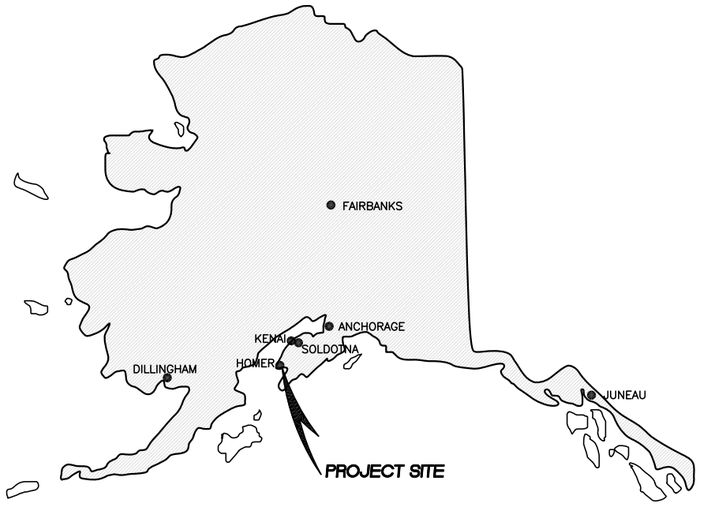
HOMER LIBRARY BACKUP GENERATOR

THIS PROJECT FUNDED BY THE
2015 STATE HOMELAND SECURITY PROGRAM
(STATE PROJ. # 205HSP-GY15)



LOCATION MAP

CITY OF HOMER -ALASKA- MARCH 31, 1964

MAYOR
BETH WYTHE

CITY MANAGER
KATIE KOESTER

PUBLIC WORKS DIRECTOR
CAREY S. MEYER, P.E.

CITY COUNCIL MEMBERS
DONNA ADERHOLD
GUS VAN DYKE
DAVID LEWIS
CATRIONA REYNOLDS
HEATH SMITH
BRYAN ZAK

DRAWING INDEX

STATE OF ALASKA 49TH — WILLIAM J. NELSON — CE - 5460 — 12/31/16 — Registered Professional

NO.	REVISION	DATE

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NELSON ENGINEERING

CITY OF HOMER
HOMER LIBRARY BACKUP GENERATOR
TITLE SHEET AND DRAWING INDEX

PROJECT NO.

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WJN
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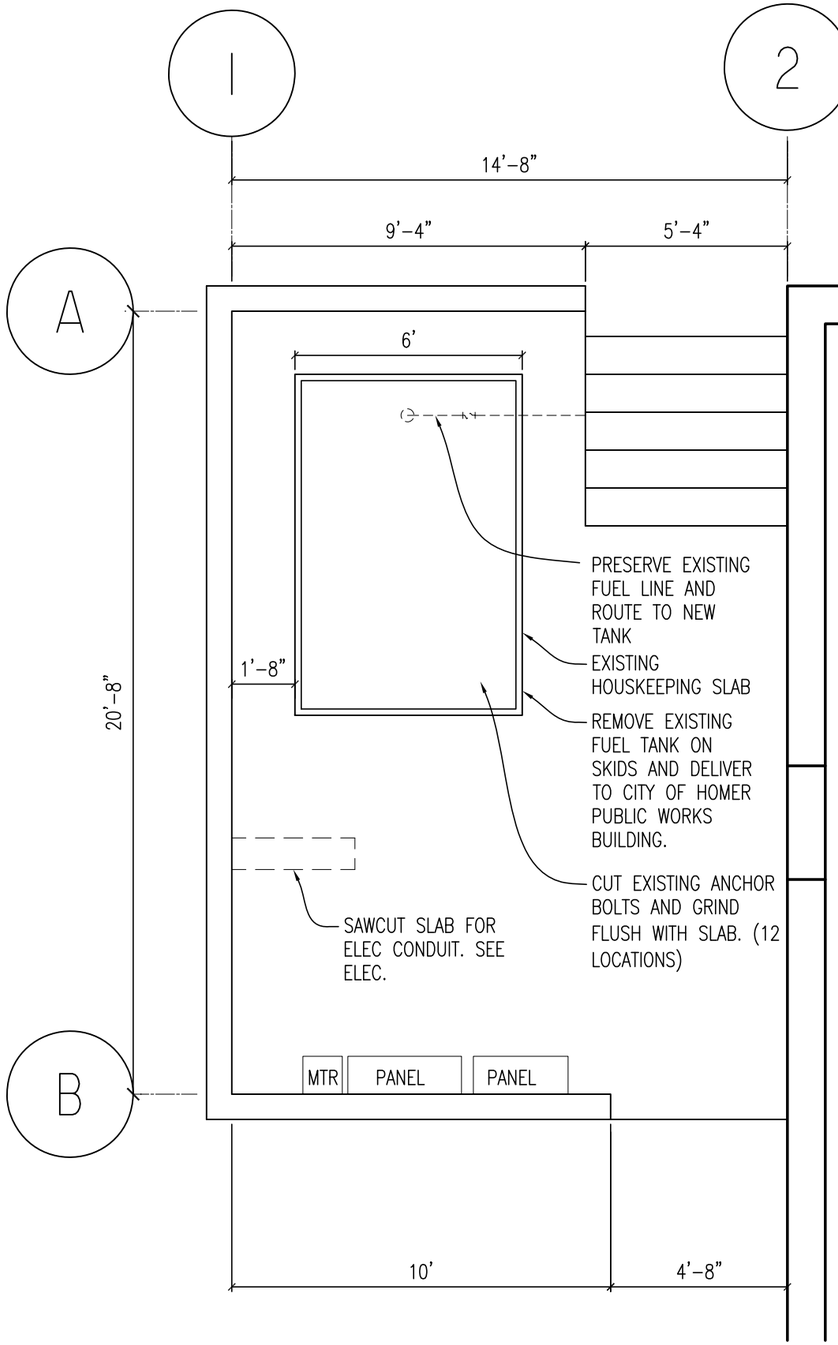
WJN
DATE: 09-06-2016
SCALES: NOTED
HORIZ. NOTED
VERT. NOTED
SHEET



1 DEMOLITION PLAN
1/2" = 1' (22X34 PLOT) 1/4" = 1' (11X17 PLOT)

EXISTING ELECTRICAL PANELS

EXISTING FUEL TANK AND SLAB WITH SKID CLAMP

EXISTING FUEL TANK AND FUEL LINE

EXISTING FUEL TANK AND STAIRS

EXISTING TANK AND ENCLOSURE LOOKING SOUTH

2 EXISTING ENCLOSURE PHOTOS
NTS

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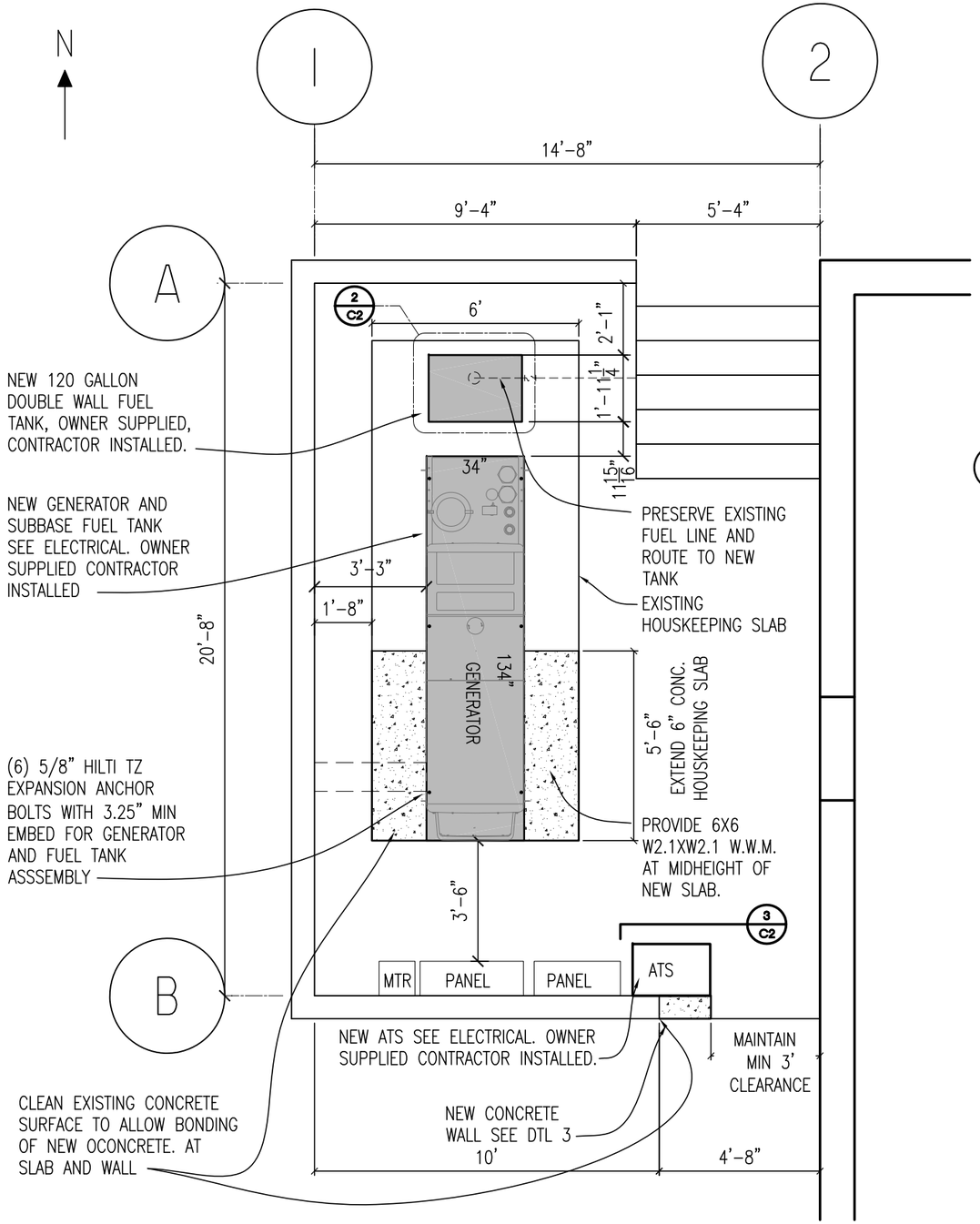

1 ENCLOSURE PLAN

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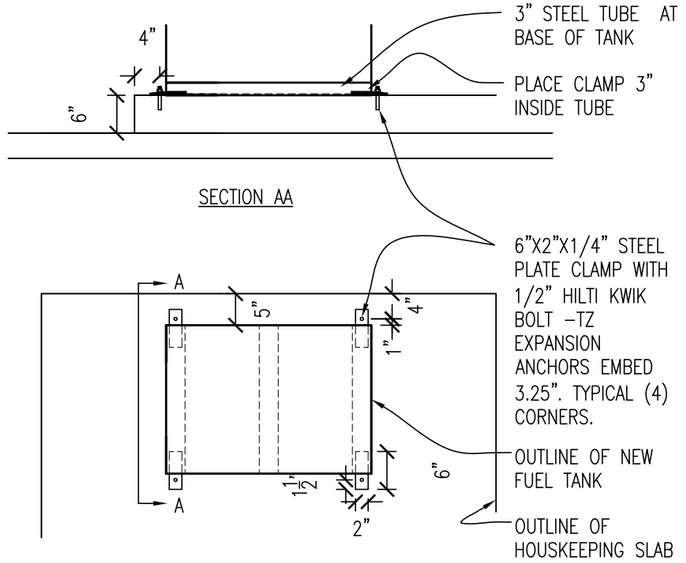
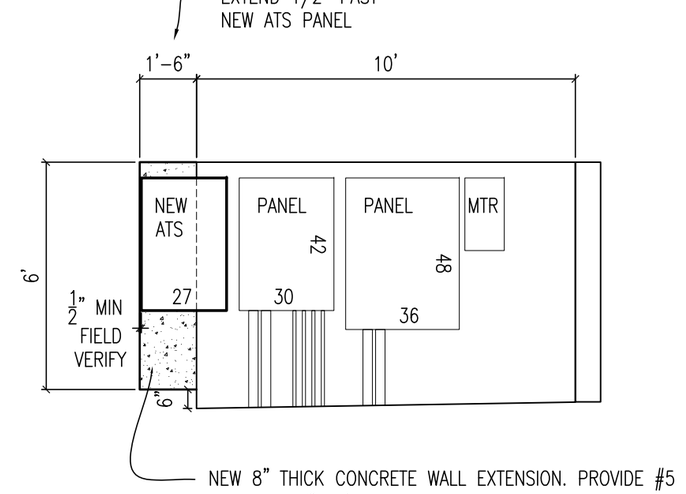


2 FUEL TANK ANCHORING PLAN

1" = 1' (22X34 PLOT) 1/2" = 1' (11X17 PLOT)



3 PANEL LAYOUT AND CONC WALL EXTENSION

1/2" = 1' (22X34 PLOT 1/4" = 1' (11X17 PLOT)

TECHNICAL SPECIFICATIONS

GENERAL

ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO REQUIREMENTS OF THE INTERNATIONAL CODE COUNCIL INTERNATIONAL BUILDING CODE (IBC) 2009 EDITION. WHERE EXPLICIT DETAILS ARE NOT SHOWN OR DESCRIBED, THE MINIMUM REQUIREMENTS OF THE ABOVE CODE SHALL APPLY. UNLESS OTHERWISE NOTED, ALL CODES, STANDARDS AND OTHER PUBLICATIONS CITED SHALL REFER TO THE LATEST EDITION.

LOCATION

THIS PROJECT DESIGNED FOR THE HOMER PUBLIC LIBRARY IN HOMER, AK.

CONCRETE

MIXING, SELECTION OF MATERIALS, AND PLACING OF ALL CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF THE IBC, CHAPTER 19. AN AIR ENTRAINING AGENT SHALL BE USED IN ALL CONCRETE MIXES FOR CONCRETE WORK WHICH IS TO BE EXPOSED TO EARTH OR WEATHER.
AIR ENTRAINMENT SHALL BE 5% +/- 1% BY VOLUME. ALL CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH (F'C) = 3000 P.S.I. CONCRETE FOR INTERIOR AND EXTERIOR SLABS SHALL CONTAIN 0.1% BY VOLUME 'GENESIS FIBER' COLLATED FIBRILLATED POLYPROPYLENE FIBER PER CUBIC YARD OF CONCRETE. THE FIBER SHALL BE THOROUGHLY MIXED INTO THE CONCRETE IN TRANSIT TO THE SITE, IN ACCORDANCE WITH THE FIBER MANUFACTURER'S RECOMMENDATIONS.

ANCHOR BOLTS AND CONCRETE EXPANSION ANCHORS

ANCHOR BOLTS, THREADED RODS AND CONCRETE EXPANSION ANCHORS SHALL CONFORM TO ASTM F1554 GRADE 36 MIN. CONCRETE EXPANSION ANCHORS SHALL BE "HILTI KWIK BOLT TZ" CONCRETE EXPANSION ANCHORS OR STRUCTURAL EQUIVALENT, INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

ADHESIVE ANCHORING SYSTEM

THREADED ROD ANCHORS AND REINFORCING BAR DOWELS SHALL BE SET IN HILTI HY 200 OR STRUCTURAL EQUIVALENT. ADHESIVE ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE ADHESIVE MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES. MINIMUM EMBEDMENT IN CONCRETE FOR ALL ADHESIVE ANCHORS SHALL BE 8" UNLESS NOTED OTHERWISE.

REINFORCING STEEL

UNLESS NOTED OTHERWISE, ALL REINFORCING STEEL SHALL BE DEFORMED BARS CONFORMING TO IBC CHAPTER 19. REINFORCING BARS SHALL BE GRADE 60. REINFORCING STEEL SHALL BE SECURELY TIED IN PLACE WITH #16 DOUBLE ANNEALED IRON WIRE. REINFORCING IN FOOTINGS SHALL BE SUPPORTED ON WELL CURED CONCRETE BLOCKING OR APPROVED METAL CHAIRS. REINFORCING BARS SHALL BE SPLICED BY A LAP OF AT LEAST 30 BAR DIAMETERS. A MINIMUM LAP FOR ALL BARS SHALL BE 24". CONCRETE COVER OVER REINFORCING SHALL BE 3" FOR CONCRETE CAST AGAINST EARTH. CONCRETE COVER FOR FORMED CONCRETE THAT WILL BE EXPOSED TO WEATHER OR EARTH SHALL BE 2" MINIMUM FOR #6 THROUGH #18 BARS AND 1 1/2" MINIMUM FOR #5 BARS AND SMALLER, INCLUDING WELDED WIRE FABRIC (WWF). OTHER REINFORCEMENT SHALL HAVE A MINIMUM COVERAGE OF NOT LESS THAN 3/4".

SPECIAL INSPECTION NOTES

OWNER SHALL PROVIDE A SPECIAL INSPECTION PROGRAM IN ACCORDANCE WITH IBC CHAPTER 17. PROVIDE DOCUMENTATION OF SPECIAL INSPECTION TO ENGINEER OF RECORD AND BUILDING OFFICIAL.

CONCRETE

1.) INSPECTION OF REINFORCING STEEL SIZE AND PLACEMENT PRIOR TO PLACING OF CONCRETE.
2.) INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING PLACED
3.) PERIODIC INSPECTION OF ANCHORS INSTALLED IN HARDENED CONCRETE.
4.) PERIODIC INSPECTION OF MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.

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CITY OF HOMER
HOMER LIBRARY BACKUP GENERATOR
ENCLOSURE PLAN

PROJECT NO.

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DESCRIPTION

SYMBOL	DESCRIPTION
———	EXPOSED CONDUIT
– – – –	UNDERGROUND CONDUIT
⏚ ◉	3/4" X 10' COPPER CLAD STEEL GROUND ROD
—⑤—	CONDUIT RUN – CHANGE IN ELEVATION
	LIQUID–TIGHT FLEXIBLE METALLIC CONDUIT
Ⓙ	JUNCTION BOX OR FITTING
X/X	MOLDED CASE CIRCUIT BREAKER, X = AMPERE RATING, Y = NO. OF POLES
—UE—	UNDERGROUND ELECTRIC
—OH/E—	OVERHEAD ELECTRIC
	KILOWATT–HOUR METER
Ⓣ	THERMOSTAT
	PANELBOARD
	GROUND FAULT INTERRUPTING RECEPTACLE
	DUPLEX RECEPTACLE NEMA 5–20R
	DOUBLE DUPLEX RECEPTACLE NEMA 5–20R
	SPECIAL RECEPTACLE
$	SINGLE POLE SWITCH
$3	THREE–WAY SWITCH
	FUSED DISCONNECT SWITCH
	UNFUSED DISCONNECT SWITCH
OTHER SYMBOLS ARE AS DEFINED BY NOTE.	

CIRCUIT AND DEVICE LEGEND

A1,a — GROUP OR EQUIPMENT IDENTIFICATION.
"A" DENOTES PANEL NAME
"1" DENOTES CIRCUIT NUMBER
"a" DENOTES SWITCH LEG AS INDICATED.

$3,a — SWITCH IDENTIFICATION.
"3" DENOTES SWITCH CONFIGURATION
"a" DENOTES SWITCH LEG AS INDICATED.

ABBREVIATIONS

A	ANALOG SIGNAL, AMPERE
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISH GRADE
BCU	BARE COPPER
C	CONDUIT
CP	CONTROL PANEL
CT	CURRENT TRANSFORMER
CU	COPPER
E	EMERGENCY
(E)	EXISTING
FLA	FULL LOAD AMPERES
G	GROUND CONDUCTOR
GFI	GROUND FAULT INTERRUPTING
GRC	GALVANIZED RIGID (STEEL) CONDUIT
GND	GROUND
HDPE	HIGH DENSITY POLYETHYLENE CONDUIT
HP	HORSEPOWER
KVA	KILO–VOLT–AMPERES
LTF	LIQUID TIGHT FLEXIBLE CONDUIT (METALLIC)
MLO	MAIN LUG ONLY
(N)	NEW
N.I.C.	NOT IN CONTRACT
NC	NORMALLY CLOSED
NO	NORMALLY OPEN, NUMBER
PH	PHASE
SS	STAINLESS STEEL
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
V	VOLTS
W	WATTS
WP	WEATHERPROOF
XFMR	TRANSFORMER
XP	EXPLOSION PROOF (HAZARDOUS AREA)

INSTRUMENT IDENTIFIER

XX / YY

XX = FUNCTION / YY = LOOP

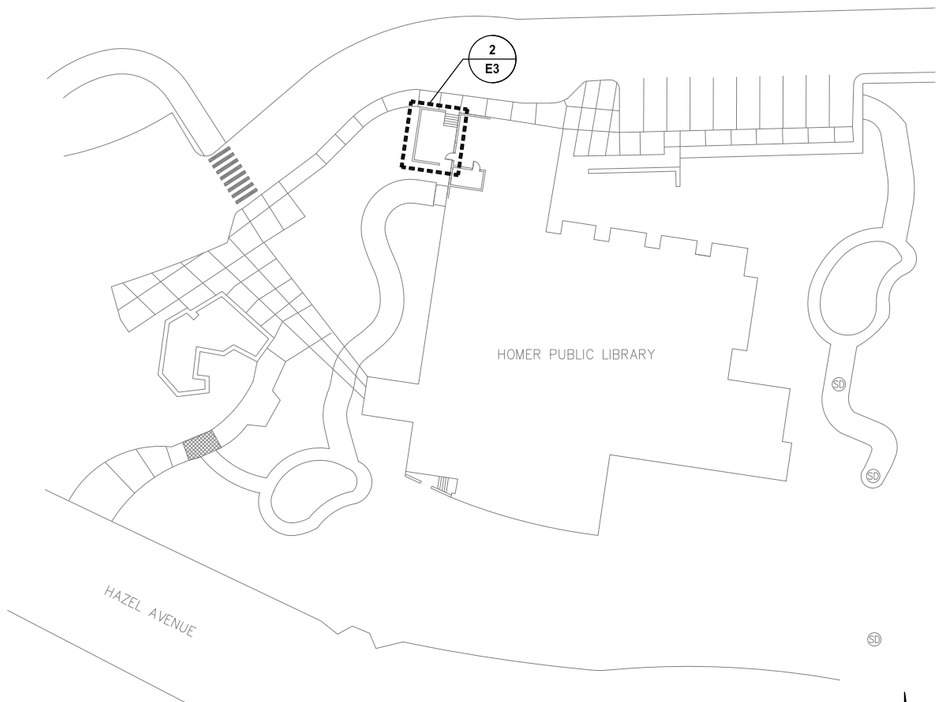
ECA	EMERGENCY/STANDBY POWER AVAIABLE
EDCA	BATTERY CHARGER ALARM
HS	HAND SWITCH / GENSET NOT–IN–AUTO
LAH	LEVEL ALARM HIGH
LAL	LEVEL ALARM LOW
NCA	NORMAL POWER AVAILABLE
YA	FAULT INDICATION
YC	RUN REQUEST
YL	RUN STATUS
ZSE	IN EMERGENCY/STANDBY POSITION
ZSN	IN NORMAL POSITION

INSTRUMENTATION LEGEND

XX / YY	FIELD MOUNTED INSTRUMENT XX = FUNCTION; YY = TAG NO.
XX / YY	FIELD MOUNTED INSTRUMENT LIGHT XX = FUNCTION; YY = TAG NO.
XX / YY	PANEL MOUNTED INSTRUMENT LIGHT XX = FUNCTION; YY = TAG NO.

GENERAL NOTES

1. ALL ELECTRICAL WORK SHALL BE INSTALLED IN ACCORDANCE WITH ALL REQUIREMENTS OF THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE, STATE, MUNICIPAL, AND FEDERAL LAWS, AMENDMENTS AND/OR ORDINANCES GOVERNING THE PROJECT. IF DIRECT CONFLICT ARISES BETWEEN DESIGN DOCUMENTS AND GOVERNING CODES, LAWS, AND/OR ORDINANCES, THE CODES, LAWS, AND/OR ORDINANCES SHALL HAVE JURISDICTION AND THE WORK IN QUESTION SHALL BE INSTALLED ACCORDING TO THE CODES, LAWS, AND/OR ORDINANCES. ALL WORK SHALL BE PERFORMED UNDER THE SUPERVISION OF A JOURNEYMAN ELECTRICIAN EXHIBITING A CERTIFICATE OF FITNESS IN THE STATE OF ALASKA.
2. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED CONSTRUCTION PERMITS AND PAY ALL ASSOCIATED FEES.
3. MATERIALS AND EQUIPMENT SHALL BE COMMERCIAL GRADE AND ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION AS SUITABLE FOR THE USE INTENDED. ALL ELECTRICAL EQUIPMENT SHALL BE LISTED AND LABELED BY A NATIONALLY RECOGNIZED TESTING LABORATORY FOR THE PURPOSE FOR WHICH IT IS INSTALLED. WHENEVER POSSIBLE, SIMILAR ITEMS SHALL BE SUPPLIED BY THE SAME MANUFACTURER THROUGHOUT THE PROJECT.
4. DIMENSIONS OF EQUIPMENT ARE APPROXIMATE. INSTALLATION SHALL BE VERIFIED BASED ON ACTUAL MANUFACTURER'S DATA AND SHOP DRAWINGS.
5. ALL SITE WORK AND UTILITIES ARE SHOWN IN APPROXIMATE LOCATIONS. VERIFY ALL INSTALLATIONS PRIOR TO COMMENCEMENT OF WORK. COORDINATE ALL WORK WITH UTILITIES AS REQUIRED.
6. ALL CONDUCTORS SHALL BE COPPER. ALL CONDUCTORS IN UNHEATED SPACES OR LOCATED OUTSIDE ARE REQUIRED TO HAVE TYPE XHHW–2 90 DEGREE C INSULATION. ALL CONDUCTORS LOCATED IN HEATED SPACES CAN BE XHHW OR THHN 90 DEGREE C INSULATION UNLESS NOTED OTHERWISE. CONDUCTOR AMPACITY SHALL BE PER TABLE 310–15 OF THE NEC. USE 75–DEGREE C RATING FOR CIRCUITS TERMINATING ON DEVICES AND IN ENCLOSURES. DERATE CONDUCTORS PER NEC REQUIREMENTS.
7. CONDUIT ROUTINGS ARE DIAGRAMMATIC AND SHALL BE FOLLOWED TO THE EXTENT POSSIBLE. NOT ALL CONDUIT ROUTINGS ARE SHOWN: CONTRACTOR IS RESPONSIBLE FOR DETERMINING ROUTING/PENETRATIONS AND RECEIVING APPROVAL OF ROUTING/PENETRATIONS FROM OWNER'S REPRESENTATIVE.



1 / E1 **SITE PLAN**
SCALE: NTS

09/06/16

STATE OF ALASKA — JOHN A. PAGE — REGISTERED PROFESSIONAL ENGINEER — EXPIRES 12/31/17

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CITY OF HOMER
HOMER LIBRARY BACKUP GENERATOR
LEGEND ABBREVIATIONS AND SITE PLAN

PROJECT NO.
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SHEET: E1

E1 OF 4

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ELECTRICAL SPECIFICATIONS

PART 1– GENERAL

1.1 SYSTEM DESCRIPTION:

A. SCOPE OF WORK: INSTALL, TEST AND PLACE INTO SATISFACTORY AND SUCCESSFUL OPERATION ALL MATERIALS, EQUIPMENT, DEVICES AND NECESSARY APPURTENANCES TO PROVIDE COMPLETE SYSTEM POWER, FUEL SYSTEM, AND CONTROLS AS INDICATED ON THE DRAWINGS AND SPECIFICATIONS. CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND MATERIALS NOT INDICATED AS OWNER FURNISHED.

B. ALL COMPONENTS FOR THE PROJECT SHALL BE LISTED OR LABELED BY UL (UNDERWRITERS LABORATORIES), FM (FACTORY MUTUAL) OR OTHER AGENCIES RECOGNIZED BY THE STATE OF ALASKA MECHANICAL INSPECTIONS DIVISION. WORK SHALL COMPLY WITH ALL LISTED AND APPLICABLE INDUSTRY STANDARDS, CODES, LOCAL ORDINANCES AND MANUFACTURER'S INSTRUCTIONS.

C. SYSTEM SHALL BE COMPLETE AND SHALL INCLUDE ALL TERMINATIONS TO PROVIDE A FUNCTIONAL SYSTEM.

D. PROJECT CONDITIONS: CONTRACTOR SHALL VERIFY IN THE FIELD THAT DIMENSIONS, ROUTING AND CONNECTION LOCATIONS SHOWN ON THE DRAWINGS ARE REASONABLY ACCURATE.

1.2 STANDARDS AND CODES:

A. NFPA 70 – NATIONAL ELECTRICAL CODE, LATEST ADOPTED EDITION.

B. NFPA 30 – FLAMMABLE AND COMBUSTIBLE LIQUIDS CODE, LATEST ADOPTED EDITION.

C. IBC – INTERNATIONAL BUILDING CODE, LATEST ADOPTED EDITION.

D. IFC – INTERNATIONAL FIRE CODE, LATEST ADOPTED EDITION.

E. NFPA 110 – STANDARD FOR EMERGENCY AND STANDBY POWER SYSTEMS.

F. LOCAL CODES AND AMENDMENTS.

1.3 SUBMITTALS:

A. GENERAL: PROVIDE SUBMITTALS OF ALL MATERIAL AND EQUIPMENT. INCLUDE CATALOG NUMBERS, PERFORMANCE DATA, WIRING DIAGRAMS, AND ROUGH–IN DIMENSIONS.

B. MANUFACTURER'S INSTALLATION INSTRUCTIONS: INCLUDE INSTRUCTIONS FOR STORAGE, HANDLING, PROTECTION, EXAMINATION, PREPARATION AND INSTALLATION OF PRODUCTS.

1.4 OPERATION AND MAINTENANCE DATA:

A. PROVIDE ALL MANUFACTURER'S RELEVANT MAINTENANCE AND OPERATING INSTRUCTIONS INCLUDING PROCEDURES NECESSARY FOR SYSTEM START–UP, OPERATION, EMERGENCY OPERATION AND SHUTDOWN.

B. MANUAL SHALL BE INDEXED, LABELED AND SHALL INCLUDE MAINTENANCE INSTRUCTIONS, PRODUCT DATA, SHOP DRAWINGS AND STEP BY STEP PROCEDURES FOR INSPECTION, REPAIR, CLEANING AND CALIBRATION.

PART 2 – PRODUCTS

2.1 IDENTIFICATION:

A. PROVIDE ENGRAVED LAMINATED PLASTIC NAMEPLATES WITH BLACK LETTERS ON A WHITE BACKGROUND TO IDENTIFY ALL ELECTRICAL DISTRIBUTION AND CONTROL EQUIPMENT, AND LOADS SERVED AS NOTED ON THE DRAWINGS.

B. LETTER HEIGHTS SHALL BE 1/8 INCH FOR INDIVIDUAL SWITCHES, MOTOR STARTERS AND 1/2 INCH ON PANELBOARDS AND CONTROL PANELS. SECURE NAMEPLATES TO EQUIPMENT FRONTS USING SCREWS OR RIVETS.

C. PROVIDE WIRE MARKERS FOR ALL POWER AND CONTROL CIRCUITS IDENTIFYING BRANCH OR FEEDER CIRCUIT AND WIRE NUMBER INDICATED ON CONTROL SYSTEM SHOP DRAWINGS.

D. PROVIDE ARC–FLASH HAZARD WARNING LABELS AND EQUIPMENT SHORT CIRCUIT CURRENT RATINGS IN ACCORDANCE WITH ARTICLE 110 OF THE NEC.

2.2 CONDUCTORS :

A. ALL WIRING SHALL BE COPPER WITH TYPE XHHW–2 INSULATION UNLESS OTHERWISE NOTED. TYPE SIS OR MTW INSULATION SHALL BE ACCEPTABLE FOR CONTROL PANEL WIRING ONLY.

B. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE SHALL BE #12 AWG. MINIMUM CONTROL CIRCUIT SIZE SHALL BE #18 AWG. MULTI–PAIR CONTROL CABLES SHALL BE RATED FOR DIRECT BURIAL.

C. COLOR CODING SHALL BE AS FOLLOWS AND CONSISTENT THROUGHOUT THE ENTIRE INSTALLATION.

1. 120/208 V, 3PH, 4W:
   PHASE A – BLACK, PHASE B – RED,
   PHASE C – BLUE, NEUTRAL – WHITE.

D. USE PROPERLY SIZED INSULATED WIRE CONNECTORS WITH PLASTIC CAPS FOR ALL CONDUCTORS #8 AWG AND SMALLER. TERMINATE #6 AND LARGER WITH CRIMP OR COMPRESSION TYPE CONNECTORS INSTALLED PER THE MANUFACTURERS RECOMMENDATIONS AND INSULATE WITH PROPERLY SIZED 600 VOLT RATED HEAT SHRINK TUBING AND ELECTRICAL TAPE.

2.3 CONDUIT:

A. ALL WIRING SHALL BE INSTALLED IN GALVANIZED RIGID METALLIC CONDUIT (GRC) OR INTERMEDIATE METALLIC CONDUIT (IMC) UNLESS OTHERWISE NOTED. ALL FITTINGS, CONNECTORS, BOXES, ETC. SHALL BE APPROVED FOR USE AS GROUNDING MEANS. CONDUIT IN DIRECT CONTACT WITH CONCRETE SHALL BE PVC–COATED GRC: OCAL OR EQUAL.

B. UTILIZE SHORT EXTENSIONS (36 INCH MINIMUM) OF FLEXIBLE, LOW TEMPERATURE LIQUIDTIGHT CONDUIT FOR CONNECTIONS OF ALL MOTORS AND OTHER EQUIPMENT SUBJECT TO VIBRATION IN NON–HAZARDOUS AREAS.

C. COMPLETELY AND THOROUGHLY CLEAN AND SWAB RACEWAY SYSTEM BEFORE INSTALLING CONDUCTORS.

D. ALL UNDERGROUND CONDUIT SHALL BE BURIED A MINIMUM OF 18 INCHES AND IN ACCORDANCE WITH NEC UNLESS OTHERWISE SHOWN ON THE DRAWINGS.

2.4 JUNCTION BOXES:

A. OUTDOOR: NEMA 4X, STAINLESS STEEL, TYPE 304 OR 316.

B. INDOOR: NEMA 12, STEEL, ANSI 61

2.5 WIRING DEVICES:

A. RECEPTACLES: NEMA WD 1, HEAVY DUTY, SPEC GRADE, 20A, 120VAC DUPLEX.

2.6 PANELBOARDS AND CIRCUIT BREAKERS:

A. DISTRIBUTION CIRCUIT BREAKERS: NEMA AB1, MOLDED CASE, INTEGRAL THERMAL AND ADJUSTABLE INSTANTANEOUS MAGNETIC TRIP FOR EACH POLE.

B. BRANCH CIRCUIT BREAKERS: NEMA AB1, MOLDED CASE, BOLT–ON THERMAL MAGNETIC TRIP WITH COMMON TRIP HANDLE FOR ALL POLES.

2.7 GROUNDING AND BONDING:

A. ALL GROUNDING AND BONDING SHALL COMPLY WITH NEC ARTICLE 250, STANDARDS AND CODES LISTED IN PART 1, MANUFACTURER'S RECOMMENDATIONS AND LOCAL CODES.

B. PROVIDE EQUIPMENT GROUNDING CONDUCTOR WITH ALL CIRCUITS.

C. BELOW GRADE CONNECTIONS SHALL BE EXOTHERMICALLY WELDED.

2.8 EQUIPMENT CONNECTIONS:

A. PROVIDE WIRING AND CONNECTION TO EQUIPMENT REQUIRING ELECTRICAL POWER BUT SPECIFIED UNDER OTHER DIVISIONS OF THE SPECIFICATIONS. REVIEW SUBMITTALS PRIOR TO INSTALLATION AND ROUGH–IN. VERIFY SIZE, AND TYPE OF CONNECTIONS.

2.9 PENETRATIONS:

A. ALL ELECTRICAL PENETRATIONS THROUGH FIRE RATED BARRIERS SHALL BE SEALED IN ACCORDANCE WITH NEC AND THE MANUFACTURERS INSTRUCTIONS. MATERIALS SHALL BE SUITABLE FOR THE FIRE STOPPING OF PENETRATIONS AND CAPABLE OF MAINTAINING AN EFFECTIVE BARRIER AGAINST FLAME, SMOKE AND GASES IN COMPLIANCE WITH THE REQUIREMENTS OF ASTM, UL AND OTHER INDUSTRY STANDARDS.

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

PART 3 – EXECUTION

3.1 GENERAL:

A. INSTALLATION OF ALL WORK SHALL BE MADE SO THAT ALL COMPONENT PARTS ARE INSTALLED AND FUNCTION AS A COMPLETE, WORKABLE SYSTEM.

B. ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC), NECA 1, AND THE STANDARDS AND CODES LISTED IN PART 1. WHERE QUESTIONS ARISE REGARDING WHICH REQUIREMENTS AND STANDARDS APPLY, THE MORE STRINGENT SHALL PREVAIL.

C. ALL WORK SHALL COMPLY WITH THE REQUIREMENTS AND RECOMMENDATIONS OF THE PRODUCT MANUFACTURER.

D. REPLACE AND/OR REPAIR TO ORIGINAL (OR BETTER) CONDITION ANY EXISTING STRUCTURES, MATERIALS, EQUIPMENT, ETC. INADVERTENTLY DAMAGED OR DEMOLISHED DURING THE COURSE OF CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER.

3.2 TESTING

A. TEST ALL SERVICE FEEDERS AND POWER CONDUCTORS PRIOR TO TERMINATION WITH A MEGAOHM METER PER THE MANFACTURER'S RECOMMENDATIONS. REPLACE ALL CONDUCTORS EXHIBITING LESS THAN 10 MEGAOHM IMPEDENCE. REPEAT TESTING AS REQUIRED TO VERIFY COMPLIANCE.

3.3 ENGINE GENERATOR

A. INSTALLATION

1. INSTALL ENGINE–GENERATOR IN THE SOUND ATTENUATED, WEATHERPROOF ENCLOSURE ON A CONCRETE PAD AS SHOWN ON THE PLANS.

2. PROVIDE THE NECESSARY ELECTRICAL CONNECTIONS FOR PROPER OPERATION OF THE ENGINE INTAKE AND EXHAUST DAMPERS.

3. MOUNT BATTERIES ADJACENT TO ENGINE. MAKE ALL CONNECTIONS TO STARTER AND BATTERY CHARGER.

4. ALL WIRING SHALL COMPLY WITH NEC ARTICLE 700.

5. MAKE ALL FUEL LINE CONNECTIONS BETWEEN THE ENGINE–GENERATOR AND THE FUEL STORAGE TANK.

6. MAKE ALL DUCTING CONNECTIONS BETWEEN THE ENGINE–GENERATOR AND ENCLOSURE DAMPERS.

B. STARTUP AND INSTRUCTION

1. CONTRACTOR SHALL COORDINATE WITH THE GENERATOR SUPPLIER FOR THEIR START–UP AND TRAINING SERVICES. CONTRACTOR SHALL PAY ALL REQUIRED FEES FOR SERVICES OF THE SUPPLIER'S REPRESENTATIVES.

2. AFTER DELIVERY OF THE UNIT TO THE SITE, SECURE THE UNIT TO THE SITE FOUNDATION AND MAKE ALL NECESSARY FUEL LINE AND ELECTRICAL CONNECTIONS TO THE UNIT. ONCE ALL CONNECTIONS HAVE BEEN MADE, COORDINATE WITH THE ENGINEER TO PROVIDE START–UP OF THE SYSTEM. PROVIDE ALL ENGINE FLUIDS (OIL, COOLANT, ETC.) NECESSARY PRIOR TO START–UP AND TESTING. RUN THE ENGINE–GENERATOR UNDER FULL AVAILABLE SITE LOAD FOR A MINIMUM OF 2 HOURS. IN ADDITION, SIMULATE TWO POWER FAILURES WITH LOAD TRANSFER WITH NORMAL COOL–DOWN CYCLE. DEMONSTRATE ALL AUTOMATIC FEATURES AS DIRECTED BY THE OWNER'S REPRESENTATIVE. RECORD VOLTAGE AMPERAGE AND FREQUENCY DURING EACH TEST. NOTE ANY REQUIRED ADJUSTMENTS. FURNISH RECORD OF TESTS TO THE OWNER.

3. FURNISH MAINTENANCE RECORDS FOR OWNER'S USE.

4. PARTS BOOKS COVERING THE ENGINE, GENERATOR, AND MAJOR AUXILIARY EQUIPMENT SHALL BE PROVIDED TO THE OWNER.

   PROCEDURES ON OPERATING AND MAINTENANCE OF THE STANDBY POWER SYSTEM SHALL BE EXPLAINED TO OPERATING PERSONNEL AT THIS TIME. PROVIDE A MINIMUM OF FOUR (4) HOURS OF TRAINING FOR UP TO FIVE (5) PEOPLE.

3.4 AUTOMATIC TRANSFER SWITCH

A. INSTALLATION

1. INSTALL AUTOMATIC TRANSFER SWITCH AS SHOWN ON THE PLANS. ANCHOR IN ACCORDANCE WITH IBC AND MANUFACTURER'S INSTRUCTIONS.

B. STARTUP AND INSTRUCTION

1. CONTRACTOR SHALL COORDINATE WITH THE AUTOMATIC TRANSFER SWITCH SUPPLIER FOR THEIR START–UP AND TRAINING SERVICES. CONTRACTOR SHALL PAY ALL REQUIRED FEES FOR SERVICES OF THE SUPPLIER'S REPRESENTATIVES.

2. ONCE ALL CONNECTIONS HAVE BEEN MADE, COORDINATE WITH THE ENGINEER TO PROVIDE START–UP OF THE SYSTEM. SIMULATE TWO POWER FAILURES WITH LOAD TRANSFER WITH NORMAL COOL–DOWN CYCLE. DEMONSTRATE ALL AUTOMATIC FEATURES AS DIRECTED BY THE OWNER'S REPRESENTATIVE. RECORD VOLTAGE AMPERAGE AND FREQUENCY DURING EACH TEST. NOTE ANY REQUIRED ADJUSTMENTS. FURNISH RECORD OF TESTS TO THE OWNER.

3. FURNISH MAINTENANCE RECORDS FOR OWNER'S USE.

4. PARTS BOOKS COVERING THE AUTOMATIC TRANSFER SWITCH SHALL BE PROVIDED TO THE OWNER.

   PROCEDURES ON OPERATING AND MAINTENANCE OF THE STANDBY POWER SYSTEM SHALL BE EXPLAINED TO OPERATING PERSONNEL AT THIS TIME. PROVIDE A MINIMUM OF 4 HOURS OF TRAINING.

09/06/16

STATE OF ALASKA – JOHN A. PEPE – REGISTERED PROFESSIONAL ENGINEER – 12053

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CITY OF HOMER
HOMER LIBRARY BACKUP GENERATOR
ELECTRICAL SPECIFICATIONS

PROJECT NO.

DRAWN BY: OM

CHECKED BY: JP

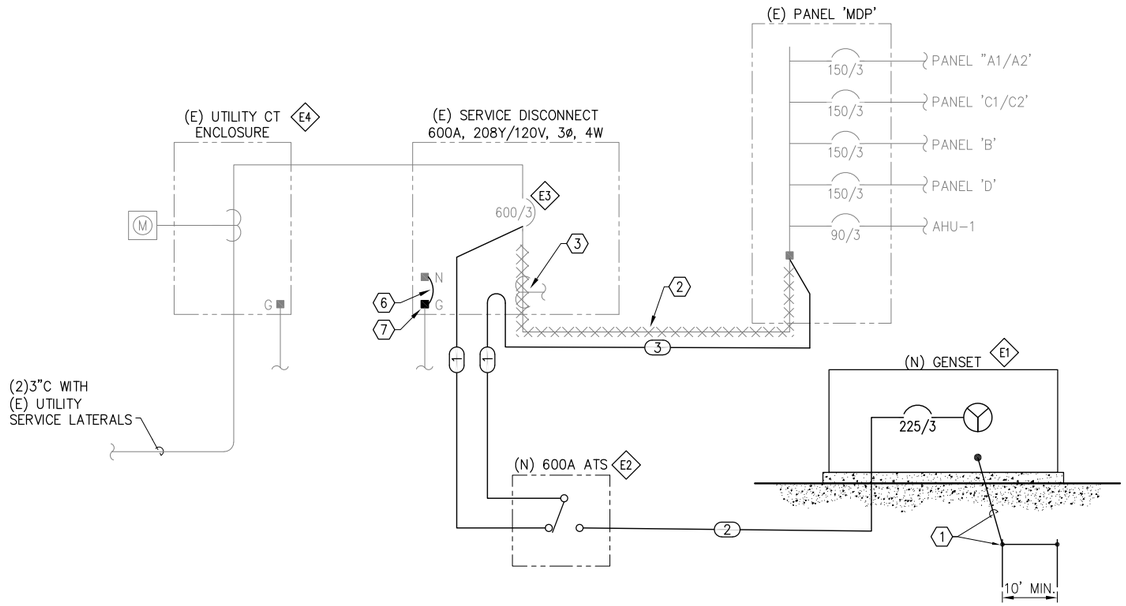
DATE: 09/06/16

SCALES: NOTED

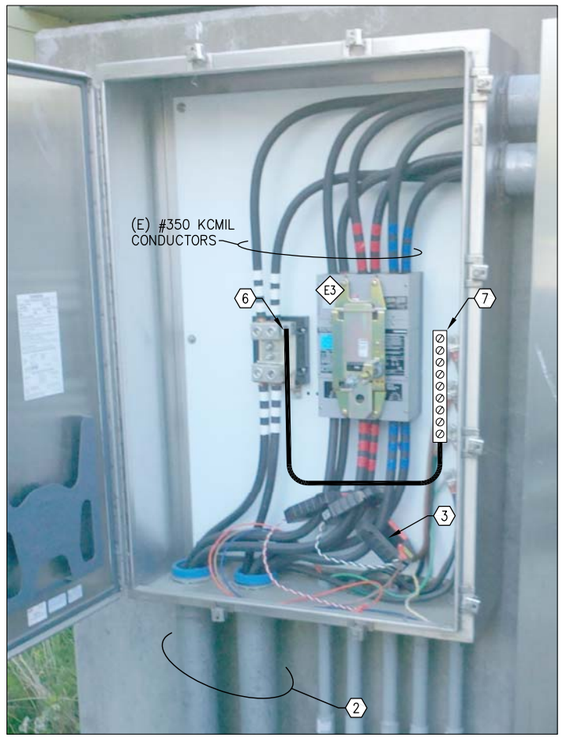
HORIZ. NOTED

VERT. NOTED

SHEET: E2



1 / E3 POWER ONE-LINE DIAGRAM
SCALE: NTS



2 / E3 (E) MAIN SERVICE DISCONNECT
SCALE: NTS

VOLTAGE: 208/120
BUS: 225A
MAIN: MLO

(E) PANEL 'A1' SCHEDULE (4)

LOCATION: ELECTRICAL ROOM

MIN. A.I.C. RATING: 10,000
ENCLOSURE: NEMA 1
MOUNTING: SURFACE

CKT	AMP TRIP	LOAD DESCRIPTION	KVA	LOAD	A	B	C	LOAD	KVA	LOAD DESCRIPTION	AMP TRIP	CKT
1	20/1	RECEPT - EXTERIOR IN SW CORNER	0.2	R	1.3			N	**1.1**	**GENSET ALTERNATOR AND COOLANT HEATERS**	**20/1**	2
3	15/1	FC-1 (245W)	0.3	N		0.4		C	**0.1**	**GENSET REMOTE ANNUNCIATOR PANEL**	**15/1**	4
5	15/1	FC-2 (210W)	0.2	N			0.2		0.0	SPACE		6
7	15/1	UH-3 (1/60HP) & UH-4 (1/25HP)	0.2	N	0.8			R	0.6	RECEPT - BREAK 26	20/1	8
9	20/1	INSTAHOT IN BREAK 26	0.8	N		1.4		R	0.6	RECEPT - BREAK 26	20/1	10
11	20/1	COPIER IN WORK 24	1.8	N			2.8	R	1.0	RECEPT - BREAK 26 REFRIGERATOR	20/1	12
13	20/1	COPIER IN COPY 15	1.8	N	3.0			R	1.2	RECEPT - BREAK 26 MICROWAVE	20/1	14
15	20/1	RECEPT - EXTERIOR (SOUTH AND WEST WALLS)	0.5	R		0.5				SPACE		16
17	20/1	RECEPT - EXTERIOR (NORTH AND SOUTH WALLS)	0.4	R			0.4			SPACE		18
19	20/1	MOTORIZED SHADE A	0.3	M	0.3					SPACE		20
21	20/1	MOTORIZED SHADE B	0.3	M		0.3				SPACE		22
23	20/1	MOTORIZED SHADE C	0.3	M			0.3			SPACE		24
25	20/1	FACP & FSD	1.0	C	1.0					SPACE		26
27	20/1	EQUIPMENT CONTROL (BOILER AND EXT SLAB)	0.5	C		0.5				SPACE		28
29	20/1	WINDOW OPERATORS IN STACKS 10	1.0	M			1.0			SPACE		30
31	20/1	WINDOW OPERATORS IN STACKS 10	1.0	M	2.0			R	1.0	RECPT - BOOK THEFT	20/1	32
33	20/1	ELECTRONIC FLUSH VALVES IN RR 04 AND 07	1.0	N		2.0		R	1.0	RECEPT - FUTURE ESPRESSO CART	30/2	34
35	20/1	ELECTRONIC FLUSH VALVES IN RR 03 AND 25	1.0	N			2.0	R	1.0			36
37	20/1	RECEPT - MECH 32	0.5	R	1.7			R	1.2	RECEPT - HEAT TRACE (30 MA GFCI)	30/2	38
39	20/1	RECEPT - MECH32	0.5	R		1.7		R	1.2			40
41	20/1	SPARE					0.2	R	0.2	RECEPT - EXTERIOR IN NE CORNER	20/1	42
*					10.1	6.9	6.9					

TOTAL KVA: 23.9
AMPS: 66.4

SUMMARY BY LOAD TYPE		CONNECTED KVA PH A	PH B	PH C	FEED	TOTAL KVA	NEC%	NEC TOTAL	NOTES:
L	LIGHTING	0.0	0.0	0.0		0.0	1.25	0.0	
R	RECEPTACLES	4.7	3.9	2.5		11.1	10K+50%	10.6	
M	MOTORS	1.3	0.3	1.3		2.9	1.00	2.9	
LM	LARGEST MOTOR	0.0	0.0	0.0		0.0	1.25	0.0	
C	CONTINUOUS	1.0	0.6	0.0		1.6	1.25	2.0	
N	NON-CONTINUOUS	3.1	2.1	3.1		8.3	1.00	8.3	
S	SPARE	0.0	0.0	0.0		0.0	1.00	0.0	
X	NON-COINCIDENT	0.0	0.0	0.0		0.0	0.00	0.0	
O	OTHER	0.0	0.0	0.0		0.0	1.00	0.0	
F	FEEDER	0.0	0.0	0.0					
TOTAL KVA (PHASE)		10.1	6.9	6.9		23.9		23.8	
TOTAL AMPERES		84.5	57.3	57.6		66.4		66.0	
PHASE BALANCE, ABC		A-B	B-C	C-A					
PERCENT									

SHEET NOTES

1. #4 BCU BONDED TO GENERATOR SKID AND TWO (2) 3/4"X10' CU. CLAD STEEL GROUND RODS IMBEDDED A MIN. OF 12" BELOW GRADE. ALL BELOW GRADE CONNECTIONS SHALL BE EXOTHERMICALLY WELDED. BOND TO (N) AND (E) CONCRETE ENCASED ELECTRODES (UFER).
2. REMOVE (E) #350CMIL CONDUCTORS BACK TO MDP.
3. REMOVE (E) CURRENT TRANSFORMERS FOR REMOVAL OF CONDUCTORS; STORE AND PROTECT FOR REINSTALLATION TO (N) CONDUCTORS. (TYP. OF 3)
4. PROVIDE (N) MACHINE PRINT FONT PANEL SCHEDULE WITH UPDATED LOAD INFORMATION. (E) LOAD INFORMATION WAS GATHERED FROM RECORD DRAWINGS DATED 4/30/07; CONTRACTOR TO CONFIRM AVAILABLE SPARE CIRCUITS.
5. PROVIDE (N) CIRCUIT BREAKER, RATINGS AS SHOWN. (TYP.)
6. #2/0 BCU MAIN BONDING JUMPER.
7. PROVIDE (N) CU GROUND BUS. CONNECT MAIN BONDING JUMPER AND ALL GROUND CONNECTIONS TO BUS.

SERVICE LOAD SUMMARY

EXISTING LOAD		
UTILITY PEAK DEMAND (12 MONTH)	=	49.5 KVA
NEC 220.87 X 0.25	=	12.4 KVA
	=	61.9 KVA
NEW LOAD		
GENSET HEATERS	=	1.1 KVA
GENSET BATTERY CHARGER	=	0.2 KVA
ANNUNCIATOR PANEL 'AP-1'	=	0.1 KVA
TOTAL NEW LOAD	=	63.3 KVA
TOTAL NEW CURRENT @208V, 3-ø	=	175.7 A

CIRCUIT / FEEDER SCHEDULE

TAG	DESCRIPTION
1	(2)EACH: 3"C, (4)#350 & (1)#1 (G)
2	2-1/2"C,(4)#4/0 & (1)#4 (G)
3	(E) (2)EACH: 3"C, (4)#350 & (1)#1 (G)

ELECTRICAL EQUIPMENT SCHEDULE

ITEM NO.	DESCRIPTION	MANUFACTURER OR EQUAL
E1	50KW, 208Y/120V, 3ø, 4W STANDBY GENERATOR, WEATHER PROOF SOUND ATTENUATED ENCLOSURE. OWNER FURNISHED.	CUMMINS C50 D6
E2	600A, 208V, 3-POLE, 4W, NEMA 3R, OPEN TRANSITION AUTOMATIC TRANSFER SWITCH (ATS) WITH SOLID NEUTRAL. OWNER FURNISHED.	CUMMINS OTPC
E3	(E) 600A, 208V, 3-POLE, NEMA 4X SS SERVICE DISCONNECT CIRCUIT BREAKER.	
E4	(E) 600A, 208V, 3ø, 4-WIRE, NEMA 4X SS CT ENCLOSURE.	
E5	(E) 225A, 208Y/120V, 3ø, 4-WIRE, NEMA PANELBOARD 'A1'.	
E6	GENERATOR REMOTE ANNUNCIATOR PANEL AP-1. OWNER FURNISHED.	CUMMINS CAT#0541-0814 -02

09/06/16

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CITY OF HOMER
HOMER LIBRARY BACKUP GENERATOR
POWER ONE-LINE DIAGRAM AND SCHEDULES

PROJECT NO.
DRAWN BY: OM
CHECKED BY: JP
DATE: 09/06/16
SCALES: NOTED
HORIZ. NOTED
VERT. NOTED
SHEET: E3

E3 OF 4

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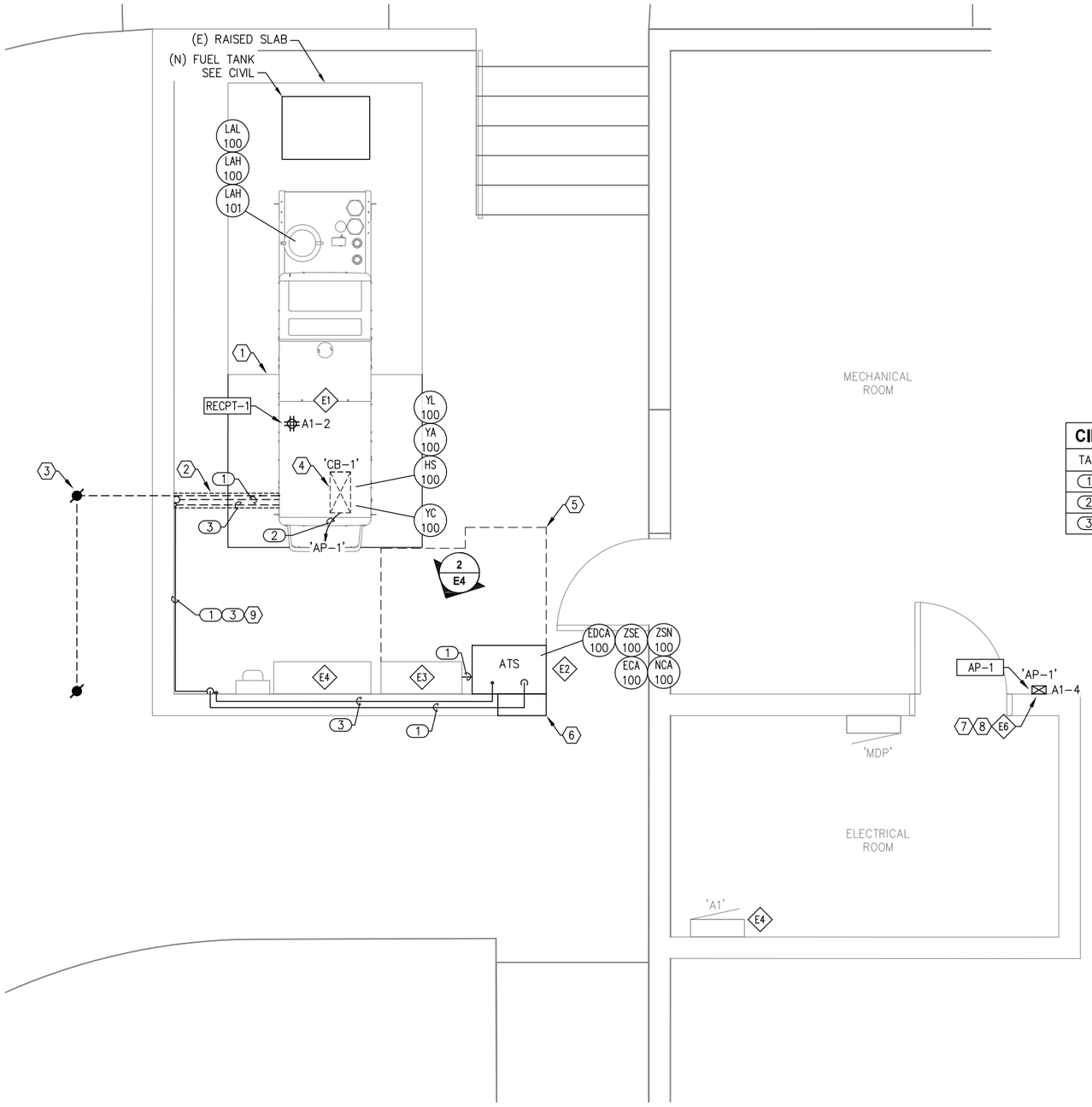


1 / E4 **GENERATOR LAYOUT PLAN**
SCALE: 1/2" = 1'-0"

SHEET NOTES

1. CONCRETE HOUSEKEEPING SLAB ADDITION BY OTHERS. SEE CIVIL FOR DETAILS.
2. SAWCUT (E) SLAB FOR INSTALLATION OF GENSET CIRCUITS. REPLACE REMOVED CONCRETE; FINISH AND SEAL TO MATCH (E).
3. GENSET GROUNDING. SEE SHEET E3, SHEET NOTE 1 FOR DETAILS.
4. GENSET CONTROL BOARD, 'CB-1'. PROVIDE CONTROL AND STATUS SIGNALS. SUBMIT CONTROL SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL.
5. MAINTAIN ELECTRICAL WORKING SPACE IN ACCORDANCE WITH NEC ARCTICLE 110.26.
6. CONCRETE WALL ADDITION BY OTHERS. SEE CIVIL SHEET C2 DETAIL 3.
7. LOCATION TO BE DETERMINED ON-SITE BY THE ENGINEER.
8. CONTRACTOR TO PROVIDE AND INSTALL POWER SUPPLY FOR OWNER FURNISHED EQUIPMENT. ALL GENSET AND ATS STATUS SIGNALS SHALL BE COMMUNICATED TO 'AP-1'.
9. ROUTE CONDUITS BELOW TOP OF WALL. SINGLE LINE SHOWN FOR CLARITY.

CIRCUIT / FEEDER SCHEDULE

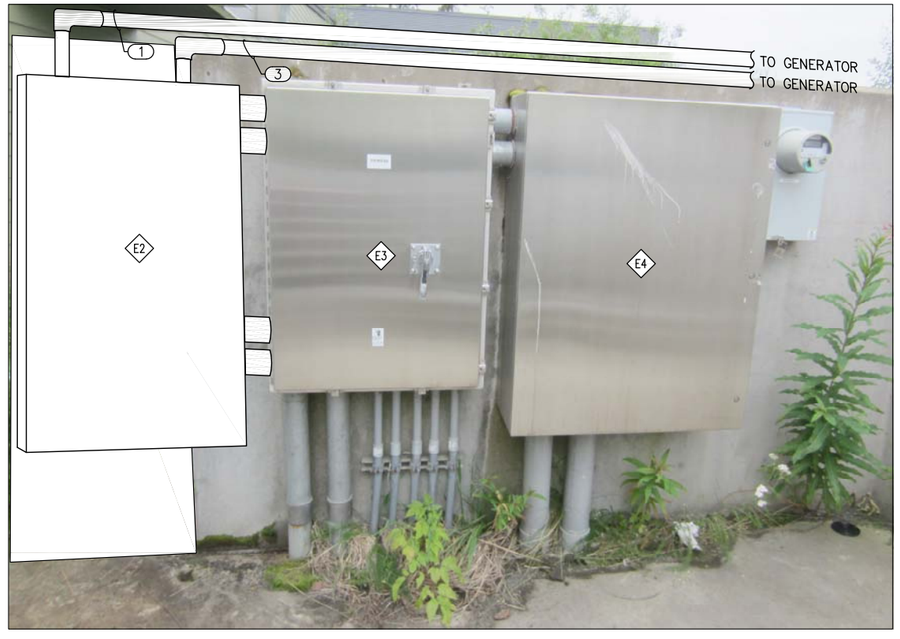
TAG	DESCRIPTION
1	SEE POWER ONE-LINE SHEET E3
2	1/2"C, 2PR#24 TWSH
3	3/4"C, (3)#6(+12V, -12V, G)

EQUIPMENT CONNECTION SCHEDULE

TAG ID	LOAD					CIRCUIT SIZE	NOTES
	KVA	HP	FLA	V	PH		
RECPT-1	1.6	–	–	120	1	1/2"C, (3)#12 (H, N, G)	
AP-1	0.1	–	–	120	1	1/2"C, (3)#12 (H, N, G)	

INSTRUMENT CONNECTION SCHEDULE

TAG ID	SIGNAL CIRCUIT SIZE	DESTINATION	POWER CIRCUIT SIZE (IF REQUIRED)	DESTINATION	NOTES
ECA-100 EDCA-100 NCA-100 ZSE-100 ZSN-100	3/4"C, (11)#14 (10SIG, G)	'CB-1'			
HS-100 YA-100 YC-100 YL-100	3/4"C, (9)#14 (8SIG, G)	'ATS'			
LAL-100 LAH-100 LAH-101	3/4"C, (7)#14 (6SIG, G)	'CB-1'			



2 / E4 **ATS ENCLOSURE LAYOUT**
SCALE: NTS

09/06/16
STATE OF ALASKA
REGISTERED PROFESSIONAL ENGINEER
John A. Pope
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CITY OF HOMER
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GENERATOR LAYOUT PLAN

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E4 OF 4

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