030540

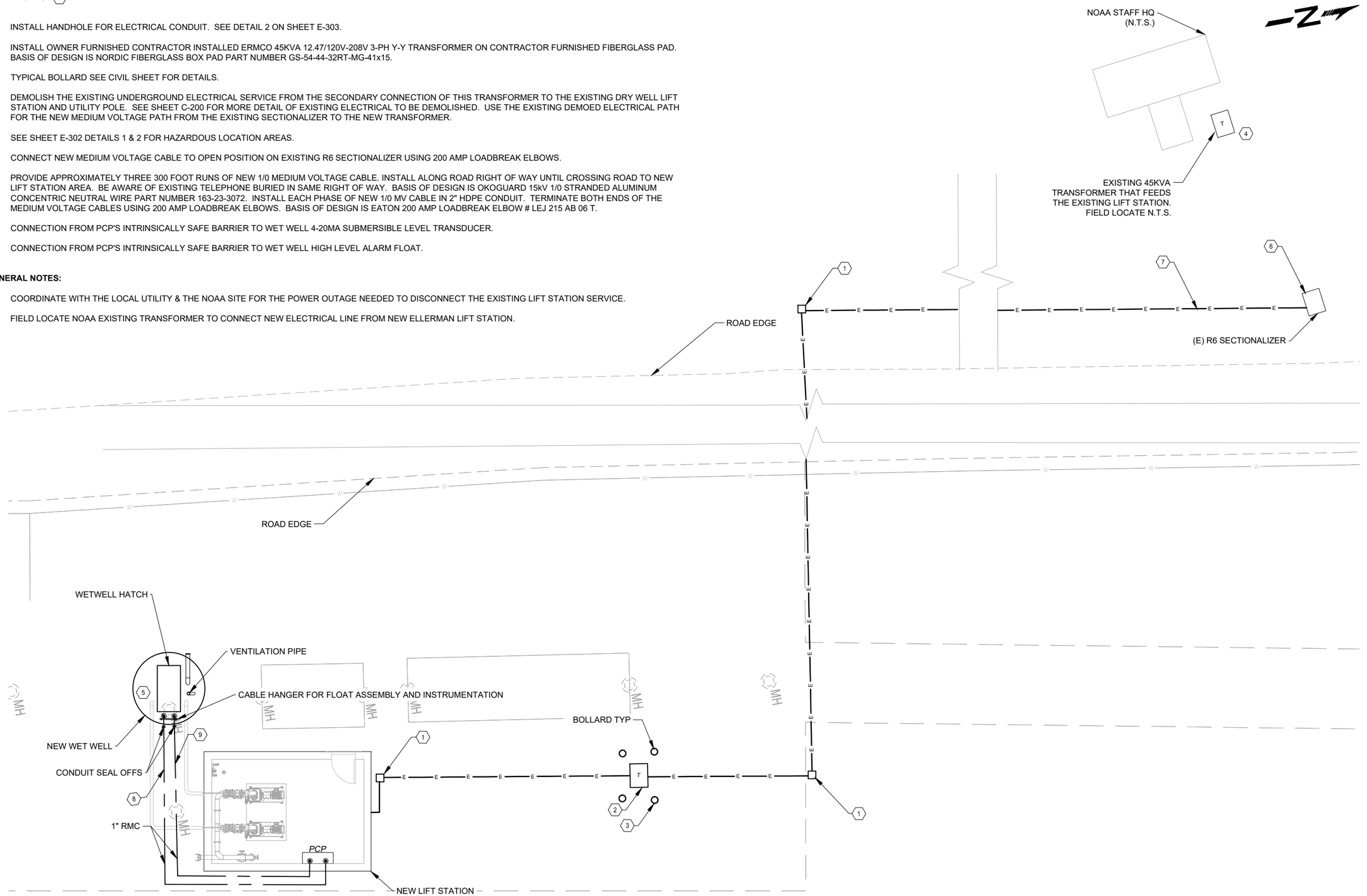
SHEET NUMBER
E-203

SHEET NOTES: (X)

1. INSTALL HANDHOLE FOR ELECTRICAL CONDUIT. SEE DETAIL 2 ON SHEET E-303.
2. INSTALL OWNER FURNISHED CONTRACTOR INSTALLED ERMCO 45KVA 12.47/120V-208V 3-PH Y-Y TRANSFORMER ON CONTRACTOR FURNISHED FIBERGLASS PAD. BASIS OF DESIGN IS NORDIC FIBERGLASS BOX PAD PART NUMBER GS-54-44-32RT-MG-41x15.
3. TYPICAL BOLLARD SEE CIVIL SHEET FOR DETAILS.
4. DEMOLISH THE EXISTING UNDERGROUND ELECTRICAL SERVICE FROM THE SECONDARY CONNECTION OF THIS TRANSFORMER TO THE EXISTING DRY WELL LIFT STATION AND UTILITY POLE. SEE SHEET C-200 FOR MORE DETAIL OF EXISTING ELECTRICAL TO BE DEMOLISHED. USE THE EXISTING DEMOED ELECTRICAL PATH FOR THE NEW MEDIUM VOLTAGE PATH FROM THE EXISTING SECTIONALIZER TO THE NEW TRANSFORMER.
5. SEE SHEET E-302 DETAILS 1 & 2 FOR HAZARDOUS LOCATION AREAS.
6. CONNECT NEW MEDIUM VOLTAGE CABLE TO OPEN POSITION ON EXISTING R6 SECTIONALIZER USING 200 AMP LOADBREAK ELBOWS.
7. PROVIDE APPROXIMATELY THREE 300 FOOT RUNS OF NEW 1/0 MEDIUM VOLTAGE CABLE. INSTALL ALONG ROAD RIGHT OF WAY UNTIL CROSSING ROAD TO NEW LIFT STATION AREA. BE AWARE OF EXISTING TELEPHONE BURIED IN SAME RIGHT OF WAY. BASIS OF DESIGN IS OKOGUARD 15kV 1/0 STRANDED ALUMINUM CONCENTRIC NEUTRAL WIRE PART NUMBER 163-23-3072. INSTALL EACH PHASE OF NEW 1/0 MV CABLE IN 2" HDPE CONDUIT. TERMINATE BOTH ENDS OF THE MEDIUM VOLTAGE CABLES USING 200 AMP LOADBREAK ELBOWS. BASIS OF DESIGN IS EATON 200 AMP LOADBREAK ELBOW # LEJ 215 AB 06 T.
8. CONNECTION FROM PCP'S INTRINSICALLY SAFE BARRIER TO WET WELL 4-20MA SUBMERSIBLE LEVEL TRANSDUCER.
9. CONNECTION FROM PCP'S INTRINSICALLY SAFE BARRIER TO WET WELL HIGH LEVEL ALARM FLOAT.

GENERAL NOTES:

1. COORDINATE WITH THE LOCAL UTILITY & THE NOAA SITE FOR THE POWER OUTAGE NEEDED TO DISCONNECT THE EXISTING LIFT STATION SERVICE.
2. FIELD LOCATE NOAA EXISTING TRANSFORMER TO CONNECT NEW ELECTRICAL LINE FROM NEW ELLERMAN LIFT STATION.



1 / E-301 ELLERMAN LIFT STATION ELECTRICAL SITE PLAN
SCALE: 1" = 6'

6 0' 3 6 12

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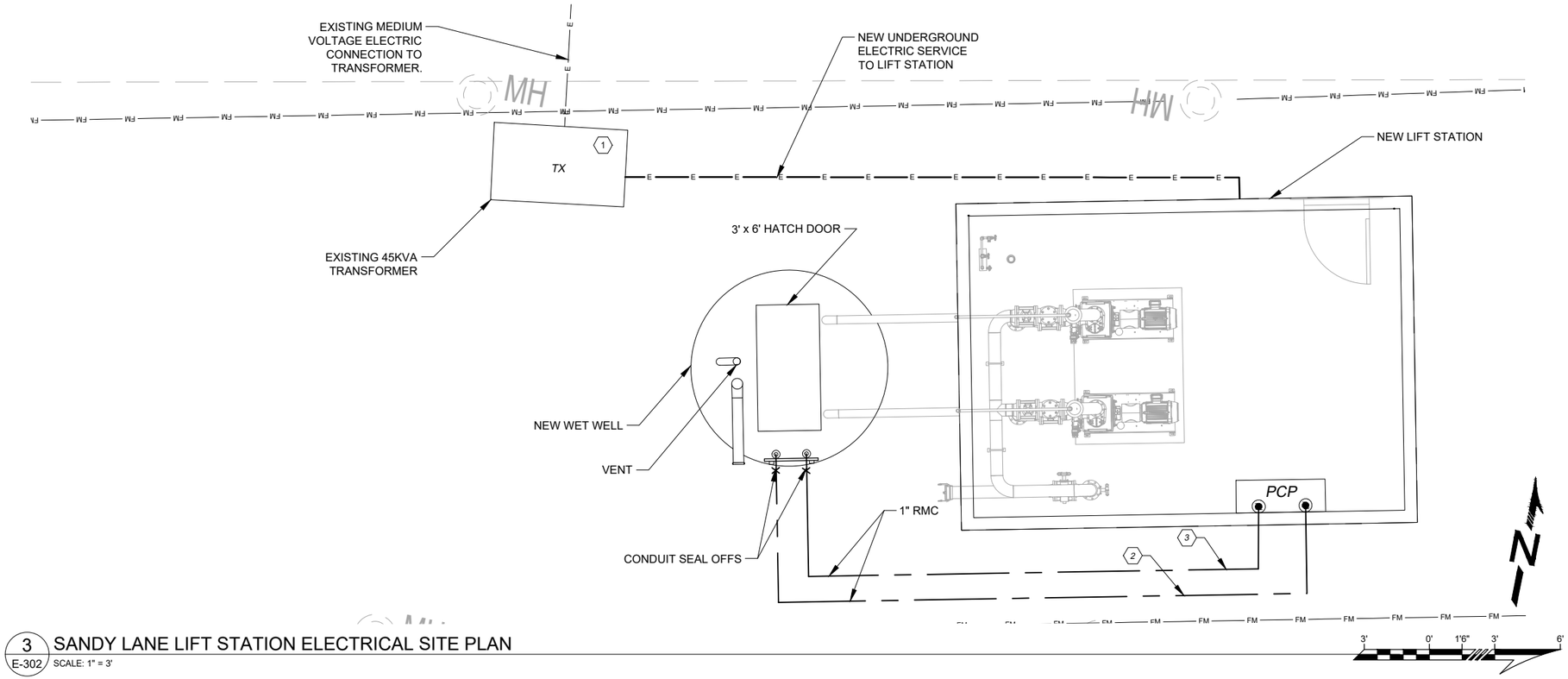
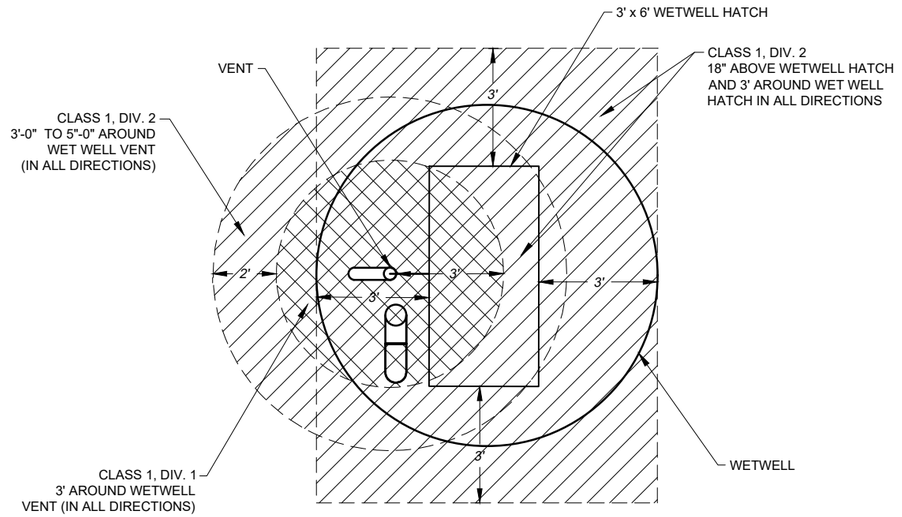
SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
ELECTRICAL SITE PLAN - ELLERMAN

PROJECT NUMBER 165.030540
DRAWING FILE NAME 030540-E-301 ELLERMAN LIFT STATION SITE PLAN ELECTRICAL
DRAWING SCALE AS SHOWN

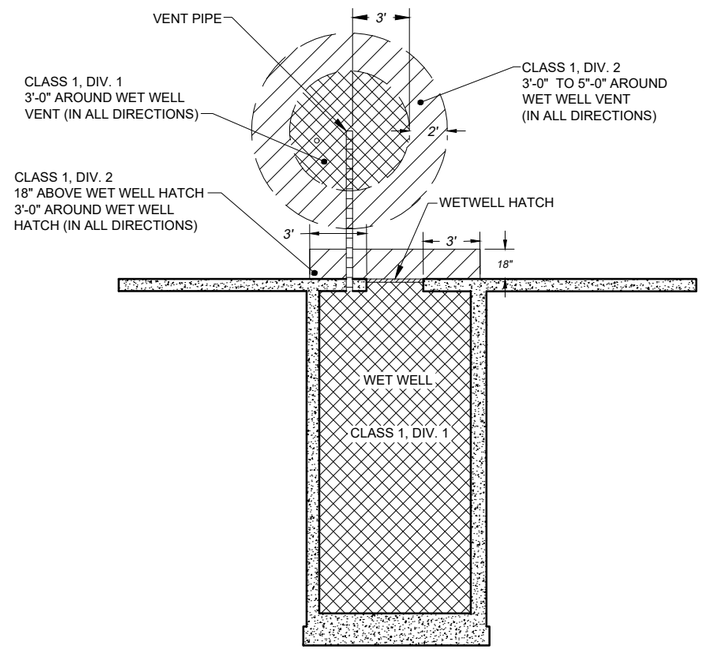
SHEET NUMBER
E-301



3 SANDY LANE LIFT STATION ELECTRICAL SITE PLAN
E-302 SCALE: 1" = 3'



1 NFPA 820 HAZARDOUS LOCATIONS- PLAN
E-302 SCALE: 1-1/2" = 3'



2 NFPA 820 HAZARDOUS LOCATIONS- ELEVATION
E-302 SCALE: 1-1/2" = 6'

SHEET NOTES: (X)

1. COORDINATE WITH THE LOCAL UTILITY TO TURN OFF POWER TO THE TRANSFORMER DURING CONSTRUCTION. DEMOLISH THE EXISTING SECONDARY CONNECTION FROM THIS TRANSFORMER TO UTILITY POLE AND DRY WELL PUMPS. SEE SHEET C-200 FOR ADDITIONAL INFORMATION ON THE ELECTRIC SITE PLAN DEMO.
2. CONNECTION FROM PCP'S INTRINSICALLY SAFE BARRIER TO WET WELL 4-20MA SUBMERSIBLE LEVEL TRANSDUCER.
3. CONNECTION FROM PCP'S INTRINSICALLY SAFE BARRIER TO WET WELL HIGH LEVEL ALARM FLOAT.

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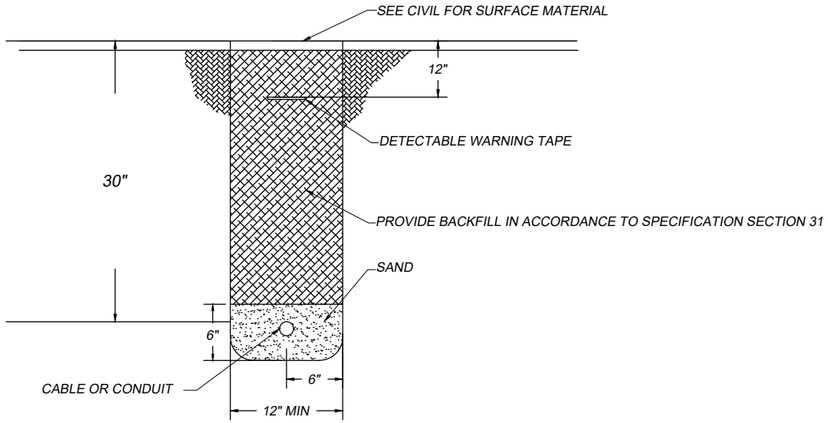
SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
ELECTRICAL SITE PLAN - SANDY LANE

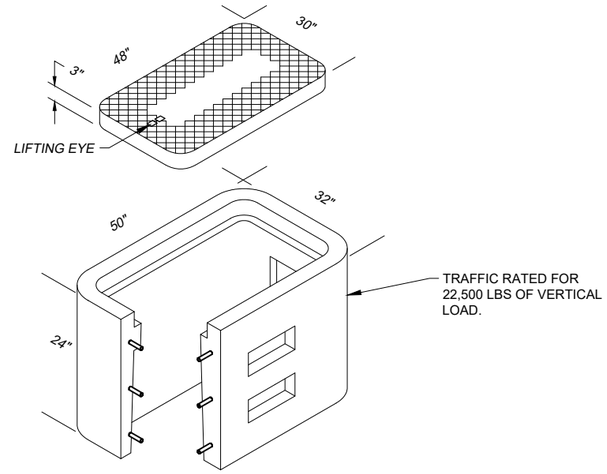
DRAWING SCALE: AS SHOWN
PROJECT NUMBER: 165.030540
DRAWING FILE NAME: 030540-E-302 SANDY LANE LIFT STATION SITE PLAN ELECTRICAL.DWG

SHEET NUMBER
E-302



1 E-401 TYPICAL TRENCH FOR ELECTRICAL CABLE

SCALE: NTS



2 E-401 HAND HOLE TYPE 1A JUNCTION BOX DETAIL

SCALE: NTS

100% SUBMITTAL

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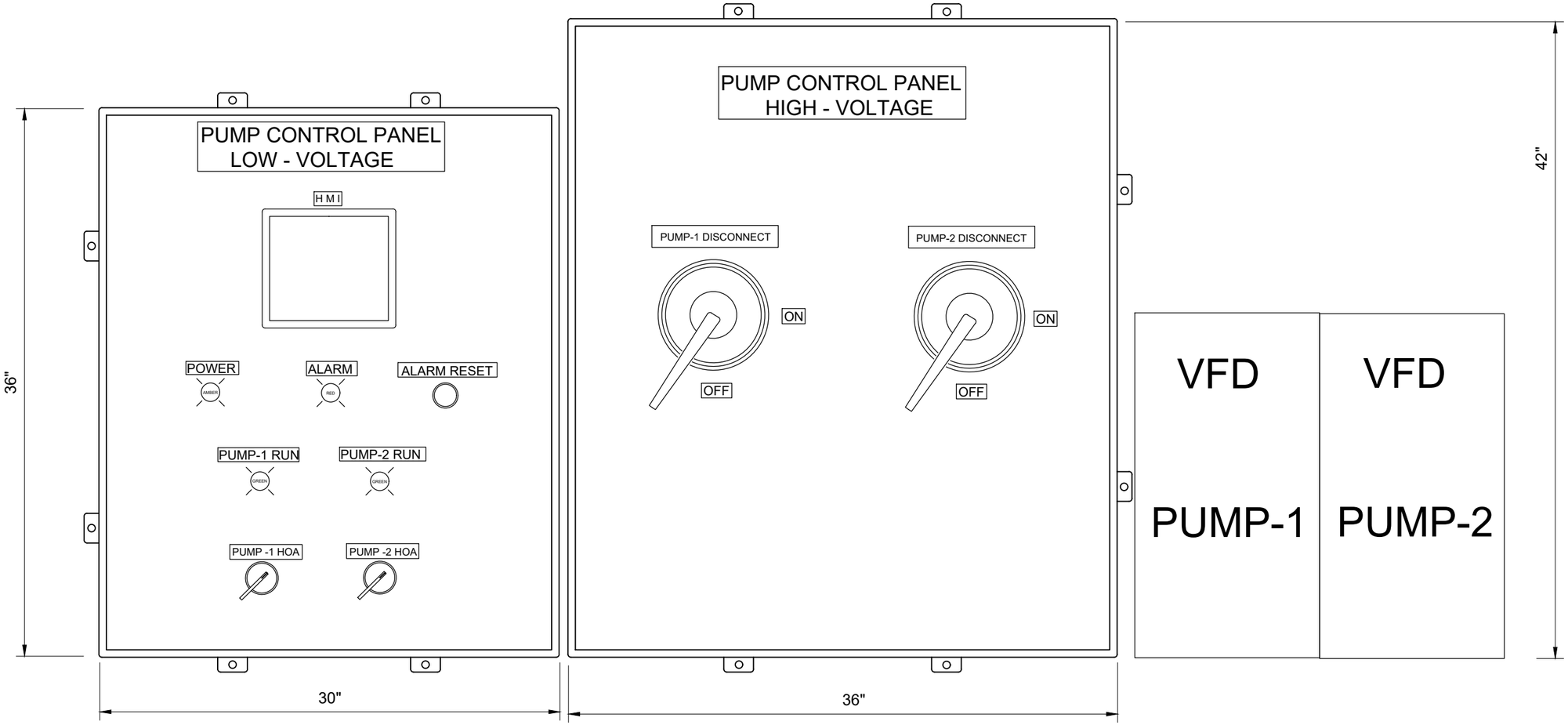
SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
ELECTRICAL DETAILS

PROJECT NUMBER 165.030540
DRAWING FILE NAME 030540-E-400 DETAILS.DWG
DRAWING SCALE AS SHOWN

SHEET NUMBER
E-401



1 / E-402 PUMP CONTROL PANEL FACE

SCALE: 3" = 1'

100% SUBMITTAL

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SAINT PAUL, ALASKA
LIFT STATION REPLACEMENTS
LIFT STATION CONTROLLER DETAILS

PROJECT NUMBER 165.030540
DRAWING FILE NAME 030540-E-400 DETAILS.DWG
DRAWING SCALE AS SHOWN

SHEET NUMBER
E-402