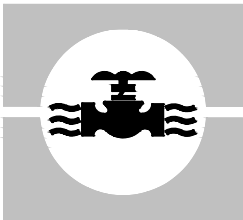


CITY OF EMMONAK, ALASKA
RIVER INTAKE UPGRADES
ISSUED FOR AGENCY REVIEW

OCTOBER 2019

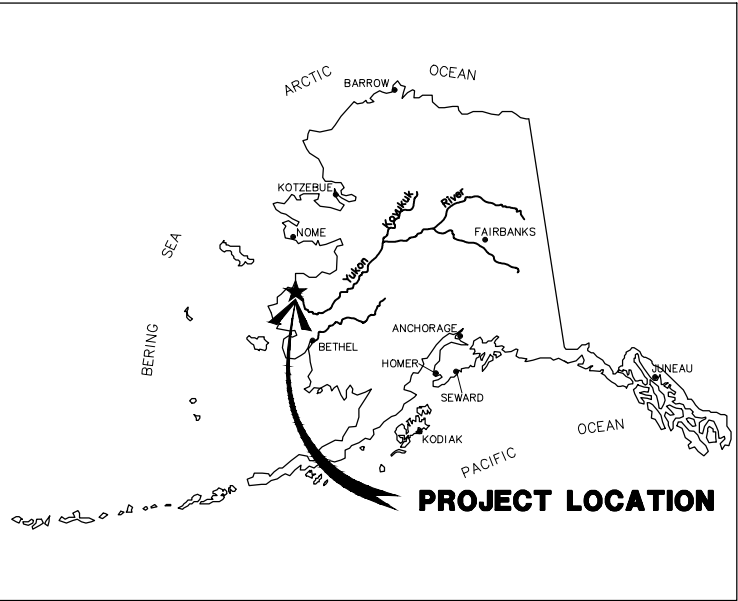


In Cooperation with the State of Alaska
Department of Environmental Conservation

VILLAGE SAFE WATER PROGRAM

United States Environmental Protection Agency

Sheet Number	Sheet Title
GENERAL	
G001	COVER
G002	GENERAL LEGEND AND ABBREVIATIONS
G003	GENERAL NOTES
G004	SYSTEM SCHEMATIC & DESIGN CRITERIA
SURVEY	
V001	SURVEY CONTROL HORIZONTAL
V002	SURVEY CONTROL HORIZONTAL
V003	SURVEY CONTROL VERTICAL
V004	SURVEY CONTROL VERTICAL
CIVIL	
C200	SITE PLAN AND SECTION
C201	DETAILED SITE PLAN
C202	DEMO PHOTOS
C220	PUMP HOUSE PLAN AND WET WELL SECTION
C221	WET WELL SECTIONS
C222	BINWALL PLAN AND ELEVATION
C300	ARCTIC PIPE DETAILS
C301	FLUSHING PORT AND PIPE SUPPORT DETAILS
C302	WELL SCREEN DETAILS
C303	PIPING DETAILS
C304	BRIDGE CRANE DETAILS
C600	HDD DRILL PATH
C601	HDD DETAILS
STRUCTURAL	
S200	GENERAL STRUCTURAL NOTES
S201	BUILDING FOUNDATION PLAN
S202	FOUNDATION DETAILS
ARCHITECTURAL	
A200	FLOOR PLAN AND CODE ANALYSIS
A220	EXTERIOR BUILDING ELEVATIONS
A230	BUILDING SECTION
A231	BUILDING SECTION
A232	STAIR SECTION
A233	ENLARGED DETAILS
A400	DOOR SCHEDULE AND DETAILS
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MECHANICAL	
M001	MECHANICAL LEGENDS AND ABBREVIATIONS
M200	MECHANICAL PLAN AND DETAILS
ELECTRICAL	
E001	LEGEND AND ABBREVIATIONS
E200	ELECTRICAL SITE PLAN AND ONE LINE DIAGRAM
E201	PUMPHOUSE AND WTP POWER PLANS
E202	LIGHTING PLAN
E300	PANEL SCHEDULES
E400	PANEL SCADA
E401	LADDER DIAGRAM
E402	WELL PUMP SCHEMATIC
E403	WELL PUMP CONTROLS



Location Map

Project Number (Consultant)	81904.00
VSW Project Engineer	SEAN LEE
Construction Contractor	TBD
Final Design (Date)	OCTOBER 2019
ADEC Approval (Date)	
Construction Period (From) (To)	
As-Builts (Date)	



Consultant

Status: ISSUED FOR AGENCY REVIEW

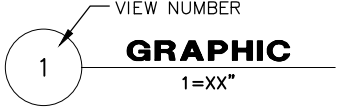
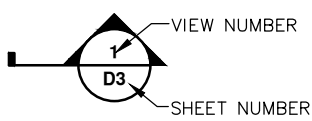
Date: OCTOBER 2019

Project Status

GENERAL LEGEND

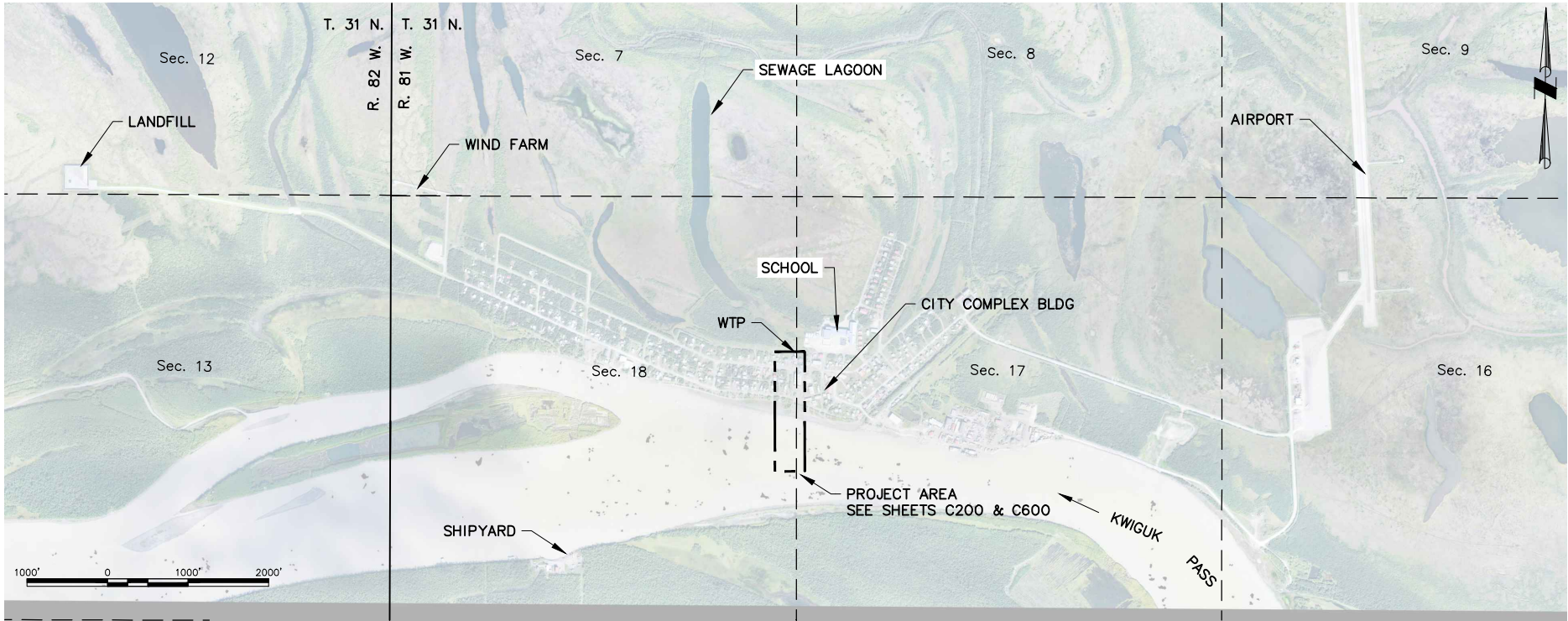
	PROPERTY LINE/RIGHT-OF-WAY		EXISTING WATER LINE
	FENCE		EXISTING VACUUM SEWER LINE WITH GLYCOL
	EXISTING UNPAVED ROADWAY		EXISTING RAW WATER
	EXISTING POWER POLE		EXISTING SEWER FORCE MAIN
	EXISTING CULVERT		OVERHEAD ELECTRIC
	ROAD OR TRAIL CROSSING		OVERHEAD ELECTRIC/TELEPHONE
	DIRECTION OF FLOW		BUILDING SERVICE LINE
	SPOT ELEVATION		PROPOSED HDD LINE
	REVISION CALLOUT		PROPOSED RAW WATER LINE
	PARCEL NUMBER		PROPOSED PIPE ELEVATION (EXISTING PIPE ELEVATION)
	HOUSE NUMBER		DIMENSION BREAK
			PROJECT AREA LIMITS
			BLOCK NUMBER

SECTION AND DETAIL DESIGNATIONS



ABBREVIATIONS

ASB – AS-BUILT	HDD – HORIZONTAL DIRECTIONAL DRILLING	REF – REFERENCE
ABS – ACRYLONITRILE BUTADIENE STYRENE	HDG – HOT DIPPED GALVANIZED	REQ'D – REQUIRED
ADNR – ALASKA DEPARTMENT OF NATURAL RESOURCES	HDPE – HIGH DENSITY POLYETHYLENE	ROW – RIGHT-OF-WAY
ALUM – ALUMINUM	HORIZ – HORIZONTAL	S – SOUTH
BLDG – BUILDING	ID – INSIDE DIAMETER	SCH – SCHEDULE
CF – CUBIC FEET	INV – INVERT	SDR – STANDARD DIMENSION RATIO
CL – CENTERLINE	KSI – KIPS/SQUARE INCH	SF – SQUARE FOOT
CLR – CLEAR	L – LENGTH	SIM – SIMILAR
CMP – CORRUGATED METAL PIPE	LB – POUND	SS – STAINLESS STEEL
CO – CLEANOUT	LF – LINEAR FEET	STA – STATION
CU – COPPER	MAX – MAXIMUM	STD – STANDARD
CY – CUBIC YARD	MIN – MINIMUM	STL – STEEL
DIA – DIAMETER	MPT – MALE NPT	T – TOWNSHIP
E – EAST	N – NORTH	TBD – TO BE DETERMINED
(E)– EXISTING	NC – NORMALLY CLOSED	TBM – TEMPORARY BENCH MARK
EA – EACH	NFS – NON-FROST SUSCEPTIBLE	TEMP – TEMPORARY
EL – ELEVATION	NO – NORMALLY OPEN	THD – THREADED
FC – FIELD CHANGE	NPT – NATIONAL PIPE THREAD	TYP – TYPICAL
FDN – FOUNDATION	NTS – NOT TO SCALE	VERT – VERTICAL
FF – FINISHED FLOOR	OAE – OR APPROVED EQUAL	VTR – VENT TROUGH ROOF
FLG – FLANGE	OC – ON CENTER	W – WEST
FP – FLUSHING PORT	OD – OUTSIDE DIAMETER	W/ – WITH
FPS – FEET PER SECOND	PL – PLATE	WST – WATER STORAGE TANK
FPT – FEMALE NPT	PLYWD – PLYWOOD	WTP – WATER TREATMENT PLANT
FRP – FIBERGLASS REINFORCED PLASTIC	PSF – POUNDS PER SQUARE FOOT	Ø – DIAMETER
FT – FEET	PSI – POUNDS PER SQUARE INCH	
GA – GAUGE	PVC – POLYVINYL CHLORIDE	
GAL – GALLON	R – RADIUS	
GALV – GALVANIZED	R – RANGE	
GPCD – GALLONS PER CAPITA DAY		
GPM – GALLONS PER MINUTE		



EMMONAK COMMUNITY MAP

Alaska Department of
Environmental Conservation
Division of Water

Village Safe Water Program
555 Cordova Street 4th Floor
Anchorage, Alaska 99501



CRW
ENGINEERING GROUP LLC

3940 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AEC682-AK

CITY OF EMMONAK

GENERAL LEGEND AND ABBREVIATIONS

RIVER INTAKE UPGRADES
ISSUED FOR AGENCY
REVIEW

NO.	REVISION	BY	DATE

Plot Date 02/14/19	Designed WMK	Drawn CMK	Approved JVS
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File: J:\JobsData\81904.00 Emmonak River Intake\00 CADD\01 Working Set\00 General\81904.00 Notes.dwg

GENERAL NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THESE PLANS AND THE PROJECT MANUAL (SEPARATELY BOUND) WHICH CONTAINS CONTRACT REQUIREMENTS, CONSTRUCTION SPECIFICATIONS AND REFERENCE DATA. THE PLANS AND PROJECT MANUAL ARE COLLECTIVELY REFERRED TO AS "CONTRACT DOCUMENTS".
2. THIS DESIGN IS BASED ON A COMBINATION OF FIELD SURVEY DATA AND RECORDED AS-BUILT INFORMATION AND MAY NOT REFLECT ACTUAL FIELD CONDITIONS IN ALL LOCATIONS. CONTRACTOR SHALL VERIFY ACTUAL CONDITIONS ENCOUNTERED DURING CONSTRUCTION AND NOTE ANY DIFFERENCES ON THE RECORD DRAWINGS INCLUDING THE DIMENSIONS AND LOCATIONS OF ALL ENCOUNTERED PIPING AND EQUIPMENT.
3. EXISTING UTILITY LOCATIONS ARE APPROXIMATE. VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING THE HORIZONTAL AND VERTICAL LOCATIONS OF ALL ENCOUNTERED UTILITIES AND NOTING ANY CHANGES ON THE RECORD DRAWINGS.
4. HISTORICAL PRESERVATION – SHOULD ANY ARCHAEOLOGICAL, CULTURAL OR PALEONTOLOGICAL RESOURCES BE DISCOVERED AS A RESULT OF CONSTRUCTION ACTIVITY, WORK THAT WOULD DISTURB SUCH RESOURCES SHOULD BE STOPPED AND THE OFFICE OF HISTORY AND ARCHAEOLOGY BE CONTACTED IMMEDIATELY AT (907) 269–8718.
5. RECORD DRAWINGS – THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING A CLEAN SET OF DRAWINGS FOR RECORD INFORMATION AT THE PROJECT OFFICE. ALL REQUIRED INFORMATION SHALL BE RECORDED IN RED PENCIL ON A DAILY BASIS IN A NEAT, LEGIBLE FASHION. ALL ELEVATIONS AND DISTANCES SHOWN ON THE PLANS SHALL BE MARKED ASB (AS–BUILT) OR FC (FIELD CHANGE) WITH THE CORRECT VALUE INSERTED. ALL SURVEY NOTES SHALL BE KEPT IN GOOD QUALITY FIELD BOOKS AND SUBMITTED TO THE ENGINEER WITH THE RECORD DRAWINGS AT THE END OF CONSTRUCTION.
6. ALL CONSTRUCTION WASTE AND DEBRIS SHALL BE DISPOSED OF AT AN ADEC PERMITTED LANDFILL FACILITY. CONTACT THE CITY OF EMMONAK FOR DISPOSAL RATES AND CONDITIONS FOR DISPOSAL.
7. BARRICADES AND WARNING SIGNS SHALL BE PROVIDED TO ADVISE USERS OF AREAS UNDER CONSTRUCTION AND ALL HAZARDS.
8. MANUFACTURER'S INSTRUCTIONS SHALL BE FULLY COMPLIED WITH. SHOULD MANUFACTURER'S INSTRUCTIONS CONFLICT WITH THE CONTRACT DOCUMENTS, REQUEST CLARIFICATION FROM THE ENGINEER BEFORE PROCEEDING.
9. ALL DISTURBED AREAS SHALL BE RESTORED TO AS NEAR PRE–CONSTRUCTION CONDITIONS AS REASONABLE.
10. THE TOP OF THE BINWALL OF THE PUMP HOUSE SHALL BE AT LEAST 24–INCHES ABOVE THE HIGHEST RECORDED FLOOD ELEVATION AS ESTABLISHED BY THE U.S. ARMY CORP OF ENGINEERS (USACE). AND INDICATED BY THE "HIGH WATER MARK" ON THE USACE FLOOD STAFF #1 LOCATED ON THE NORTHEAST CORNER OF THE CITY COMPLEX BUILDING. THE "HIGH WATER MARK" ELEVATION CORRESPONDS TO A SURVEY ELEVATION OF 20.0 FOR THIS PROJECT.
11. ALL ELECTRICAL WORK SHALL BE COMPLETED IN ACCORDANCE WITH LATEST ADOPTED VERSION OF THE NATIONAL ELECTRICAL CODE (NEC).
12. CONSTRUCTION SHALL ONLY OCCUR WITHIN DEDICATED EASEMENTS OR PUBLIC RIGHT–OF–WAY.
13. SEE INDIVIDUAL PLAN SHEETS FOR SPECIFIC CONSTRUCTION NOTES.

GENERAL PIPING NOTES

1. SIZE OF FITTINGS SHALL CORRESPOND TO ADJACENT STRAIGHT RUN OF PIPE UNLESS OTHERWISE INDICATED. TYPE OF JOINT AND FITTING MATERIAL SHALL BE THE SAME AS SHOWN FOR ADJACENT STRAIGHT RUN OF PIPE.
2. ALL JOINTS SHALL BE WATERTIGHT.
3. SYMBOLS, LINE TYPES AND ABBREVIATIONS SHOWN IN LEGENDS ARE TYPICAL FOR THIS PROJECT AND SIMILAR CONSTRUCTION. NOT ALL OF THE VARIOUS COMPONENTS SHOWN OR LISTED ARE NECESSARILY USED IN THIS PLAN SET.
4. PROVIDE ALL CONNECTIONS NECESSARY TO FACILITATE CONVENIENT REMOVAL OF VALVES AND MECHANICAL EQUIPMENT.
5. CONTRACTOR SHALL VERIFY LOCATIONS AND DIMENSIONS OF ALL CONNECTIONS TO EXISTING PIPING AND NOTIFY ENGINEER IN WRITING OF ANY DISCREPANCIES THAT WOULD AFFECT PROPOSED CONSTRUCTION.
6. ALL MATERIALS, SUPPLIES, AND EQUIPMENT INCORPORATED INTO THE PROJECT SHALL BE NEW.

WATER PIPING NOTES

1. ANY INTERRUPTIONS IN RAW WATER SERVICE TO THE WTP SHALL BE COORDINATED WITH THE CITY OF EMMONAK. CITY OFFICE (907) 949–1249.
2. ALL SYSTEM COMPONENTS IN CONTACT WITH POTABLE WATER SHALL BE NSF 61 APPROVED OR CONSTRUCTED OF NSF CERTIFIED MATERIALS AND ALL SOLDER AND FLUX SHALL BE LEAD–FREE.

RIGHT–OF–WAY

1. AN APPLICATION FOR UTILITY EASEMENT THROUGH NAVIGABLE WATERS AND SUBMERGED LANDS WAS SUBMITTED TO THE ALASKA DEPARTMENT OF NATURAL RESOURCES IN MAY 2019 AND IS CURRENTLY UNDER REVIEW. SEE SHEETS C200 AND C600 FOR EASEMENT BOUNDARIES.

SCOPE OF WORK – ALL SEASON RIVER INTAKE

- HORIZONTALLY DIRECTIONALLY DRILLED (HDD) PIPELINE BENEATH KWIGUK PASS.
- SEASONAL MARKER BUOY AND SHORELINE MARKER TO LOCATE INTAKE
- CONCRETE WET WELL CONNECTED TO HDD PIPELINE.
- BINWALL RETAINING WALL FOUNDATION TO SUPPORT THE RAW WATER PUMPHOUSE.
- RAW WATER PUMPHOUSE
 - MODULAR STICK–FRAME BUILDING WITH A STEEL SKID
 - NEW BUILDING ELECTRICAL SERVICE.
 - BUILDING HEATING AND VENTILATION SYSTEMS.
 - TWO (2) RAW WATER TANKS AND FISH RETURN SYSTEM.
- SUBMERSIBLE PUMP INSTALLED IN THE WET WELL AND ASSOCIATED PIPING.
- WETWELL SCREEN SYSTEM TO PREVENT PASSAGE OF FISH INTO THE SUBMERSIBLE PUMP
- BRIDGE CRANE TO ALLOW FOR LIFTING THE SUBMERSIBLE PUMP AND WETWELL SCREENS
- RAW WATER LINE EXTENSION TO NEW PUMPHOUSE
- ASSOCIATED CONTROL AND COMMUNICATION SYSTEMS
- DEMOLITION OF EXISTING RAW WATER PUMPHOUSE

Alaska Department of
Environmental Conservation
Division of Water



Village Safe Water Program
555 Cordova Street 4th Floor
Anchorage, Alaska 99501



**CRW**
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CITY OF EMMONAK

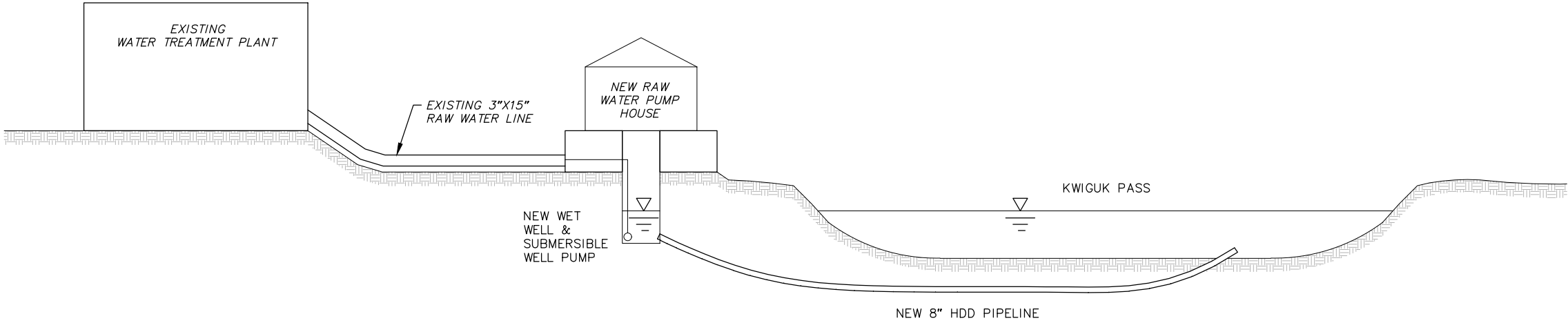
GENERAL NOTES

RIVER INTAKE UPGRADES
ISSUED FOR AGENCY
REVIEW

NO.	REVISION	BY	DATE

Plot Date	02/14/19
Designed	WMK
Drawn	CMK
Approved	JVS

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SYSTEM SCHEMATIC

GRAPHIC

DESIGN CRITERIA

SYSTEM CHARACTERISTICS

	2017 SUMMER	2037 WINTER	2037 SUMMER
POPULATION	843	1137	1137
AVERAGE DAY DEMAND (ADD)			
RESIDENTIAL (GPD), NOTE 1	34,300	45,480	45,480
COMMERCIAL – CLINIC, WASHETERIA, SCHOOL (GPD)	8,000	13,000	9,400
FISH PROCESSOR (GPD)	24,700	–	29,000
TOTAL ADD (GPD)	67,000	58,480	83,880
MAX DAY DEMAND (MDD) (GPD) – NOTE 2	117,250	102,340	146,790
PEAK HOUR DEMAND (GPM) – NOTE 3	183	182	243
WTP FLOWRATE (GPM)	55	130	130
ADD PLANT RUNTIME (HOURS PER DAY)	20	7	11
MDD PLANT RUNTIME (HOURS PER DAY)	24+	13	19

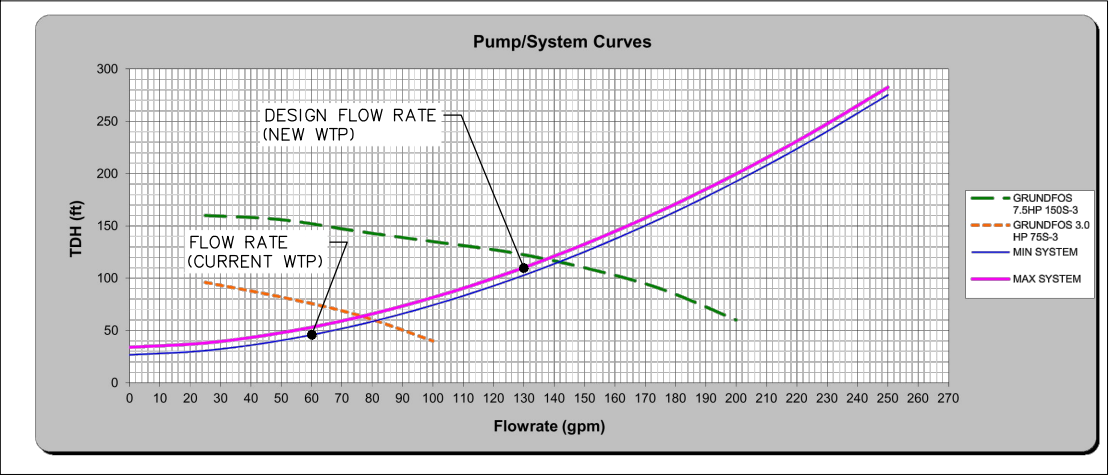
NOTES:

- 1– RESIDENTIAL DEMAND IS BASED ON 40 GPCD
- 2– PEAKING FACTOR OF 1.75 X ADD
- 3 – PEAKING FACTOR OF 4.5 X ADD HOURLY FOR RESIDENTIAL/COMMERCIAL, AND 3 X ADD HOURLY FOR FISH PROCESSOR

INTAKE

MAXIMUM WATER VELOCITY AT SCREEN	0.5 FEET PER SECOND
MAXIMUM SCREEN MESH OPENING SIZE	0.04 INCHES

INTAKE SUBMERSIBLE PUMP



THE CURRENT PROJECT WILL INSTALL A 3.0 HP SUBMERSIBLE WELL PUMP TO MEET THE FLOW REQUIREMENTS OF THE EXISTING WATER TREATMENT PLANT (60 GPM). THE WELL CONTROL PANEL WILL BE DESIGNED TO ACCOMMODATE FUTURE INSTALLATION OF A 7.5 HP SUBMERSIBLE WELL PUMP TO MEET THE FLOW REQUIREMENTS OF THE FUTURE WATER TREATMENT PLANT (130 GPM).

OPERATIONAL NARRATIVE

A SUBMERSIBLE WELL PUMP LOCATED IN A WET WELL WILL DRAW WATER FROM KWIGUK PASS THROUGH A HORIZONTALLY DIRECTIONALLY DRILLED (HDD) PIPELINE AND PUMP IT TO THE EXISTING WATER TREATMENT PLANT. A SCREEN IN THE WET WELL WILL PREVENT DEBRIS AND FISH FROM ENTERING THE PUMP. THE SCREEN WILL BE REMOVABLE TO ALLOW FOR PERIODIC CLEANING.

FLOW IN THE HDD PIPELINE WILL PERIODICALLY BE REVERSED TO ALLOW ANY FISH IN THE WET WELL AND PIPELINE TO RETURN TO KWIGUK PASS. TWO POLYETHYLENE TANKS INSIDE THE INTAKE PUMP HOUSE WILL BE FILLED USING THE SUBMERSIBLE PUMP. ONCE THE TANKS ARE FILLED, A VALVE WILL BE OPENED, ALLOWING WATER FROM THE TANKS TO FLOW INTO THE WET WELL AND THROUGH THE HDD PIPELINE TO KWIGUK PASS.

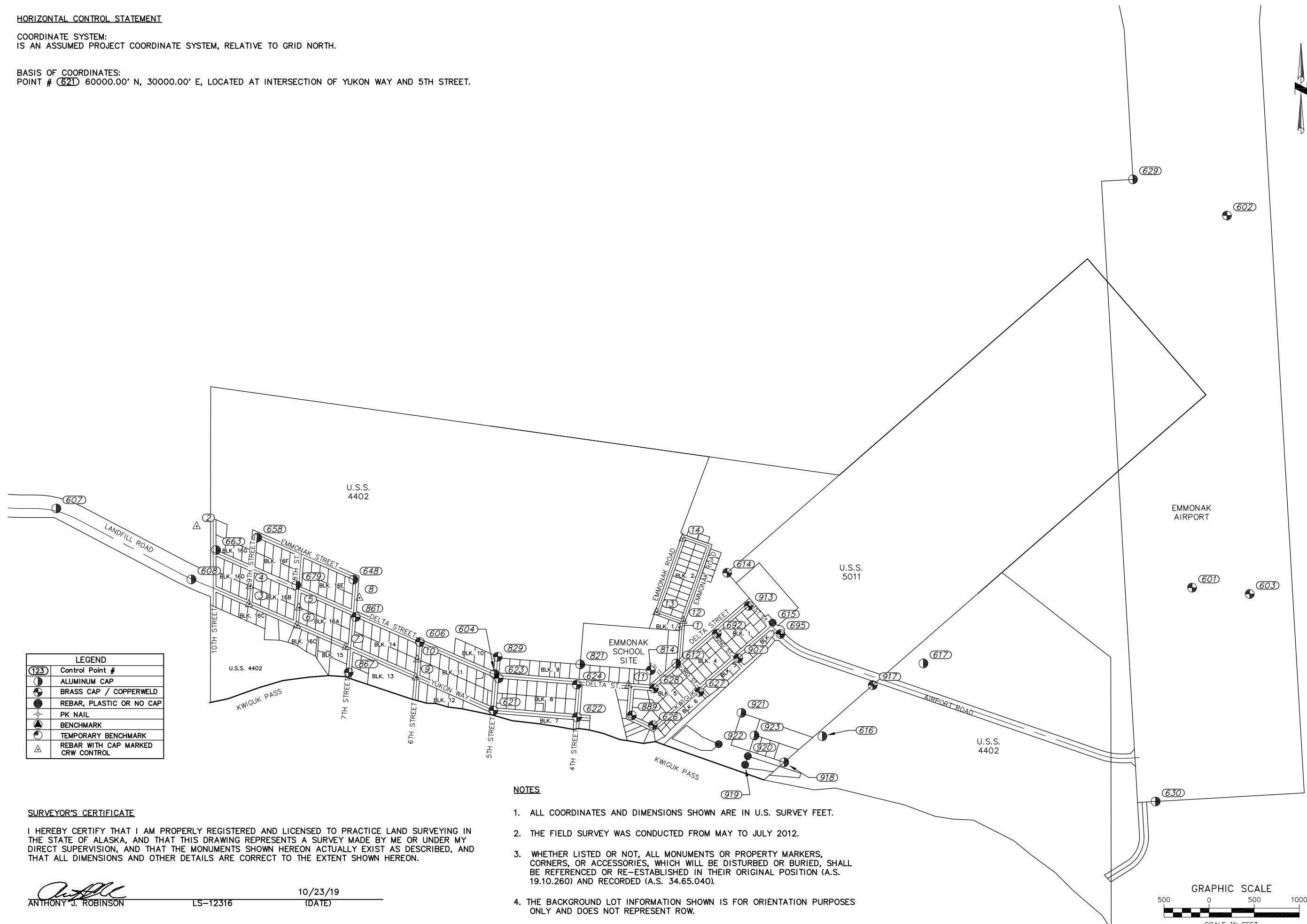
A CLEANOUT WILL ALSO BE PROVIDED TO ALLOW FOR PERIODIC FLUSHING OF THE HDD LINE TO REMOVE ANY ACCUMULATED SEDIMENT. TO FLUSH THE LINE, THE CLEANOUT WILL BE CONNECTED TO THE HYDRANT WITH A TEMPORARY HOSE AND CHECK VALVE. THE HIGH BOOST PUMP AT THE WATER TREATMENT PLANT WILL BE OPERATED MANUALLY TO FLUSH THE LINE.

NO.	REVISION	BY	DATE

Plot Date 02/14/19	Designed WMK	Drawn CMK	Approved JVS
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COORDINATE SYSTEM:
IS AN ASSUMED PROJECT COORDINATE SYSTEM, RELATIVE TO GRID NORTH.

BASIS OF COORDINATES:
POINT # (621) 60000.00' N, 30000.00' E, LOCATED AT INTERSECTION OF YUKON WAY AND 5TH STREET.



Alaska Department of
Environmental Conservation
Division of Water



Village Safe Water Program
555 Cordova Street 4th Floor
Anchorage, Alaska 99501



CITY OF EMMONAK
 SURVEY CONTROL HORIZONTAL

RIVER INTAKE UPGRADES
 ISSUED FOR AGENCY
 REVIEW

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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Plot Date	10/23/19
Designed	AJR
Drawn	AJR
Approved	AJR

Sheet No. **V001**

File: J:\Jobs\Data\81904.00 Emmonak River Intake\00 CAD\01 Working Set\02 Survey\03 Survey Control\81904.00 SCS-H.dwg

Horizontal Control			
Point No	Northing	Eastng	Description
1	60920.03	32056.77	Found Spike with center punch and 4" square flasher flush with ground.
2	62040.30	26711.26	Set a 5/8" x 30" rebar with red plastic cap, 0.2' below ground, located center punch, cap stamped "CRW CONTROL"
3	61176.90	27292.76	Set a 5/8" x 30" rebar with red plastic cap, 0.2' below ground, located center punch, cap stamped "CRW CONTROL"
4	61377.28	27300.60	Set a 5/8" x 30" rebar with red plastic cap, 0.2' below ground, located center punch, cap stamped "CRW CONTROL"
5	61139.23	27844.78	Set a 5/8" x 30" rebar with red plastic cap, 0.2' below ground, located center punch, cap stamped "CRW CONTROL"
6	60940.39	27823.98	Set a 5/8" x 30" rebar with red plastic cap, 0.2' below ground, located center punch, cap stamped "CRW CONTROL"
7	60700.85	28365.36	Set a 5/8" x 30" rebar with red plastic cap, 0.1' below ground, located center punch, cap stamped "CRW CONTROL"
8	61248.10	28516.39	Set a 5/8" x 30" rebar with red plastic cap, flush with ground, located center punch, cap stamped "CRW CONTROL"
9	60363.64	29140.77	Set a 5/8" x 30" rebar with red plastic cap, 0.2' below ground, located center punch, cap stamped "CRW CONTROL"
10	60564.69	29157.43	Set a 5/8" x 30" rebar with red plastic cap, 0.2' below ground, located center punch, cap stamped "CRW CONTROL"
11	60277.30	31499.89	Set a 5/8" x 30" rebar with red plastic cap, 0.2' below ground, located center punch, cap stamped "CRW CONTROL"
12	60989.95	32111.01	Set a 5/8" x 30" rebar with red plastic cap, 0.15' below ground, located center punch, cap stamped "CRW CONTROL"
13	61088.25	31809.88	Set a 5/8" x 30" rebar with red plastic cap, 0.2' below ground, located center punch, cap stamped "CRW CONTROL"
14	61905.43	32100.78	Set a 5/8" x 30" rebar with red plastic cap, 0.2' below ground, located center punch, cap stamped "CRW CONTROL"
601	61361.18	37745.96	Found 9/16" stainless steel rod with center punch, in a 7" diameter monument case in concrete, 1.3' diameter and flush with ground. Rod is 0.5' below rim of monument case in excellent condition, located center punch. Monument case is stamped "PACS ENM A".
602	65486.91	38132.76	Found 9/16" stainless steel rod with center punch, in a 7" diameter monument case in concrete, 1.3' diameter and flush with ground. Rod is 0.6' below rim of monument case in excellent condition, located center punch. Monument case is stamped "SACS ENM C".
603	61290.91	38385.26	Found 9/16" stainless steel rod with center punch, in a 7" diameter monument case in concrete, 1.3' diameter and flush with ground. Rod is 0.7" below rim of monument case in excellent condition, located center punch. Monument case is stamped "PACS ENM B".
604	60404.46	30013.07	Found 2" Aluminum cap flush with ground, good condition, located center cross "+". Cap stamped "R&M CONSULTANTS CP 16 7843 2003".
606	60758.56	29185.32	Found 3 1/4" Brass cap, 1.5' below ground in good condition located center cross "+". Cap stamped "US CADASTRAL SURVEY BUREAU OF LAND MANAGEMENT S4402 ETS 1966"
607	62239.49	25155.39	Found 2" Aluminum cap flush with ground, good condition, located center cross "+". Cap stamped "R&M CONSULTANTS CP 4 7843 2003".
608	61452.74	26653.21	Found 2" Aluminum cap 1.5' below ground, good condition, located center cross "+". Cap stamped "R&M CONSULTANTS CP 3 7843 2003".
612	60519.15	32027.47	Found 2" Aluminum cap flush with ground, good condition, located center cross "+". Cap stamped "R&M CONSULTANTS CP 10 7843 2003"
614	61526.34	32592.00	Found 3 1/4" Brass cap, 0.6' above ground in good condition located angle point in lines near center of cap. Cap stamped "US DEPARTMENT OF INTERIOR BUR. OF LAND MANAGEMENT S4402 C5 B16 TRB S5011 C4 2011"
615	60972.36	33096.44	Found 5/8" Rebar, no cap, except plastic bushing from missing ALCAP, flush with ground, good condition, located center.
616	59713.94	33647.79	Found 2" Aluminum cap 0.3' below ground, good condition, located center cross "+". Cap stamped "R&M CONSULTANTS CP 14 7843 2003"
617	60521.11	34767.92	Found 5/8" rebar with yellow plastic cap, flush with ground, good condition, located center punch, cap stamped "4408S".
621	60000.00	30000.00	Found 3 1/4" Brass cap, 0.6' below ground in good condition located center cross "+". Cap stamped "US CADASTRAL SURVEY BUREAU OF LAND MANAGEMENT S4402 ETS 1966"
622	59925.49	30926.77	Found 3 1/4" Brass cap, 0.4' below ground in good condition located center cross "+". Cap stamped "US DEPARTMENT OF INTERIOR BUR. OF LAND MANAGEMENT S4402 ETS 2011"

Horizontal Control			
Point No	Northing	Eastng	Description
623	60356.62	30059.00	Found 1 1/2" Copper Weld, flush with ground, good condition, located angle point in lines, cap stamped "BLM CADASTRAL SURVEY ETS L8 B8 2011"
624	60286.62	30925.58	Found 1 1/2" Copper Weld, flush with ground, good condition, located angle point in lines, cap stamped "BLM CADASTRAL SURVEY ETS L1 B8 2011"
626	59835.97	31768.77	Found 1 1/2" Copper Weld, flush with ground, good condition, located angle point in lines, cap stamped "BLM CADASTRAL SURVEY ETS B5 L9 2011"
627	60205.19	32283.21	Found 1 1/2" Copper Weld, flush with ground, good condition, located angle point in lines, cap stamped "BLM CADASTRAL SURVEY ETS L1 B6 2011"
628	60243.11	31780.22	Found 1 1/2" Copper Weld, 0.1' above ground, good condition, located angle point in lines, cap stamped "BLM CADASTRAL SURVEY ETS L5A L4 B8 2011"
629	65887.49	37090.94	Found 3 1/4" Aluminum cap, 0.3' above ground, good condition, located center punch with cross, cap stamped "4469-S 7 EA 1999"
630	58990.59	37342.16	Found 3 1/4" Aluminum cap, 1' above ground, good condition, located intersection lines, cap stamped "4469-S 20 EA BRL 1999"
648	61450.11	28448.68	Found 1 1/2" Aluminum cap, flush with ground, good condition, located center of cap, cap stamped "6529-S 1988"
658	61915.62	27382.25	Found 1 1/2" Aluminum cap, flush with ground, good condition, located center of cap, cap stamped "6529-S 1988"
663	61778.33	26925.16	
679	61390.11	27814.52	Found 1 1/2" Aluminum cap, flush with ground, good condition, located center of cap, cap stamped "6529-S 1988"
692	60850.32	32477.57	Found 2" Copper Weld, flush with ground, good condition, located angle point in lines, cap stamped "USDI BLM BL1 L5"
695	60847.25	33182.40	Found 2 1/2" Aluminum cap in monument box, 1.5' below ground, good condition, located center punch, cap stamped "4725-S C3-USS5011 2010".
814	60446.35	31744.98	Found 1 1/2" Copper Weld, 0.1' above ground, good condition, located angle point in lines, cap stamped "BLM CADASTRAL SURVEY ETS B16 L1 B9 2011"
821	60510.19	30963.32	Found 1 1/2" Aluminum cap, flush with ground, good condition, located center of cap, cap stamped "LCG 4125-S 2003"
829	60595.05	30048.08	Found 3 1/4" Brass cap, 1.25' below ground in good condition located center cross "+". Cap stamped "US CADASTRAL SURVEY BUREAU OF LAND MANAGEMENT S4402 ETS 1966"
861	61035.92	28475.77	Found 2" Copper Weld, 0.2' above ground, good condition, located angle point in lines, cap stamped "USDI BLM L7 BL14"
867	60420.57	28396.20	Found 3 1/4" Brass cap, flush with ground in good condition located center cross "+". Cap stamped "US CADASTRAL SURVEY BUREAU OF LAND MANAGEMENT S4402 ETS 1966"
889	59945.43	31534.66	Found 2" Copper Weld, flush with ground, good condition, located angle point in lines, cap stamped "USDI BLM BL5 L8 2011"
907	60578.95	32714.42	Found 2" Copper Weld, flush with ground, good condition, located angle point in lines, cap stamped "USDI BLM L4 BL2"
913	61159.18	32832.23	Found 1 1/2" Copper Weld, flush with ground, good condition, located angle point in lines, cap stamped "BLM CADASTRAL SURVEY ETS L1 B1 2011"
917	60279.97	34205.88	3 1/4" Brass cap, 0.5' above ground in good condition located center of cap. Cap stamped "US CADASTRAL SURVEY BUREAU OF LAND MANAGEMENT WP S5011 TRA S4402 1966"
918	59425.09	33224.33	Found 5/8" rebar with orange plastic cap, flush with ground, good condition, located center punch, cap stamped "SETNTEC AS11796".
919	59397.86	32790.83	Found 5/8" rebar flush with ground, good condition, located center.
920	59493.14	32821.40	Found 5/8" rebar 1.0' below ground, good condition, located center.
921	59973.01	32750.72	Found 1 1/2" Aluminum cap, 0.1' above ground, good condition, located center punch, cap stamped "6716S 1987"
922	59625.15	32498.18	Found 5/8" rebar 0.1' above ground, good condition, located center.
923	59721.98	32895.70	Found 2" Aluminum cap 0.3' below ground, good condition, located center punch. Cap stamped "PND WC LOT1 PAR C LS7324 2004"

Alaska Department of
Environmental Conservation
Division of Water



Village Safe Water Program
555 Cordova Street 4th Floor
Anchorage, Alaska 99501



**CRW**
ENGINEERING GROUP LLC

3905 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AECB82-AK

CITY OF EMMONAK

SURVEY CONTROL HORIZONTAL

RIVER INTAKE UPGRADES
ISSUED FOR AGENCY
REVIEW

NO.	REVISION	BY	DATE

Plot Date	10/23/19
Designed	AJR
Drawn	AJR
Approved	AJR

VERTICAL CONTROL STATEMENT

BASIS OF ELEVATION BASED ON THE ARMY CORP OF ENGINEERS ELEVATION OF 20.00' NGVD. WE USED HIGH WATER MARK 4.3 ON FLOOD GAUGE, LOCATED NEAR THE NORTHEAST CORNER OF THE CITY OFFICE / COMMUNITY BUILDING IN EMMONAK, AK, ESTABLISHED BY THE ARMY CORPS OF ENGINEERS. THE PUBLISHED ELEVATION FOR THE HIGH WATER MARK 4.3 ON GAUGE IS EQUAL 20.00' NGVD AS PER THE ARMY CORPS OF ENGINEERS FLOOD DATA SHEETS FOR EMMONAK, AK.

LEGEND	
(123)	Control Point #
●	ALUMINUM CAP
●	BRASS CAP / COPPERWELD
●	REBAR, PLASTIC OR NO CAP
+	PK NAIL
▲	BENCHMARK
●	TEMPORARY BENCHMARK
△	REBAR WITH CAP MARKED CRW CONTROL

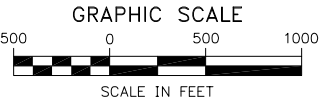
SURVEYOR'S CERTIFICATE

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


Anthony J. Robinson
LS-12316
10/23/19
(DATE)

NOTES

- ALL COORDINATES AND DIMENSIONS SHOWN ARE IN U.S. SURVEY FEET.
- THE FIELD SURVEY WAS CONDUCTED FROM MAY TO JULY 2012.
- WHETHER LISTED OR NOT, ALL MONUMENTS OR PROPERTY MARKERS, CORNERS, OR ACCESSORIES, WHICH WILL BE DISTURBED OR BURIED, SHALL BE REFERENCED OR RE-ESTABLISHED IN THEIR ORIGINAL POSITION (A.S. 19.10.260) AND RECORDED (A.S. 34.65.040).
- THE BACKGROUND LOT INFORMATION SHOWN IS FOR ORIENTATION PURPOSES ONLY AND DOES NOT REPRESENT ROW.



NO.	REVISION	BY	DATE

Plot Date	10/23/19
Designed	AJR
Drawn	AJR
Approved	AJR

Vertical Control				
Point No	Northing	Easting	Elevation	Description
350	60093	31478	20.00	4.3 foot mark (HWE – high water elevation) on Flood Gauge on the side of city office / community center.
351	59882	31574	20.42	Yellow benchtie spike on north side of power pole #3L–3R on the south side of Kwiguk Street, two houses east of Chuloonwick office building.
352	59867	31800	18.81	Yellow benchtie spike on west side of telephone pole at northwest quadrant of Kwiguk Street and Road heading to corporation store and fish processing plant.
353	60012	31969	18.98	Yellow benchtie spike on west side of power pole #7L on west side of Kwiguk Street, between lot 11 and 12 of block 5.
354	60223	32215	19.16	Yellow benchtie spike on southeast side of power pole #7L –2L on west side of Kwiguk Street, just south of 3rd Street.
355	60410	32434	19.31	Yellow benchtie spike on southeast side of power pole #7L –4L on west side of Kwiguk Street, between lot 7 and 8 of block 4.
356	61133	33060	19.37	Chisled "X" at southwest corner of steel plate on a 6" diameter pile support, located at southwest side of building entrance the southern most Clinic apartment building.
357	60280	31501	18.98	Yellow benchtie spike on south side of power pole #3LA on north side Delta Street near the intersection of Kwiguk Street.
358	60371	31927	18.75	Yellow benchtie spike on west side of power pole #5L–1–1 on east side Delta Street, between lot 2 and 3 of block 5.
359	60650	32112	18.61	Yellow benchtie spike on west side of power pole #5L–1–3–1 on east side Emmonak Street, just north of intersection with Delta Street.
360	60581	31658	23.76	Chisled "X" at southwest corner of steel beam for the top of deck attached to entrance stairs of Emmonak School, just above southwest support column for deck & stairs on south side of school on newer addition, approximately 5' above ground.
361	60255	31156	18.17	Yellow benchtie spike on north side of power pole #B3–5, at 2.0 on flood gauge attached to pole, on south side of Delta Street and across Street from power plant.
362	60366	30006	18.37	Yellow benchtie spike on east side of power pole #7–R at the southwest quadrant of Delta Street and 5th Street.
363	60281	29300	19.35	Yellow benchtie spike on north side of power pole #2R–11A on the south side of Yukon way, just west of the Family Restaurant, power pole has an electric meter on it.
364	60565	28766	19.22	Yellow benchtie spike on south side of power pole #2R–14 on north side of Yukon Way, across the Street from Alaska Department of Fish and Game office.
365	60785	28169	20.47	Yellow benchtie spike on north side of power pole with meter on south side of Yukon Way, first pole west of 7th Street, pole is a service pole.
366	60973	27849	20.16	Yellow benchtie spike on north side of power pole #2R–19 at northeast quadrant of 8th Street and Yukon Way.
367	61052	27562	19.87	Yellow benchtie spike on north side of power pole #2R–21B with meter on pole, first pole west of 8th Street on south side of Yukon Way.
368	61287	27029	20.54	Yellow benchtie spike on north side of power pole #2R–23A, first pole west of 9th Street on south side of Yukon Way.
369	62038	26724	22.66	Chisled "X" top center of northeast edge of vertical ibeam support for power pole #t–21 on east side of Road heading to windmill, power pole is part of main line between villages.
370	61343	27359	19.50	Spike on west side of power pole #1R–A, approximately 50' east of 9th Street and 9' south of arctic pipe at the back of lot 6 of block 16A, pole is a service pole with meter.
371	61325	27810	18.63	Spike on north side of power pole #19R at southwest quadrant of Delta Street and 8th Street.
372	61036	28477	18.11	Spike on west side of power pole #15R at southeast quadrant of Delta Street and 7th Street.
373	60712	29239	17.26	Spike on northwest side of power pole #11R at southeast quadrant of Delta Street and 6th Street.
374	60556	29185	18.87	Yellow benchtie spike on west side of telephone pole on east side of 6th Street between lot 8 and 9A of block 11, just south of arctic piping.
375	61785	32222	18.51	Spike on west side of power pole #5L–12 on west side of boardwalk and between lot 13 and 14 of block 2, just south of Emmonak Road.
376	61124	31989	18.42	Spike on west side of power pole #5L–7 on west side of boardwalk and between lot 23 and 44 of block 2, just north of Emmonak Road.

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Village Safe Water Program
555 Cordova Street 4th Floor
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**CRW**
ENGINEERING GROUP LLC

3940 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AEC0882-AK

CITY OF EMMONAK

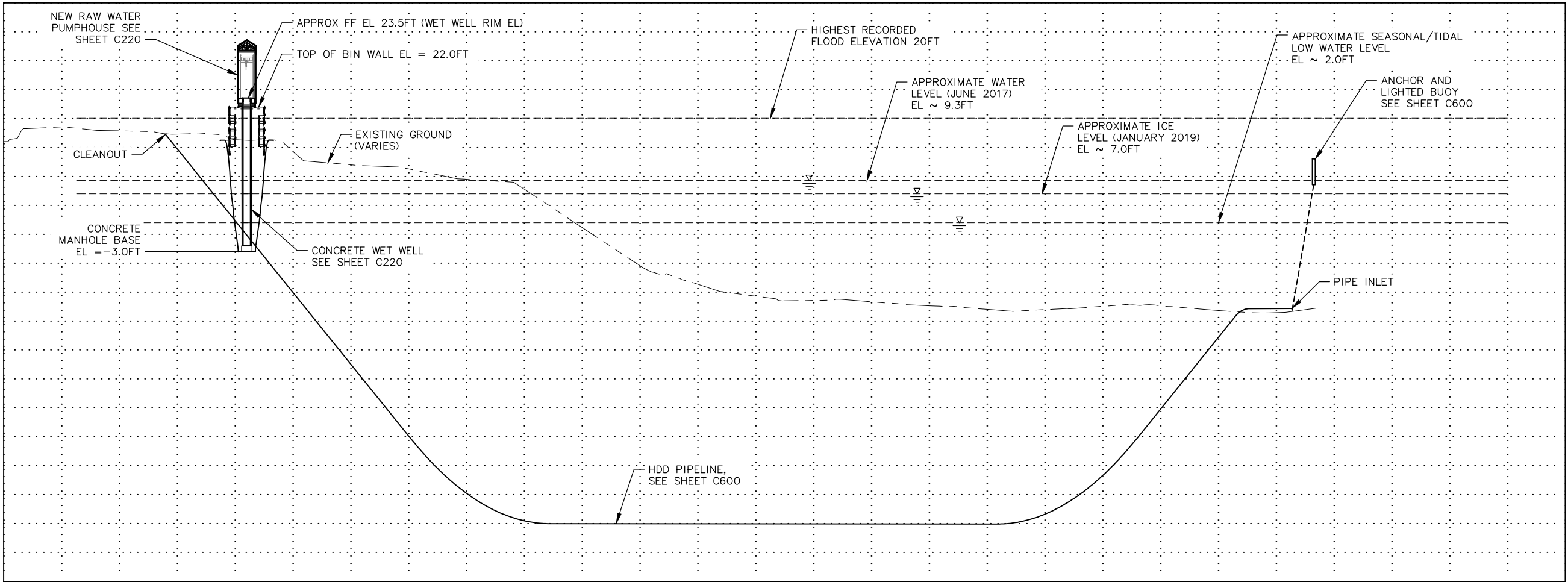
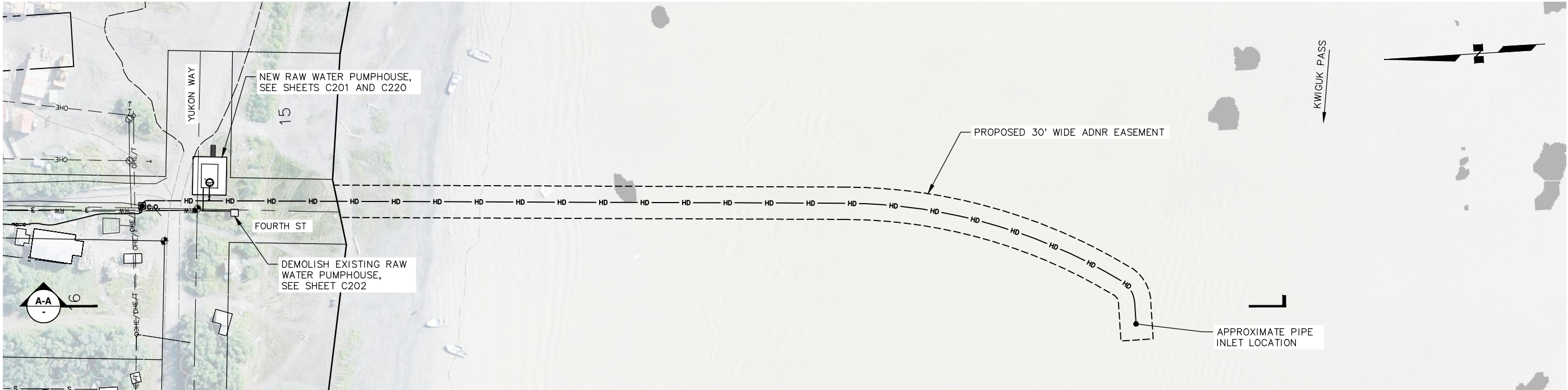
SURVEY CONTROL VERTICAL

RIVER INTAKE UPGRADES
ISSUED FOR AGENCY
REVIEW

NO.	REVISION	BY	DATE

Plot Date	10/23/19
Designed	AJR
Drawn	AJR
Approved	AJR

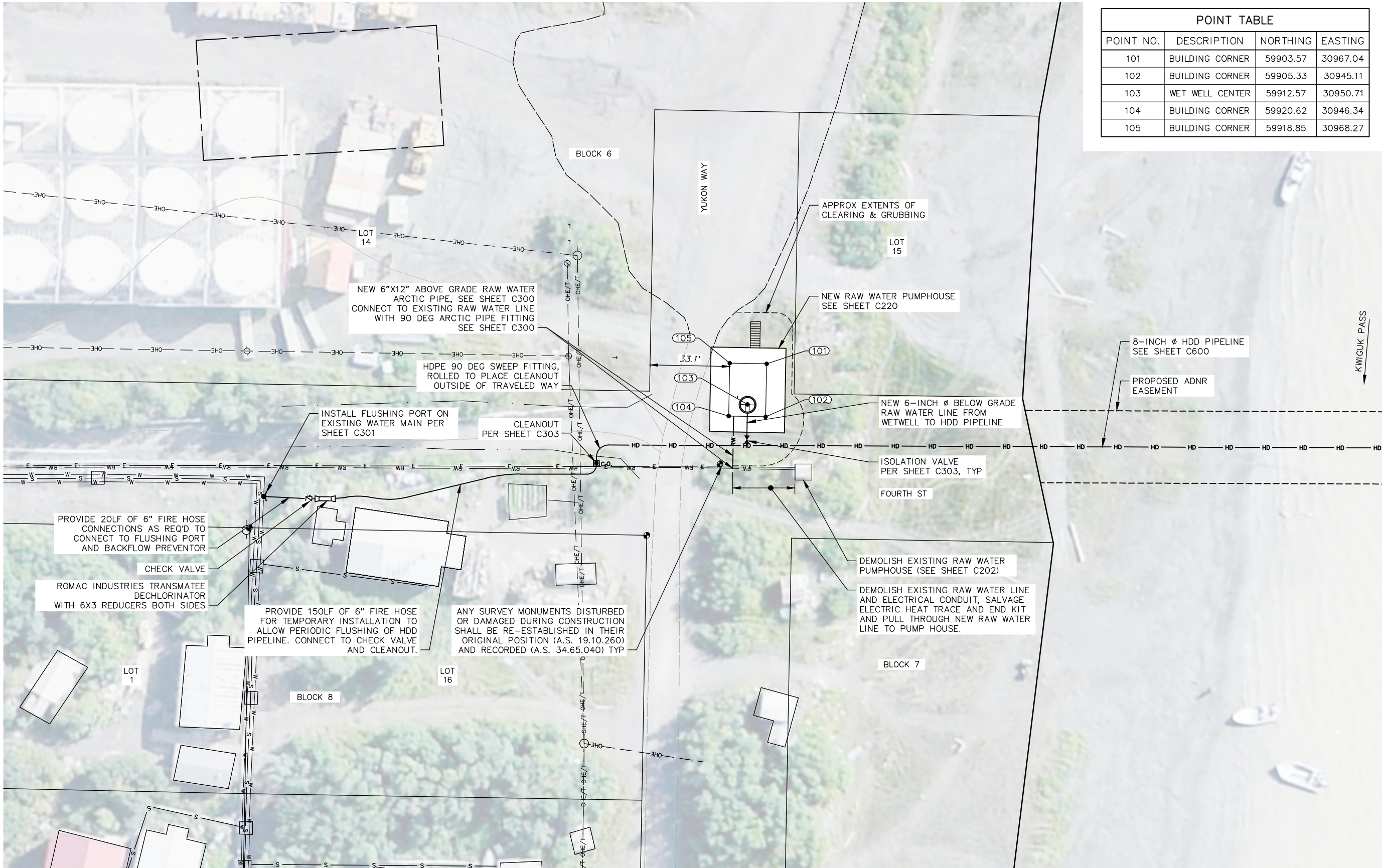
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NO.	REVISION	BY	DATE

Plot 10/28/19 Date	Designed WMK	Drawn CMK	Approved JVS
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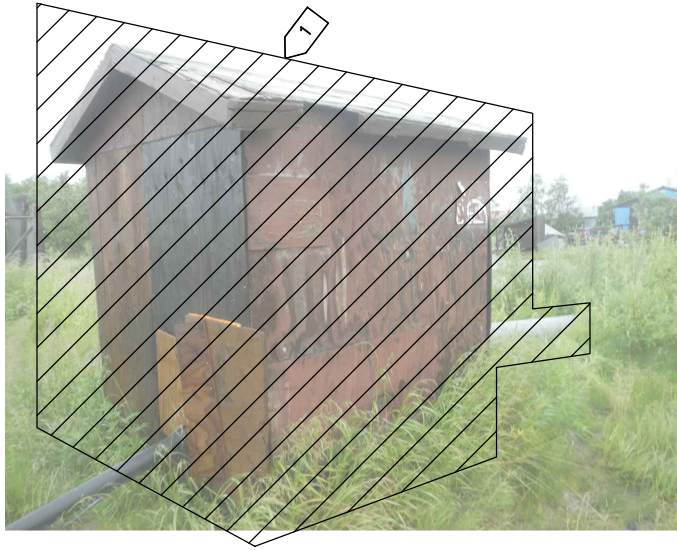


POINT TABLE			
POINT NO.	DESCRIPTION	NORTHING	EASTING
101	BUILDING CORNER	59903.57	30967.04
102	BUILDING CORNER	59905.33	30945.11
103	WET WELL CENTER	59912.57	30950.71
104	BUILDING CORNER	59920.62	30946.34
105	BUILDING CORNER	59918.85	30968.27



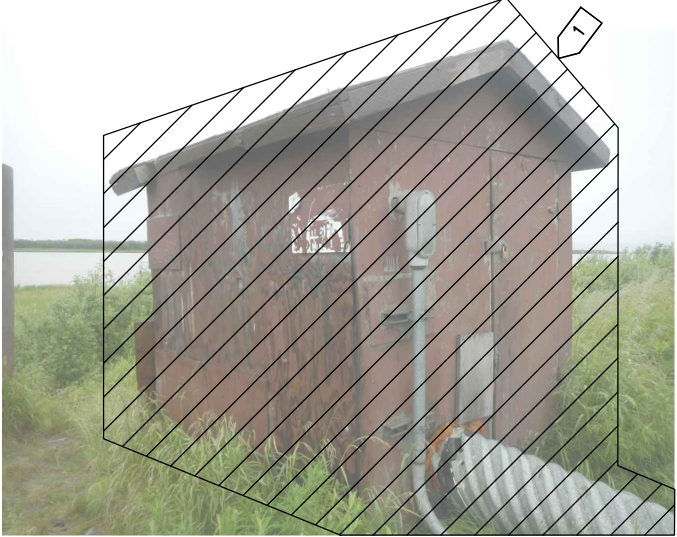
NO.	REVISION	BY	DATE

Plot 10/28/19	Designed WMK	Drawn CMK	Approved JVS
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**EXISTING RAW WATER
PUMP HOUSE**

SCALE: NTS



**EXISTING RAW WATER
PUMP HOUSE**

SCALE: NTS



**EXISTING RAW WATER
PUMP HOUSE**

SCALE: NTS

NOTES:

- 1 DEMOLISH RAW WATER PUMP HOUSE, INCLUDING ALL ELECTRICAL COMPONENTS AND RAW WATER PIPELINE (TO EXTENT INDICATED ON SHEET C200).



**EXISTING RAW WATER
PUMP HOUSE
ELECTRICAL PANELS**

SCALE: NTS



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Environmental Conservation
Division of Water

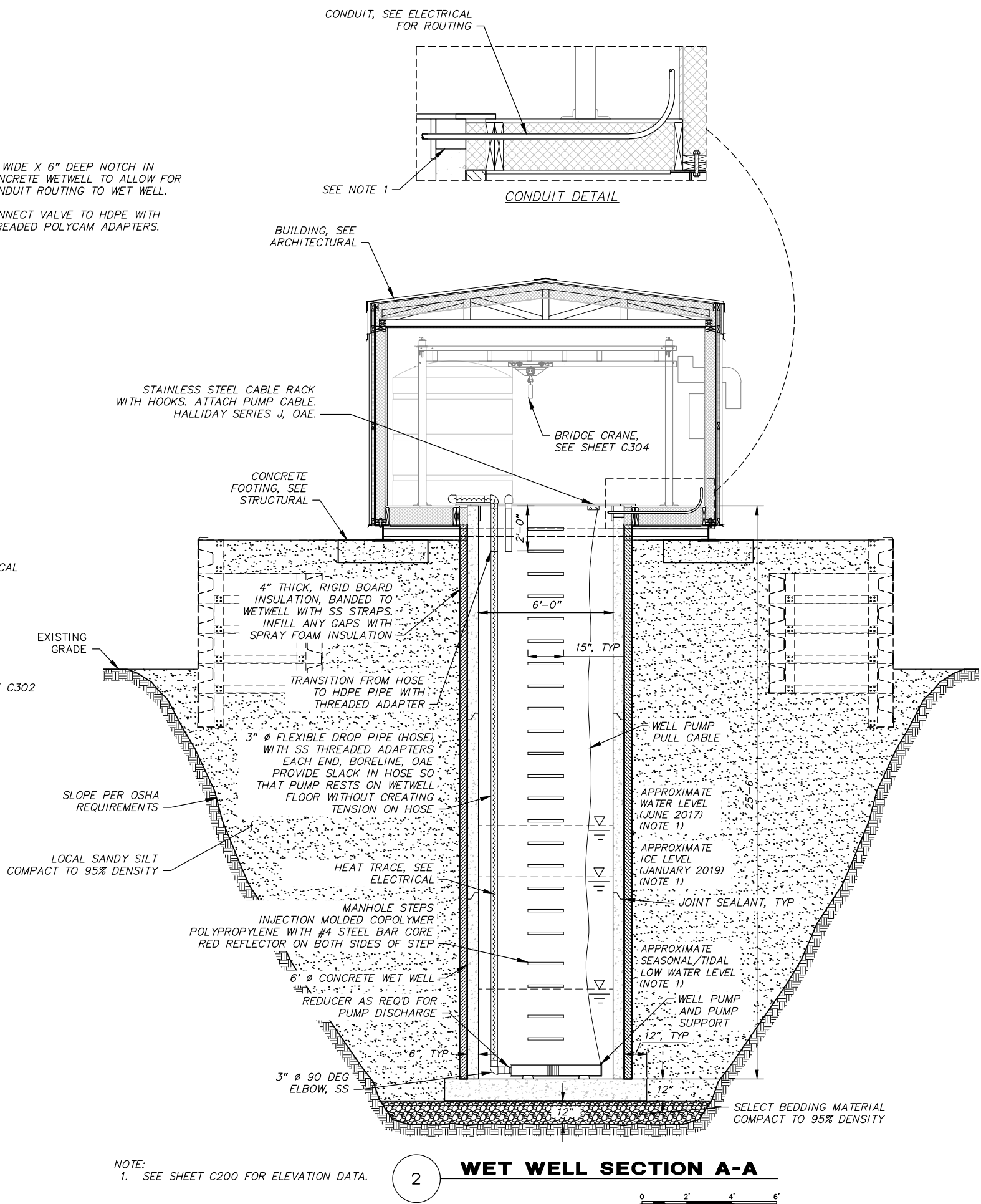
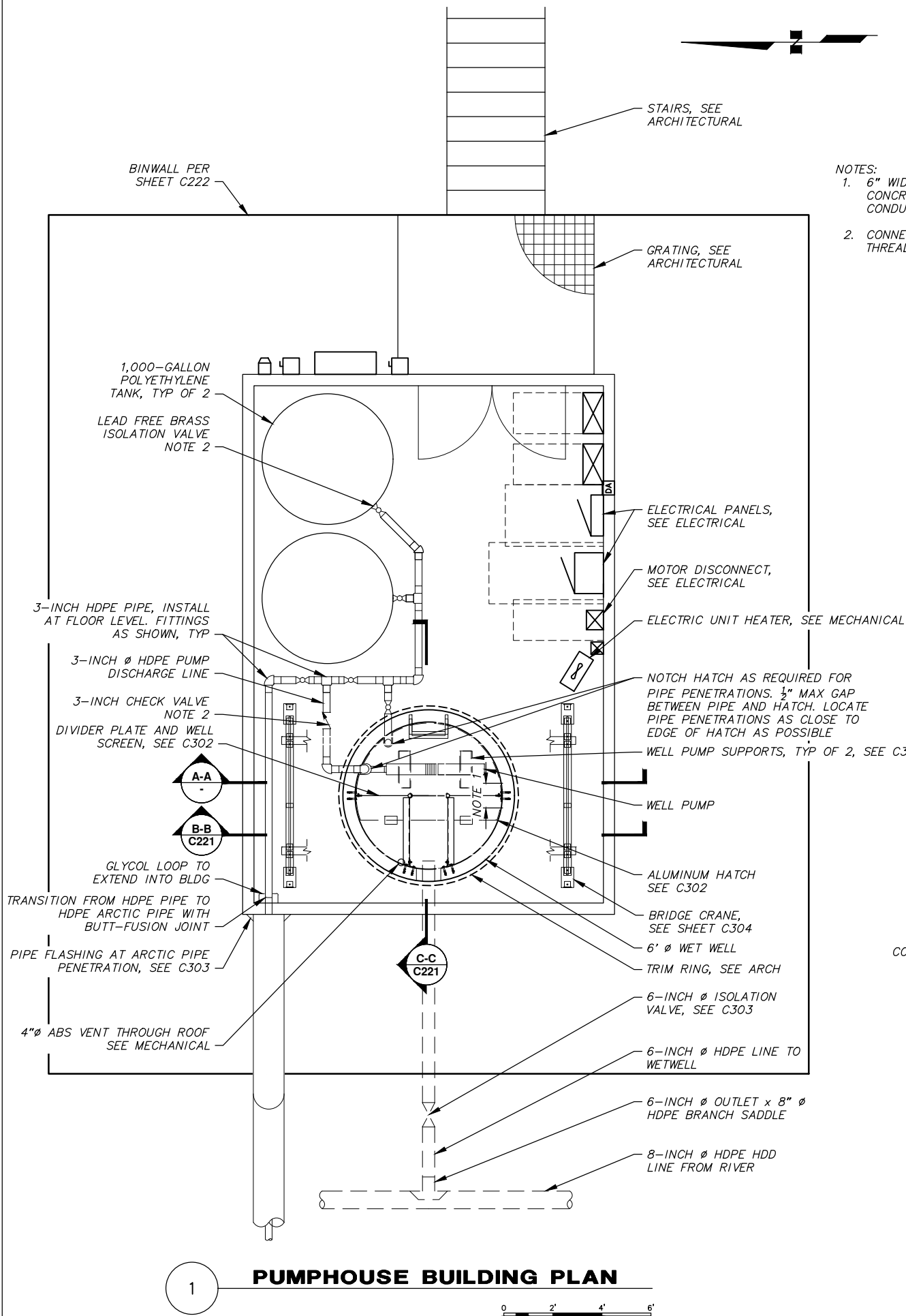
Village Safe Water Program
555 Cordova Street 4th Floor
Anchorage, Alaska 99501

CITY OF EMMONAK
DEMO PHOTOS
RIVER INTAKE UPGRADES
ISSUED FOR AGENCY
REVIEW

NO.	REVISION	BY	DATE

Plot Date	02/14/19
Designed	WMK
Drawn	CMK
Approved	JVS

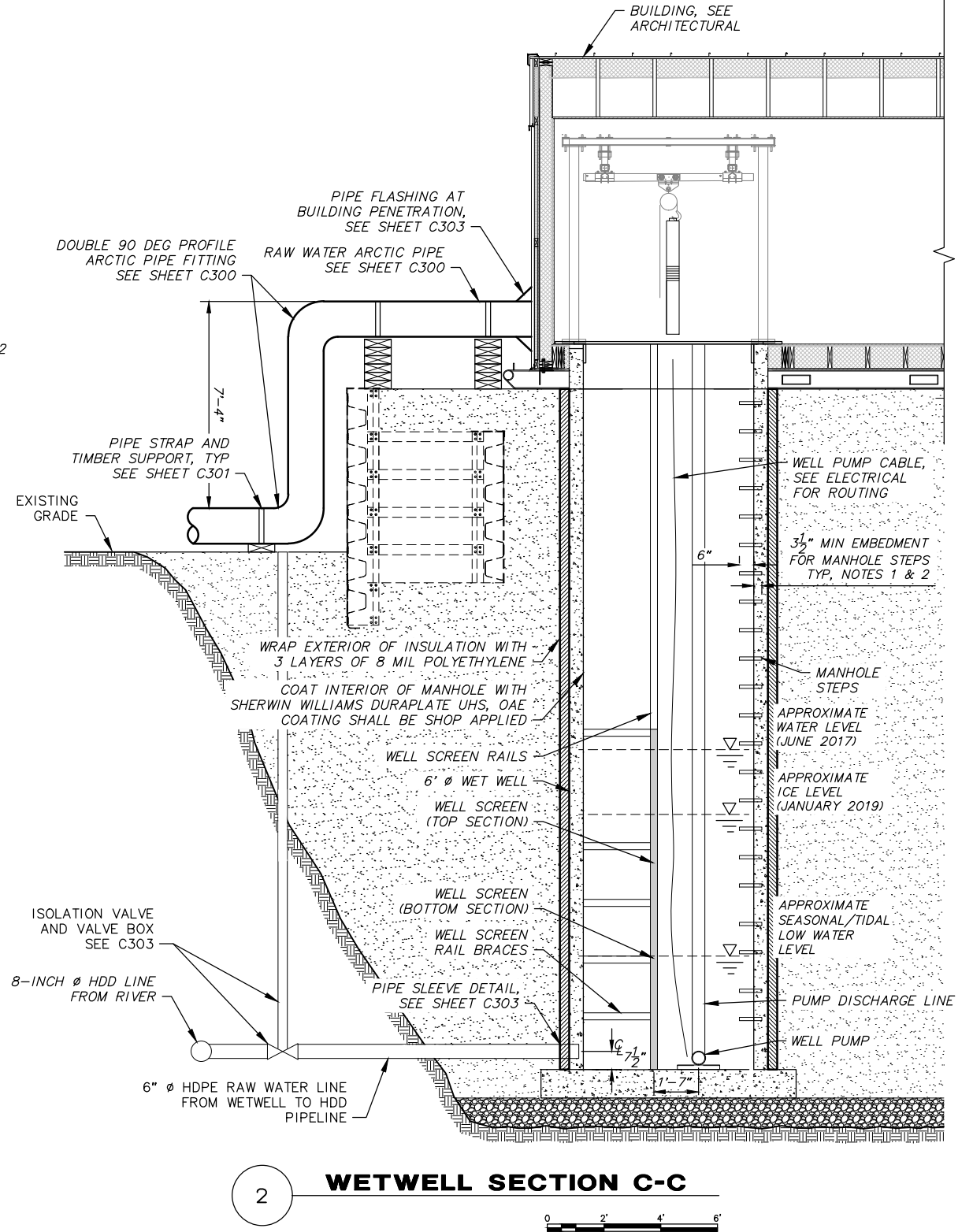
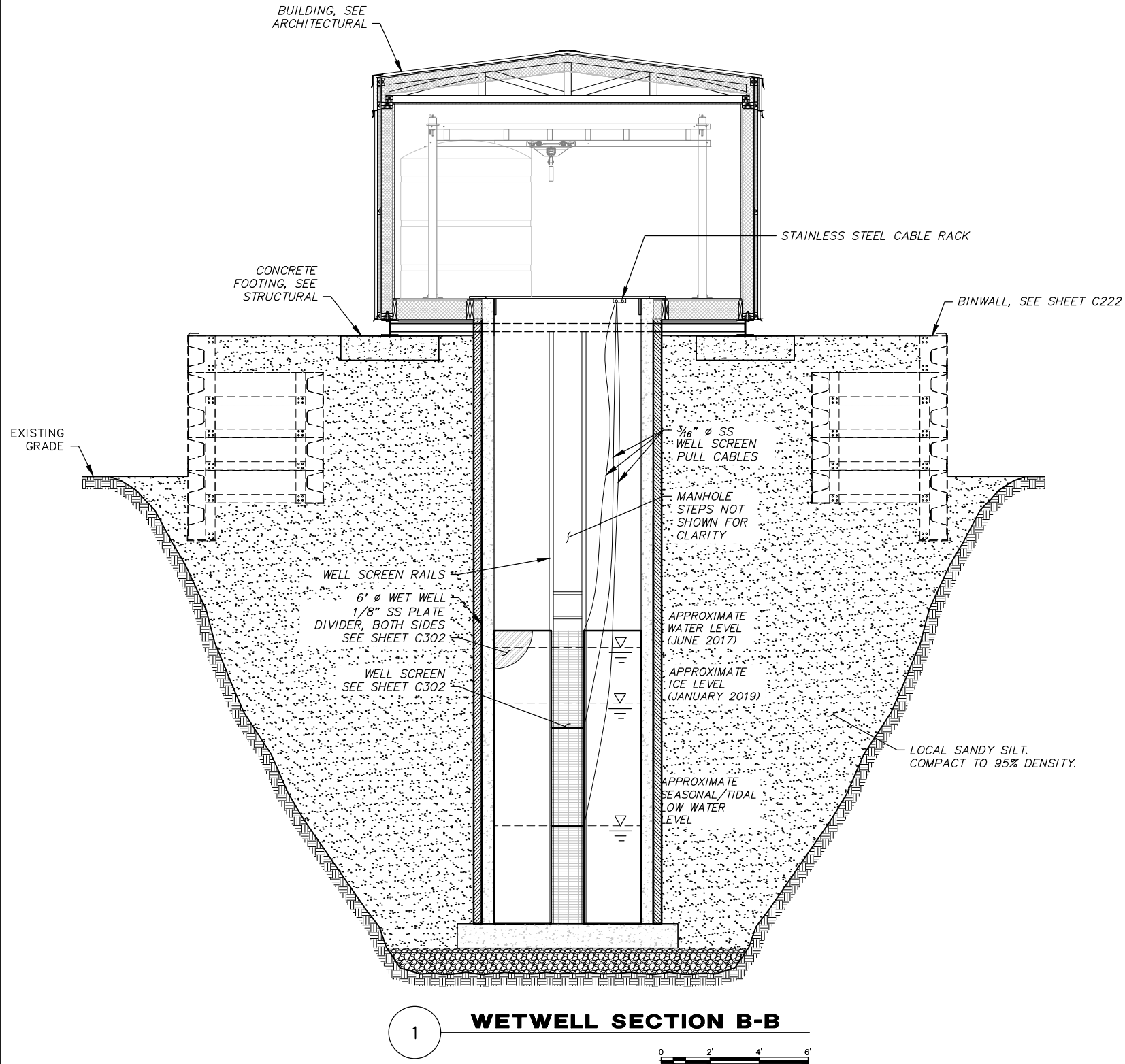
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NO.	REVISION	BY	DATE

Plot Date	02/14/19
Designed	WMK
Drawn	CMK
Approved	JVS

File: J:\JobsData\81904.00 Emmonak River Intake\00 CADD\01 Working Set\01 Civil\81904.00 Wetwell Section South.dwg

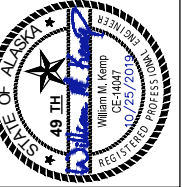


- NOTES:
1. DRIVE RUNG INTO PREFORMED OR DRILLED HOLES AFTER CONCRETE IS CURED TO 3,000 PSI MIN.
 2. INSTALL STEP SHALL RESIST A PULLOUT FORCE OF 1,500 LBS.
 3. SEE SHEET C200 FOR ELEVATION DATA.

Alaska Department of
Environmental Conservation
Division of Water



Village Safe Water Program
555 Cordova Street 4th Floor
Anchorage, Alaska 99501



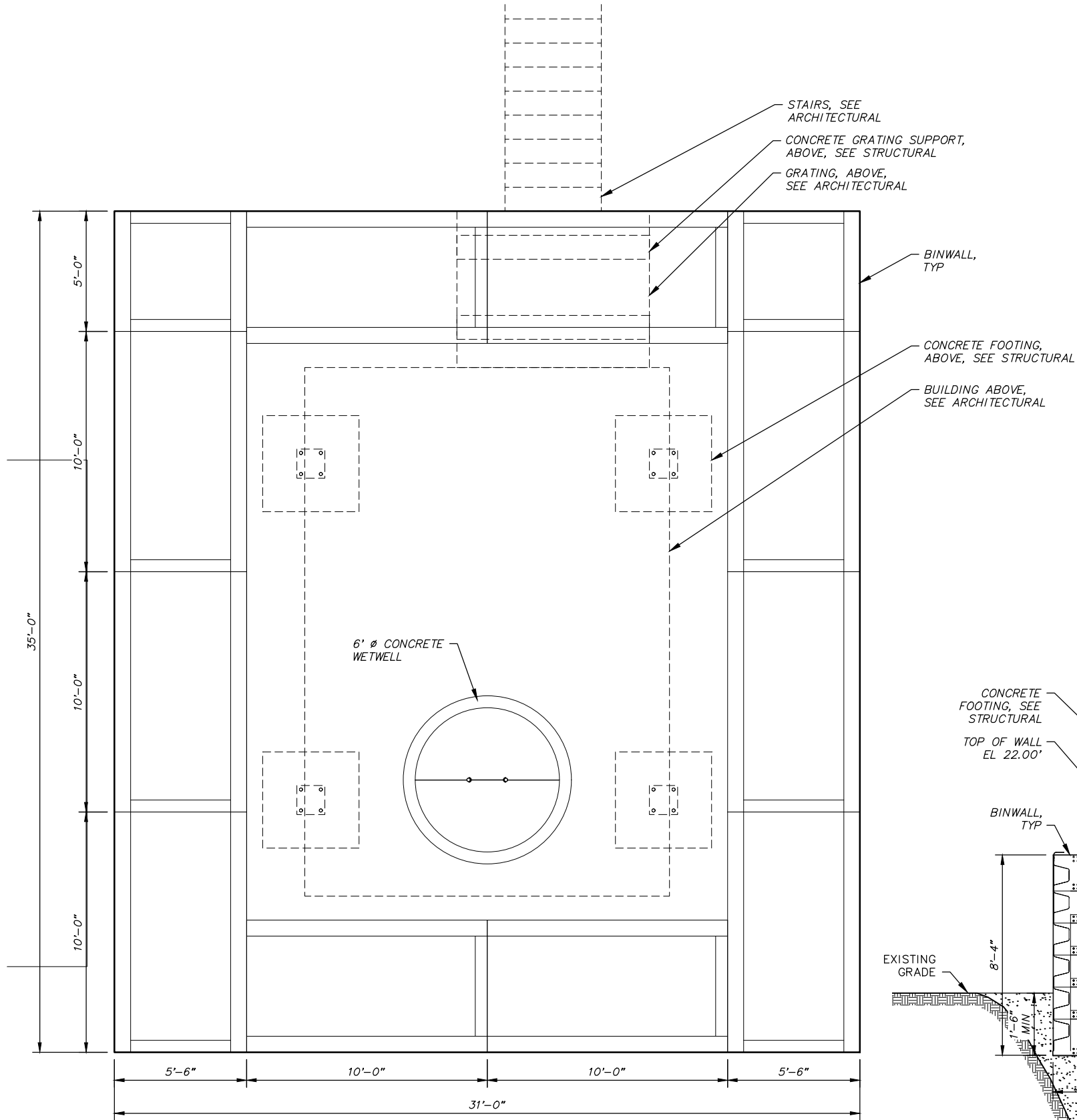
CITY OF EMMONAK
WET WELL SECTIONS
RIVER INTAKE UPGRADES
ISSUED FOR AGENCY REVIEW

NO.	REVISION	BY	DATE

Plot Date	02/14/19
Designed	WMK
Drawn	CMK
Approved	JVS

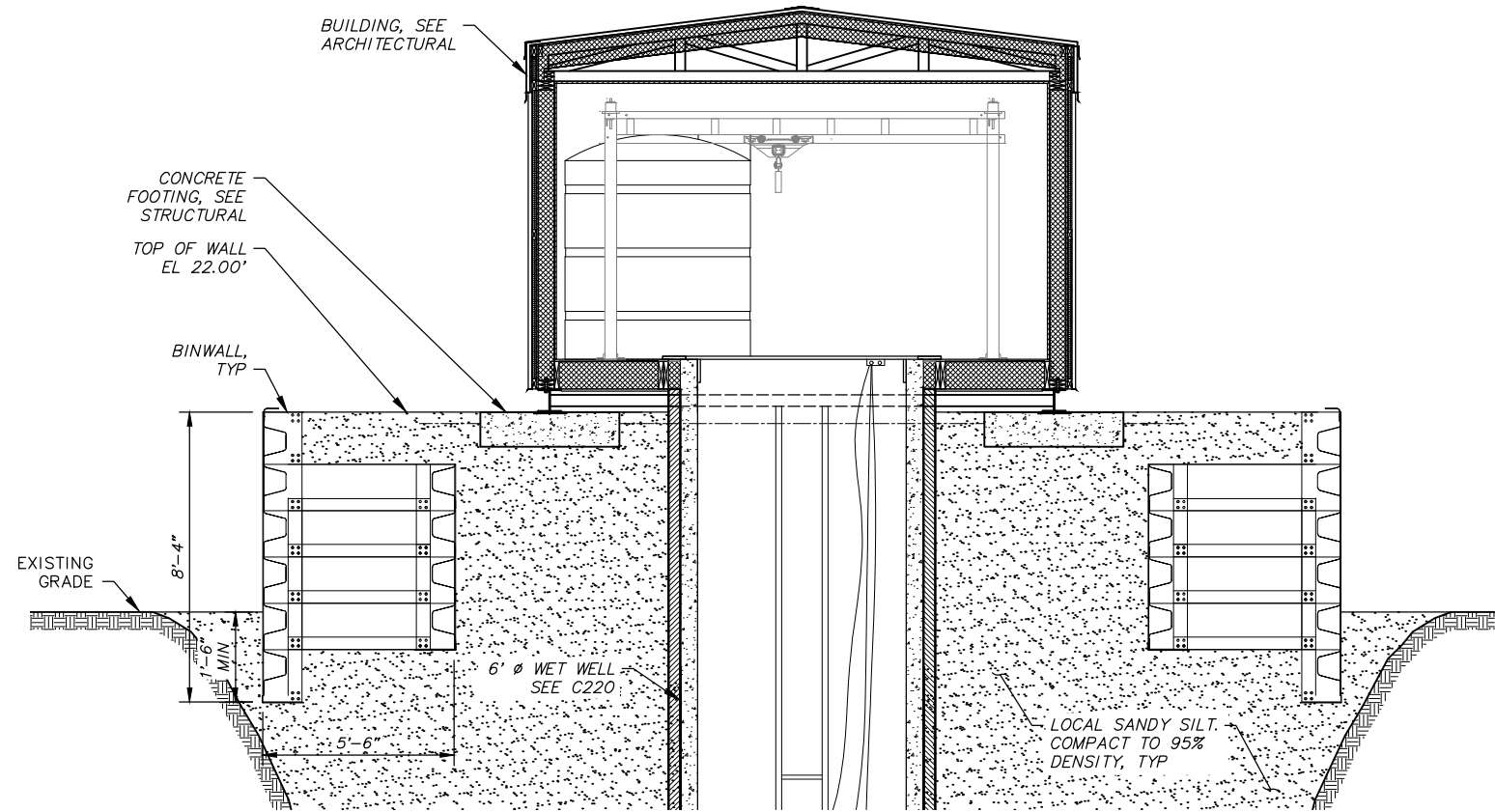
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1 **BINWALL PLAN**

0 2' 4' 6'



2 **BINWALL ELEVATION**

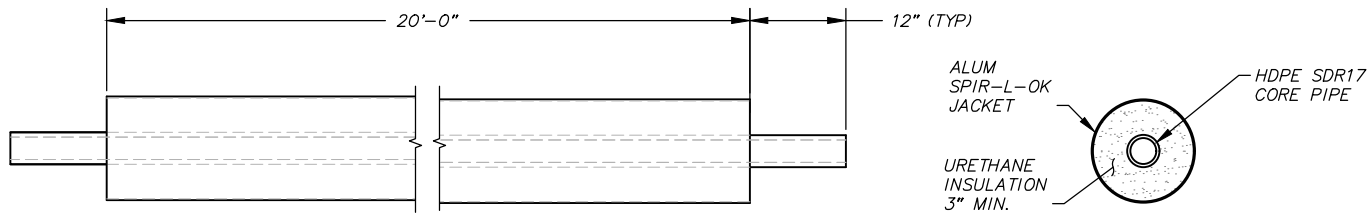
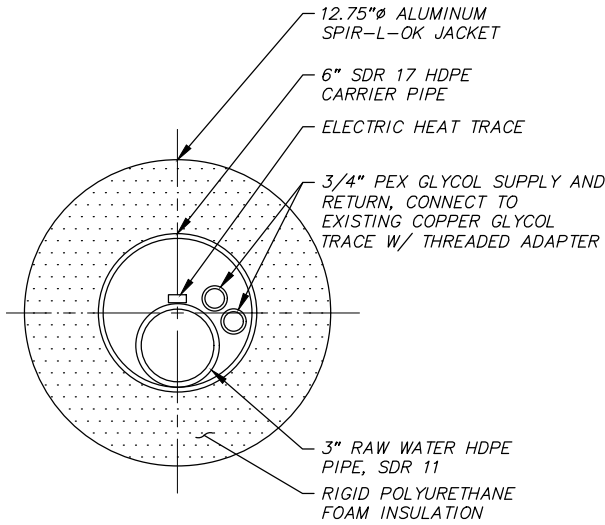
0 2' 4' 6'

NO.	REVISION	BY	DATE

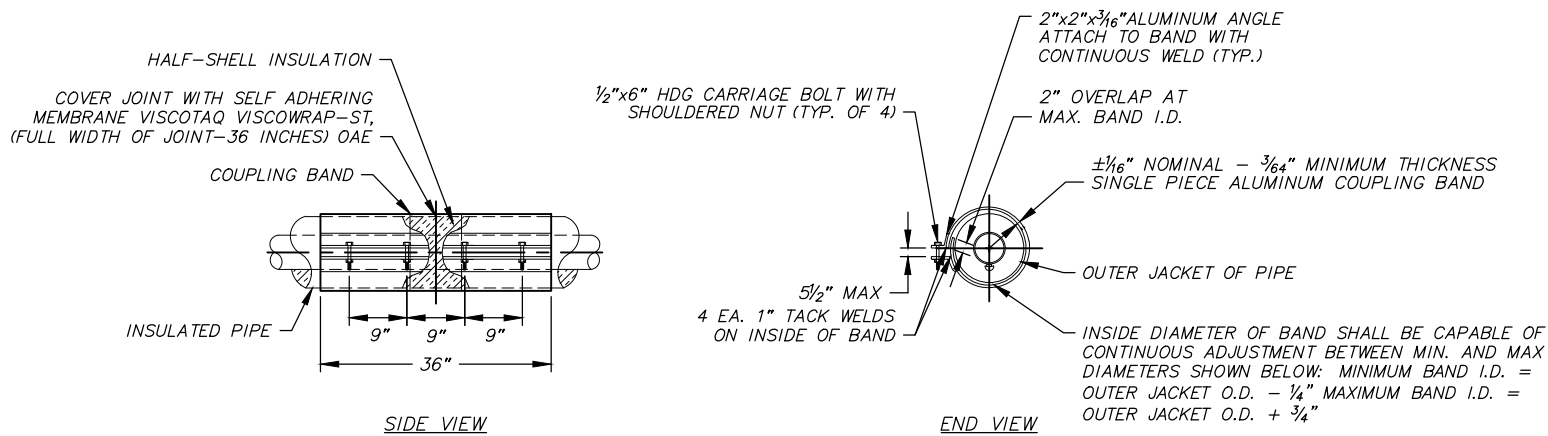
Plot Date	02/14/19
Designed	WMK
Drawn	CMK
Approved	JVS

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1 **6x12-INCH RAW WATER LINE**

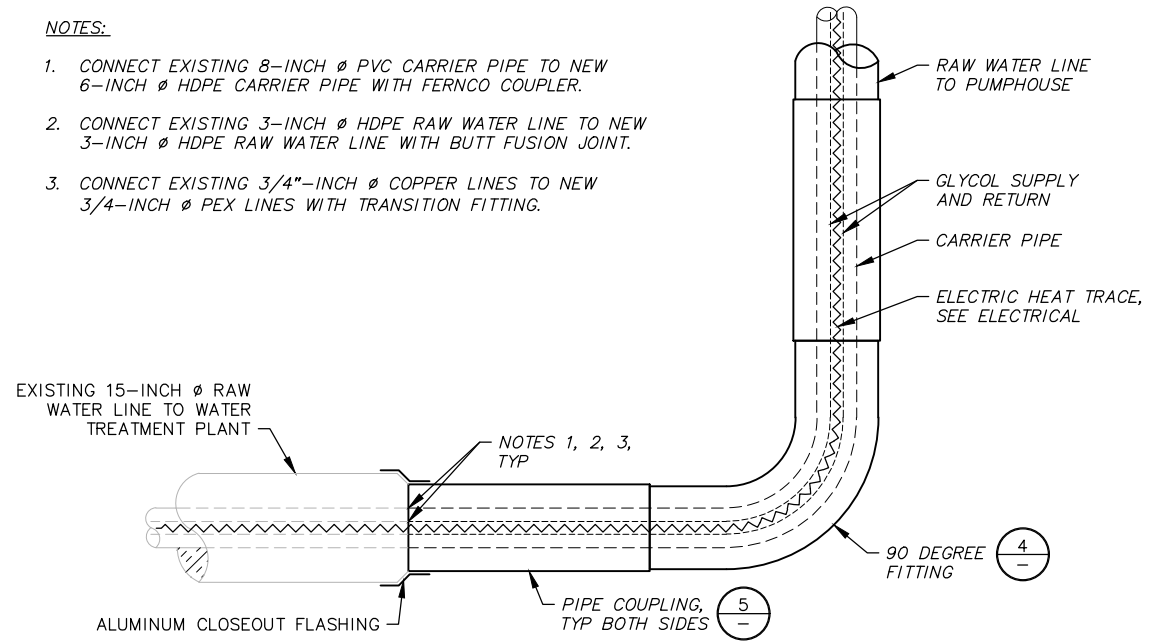


3 **ARCTIC PIPE STICK**

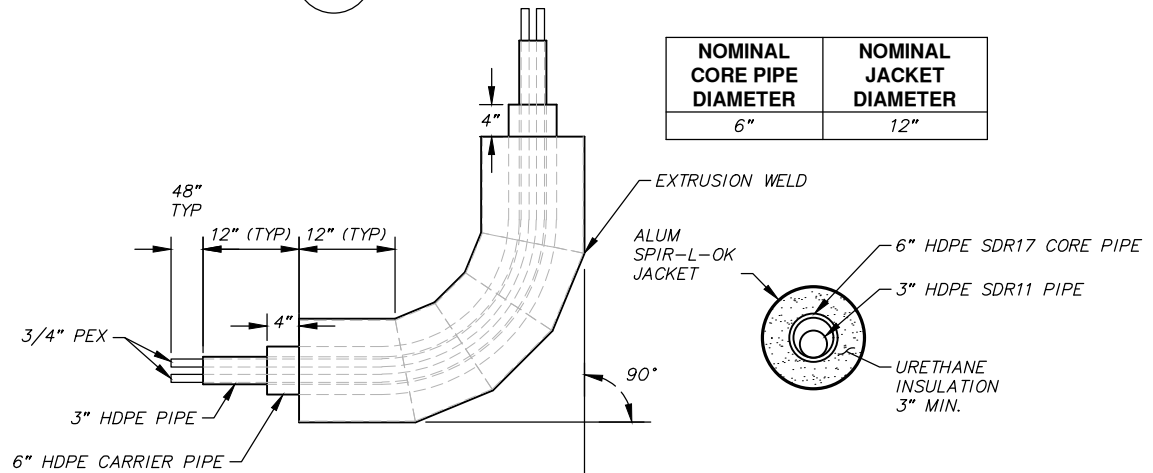


5 **ARCTIC PIPE COUPLING**

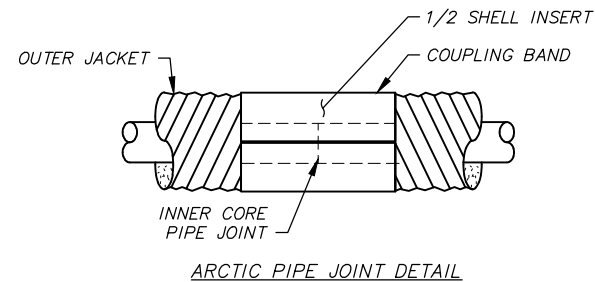
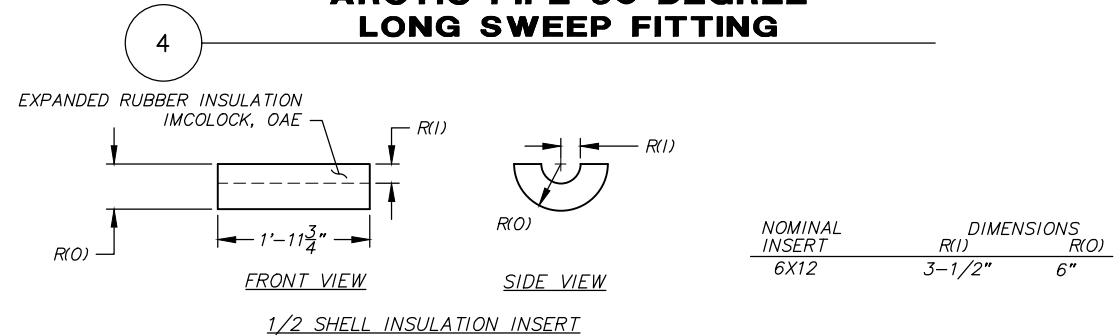
- NOTES:
- CONNECT EXISTING 8-INCH Ø PVC CARRIER PIPE TO NEW 6-INCH Ø HDPE CARRIER PIPE WITH FERNCO COUPLER.
 - CONNECT EXISTING 3-INCH Ø HDPE RAW WATER LINE TO NEW 3-INCH Ø HDPE RAW WATER LINE WITH BUTT FUSION JOINT.
 - CONNECT EXISTING 3/4-INCH Ø COPPER LINES TO NEW 3/4-INCH Ø PEX LINES WITH TRANSITION FITTING.



CONNECTION TO EXISTING RAW WATER LINE PLAN



ARCTIC PIPE 90 DEGREE LONG SWEEP FITTING



6 **ARCTIC PIPE HALF SHELL**

NO.	REVISION	BY	DATE

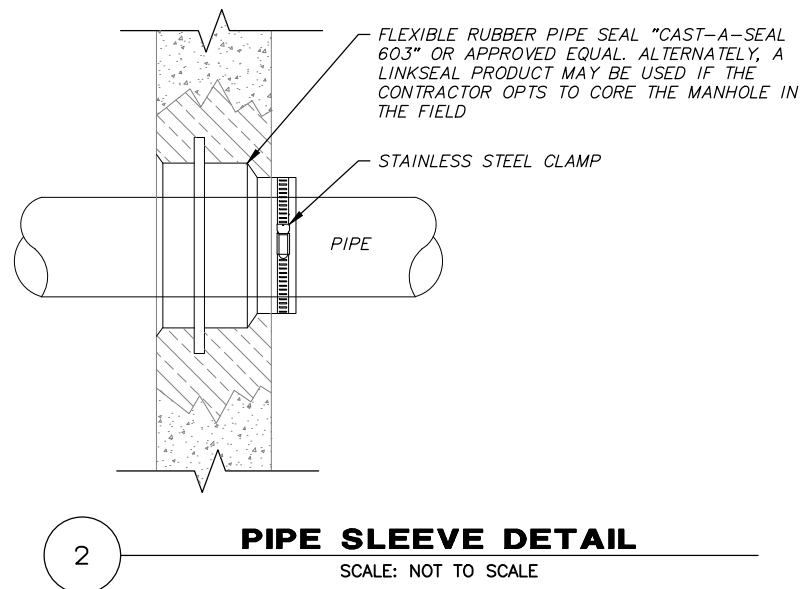
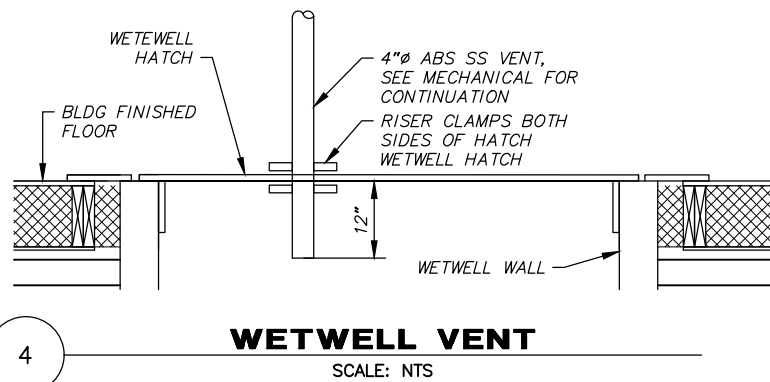
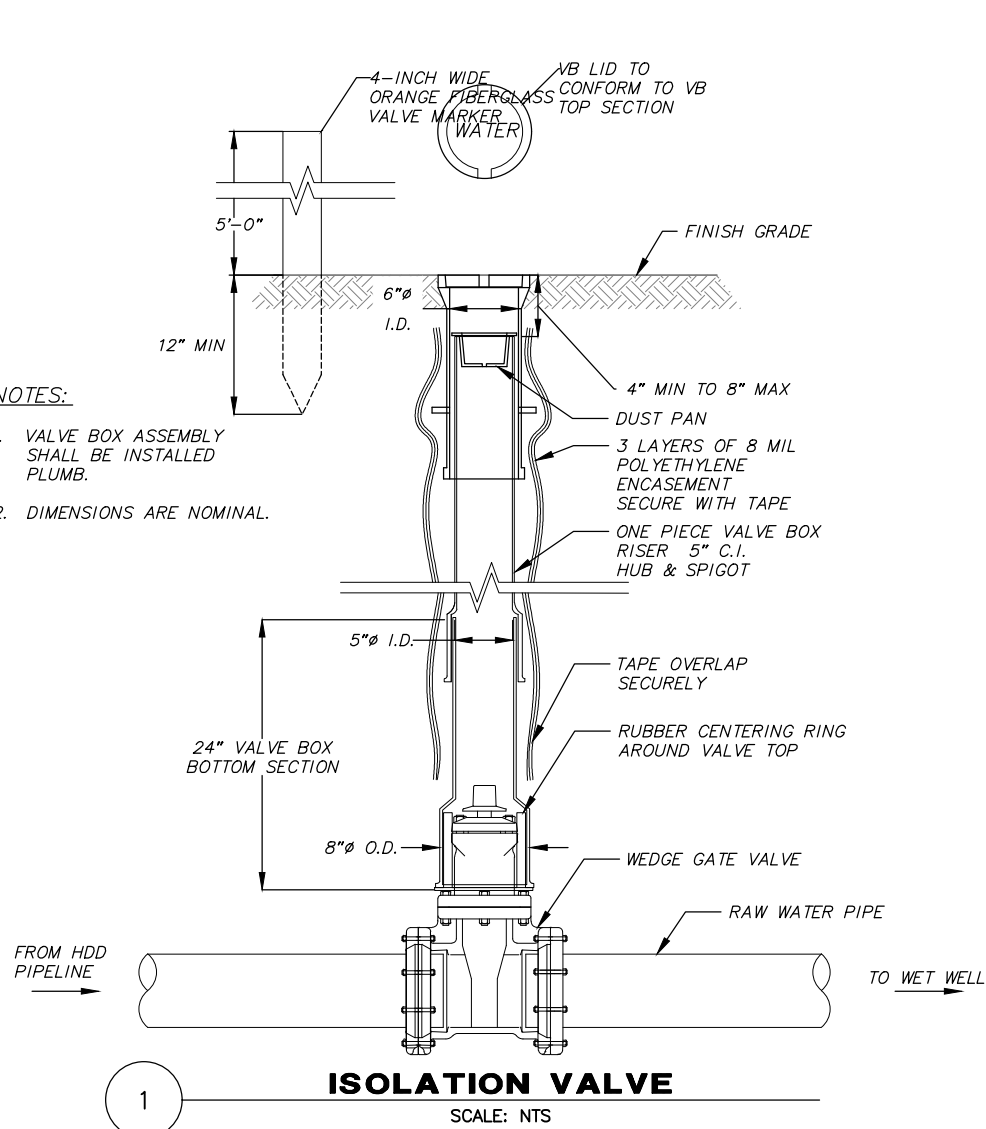
Plot Date 02/14/19	Designed WMK	Drawn CMK	Approved JVS
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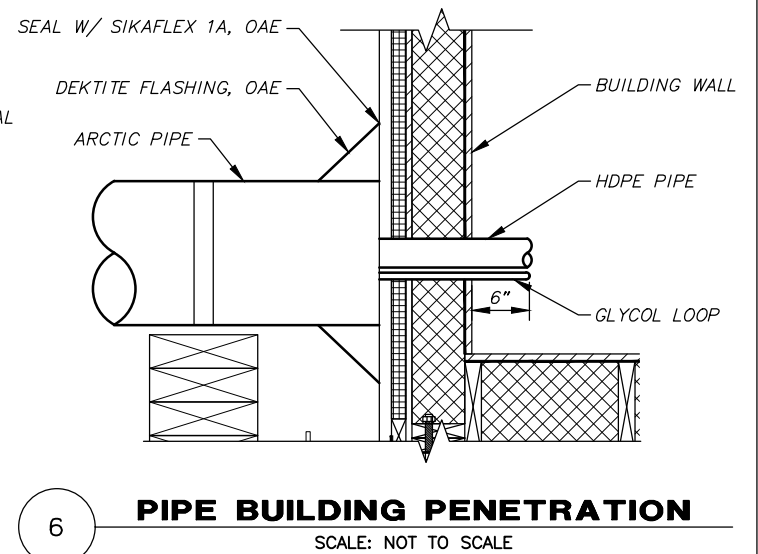
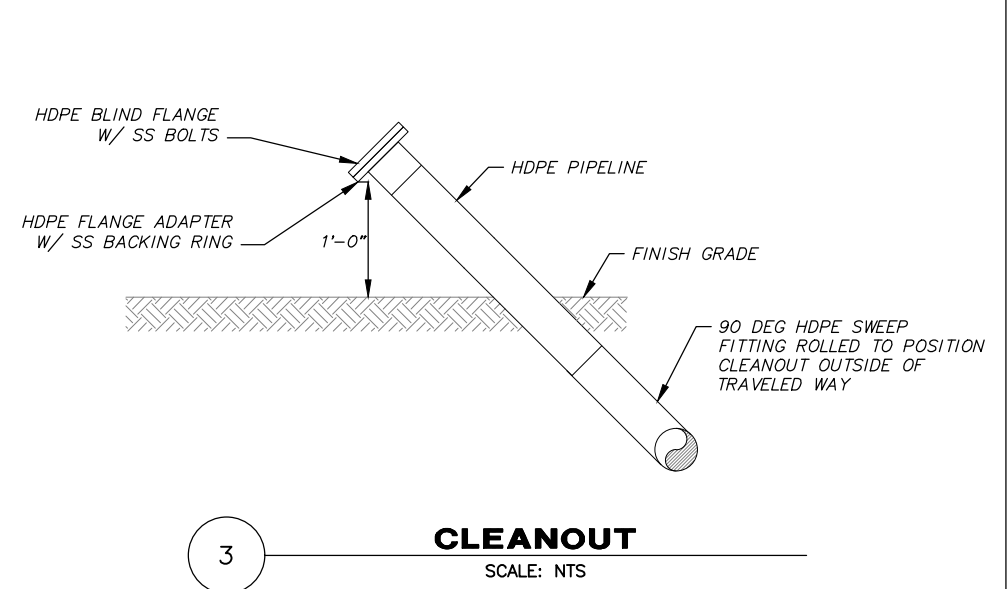
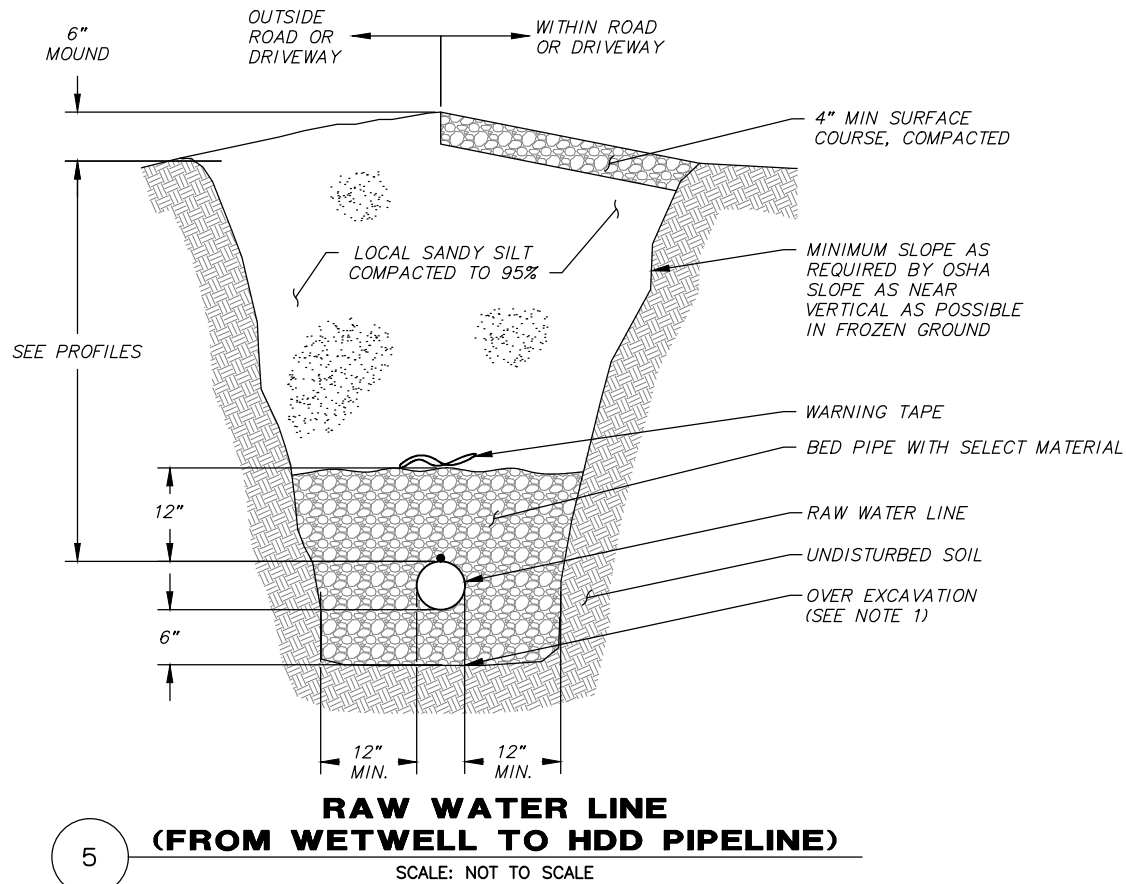
NOTES:

1. VALVE BOX ASSEMBLY SHALL BE INSTALLED PLUMB.
2. DIMENSIONS ARE NOMINAL.



NOTE:

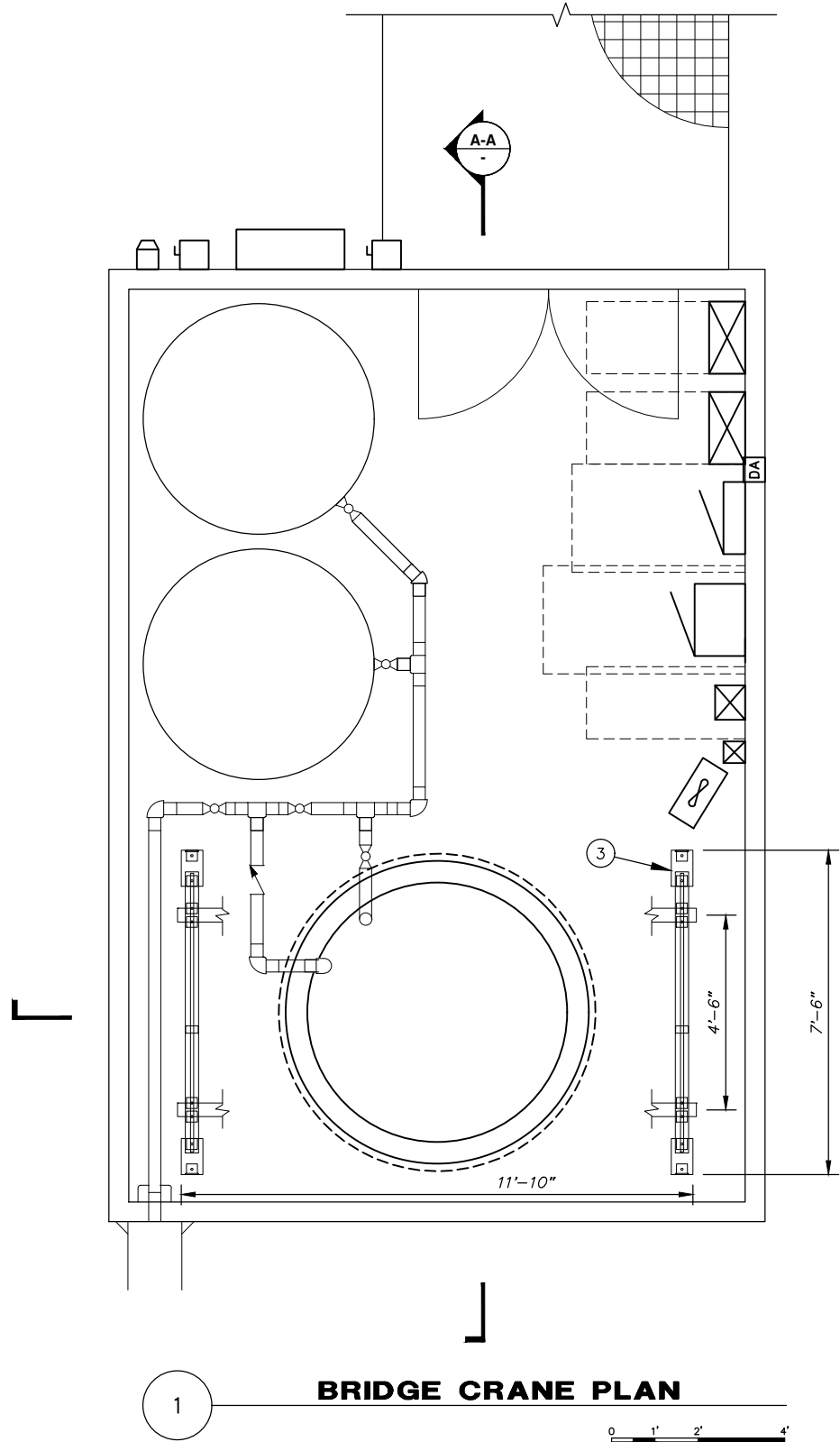
1. OVER EXCAVATE A MIN. OF 12" IF VISIBLE ICE LENSES, SOFT GROUND OR OTHER UNSTABLE MATERIALS ARE ENCOUNTERED IN THE BOTTOM OF THE TRENCH. REPLACE UNSUITABLE MATERIAL WITH GRAVEL FILL COMPACTED TO 95% OF MAXIMUM DRY DENSITY OR AS DIRECTED BY ENGINEER.



NO.	REVISION	BY	DATE

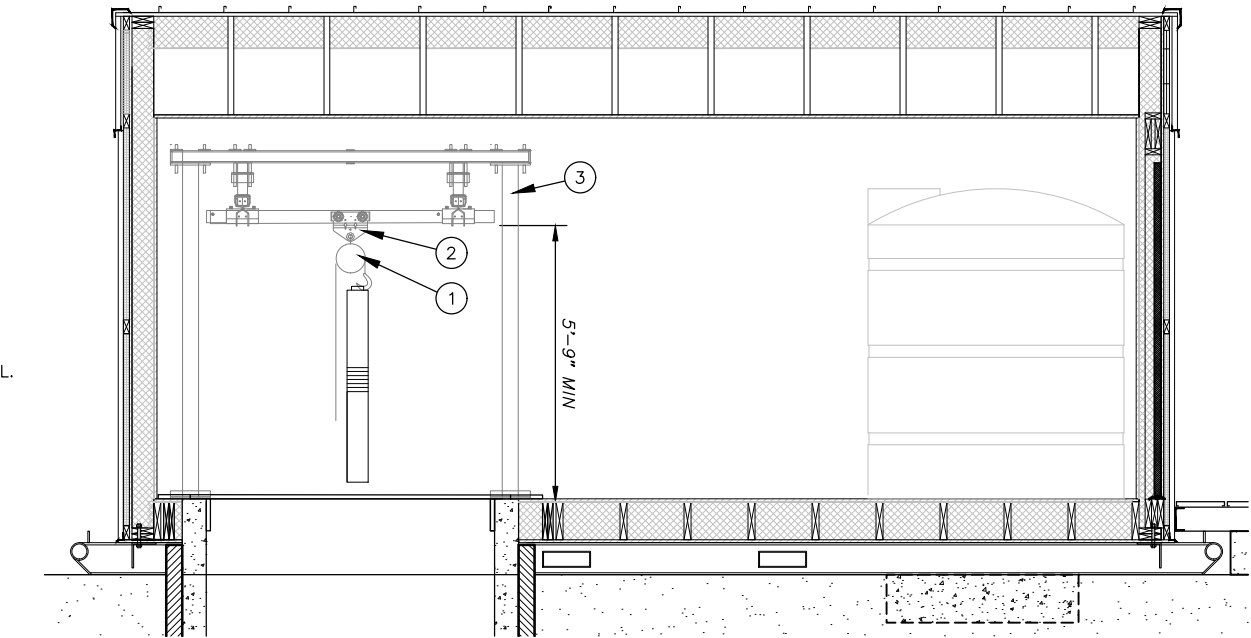
Plot Date	02/14/19
Designed	WMK
Drawn	CMK
Approved	JVS

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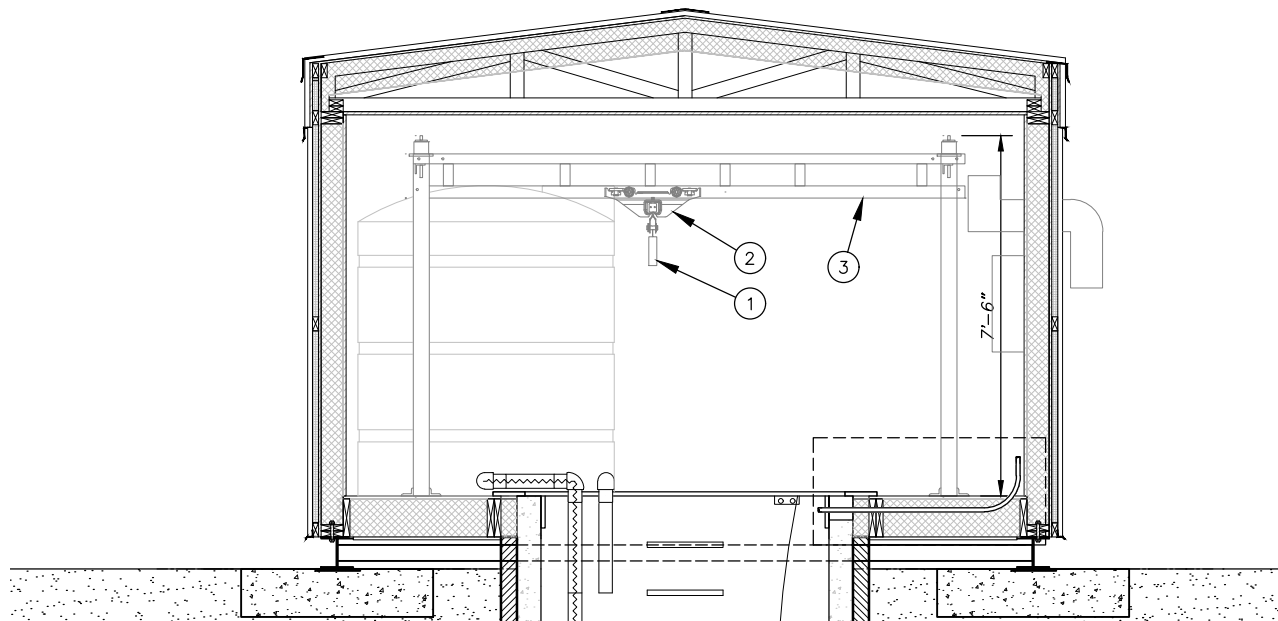


BRIDGE CRANE PLAN

- KEY NOTES
1. CHAIN HOIST, 500 LB CAPACITY, SS CHAIN.
 2. PUSH TROLLEY
 3. PREMANUFACTURED FREE STANDING MANUAL BRIDGE CRANE, GORBEL OR APPROVED EQUAL.



CRANE SECTION A-A



CRANE SECTION B-B

Plot Date 02/14/19
Designed WMK
Drawn CMK
Approved JVS

Sheet No.

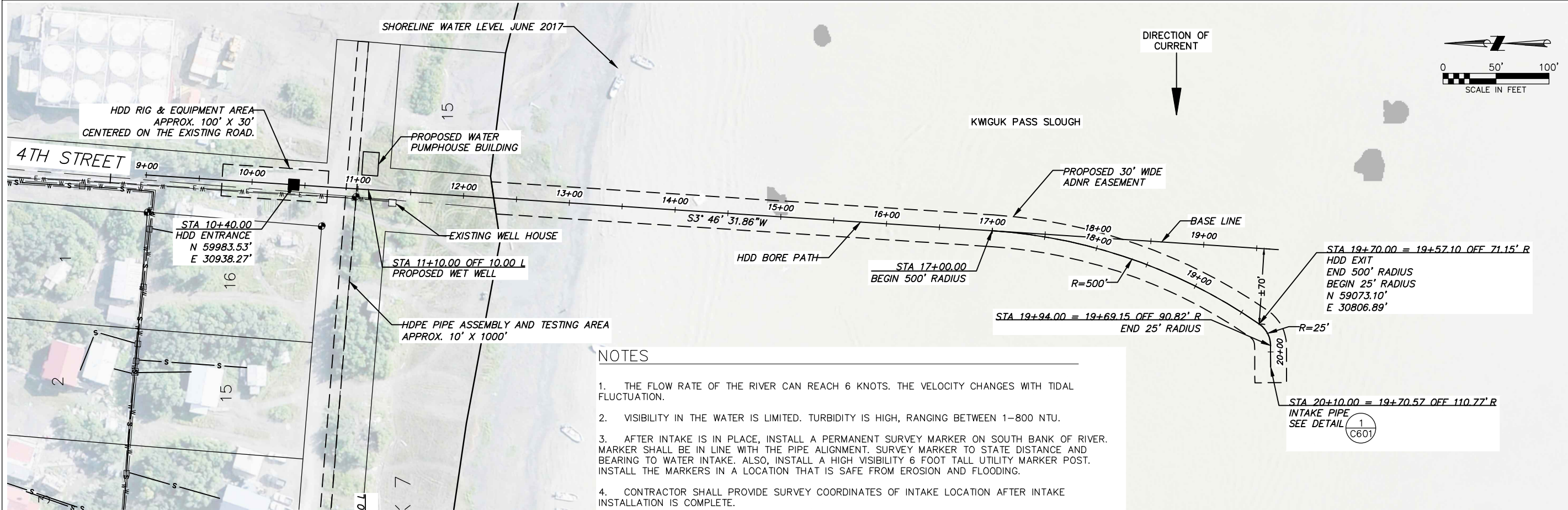
C304

CITY OF EMMONAK
BRIDGE CRANE DETAILS
RIVER INTAKE UPGRADES
ISSUED FOR AGENCY REVIEW

NO.	REVISION	BY	DATE

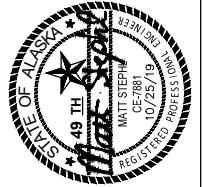
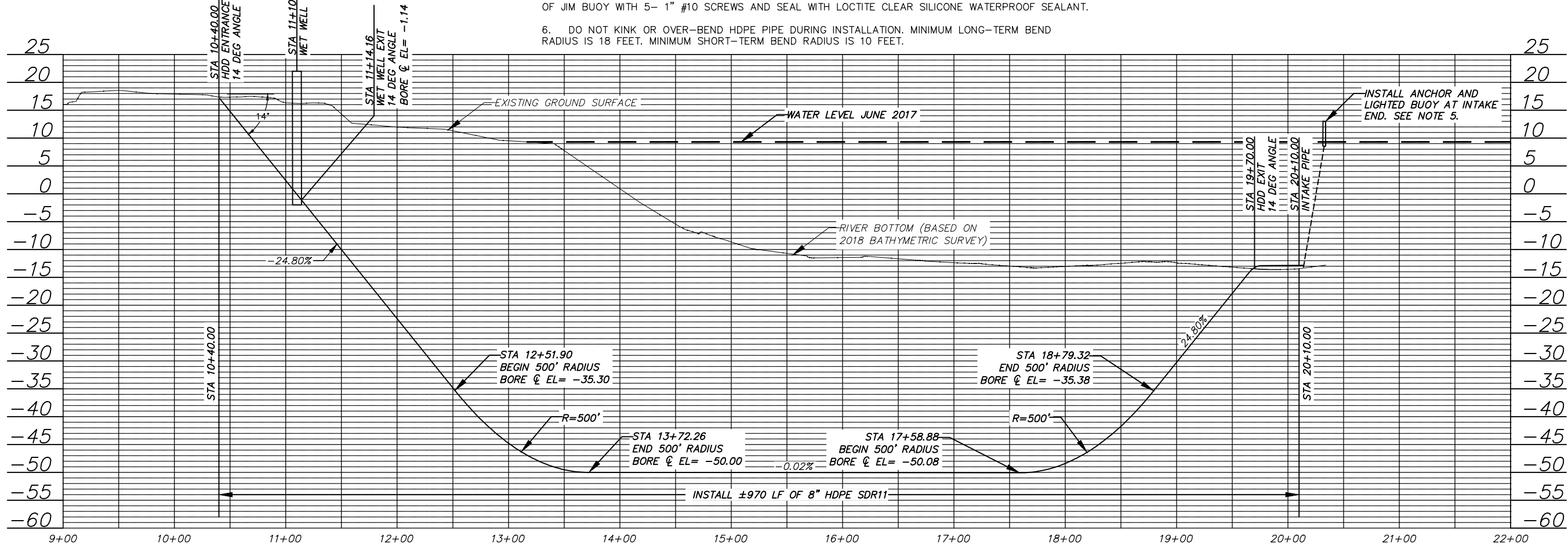


Alaska Department of
Environmental Conservation
Division of Water
Village Safe Water Program
555 Cordova Street 4th Floor
Anchorage, Alaska 99501



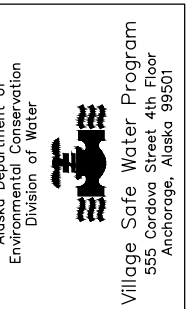
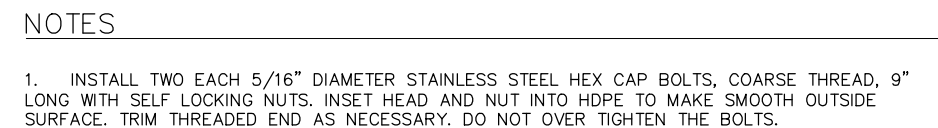
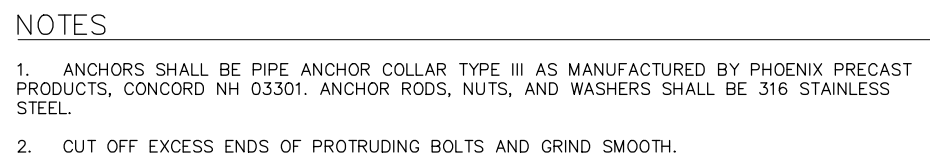
NOTES

1. THE FLOW RATE OF THE RIVER CAN REACH 6 KNOTS. THE VELOCITY CHANGES WITH TIDAL FLUCTUATION.
2. VISIBILITY IN THE WATER IS LIMITED. TURBIDITY IS HIGH, RANGING BETWEEN 1-800 NTU.
3. AFTER INTAKE IS IN PLACE, INSTALL A PERMANENT SURVEY MARKER ON SOUTH BANK OF RIVER. MARKER SHALL BE IN LINE WITH THE PIPE ALIGNMENT. SURVEY MARKER TO STATE DISTANCE AND BEARING TO WATER INTAKE. ALSO, INSTALL A HIGH VISIBILITY 6 FOOT TALL UTILITY MARKER POST. INSTALL THE MARKERS IN A LOCATION THAT IS SAFE FROM EROSION AND FLOODING.
4. CONTRACTOR SHALL PROVIDE SURVEY COORDINATES OF INTAKE LOCATION AFTER INTAKE INSTALLATION IS COMPLETE.
5. AFTER INTAKE IS IN PLACE INSTALL AN ANCHOR AND LIGHTED BUOY TO MARK ITS POSITION. PROVIDE LAKE LITE SOLAR MARINE LIGHT, JIM BUOY LARGE REGULATORY BUOY 428R WITH "NO ANCHORING" LABEL, 3/4" STAINLESS STEEL ANCHOR SHACKLE, 30FT OF 3/8" 3-STRAND NYLON ANCHOR LINE, 6FT OF 3/8" 316 STAINLESS STEEL CHAIN, AND FORTRESS FX-11 7LB ANCHOR. ANCHOR LINE MUST BE SPLICED ON BOTH ENDS WITH THIMBLES INSTALLED. INSTALL SOLAR MARINE LIGHT TO TOP OF JIM BUOY WITH 5- 1" #10 SCREWS AND SEAL WITH LOCTITE CLEAR SILICONE WATERPROOF SEALANT.
6. DO NOT KINK OR OVER-BEND HDPE PIPE DURING INSTALLATION. MINIMUM LONG-TERM BEND RADIUS IS 18 FEET. MINIMUM SHORT-TERM BEND RADIUS IS 10 FEET.



NO.	REVISION	BY	DATE

Plot Date 10-25-19	Designed MJS	Drawn MES	Approved -
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CITY OF EMMONAK
HDD DETAILS
RIVER INTAKE UPGRADES
ISSUED FOR AGENCY REVIEW

[illegible]

Plot	10-25-19
Date	
Designed	MJS
Drawn	MES
Approved	-

Sheet No. C601

GENERAL STRUCTURAL NOTES:

BUILDING CODE: 2012 INTERNATIONAL BUILDING CODE AND ASCE 7-10.

DESIGN LIVE LOADS:

FLOOR: 125 PSF OR 2000LB POINT LOAD

SNOW: 60 PSF FLAT ROOF SNOW LOAD.

WIND: BASIC WIND SPEED (3 SEC. GUST), V3S = 150 MPH;

SEISMIC: $SS = 0.20$, $SL = 0.05$, $I = 1.5$, CATEGORY IV, SITE CLASS = D.

FOUNDATIONS:

FOUNDATIONS HAVE BEEN DESIGNED ASSUMING 3000 PSF BEARING.

CONCRETE: (PRECAST OR CAST-IN-PLACE)

1. CONCRETE SHALL COMPLY TO REQUIREMENTS OF THE 2012 IBC AND THE CURRENT AMERICAN CONCRETE INSTITUTE (ACI) STANDARDS WITH THE FOLLOWING MINIMUM REQUIREMENTS:
2. ALL CONCRETE SHALL HAVE A 28 DAY STRENGTH, $f_c = 4000$ PSI, WITH A MAXIMUM SLUMP OF 4". MINIMUM CEMENT CONTENT SHALL BE 5.5 SACKS PER CUBIC YARD OF CONCRETE. DESIGN STRENGTH = 4000 PSI @ 28 DAYS (A 1200 PSI OVER-DESIGN WILL BE USED UNLESS SUFFICIENT TEST RECORDS EXIST IN COMPLIANCE WITH CURRENT CODES).
3. MIX DESIGNS WILL BE SUBMITTED AND APPROVED BY THE ENGINEER OR OWNERS REPRESENTATIVE. MAXIMUM WATER CEMENT RATIO = 0.50. MAXIMUM SLUMP = 4", UNLESS INCREASED BY AN APPROVED PLASTICIZER OR OTHER APPROVED METHOD, TO MAINTAIN THE MAXIMUM WATER CEMENT RATIO.
4. AIR ENTRAINMENT SHALL EQUAL 6% FOR CONCRETE EXPOSED TO FREEZING WEATHER. ALL ITEMS, TO BE CAST IN CONCRETE, SUCH AS REINFORCING, DOWELS, ANCHORS, ETC., SHALL BE SECURELY POSITIONED IN THE FORM, PRIOR TO PLACING CONCRETE. PROTECT CONCRETE FROM DAMAGE, OR REDUCED STRENGTH, DUE TO HOT OR COLD WEATHER IN ACCORDANCE WITH ACI 305 AND 306. CONCRETE MIXING, PLACEMENT AND QUALITY SHALL BE PER IBC SECTION 1905.

REINFORCING STEEL:

1. REINFORCING STEEL SHALL COMPLY WITH THE REQUIREMENTS OF ASTM A615. REINFORCING SHALL EQUAL GRADE 60, FOR ALL # 4 BARS AND LARGER. GRADE 40 MAY BE USED FOR #3 BARS OR SMALLER OR AS OTHERWISE INDICATED.
2. ALL REINFORCING TO BE WELDED SHALL EQUAL ASTM A706, GRADE 60 WELD-ABLE STEEL. WELDING REINFORCING STEEL SHALL COMPLY WITH UBC STANDARD 19-1 AND STRUCTURAL WELDING CODE - REINFORCING STEEL, ANSI/AWS D1.4-92, PUBLISHED BY THE AMERICAN WELDING SOCIETY, INC.
3. SPLICE REINFORCING BARS WITH 36 DIAMETER BAR LAP, 24" MINIMUM, OR AS SHOWN ON THE DRAWINGS. ALL CORNERS AND OTHER INTERSECTIONS SHALL RECEIVE 24"x24" CORNER BARS, UNLESS OTHERWISE DETAILED.
4. ALL REINFORCING SHALL BE BENT COLD AT THE MINIMUM RADIUS RECOMMENDED BY THE INTERNATIONAL BUILDING CODE (IBC) AND AMERICAN CONCRETE INSTITUTE (ACI).
5. CONCRETE COVER SHALL COMPLY WITH SECTION 1907.7 AND AS FOLLOWS: CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH, COVER = 3". CONCRETE EXPOSED TO EARTH OR WEATHER, COVER = 2". CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND; SLABS, WALLS, AND JOIST COVER = ¾".

STRUCTURAL STEEL AND METAL FABRICATIONS:

1. THE DESIGN, FABRICATION AND ERECTION OF ALL STRUCTURAL STEEL SHALL COMPLY WITH THE CODE OF STANDARD PRACTICE OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION.
2. ALL STRUCTURAL STEEL SHALL BE ASTM A 36 PLATES AND ROLLED SECTIONS; A500, GRADE B FOR STRUCTURAL STEEL TUBING AND A53, GRADE B FOR STEEL PIPE.
3. ALL METAL TO METAL CONNECTIONS SHALL BE EQUAL TO "STANDARD CONNECTIONS", OR AS DETAILED USING A325 BOLTS (BEARING TYPE CONNECTIONS). TIGHTEN BOLTS SNUG TIGHT - CONNECTIONS ARE NOT SLIP CRITICAL. ALL CONNECTIONS, UNLESS OTHERWISE DETAILED, SHALL HAVE THE MAXIMUM NUMBER OF 3/4" DIAMETER BOLTS, USING STANDARD GAUGES AND CLEARANCES.
4. ALL WELDING SHALL BE DONE IN ACCORDANCE WITH THE CURRENT CODE OF THE AMERICAN WELDING SOCIETY; MINIMUM FILLET WELD SHALL BE 3/16" USE AWS 5J E70XX ELECTRODES.
5. ALL STEEL NOT SPECIFICALLY REQUIRED BY THE DRAWINGS OR SPECIFICATIONS TO RECEIVE GALVANIZING OR ANOTHER SPECIFIC COATING SYSTEM, SHALL RECEIVE STANDARD SHOP PRIMER.
6. BOLTS FOR WOOD TO WOOD OR STEEL TO WOOD CONNECTIONS EQUAL 3/4" DIAMETER, A307 BOLTS.

WOOD:

1. FLOOR DECK AND WALL SHEATHING SHALL BE WOOD STRUCTURAL PANEL SHEATHING, WITH EXTERIOR GLUE, OR BETTER, UNLESS OTHERWISE NOTED ON THE DRAWINGS. $\frac{3}{4}$ " (OR $\frac{5}{8}$ ") PLYWOOD CALLED OFF SHALL HAVE A PANEL SPAN RATING OF 32/16. $\frac{1}{2}$ " PLYWOOD CALLED OFF ON DRAWINGS SHALL HAVE A PANEL SPAN RATING OF 24/0. MINIMUM NAILING FOR ROOF PANELS SHALL EQUAL 10D NAILS AT 4" CENTERS AROUND PLYWOOD PANEL EDGES FOR A BLOCKED DIAPHRAGM AND 4" ALONG ENDS FOR AN UNBLOCKED DIAPHRAGM AND 10D'S @ 12" CENTERS ALONG INTERMEDIATE FRAMING. MINIMUM NAILING FOR WALL PANELS SHALL BE 8D'S @ 4" CENTERS AROUND PLYWOOD PANELS AND 8D'S @ 12" CENTERS ALONG INTERMEDIATE FRAMING. BLOCK ALL SHEAR WALL PANEL EDGES.
2. FRAMING MATERIAL, DOUGLAS FIR, NO. 2, OR BETTER. MAXIMUM MOISTURE CONTENT SHALL BE 19%.
3. ALL WOOD IN DIRECT CONTACT WITH GROUND OR FOUNDATION CONCRETE SHALL BE PRESSURE TREATED NO. 1 DOUGLAS FIR AND MARKED WITH THE "FDN" GRADE MARK. FIELD TREAT ALL CUT EDGES. MAXIMUM MOISTURE CONTENT SHALL BE 19%. ALL FASTENERS IN TREATED WOOD SHALL BE HOT DIPPED GALVANIZED.
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 IN CONTACT WITH WOOD SHALL HAVE 2"x2"x $\frac{3}{16}$ " PLATE WASHERS AS A MINIMUM.
5. ALL METAL FRAMING ANCHORS AND HANGERS SHALL SUPPORT THE LOADS INDICATED ON THE DRAWINGS. UNLESS OTHERWISE DETAILED, HANGERS SHALL SUPPORT A NORMAL LOAD CAPACITY EQUAL TO THE SHEAR CAPACITY OF THE SUPPORTED MEMBER. ANCHORS AND HANGERS INDICATED ON THE DRAWINGS ARE "SIMPSON CO." OR EQUAL.
6. MINIMUM NAILING SHALL EQUAL THAT INDICATED IN THE INTERNATIONAL BUILDING CODE TABLE 2304.9.1, UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
7. VERSALAM MATERIAL SHALL BE BOISE CASCADE, OR APPROVED EQUAL.

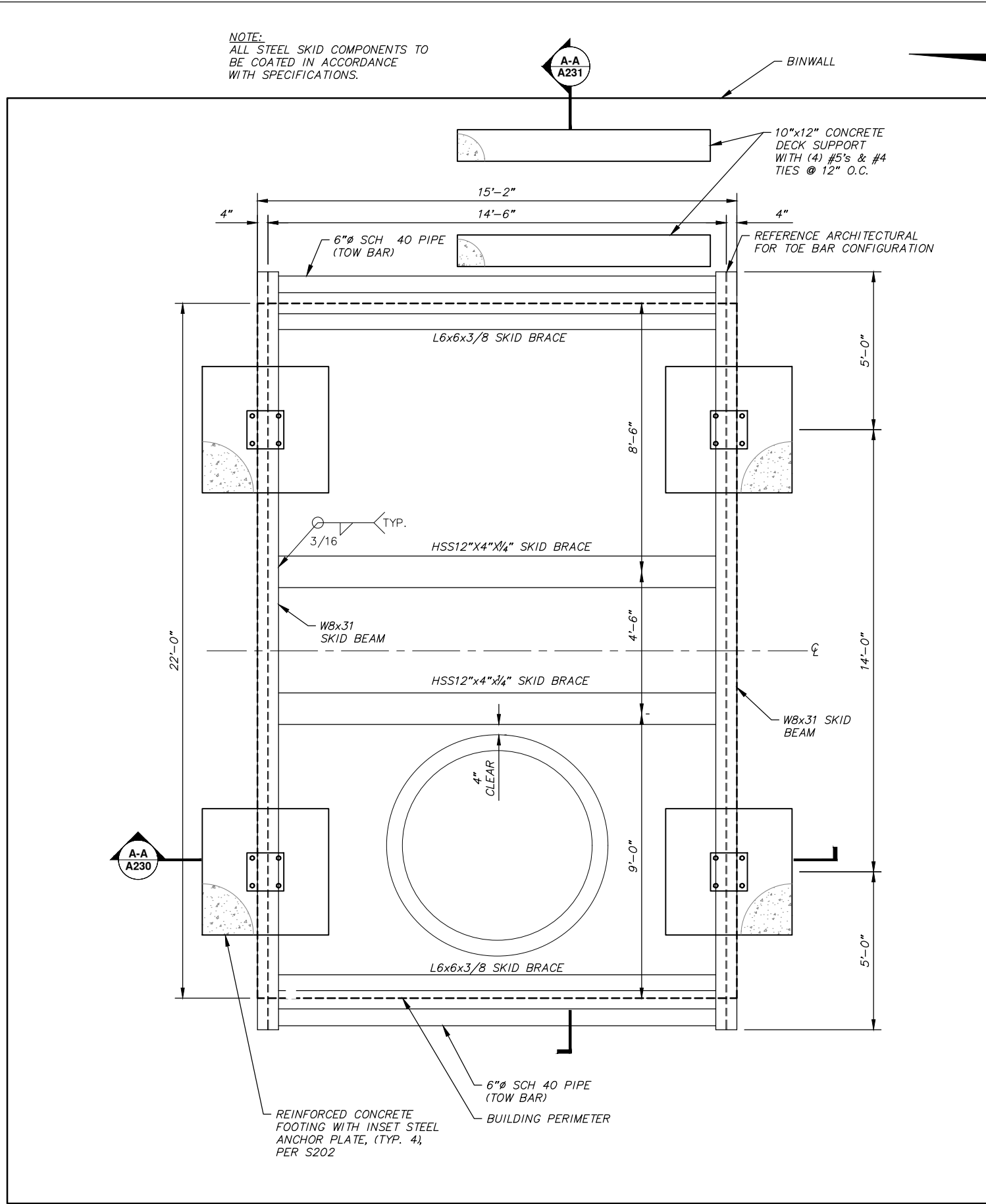
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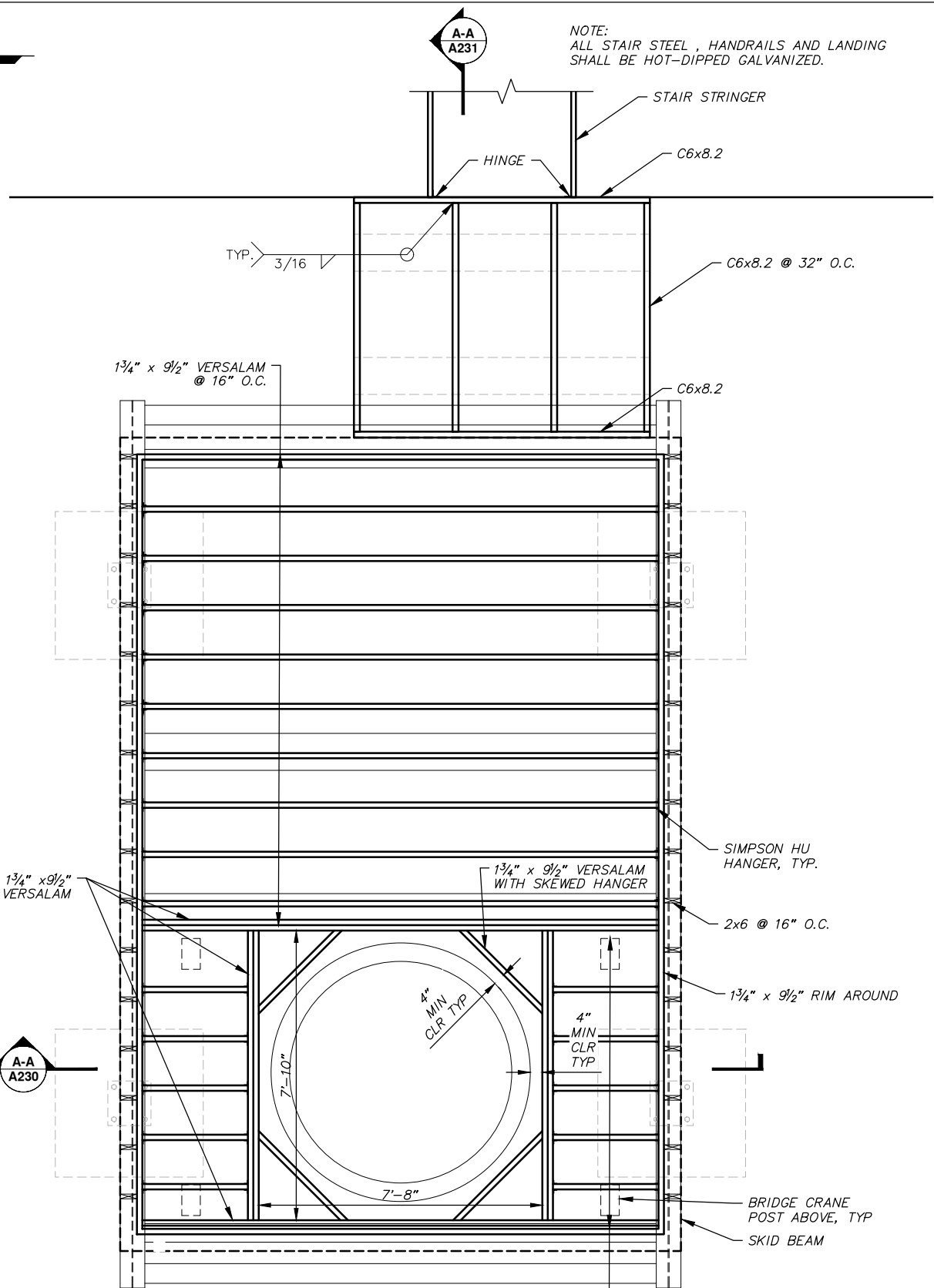
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NOTE:
ALL STEEL SKID COMPONENTS TO
BE COATED IN ACCORDANCE
WITH SPECIFICATIONS.



PUMP HOUSE FOUNDATION PLAN

0 1' 2' 4'



NOTE:

BUILDING AND STAIRS ARE TO BE DESIGNED
FABRICATED IN CONFORMANCE TO
SPECIFICATION SECTION 13 12 00. PROVIDE
SHOP DRAWINGS, SHOWING ALL COMPONENTS
AND CONNECTIONS, SEALED BY AN ENGINEER
REGISTERED IN THE STATE OF ALASKA.

1 3/4" x 9/2" VERSALAM
@ 16" O.C.

FLOOR FRAMING PLAN

0 1' 2' 4'

Alaska Department of
Environmental Conservation
Division of Water



Village Safe Water Program
555 Cordova Street 4th Floor
Anchorage, Alaska 99501



CITY OF EMMONAK
BUILDING FOUNDATION PLAN
RIVER INTAKE UPGRADES
ISSUED FOR AGENCY
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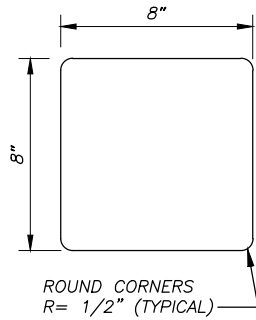
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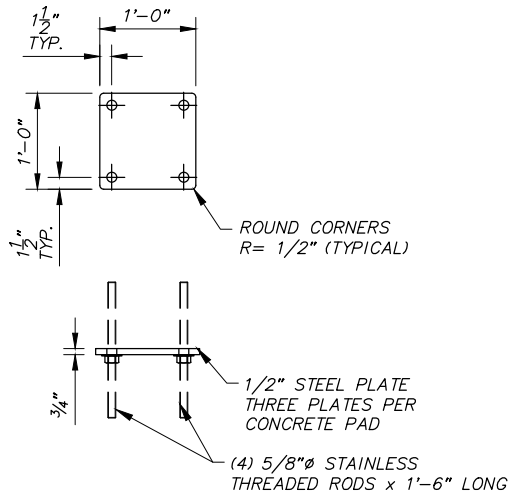
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SHIM FABRICATION TABLE		
THICKNESS	QUANTITY	MATERIAL
1/4"	12	ALUMINUM
1/2"	8	ALUMINUM
1"	4	ALUMINUM

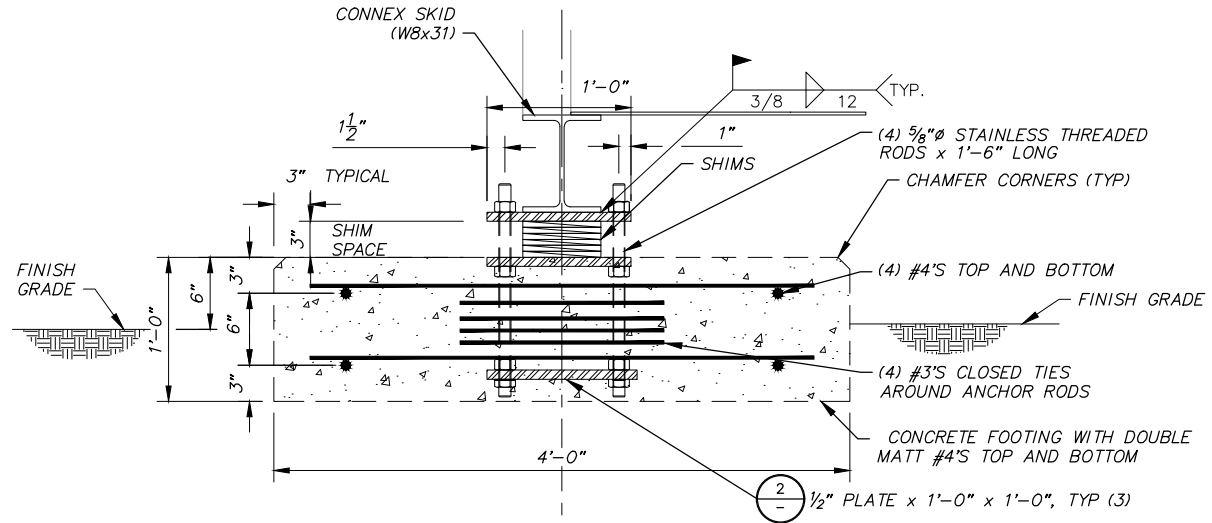
TYPICAL SHIM

SCALE: NTS



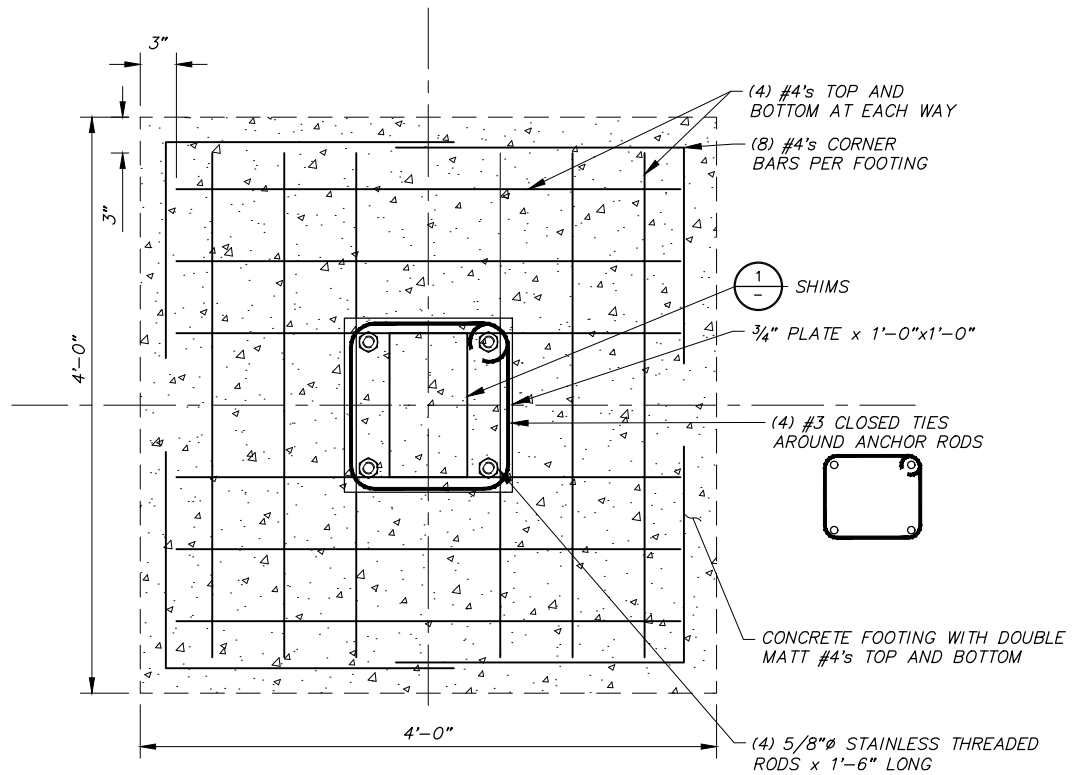
TYPICAL STEEL PLATE

SCALE: NTS



SECTION - FOOTING

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

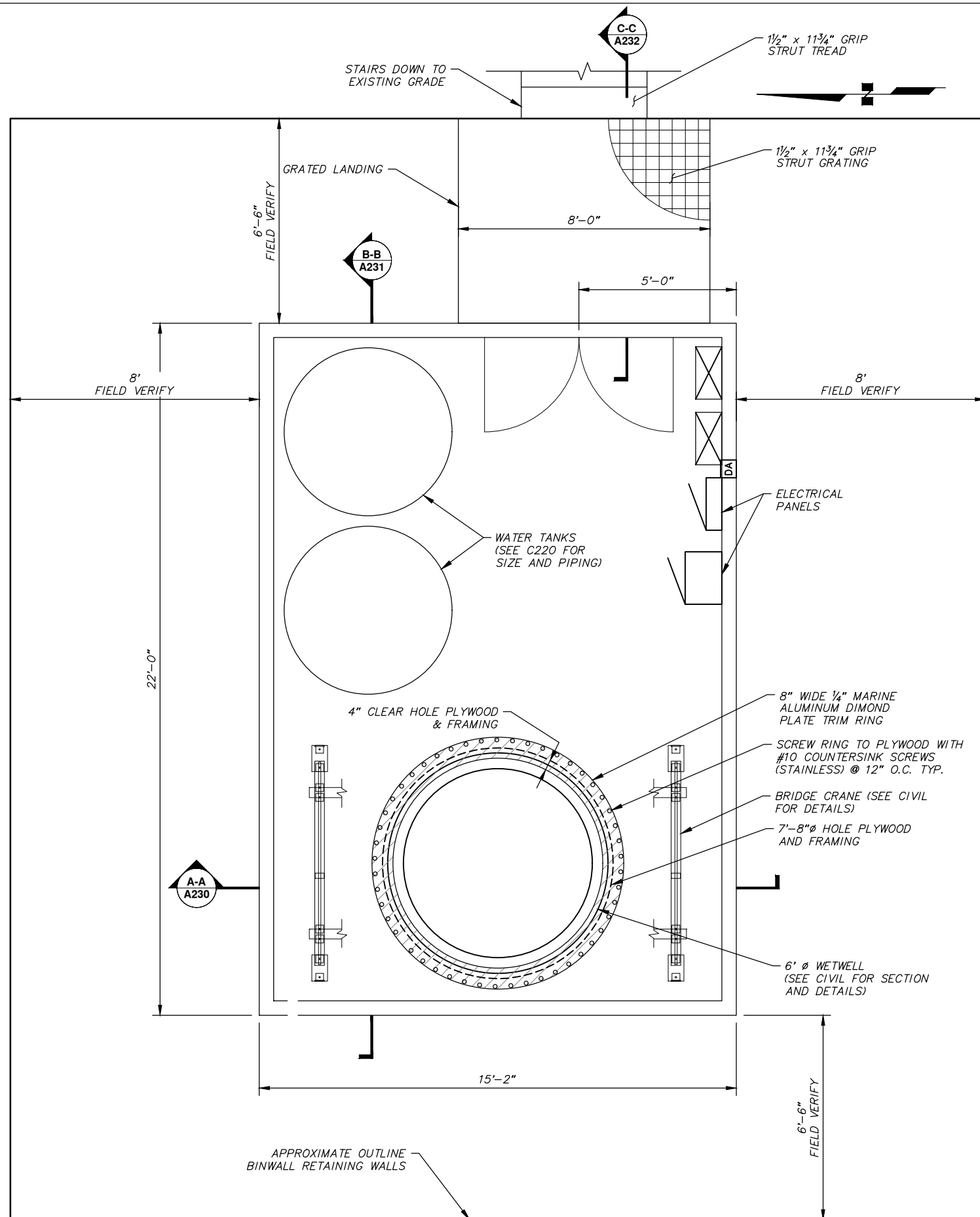


PLAN - FOOTING

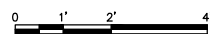
SCALE: 1 1-2" = 1'-0"

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Approved	JVS



1 **PUMP HOUSE FLOOR PLAN**

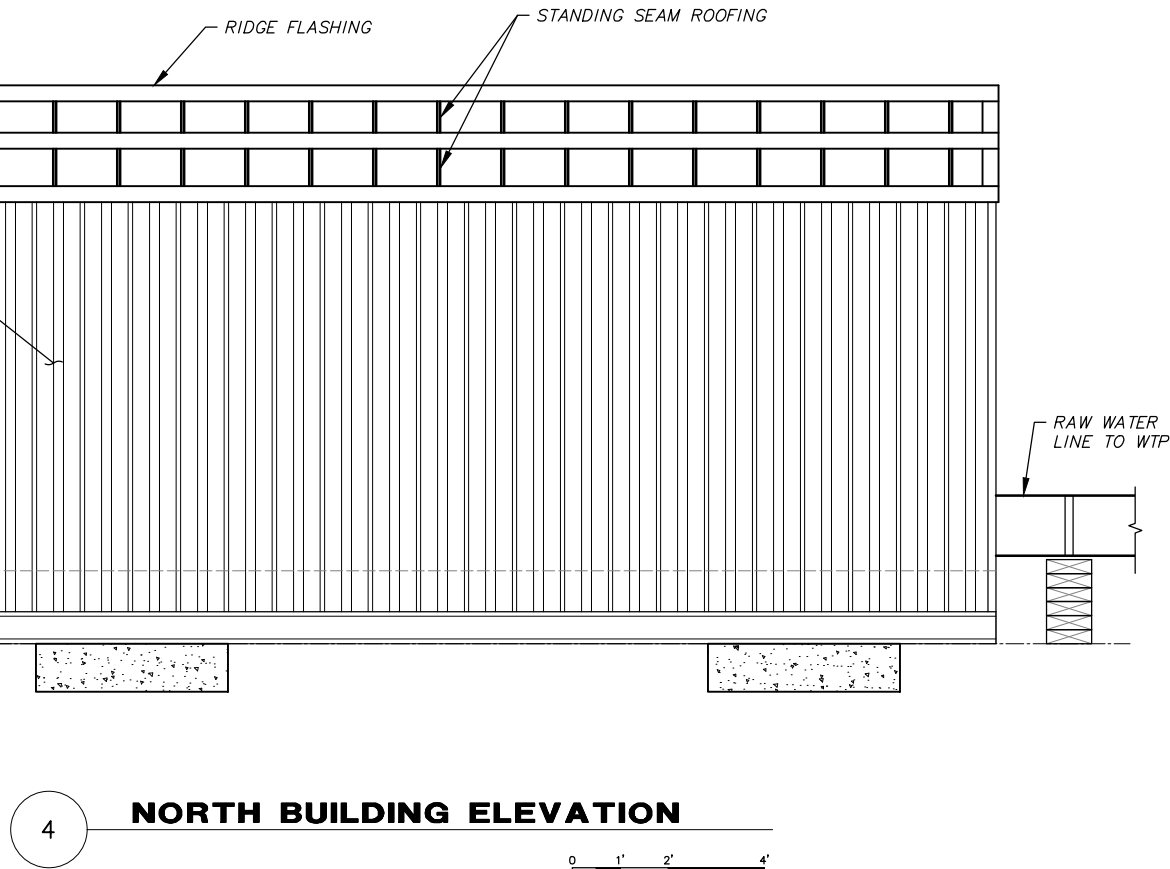
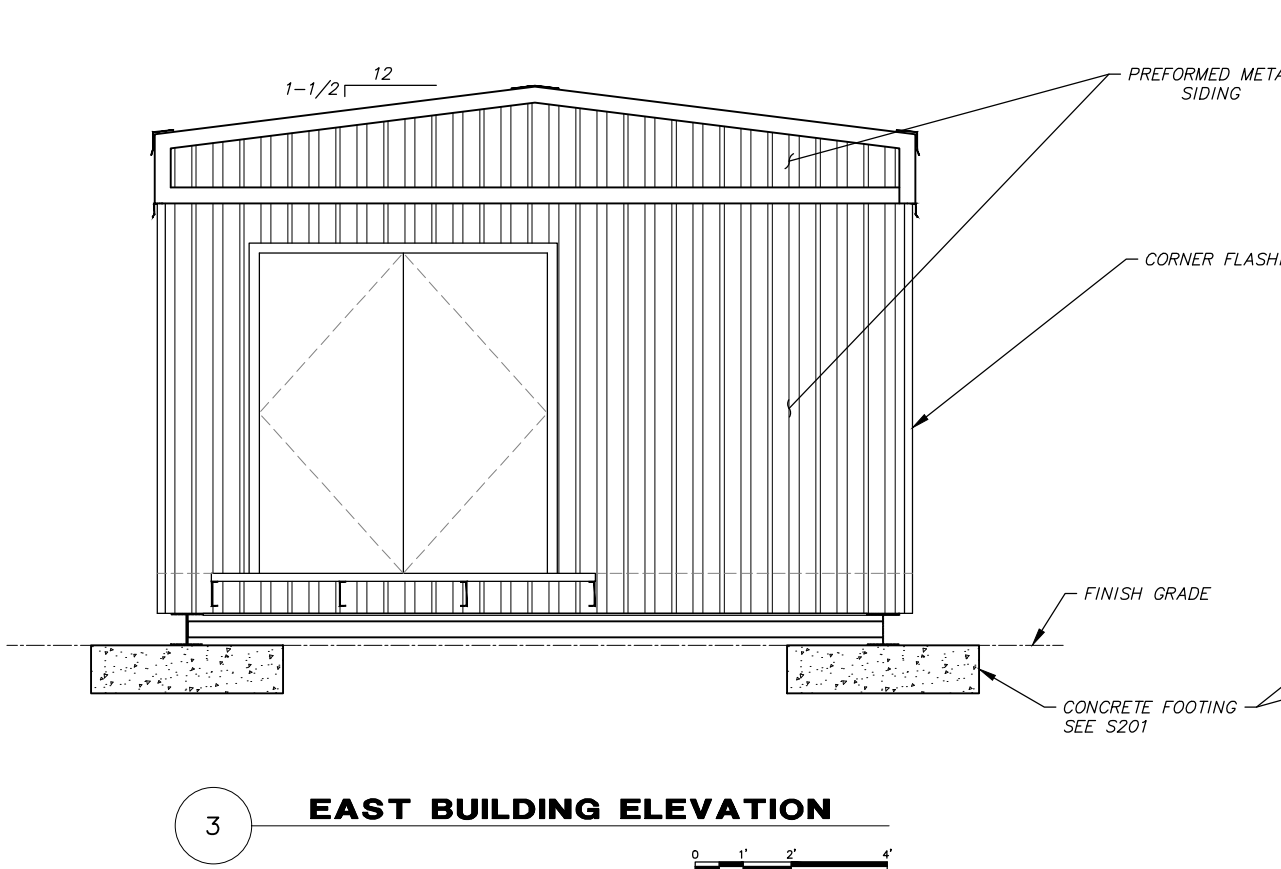
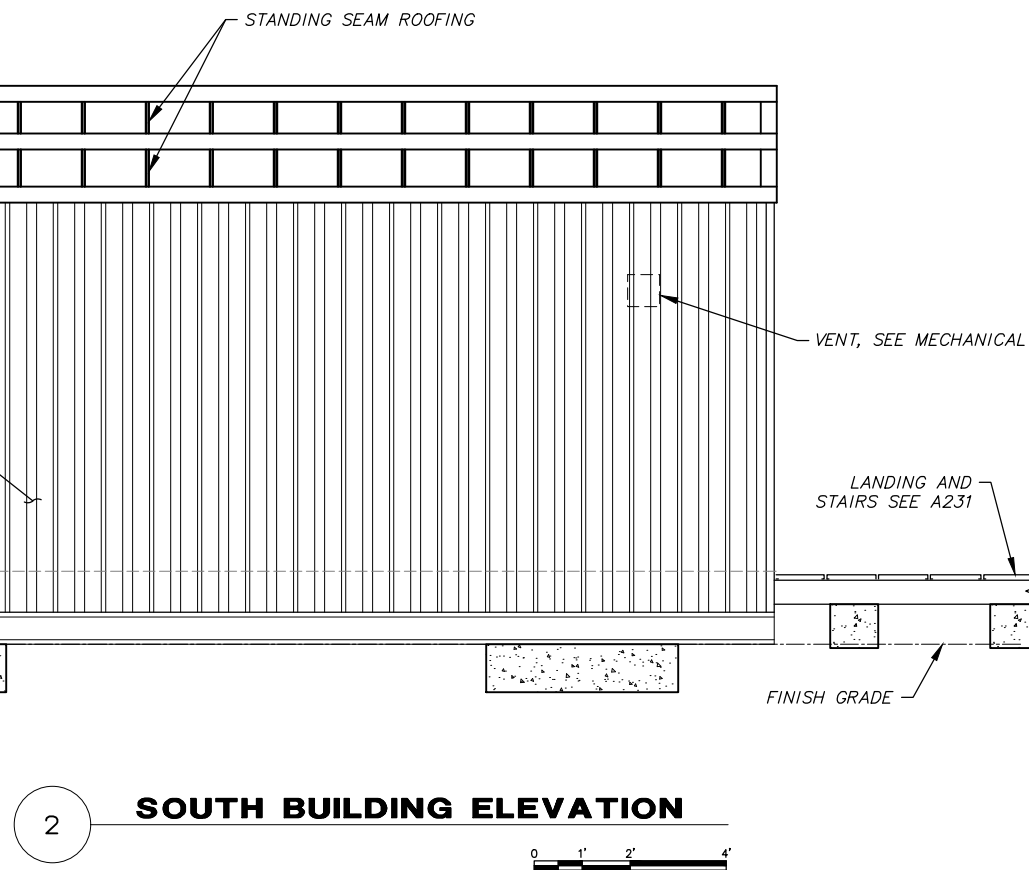
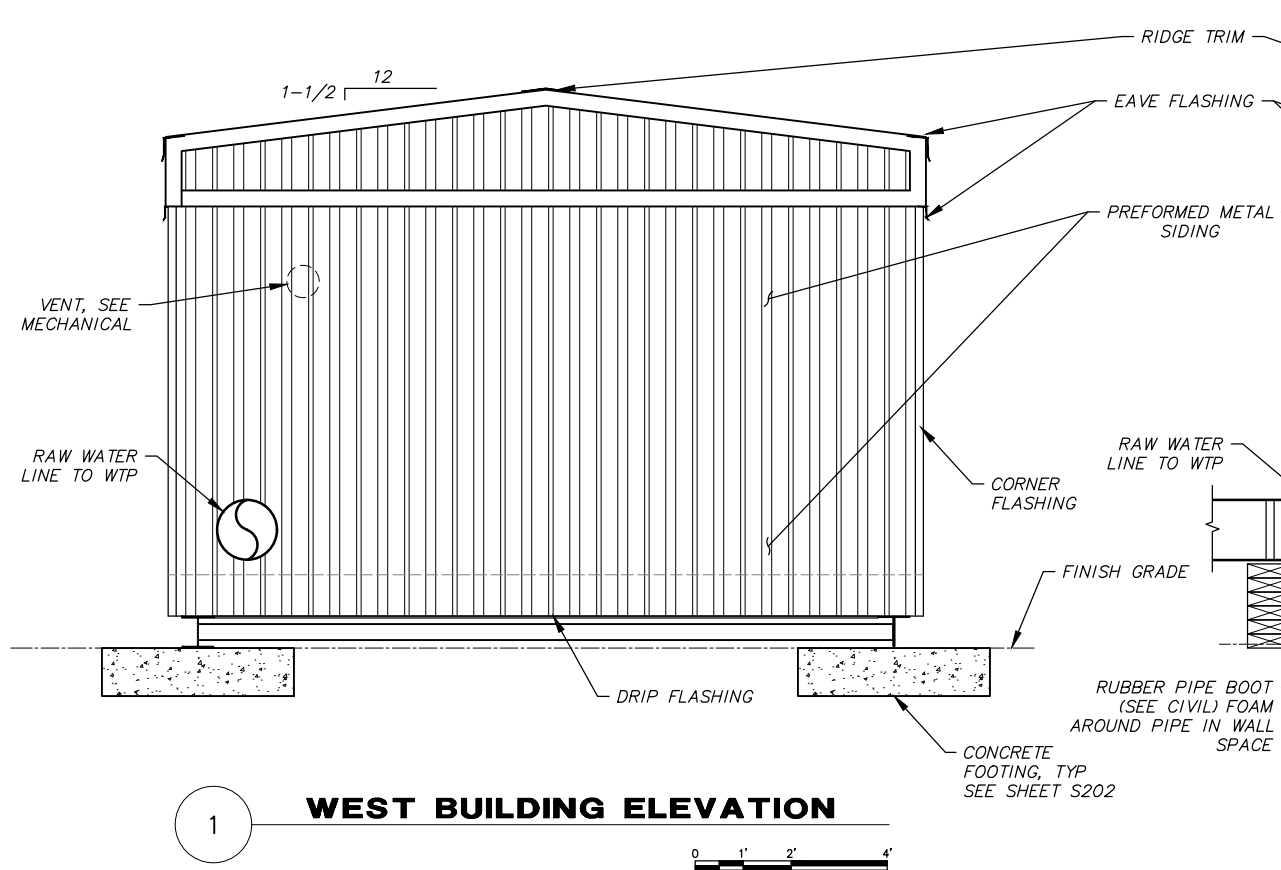


CODE ANALYSIS — 2012 EDITION INTERNATIONAL BUILDING CODE												
OCCUPANCY CLASSIFICATION												
GROUP U						REF: IBC—2012, SEC. 312						
TYPE OF CONSTRUCTION												
EXIST. TYPE V—B (NON—RATED)						REF: IBC—2012, TABLE 601						
BUILDING HEIGHTS AND AREAS												
ALLOWED 40'—0" 1 STORY 5,300 S.F.						PROVIDED: 12'—0" 1 STORY 330 S.F.						
FIRE RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS												
REF: IBC—2012, TABLE 601												
EXIST. STRUCTURAL FRAME			0 HR		BEARING WALLS			0 HR		INTERIOR PARTITIONS		
NEW STRUCTURAL FRAME			0 HR		BEARING WALLS			0 HR		INTERIOR PARTITIONS		
										FLOOR 0 HR ROOF 0 HR		
FIRE RESISTANCE RATING REQUIREMENTS FOR EXTERIOR WALLS												
REF: IBC—2012, TABLE 602												
EXIST. EXTERIOR WALLS			X ≤ 30'		0 HR							
NEW EXTERIOR WALLS			X ≤ 30'		0 HR							

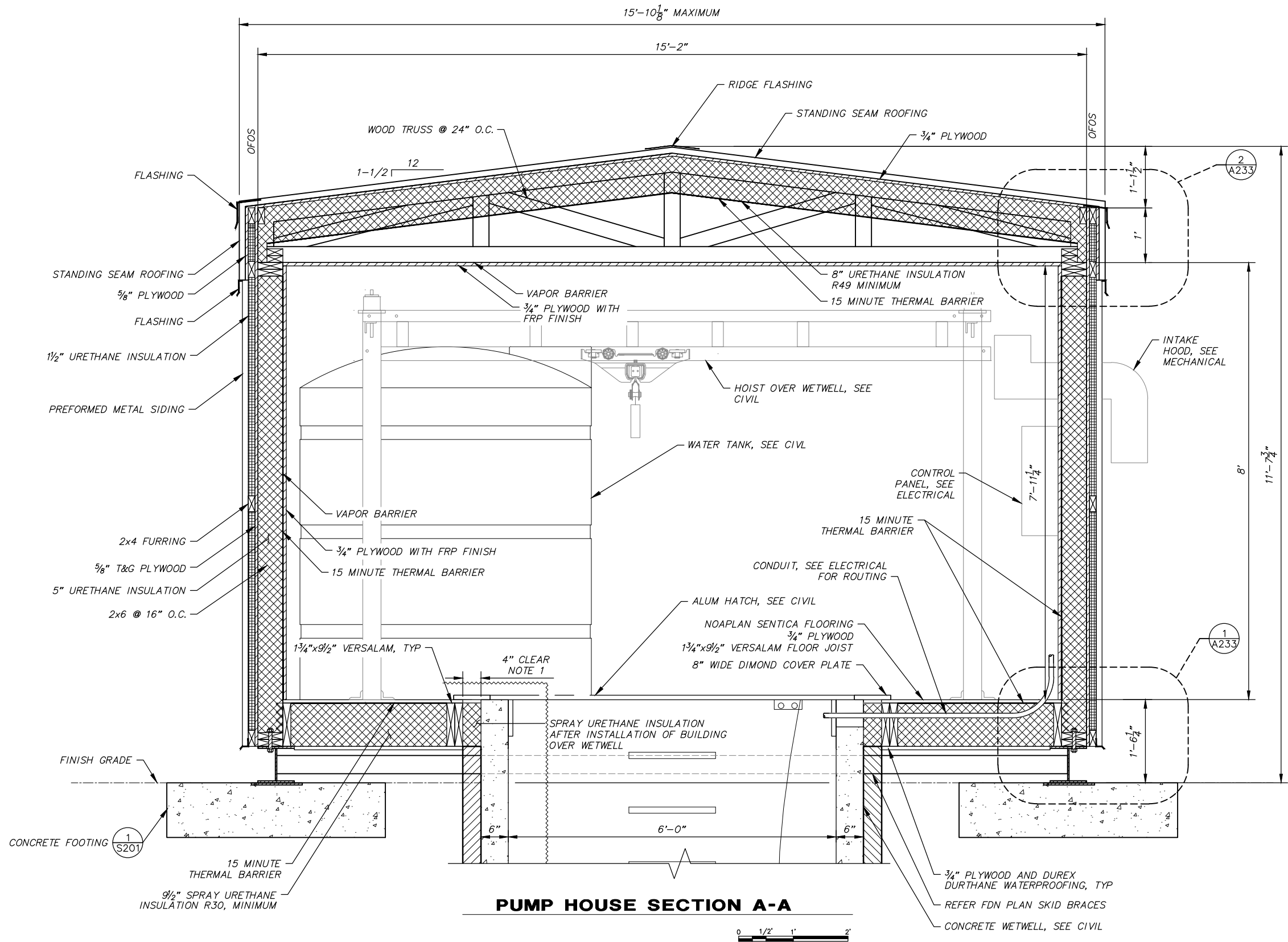
ARCHITECTURAL GENERAL NOTES:

1. SEE CIVIL SITE PLAN FOR LOCATION AND LAYOUT. PROVIDE SEPARATION TO PROPERTY BOUNDARIES IN ACCORDANCE WITH CODE ANALYSIS.
2. DO NOT BLOCK OR OBSTRUCT ACCESS, REQUIRED PARKING AREAS, OR REQUIRED EGRESS FROM NEIGHBORING FACILITIES. PROVIDE TEMPORARY BARRICADES OR OTHER FORMS OF PROTECTION TO PROTECT EMPLOYEES, RESIDENTS, AND VISITORS FROM INJURIES DURING CONSTRUCTION ACTIVITIES.
3. PROVIDE SHOP DRAWING IN CONFORMANCE WITH SPECIFICATION SECTION 13 12 00.
4. PROVIDE A COMPLETE AND OPERATIONAL FACILITY. ALL WORK TO BE IN ACCORDANCE WITH CURRENT APPROVED EDITIONS OF THE IBC, IMC, IFC, AND NEC INCLUDING STATE OF ALASKA AMENDMENTS.
5. ALL EXPOSED SURFACES TO BE PAINTED OR FACTORY FINISHED. CAULK ALL JOINTS AND PROVIDE FLASHING AS NEEDED TO PROVIDE COMPLETE WEATHERPROOF INSTALLATION.
6. DIMENSIONS TO FACE OF STUD OR STRUCTURAL MEMBER UNLESS INDICATED OTHERWISE.
7. FRAME EXTERIOR WALLS WITH 6" DIMENSIONAL LUMBER WITH 5/8" T&G PLYWOOD UNLESS SPECIFICALLY INDICATED OTHERWISE.
8. INSTALL DOOR AS INDICATED. SEE PLANS AND ELEVATIONS FOR LOCATIONS AND SEE SHEET A400 FOR DETAILS AND SPECIFICATIONS.
9. INSTALL FIBER REINFORCED PLASTIC (F.R.P.) OVER ALL INTERIOR SURFACES.
10. INSTALL ICE AND WATER SHIELD OVER ROOF SHEATHING AND INSTALL NEW METAL ROOFING OVER ENTIRE ROOF.
11. INSTALL METAL SIDING OVER ALL EXTERIOR WALL SURFACES.

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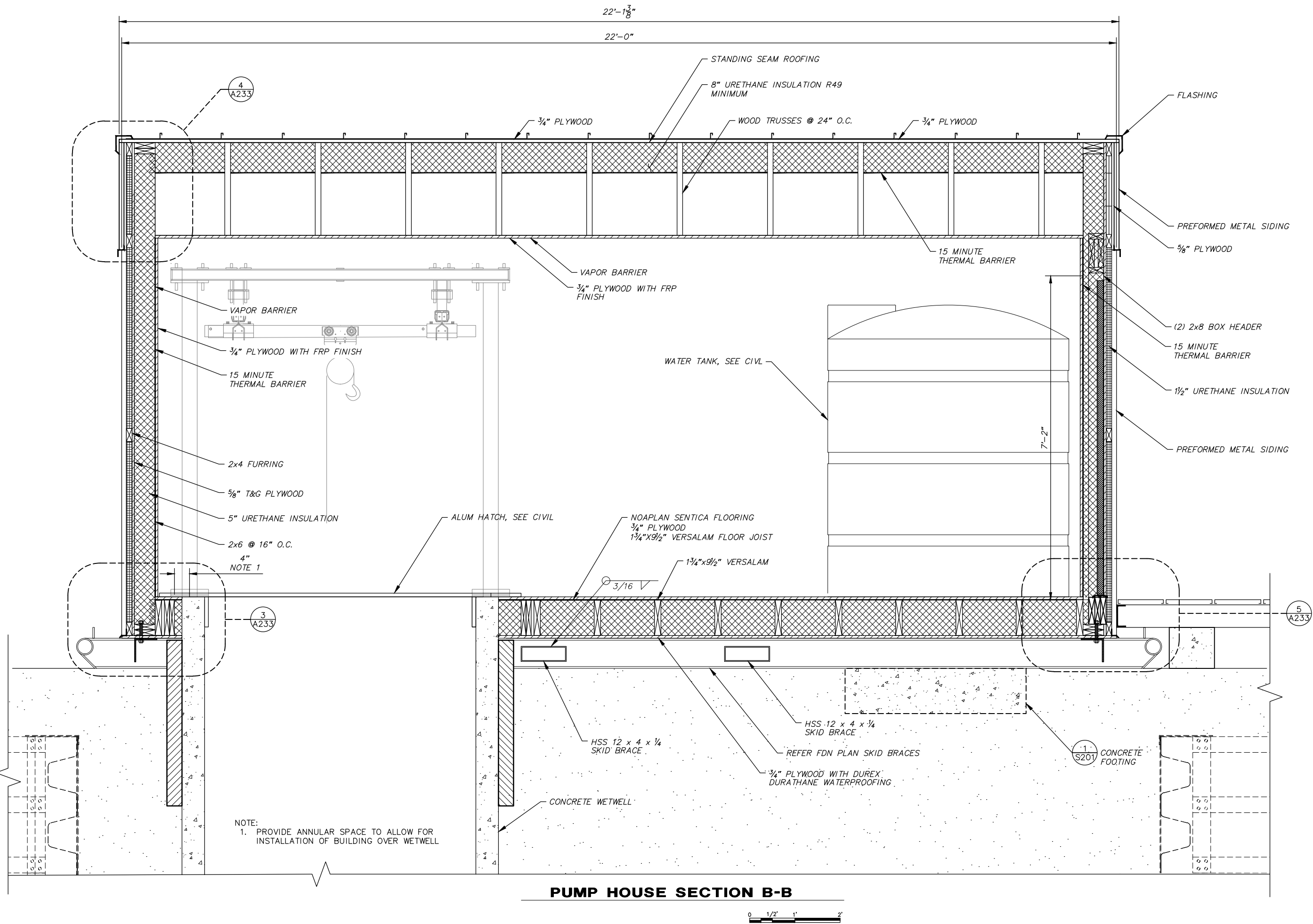
PUMP HOUSE SECTION A-A

NOTE:
1. PROVIDE ANNULAR SPACE TO ALLOW FOR
INSTALLATION OF BUILDING OVER WETWELL

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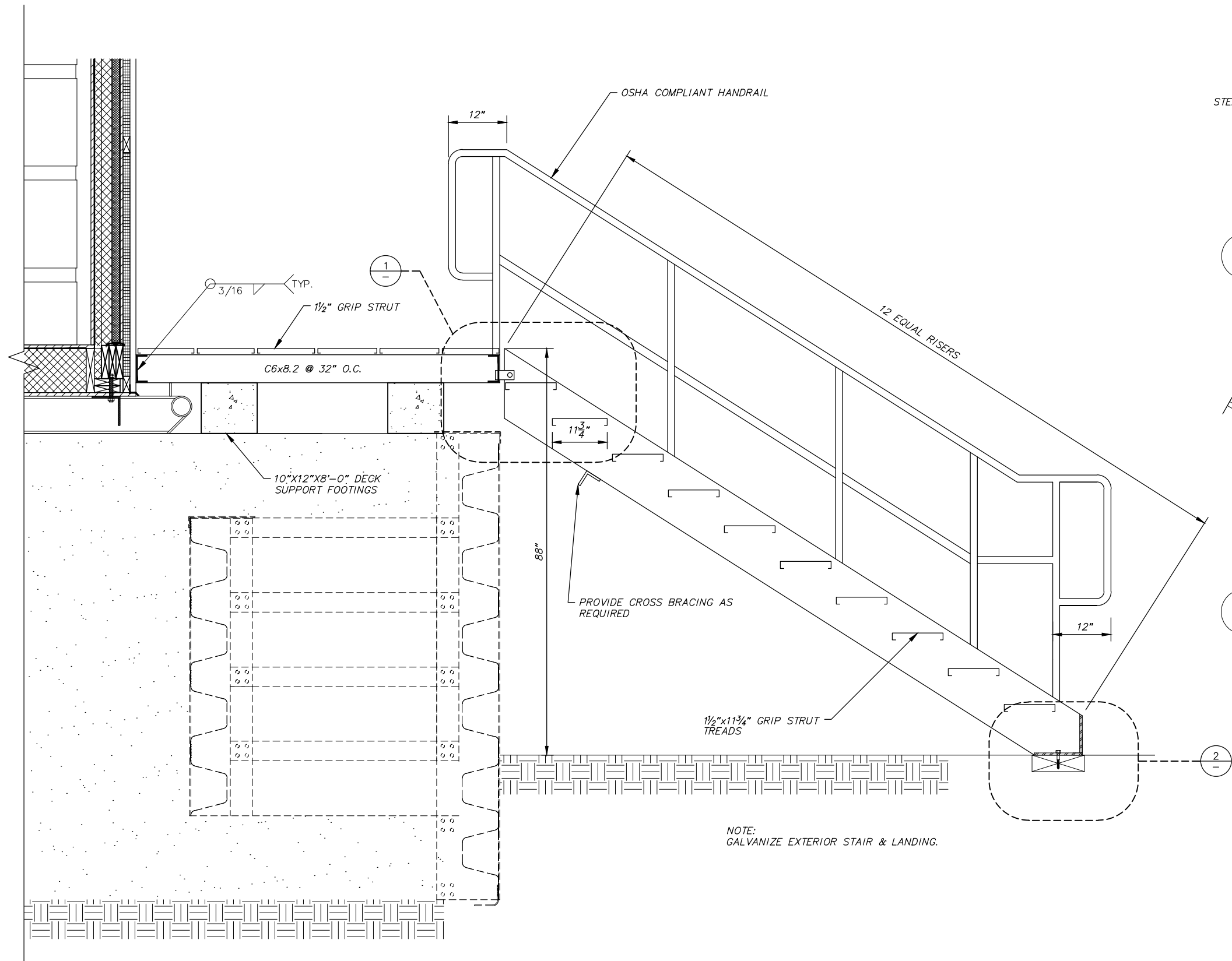
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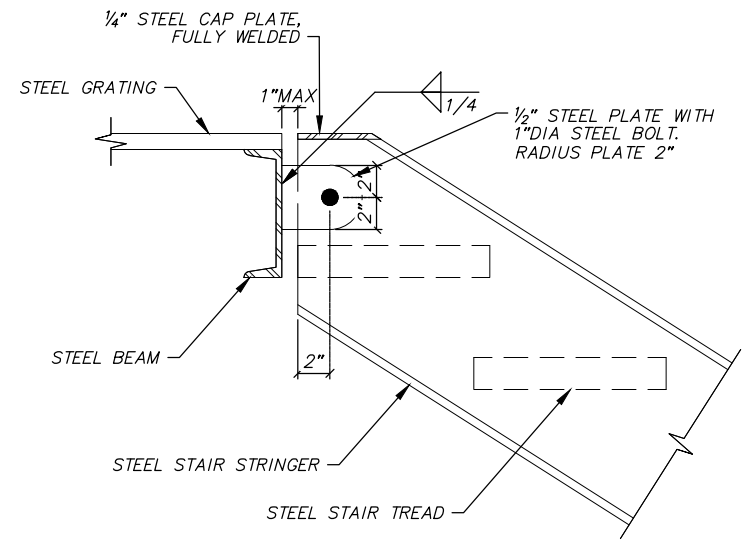
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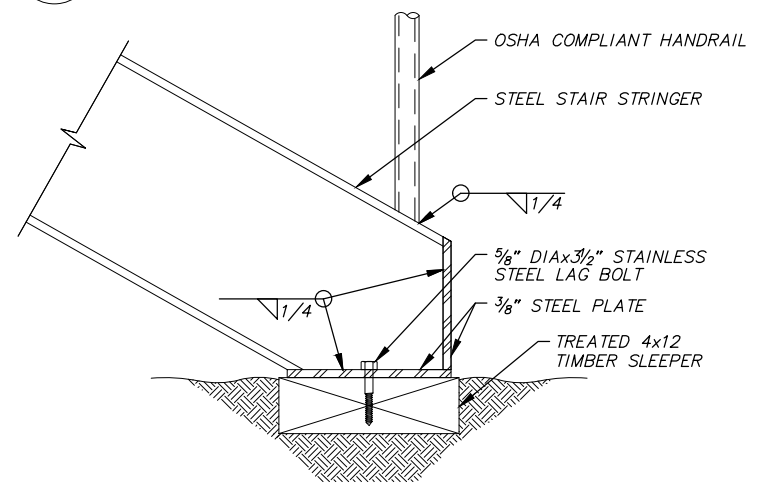
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PUMP HOUSE SECTION C-C



STEEL STRINGER AT STEEL BEAM



STEEL STRINGER AT WOOD SLEEPER

Alaska Department of
Environmental Conservation
Division of Water



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Anchorage, Alaska 99501



CITY OF EMMONAK

STAIR SECTION

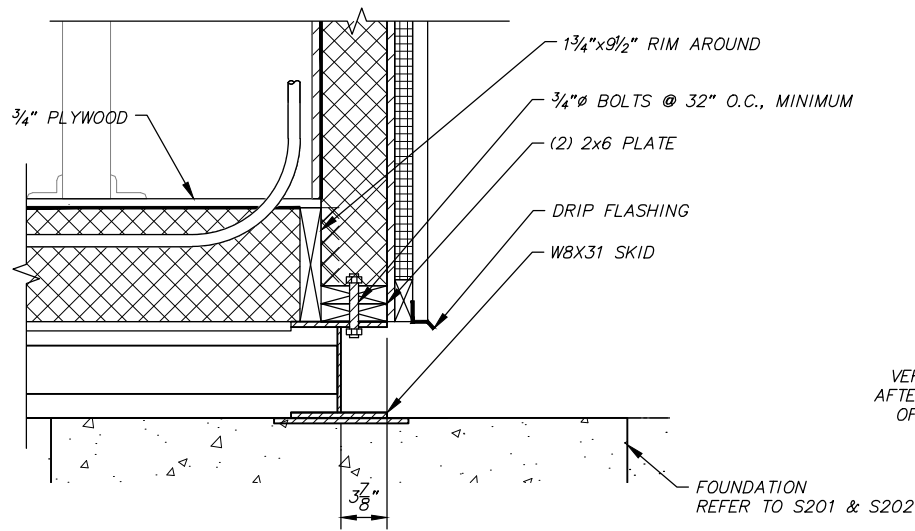
RIVER INTAKE UPGRADES
ISSUED FOR AGENCY
REVIEW

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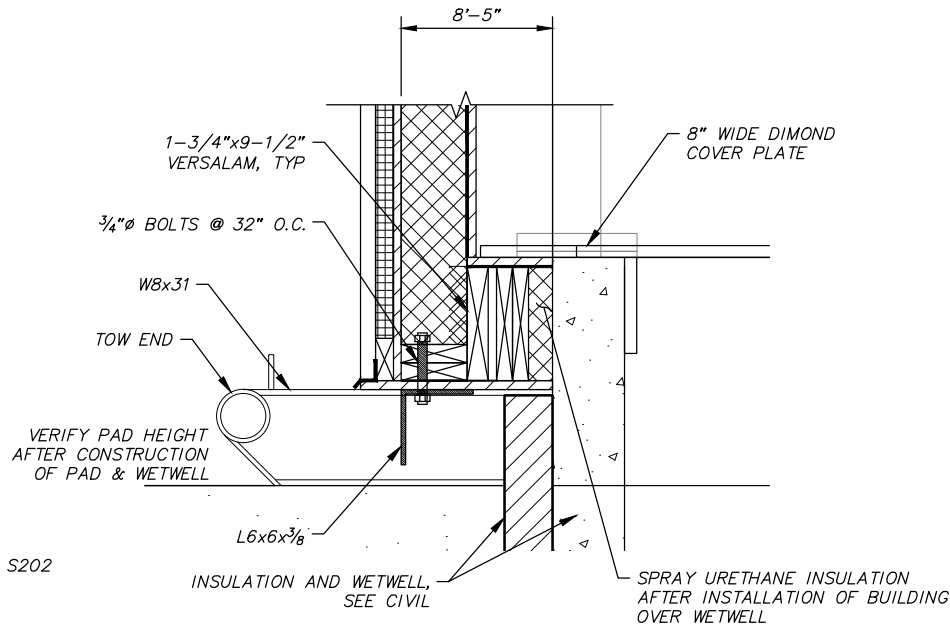
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Approved	JVS

Sheet No. A232

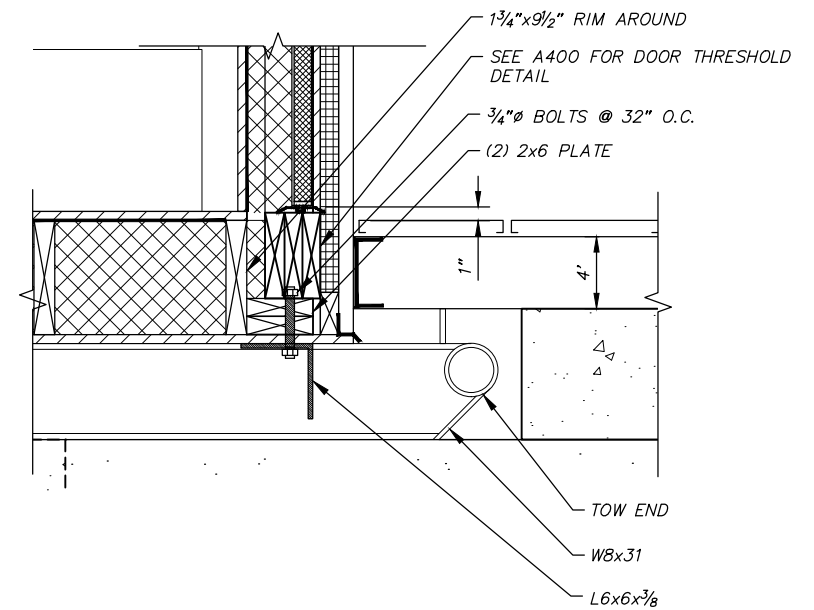
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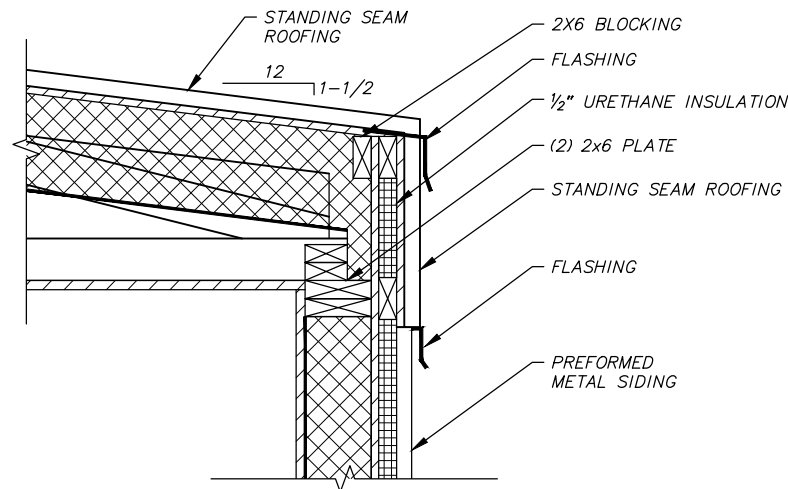
1 **ENLARGED DETAIL**
0 1/2' 1' 1 1/2'



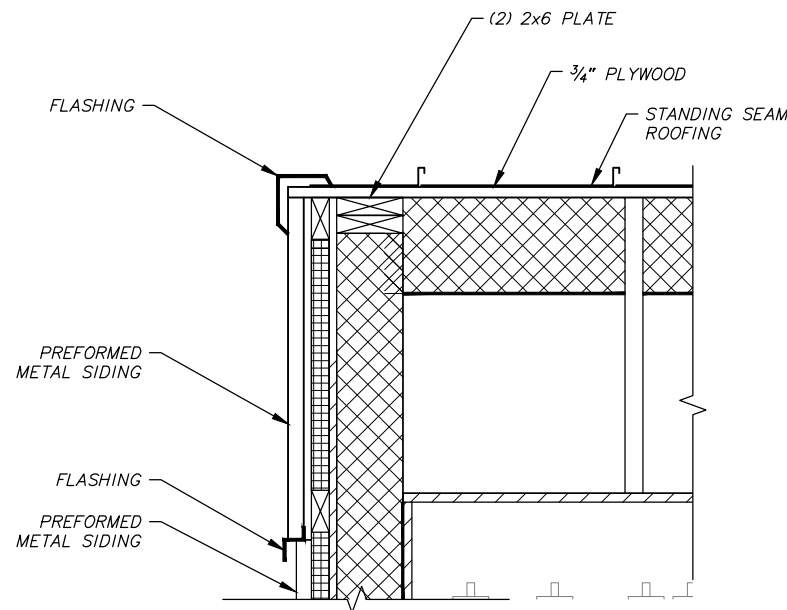
3 **ENLARGED DETAIL**
0 1/2' 1' 1 1/2'



5 **ENLARGED DETAIL**
0 1/2' 1' 1 1/2'



2 **ENLARGED DETAIL**
0 1/2' 1' 1 1/2'

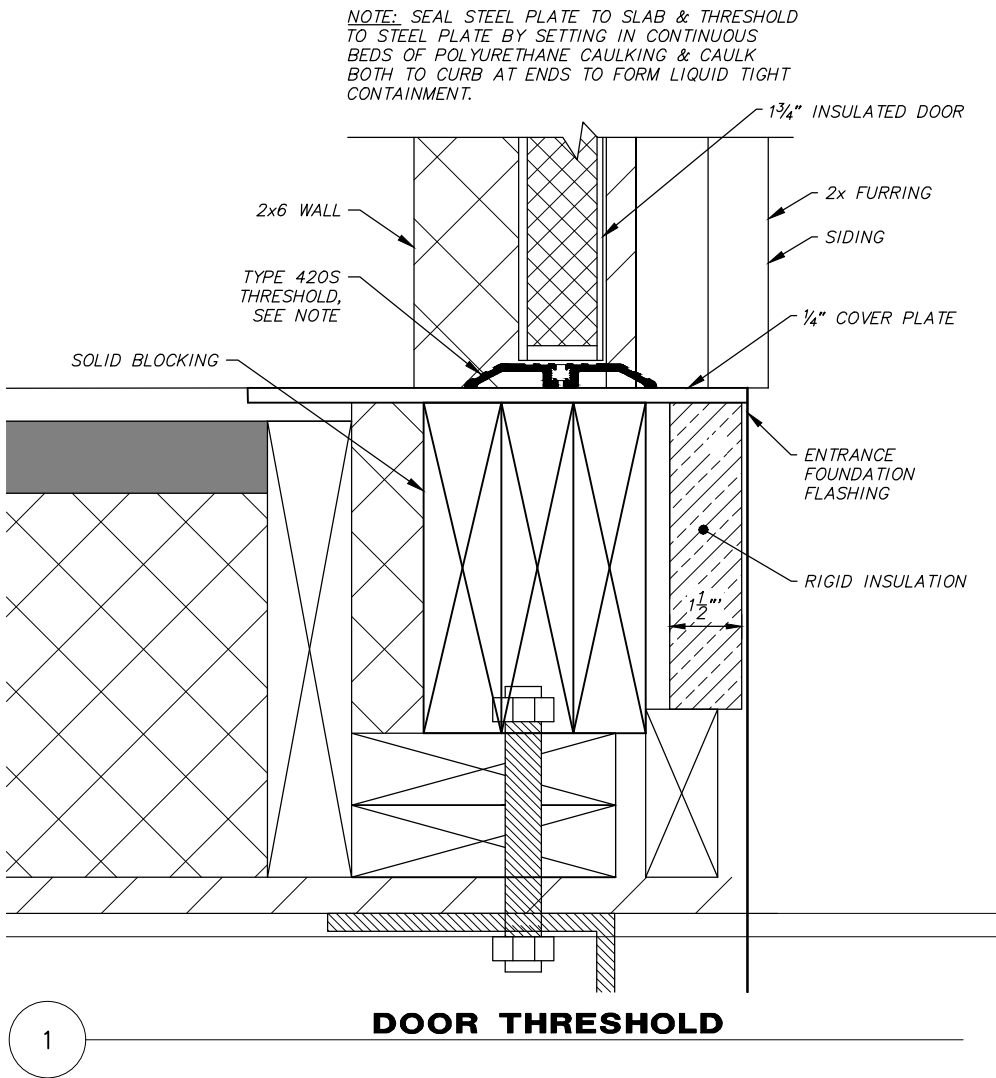


4 **ENLARGED DETAIL**
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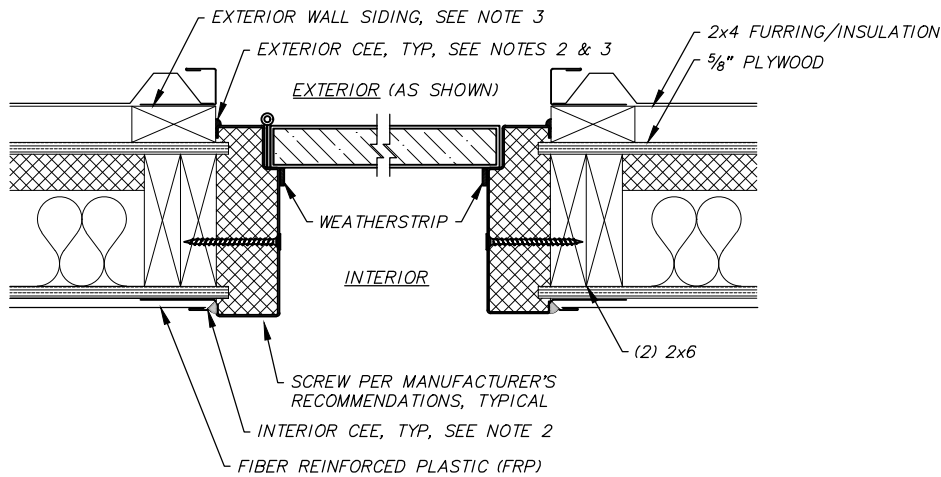
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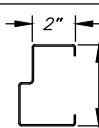
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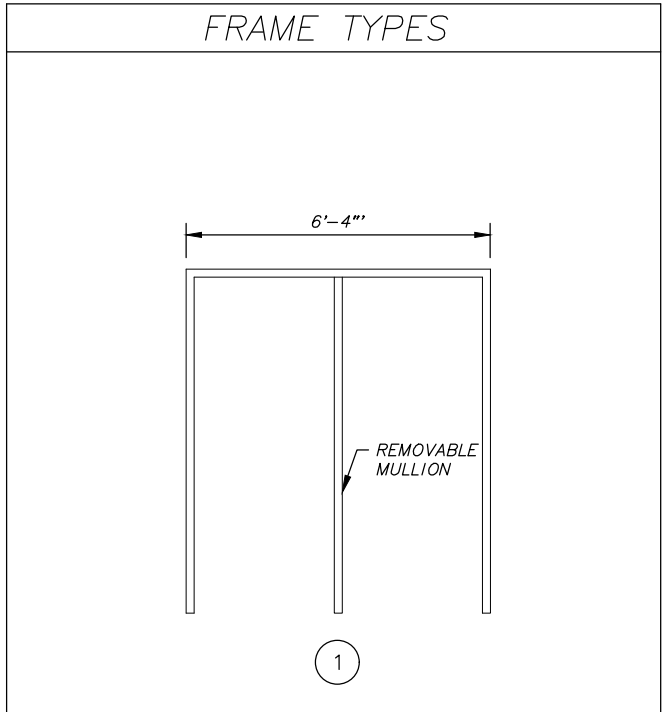
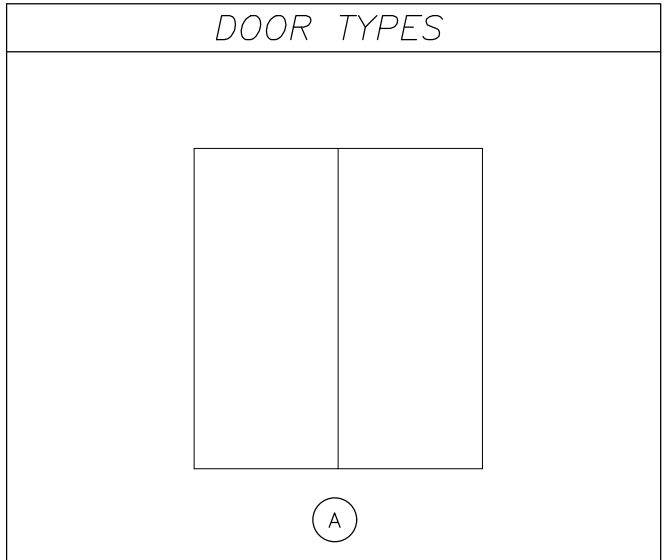


- NOTES:
- 1) DOOR JAMB SHOWN, HEAD SIMILAR.
 - 2) CAULK CEE METAL TO FRAME ALL AROUND, COLOR TO MATCH DOOR FRAME.



EXTERIOR DOOR INSTALLATION DETAIL

DOOR CONSTRUCTION							FRAME CONSTRUCTION						
DOOR NO.	WIDTH	HEIGHT	THICKNESS	MATERIAL	CORE	REMARKS	WALL THICK.	MATERIAL	TYPE	PROFILE	PREP.	FIRE RATING	HDWR. GROUP
(1)	6'-0"	7'-0"	1-3/4"	16 GA. H.M.	POLYURETHANE	WITH REMOVABLE MULLION	N/A	16 GA. H.M.	WELDED	SINGLE RABBETED DIMPLE & PUNCH	NONE	NONE	HW-1
DOOR HARDWARE:											DOOR FRAME PROFILE:		
<u>NOTES:</u>						<u>HW-1 DOUBLE DOOR</u>						 REFER HEAD AND JAMB DETAILS	
{1} DOOR AND HOLLOW METAL FRAME GALVANIZED AND FACTORY PRIMED. ALL FRAMES WELDED CONSTRUCTION, DIMPLED AND PUNCHED.						6 EA HINGES HAGER BB1191 4.5 x 4.5NRP x 630							
{2} DOOR TO HAVE SOLID POLYURETHANE INSULATION CORE WITH TOPS INVERTED AND CAULKED WATER TIGHT.						2 EA EXIT LOC SCHLAGE ND25D							
{3} FINISH ALL DOOR AND HOLLOW METAL FRAMES WITH TWO COATS OF SHERWIN WILLIAMS MACROPOXY 646, OR APPROVED EQUAL, COLOR SELECTED BY OWNER.						2 EA OVERHEAD STOP ROCKWOOD OH1004M x US32D							
						2 EA WEATHER STRIP PEMKO 2891AS x 36 (HEAD)						NOTE: DIMENSIONS ARE OVERALL FRAME SIZE.	
						4 EA WEATHER STRIP PEMKO 290AS x 84 (SIDE JAMBS)							
						2 EA THRESHOLD HAGER 420S x 36							



Alaska Department of
Environmental Conservation
Division of Water

Village Safe Water Program
555 Cordova Street 4th Floor
Anchorage, Alaska 99501

STATE OF ALASKA
DIVISION OF WATER
David G. Thompson
No. 7034
1993
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3940 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AEC-882-AK

CITY OF EMMONAK
DOOR SCHEDULE AND DETAILS
RIVER INTAKE UPGRADES
ISSUED FOR AGENCY REVIEW

NO.	REVISION	BY	DATE

Plot Date 02/14/19	Designed DT	Drawn KEG	Approved JVS
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Sheet No. **A400**

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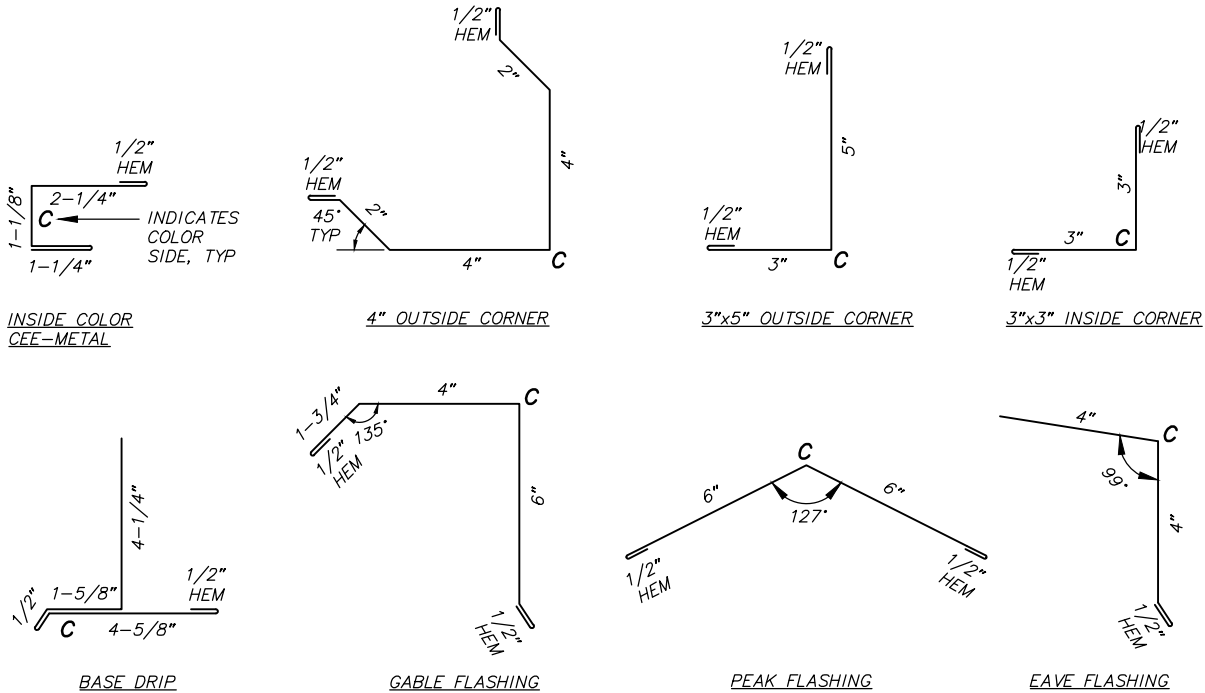
ROOFING/SIDING SYSTEM NOTES:

1. ALL ROOFING, SIDING, SOFFIT, TRIM, AND FLASHING SHALL BE MIN 24 GAUGE GALVANIZED STEEL WITH KYNAR FINISH. ALL FASTENERS SHALL BE CORROSION RESISTANT STAINLESS STEEL SCREWS AND ALUMINUM RIVETS.

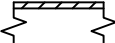
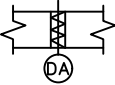
2. ROOFING SHALL BE STANDING SEAM TYPE, 24 GAUGE, 16" NET COVERAGE, 2" HIGH RIBS AT 16" O.C. SPAN-LOK OR EQUAL. FURNISH CLIPS AND FASTENERS AS REQUIRED TO MEET LOAD CONDITIONS INDICATED ON SHEET S200.

3. SIDING SHALL BE LOW PROFILE, 24 GAUGE, 36" NET COVERAGE, 1-1/4" HIGH MAJOR RIBS AND 1/4 HIGH MINOR RIBS AT 12" O.C. AEP SPAN SUPER-SPAN OR EQUAL. FURNISH FASTENERS AS REQUIRED TO MEET LOAD CONDITIONS INDICATED ON SHEET S200.

ROOFING SYSTEM TRIM & FLASHING: TAKEN FROM INSTALLATION MANUAL AND SHOWN TO IDENTIFY CONFIGURATION ONLY, INSTALL PER MANUFACTURERS RECOMMENDATIONS.



File: J:\JobsData\81904.00 Emmonak River Intake\00 CADD\01 Working Set\06 Mechanical\M001 LEGENDS AND ABBREVIATIONS.dwg

PIPING LEGEND	PIPING SYMBOL LEGEND	HVAC/DUCTWORK LEGEND	LOGIC LEGEND
----- VENT	 PIPE DOWN  PIPE UP	 INSULATED DUCTWORK  MOTORIZED CONTROL DAMPER  SUPPLY AIR UP  SUPPLY AIR DOWN  ROUND DUCT DOWN	 SHEET NOTES  THERMOSTAT

ABBREVIATIONS									
ABS	ACRYLONITRILE BUTADIENE STYRENE	DIA/Ø	DIAMETER	EUH-X	ELECTRIC UNIT HEATER DESIGNATOR	NTS	NOT TO SCALE	TSP	TOTAL STATIC PRESSURE
AD	ACCESS DOOR	DN	DOWN	F	FAHRENHEIT	O/A	OUTSIDE AIR	TYP	TYPICAL
AFF	ABOVE FINISHED FLOOR	DWV	DOMESTIC WASTE VENT	HP	HORSEPOWER	PH	PHASE	V	VENT
AMP	AMPERES	E/A	EXHAUST AIR	IN	INCHES	RPM	REVOLUTIONS PER MINUTE	VTR	VENT THRU ROOF
CFM	CUBIC FEET PER MINUTE	EF-X	EXHAUST FAN DESIGNATOR	KW	KILOWATTS	SCH	SCHEDULE	WC	WATER COLUMN
DA-X	DAMPER ACTUATOR DESIGNATOR	EPDM	ETHYLENE PROPYLENE DIENE TERPOLYMER	MIN	MINIMUM	SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTOR'S NATIONAL ASSOCIATION		

FAN SCHEDULE										
SYMBOL	MANUFACTURER	MODEL	SERVICE	CAPACITY (CFM)	FAN TYPE	DRIVE	TSP (IN WC)	MOTOR HP	MOTOR DATA (VOLTS/PH)	REMARKS
EF-1	GREENHECK	SQ-90-E	PUMP HOUSE EXHAUST	250	CENTRIFUGAL	DIRECT	0.20	1/50	115/1	PROVIDE WITH FACTORY DISCONNECT SWITCH, FAN SPEED CONTROLLER, BACKDRAFT DAMPER AND PERFORMANCE BAFFLE. FOR TIMER SEE ELECTRICAL.

ELECTRIC UNIT HEATER SCHEDULE									
SYMBOL	MANUFACTURER	MODEL	CAPACITY (KW)	AIR FLOW (CFM)	RPM	HP	POWER DATA (VOLTS/PH)	REMARKS	
EUH-1	CHROMALOX	LUH-04-43	4	380	1550	1/35	480/3	PROVIDE CEILING MOUNTED ELECTRIC UNIT HEATER WITH INTERNAL TRANSFORMER, INTERNAL THERMOSTAT, BUILT-IN THERMAL OVERLOAD PROTECTION, FACTORY PROVIDED DISCONNECT SWITCH, AND CONTACTOR. CAUTION: BOTTOM OF UNIT TO BE INSTALLED 6'-1"AFF, POTENTIAL HAZARD.	

CONTROL SCHEDULE					
SYMBOL	MANUFACTURER	MODEL	TYPE	POWER SUPPLY (VOLTS)	REMARKS
DA-1	BELIMO	LF-SERIES	DIRECT COUPLED	120	NEMA 2 ENCLOSURE, FAIL OPEN. PROVIDE WITH RUSKIN MODEL CDTI-50. MOTOR OPERATED DAMPER, ALUMINUM FRAME. BLADE MODEL CDTI-50.

Alaska Department of
Environmental Conservation
Division of Water



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CITY OF EMMONAK

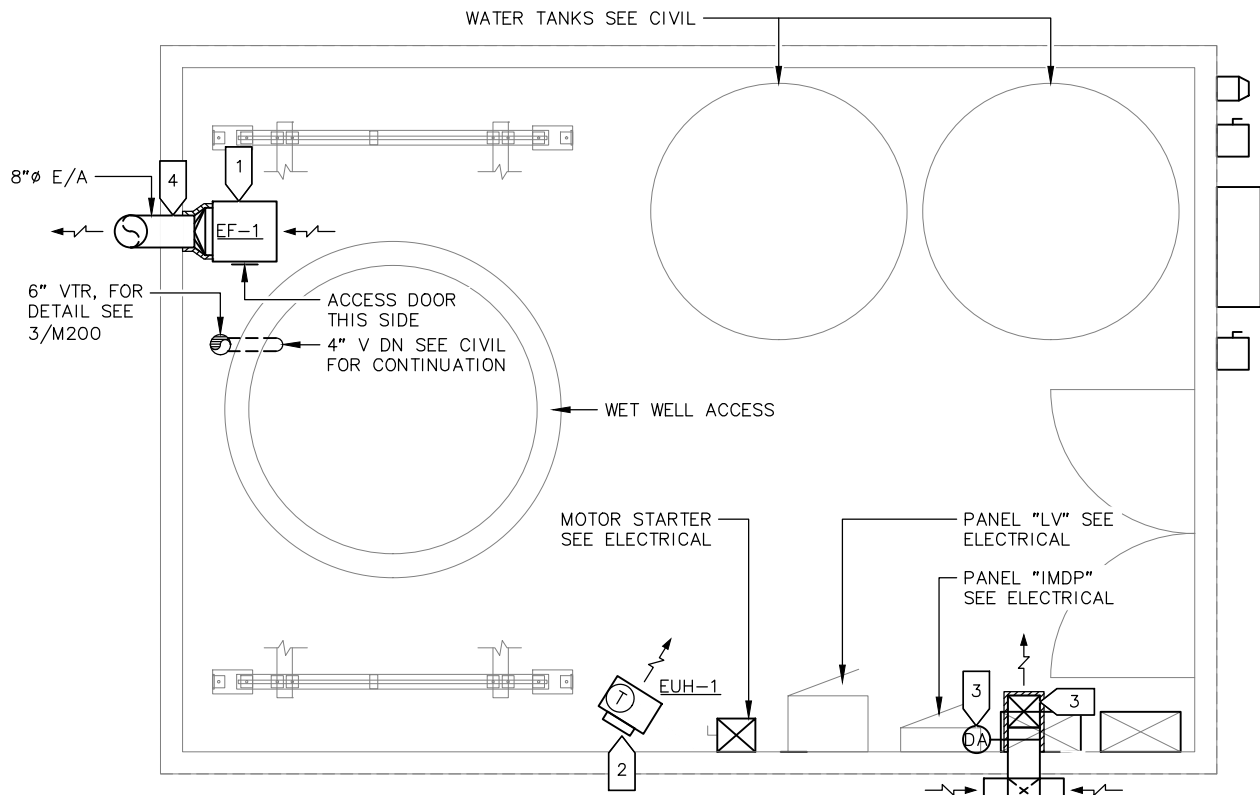
MECHANICAL LEGENDS AND
ABBREVIATIONS

RIVER INTAKE UPGRADES
ISSUED FOR AGENCY
REVIEW

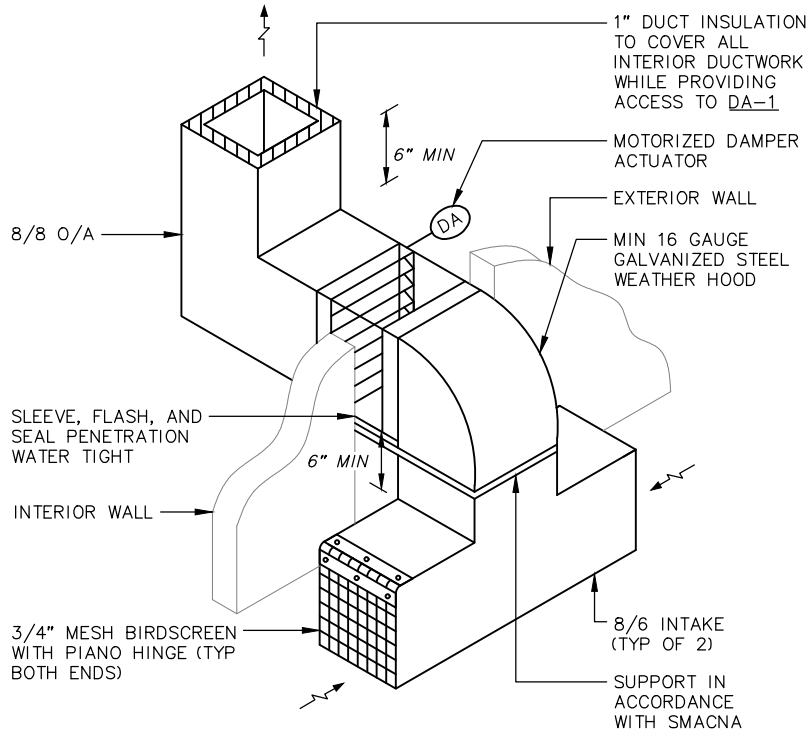
NO.	REVISION	BY	DATE

Plot Date	10/28/19
Designed	TLM
Drawn	ADD
Approved	TLM

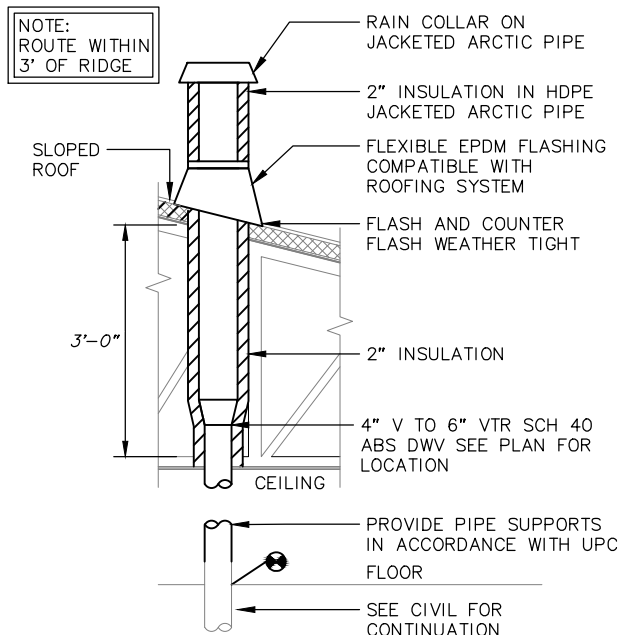
File: J:\JobsData\81904.00 Emmonak River Intake\00 CADD\01 Working Set\06 Mechanical\M002 MECHANICAL PLAN.dwg



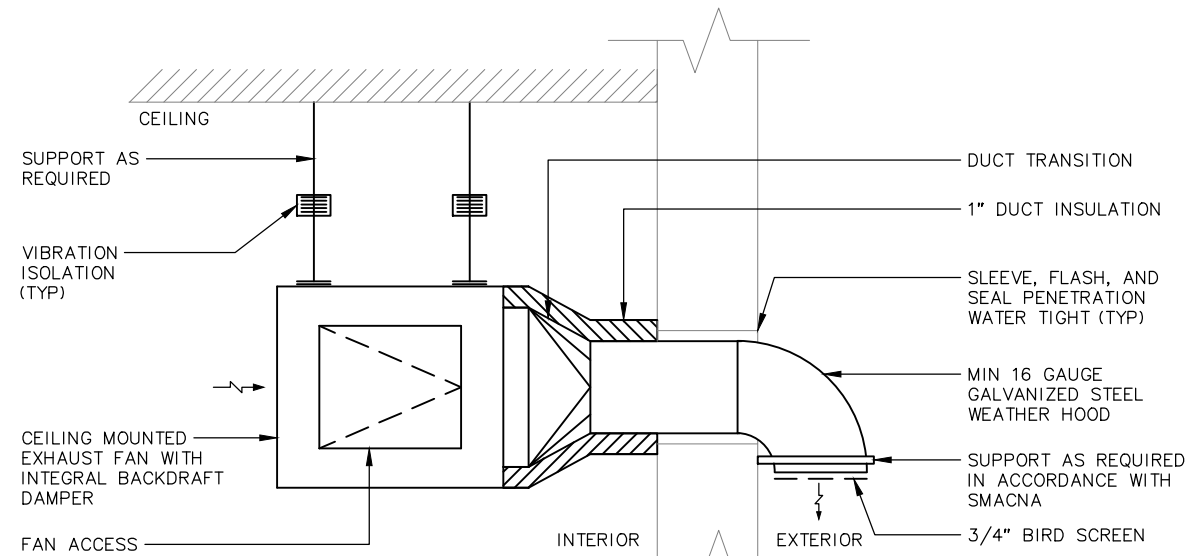
1 **MECHANICAL PLAN - HVAC**
SCALE: 1/2" = 1'-0"



2 **INTAKE HOOD DETAIL**
SCALE: NTS



3 **VENT THROUGH ROOF DETAIL**
SCALE: NTS



4 **EXHAUST FAN DETAIL**
SCALE: NTS

SHEET NOTES:

- 1 INSTALL NEW EXHAUST FAN, EF-1, ASSOCIATED DUCTWORK, AND APPURTENANCES. EXHAUST FAN TO BE CEILING MOUNTED AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. COORDINATE FINAL LOCATION TO AVOID CONFLICTS WITH CRANE. FOR DETAIL SEE 4/M200.
- 2 INSTALL AND SUPPORT NEW ELECTRIC UNIT HEATER, EUH-1, AND ASSOCIATED APPURTENANCES IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. SEE ELECTRICAL FOR SPECIFIED TIMER AND WIRING. CAUTION: BOTTOM OF UNIT TO BE INSTALLED 6'-1" AFF, POTENTIAL HAZARD.
- 3 INSTALL ARCTIC INTAKE HOOD. MOTORIZED DAMPER ACTUATOR, DA-1, TO INTERLOCK WITH EXHAUST FAN EF-1. FOR DETAILS SEE 2/M200. TOP OF AIR INTAKE HOOD TO HAVE 12" MINIMUM CLEARANCE FROM CEILING. SUPPORT DUCT IN ACCORDANCE WITH SMACNA STANDARDS.
- 4 8"Ø GALVANIZED DUCT TO BE SUPPORTED IN ACCORDANCE WITH SMACNA STANDARDS.

SEQUENCE OF OPERATIONS:

1. EF-1: EXHAUST FAN TO SWITCH AT LOCAL PANEL ON WALL. WHEN EF-1 IS ENABLED DAMPER ACTUATOR, DA-1, TO OPEN. WHEN EF-1 IS DISABLED DA-1 TO CLOSE. EXHAUST FAN TO CYCLE ON ONCE A DAY FOR 20 MINUTES.
2. EUH-1 WILL CYCLE ON WHEN THERE IS A CALL FOR HEAT FROM INTERNAL THERMOSTAT. WHEN INTERNAL THERMOSTAT IS SATISFIED, THE FAN SHALL CONTINUE TO OPERATE UNTIL ALL HEATED AIR HAS BEEN DISCHARGED INTO THE SPACE. INITIAL SET POINT 50 DEGREES F (ADJUSTABLE).

NO.	REVISION	BY	DATE

Plot Date 10/29/19	Designed TLM	Drawn ADD	Approved TLM
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LEGEND

	ANALOG SIGNAL(S)
	BUS
	EXPOSED CONDUIT, GRC UNLESS OTHERWISE SHOWN
	CONDUIT RUN UNDERGROUND OR IN CONCRETE
	DIGITAL SIGNAL(S)
	HOMERUN TO PANEL "X", CIRCUITS NO. Y AND Z CONDUIT RUNS NOT DEFINED ARE 1/2" C with 3#12.
	GROUND
	CONDUIT RUN - CHANGE IN ELEVATION
	GROUND ROD
	LIQUID-TIGHT FLEXIBLE CONDUIT
	MOTOR, 3 PHASE
	MOTOR, FRACTIONAL HP, SINGLE PHASE
	JUNCTION BOX OR FITTING
	THERMOSTAT
	SHEET NOTE "X"
	DISCONNECT SWITCH
	PANELBOARD
	MANUAL MOTOR STARTER. PROVIDE OVERLOADS AS REQUIRED
	COMBINATION MAGNETIC MOTOR STARTER
	SINGLE POLE SWITCH.
	THREE WAY SWITCH
	FOUR WAY SWITCH
	120V DUPLEX RECEPTACLE, NEMA CONFIGURATION 5 - 20R.
	120V DUPLEX GROUND FAULT INTERRUPT RECEPTACLE, NEMA CONFIGURATION 5 - 20R.
	120V QUADUPLEX RECEPTACLE, NEMA CONFIGURATION 5 - 20R GFI.
	LOCAL CONTROL PANEL
	KILOWATT-HOUR METER
	MOLDED CASE CIRCUIT BREAKER, X = AMPERE RATING, Y = NO. OF POLES THERMAL/MAGNETIC UON
	TRANSFORMER, DETAILS AS NOTED WITH GROUNDED SECONDARY
	CENTRIFUGAL PUMP
	CHEMICAL INJECTION PUMP
	HEAT TAPE POWER POINT
	HEAT TAPE END KIT
	VARIABLE FREQUENCY DRIVE

	MOTOR OVERLOAD
	FUSE, RATING AND QUANTITY AS SHOWN
	MCC
	3-WAY VALVE
	LADDER LOGIC RUNG
	TEMPERATURE SWITCH
	FLOW SWITCH/METER
	ALARM HORN (PROCESS)
	CURRENT TRANSFORMER / CURRENT SWITCH
	VOLTMETER
	GENERATOR
	TRANSFORMER
	DAMPER MOTOR

	RELAY COIL
	HEAT TRACE
	INSTRUMENT DEVICE LOCATION (SEE TAG)
	NORMALLY OPEN CONTACT
	NORMALLY CLOSED CONTACT
	PILOT LIGHT R=RED, B=BLUE, A=AMBER, G=GREEN
	FIELD MOUNTED INSTRUMENT XX = FUNCTION; YY = TAG NO.
	LCP (BACK PANEL) MOUNTED INSTRUMENT XX = FUNCTION; YY = TAG NO.
	PANEL (FRONT DOOR) MOUNTED INSTRUMENT XX = FUNCTION; YY = TAG NO.
	PANEL (BACK OF DOOR) MOUNTED INSTRUMENT XX = FUNCTION; YY = TAG NO.
	LOCAL CONTROL PANEL (LCP) YYY = PANEL NAME XXX = CONTROL SHEET NUMBER
	PANEL (FRONT) MOUNTED LIGHT XX = FUNCTION; YY = TAG NO.

ABBREVIATIONS

A	AMPERE
AFF	ABOVE FINISH FLOOR
AHU	AIR HANDLING UNIT
AIC	AMPERES INTERRUPTING CAPACITY
ATS	AUTOMATIC TRANSFER SWITCH
AVEC	ALASKA VILLAGE ELECTRICAL COOPERATIVE
BCP	BOILER CONTROL PANEL
BCU	BARE COPPER
bcu	BARE COPPER
C	CONDUCTOR
C	CONDUIT
CIRC	CIRCULATION
CP	CONTROL PANEL
CP	CIRCULATION PUMP
CT	CURRENT TRANSFORMER
DHW	DOMESTIC HOT WATER
DWG	DRAWING
ELCP	EAST LOOP CIRCULATION PUMP CONTROL PANEL
EF	EXHAUST FAN
FE	FIRE EXTINGUISHER (SEE ARCH)
FM	FORCE MAIN
G	GROUND CONDUCTOR
GFI	GROUND FAULT INTERRUPTING
H	HOT CONDUCTOR
HB	HIGH BOOST PUMP
HE	HEAT EXCHANGER
HOA	HAND OFF AUTO
HP	HORSEPOWER
KVA	KILO-VOLT-AMPERES
KW	KILOWATT
LCP	LOCAL CONTROL PANEL
LTFMC	LIQUID TIGHT FLEXIBLE METAL CONDUIT
LTG	LIGHTING
MCC	MOTOR CONTROL CENTER
MCM	THOUSAND CIRCULAR MILLS
MCP	MAGNETIC (ONLY) CIRCUIT PROTECTOR
MDP	MAIN DISTRIBUTION PANEL
MV	MOTORIZED VALVE
N	NEUTRAL CONDUCTOR
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
P	POLE
pF	POWER FACTOR
PP	PRESSURE PUMP
PPCP	PRESSURE PUMP CONTROL PANEL
RCP	RECEPTACLE
RM	ROOM
RMC	RIGID METAL CONDUIT (GALVANIZED)
TLCP	TANK LOOP CONTROL PANEL
TWSH	TWISTED/SHIELDED
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
V	VOLTS
VFD	VARIABLE FREQUENCY DRIVE
WLCP	WEST LOOP CIRCULATION PUMP CONTROL PANEL
WTP	WATER TREATMENT PLANT
XFMR	TRANSFORMER

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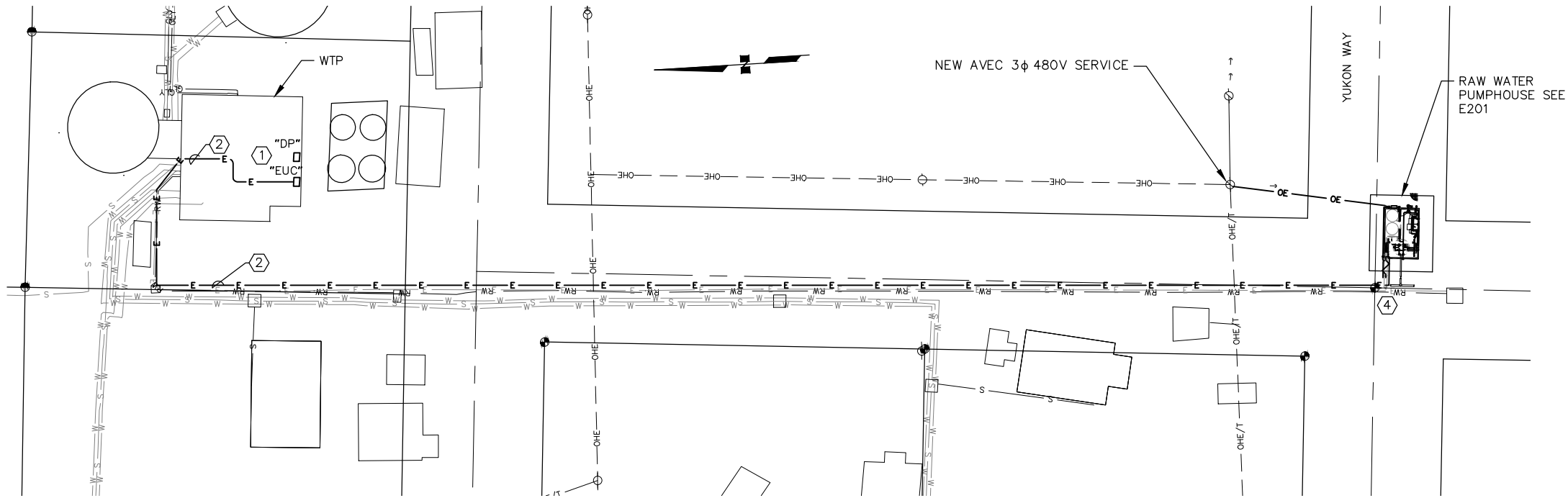
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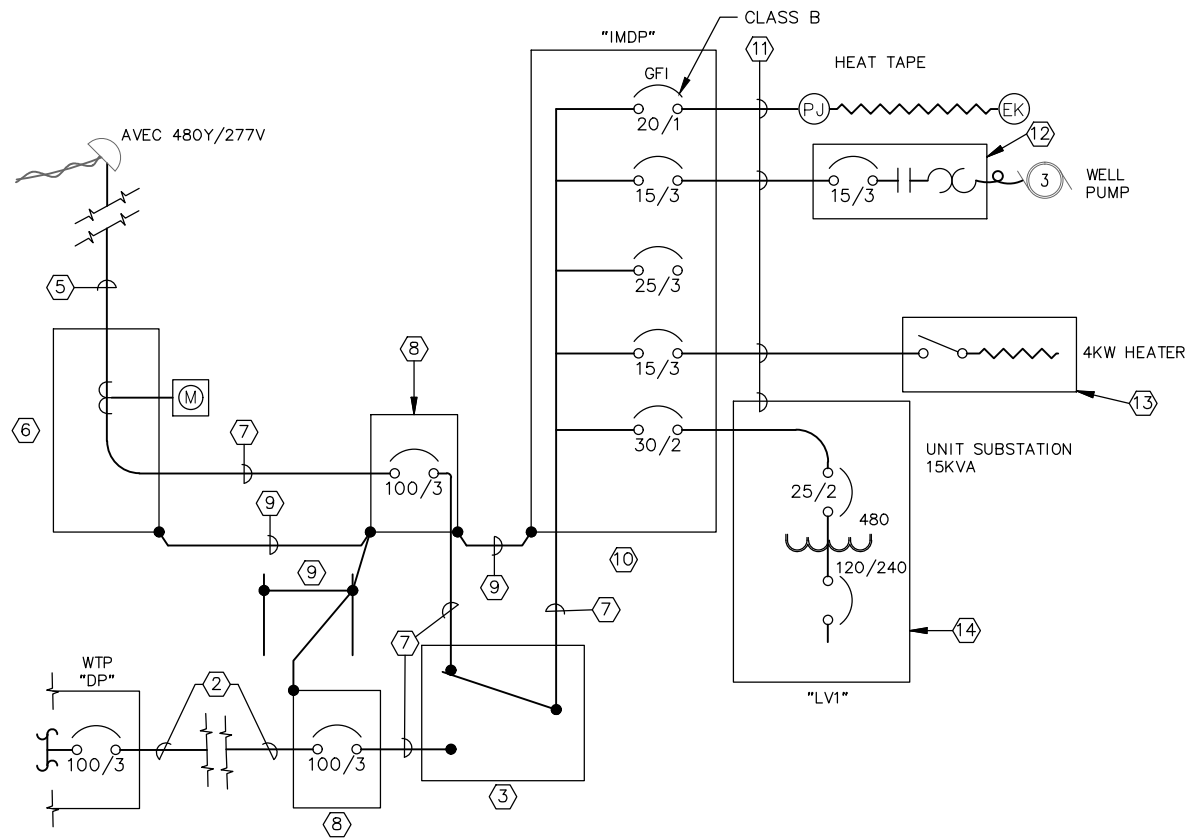
NO.	REVISION	BY	DATE

Plot 10/28/19	Designed WMM
Date	Drawn -
	Approved -

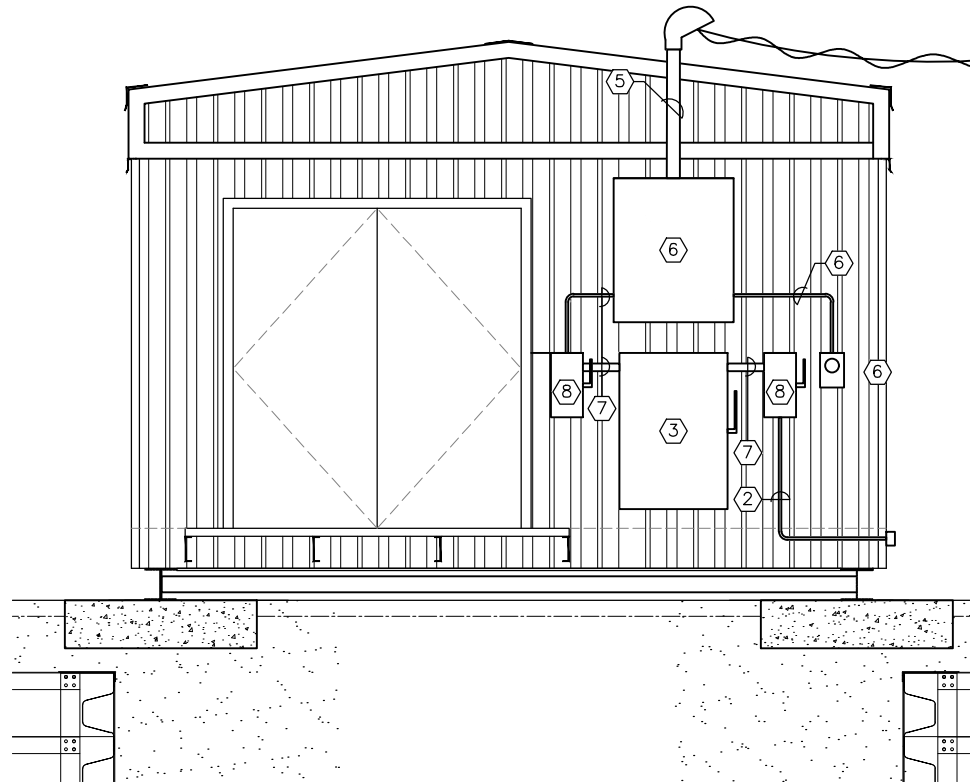
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1 **ELECTRICAL SITE PLAN**



2 **POWER ONE LINE**



3 **RAW WATER PUMPHOUSE EAST ELEVATION**
NTS

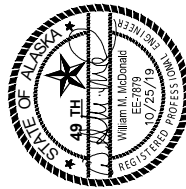
NOTES

- ① DISCONNECT AND REMOVE PANEL EUC.
- ② RE-PURPOSE EXISTING 2" CONDUIT SERVING EXISTING PUMP BUILDING BY REMOVING EXISTING (5) POWER CONDUCTORS: (2) SERVED FROM MOTOR INLET (PUMPHOUSE HEAT TAPE CIRCUIT) ON NORTH WALL, AND (3) FROM EUC. EXTEND 2" CONDUIT AT WTP TO NEW 100/3 BREAKER IN PANEL DP AND REROUTE OTHER END TO NEW 100/3 MAIN SWITCH AT INTAKE STRUCTURE. SEE E201. PROVIDE (4)#1/0 XHHW.
- ③ 100A, 480V, 4P, MANUAL TRANSFER SWITCH, NEMA4X.
- ④ REROUTE EXISTING HEAT TAPE AND END KIT TO NEW PUMP HOUSE. WRAP INTERIOR RISER WITH ANY EXCESS HEAT TAPE.
- ⑤ 2"C, (4)#2 (2H, N) WITH SLIPFITTER CAP.
- ⑥ PROVIDE C.T. ENCLOSURE SET UP FOR "BAR TYPE" C.T.'S TO BE FURNISHED BY AVEC. INSTALL 13-JAW METER BASE, CONNECTED WITH 1"C TO C.T. ENCLOSURE. PROVIDE ALL PER AVEC SERVICE REQUIREMENTS.
- ⑦ 2"C, (4)#2 (3H, N) (1)#4(G).
- ⑧ 480V, 3φ, SERVICE RATED MAIN CIRCUIT BREAKER 100A RATED 100 NEMA 4XSS ENCLOSURE. PROVIDE PLACARD STATING SHORT CIRCUIT AND ARC FLASH LEVEL. DATA TO BE FURNISHED BY ENGINEER AFTER INSTALLATION. BOND NEUTRAL AT THIS POINT.
- ⑨ GROUND SYSTEM:
 - #4BCU
 - 3/4"X10' Cu CLAD STEEL ROD
 - BOND SLAB AND WELL WALLS AND FOUNDATION REBAR
 - RADIO DEMARC
- ⑩ PANEL "IMDP" - 480V, 3φ, 30 SPACE, NEMA 12. PROVIDE ARC FLASH PLACARD SEAL FEEDER CONDUIT.
- ⑪ SEE E201 FOR BRANCH CIRCUITS.
- ⑫ COMBINATION MOTOR STARTER, NEMA 12 ENCLOSURE. SEE E403.
- ⑬ 480V 4KW HEATER WITH INTEGRAL THERMOSTAT CONTACTOR, TRANSFORMER, AND DISCONNECT. PANEL LVI. 120/240V 8 SPACE.
- ⑭ 15 KVA UNIT SUBSTATION. NEMA 3R. SEE SCHEDULE, E300.

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CITY OF EMMONAK
ELECTRICAL SITE PLAN AND ONE LINE
DIAGRAM
RIVER INTAKE UPGRADES
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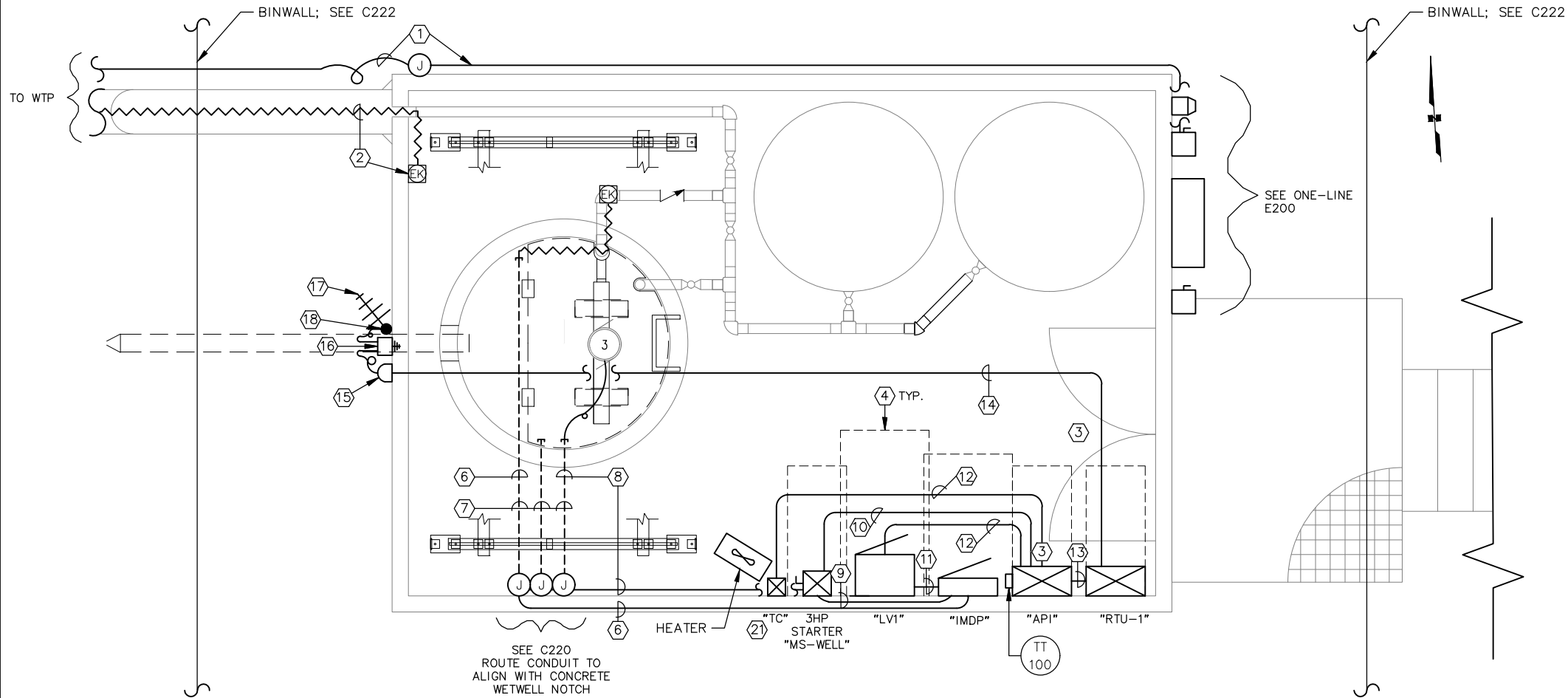
NO.	REVISION	BY	DATE

Plot: 10/28/19	Designed: WMM	Drawn: -	Approved: -
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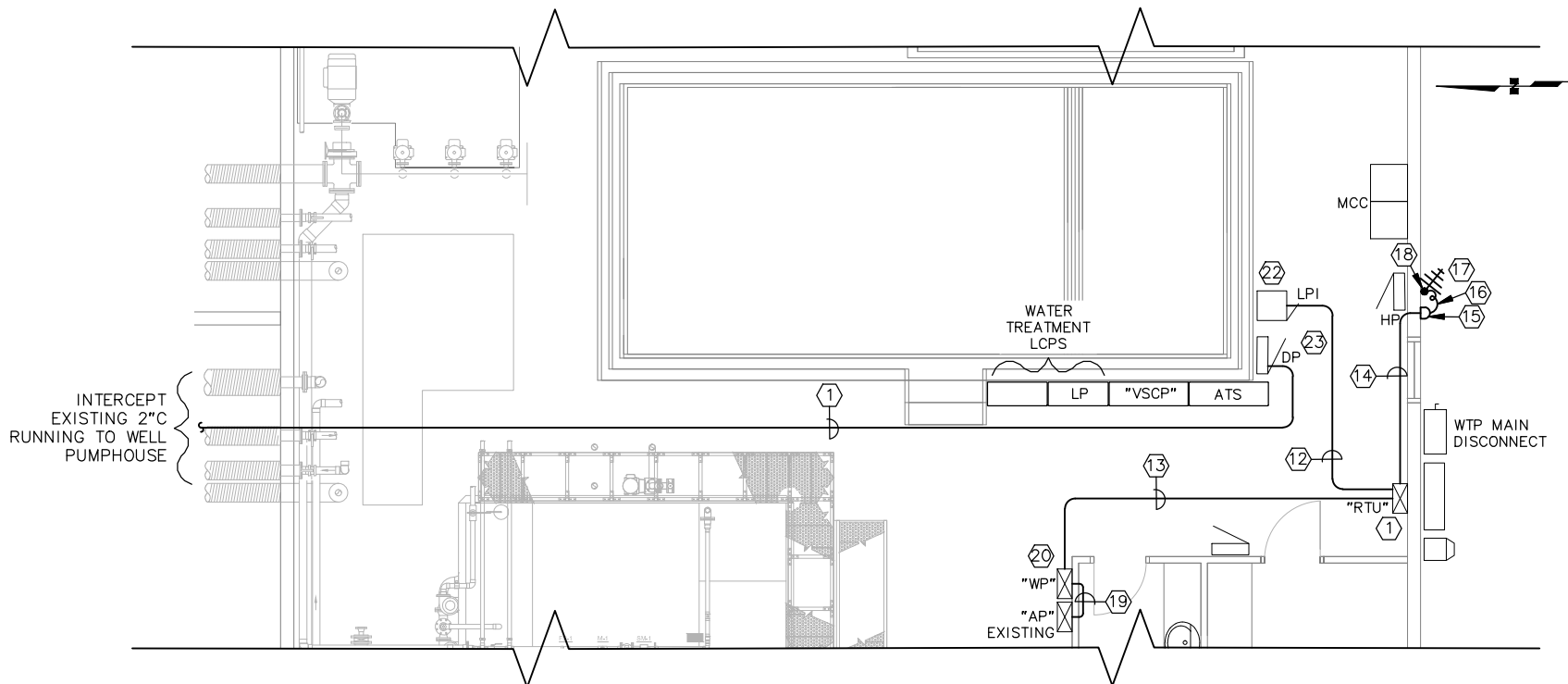
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1 **RAW WATER PUMPHOUSE ELECTRICAL PLAN**



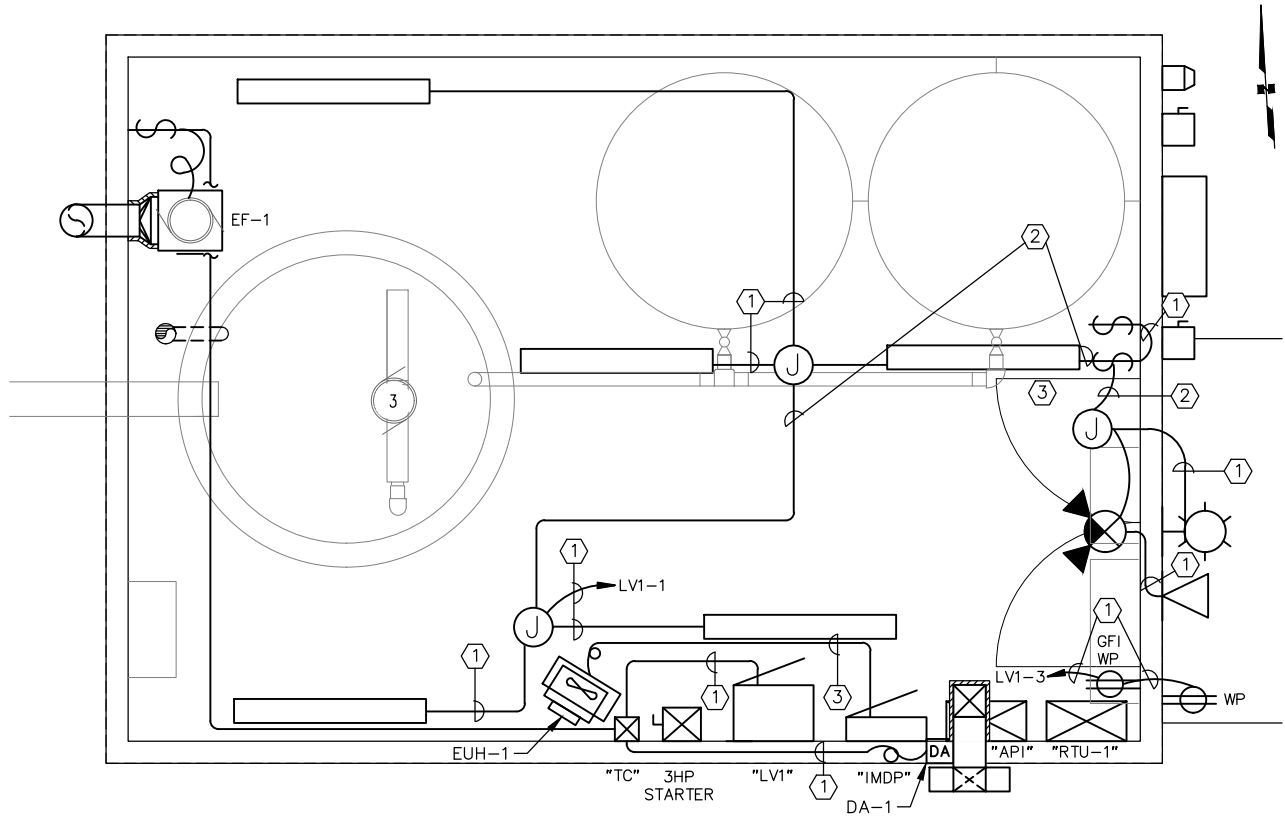
2 **WTP PARTIAL ELECTRICAL PLAN**

NOTES

- ① SEE NOTE 2 E200.
- ② REROUTE THE EXISTING HEAT TAPE TO THE NEW INTAKE PUMPHOUSE.
- ③ PANEL API PROVIDES BOTH ALARM AND CONTROL:
 - a. BUILDING TEMPERATURE
 - b. PUMP RUNNING
 - c. PUMP FAIL
 - d. WELL START (CONTROL)
- TEMP & PUMP ALARMS COMBINED FOR SINGLE SIGNAL. SEE E400.
- ④ CLEARSPACE
- ⑤ 5 kW (MAX) 480/3 HEATER. SEE MECHANICAL.
- ⑥ 1" C WITH HEAT TAPE. EXTEND ACROSS WELL, SECURE TO FIXED PORTION OF COVER. WRAP HEAT TAPE ON RISER HOSE AND EXPOSED PIPING. RAYCHEM 5BTW OR EQUAL. SEE NOTE 7, AND ELEVATION ON C220.
- ⑦ LAY CONDUITS IN TRENCH AND ROUTE THROUGH WET WELL SHAFT OPENINGS. SECURE TO UNDERSIDE OF FIXED PORTION OF LID. SEE CIVIL.
- ⑧ 1" C, (3)#12 (H), 1#12 G. TRANSITION TO 1" C, 8/3 TWISTED PUMP CABLE AT J-BOX. SEE NOTE 7.
- ⑨ 1" C, (3)#12 (H), 1#12 G.
- ⑩ 1/2" C, (6)#12 CONTROL/ALARM.
- ⑪ 1" C, (3)#10, 1#6 G.
- ⑫ 1/2" C, (3)#12.
- ⑬ 1/2" C, (3)#12; 1/2" C, (1) 1pr#18TWS, 1/2" C, (6)#14.
- ⑭ 1" C, LM-400, 50ohm COAX.
- ⑮ ROUTE THROUGH WALL AND PROVIDE 1" SLIPFITTER CAP. PROVIDE DRIP LOOP WITH COAX TO SURGE PROTECTION.
- ⑯ PROVIDE 900MHz SURGE PROTECTION BLOCK. RUN #6 BCU TO GROUND.
- ⑰ ENCLOSED ANTENNA KATHREIN CL900B.
- ⑱ PROVIDE 2" SCHEDULE 80 STEEL PIPE FOR ANTENNA MAST. RUN FROM GRADE TO 15' PAST ROOF LINE. SECURE TO PUMPHOUSE. BOND PIPE TO GROUND USING GALVANIZED UNISTRUT.
- ⑲ 1/2" C, (2)#14 ALARM
- ⑳ "WP" REMOTE CONTROL/ALARM PANEL FOR WELL PUMPHOUSE. SEE E400/403.
- ㉑ 24 HR TIME CLOCK. SET FOR 20 MIN. RUN EVERY 24 HOURS. CLOCK CIRCUIT OPERATES EF-1 AND DA-1. INTERMATIC ET1125CPD82.
- ㉒ PROVIDE 15A BREAKER IN POLE 8. UPDATE SCHEDULE.
- ㉓ PROVIDE 100A 3-POLE CIRCUIT BREAKER. PROVIDE PLACARD "RAW WATER PUMPHOUSE."

NO.	REVISION	BY	DATE

Plot 10/29/19	Designed WMK	Drawn -	Approved -
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1 **HVAC/LIGHTING PLAN**
SCALE: 1/2" = 1'0"

LIGHTING FIXTURE SCHEDULE				
SYMBOL	DESCRIPTION	MANUFACTURER	PART NUMBER	MOUNTING
	2x1 LED, RATED FOR WET LOCATIONS	LITHONIA	DMW2 L24 4000LM MD PCL MVOLT	CEILING SURFACE
	OUTDOOR WALL MOUNT SECURITY LIGHT LED WITH PHOTO CELL	LITHONIA	OLW 31	WALL MOUNTED
	EXIT & EMERGENCY LIGHT WITH ADDITIONAL CAPACITY TO OPERATE REMOTE LAMP	LITHONIA	LHQMLEDR	WALL MOUNTED OVER DOOR
	REMOTE EMERGENCY LIGHT HEAD (PART OF EXIT SIGN)	LITHONIA	ELA LED WP M12	EXTERIOR MOUNTED OVER DOOR

NOTES

- ① 1/2" C, (3)#12
② 1/2" C, (4)#12
③ 3/4" C, (4)#12

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PANEL IMDP																												
P/N			SQUARE D		VOLTS: 480/Y 277V			3 Ø 4W			ENCLOSURE: NEMA 12				MTG: SURFACE			A.I.C. RATING: 10,000A			225A MLO			LOCATION: RAW WATER PUMPHOUSE				
				LOAD (KVA)								PHASE			LOAD (KVA)													
NOTE	CIRC	POLE/AMPS	DESCRIPTION	LIGHTING	RECEPTACLE	MOTOR	LARGEST MOTOR	MISC.	KITCHEN	HVAC	SPECIAL	A Ø	B Ø	C Ø	LIGHTING	RECEPTACLE	MOTOR	LARGEST MOTOR	MISCELLANEOUS	KITCHEN	HVAC	SPECIAL	DESCRIPTION	POLE/AMPS	CIRC	NOTE		
	1	15/3	4kW Unit Heater							1.75		2.9			1.10								Panel LV1 –15kVA Unit Substation	20/2	2			
	3									1.75			3.3		1.54											4		
	5											1.75				1.8												6
	7	15/3	Well Pump (3HP) Interim									0.0														8		
	9												0.0													10		
	11													0.0												12		
	13	25/3	Well Pump 7.5HP (Final)			3.00						3.0														14		
	15					3.00								3.0												16		
	17					3.00									3.0											18		
NOTES												5.9	6.3	4.8	PHASE KVA													
												16.2	17.5	13.2	PHASE AMPS													
												3.9%	11.7%	–15.6%	PHASE BALANCE													
												TOTAL CONNECTED DEMAND FACTOR DEMAND LOAD				LTG	RECP	MOTR	LG.MT	MISC	KIT	HVAC	SPEC	TOTAL		AMPS		
																2.6	0.0	9.0	0.0	0.0	0.0	5.3	0.0	16.9 kVA	480	20.3 A		
																1.0	NO	1.0	1.0	1.0	1.0	1.0	1.0					
															2.6	0.0	9.0	0.0	0.0	0.0	5.3	0.0	16.9 kVA	480	20.3 A			

PANEL LV1																														
P/N			UNIT SUBSTATION		VOLTS: 240 / 120V			Ø 4 3W		ENCLOSURE: NEMA 3R/12			MTG: SURFACE		A.I.C. RATING: 10,000A			30A MCB		LOCATION: RAW WATER PUMPHOUSE										
				LOAD (KVA)								LEG		LOAD (KVA)																
NOTE	CIRC	POLE/AMPS	DESCRIPTION	LIGHTING	RECEPTACLE	MOTOR	LARGEST MOTOR	MISCELLANEOUS	KITCHEN	HVAC	SPECIAL	Ø 4	Ø 4	LIGHTING	RECEPTACLE	MOTOR	LARGEST MOTOR	MISCELLANEOUS	KITCHEN	HVAC	SPECIAL	DESCRIPTION	POLE/AMPS	CIRC	NOTE					
	1	20/1	Lighting	0.40								0.60								0.20		EFI & DA-1 TC	15/1	2						
	3	20/1	Receptacles		0.54								1.54								1.00	API/RTU-1	20/1	4						
	5										0.50	0.50												6						
	7												0.00											8						
NOTES: LV1 is a 15kVA Unit Substation with 480:240/120 transformer.												1.1	1.5	PHASE KVA																
												9.2	12.8	PHASE AMPS																
												-16.7%	16.7%	PHASE BALANCE																
												TOTAL CONNECTED DEMAND FACTOR DEMAND LOAD		LTG	RECP	MOTR	LG.MT	MISC	KIT	HVAC	SPEC	TOTAL		AMPS						
														0.4	0.5	0.0	0.0	0.0	0.0	0.0	0.2	1.5	2.6 kVA	240	6.4 A					
														1.0	NO	1.0	1.0	1.0	1.0	1.0	1.0	1.0								
		0.4	0.5	0.0	0.0	0.0	0.0	0.0	0.2	1.5	2.6 kVA	240	6.4 A																	





CRW
ENGINEERING GROUP LLC
3940 ARCTIC BLVD., SUITE 300
ANCHORAGE, ALASKA 99503
PHONE: (907) 562-3252
#AEC0882-AK

CITY OF EMMONAK

PANEL SCHEDULES

RIVER INTAKE UPGRADES
ISSUED FOR AGENCY REVIEW

NO.	REVISION	BY	DATE

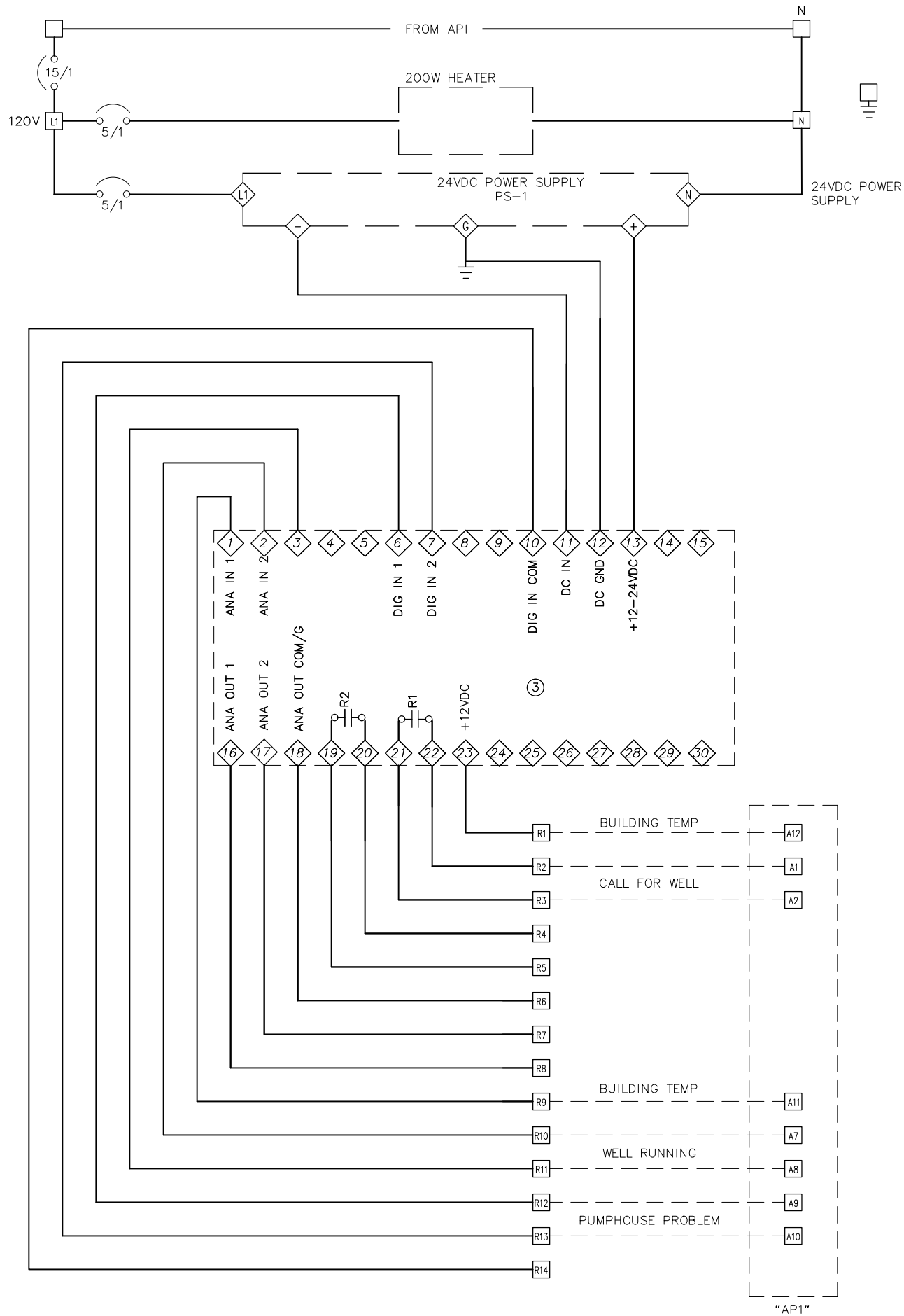
Plot10/28/19
Date

Designed WMK

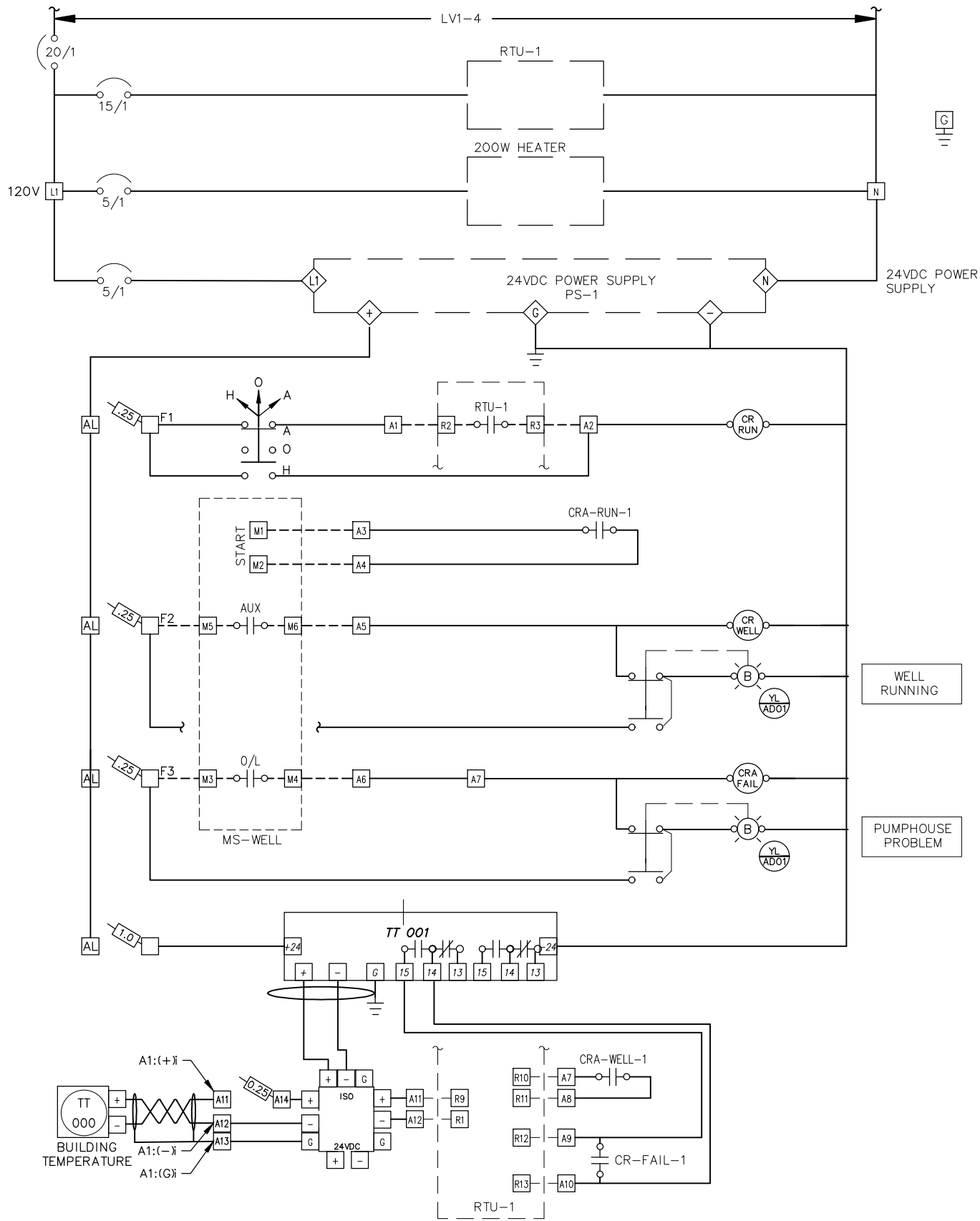
Drawn -

Approved -

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1 **RTU-1 SCHEMATIC**
NTS

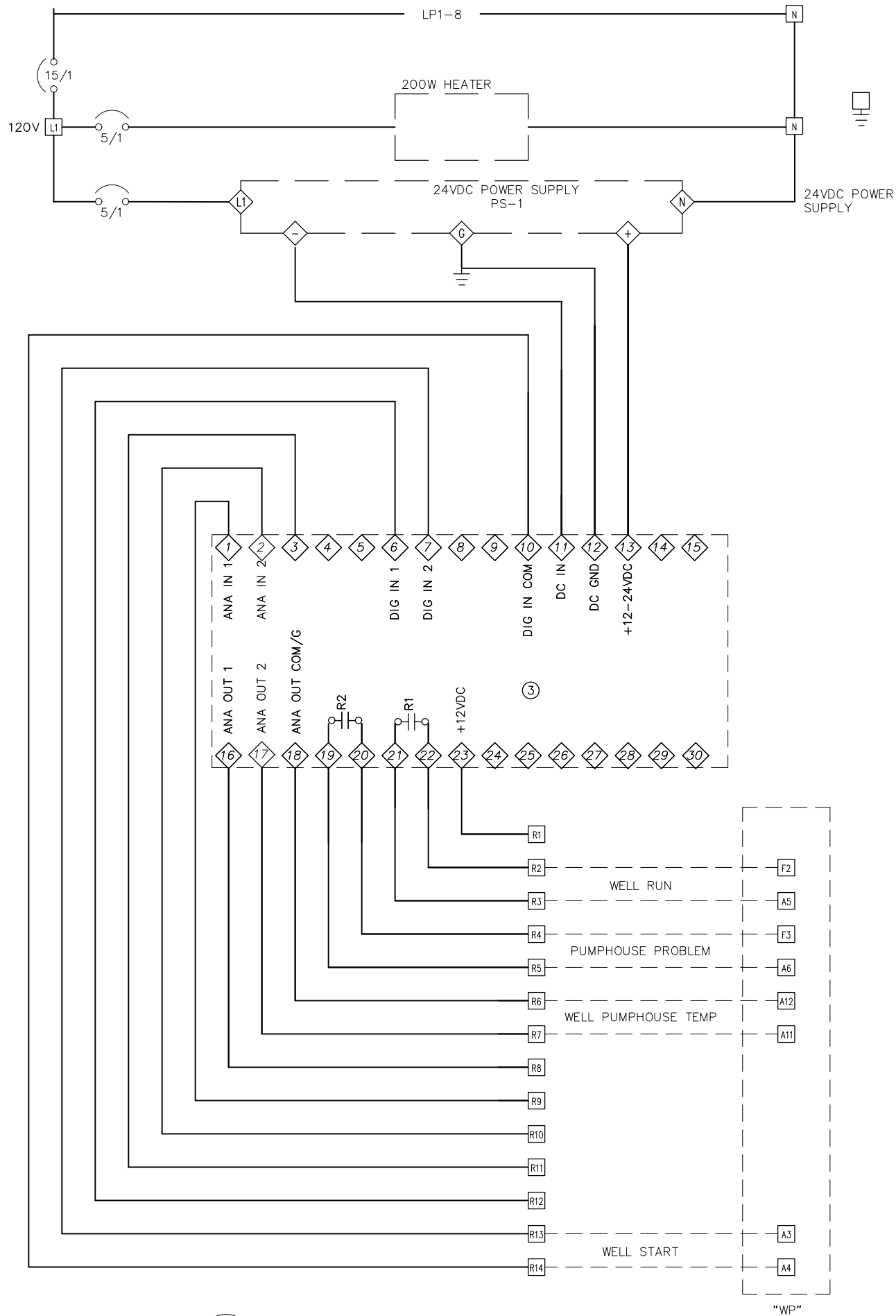


2 **API SCHEMATIC**
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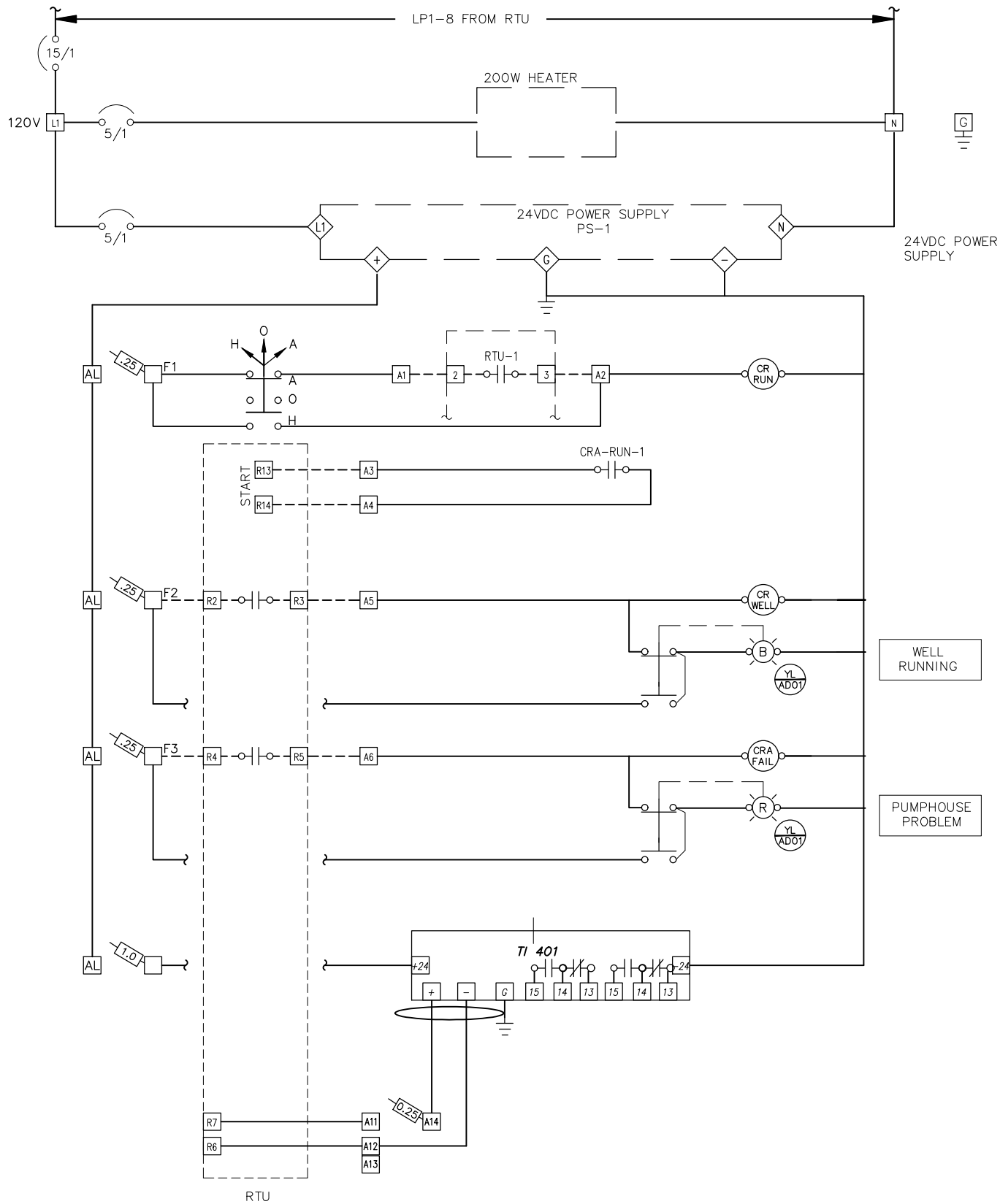
NO.	REVISION	BY	DATE

Plot 10/28/19	Designed WMK	Drawn -	Approved -
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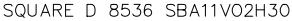
1 **RTU SCHEMATIC**
NTS



2 **WP SCHEMATIC**
NTS

NO.	REVISION	BY	DATE

Plot 10/28/19	Designed	Drawn	Approved



WELL PUMP CONTROLLER

NTS

Plot 10/28/19

E403

NO.	REVISION	BY	DATE

CITY OF EMMONAK
WELL PUMP CONTROLS
RIVER INTAKE UPGRADES
ISSUED FOR AGENCY REVIEW



Alaska Department of
Environmental Conservation
Division of Water



Village Safe Water Program
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