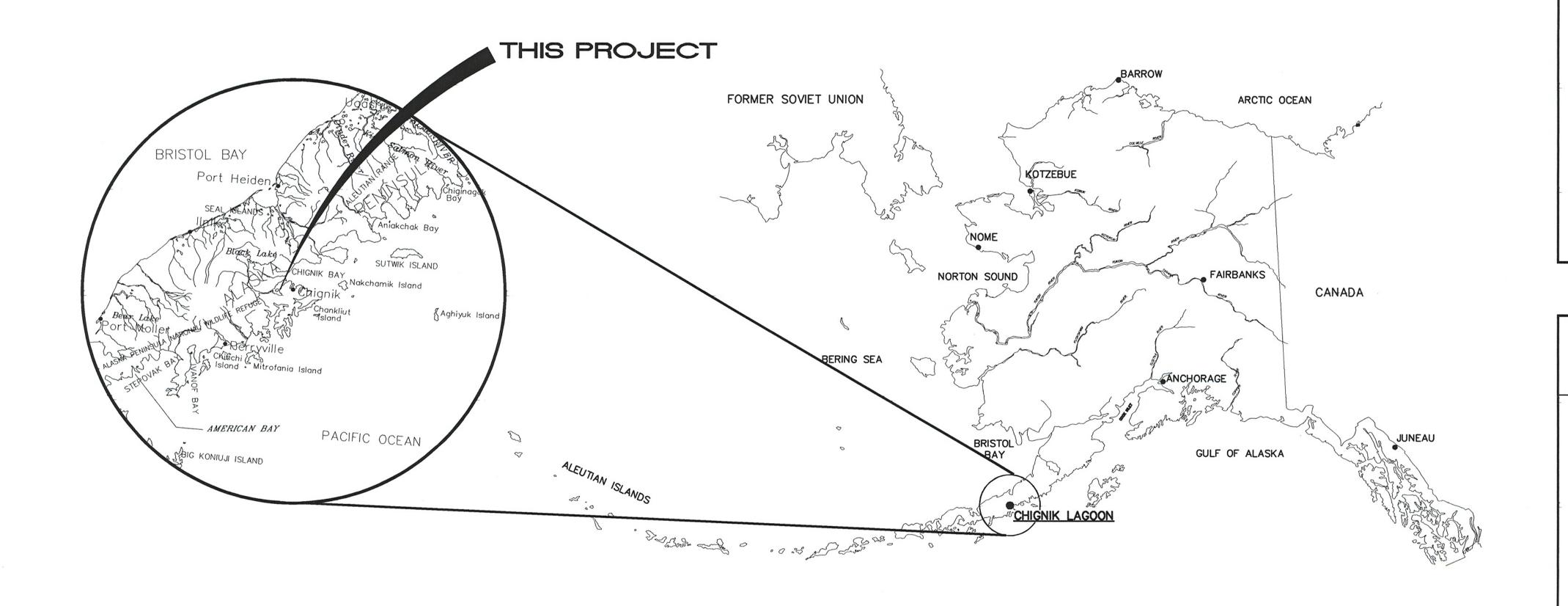
# CONSTRUCTION PLANS WATER SYSTEM IMPROVEMENTS CHIGNIK LAGOON, ALASKA

WATER TREATMENT PLANT AND STORAGE TANK



ALASKA NATIVE TRIBAL HEALTH CONSORTIUM ENVIRONMENTAL HEALTH AND ENGINEERING 3925 TUDOR CENTRE DR. ANCHORAGE, ALASKA 99508-5977

PUBLIC LAW 86-121 PROJECT PROJECT NO AN-00-D-0384

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#### PROCESS AND INSTRUMENTATION

WATER TREATMENT BUILDING FLOOR AND PIPING PLAN

P 2 WATER TREATMENT BUILDING ELEVATION AND DETAILS

PROCESS P & ID

1 DRAWING LEGEND

PROCESS P & ID

# CODE SUMMARY

THE FOLLOWING CODE ANALYSIS WAS PERFORMED USING THE 1997 UBC AND 1997 UFC

PROJECT NAME: CHIGNIK LAGOON WATER TREATMENT FACILITY

TOTAL SQUARE FOOTAGE: 384 SF

HAZARDOUS MATERIALS UBC: EXEMPT AMOUNTS PER TABLES 3D AND E OCCUPANCY: F-1/S-1 PROCESSING/STORAGE

WALLS/FLOORS/ROOF:

OCCUPANCY: F-1/S-1 PROCESSING/STORAGE
CONSTRUCTION TYPE: V-N
AREA AND HEIGHT LIMITATIONS: OK

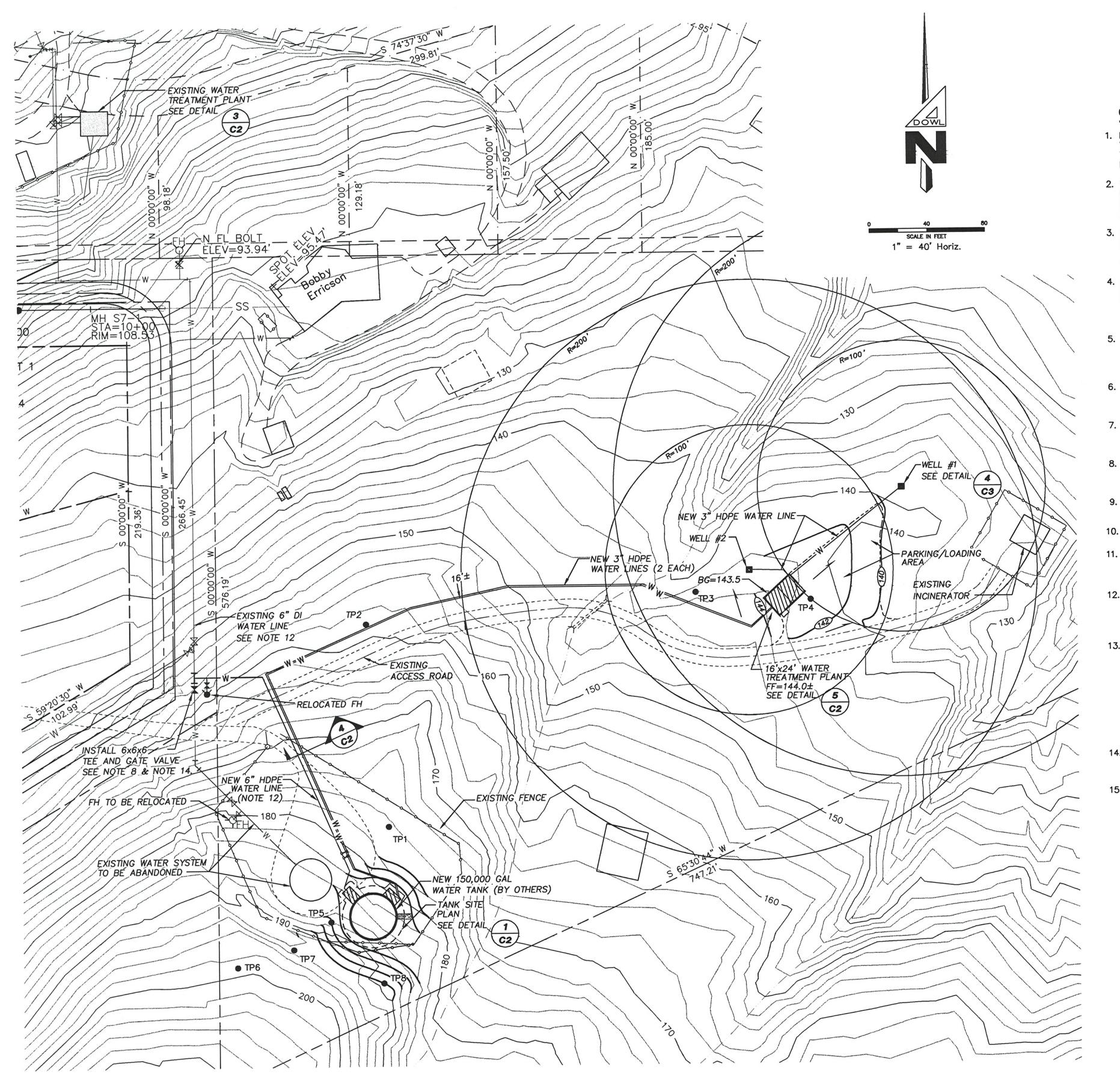
ARDOUS MATERIALS UFC: EXEMPT AMOUNTS PER TABLES 8001.15A AND B

SUMMARY OF EXEMPT MATERIALS PER TABLE 3D (UBC) AND 8001.15A (UFC)

	ACT	UAL	ALLOWABLE			
MATERIAL	STORAGE OPEN USE		STORAGE	OPEN USE		
SODA ASH	3900 LBS	100 LBS	4000 LBS	1000 LBS		
CALCIUM HYPOCHLORITE	200 LBS	30 LBS	250 LBS	50 LBS		

SUMMARY OF EXEMPT MATERIALS PER TABLE 3-E (UBC) AND 8001.15B (UFC)

	ACT	UAL	ALLOWABLE			
MATERIAL	STORAGE	OPEN USE	STORAGE	OPEN USE		
NALCO	60 LBS	30 LBS	500 LBS	500 LBS		
SODIUM FLUORIDE	200 LBS	50 LBS	500 LBS	125 LBS		



GENERAL NOTES

 LOCATIONS OF EXISTING UTILITIES ARE APPROXIMATE ONLY. VERIFY LOCATIONS BY OBTAINING UTILITY LOCATES PRIOR TO BEGINNING CONSTRUCTION. EXERCISE CAUTION DURING EXCAVATION.

2. VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF ALL UTILITIES ENCOUNTERED DURING CONSTRUCTION. RECORD LOCATIONS AND CHANGES TO UTILITIES IN SURVEY NOTES AND ON AS BUILT DRAWINGS.

3. VERIFY INVERTS AND LOCATIONS OF ALL CONNECTION POINTS PRIOR TO LAYING ANY PIPE. DISCREPANCIES FROM THE PLANS SHALL BE IMMEDIATELY REPORTED TO THE OWNER'S REPRESENTATIVE.

4. MAINTAIN MINIMUM HORIZONTAL SEPARATION DISTANCES BETWEEN SURFACE OR SUBSURFACE DRINKING WATER SOURCES AND POTENTIAL SOURCES OF CONTAMINATION PER ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION 1993 DRINKING WATER REGULATIONS.

5. ALL WATER MAINS AND HYDRANT LATERALS SHALL BE SDR-11 HIGH DENSITY POLYETHYLENE PIPE UNLESS NOTED OTHERWISE, USE FUSED BUTT JOINTS FOR TYPICAL HDPE

6. PIPE BEDDING SHALL BE CLASSIFIED MATERIAL. TRENCH BACKFILL SHALL BE COMPACTED TO AT LEAST 95% MAXIMUM DENSITY.

7. NO PIPE LENGTH LESS THAN 8 FEET SHALL BE INCORPORATED IN THE SYSTEM EXCEPT THOSE NECESSARY FOR FIRE HYDRANT OR GATE VALVE LOCATIONS.

8. ALL EXISTING WATER USERS SHALL BE NOTIFIED 24 HOURS IN ADVANCE OF WATER SERVICE INTERRUPTION. CONTRACTOR SHALL PROVIDE TEMPORARY SERVICE.

9. RESTORE ALL DISTURBED PROPERTY OUTSIDE THE WORK LIMITS TO ORIGINAL CONDITION.

10. ALL WATERLINE PIPE SHALL BE BURIED 6' MINIMUM DEPTH.

11. NFS MATERIAL MAY BE FOUND IN AREA OF TP3 AFTER REMOVING OVERBURDEN SEE SOIL LOGS. THIS MATERIAL MAY BE USED FOR NFS FILL.

12. THE EXISTING WATER MAIN IS REPORTED TO BE 6"
DUCTILE IRON PIPE, VERIFY PIPE SIZE AND TYPE PRIOR TO ORDERING MATERIAL. SIZE NEW WATER MAIN TO MATCH EXISTING PIPE DIAMETER.

13. THE FOLLOWING DISTANCES ARE FOR PLANNING PURPOSES ONLY AND SHOULD BE CONSIDERED APPROXIMATE. TRUE PIPELINE DISTANCES WILL DEPEND ON THE FINAL PIPE ROUTE. CONFIRM PIPE ROUTE PRIOR TO ORDERING MATERIALS.

> WTP TO WST (3" PIPELINE ROUTE) WST TO 6" TAP (6" PIPELINE ROUTE) 208 LF WELL NO 1 TO WTP 28 LF 99 LF WELL NO 2 TO WTP

14. POUR CONCRETE INTO SELECT VALVE BOXES TO ENSURE ABANDONED WATER SYSTEMS ARE PERMANENTLY REMOVED FROM NEW SYSTEM.

15. A VISUAL INSPECTION OF THE SITE DISCLOSED NO SOURCES OF CONTAMINATION WITHIN 200 FT OF EITHER WELL NO. 1 OR WELL NO. 2, WITH THE POSSIBLE EXCEPTION OF THE EXISTING INCINERATOR.

#### **ABBREVIATIONS**

WST

**LEGEND** 

<u>PROPOSED</u>

BUILDING GRADE BG BOTTOM OF PIPE BOP DIA DIAMETER DUCTILE IRON DETAIL FIRE HYDRANT FINISH FLOOR GRADE BREAK GALVANIZED IRON GATE VALVE HIGH DENSITY POLYETHYLENE HDPE HORIZ HORIZONTAL LENGTH LINEAR FEET MATCH EXISTING PORTLAND CEMENT CONCRETE POLYVINYL CHLORIDE PCC PVC STATION STA TEST PIT TYPICAL TYP **VERTICAL** VERT WATER

WATER STORAGE TANK

WATER TREATMENT PLANT

WILLIAM P. HAMM

Stohe Schwing Strephen J. Schwing Sc

TRIBAL



NOTI ND

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PROJECT NO.

FAX (907) 563-3953

CULVERT )====**= BUILDING** 

PHONE (907) 562-2000

---- EASEMENT LINE

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4040 "B" Street Anchorage, Alaska 99503

DESCRIPTION

CREEK

PROPERTY LINE

TEST PIT LOCATION

2 FOOT CONTOUR

WATER LINE

SEWER LINE

FIRE HYDRANT

GATE VALVE

CONCRETE

FENCE

EDGE OF GRAVEL ROAD

10 FOOT CONTOUR

--- MATCH EXISTING

RELOCATED

FENCE

**VARIES** -

C2

NEW 150,000-GALLON

(BY OTHERS)

INSULATED BOLTED-STEEL WATER STORAGE TANK

BOTTOM OF TANK

AT 184.50'±

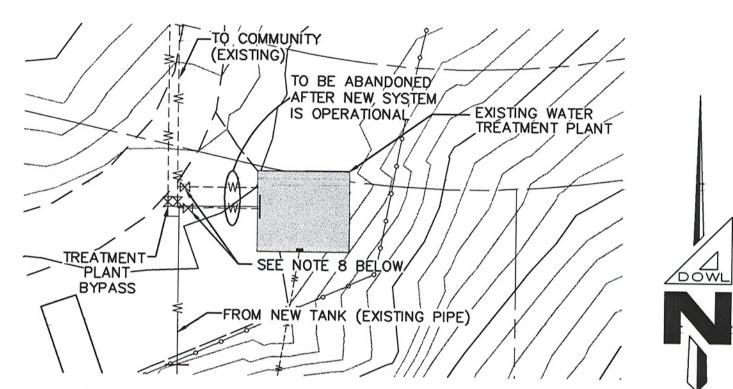
TANK GRADING SECTION

**EXISTING** - GROUND

2%

SLOPE

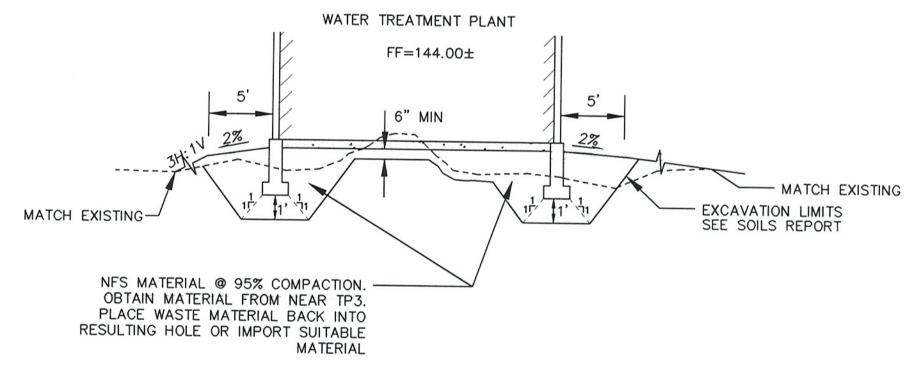
3H: 1V OR FLATTER EXISTING WATER STORAGE TANK INSULATED VALVE BOX -SEE ARCH. DRAWINGS NEW 150,000 GAL WATER TANK (TYP OF 2) -REMOVE AND REPLACE FENCE AS NECESSARY MATCH EXISTING ● TP6 3H: 1V OR FLATTER-NEW WATER TANK SITE PLAN



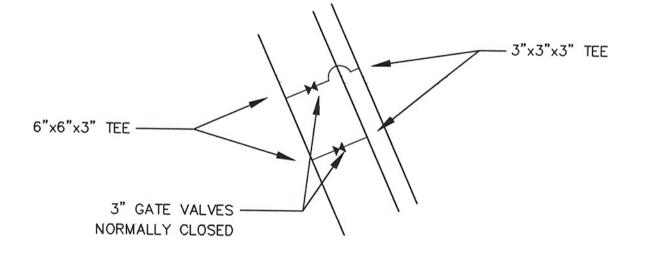
NOTE: THE WATER SERVICE TO THE COMMUNITY MAY BE SWITCHED OVER IN THE FOLLOWING SEQUENCE:

- 1. FILL EXISTING TANK WITH TREATED WATER FOR USE AS BACKUP.
- 2. FILL NEW TANK WITH TREATED WATER.
- 3. OPEN SELECT VALVES ALLOWING WATER FROM NEW TANK TO ENTER EXISTING WATER
- 4. CLOSE SELECT VALVES TO ISOLATE OLD WATER TANK (TO BE PERMANENTLY REMOVED FROM WATER SYSTEM)
- 5. ROUTE TREATED WATER FROM NEW TANK THROUGH EXISTING 6" RAW WATER PIPELINE TO EXISTING WATER TREATMENT PLANT
- 6. ALLOW DOUBLE TREATMENT OF WATER UNTIL RAW WATER LINE HAS BEEN ADEQUATELY CLEANED
- 7. BYPASS EXISTING WATER TREATMENT PLANT (TO BE PERMANENTLY REMOVED FROM WATER SYSTEM)
- 8. POUR CONCRETE INTO SELECT VALVE BOXES TO ENSURE ABANDONED WATER SYSTEMS ARE PERMANENTLY REMOVED FROM NEW SYSTEM.

EXISTING WATER TREATMENT PLANT BYPASS SCALE 1" = 20'



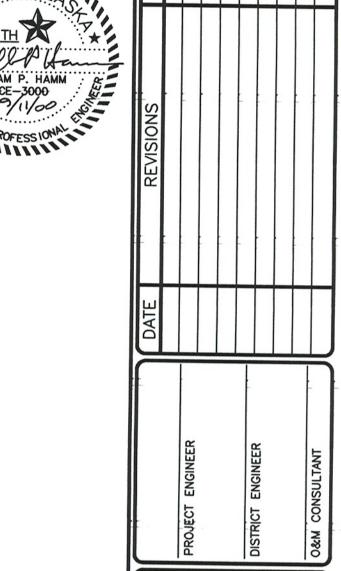




TANK BYPASS DETAIL



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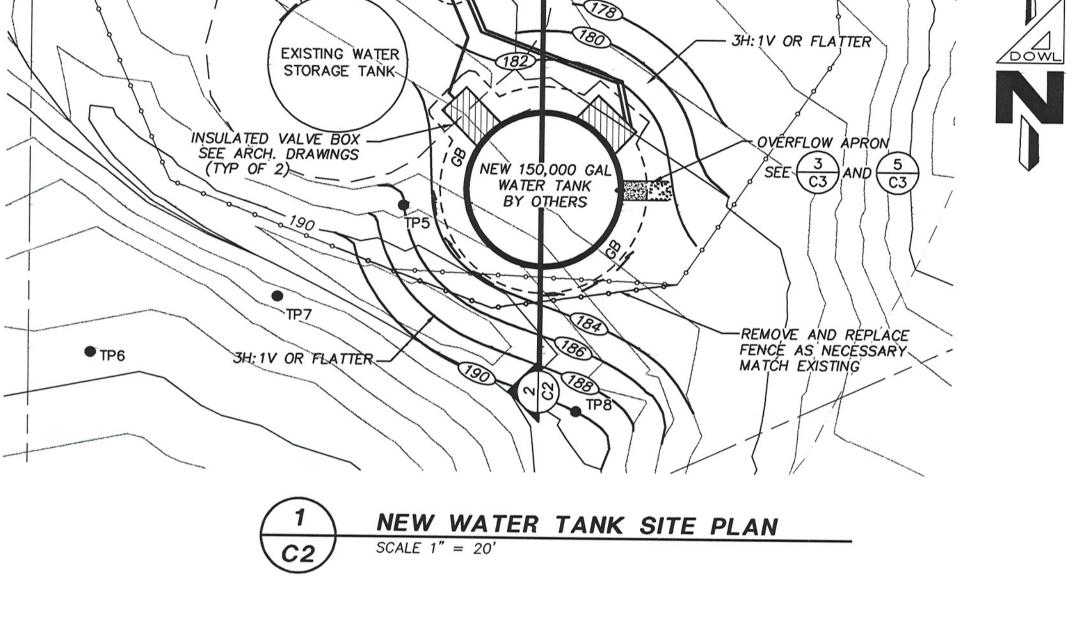
ALASKA N TRIBAL HEALTH

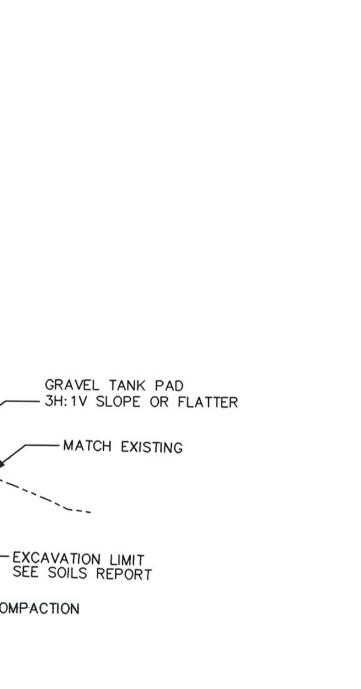


GOON AND

SECTIONS CHIGNIK

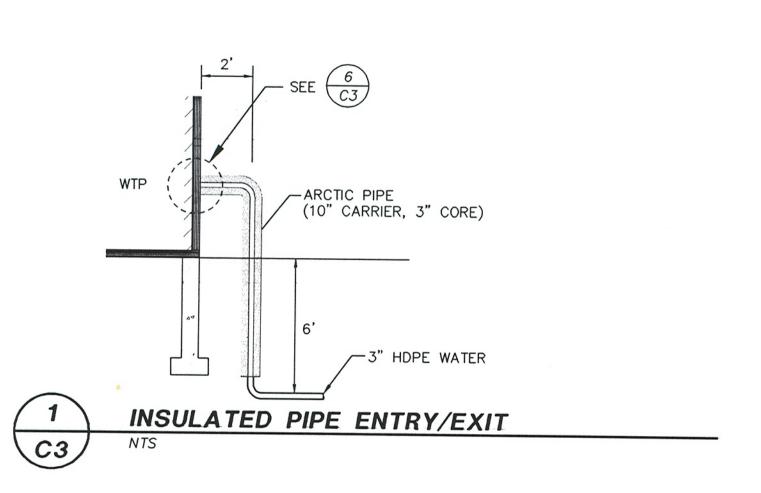
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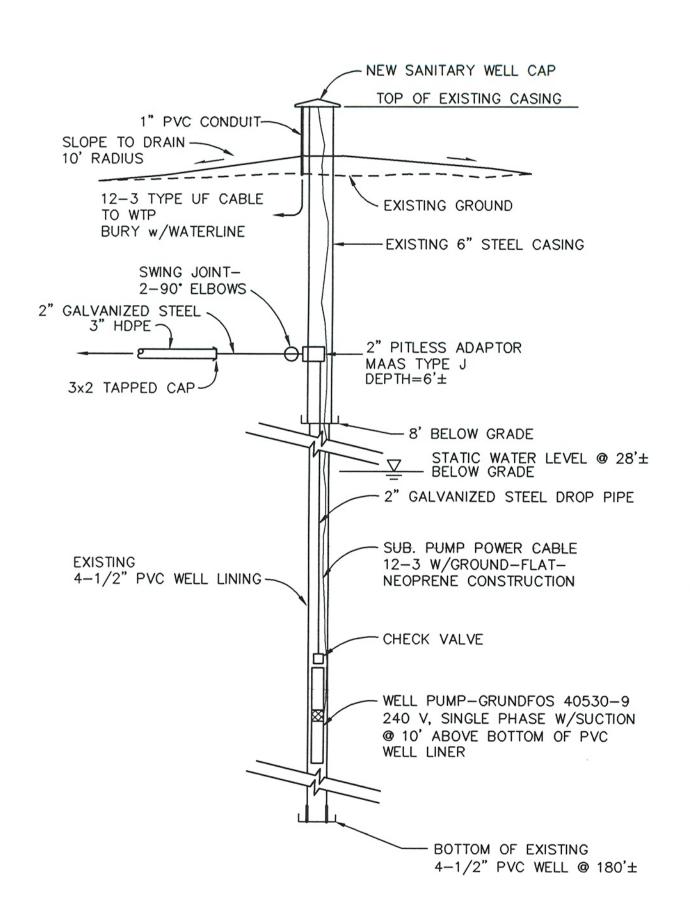




--- 4" TOPSOIL AND SEED OR MATCH EXISTING - UNCLASSIFIED MATERIAL 4-MIL x 6" WIDE @ 90% COMPACTION OUTSIDE YELLOW WARNING TAPE-OF TRAVELED WAY (95% IN TRAVELED WAY) 6" HDPE WATER LINE TO COMMUNITY -3" HDPE (2 EACH) WATER LINES TO WTP (PRIMARY AND BACKUP) 2" PVC CONDUIT WITH PULL STRING (SEE ELECTRICAL) - SLOPE FOR SAFETY CLASSIFIED MATERIAL-- 2 EACH 4'± 1" PVC CONDUIT WITH PULL STRINGS (SEE ELECTRICAL) UTILITY TRENCH SECTION

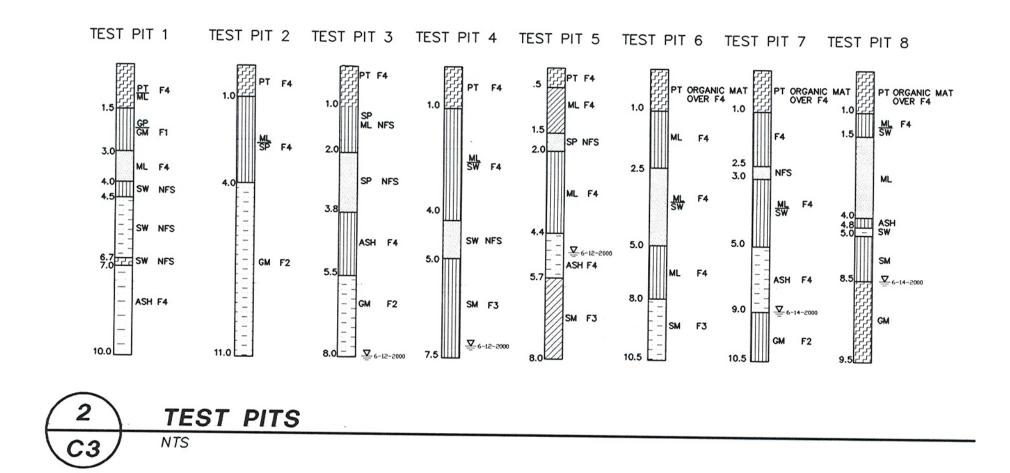
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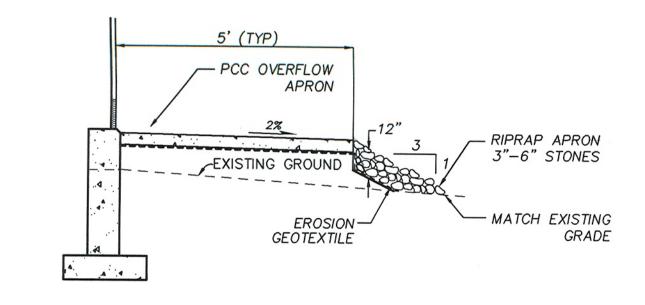




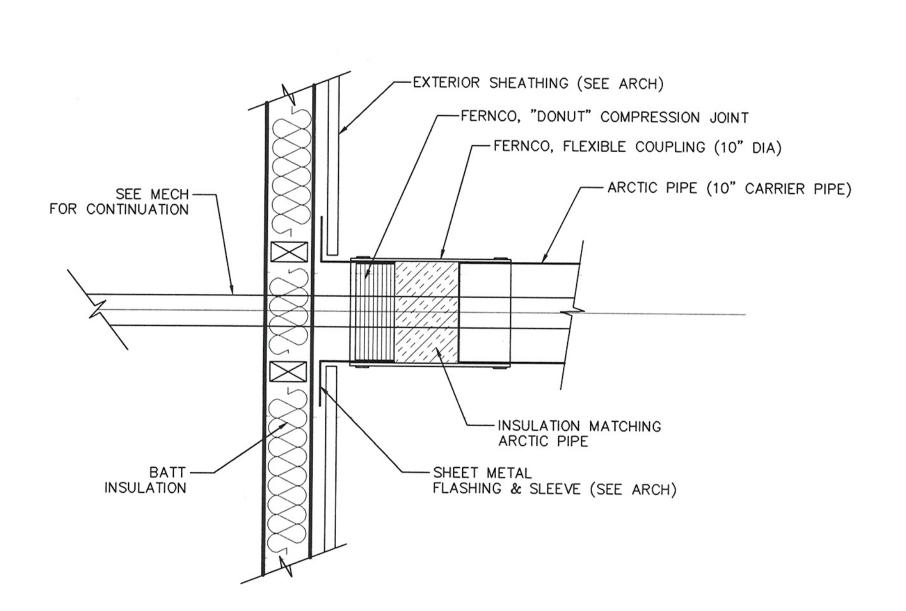


WELL CASING AND SCREEN ARE EXISTING - CASING CAPPED WITH WELDED STEEL

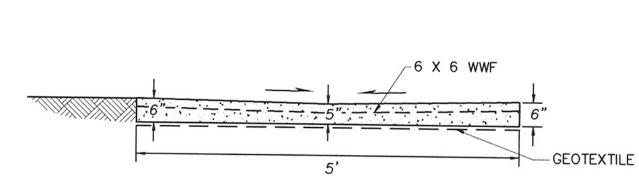




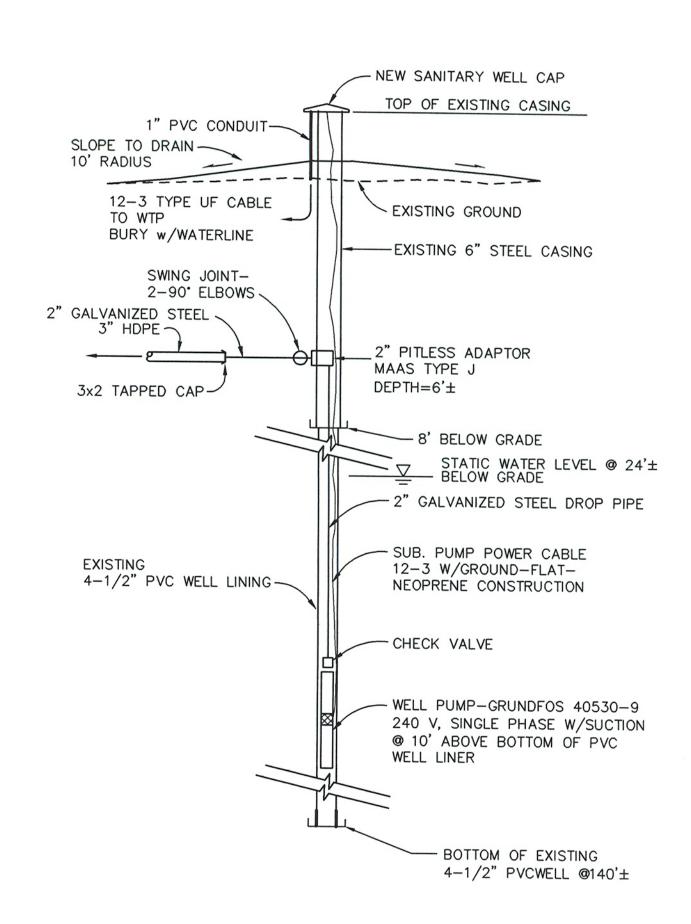
OVERFLOW APRON SECTION (EAST-WEST)

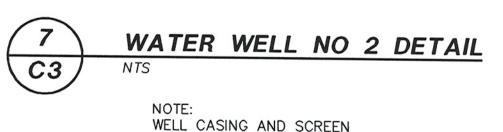


PIPE PENETRATION



OVERFLOW APRON SECTION (NORTH-SOUTH)





WELL CASING AND SCREEN ARE EXISTING — CASING CAPPED WITH WELDED STEEL PLATE



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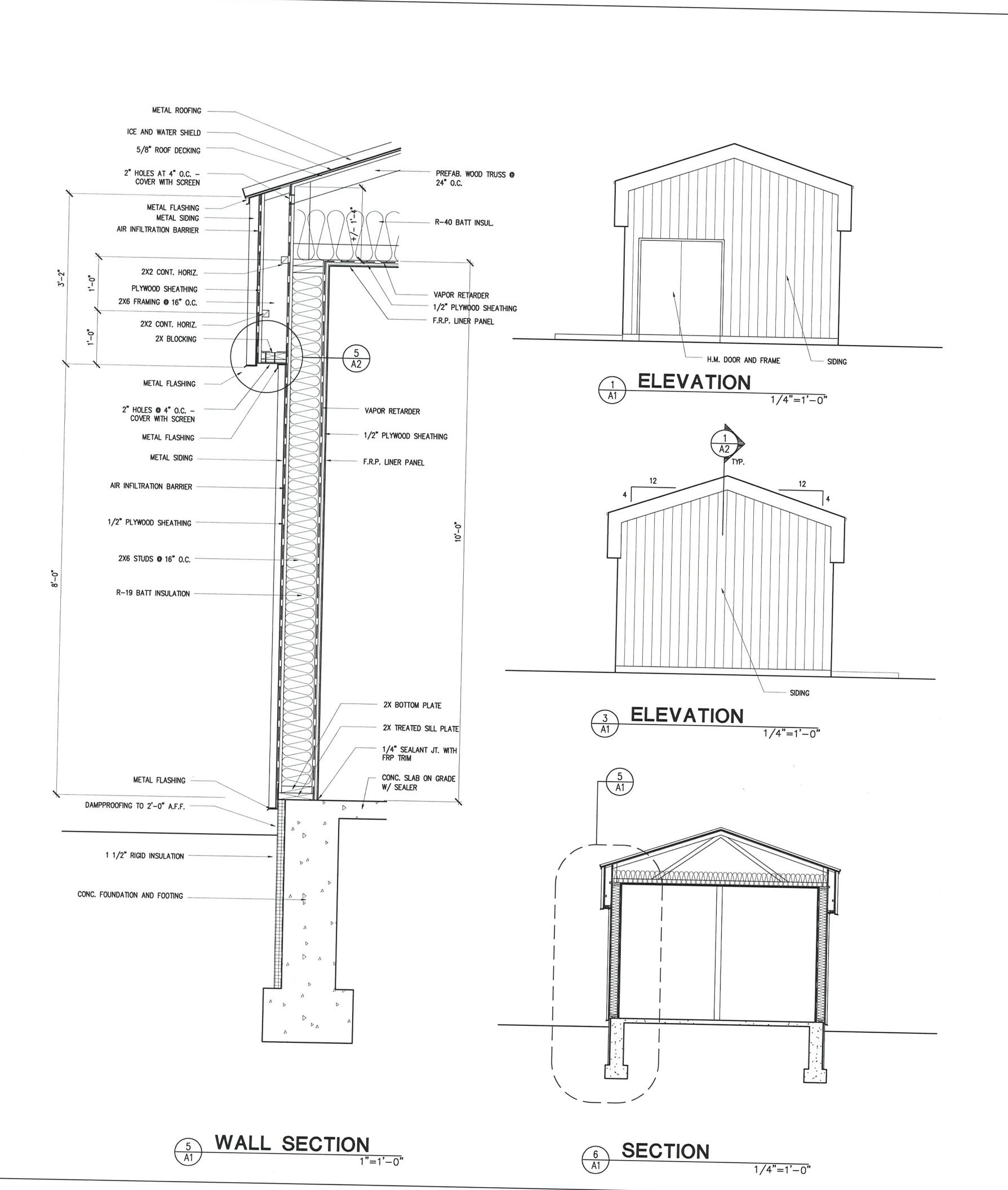
CHIGNIK PROJECT NO.

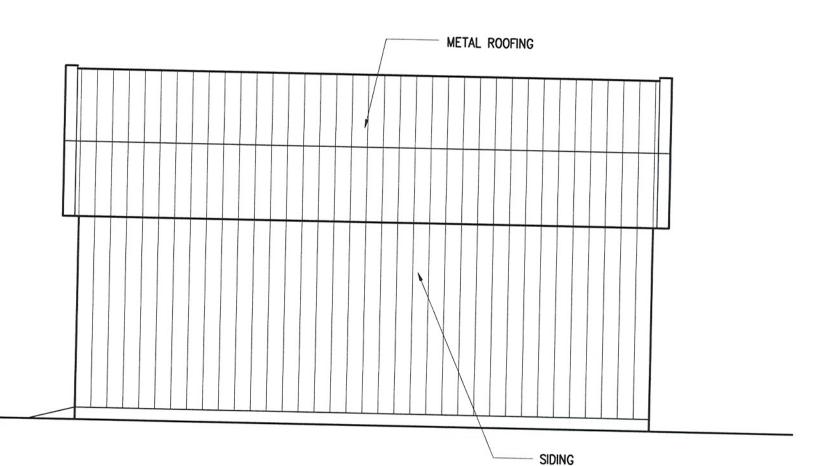
AGOON

TRIBAL

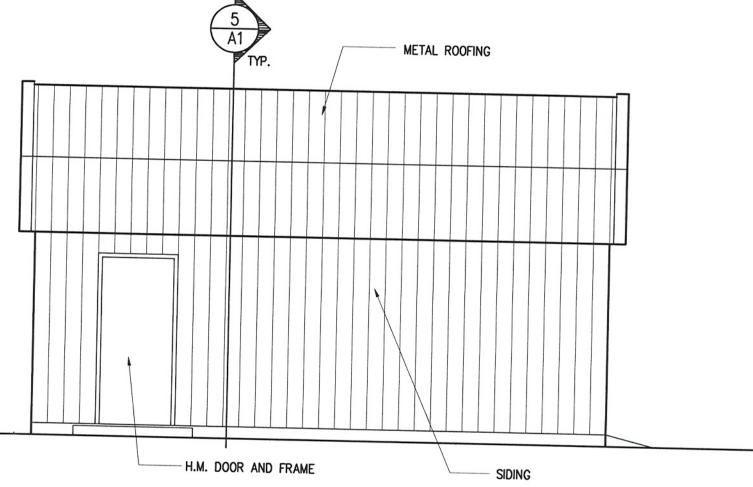
VE · MAIL.



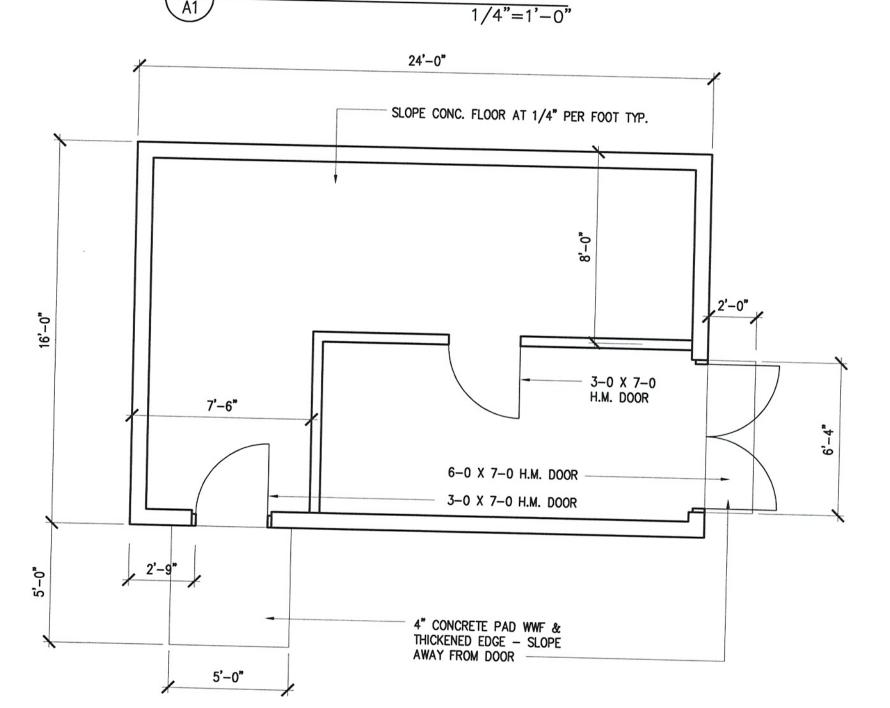




ELEVATION A1 1/4"=1'-0"



4 ELEVATION



7 FLOOR PLAN

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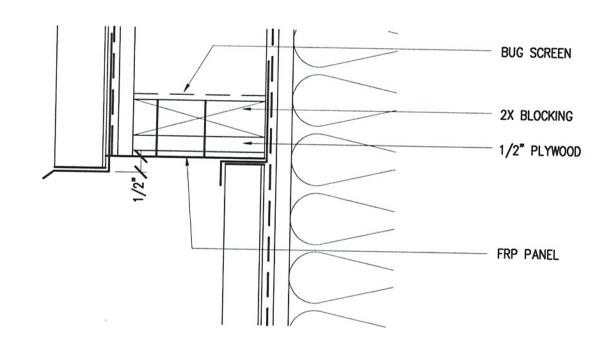


ALASKA LAGOON, PLAN ELEVATIONS, CHIGNIK

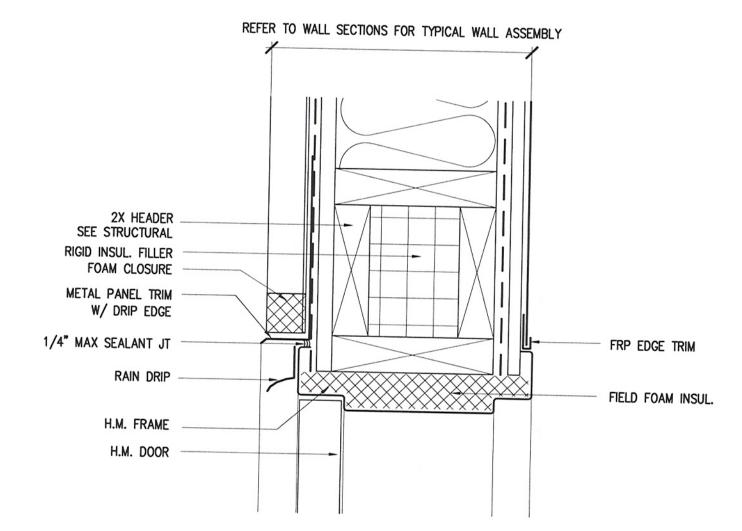
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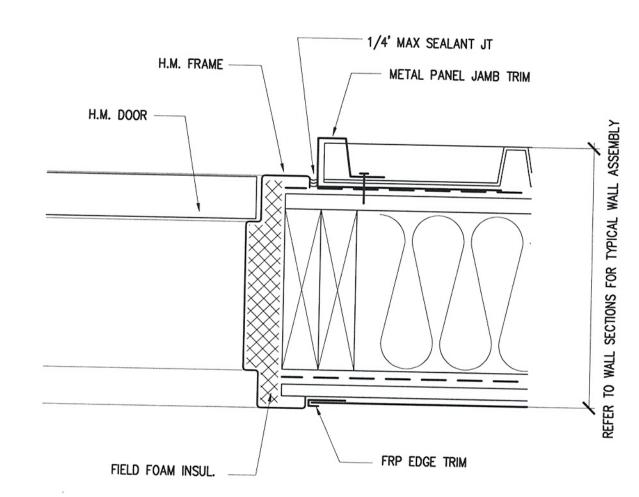




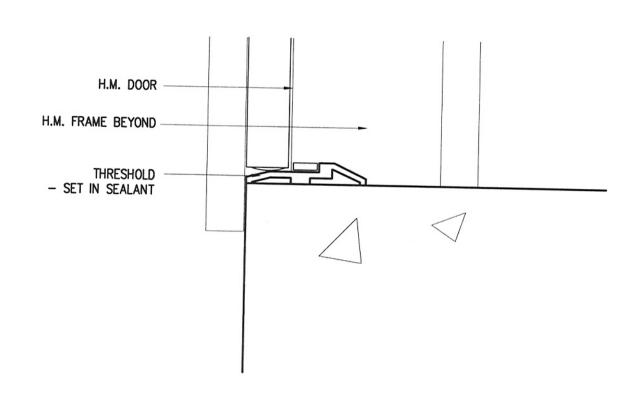














## **SPECIFICATIONS**

DELIVERY, STORAGE, AND HANDLING: DELIVER MATERIALS TO SITE IN ORIGINAL PACKAGING WITH SEALS UNBROKEN, LABELED WITH MANUFACTURER'S NAME, PRODUCT, DATE OF MANUFACTURE, AND DIRECTIONS FOR STORAGE. STORE MATERIALS IN THEIR ORIGINAL UNDAMAGED PACKAGES IN A CLEAN, DRY, PROTECTED LOCATION AND WITHIN TEMPERATURE AND HUMIDITY RANGE REQUIRED BY MANUFACTURER. PROTECT FROM WEATHER AND CONTACT WITH DAMP OR WET SURFACES. AVOID CONTACT BETWEEN MATERIALS WHICH MAY RESULT IN STAINING, CORROSION, DENTING, OR SURFACE DAMAGE. STACK MATERIALS AND PROTECT FROM DAMAGE. PROVIDE AIR CIRCULATION WITHIN AND AROUND STACKS AND UNDER TEMPORARY COVERINGS. COMPLY WITH ANY ADDITIONAL REQUIREMENTS BY MANUFACTURERS. EXERCISE CARE IN UNLOADING, STORING, AND ERECTING TO PREVENT DAMAGE. FOR MATERIALS WHICH MAY NOT BE STORED PRIOR TO INSTALLATION, COMPLY WITH MANUFACTURER'S

QUALITY ASSURANCE: FOR EACH ITEM LISTED BELOW, ENGAGE AN INSTALLER WHO HAS EXPERIENCE SIMILAR TO THAT INDICATED FOR THIS PROJECT AND WHO IS ACCEPTABLE TO THE MANUFACTURER, AND WITH A RECORD OF SUCCESSFUL IN-SERVICE

PROTECTING AND CLEANING: FOR EACH ITEM LISTED BELOW, PROTECT FROM DAMAGE AND WEAR DURING APPLICATION AND REMAINDER OF CONSTRUCTION PERIOD, ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS. PROTECT INSTALLED MATERIALS FROM DAMAGE DUE TO EXPOSURE, MOISTURE, ABUSE, AND OTHER CAUSES. PROVIDE TEMPORARY COVERINGS WHERE MATERIALS WILL BE SUBJECT TO ABUSE AND CANNOT BE CONCEALED AND PROTECTED BY PERMANENT CONSTRUCTION IMMEDIATELY AFTER INSTALLATION. CLEAN SPILLAGES, SOILING, STAINING, OR MARKS FROM ADJACENT CONSTRUCTION USING CLEANING AGENTS AND PROCEDURES RECOMMENDED BY MANUFACTURER OF AFFECTED CONSTRUCTION. PROVIDE FINAL PROTECTION AND MAINTAIN CONDITIONS THAT ENSURE THE WORK DURING CONSTRUCTION IS WITHOUT DAMAGE OR DETERIORATION.

FINAL ADJUSTMENTS: FOR DOORS, FRAMES, AND HARDWARE, INCLUDING OVERHEAD SECTIONAL DOORS, LISTED BELOW, PROVIDE FINAL ADJUSTMENTS TO ENSURE DOORS OPERATE EASILY, FREE FROM WARP, TWIST, OR DISTORTION, AND FITTING WEATHERTIGHT

ROUGH CARPENTRY: FOR DIMENSION LUMBER SIZES, PROVIDE NO. 3 OR STANDARD GRADE LUMBER PER ALSC'S NGR'S OF ANY SPECIES. FOR BOARD SIZE LUMBER, PROVIDE NO. 3 COMMON GRADE PER NELMA, NLGA, OR WWPA; NO. 2 GRADE PER SPIB; OR STANDARD GRADE PER NLGA, WCLIB, OR WWPA OF ANY SPECIES. DIMENSIONAL LUMBER EXPOSED TO GROUND OR CONCRETE SURFACES TO BE PRESSURE TREATED WITH CCA (CHROMATED COPPER ARSENATE) TO RESIST ROT, DECAY, OR TERMITE ATTACK.

AIR INFILTRATION BARRIER: USE DUPONT TYVEK HOMEWRAP OR APPROVED EQUAL. SUBMIT PRODUCT DATA.

BELOW GRADE WALL WATERPROOFING: USE BITUTHENE MEMBRANE BY W.R. GRACE & CO. OR APPROVED EQUAL. SUBMIT

RIGID INSULATION: USE EXTRUDED POLYSTYRENE STYROFOAM BRAND INSULATION BY DOW CHEMICAL CO. OR APPROVED EQUAL.

VAPOR RETARDER: ZERO PERM VAPOR RETARDER BY ALUMISEAL CORPORATION. SUBMIT PRODUCT DATA.

MANUFACTURED STEEL ROOF AND WALL PANELS: USE BHP STEEL BUILDING PRODUCTS USA INC. "KLIP-RIB PANEL", 24 GAUGE. FACTORY-FINISH AS FOLLOWS: METALLIC COATING BY HOT-DIP PROCESS AND PREPAINTED WITH MANUFACTURER'S STANDARD 2-COAT THERMOCURED FLUOROPOLYMER COATING SYSTEM. SUBMIT PRODUCT DATA. SUBMIT SHOP DRAWINGS SHOWING LAYOUTS OF PANELS, DETAILS AT EDGE CONDITIONS, JOINTS, PANEL PROFILES, SUPPORTS, ANCHORAGES, TRIM, FLASHINGS, UNDERLAYMENT, CLOSURES, SNOW GUARDS, AND SPECIAL DETAILS. DISTINGUISH BETWEEN FACTORY AND FIELD-ASSEMBLED WORK. SUBMIT MANUFACTURER'S COLOR CHARTS OR CHIPS SHOWING THE FULL RANGE OF COLORS AVAILABLE WITH FACTORY-APPLIED FINISHES. PROVIDE MANUFACTURER'S STANDARD 20-YEAR FINISH WARRANTY FOR OWNER'S SIGNATURE AND MANUFACTURER'S STANDARD 5-YEAR WEATHERTIGHT WARRANTY FOR OWNER'S SIGNATURE.

ROOFING UNDERLAYMENT: ICE AND WATER SHIELD BY W.R. GRACE & CO. SUBMIT PRODUCT DATA.

SHEET METAL FLASHING: USE COIL-COATED GALVANIZED STEEL SHEET, ZINC COATED, WITH HIGH PERFORMANCE FLUOROPOLYMER COATING NOT LESS THAN .0336 INCH THICK. ELASTOMERIC SEALANT AND ADHESIVES AS RECOMMENDED BY SHEET METAL MANUFACTURER FOR APPLICATION OF SHEET METAL. 6-MIL THICK BLACK POLYETHYLENE UNDERLAYMENT AND MISCELLANEOUS METAL ACCESSORIES AS REQUIRED FOR INSTALLATION OF WORK. SUBMIT PRODUCT DATA AND SHOP DRAWINGS SHOWING LAYOUT, PROFILES, METHODS OF JOINING, AND ANCHORAGE DETAILS. SUBMIT MANUFACTURER'S FULL RANGE OF

ELASTOMERIC JOINT SEALANT: USE "DOW CORNING 790" BY DOW CHEMICAL CO. OR APPROVED EQUAL. COORDINATE SEALANT APPLICATION WITH MANUFACTURER'S REQUIREMENTS. PROVIDE JOINT FILLER: CLOSED CELL POLYETHYLENE FOAM; ROUND PROFILE; THICKNESS APPROXIMATELY 130% OF JOINT WIDTH. PROVIDE BOND-BREAKER TAPE AS RECOMMENDED BY SEALANT MANUFACTURER. SUBMIT PRODUCT DATA AND MANUFACTURER'S COLOR CHARTS.

STANDARD STEEL DOORS AND FRAMES: USE CURRIES CO. 707 SERIES DOORS: FLUSH CONSTRUCTION 1-3/4" THICK. 18 GAUGE, GRADE II AT INTERIOR; 16 GAUGE, GRADE III AT EXTERIOR WITH .08 U-FACTOR INSULATION. FINISH WITH MANUFACTURER'S STANDARD ONE-COAT BAKED ON RUST-INHIBITING PAINT FINISH. SUBMIT SHOP DRAWINGS AND PRODUCT

FINISH HARDWARE: TYPICAL FINISH TO BE US32D. SUBMIT PRODUCT DATA INCLUDING COPIES OF MANUFACTURER'S DATA FOR EACH ITEM OF FINISH HARDWARE. SUBMIT HARDWARE SCHEDULE.

#### FINISH HARDWARE SCHEDULE:

3 SILENCERS

EXTERIOR DOORS BUTTS (3 EA. LEAF): HAGER BB1279 EXIT DEVICE: SCHLAGE L-SERIES HD DEADBOLT MORTISE - L9480 - LEVER - SATIN STAINLESS STEEL FLUSHBOLT: GLYNN JOHNSON 1700 SERIES, 1708T AND 1708B CYLINDER (OUTSIDE): BEST 1E72-PKS CYLINDER (DOGGING): BEST 1E74-PKS CLOSER: LCN 4110 - ACTIVE LEAFS ONLY KICK PLATE: BUILDERS BRASS WORKS 37X MOP PLATE: BUILDERS BRASS WORKS 37W FLOOR STOP: BUILDERS BRASS WORKS F9076X THRESHOLD: PEMKO 252X226AFG W/ VINYL INSERT WEATHERSTRIP: PEMKO 45041CP DOOR BOTTOM: PEMKO 234AV RAIN DRIP: PEMKO 346C 3 SILENCERS

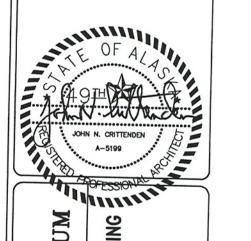
INTERIOR DOOR: BUTTS (3): HAGER BB1199 EXIT DEVICE: SCHLAGE AL SERIES - AL70PD - F84 - LEVER - SATIN STAINLESS STEEL MOP PLATES (2): BUILDERS BRASS WORKS 37W FLOOR STOP: BUILDERS BRASS WORKS F9076X

FRP LINER PANELS (WALL AND CEILING): USE "GLASBORD" LINER PANELS BY KEMLITE COMPANY. PROVIDE MATCHING COLOR PVC MOLDINGS AND MANUFACTURER'S STANDARD RIVETS. PROVIDE PANEL ADHESIVE AS RECOMMENDED BY MANUFACTURER. SUBMIT PRODUCT DATA AND SHOP DRAWINGS, SHOWING LAYOUT, PROFILES, AND PRODUCT COMPONENTS, INCLUDING ANCHORAGE, ACCESSORIES, FINISH COLORS, PATTERNS, AND TEXTURES, LOCATION AND DIMENSION OF JOINTS, AND FASTENER ATTACHMENT.

> **Architects** Alaska

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ALASK TRIBAL HEAL

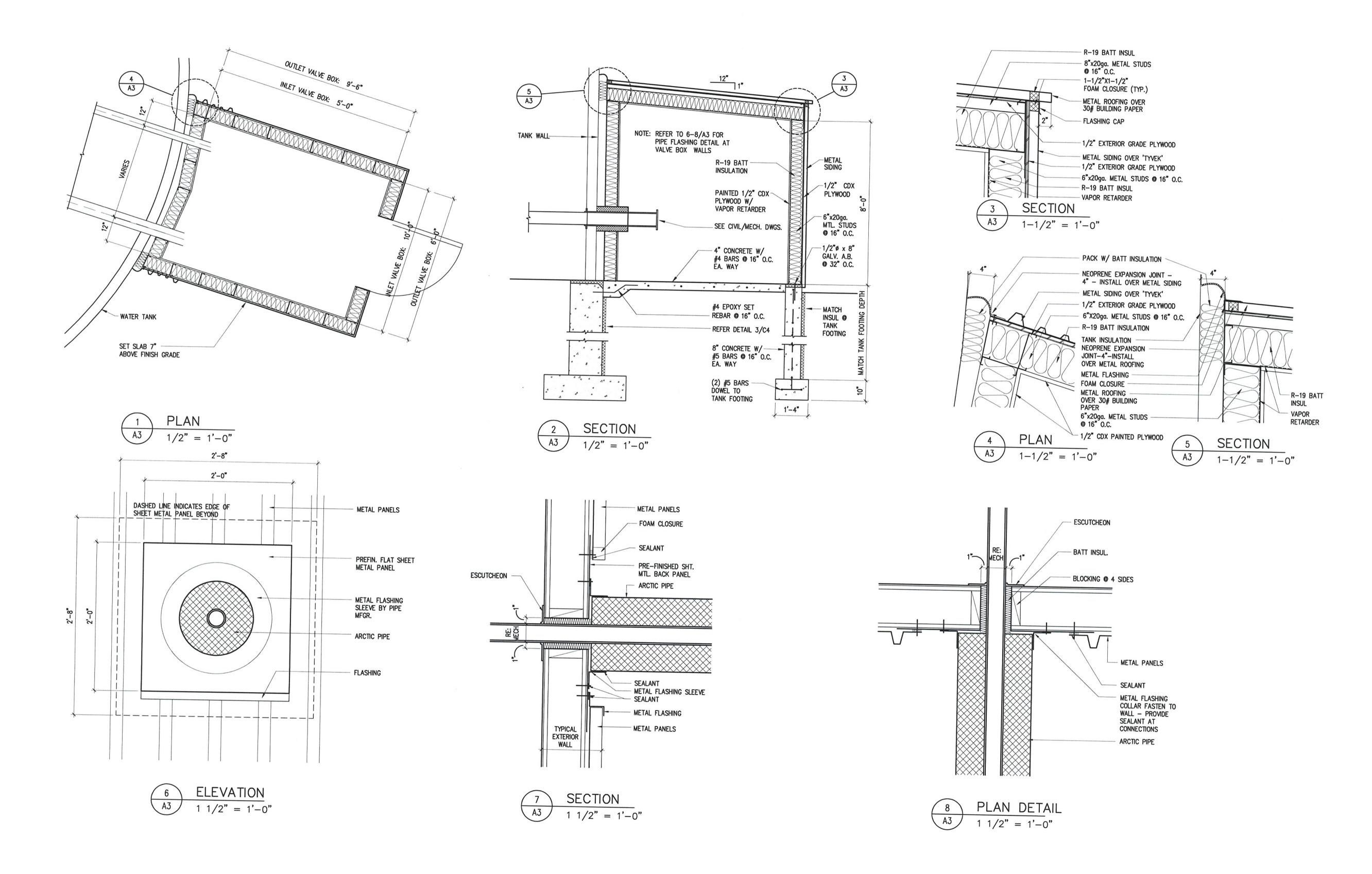


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GNIK

PROJECT NO.

A 2



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A 3

A-5199
AROFESSIONAL ALASKA NATIVE HEALTH CONSORTIUM TRIBAL A AGOON, HIGNIK PROJECT NO.

STRUMING.

# GENERAL STRUCTURAL NOTES

# THE FOLLOWING NOTES APPLY UNLESS INDICATED OTHERWISE:

#### CODE:

UNIFORM BUILDING CODE, 1997 EDITION.

DESIGN SOIL PRESSURE:

2,000 PSF MAX DEAD + LIVE LOAD.

CAST FOOTINGS ON COMPACTED SOILS AT ELEVATIONS NOTED ON PLANS. CAST SLAB ON GRADE OVER 6" THICK COMPACTED GRANULAR FILL OVER COMPACTED SUBGRADE. CONSULT SOILS REPORT BY DOWL ENGINEERS FOR FOUNDATION AND EXCAVATION INFORMATION.

#### DESIGN LIVE LOADS:

ROOF	=	40 PSF
WIND	=	110 MPH, EXPOSURE D, $qs = 31$ PSF, $I = 1.0$
SEISMIC	=	ZONE IV, $Z = 0.4$ , $I = 1.0$ , $Cv = 0.64$ , $Ca = 0.44$ , $R = 5.8$ OMEGA = 2.8

#### REINFORCED CONCRETE:

ALL CONCRETE - f'c = 3,000 PSI, MAXIMUM W/C = .50, MINIMUM 6 SACKS OF CEMENT PER CUBIC YARD. SUBMIT MIX DESIGN. PROVIDE AIR-ENTRAINMENT AND WATER REDUCING ADMIXTURE IN ALL CONCRETE

UNLESS OTHERWISE NOTED. REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60. SUBMIT REINFORCING STEEL SHOP DRAWINGS WITH DETAILS PER ACI 315 MANUAL OF STANDARD PRACTICE. LAP BARS WITH A CLASS B SPLICE.

#### CONCRETE COVER:

FOOTINGS 3". WALLS 2" AGAINST EARTH. SLABS ON GRADE 1 1/2".

#### FOOTINGS:

PROVIDE 2-#5 LONGITUDINAL BOTTOM BARS IN WALL FOOTINGS. PROVIDE CORNER BARS OF SAME SIZE AND NUMBER AT CORNERS AND INTERSECTIONS. 40 DIA. EACH LEG. PROVIDE VERTICAL DOWELS OF SAME SIZE, NUMBER AND SPACING AS WALL VERTICAL BARS WITH A 90 DEGREE STANDARD HOOK AT THE BOTTOM OF THE FOOTING, UNLESS OTHERWISE NOTED.

REINFORCE AS FOLLOWS: 8" WALLS, #5 @ 15 HORIZONTAL AND VERTICAL @ CENTER OF WALL,

AT OPENINGS OVER 12" SQUARE, PROVIDE 2-#5 BARS AT CENTER OF WALL ALL FOUR SIDES, EXTENDING 40 DIA. PAST OPENING. PROVIDE 1-#5x4'-0" DIAGONAL BAR AT CENTER OF WALL ALL FOUR CORNERS.

AT CORNERS, PROVIDE CORNER BARS IN OUTSIDE FACE OF SAME SIZE AND SPACING AS HORIZONTAL BARS, 40 DIA. EACH LEG.

AT INTERSECTIONS, PROVIDE CORNER BARS OF SAME SIZE, NUMBER AND SPACING AS HORIZONTAL BARS OF INTERSECTING WALL, 40 DIA. EACH LEG.

PROVIDE 2-#5 LONGITUDINAL BARS AT TOP OF WALLS. PROVIDE ROUGHENED SURFACE AT CONSTRUCTION JOINTS.

PROVIDE VERTICAL DOWELS OF SAME SIZE, NUMBER AND SPACING AS VERTICAL BARS.

#### ANCHOR BOLTS:

WEEP HOLE

WORK POINT

WELDED HEADED STUD

WEIGHT, STRUCTURAL TEE

FROM W SERIES SECTION

WELDED WIRE FABRIC

WH

WHS

ANCHOR BOLTS, ASTM A307 GALVANIZED.

#### DRILL-IN EXPANSION BOLTS:

"KWIK-BOLT II" BY HILTI FASTENING SYSTEMS, "REDHEAD WEDGE ANCHOR" BY ITW RAMSET/RED HEAD OR APPROVED EQUAL. ICBO CERTIFICATION REQUIRED.

#### STRUCTURAL SAWN LUMBER:

LUMBER VISUALLY GRADED AND STAMPED PER WWPA STANDARD GRADING RULES. MOISTURE CONTENT OF LUMBER 2" OR LESS IN THICKNESS - 19 % MAXIMUM.

STRUCTURAL FRAMING - HEM-FIR SPECIES, #2 GRADE OR BETTER.

CONVENTIONAL CONSTRUCTION PROVISIONS PER SECTION 2320 OF THE UBC. MINIMUM NAILING FOR CONNECTION OF VARIOUS COMPONENTS PER TABLE 23-II-B-1 OF THE UBC. TREAT WOOD BEARING ON OR WITHIN 1" OF MASONRY OR CONCRETE WITH PRESERVATIVE. USE MILD STEEL PLATE WASHERS AT ALL BOLT HEADS AND NUTS BEARING ON WOOD. ATTACH FOUNDATION PLATES AND SILLS TO CONCRETE AND MASONRY WITH GALVANIZED A307 BOLTS. USE COMMON NAILS ONLY. USE GALVANIZED FRAMING HARDWARE MANUFACTURED BY SIMPSON COMPANY OR APPROVED EQUAL. ICBO CERTIFICATION REQUIRED.

#### PLYWOOD:

PLYWOOD GRADE - CD INT-APA WITH EXTERIOR GLUE LAID FACE GRAIN PERPENDICULAR TO SUPPORT.

ROOF SHEATHING -3/4" THICK, 40/20 SPAN RATING. WALL SHEATHING - 1/2" THICK, 32/16 SPAN RATING.

PROVIDE 2x4 BLOCKING AT ALL UNSUPPORTED PANEL EDGES.

NAILING AT ALL PANEL EDGES AND AT ALL STUDS WITH HOLDOWNS IS AS FOLLOWS:

ROOF SHEATHING - 10d @ 4" OC, WALL SHEATHING - 8d @ 4" OC,

NAILING AT ALL PANEL INTERMEDIATE SUPPORTS OTHER THAN STUDS WITH HOLDOWNS IS AS FOLLOWS:

ROOF SHEATHING - 10d @ 12" OC, WALL SHEATHING - 8d @ 12" OC,

#### METAL PLATE CONNECTED WOOD TRUSSES:

WOOD TRUSSES DESIGNED. MANUFACTURED AND INSTALLED PER TRUSS PLATE INSTITUTE SPECIFICATIONS. ICBO CERTIFICATION REQUIRED.

WEB AND CHORD SIZES INDICATED ON PLANS ARE MINIMUM ONLY. ROOF DESIGN DEAD LOAD - 10 PSF MINIMUM, ROOF DESIGN WIND UPLIFT - 43 PSF MINIMUM. DESIGN TRUSSES FOR SUPPORT OF DEAD, LIVE, SNOW DRIFT AND WIND LOADS AND MECHANICAL EQUIPMENT, PIPING, ETC AS REQUIRED, COORDINATE WEIGHTS, LOCATIONS AND SUPPORT DETAILS. SUBMIT SHOP DRAWINGS SHOWING TRUSSES AND ERECTION BRACING SIZES AND CONNECTIONS. SHOP DRAWINGS AND DESIGN CALCULATIONS BOTH STAMPED BY A PROFESSIONAL ENGINEER LICENSED IN STATE OF ALASKA. PROVIDE STANDARD TRUSS CAMBER. PROVIDE ERECTION BRACING PER MANUFACTURER'S INSTRUCTIONS AND PERMANENT BRACING AS INDICATED ON PLANS.

#### MISCELLANEOUS:

REFER TO ARCHITECTURAL DRAWINGS FOR WALL OPENINGS, ARCHITECTURAL TREATMENT AND DIMENSIONS NOT SHOWN.

REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR SIZE AND LOCATION OF DUCT OPENINGS, PIPING, CONDUITS, ETC, NOT SHOWN.

SHOP DRAWINGS SHALL BE SUBMITTED AND REVIEWED PRIOR TO FABRICATION.

VERIFY ALL DIMENSIONS AND CONDITIONS AT THE PROJECT SITE PRIOR TO STARTING WORK AND NOTIFY THE CONTRACTING OFFICER IMMEDIATELY OF ANY DISCREPANCIES.

PROVIDE TEMPORARY ERECTION BRACING AND SHORING AS REQUIRED FOR STABILITY OF THE STRUCTURE DURING ALL PHASES OF CONSTRUCTION.

VATIVE CONSORTIUM ENGINEERI ENVIRONMENTAL H
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ENGINEERS 4040 "B" Street Anchorage, Alaska 99503 FAX (907) 563-3953 PHONE (907) 562-2000

PRECAST FLOOR DRAIN **ABOVE** PERPENDICULAR ANCHOR BOLT FDN FOUNDATION PARTIAL JOINT PENETRATION FIN FINISH, FINISHED AMERICAN CONCRETE PLATE (STEEL) FAR FACE PLATE (WOOD) FLANGE **ADDITIONAL** PLACES<sup>®</sup> FLOOR **AGGREGATE PLWD** PLYWOOD FACE OF STUDS AMERICAN INSTITUTE OF PARTIAL PENETRATION FAR SIDE STEEL CONSTRUCTION PRESTRESSED FOOT, FEET AMERICAN INSTITUTE OF POUNDS PER SQUARE FOOT FOOTING TIMBER CONSTRUCTION POUNDS PER SQUARE INCH **FUTURE** ALTERNATE PRESSURE TREATED FIELD VERIFY ALUM ALUMINUM POST TENSION **ARCH** ARCHITECT, ARCHITECTURAL GAUGE, GAGE **RADIUS** GALVANIZED APPROXIMATELY ROUND GEN GENERAL AMERICAN SOCIETY FOR REFERENCE GLUE LAMINATED TESTING AND MATERIALS REINF REINFORCING, GND GROUND AMERICAN WELDING REINFORCEMENT GRADE SOCIETY GYPSUM BOARD REINFORCED REQD REQUIRED GYPSUM RO ROUGH OPENING BOTTOM (BEAM AND JOIST HORIZONTAL AMERICAN STANDARD HIGH POINT, HP STEEL SCHEDULĖS ONLY) STEEL SHAPE, SOUTH SCHED SECT SCHEDULE HIGH STRENGTH BOLT BUILDING LINE SECTION HEIGHT BUILDING SH PL SHEAR PLATE BLOCKING SHEET INSIDE DIAMETER SHTHG SHEATHING INSIDE FACE BOD BOTTOM OF DECK SIMILAR BOTTOM SLBB SHORT LEGS BACK INCLUDE BEARING TO BACK INSUL INSULATION, INSULATED BASEMENT INTERIOR BETWEEN SPA SPACE, SPACING, SPACES **JOINT** AMERICAN CHANNELS SPECIFICATION JOIST CENTER OF GRAVITY SQUARE CONSTRUCTION JOINT STAINLESS STEEL COMPLETE JOINT PENETRATION KIP. KIPS KIPS PER SQUARE INCH SHORT SLOTTED HOLE CIP CAST-IN-PLACE STRUCTURAL TEE CENTER LINE FROM S SERIES SECTION LB OR POUND CEILING LONG LEG BACK TO BACK STANDARD LLBB CLR CLEAR STIFF **STIFFENER** LONG LEG HORIZONTAL CONCRETE MASONRY UNIT LLH CMU STIRR STIRRUP LONG LEG VERTICAL LLV CO CONCRETE OPENING STEEL LONGIT LONGITUDINAL COL COLUMN **STRUCT** STRUCTURAL LOW POINT COMMON COMM SUPPORT SUPT LONG SLOTTED HOLES CONC CONCRETE SUSP SUSPENDED LIGHT CONN CONNECTION SYMM SYMMETRICAL LIGHT WEIGHT CONSTR CONSTRUCTION ANGLE CONT CONTINUOUS TOP CONTRACTOR CONTR TOP OF CURB MISCELLANEOUS SHAPE CONTROL JOINT, CTJ T&G TONGUE AND GROOVE MAS MASONRY CONTRACTION JOINT **TEMP** TEMPERATURE. MATL MATERIAL CENTER **TEMPORARY** MAX MAXIMUM COUNTERSUNK CTSK THK THICK **MECH** MECHANICAL **CUBIC** CU THRU TOC TOS THROUGH MFR MANUFACTURER TOP OF CONCRETE MFRG MANUFACTURING DOUBLE TOP OF STEEL DEPARTMENT MIN MINIMUM DEPT TOW TOP OF WALL MISCELLANEOUS DET DETAIL **TRANS** TRANSVERSE STRUCTURAL TEE FROM DIAMETER DIA, Ø STRUCTURAL TUBE M SERIES SECTION DRILLED-IN ADHESIVE BOLT TYP **TYPICAL** MOUNTED DIAGONAL DIAG METAL DIAPHRAGM DIAPH **UBC** UNIFORM BUILDING CODE DRILLED-IN EXPANSION BOLT DIEB UNDERWRITERS NORTH DIM DIMENSION LABORATORY NEAR FACE DN DOWN UON UNLESS OTHERWISE NOTED NOT IN CONTRACT DITTO ULTRASONIC TEST UT No OR # NUMBER DEEP NOM NOMINAL DWG **DRAWING** VERTICAL EACH FACE NEAR SIDE DOWEL **VERT** VERTICAL NTS NOT TO SCALE VERTICAL INSIDE FACE VIF **EAST** VOF VERTICAL OUTSIDE FACE OVERALL **EXISTING** ON CENTER **EACH** WEST. W SERIES OUTSIDE DIAMETER OD OF **EXPANSION BOLT** OUTSIDE FACE SECTION EACH FACE WITH **OPNG** OPENING EXPANSION JOINT EXJ W/0 WITHOUT OPPOSITE ELEVATION (HEIGHT) WOOD ORIENTED STRAND **ELECTRICAL** 

BOARD

OVERSIZED HOLES

ELEVATOR

**ENCLOSURE** 

ENGINEER

**EQUIPMENT** 

EACH SIDE

EACH WAY

**EXISTING** 

EXPANSION **EXTERIOR** 

EQUAL

**ELEV** 

**ENCL** 

**ENGR** 

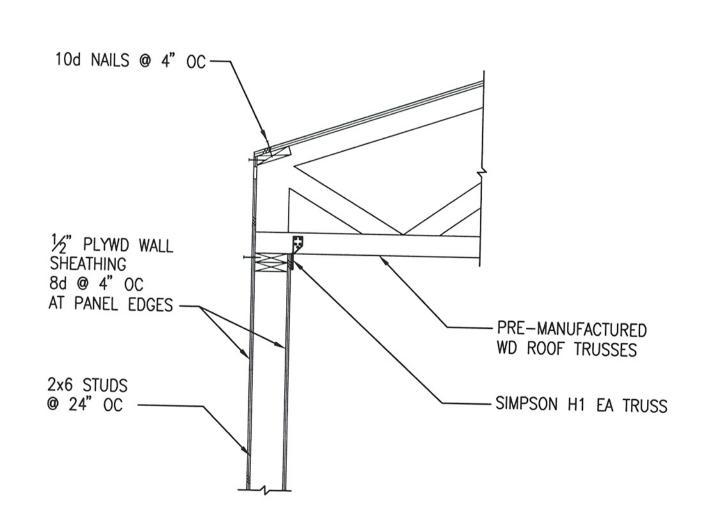
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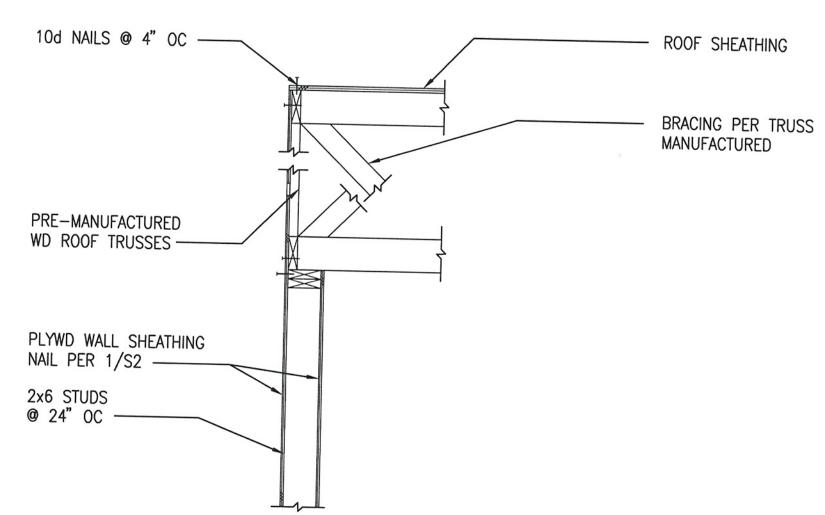
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EXP

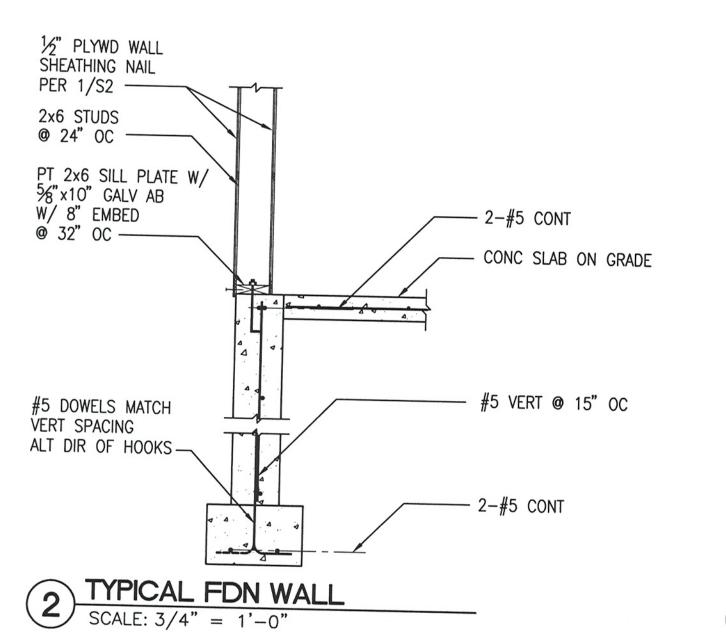
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**ABBREVIATIONS** 

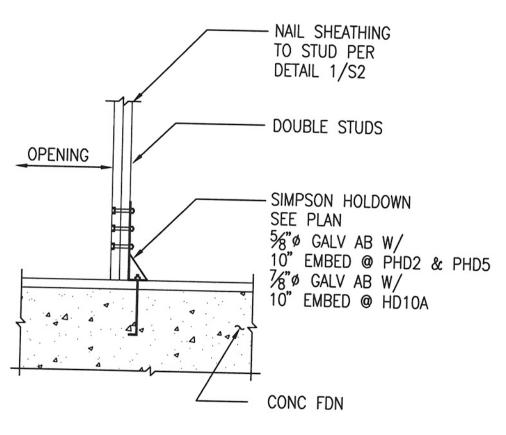




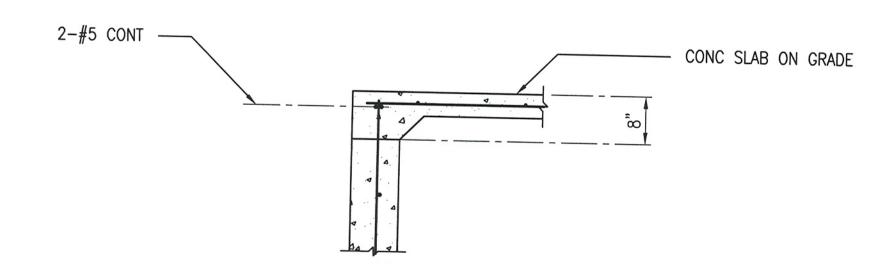


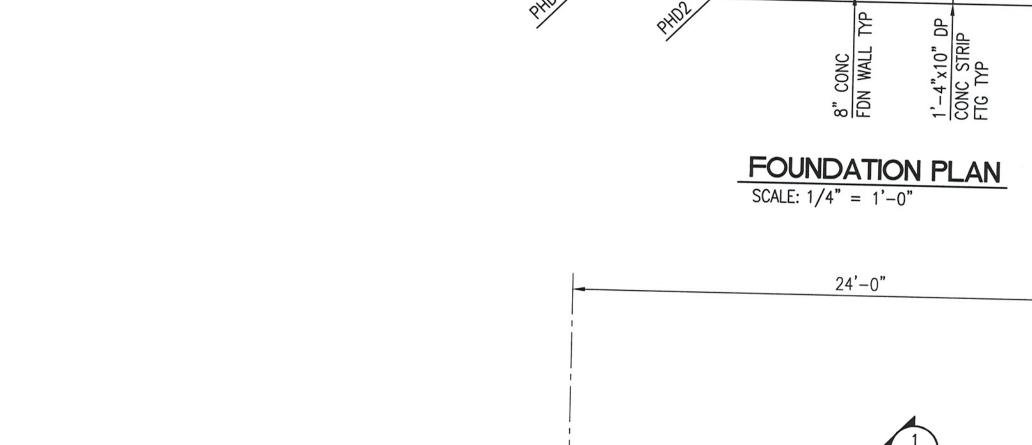


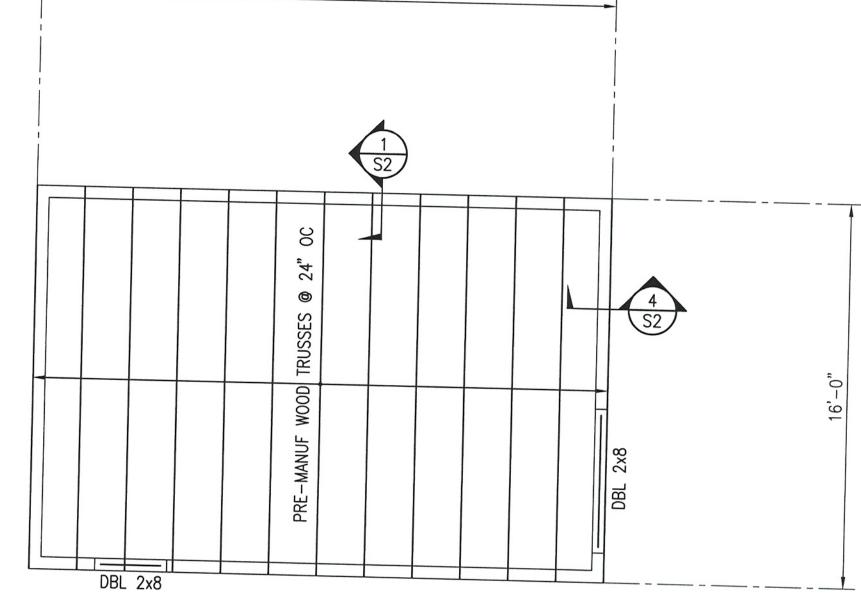




5 TYPICAL HOLDOWN
SCALE: 3/4" = 1'-0"







ROOF FRAMING PLAN
SCALE: 1/4" = 1'-0"

24'-0"

4" CONC SLAB ON GRADE REINF W/ #3 @ 18" OC —

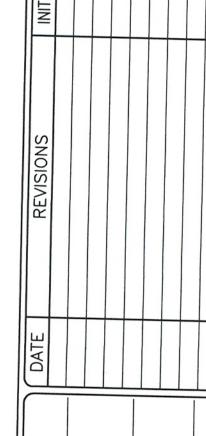
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— SEE NOTE 1

5 S2





ALASKA NATIVE TRIBAL HEALTH CONSORTIUM ENVIRONMENTAL HEALTH AND ENGINEE
3925 TUDOR CENTRE DRIVE
ANCHORAGE, ALASKA, 99508-5997
(907) 729-3600



AGOON,

PROJECT NO.

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

#### GENERAL NOTES

PLANS - THE DRAWINGS ARE PARTLY DIAGRAMMATIC, NOT NECESSARILY SHOWING ALL OFFSETS OR EXACT LOCATIONS OF PIPING AND DUCTS UNLESS SPECIFICALLY DIMENSIONED. FIELD COORDINATE LOCATIONS OF MECHANICAL EQUIPMENT WITH THE OTHER TRADES TO AVOID CONFLICT.

PERMITS - SECURE AND PAY FOR ALL NECESSARY PERMITS AND FEES.

CODE — ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST ADOPTED EDITION OF THE UNIFORM BUILDING CODE (UBC), UNIFORM MECHANICAL CODE (UMC), UNIFORM PLUMBING CODE (UPC) AND NATIONAL ELECTRICAL CODE (NEC) AS AMENDED BY THE STATE OF ALASKA.

ELECTRICAL WORK - ALL ELECTRICAL WORK IS TO BE PERFORMED BY A LICENSED ELECTRICIAN.

EQUIPMENT SUBSTITUTIONS — ALL EQUIPMENT LISTED IS REPRESENTATIVE OF THE STANDARD OF QUALITY AND PERFORMANCE REQUIRED. OR EQUAL SUBSTITUTIONS WILL BE CONSIDERED IF THE SUBSTITUTES ARE SHOWN TO BE EQUAL OR BETTER QUALITY, INCLUDING EFFICIENCY OF PERFORMANCE, SIZE AND WEIGHT.

MATERIALS — ALL MATERIALS SHALL BE NEW AND UNUSED, INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS AND IN THE BEST PRACTICE OF THE CRAFT. OBTAIN OWNER'S APPROVAL OF ALL PRODUCTS PRIOR TO ORDERING OR INSTALLING ANY PART OF ANY SYSTEM.

INSULATION - PROVIDE 1" FIBERGLASS INSULATION WITH A COMPLETE FACTORY APPLIED VAPOR BARRIER JACKET ON ALL EXHAUST DUCTWORK WITHIN 5' OF EXTERIOR OPENINGS.

ISOLATION VALVES - PROVIDE ISOLATION VALVES AT ALL OIL FIRED APPLIANCES.

PIPING — OIL PIPING TO BE SOFT COPPER TYPE K WITH FLARE JOINTS. ROUTE PIPES PARALLEL WITH BUILDING LINES AND CONCEAL IN FINISHED AREAS UNLESS AUTHORIZED BY OWNER.

DUCTWORK — PROVIDE GALVANIZED SHEET METAL RECTANGULAR OR ROUND DUCT WHERE CALLED OUT ON THE PLANS. SEAL ALL DUCT SEAMS AND JOINTS AIRTIGHT. INSTALL DAMPERS WHERE SHOWN ON THE DRAWINGS. ALL SHEET METAL WORK TO BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH SMACNA STANDARDS.

ACCESS - PROVIDE WORKABLE ACCESS TO ALL SERVICEABLE AND/OR OPERABLE EQUIPMENT.

TEST AND START-UP - TEST ALL PLUMBING AND PIPING SYSTEMS WITH 60 PSIG FOR ONE HOUR BEFORE FILLING AND IN ACCORDANCE WITH THE UNIFORM PLUMBING CODE. FLUSH, DRAIN AND STERILIZE THE DOMESTIC WATER LINES IN ACCORDANCE WITH AWWA C601.

OPERATION AND MAINTENANCE MANUAL — PROVIDE THE OWNER WITH AN OPERATING AND MAINTENANCE MANUAL, TO INCLUDE MANUFACTURER'S SPECIFICATIONS, OPERATING AND MAINTENANCE INSTRUCTIONS, WARRANTY INFORMATION ON EACH PIECE OF EQUIPMENT, AND SCHEMATIC A SOURCE OF SUPPLY FOR SPARE PARTS AND SERVICE.

#### SEQUENCE OF OPERATIONS

SPACE HEATER F-1: PACKED CONTROLS CYCLE UNIT TO MAINTAIN ROOM TEMPERATURE.

EXHAUST FAN <u>EF-1</u>: WALL MOUNTED ON/OFF SWITCH.

TRANSFER FAN  $\underline{\text{TF}}$ : WALL MOUNTED ON/OFF SWITCH. FAN TO RUN CONTINUOUSLY DURING THE HEATING SEASON (SEPTEMBER-APRIL).

PIPING LEGEND		DUCTWORK L	EGEND
	WASTE	(T)	THERMOSTAT OR SENSOR
	VENT PIPING COLD WATER		SUPPLY AIR UP & DOWN
xxx	HOT WATER SEE ABREVIATIONS FOR MEDIA		EXHAUST AIR UP & DOWN
——————————————————————————————————————	PIPE UP PIPE DOWN		ROUND DUCT UP & DOWN
	TEE UP TEE DOWN	<i>\\</i>	VOLUME DAMPER
	CAP UNION	12/24	DUCT SIZE (FIRST FIGURE - SIDE SHOWN) (SECOND FIGURE - SIDE NOT SHOWN)
101	DIRECTION OF FLOW  BALL/BUTTERFLY VALVE	<u> </u>	INSULATED DUCTWORK
	CHECK VALVE	ABBREVIATION	IS
	FUSIBLE VALVE	AFG ABOVE FIN	IISHED GRADE
——+€	HOSE BIBB	BLDG BUILDING BTUH BRITISH T CAP CAPACITY CW COLD WATE	HERMAL UNIT/HOUR
LOGIC		DEG DEGREE E/A EXHAUST A	IR
TAG  CONNECTION- CFM	- DETAIL NUMBER - SHEET LOCATED ON  SHEET NOTES - NECK SIZE - CFM - DIFFUSER OR GRILLE TYPE	PSIG POUNDS PE	SUPPLY  ER HOUR ER MINUTE R BTUH RER Y VALVE  SQUARE INCH R SQUARE INCH GAUGE
		T'STAT THERMOSTA TYP TYPICAL UBC UNIFORM B	NS PER MINUTE T UILDING CODE LUMBING CODE

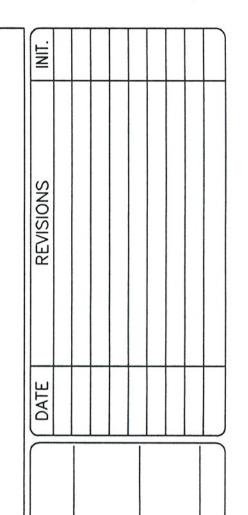
<b>FUEL</b>	FIRED SPACE	HE	ATER		
	MFGR/MODEL	FUEL	MAX CAPACITY INPUT (GPH)	The same of the sa	REMARKS
F-1	TOYOTOMI/LASER 56	OIL	0.19	<u> </u>	3 STAGE BURNER, MEDIUM FLUE EXTENTION KIT #22744997, FUEL PUMP #22744990

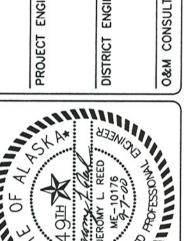
TANK	SCHEDULE						
SYMBOL	MFGR/MODEL	MEDIUM	MATERIAL	TANK CAPACITY (GAL)	DIMENSIONS	LABEL	REMARKS
FOT-1	ACE TANK/AC00550U254	OIL	STEEL	550	75"L x 48"DIA		DOUBLE WALL TANK, PROVIDE TRIM AND TAPPINGS PER DRAWINGS, 3A TANK COATING
							WITH EPOXY/URETHANE FINISH

FAN	SCHEDULE									
SYMBOL	MFGR/MODEL	TYPE	SERVICE	CFM	TSP IN W.C.	RPM	MOTOR DATA W/VOLTS/PH	DRIVE	SONES	REMARKS
EF-1	PENN/Z5H	CEILING/CABINET	EXHAUST	120	0.25	1550	79/120/1	DIRECT		BACKDRAFT DAMPER AND WALL CAP
TF-1	PENN/TRANSFAN	WALL	TRANSFER	225	0.00	1490	60/120/1	DIRECT	2.2	TELESCOPING WALL SLEEVE, INTEGRAL GRILLES

AIR	INLET/OUTLET S	SCHEDU	LE							
SYMBOL	MFGR/MODEL	TYPE	USE	MATERIAL	FINISH	CFM	FACE SIZE (IN.)	NC	THROW	REMARKS
Α	GENSCO/SHO-1050-12-8	SIDEWALL	TRANSFER	ALUMINUM	WHITE		10"x10"			

AUTOMATIC FIRE EXTINGUISHER - GRINNEL, ADX SERIES 1030, 8 LBS. ABC DRY CHEMICAL, 20 SQ. FT., COVERAGE, VERTICAL MOUNTING BRACKET, 165°F FUSABLE LINK.





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ENVIRONMENTAL HEALTH AND ENGINEERING

VIRONMENTAL HEALTH AND ENGIN 3925 TUDOR CENTRE DRIVE ANCHORAGE, ALASKA, 99508-5997 (907) 729-3600

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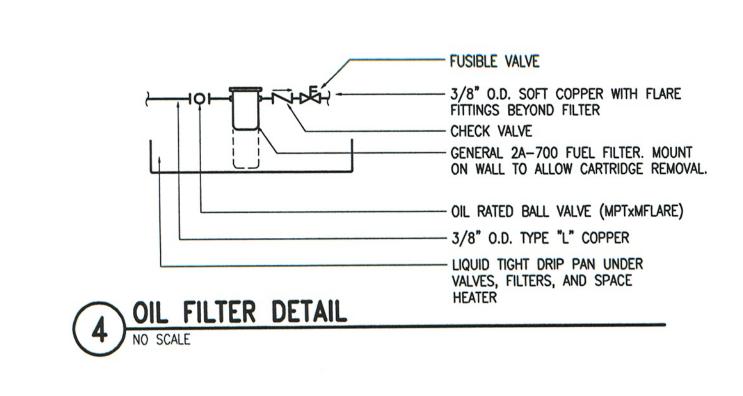
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MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS

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RSA

M 1



3/8" O.D. COPPER FOS TUBE — SLIDES THRU NYLON TANK

BUSHING WITHOUT FITTINGS

2" VENT W/ SCREENED TEE -

EMERGENCY TANK VENT -

EMERGENCY INTERSTITIAL VENT -

DIRECT READOUT LEVEL GAUGE — ACE TANK #KRTGSS47

3-1/2 GAL OVERFILL CONTAINMENT ACE TANK OP6221-AST-W34

FOT-1 ——— DOUBLE WALL FUEL TANK

1 FOT-1 DETAIL

STENCIL "GRADE NO. 1— OIL ONLY" ON TANK IN CONTRASTING COLOR

PLUGGED INTERSTITIAL —— TEST OPENING AT EACH END.

OIL RATED SHUT OFF VALVE 3/8" FLARE x FLARE

- FORMED SWING JOINT

- FOS STANDPIPE TO 2"

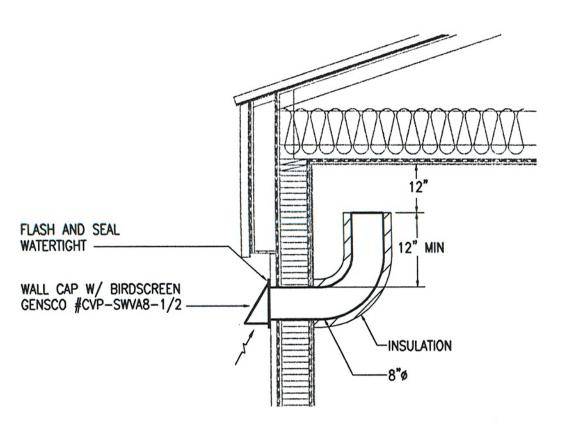
ABOVE BOTTOM OF TANK

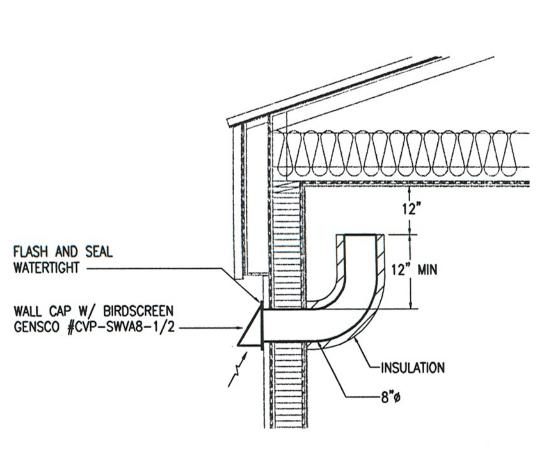
∕ 3/8" O.D. FOS

STEEL SKIDS

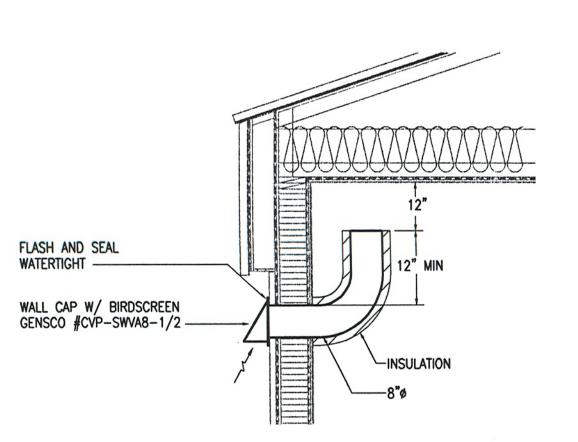


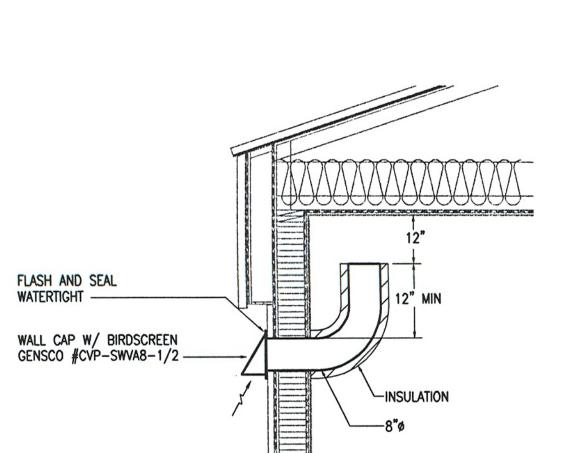
2 EF-1 DETAIL
NO SCALE





5'-0" MIN.





SUPPORT FROM

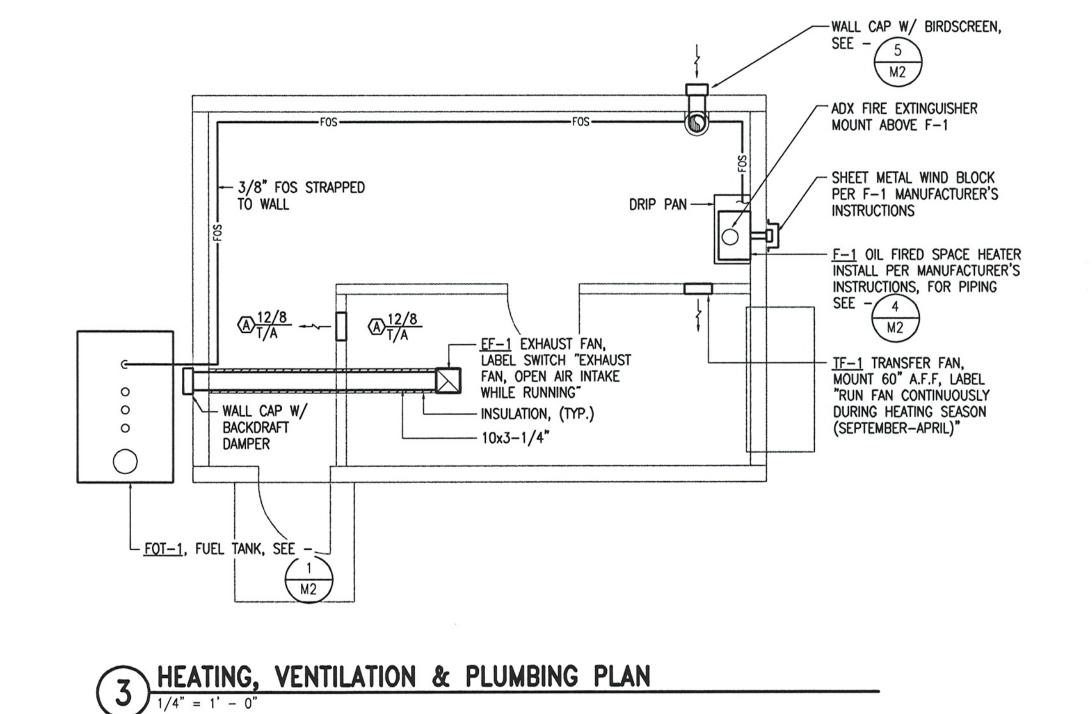
- Insulation

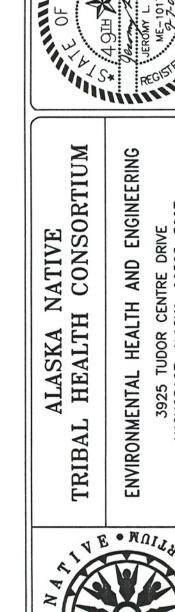
STRUCTURE ABOVE

— WALL CAP W/ SPRING OPERATED BACKDRAFT DAMPER

- EXTERIOR WALL

- EXHAUST FAN, <u>EF-1</u>





M 2

ALASKA AGOON, CHIGNIK

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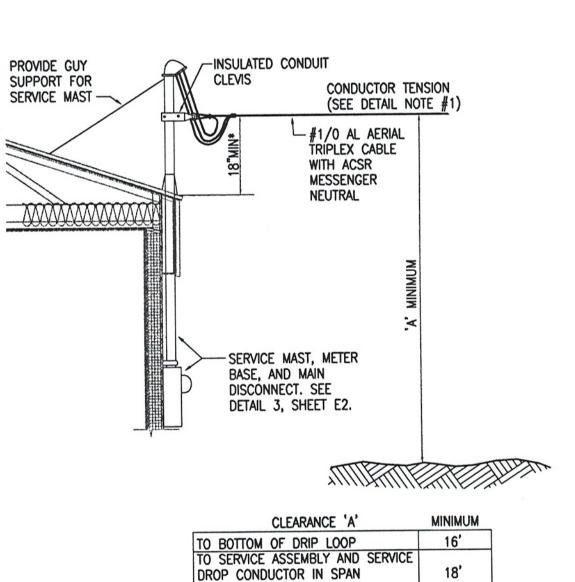
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EXISTING SINGLE PHASE OVERHEAD DISTRIBUTION LINE DEAD ENDS AT THIS POLE, WITH AERIAL TRIPLEX CONTINUING ON TO THE EXISTING INCINERATOR BUILDING. INSTALL NEW SINGLE PHASE TRANSFORMER AT THIS POLE TO SERVE THE NEW WATER TREATMENT BUILDING, WITH NEW AERIAL TRIPLEX CABLE SERVICE TO THE BUILDING. SEE DETAILS FIELD COORDINATE FOR EXACT LOCATION OF POLE.

5. PROVIDE CONTROL CONNECTION TO LEVEL SENSOR LE/LIT-3-1, LOCATED IN THE DOGHOUSE OF THE WATER STORAGE TANK. SEE CONTROL SYSTEM CONDUIT AND CONDUCTOR SCHEDULE, SHEET E2.

EXISTING UNDERGROUND PHONE UTILITY PEDESTAL (PEDESTAL #D2/4). PROVIDE 2"C.O. FROM PHONE SERVICE LOCATION TO THIS PEDESTAL. SEE DETAIL 3/E2. COORDINATE WITH LOCAL TELEPHONE UTILITY TO PROVIDE PHONE SERVICE TO THE FACILITY. LOCATION OF PEDESTAL SHOWN IS APPROXIMATE. FIELD COORDINATE



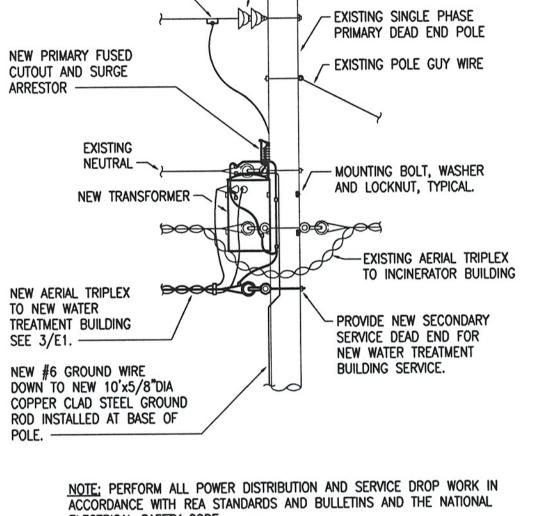
**DETAIL NOTES:** 

1. MAXIMUM TENSION OF CONDUCTOR SHALL NOT EXCEED 50% OF ULTIMATE STRENGTH.

2. SERVICE CONNECTORS SHALL BE INSULATED COMPRESSION TYPE.

OVERHEAD SERVICE DETAIL

NO SCALE



— EXISTING PRIMARY DEADEND.

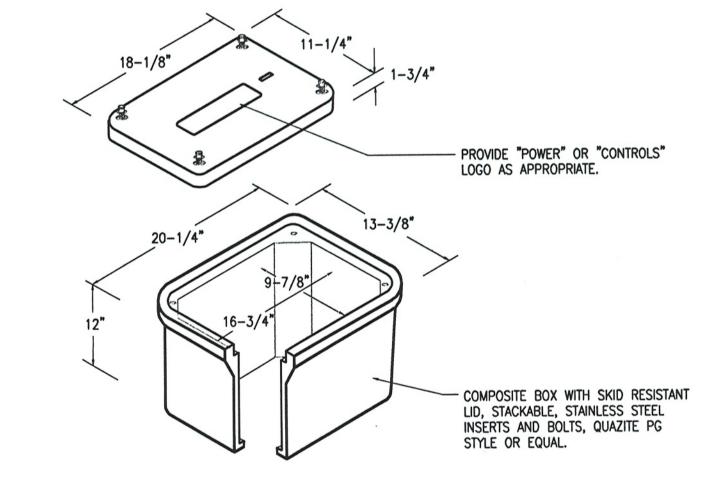
ELECTRICAL SAFETY CODE.

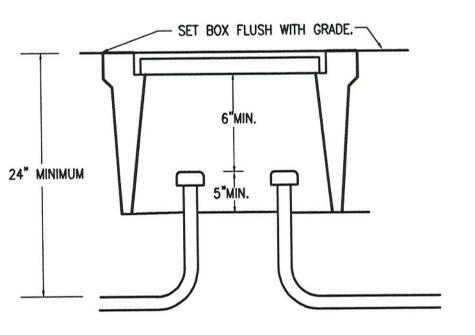
TRANSFORMER MOUNTING DETAIL

NO SCALE

NEW BAIL CLAMP

TAP ASSEMBLY -





PULL BOX DETAIL

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ALASKA NATIVE HEALTH CONSORTIUM

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IRONMENTAL 3925 TI ANCHORAGE

**LEGEND** LIGHT FIXTURE - SURFACE MTD ON WALL FLUORESCENT FIXTURE - SURFACE MTD FIXTURE TAG (LETTER INDICATES TYPE) MOTOR (SIZED AS NOTED) DISCONNECT SWITCH DISCONNECT SWITCH (FUSED) VFD CONTROLLER FRACTIONAL HORSEPOWER MOTOR STARTER SINGLE POLE SWITCH THREE WAY SWITCH, FOUR WAY SWITCH \$3,\$4 PILOT LIGHT SWITCH CONDUIT, CONCEALED UNLESS NOTED OTHERWISE NUMBER AND SIZE OF WIRES (NO MARKS = 3 #12) HOMERUN TO PANEL (PANEL AND CIRCUIT No.) DUPLEX RECEPTACLE JUNCTION BOX CONDUIT CONDUIT ONLY CO WEATHERPROOF CONDUIT ONLY SHEILDED TWISTED PAIR UNSHEILDED TWISTED PAIR NOTE TAG (No. INDICATES NOTE)

2 AND 3, SHEET E1. LOCATION OF POLE SHOWN IS APPROXIMATE, NEMA 4X JUNCTION BOX FOR CONNECTION TO WELL PUMP MOTOR LEADS. MOUNT JUNCTION BOX TO WELL CASING.

INSTALL EXTERIOR CONDUITS UNDERGROUND IN SAME TRENCH WITH WATER PIPING AT MINIMUM DEPTH OF 24" BELOW GRADE. SEE TRENCHING DETAIL 5/C-2.

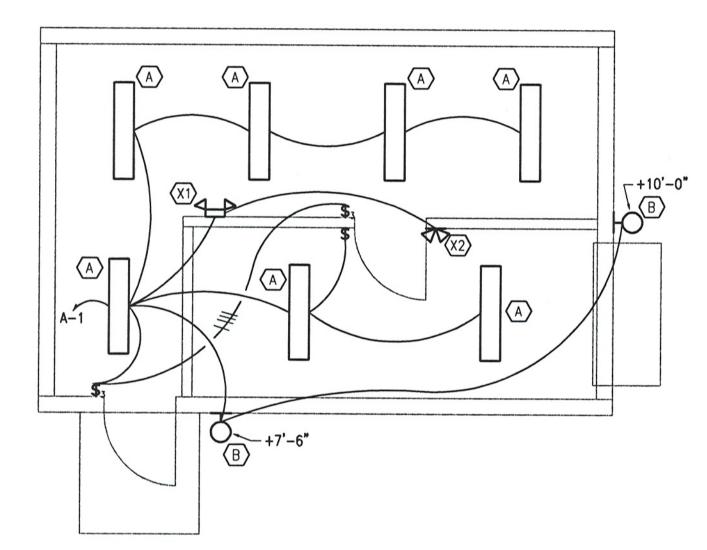
PROVIDE 120V POWER CONNECTION TO LEVEL SENSOR LE/LIT-3-1, FLOW METER FE/FQIT-3-1, TEMPERATURE SENSOR TE/TT-3-1 AND ELECTRICAL BASEBOARD HEATERS (2@120V,500W), LOCATED IN THE DOGHOUSES OF THE WATER STORAGE TANK. CONNECT THE CONTROL DEVICES TO ONE CIRCUIT AND THE TWO BASEBOARD HEATERS TO THE OTHER CIRCUIT. FOR THE TEMPERATURE SENSOR PROVIDE AND INSTALL A 25 WATT, 120VAC INPUT, 24VDC OUTPUT POWER SUPPLY, MOUNTED IN A NEMA 4X JUNCTION BOX. ROUTE POWER CIRCUITS THROUGH A SERVICE ENTRANCE RATED 20 AMP, TWO-POLE, NEMA 3R, DISCONNECT MOUNTED AT THE EXTERIOR OF THE DOGHOUSES. PROVIDE AND INSTALL 3/4"DIA. x 10' GROUND ROD AT THE DOGHOUSES AND CONNECT TO DISCONNECT GROUND BUS WITH A #6 BARE COPPER GROUND WIRE.

FLOW METER FE/FQIT-3-1, AND TEMPERATURE SENSOR TE/TT-3-1

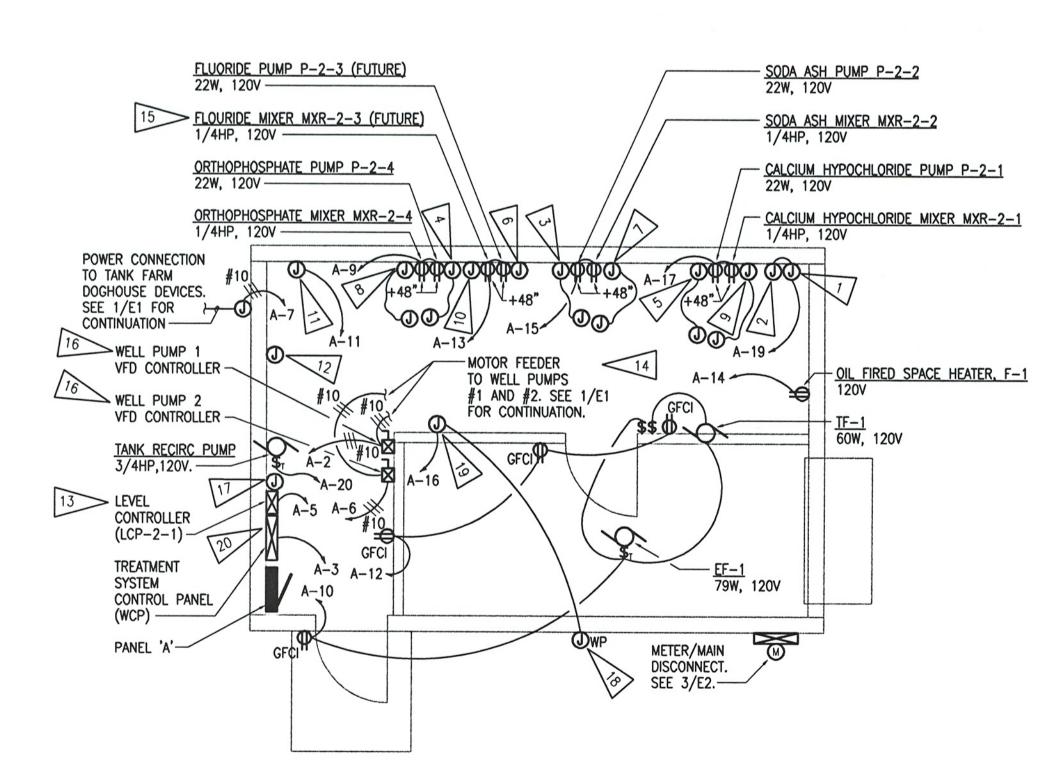
FOR EXACT LOCATION OF PHONE PEDESTAL.

\*THESE DIMENSIONS APPLY TO BOTH DRIP LOOP AND SPAN.

			FIXTURE SCHEDULE				
		MANUFACTURER AND CATALOG	DESCRIPTION	MOUN	LAMPS		
		NUMBER (OR APPROVED EQUAL)		TYPE	HEIGHT	NO.	WATTS
A	WATER TREATMENT BUILDING	LITHONIA #DMW-3-32-AR-120-GEB	ENCLOSED AND GASKETED FLUORESCENT FIXTURE WITH WET LOCATION FIBERGLASS CORRISION RESISTANT HOUSING, HIGH IMPACT ACRYLIC DIFFUSER, AND 120V ELECTRONIC BALLAST	SURFACE	CEILING	3	32W T8
В	EXTERIOR	LITHONIA #TWL-70S-120-RHP-PE	WALL PACK HIGH PRESSURE SODIUM EXTERIOR FIXTURE WITH CAST ALUMINUM BRONZE FINISHED HOUSING, POLYCARBONATE LENS, 120V HIGH POWER FACTOR BALLAST, AND INTEGRAL PHOTOCELL.	WALL	AS NOTED	1	70 HPS
X1	AS SHOWN	LITHONIA #IND1250-SD-DL	120V EMERGENCY LIGHTING FIXTURE WITH INDUSTRIAL BLUE GREY POLYCARBONATE HOUSING, FULLY PAR 36 LAMP HEADS, LOW VOLTAGE DISCONNECT, SELF DIAGNOSTICS, AND DAMP LOCATION LISTING.	WALL	+8'-0"	2	9W PAR36
X2	AS SHOWN	LITHONIA #ELA-T-IND-N0912	REMOTE TWIN HEAD EMERGENCY FIXTURE WITH 12V FULLY ADJUSTABLE PAR 36 LAMP HEADS, AND POLYCABONATE BLUE GREY HOUSING.	WALL	+8'-0"	2	9W PAR36

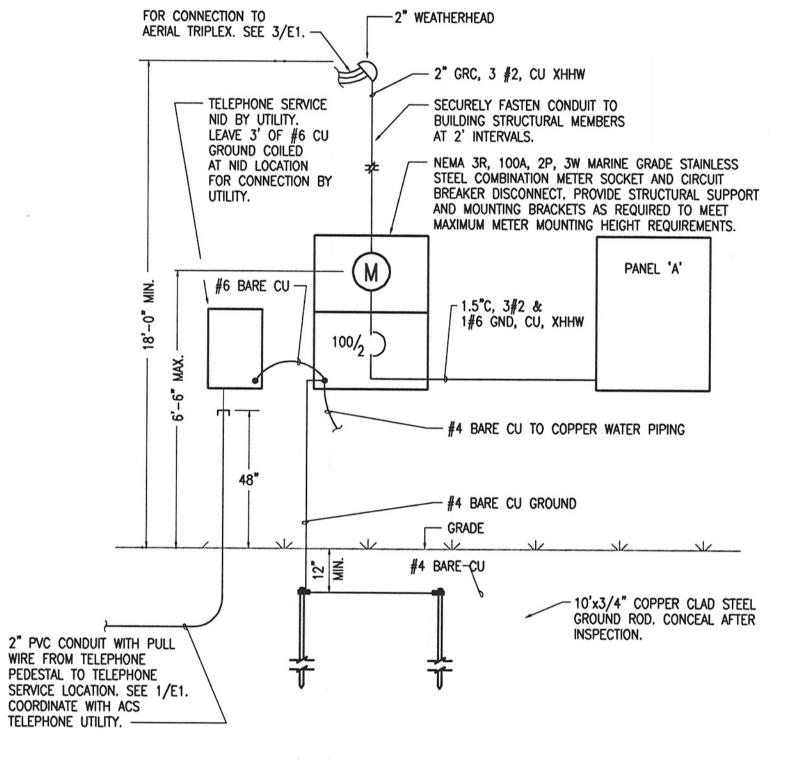


## WATER TREATMENT BUILDING LIGHTING PLAN



WATER TREATMENT BUILDING POWER AND SIGNAL PLAN

1/4" = 1'-0"



3 WATER TREATMENT BUILDING POWER ONE-LINE DETAIL
NO SCALE

#### **NOTES:**

- JUNCTION BOX FOR 120V CONNECTION TO FLOW METER/TRANSMITTER FE/FQIT-1-1. ALSO SEE CONTROL SYSTEM CONDUIT AND CONDUCTOR SCHEDULE.
- 2. JUNCTION BOX FOR POWER CONNECTION TO TEMPURATURE SENSOR/TRANSMITTER TE/TT-1-1. PROVIDE AND INSTALL 25WATT, 120VAC INPUT, 24VDC OUTPUT POWER SUPPLY FOR SENSOR/TRANSMITTER MOUNTED IN NEMA 4X JUNCTION BOX. ALSO SEE CONTROL SYSTEM CONDUIT AND CONDUCTOR SCHEDULE.
- 3. JUNCTION BOX FOR CONTROLS CONNECTION TO SODA ASH PUMP P-2-2. SEE CONTROL SYSTEM CONDUIT AND CONDUCTOR SCHEDULE. PROVIDE FLEXIBLE NON-METALLIC LIQUIDTIGHT CONDUIT TO PUMP FROM THIS BOX.
- 4. JUNCTION BOX FOR CONTROLS CONNECTION TO ORTHOPHOSPHATE PUMP P-2-4. SEE CONTROL SYSTEM CONDUIT AND CONDUCTOR SCHEDULE. PROVIDE FLEXIBLE NON-METALLIC LIQUIDTIGHT CONDUIT TO PUMP FROM THIS BOX.
- JUNCTION BOX FOR CONTROLS CONNECTION TO CALCIUM HYPOCHLORIDE PUMP P-2-1. SEE CONTROL SYSTEM CONDUIT AND CONDUCTOR SCHEDULE. PROVIDE FLEXIBLE NON-METALLIC LIQUIDTIGHT CONDUIT TO PUMP
- 6. JUNCTION BOX FOR CONTROLS CONNECTION TO FUTURE FLUORIDE PUMP P-2-3. SEE CONTROL SYSTEM CONDUIT AND CONDUCTOR SCHEDULE.
- 7. JUNCTION BOX FOR CONTROLS CONNECTION TO SODA ASH TANK LEVEL SENSOR LE/LT-2-2. SEE CONTROL SYSTEM CONDUIT AND CONDUCTOR SCHEDULE. PROVIDE FLEXIBLE NON-METALLIC LIQUIDTIGHT CONDUIT TO SENSOR FROM THIS BOX.
- JUNCTION BOX FOR CONTROLS CONNECTION TO ORTHOPHOSPHATE TANK LEVEL SENSOR LE/LT-2-4. SEE CONTROL SYSTEM CONDUIT AND CONDUCTOR SCHEDULE. PROVIDE FLEXIBLE NON-METALLIC LIQUIDTIGHT CONDUIT TO SENSOR FROM THIS BOX.
- JUNCTION BOX FOR CONTROLS CONNECTION TO CALCIUM HYPOCHLORIDE TANK LEVEL SENSOR LE/LT-2-1. SEE CONTROL SYSTEM CONDUIT AND CONDUCTOR SCHEDULE. PROVIDE FLEXIBLE NON-METALLIC LIQUIDTIGHT CONDUIT TO SENSOR FROM THIS BOX.
- 10. JUNCTION BOX FOR CONTROLS CONNECTION TO FUTURE FLUORIDE TANK LEVEL SENSOR LE/LT-2-3. SEE CONTROL SYSTEM CONDUIT AND CONDUCTOR SCHEDULE.
- 11. JUNCTION BOX FOR 120V POWER CONNECTION TO pH ANALYZER AE/AIT-2-5-2 AND FREE CHLORINE ANALYZER AE/AIT-2-5-1. SEE ALSO CONTROL SYSTEM CONDUIT AND CONDUCTOR SCHEDULE.
- 12. CONTROLS CONNECTION TO FLOW SWITCH FS-2-6. SEE CONTROL SYSTEM CONDUIT AND CONDUCTOR SCHEDULE.
- 13. SEE CONTROL SYSTEM CONDUIT AND CONDUCTOR SCHEDULE FOR CONNECTION BETWEEN LEVEL CONTROLLER AND TREATMENT SYSTEM CONTROL PANEL.
- 14. CONDUIT IN THE WATER TREATMENT BUILDING MAY BE INSTALLED SURFACE MOUNTED.
- 15. PLUG FLOURIDE SATURATOR (FUTURE) INTO SAME RECEPTACLE WITH FLUORIDE MIXER MXR-2-3 (FUTURE).
- 16. SEE CONTROL SYSTEM CONDUIT AND CONDUCTOR SCHEDULE FOR CONTROLS CONNECTIONS BETWEEN THE VARIABLE FREQUENCY DRIVES AND OTHER DEVICES.
- 17. PROVIDE AND INSTALL INDUSTRIAL GRADE LINE VOLTAGE THERMOSTAT WITH SETPOINT RANGE OF -30°F TO +100°F, HONEYWELL #T6054A10005 OR EQUAL. CONNECT THERMOSTAT TO CONTROL PANEL TO ALARM/ACTIVATE AUTODIALER WHEN TEMPERATURE FALLS BELOW SETPOINT, SEE CONTROL SYSTEM CONDUIT AND CONDUCTOR SCHEDULE. LABEL THERMOSTAT "BUILDING LOW TEMP ALARM SETPOINT".
- JUNCTION BOX FOR CONNECTION TO SPRINKLER SYSTEM ELECTRIC BELL. COORDINATE WITH SPRINKLER INSTALLER FOR EXACT LOCATION OF SPRINKLER BELL.
- 19. JUNCTION BOX FOR CONNECTION TO SPRINKLER SYSTEM FLOW SWITCH, COORDINATE WITH SPRINKLER INSTALLER FOR EXACT LOCATION OF FLOW SWITCH. CONNECT SWITCH TO CONTROL ELECTRIC SPRINKLER BELL.
- PROVIDE AND INSTALL 2 UTP CATEGORY 3 RATED PHONE CABLES FROM CONTROL PANEL LOCATION TO TELEPHONE SERVICE POINT ADJACENT TO ELECTRIC SERVICE LOCATION. LEAVE 3' OF SLACK AT BOTH LOCATIONS FOR TERMINATION BY TELEPHONE UTILITY AT SERVICE POINT AND TERMINATION BY CONTROL PANEL INSTALLER AT CONTROL PANEL. SEE 3/E2.

CONTROL SYSTEM CONDUIT					
DEVICE	LOCATION	CONNECTION TO:	CONDUIT	CONDUCTORS	NOTES:
LEVEL CONTROLLER	TREATMENT BUILDING	TREATMENT CONTROL PANEL	1"	18-GAGE STP, 4 PAIR	
FLOW METER/TRANSMITTER, FE/FQIT-1-1	TREATMENT BUILDING	TREATMENT CONTROL PANEL	1/2"	18-GAGE STP, 1 PAIR	
TEMPERATURE/SENSOR TRANSMITTER, TE/TT-1-1	TREATMENT BUILDING	TREATMENT CONTROL PANEL	1/2"	18-GAGE STP, 1 PAIR	
CALCIUM HYPOCHLORIDE PUMP UNIT, P-2-1	TREATMENT BUILDING	TREATMENT CONTROL PANEL	1/2"	18-GAGE STP, 2 PAIR	
LEVEL SENSOR, LE/LT-2-1	TREATMENT BUILDING	LEVEL CONTROLLER	1/2"	_	CABLE FURNISHED WITH LEVEL CONTROLLER
SODA ASH PUMP UNIT, P-2-2	TREATMENT BUILDING	TREATMENT CONTROL PANEL	1/2"	18-GAGE STP, 2 PAIR	
LEVEL SENSOR, LE/LT-2-2	TREATMENT BUILDING	LEVEL CONTROLLER	1/2"		CABLE FURNISHED WITH LEVEL CONTROLLER
FLOURIDE PUMP UNIT, P-2-3 (FUTURE)	TREATMENT BUILDING	TREATMENT CONTROL PANEL	1/2"	18-GAGE STP, 2 PAIR	
LEVEL SENSOR LE/LT-2-3 (FUTURE)	TREATMENT BUILDING	LEVEL CONTROLLER	1/2"	_	CABLE FURNISHED WITH LEVEL CONTROLLER
PHOSPHATE PUMP UNIT P-2-4	TREATMENT BUILDING	TREATMENT CONTROL PANEL	1/2"	18-GAGE STP, 2 PAIR	CONTRACTOR OF CONTRACTOR CONTRACT
LEVEL SENSOR LE/LT-2-4	TREATMENT BUILDING	LEVEL CONTROLLER	1/2"		CABLE FURNISHED WITH LEVEL CONTROLLER
FLOW SWITCH FS-2-6	TREATMENT BUILDING	TREATMENT CONTROL PANEL	1/2"	3#12 CU, XHHW	
PH ANALYZER, AE/AIT-2-5-2	TREATMENT BUILDING	TREATMENT CONTROL PANEL	1/2"	18-GAGE STP, 1 PAIR	
FREE CHLORINE ANALYZER, AE/AIT-2-5-1	TREATMENT BUILDING	TREATMENT CONTROL PANEL	1/2"	18-GAGE STP, 1 PAIR	
BUILDING TEMPURATURE THERMOSTAT	TREATMENT BUILDING	TREATMENT CONTROL PANEL	1/2"	3#12 CU, XHHW	
VARIABLE FREQUENCY DRIVE (VFD) #1	TREATMENT BUILDING	TREATMENT CONTROL PANEL	1/2"	18-GAGE STP, 1 PAIR	
VARIABLE FREQUENCY DRIVE (VFD) #2	TREATMENT BUILDING	TREATMENT CONTROL PANEL	1/2"	18-GAGE STP, 1 PAIR	
TREATMENT CONTROL PANEL	TREATMENT BUILDING	VFD #1	1/2"	3#12 CU, XHHW	
TREATMENT CONTROL PANEL	TREATMENT BUILDING	VFD #2	1/2"	3#12 CU, XHHW	
FLOW METER TRANSMITTER FE/FQIT-3-1	TANK DOGHOUSE	TREATMENT CONTROL PANEL	1"**	14-GAGE STP, 1 PAIR	
LEVEL SENSOR LE/LIT-3-1	TANK DOGHOUSE	TREATMENT CONTROL PANEL*	1"**	14-GAGE STP, 1 PAIR	SPLIT AND CONTUNUE TO VFD'S
		VFD CONTROLLER #1*	1/2"	14-GAGE STP, 1 PAIR	SPLIT AND CONTUNUE TO VFD #2
		VFD CONTROLLER #2*	1/2"	14-GAGE STP, 1 PAIR	of the controller to the #Z
TEMPERATURE SENSOR/TRANSMITTER TE/TT-3-1	TANK DOGHOUSE	TREATMENT CONTROL PANEL	1"**	14-GAGE STP, 1 PAIR	
*PROVIDE SINGLE TWISTED PAIR FROM LEVEL SENSOR LE					

\*PROVIDE SINGLE TWISTED PAIR FROM LEVEL SENSOR LE/LIT-3-1 AT WATER TANK TO CONTROL BUILDING. AT CONTROL BUILDING, RUN PAIR THROUGH A SPLITTER AND RUN 1 PAIR TO CONTROL PANEL AND OTHER PAIR TO THE VFD'S. AT VFD'S, RUN PAIR THROUGH A SPLITTER AGAIN AND RUN 1 PAIR TO EACH VFD. \*\* ROUTE SIGNAL CABLES FROM EQUIPMENT IN TANK DOGHOUSE TO TREATMENT BUILDING IN A COMMON 1" DEDICATED SIGNAL CONDUIT. SEE 1/E1.

RSA

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ALASKA NATIVE TRIBAL HEALTH CONSORTIUM AND



PROJECT NO.

GNIK

E 2

SCOPE OF WORK - FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT FOR A COMPLETE AND WORKABLE ELECTRICAL SYSTEM AS INDICATED ON THE DRAWINGS AND IN THESE SPECIFICATIONS.

STANDARDS, CODES AND REGULATIONS - COMPLY WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE, UNIFORM BUILDING CODE, AND UNIFORM FIRE CODE AND THE NATIONAL ELECTRICAL SAFETY CODE INCLUDING ALL STATE AND LOCAL AMENDMENTS TO THESE CODES.

DRAWINGS - THE DRAWINGS ARE DIAGRAMMATIC, NOT NECESSARILY SHOWING ALL OFFSETS OR EXACT LOCATIONS OF FIXTURES, EQUIPMENT, ETC. UNLESS SPECIFICALLY DIMENSIONED, REVIEW THE DRAWINGS AND SPECIFICATIONS FOR EQUIPMENT FURNISHED BY OTHER CRAFTS BUT INSTALLED IN ACCORDANCE WITH THIS SECTION. BRING QUESTIONABLE OR OBSCURE ITEMS, APPARENT CONFLICTS BETWEEN PLANS AND SPECIFICATIONS, GOVERNING CODES OR UTILITIES REGULATIONS TO THE ATTENTION OF THE ARCHITECT. CODES, ORDINANCES, REGULATIONS, MANUFACTURER'S INSTRUCTIONS OR STANDARDS TAKE PRECEDENCE WHEN THEY ARE MORE STRINGENT OR CONFLICT WITH THE DRAWINGS AND SPECIFICATIONS.

RECORD DRAWINGS - MARK UP A CLEAN SET OF DRAWINGS AS THE WORK PROGRESSES TO SHOW THE DIMENSIONED LOCATION AND ROUTING OF ALL ELECTRICAL WORK WHICH WILL BECOME PERMANENTLY CONCEALED. SHOW ROUTING OF WORK IN PERMANENTLY CONCEALED BLIND SPACES WITHIN THE BUILDING. SHOW COMPLETE ROUTING AND SIZING OF ANY SIGNIFICANT REVISIONS TO THE SYSTEMS SHOWN.

WORKMANSHIP - INSTALLATION OF ALL WORK SHALL BE MADE SO THAT ITS SEVERAL COMPONENT PARTS SHALL FUNCTION AS A WORKABLE SYSTEM COMPLETE WITH ALL ACCESSORIES NECESSARY FOR ITS OPERATION. ALL MATERIAL AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. INSTRUCTIONS AND/OR INSTALLATION DRAWINGS AND IN ACCORDANCE WITH NECA STANDARDS. MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL CONFORM WITH APPLICABLE INDUSTRY STANDARDS, NEMA STANDARDS AND UNDERWRITERS LABORATORIES STANDARDS WHERE APPLICABLE.

SUBMITTALS - PROVIDE MATERIAL AND EQUIPMENT SUBMITTALS CONTAINING A COMPLETE LISTING OF MATERIAL AND EQUIPMENT SHOWN ON THE DRAWINGS. INCLUDE CATALOG NUMBERS, WIRING DIAGRAMS, ROUGH-IN DIMENSIONS AND PERFORMANCE DATA FOR ALL MATERIAL AND EQUIPMENT. SUBMITTALS SHALL BE BOUND IN HARD COVER, LOOSELEAF BINDERS SEPARATE FROM WORK FURNISHED UNDER OTHER DIVISIONS. INDEX AND CLEARLY IDENTIFY ALL MATERIAL AND EQUIPMENT BY ITEM, NAME OR DESIGNATION USED ON THE DRAWINGS. SUBMITTAL REVIEW IS FOR GENERAL DESIGN AND ARRANGEMENT ONLY AND DOES NOT RELIEVE THE CONTRACTOR FROM ANY REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE SUBMITTALS ARE NOT CHECKED FOR QUANTITY, DIMENSION, OR FOR PROPER OPERATION. WHERE DEVIATIONS OF A SUBSTITUTE PRODUCT OR SYSTEM PERFORMANCE HAVE NOT BEEN SPECIFICALLY NOTED IN THE SUBMITTAL BY THE CONTRACTOR, PROVISIONS OF A COMPLETE AND SATISFACTORY WORKING INSTALLATION IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

PERMITS - SECURE AND PAY FOR ALL FEES, PERMITS, ETC. REQUIRED BY LOCAL AND STATE AGENCIES.

REFERENCE SYMBOLS - THE ELECTRICAL "LEGEND" ON THE DRAWINGS IS A STANDARDIZED VERSION, AND ALL SYMBOLS SHOWN MAY NOT BE USED. USE THE "LEGEND" AS A REFERENCE FOR THE SYMBOLS USED ON THE DRAWINGS.

IDENTIFICATION - PROVIDE ENGRAVED THREE-LAYER LAMINATED PLASTIC NAMEPLATES WITH WHITE LETTERS ON A BLACK BACKGROUND TO IDENTIFY ALL ELECTRICAL DISTRIBUTION AND CONTROL EQUIPMENT, LOADS SERVED AND AS NOTED ON THE DRAWINGS. LETTER HEIGHTS SHALL BE 1/8 INCH FOR INDIVIDUAL SWITCHES, MOTOR STARTERS AND LOADS SERVED AND 1/4 INCH ON PANELBOARDS. SECURE NAMEPLATES TO EQUIPMENT FRONTS USING SCREWS, OR RIVETS. THE USE OF ADHESIVES IS NOT ACCEPTABLE. SECURE NAMEPLATE TO INSIDE FACE OF RECESSED PANELBOARD DOORS IN FINISHED LOCATIONS.

CONDUITS: MARK ALL CONDUITS ENTERING OR LEAVING PANELBOARDS WITH INDELIBLE BLACK MAGIC MARKER WITH THE CIRCUIT NUMBERS OF THE CIRCUITS CONTAINED INSIDE.

JUNCTION BOXES: MARK ALL CIRCUIT NUMBERS OF WIRING ON ALL JUNCTION BOXES WITH SHEET STEEL COVERS. MARK WITH INDELIBLE BLACK MARKER. ON EXPOSED JUNCTION BOXES IN PUBLIC AREAS. MARK ON INSIDE OF COVER. MARK ALL FIRE ALARM SYSTEM JUNCTION BOXES WITH SHEET STEEL COVERS WITH "FA." MARK WITH INDELIBLE RED MARKER, MARK ALL OTHER SPECIAL SYSTEM JUNCTION BOXES WITH SHEET STEEL COVERS.

CONDUIT - ALL WIRING SHALL BE INSTALLED IN RACEWAY. RACEWAY SHALL BE INSTALLED CONCEALED EXCEPT AT SURFACE MOUNTED CABINETS, MOTORS AND EQUIPMENT CONNECTIONS. INSTALL AN INSULATED EQUIPMENT GROUNDING CONDUCTOR IN ALL RACEWAYS. UTILIZE GALVANIZED RIGID STEEL FOR SERVICE ENTRANCE RISERS, AND IN EXTERIOR LOCATIONS. SCHEDULE 40 PVC CONDUIT MAY BE USED IN ALL CONCEALED, DRY, INTERIOR LOCATIONS AND EXPOSED INTERIOR LOCATIONS WHERE NOT SUBJECT TO PHYSICAL DAMAGE. UTILIZE SHORT EXTENSIONS (36 INCHES MAXIMUM) OF LIQUIDTIGHT FLEXIBLE NON-METALLIC CONDUIT FOR CONNECTION OF ALL MOTORS AND OTHER EQUIPMENT SUBJECT TO VIBRATION. PAINT ALL EXPOSED RACEWAYS TO MATCH THE SURFACE TO WHICH IT IS ATTACHED OR CROSSES. COMPLETELY AND THOROUGHLY SWAB RACEWAY SYSTEM BEFORE INSTALLING CONDUCTORS.

CONDUCTORS - ALL CONDUCTORS SHALL BE COPPER WITH TYPE XHHW, THWN, THW OR THHN INSULATION. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE SHALL BE 12 AWG. MINIMUM CONTROL CIRCUIT CONDUCTOR SIZE SHALL BE #18 AWG. WIRING IN LIGHTING FIXTURE CHANNELS SHALL BE COPPËR WITH TYPE XHHW OR OTHER INSULATION RATED 90 DEGREES C OR HIGHER, 600 VOLT. PULL ALL CONDUCTORS INTO THE RACEWAY AT THE SAME TIME. USE UL LISTED WIRE PULLING LUBRICANT FOR PULLING 4 AWG AND LARGER WIRES. COLOR CODE CONDUCTORS AS FOLLOWS: 120/240 VOLT SYSTEMS: BLACK, RED. AND WHITE: USE PROPERLY SIZED INSULATED SPRING WIRE CONNECTORS WITH PLASTIC CAPS FOR ALL CONDUCTORS #8 AWG AND SMALLER. TERMINATE #6 AWG AND LARGER CONDUCTORS WITH CRIMP OR COMPRESSION TYPE CONNECTORS INSTALLED WITH TOOL RECOMMENDED BY CONNECTION MANUFACTURER AND INSULATE WITH PROPERLY SIZED 600 VOLT RATED HEAT SHRINK TUBING.

SHEILDED TWISTED PAIR CABLING - ALL CONDUCTORS SHALL BE TWISTED PAIR TINNED COPPER WITH 300V POLYETHYLENE INSULATION. SHIELDING SHALL BE ALUMINUM FOIL WITH 100% COVERAGE. COMBINE SHIELDED TWISTED PAIR WITH TINNED COPPER DRAIN WIRE IN COMMON PVC OUTER JACKET. SIZE OF TWISTED PAIR CONDUCTORS SHALL BE AS NOTED ON THE DRAWINGS, #18 AWG MINUMUM.

OUTLET BOXES - PROVIDE COPPER-FREE CAST ALUMINUM OUTLET BOXES FOR DEVICES. PROVIDE JUNCTION, PULL AND SPLICE BOXES OF NEMA 4X RATED FIBERGLASS REINFORCED POLYESTER CONSTRUCTION. PROVIDE OUTLET BOXES AS SHOWN ON THE DRAWINGS, AND PROVIDE BOXES AS REQUIRED FOR SPLICES, TAPS, WIRE PULLING, EQUIPMENT CONNECTIONS, DEVICE INSTALLATION AND CODE COMPLIANCE. USE MULTIPLE-GANG BOXES WHERE MORE THAN ONE DEVICE ARE MOUNTED TOGETHER: DO NOT USE SECTIONAL BOXES. SUPPORT BOXES INDEPENDENTLY OF CONDUIT. COORDINATE MOUNTING HEIGHTS AND LOCATIONS OF OUTLETS MOUNTED ABOVE COUNTERS, BENCHES AND BACKSPLASHES.

PANELBOARDS - PROVIDE DEAD-FRONT CIRCUIT BREAKER PANELBOARDS WITH BUS SIZE, SHORT CIRCUIT RATING, NUMBER AND SIZE OF BRANCH CIRCUITS AS SHOWN ON THE DRAWINGS. CABINETS SHALL BE 6 INCHES DEEP BY 20 INCHES WIDE MINIMUM. PROVIDE WITH SURFACE FRONTS, AS NOTED ON THE DRAWINGS, WITH CONCEALED TRIM CLAMPS, CONCEALED HINGE AND FLUSHLOCK, MOLDED CASE CIRCUIT BREAKERS SHALL BE BOLT-ON THERMAL MAGNETIC TRIP TYPE WITH COMMON TRIP HANDLE FOR ALL POLES. PROVIDE CIRCUIT BREAKERS UL LISTED AS TYPE SWD FOR LIGHTING CIRCUITS SWITCHED AT THE PANELBOARD. PROVIDE UL CLASS A GROUND FAULT INTERRUPTER CIRCUIT BREAKERS FOR GFCI CIRCUITS AS INDICATED ON THE DRAWINGS. INSTALL PANELBOARDS PLUMB WITH TOP OF CABINET 6'-6" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED ON THE DRAWINGS. PROVIDE TYPED OR NEATLY HANDWRITTEN CIRCUIT DIRECTORIES FOR EACH PANELBOARD. MEASURE STEADY STATE LOAD CURRENTS OF EACH PANELBOARD FEEDER AND REARRANGE BRANCH CIRCUITS AS REQUIRED TO MAINTAIN A MAXIMUM 20 PERCENT DIFFERENCE BETWEEN PHASES. REVISE CIRCUIT DIRECTORY TO REFLECT CIRCUITING CHANGES REQUIRED TO BALANCE PHASE LOADS.

RECEPTACLES - PROVIDE NEMA 5-20R DUPLEX GROUNDING TYPE RECEPTACLES WITH IVORY FINISH, MEETS ALL REQUIREMENTS OF FEDERAL SPECIFICATION WC-596F, UL NO. 498 APPROVED, SELF-GROUNDING. CERTIFIED TO COMPLY WITH NEMA WD-1-4.02 THROUGH 4.11, 1979 TESTS. SCREW TERMINAL OR SCREW CLAMP TYPE ONLY. SPRING CLAMPED TYPE TERMINATIONS ARE NOT ACCEPTABLE. PROVIDE DUPLEX CONVENIENCE RECEPTACLES WITH CLASS "A" INTEGRAL GROUND FAULT CURRENT INTERRUPTER AND SPECIFIC-USE RECEPTACLES WHERE INDICATED ON THE DRAWINGS. UNLESS OTHERWISE NOTED ON THE DRAWINGS, INSTALL RECEPTACLES 18 INCHES ABOVE FINISH FLOOR, 4 INCHES ABOVE COUNTERS AND BACKSPLASHES WITH GROUNDING POLE ON BOTTOM. UNLESS OTHERWISE NOTED DIMENSIONS ARE TO CENTERLINE OF OUTLET.

SWITCHES - PROVIDE NEMA WD-1 20 AMPERE, 120/277 VOLT AC GENERAL USE SNAP SWITCH, UL NO. 20 LISTED, SELF-GROUNDING BINDING SCREW TYPE TERMINALS WITH IVORY TOGGLE, SINGLE POLE, OR THREE WAY AS INDICATED ON THE DRAWINGS. PROVIDE LINE VOLTAGE RED LIGHTED NEON TOGGLE PILOT LIGHT SWITCHES AS INDICATED ON THE DRAWINGS. INSTALL SWITCHES 48 INCHES ABOVE FINISHED FLOOR, OFF POSITION DOWN.

DEVICE PLATES - PROVIDE UL LISTED, CAST ALUMINUM, HINGED OUTLET COVER/ENCLOSURE WITH GASKET BETWEEN THE ENCLOSURE AND THE MOUNTING SURFACE, SUITABLE FOR WET LOCATION WHILE IN USE FOR ALL OUTLETS.

LIGHTING EQUIPMENT - PROVIDE AND INSTALL ALL LIGHTING EQUIPMENT OR APPROVED EQUAL AS SHOWN ON THE DRAWINGS AND DESCRIBED IN THE "FIXTURE SCHEDULE". PROVIDE LIGHTING EQUIPMENT COMPLETE, WIRED, ASSEMBLED, WITH PROPER FLANGES, MOUNTING SUPPORTS, HARDWARE, ETC. PROVIDE ELECTRONIC BALLASTS WITH A MAXIMUM THD OF 20% AND A MINIMUM BALLAST FACTOR OF .88 FOR ALL FLUORESCENT FIXTURES AND HIGH POWER FACTOR, REGULATING OR CONSTANT WATTAGE TYPE BALLASTS FOR HID FIXTURES. UNLESS OTHERWISE NOTED ON THE DRAWINGS, INCANDESCENT LAMPS SHALL BE INSIDE FROSTED TYPE RATED 130 VOLTS AND FLUORESCENT LAMPS SHALL BE 3500 DEGREE K, TRI-PHOSPHOR TYPE WITH A MINIMUM CRI OF 82.

EQUIPMENT CONNECTIONS - PROVIDE WIRING AND CONNECTION OF EQUIPMENT REQUIRING ELECTRICAL POWER BUT SPECIFIED UNDER OTHER DIVISIONS OF THE SPECIFICATIONS. EQUIPMENT SHALL INCLUDE BUT IS NOT LIMITED TO MOTORS, PUMPS, WATER TREATMENT SYSTEM EQUIPMENT, ETC. REVIEW EQUIPMENT SUBMITTALS PRIOR TO INSTALLATION AND ELECTRICAL ROUGH-IN. VERIFY LOCATION, SIZE. TYPE OF CONNECTIONS, AND THAT EQUIPMENT IS READY FOR ELECTRICAL CONNECTION. MAKE WIRING CONNECTIONS IN CONTROL PANEL OR IN WIRING COMPARTMENT OF PREWIRED EQUIPMENT IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. PROVIDE INTERCONNECTING WIRING AND DISCONNECTS WHERE REQUIRED.

FRACTIONAL HORSEPOWER MANUAL STARTER - NEMA ICS 2; AC GENERAL-PURPOSE CLASS A MANUALLY OPERATED, NUMBER OF POLES AS REQUIRED BY THE LOAD SERVED. FULL-VOLTAGE CONTROLLER FOR FRACTIONAL HORSEPOWER INDUCTION MOTORS, WITH THERMAL OVERLOAD UNIT, RED PILOT LIGHT, AND TOGGLE OPERATOR.

POLE MOUNTED DISTRIBUTION TRANSFORMER - ANSI C57.12.20; SINGLE PHASE, OIL FILLED, SELF-COOLED TRANSFORMER WITH PRIMARY BUSHINGS, LIGHTING ARRESTOR, PRIMARY FUSE, AND SECONDARY CIRCUIT BREAKER, AND SECONDARY TERMINATIONS. 15 KVA, 7.2 KV PRIMARY VOLTAGE; PROVIDE STANDARD PRIMARY TAPS WITH EXTERNALLY OPERABLE TAP CHANGER, 240V SECONDARY VOLTAGE, MAXIMUM 2% IMPEDANCE, 75 KV BASE IMPULSE LEVEL, 65 DEGREES C ABOVE 30 DEGREES C AMBIENT TEMPERATURE RISE. WITH ANSI C57.12.20 STANDARD ACCESSORIES. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND REA STANDARDS.

PENETRATIONS OF FIRE BARRIERS - ALL ELECTRICAL PENETRATIONS THROUGH FIRE RATED BARRIERS SHALL BE SEALED IN ACCORDANCE WITH NEC ARTICLE 300-21 AND THE FOLLOWING:

ALL HOLES OR VOIDS CREATED TO EXTEND ELECTRICAL SYSTEMS THROUGH FIRE RATED FLOORS, WALLS OR CEILING SHALL BE SEALED WITH AN ASBESTOS-FREE INTUMESCENT FIRE STOPPING MATERIAL CAPABLE OF EXPANDING 8 TO 10 TIMES WHEN EXPOSED TO TEMPERATURES 250 DEGREES F OR HIGHER.

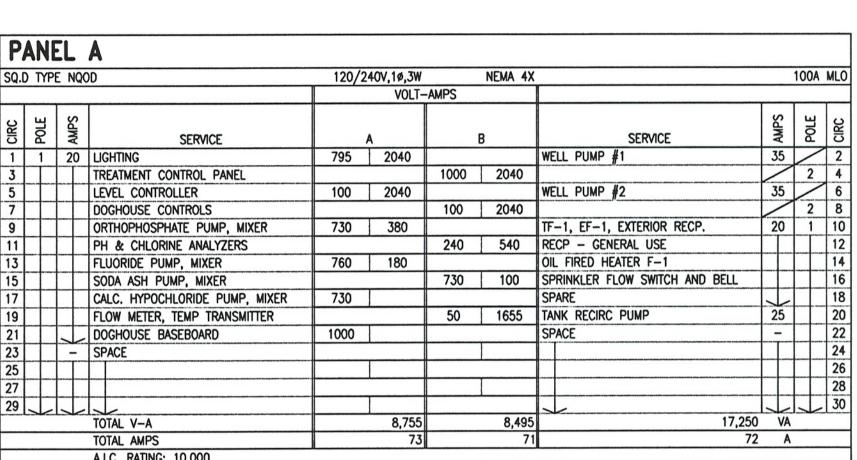
MATERIALS SHALL BE SUITABLE FOR THE FIRE STOPPING OF PENETRATIONS MADE BY STEEL, GLASS, PLASTIC AND SHALL BE CAPABLE OF MAINTAINING AN EFFECTIVE BARRIER AGAINST FLAME, SMOKE AND GASES IN COMPLIANCE WITH THE REQUIREMENTS OF ASTM E814, UL 1479 AND THE UL FIRE RESISTANCE DIRECTORY REQUIREMENTS FOR THROUGH-PENETRATION FIRESTOP DEVICES (XHCR).

THE RATING OF THE FIRE STOPS SHALL BE THE SAME AS THE TIME-RATED FLOOR, WALL OR CEILING ASSEMBLY.

INSTALL FIRE STOPPING MATERIALS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

UNLESS PROTECTED FROM POSSIBLE LOADING OR TRAFFIC, INSTALL FIRE STOPPING MATERIALS IN FLOORS HAVING VOID OPENINGS OF FOUR (4) INCHES OR MORE TO SUPPORT THE SAME FLOOR LOAD REQUIREMENTS AS THE SURROUNDING FLOOR."

		40V,1ø,3W		NEMA 4X				-10	)OA	MILC
		VOLT-	AMPS				_	_		
SERVICE SERVICE		A	E	3		SERVICE	AMPS		POLE	CIRC
1 1 20 LIGHTING	795	2040			WELL PUMP #	1	35		/	2
3 TREATMENT CONTROL PANEL			1000	2040			/	1	2	4
5 LEVEL CONTROLLER	100	2040			WELL PUMP	12	35		_	6
7 DOGHOUSE CONTROLS			100	2040			/		2	8
9 ORTHOPHOSPHATE PUMP, MI	XER 730	380			TF-1, EF-1,	EXTERIOR RECP.	20		1	10
11 PH & CHLORINE ANALYZERS			240	540	RECP - GENE	eral use				12
13   FLUORIDE PUMP, MIXER	760	180			OIL FIRED HE	ater F—1			$\perp$	14
15 SODA ASH PUMP, MIXER			730	100	SPRINKLER FL	OW SWITCH AND BELL				16
17 CALC. HYPOCHLORIDE PUMP	MIXER 730				SPARE			_	$\mathbf{I}_{-}$	18
19   FLOW METER, TEMP TRANSM	TTER		50	1655	TANK RECIRC	PUMP	25			20
21 DOGHOUSE BASEBOARD	1000				SPACE				I	20 22 24
23 - SPACE										24
25										26 28
27										28
29								_		30
TOTAL V-A		8,755		8,495		17,25	0 V	Ά		
TOTAL AMPS		73		71		7.	2	A		
A.I.C. RATING: 10,000										_



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PROJECT NO.

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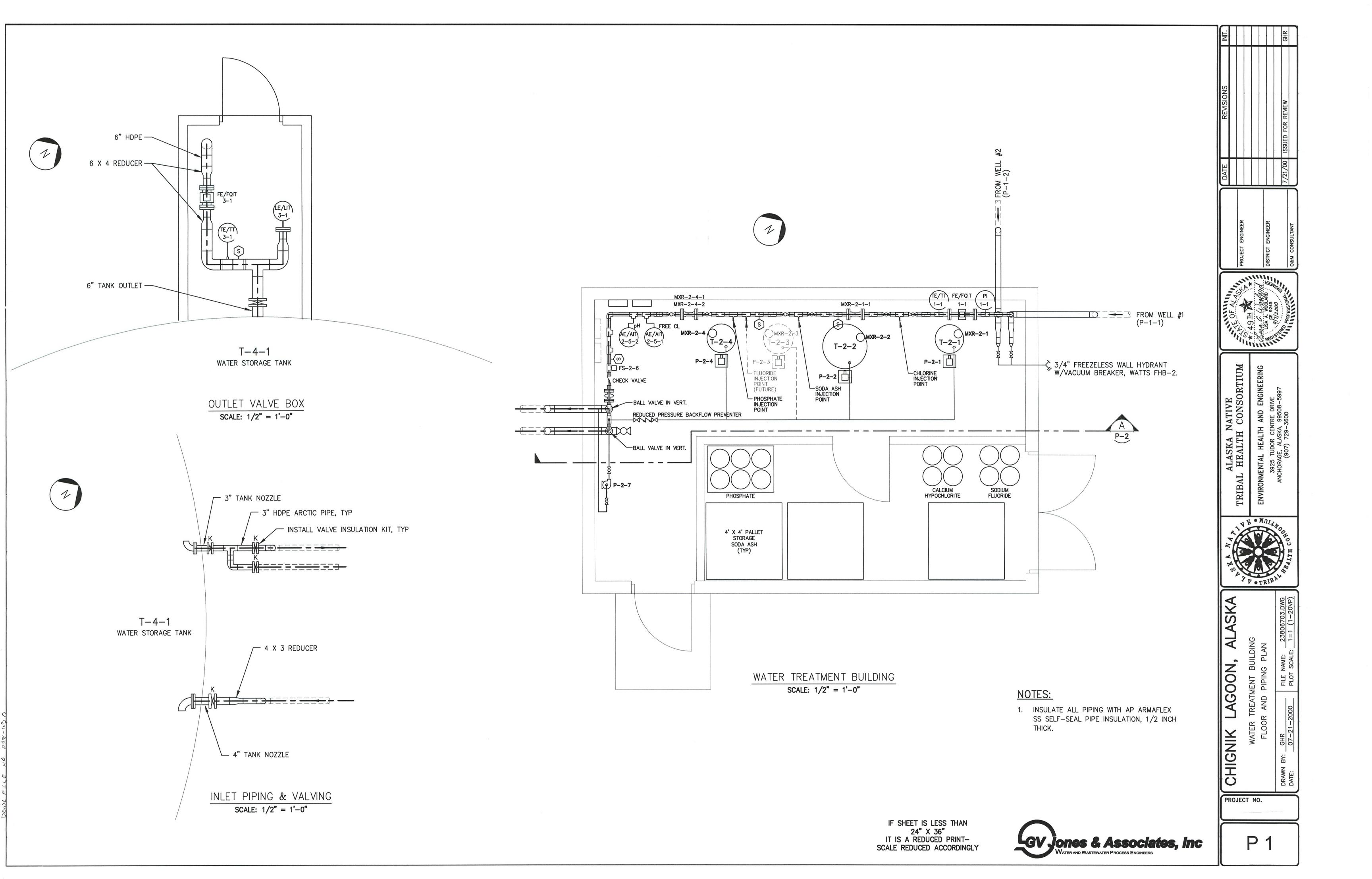
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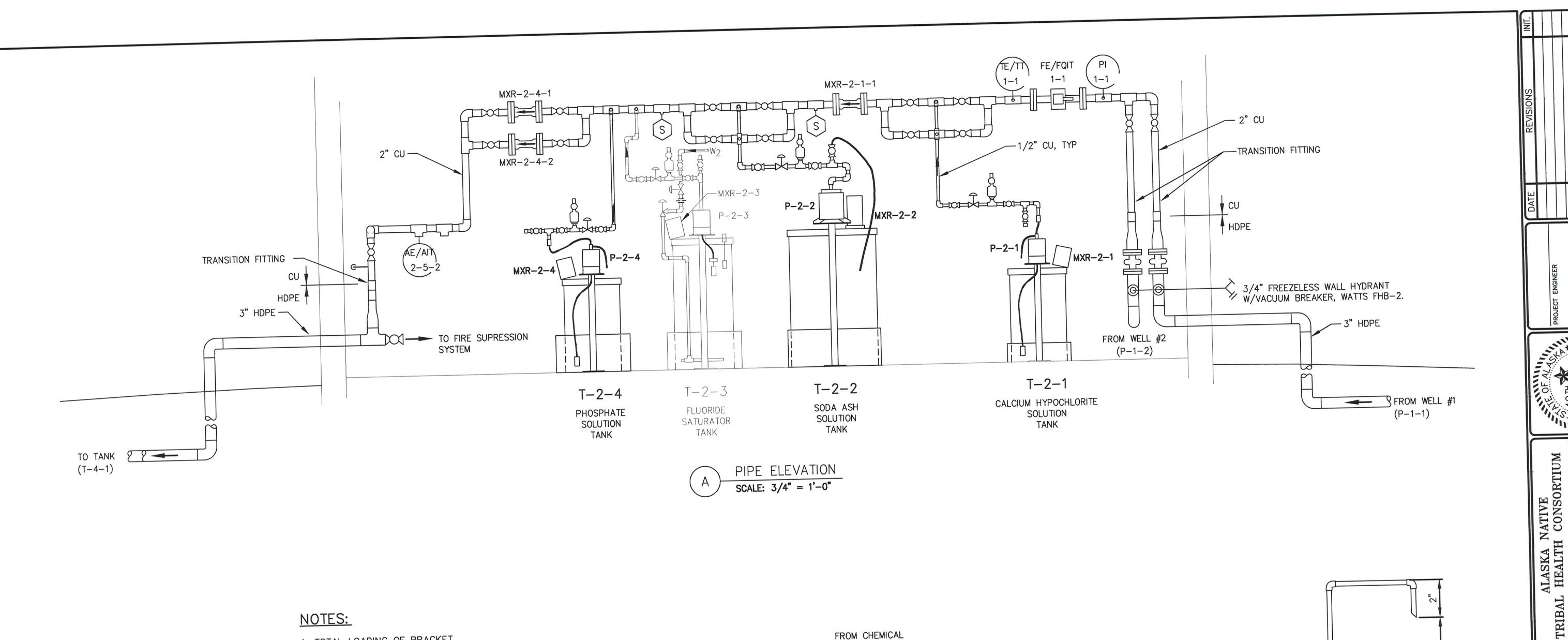
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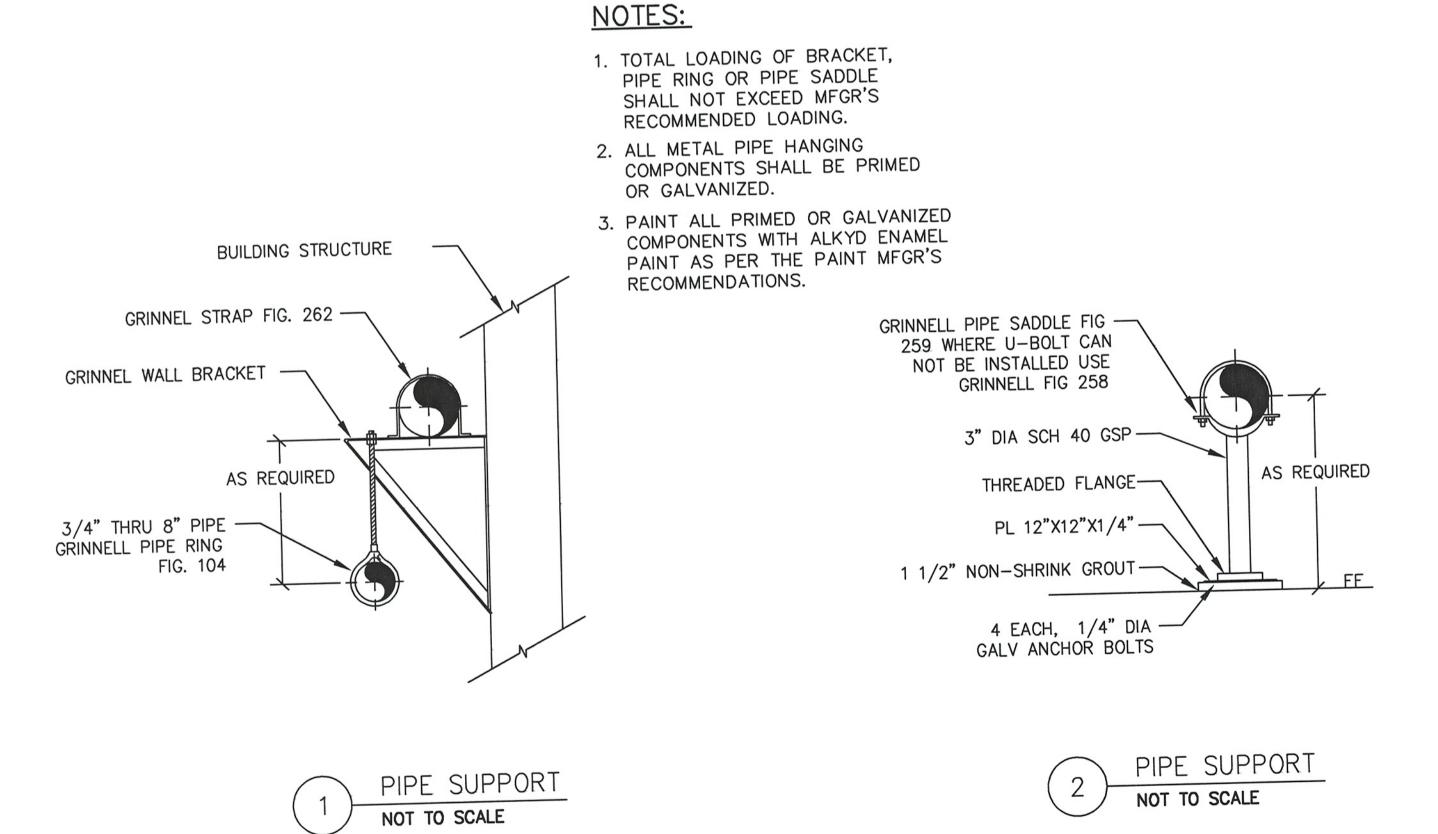
Engineering, Inc. MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS

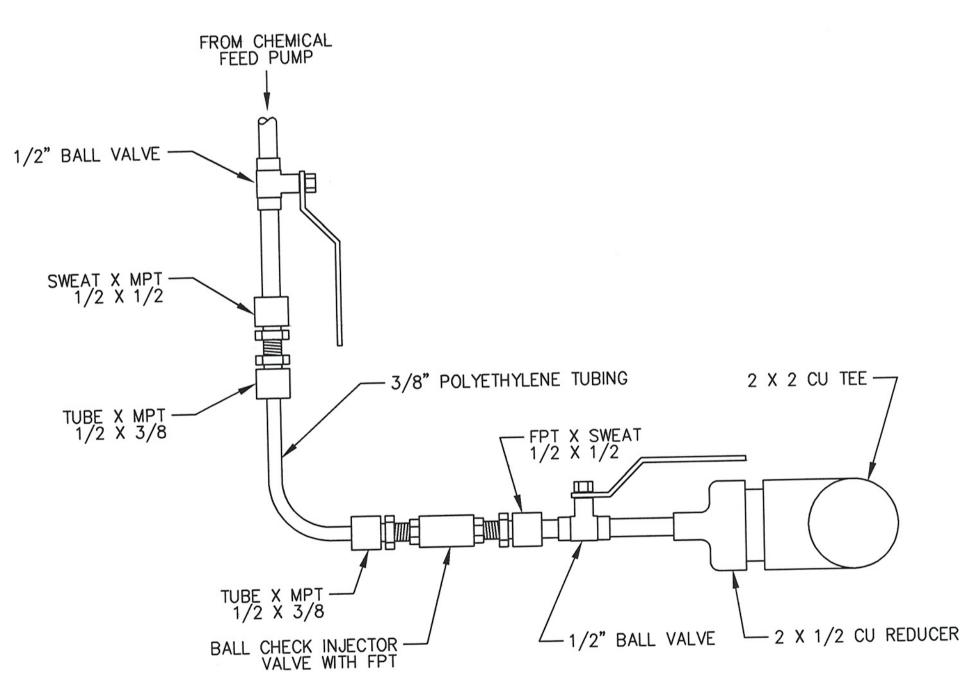
2522 Arctic Boulevard, Suite 200 Anchorage, AK 99503-2516 Phone (907) 276-0521 Fax (907) 276-1751

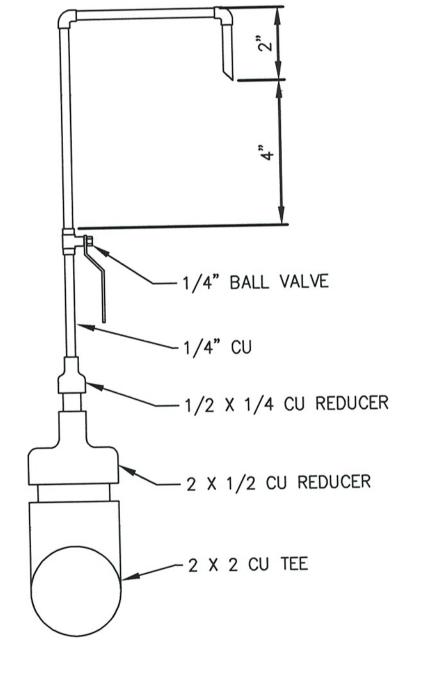
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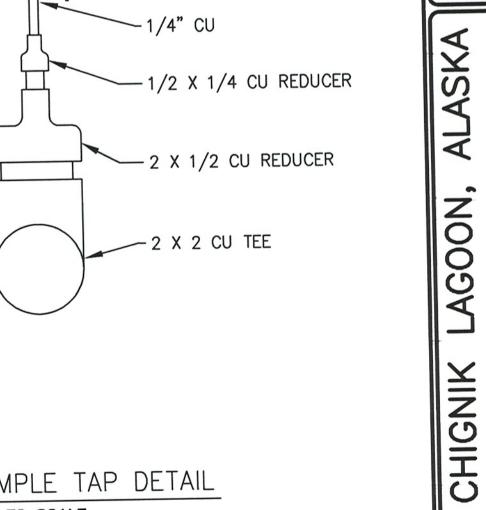












CHEMICAL INJECTION DETAIL NOT TO SCALE

SAMPLE TAP DETAIL NOT TO SCALE

IF SHEET IS LESS THAN

24" X 36"

IT IS A REDUCED PRINT— SCALE REDUCED ACCORDINGLY



P 2

PROJECT NO.

# INTERFACE SYMBOLS & LINETYPE LEGEND PRIMARY PROCESS LINE SECONDARY PROCESS LINE INSTRUMENT LINE ANALOG SIGNAL PULSED FREQUENCY DISCRETE SIGNAL INTERFACE TO OR FROM SEPARATE PROCESS TO DWG DESTINATION OR SOURCE DRAWING

## INSTRUMENT IDENTIFICATION

SIGNAL INTERFACE

PROCESS INTERFACE

#### INSTRUMENT SOCIETY OF AMERICA TABLE

	FIRST LETTER	(S)		SUCCEEDING LETTERS	
LETTER	PROCESS OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
Α	ANALYSIS (+)		ALARM		
В	BURNER FLAME		USERS CHOICE (+)	USERS CHOICE (+)	USERS CHOICE (+)
С	CONDUCTIVITY			CONTROL	
D	DENSITY (S.G.)	DIFFERENTIAL			
Ε	VOLTAGE		PRIMARY ELEMENT		
F	FLOW RATE	RATIO			
G	GAUGE		GLASS	GATE	
Н	HAND (MANUAL)				HIGH
1	CURRENT		INDICATE		
J	POWER	SCAN			
К	TIME OR SCHEDULE			CONTROL STATION	
L	LEVEL		LIGHT (PILOT)		LOW
М	MOTION				MIDDLE
N	USERS CHOICE (+)		USERS CHOICE (+)	USERS CHOICE (+)	USERS CHOICE (+)
0	USERS CHOICE (+)		ORIFICE		
Р	PRESSURE (OR VACUUM)		POINT (TEST CONNECTION)		
Q	QUANTITY OR EVENT (+)	INTEGRATE	INTEGRATE		
R			RECORD OR PRINT		
S	SPEED OR FREQUENCY	SAFETY		SWTCH	
Т	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE (+)		MULTIFUNCTION	MULTIFUNCTION (+)	MULTIFUNCTION (+)
٧	VISCOSITY			VALVE OR DAMPER	
w	WEIGHT OR FORCE		WELL		
Х	UNCLASSIFIED (+)			SEQUENCE	
Υ	USERS CHOICE (+)			RELAY OR COMPUTE (+)	
Z	POSITION			DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT	

(+) WHEN USED, EXPLANATION IS SHOWN NEXT TO INSTRUMENT SYMBOL.

## **NOTES:**

1. BOLD TYPE AND LINE WEIGHT REPRESENT EQUIPMENT TO BE INSTALLED DURING CONSTRUCTION. LIGHT TYPE AND LINE WEIGHT REPRESENT EQUIPMENT TO BE INSTALLED AT A FUTURE TIME.

### <u>VALVES</u>

$\bowtie$	GATE VALVE
$\bowtie$	KNIFE GATE VALVE

GLOBE VALVE

BUTTERFLY VALVE MOTOR OPERATED

BUTTERFLY VALVE

BUTTERFLY VALVE PNEUMATICALLY OPERATED

BALL VALVE

CHECK VALVE

NEEDLE VALVE

PLUG VALVE

BALL CHECK VALVE

ANGLE VALVE 3-WAY VALVE

4 WAY VALVE

DIAPHRAGM OPERATED

PRESSURE RELIEF VALVE

PRESSURE CONTROL-EXTERNAL

PRESSURE CONTROL-SELF CONTAINED

HYDRAULIC/PNEUMATIC PISTON

MOTOR OPERATED VALVE

2-WAY SOLENOID

3-WAY SOLENOID

PRESURE/SAFETY RELIEF

VACUUM RELIEF

VACUUM BREAKER VALVE

SAMPLE PORT

ON LINE PROCESS INSTRUMENT DRAIN

REDUCED PRESSURE BACKFLOW PREVENTER **MNNM** 



HOSE BIBB

#### **SYMBOLS**

## BASKET STRAINER



Y-TYPE STRAINER

FLOW INDICATOR

FLOW METER, TURBINE

FLOW METER, MAGNETIC

FLOW METER, NUTATING DISK

FLOW METER, PADDLE

FLOW SWITCH, PADDLE IN-LINE STATIC MIXER

FLEX CONNECTION

FLOW CONTROL ORIFICE

ORIFICE PLATE

INSULATION

PULSATION DAMPENER

CALIBRATION CYLINDER

PIPE END CAP

REDUCER

**FLANGE** 

MOTOR STARTER

COMPRESSED AIR SUPPLY SUPPLY PRESSURE INDICATED

INTAKE SCREEN

LEVEL SWITCH FLOAT

FLOW DIRECTION

## **INSTRUMENT TAGS**

FIELD MOUNTED ELEMENT

PANEL MOUNTED ELEMENT

MOTOR CONTROL CENTER MOUNTED INSTRUMENT

— FIRST LETTER (S)

——— SUCCEEDING LETTERS

THE TOTAL NUMBER OF ITEMS

UNIT NUMBER OR LETTER (USED WHEN THERE ARE MULTIPLE UNITS WITH THE SAME W-X DESIGNATION)

- LOOP EQUIPMENT NUMBER

- PROCESS NUMBER

SIGNAL SPLITTER

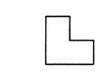
## <u>PUMPS</u>



(W-X-)

CENTRIFUGAL PUMP

DIAPHRAGM PUMP



CHEMICAL SOLUTION PUMP POSITIVE DISPLACEMENT



SUMP PUMP SUBMERSIBLE CENTRIFUGAL



WELL PUMP SUBMERSIBLE CENTRIFUGAL

## **ABBREVIATIONS**

**BYPASS** 

CONDUCTIVITY

CONTROL VALVE

**FLUORIDE** 

FINISHED WATER HAND OFF AUTO

HEAT EXCHANGER

LOCAL REMOTE

MIXER AMMONIA

SODA ASH TURBIDITY

UNDERGROUND

NON-POTABLE WATER (UTILITY WATER)

WATER CONTROL PANEL PROCESS WASTE WATER

ABOVE FINISHED FLOOR

AIR RELIEF VALVE

CHLORINE

CONTROL PANEL

FLOW CONTROL VALVE

HIGH PRESSURE AIR

ANTISCALANT (SCALE INHIBITOR)

MILLION GALLON MOTOR STARTER

OVERFLOW

OXIDATION REDUCTION POTENTIAL

**PUMP** PHOSPHATE PRESSURE RELIEF VALVE

RAW WATER

TREATED WATER **TYPICAL** 



ASKA

AGOON,

TRIBAL

MENTAL HEALTH AND ENGINEERING 3925 TUDOR CENTRE DRIVE

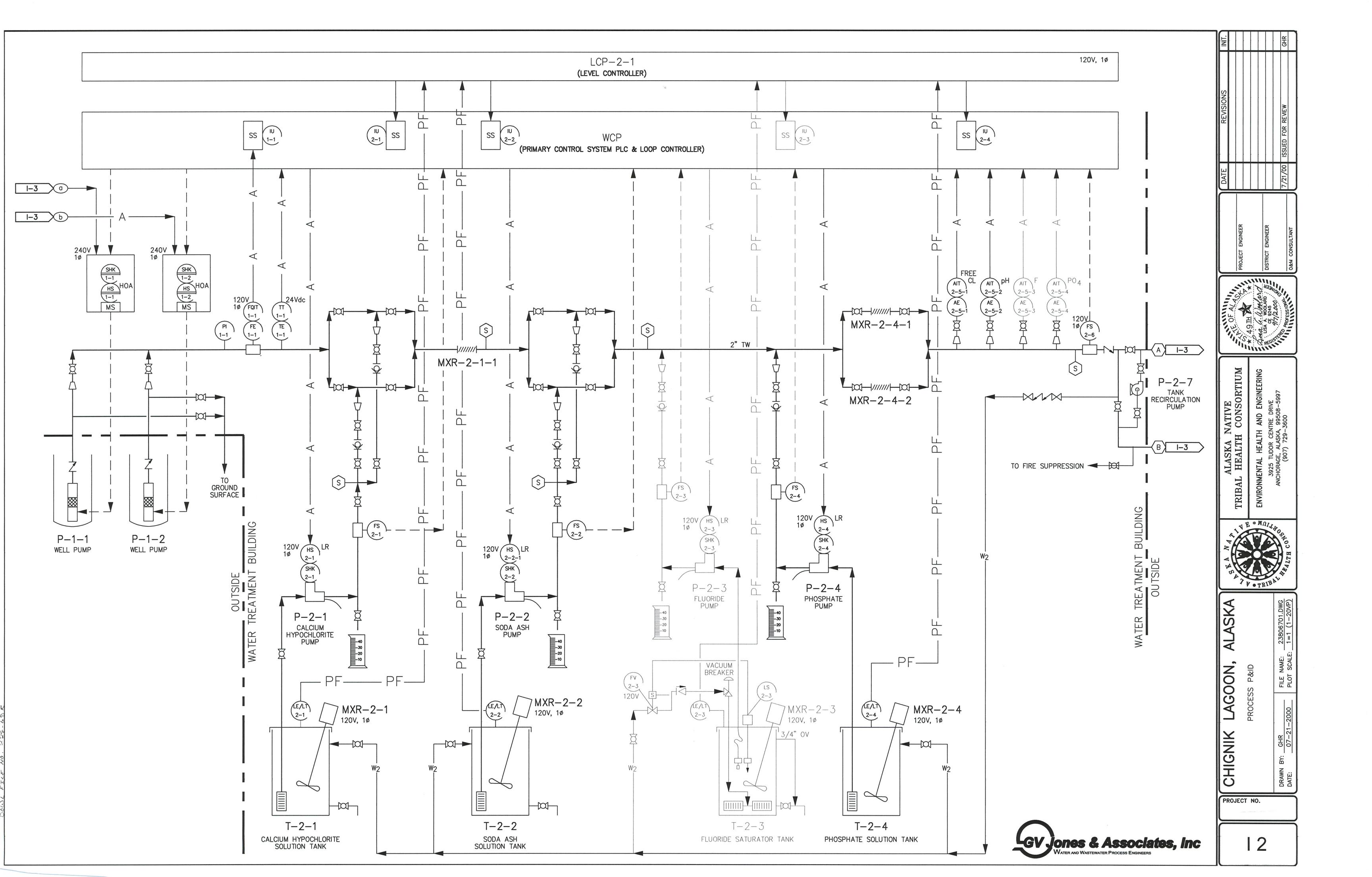
ALASKA NATIVE HEALTH CONSORTIUM

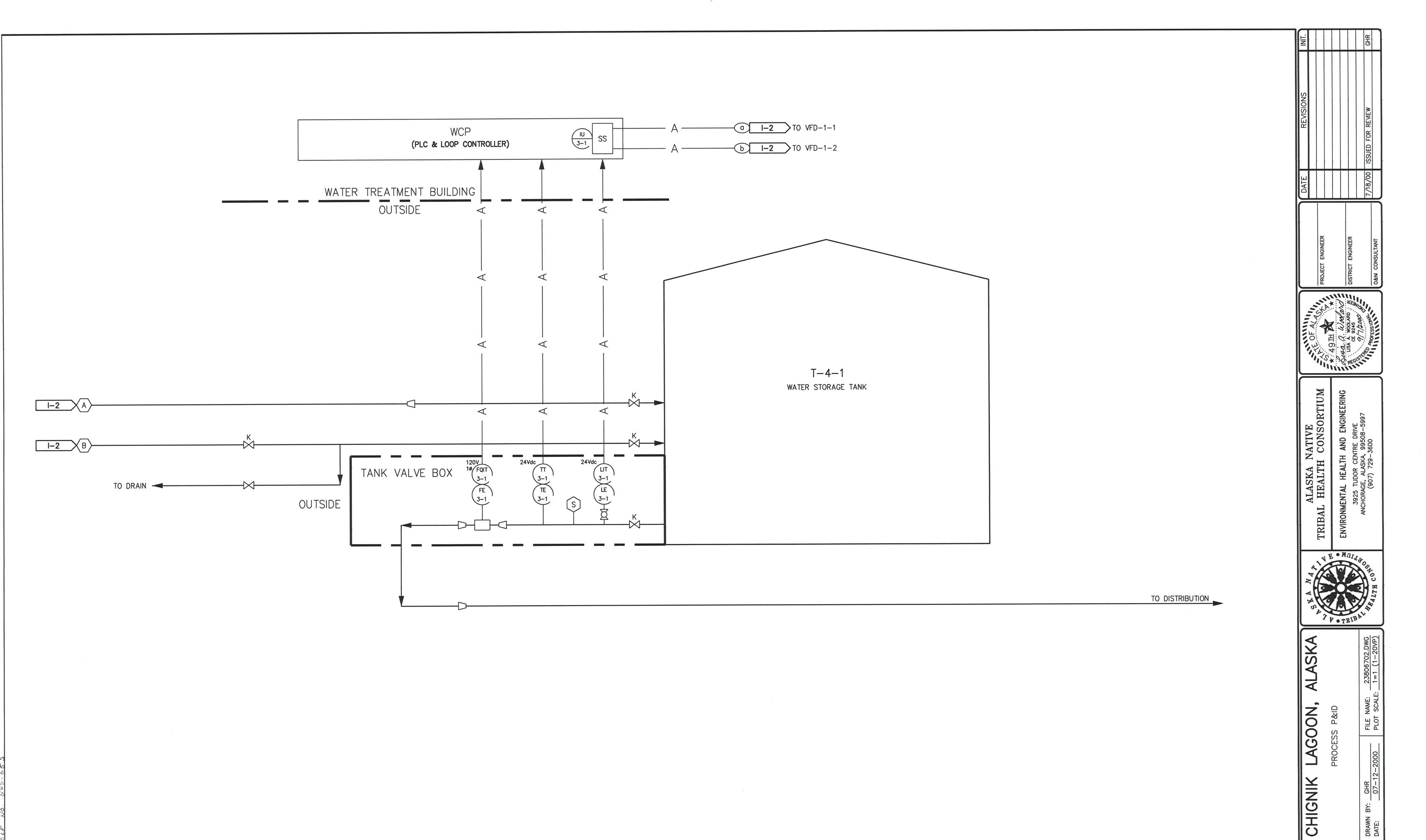
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GV Jones & Associates, Inc Water and Wastewater Process Engineers

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