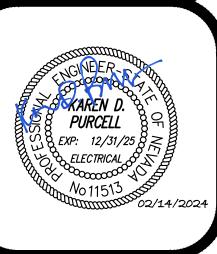
ELECTRICAL LEGEND						
PANELBOARD: SURFACE MOUNTED	Φ	SINGLE RECEPTACLE: 20A, 125V, NEMA 5-20, +18" AFF	(F)	GROUND FAULT INTERRUPTER DEVICE	A	AMPS
PANELBOARD: FLUSH MOUNTED		DUPLEX RECEPTACLE: 20A, 125V, NEMA 5-20, +18" AFF	<u> </u>	METERING DEVICE	ADA AFC	AMERICANS WITH DISABILITIES ACT ABOVE FINISHED CEILING
SWITCHBOARD OR DISTRIBUTION PANEL		DUPLEX RECEPTACLE: HALF SWITCHED, +18" AFF		REMOTE METER	AFCI AFF	ARC-FAULT CIRCUIT INTERRUPTER ABOVE FINISHED FLOOR
XF TRANSFORMER		DUPLEX RECEPTAGLE GFI TYPE - 20A, 125V, NEMA 5-20 GFI	(ST)	SHUNT TRIP DEVICE	AF6 AHJ	ABOVE FINISHED GRADE AUTHORITY HAVING JURISDICTION
PULLBOX / VAULT	11	+18" AFF		TRANSFORMER	AIC	AMP INTERRUPTING CAPACITY
MOTOR STARTER	<b>│</b>	QUAD RECEPTACLE: 20A, 125V, NEMA 5-20, +18" AFF		CURRENT TRANSFORMER	AL ATS	ALUMINUM AUTOMATIC TRANSFER SWITCH
COMBINATION MOTOR STARTER	•	ISOLATED GROUND TYPE RECEPTACLE (ORANGE TRIANGLE),	,@/	GENERATOR	AMG BC	AMERICAN WIRE GAUGE BARE COPPER
COMBINATION MOTOR STARTER PROVIDED BY OTHERS		20A, 125V, NEMA 5-2016, +18" AFF	(#)	MOTOR - # INDICATES HP	BKR	BREAKER
(COORDINATE WITHSTAND RATINGS WITH EQUIP SUPPLIER,	(ر	COMBO DUAL USB CHARGER / DUPLEX RECEPTACLE, 5.1A, (1)  TYPE A & (1) TYPE C USB (3.1, 3.0, 2.0 AND 1.1 COMPATIBLE),		- INTERRUPTER SWITCH	CEC	CONDUIT/RACEWAY CALIFORNIA ENERGY COMMISSION
DISCONNECT SWITCH - FUSIBLE (FUSED PER EQUIP.		20A, 125V, NEMA 5-20R, +18AFF	6FI-0	GROUND FAULT RELAY W/ CT OR SENSOR	CKT CLG	CIRCUIT CEILING
	<b>T</b>	QUAD USB CHARGER, 5.1A, (2) TYPE A & (2) TYPE C USB (3.1, 3.0, 2.0 AND 1.1 COMPATIBLE), +18AFF			CO CT	CONDUIT/RACEWAY ONLY CURRENT TRANSFORMER
N DISCONNECT SWITCH - NON-FUSIBLE	•	SPECIAL PURPOSE RECEPTACLE: SEE DWGS FOR NEMA		- CIRCUIT BREAKER	CU	COPPER
DISCONNECT SWITCH PROVIDED BY OTHERS (COORDINATE WITHSTAND RATINGS WITH EQUIP SUPPLIER,	" ار	CONFIGURATION	<b> </b> ← →>		DB DDC	DISTRIBUTION BOARD DIRECT DIGITAL CONTROLLER
VARIABLE FREQUENCY DRIVE	ф	DUPLEX RECEPTACLE: FLOOR MOUNTED	0 0	TRANSFER SWITCH (A=AUTOMATIC, M=MANUAL)	DPDT DPST	DOUBLE-POLE, DOUBLE-THROW DOUBLE-POLE, SINGLE-THROW
	#	QUAD RECEPTACLE: FLOOR MOUNTED	A 3	# FOR POLES 2, 3 OR 4	DMG	DRAWING EXISTING TO REMAIN
(COORDINATE WITHSTAND RATINGS WITH EQUIP SUPPLIER,	)	DUPLEX RECEPTACLE: CEILING MOUNTED	SPD	SURGE PROTECTION DEVICE	(E) ELEC	ELECTRICAL
CB ENCLOSED CIRCUIT BREAKER	<b>₩</b>	QUAD RECEPTACLE: CEILING MOUNTED			EM EMT	EMERGENCY ELECTRICAL METALLIC TUBING
GROUND ROD	₽	BLANK GFCI PROTECTIVE DEVICE IN READILY ACCESSIBLE LOCATION (LABEL PROTECTED DEVICES)	<b>⊣</b> ⊢	NORMALLY OPEN (NO) CONTACT	(F)	FUTURE FULL LOAD AMPS
SHUNT TRIP STATION OR EMERGENCY PUSHBUTTON		·	#	NORMALLY CLOSED (NC) CONTACT	FMC	FLEXIBLE METAL CONDUIT (STEEL)
REMOTE METER	ф Ф X"	DUPLEX "CLOCK" RECEPTACLE: 125V, NEMA 5-20R, +60" AFF		COIL - VOLTAGE PER CONTROL DIAGRAMS	FPEN GFI	FUSE PER EQUIP. NAMEPLATE GROUND FAULT INTERRUPT
	$ \mathbb{P}^{\times}$	DEVICE MOUNTED AT NON-STANDARD HEIGHT. IF NO HEIGHT SHOWN VERIFY HEIGHT WITH ARCHITECT		LO PILOT LIGHT (LED) PUSH-TO-TEST. LETTER INDICATES	GFR GND	GROUND FAULT RELAY GROUND
S SINGLE POLE SWITCH 48" AFF	<u> </u>	MULTI-OUTLET ASSEMBLY: SPACING PER DWGS	R	COLOR (R=RED, G=GREEN, A=AMBER, Y=YELLOW)	HID	HIGH INTENSITY DISCHARGE
S <sub>3</sub> THREE WAY SWITCH 48" AFF				DIL OT LICHT (LED) MON BISCH TO TEST	HOA HP	HAND-OFF-AUTO SWITCH HORSEPOWER
S <sub>4</sub> FOUR WAY SWITCH 48" AFF	lacksquare	DATA / VOICE OUTLET: 18" AFF - 1 VOICE, 1 DATA JACK, 2 BLANKS		- PILOT LIGHT (LED) NON PUSH-TO-TEST	HSKP IMC	HOUSEKEEPING INTERMEDIATE METAL CONDUIT
S <sub>K</sub> KEY OPERATED SWITCH 48"			—x-	THERMAL OVERLOAD	J-BOX	JUNCTION BOX kcmil (300K = 300 kcmil)
S SWITCH WITH LIGHTED HANDLE		DATA / VOICE OUTLET: FLOOR MOUNTED	<del></del> ^-	- MAGNETIC OVERLOAD	KVA	KILOVOLT AMPS
MANUAL MOTOR STARTER		MULTI-OUTLET ASSEMBLY: SPACING PER DWGS		PUSH BUTTON NORMALLY OPEN (NO)	KW LTG	KILOWATT LIGHTING
Sp SWITCH WITH PILOT LIGHT 48" AFF		TELEPHONE OUTLET: 18" AFF	0 0		IG MCB	ISOLATED GROUND MAIN CIRCUIT BREAKER
S <sub>T</sub> TIME WALL SWITCH EQUAL TO HUBBELL DT2000W 48" AFF		DATA OUTLET: 18" AFF	مله	PUSH BUTTON NORMALLY CLOSED (NC)	MCM	THOUSAND CIRCULAR MILS
D DIMMER OPERATED SWITCH 48" AFF		DEVICE MOUNTED AT NON-STANDARD HEIGHT. IF NO HEIGHT SHOWN VERIFY HEIGHT WITH ARCHITECT	H 2 A		MFG MLO	MANUFACTURER MAIN LUGS ONLY
OCCUPANCY SENSOR - WALL MOUNTED 48" AFF	(5)	SPEAKER		HAND-OFF-AUTO (HOA) SELECTOR SWITCH	MS MSB	MOTOR STARTER MAIN SWITCHBOARD
D O-IOV DIMMING OCCUPANCY SENSOR - WALL MOUNTED		TELEVISION OUTLET: IS" AFF (UNO)			MTS NC	MANUAL TRANSFER SWITCH NORMALLY CLOSED
48" AFF - EQUAL TO SENSOR SWITCH WSX-D		TELEPHONE TERMINAL BOARD (TTB)		LIMIT SWITCH NORMALLY OPEN (NO)	NEC	NATIONAL ELECTRICAL CODE
OS OCCUPANCY SENSOR - CEILING MOUNTED. PROVIDE WITH POWER PACK PER MFG REQUIREMENTS.	Va	VOLUME CONTROL			NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
OS OCCUPANCY SENSOR - CORNER MOUNTED. PROVIDE	<del>  • • • • • • • • • • • • • • • • • •</del>	GROUNDING BAR	0_0	LIMIT SWITCH NORMALLY CLOSED (NC)	NIC NL	NOT IN CONTRACT NIGHTLIGHT
WITH POWER PACK PER MFG REQUIREMENTS.	1 1			<del></del>	NO	NORMALLY OPEN NOT TO SCALE
CONTROL STATION		* FIXTURE SCHEDULE HAS PRECEDENCE *	مْلَهُ	PUSH BUTTON ILLUMINATED (LED)	NVE	NY ENERGY
CONTACTOR OR RELAY		LENSED TROFFER	0 0		PHAP	POLE PHASE
PO PHOTOELECTRIC CELL (ON ROOF FACING NORTH UNO)		VOLUMETRIC TROFFER		,, TICS = NO. OF #12 WIRES (UNO) IF MORE THAN	PV PNL	PHOTOVOLTAIC PANEL
TIMECLOCK		FLANGED TROFFER	<del>-////</del>	TWO WITHIN RACEWAY. GROUNDING CONDUCTOR	PTC	PV USA TEST CONDITIONS
		SURFACE MOUNT TROFFER		(NOT SHOWN) ALWAYS REQUIRED.	PWR (R)	POWER RELOCATE/RELOCATED
CONDUIT/RACEWAY IN WALL OR ABOVE CEILING CONDUIT/RACEWAY BELOW GRADE OR BELOW FLOOR	$\vdash$	STRIP FIXTURE		ISOLATED GROUNDING CONDUCTORNEUTRAL CONDUCTOR	(RR) RAC	REMOVE AND REPLACE RIGID ALUMINUM CONDUIT
		DOWNLIGHT		PHASE CONDUCTOR(S)	RFC	RIGID FIBERGLASS CONDUIT
BREAK OR RUN CONTINUES		WALL PACK		BRANCH CIRCUIT (WHEN TIC MARKS ARE NOT	RSC SE	RIGID STEEL CONDUIT SERVICE ENTRANCE
—OH— OVERHEAD SERVICE		POLE MOUNT		SHOWN) = (I) PHASE, (I) NEUTRAL AND (I) GROUNDING CONDUCTOR	SPD SPDT	SURGE PROTECTION DEVICE SINGLE-POLE, DOUBLE-THROW
— P — PRIMARY		EMERGENCY LIGHTING UNIT			SPST	SINGLE-POLE, SINGLE-THROW STANDARD TEST CONDITIONS
— S — SECONDARY		EXIT SIGN FIXTURE - SHADED AREA DENOTES LIGHTED		HOMERUN TO PANELBOARD OR DEVICE	SM	SWITCH
— C — COMMUNICATIONS OR SIGNAL		FACE - ARROWS INDICATE DIRECTION	HA-[I,3 	5,3N]G HOMERUN CIRCUIT DESIGNATION ~ ↓ ↓	TE TTB	TELECOM TELEPHONE TERMINATION BOARD
TELEPHONE		SHADING INDICATES EGRESS FIXTURE		GROUNDING CONDUCTOR NEUTRAL CONDUCTOR (N=1, 2N=2 NEUTRALS,	TYP UL	TYPICAL UNDERWRITER'S LABORATORY
TV— TELEVISION	T	THERMOSTAT (PROVIDED BY MECH. CONTRACTOR UNO)	<b>7</b>	3N=3 NEUTRALS)	UNO	UNLESS NOTED OTHERWISE
- • - LOW VOLTAGE AND/OR CONTROL WIRING		JUNCTION BOX (SIZE AS REQUIRED UNO)		PHASE CONDUCTOR(S) PANELBOARD DESIGNATION	UNSM	UNSWITCHED UNINTERRUPTED POWER SUPPLY
-*-*- EMERGENCY CIRCUIT	3	SHEET NOTE DESIGNATION	HA-(1.5	3.5)G HOMERUN CIRCUIT DESIGNATION	V VA	VOLTS VOLT AMPS
					VFD W	VARIABLE FREQUENCY DRIVE WATTS
CONDUIT/RACEWAY SLEEVE	(FI)	FIXTURE DESIGNATION: FI=TYPE (SEE FIXTURE SCH.)		GROUNDING CONDUCTOR	MP	WEATHER PROOF
E - FOUIRMENT M - MOTOR	3	REVISION DELTA: NUMBER REPRESENTS REVISION		————PHASE CONDUCTOR(S) ————PANELBOARD DESIGNATION	(X) XFMR (	EXISTING TO BE REMOVED OR XF TRANSFORMER
E = EQUIPMENT M = MOTOR  H = ELECTRIC HEAT MI = LARGEST MOTOR	(1253)	FEEDER DESIGNATION		TO THE PROPERTY OF THE PROPERT		• •
K = KITCHEN EQUIP R = RECEPTACLES	AHU 2	EQUIPMENT CONNECTION		: "(E)" IN HOMERUN INDICATES NEW HOMERUN TO		
L = LIGHTING			EXIST	TING PANEL		
	1		1		1	

BREAKERS: 20 = SINGLE POLE CIRCUIT BREAKER 20/2 = TWO POLE CIRCUIT BREAKER 20/3 = THREE POLE CIRCUIT BREAKER 20A = ARC FAULT CIRCUIT BREAKER 20C = CONTROLLABLE CIRCUIT BREAKER 20G = GFI CIRCUIT BREAKER

NOTE: THIS IS A MASTER SYMBOL LIST. IT MAY BE THAT NOT ALL SYMBOLS SHOWN ARE USED WITHIN THIS SET OF PLANS. HEIGHTS GIVEN ARE TO TOP OF BOX.



ENGINEERING



ELKO MOUNTAIN BOOSTER PUMP STATIC GEND & DRAWING SCHE

REV DATE DESCRIPTION E

**E**0.

THE WORK UNDER THIS DIVISION SHALL CONSIST OF ALL LABOR, MATERIALS, EQUIPMENT, SERVICES AND RELATED ACCESSORIES, ETC. NECESSARY AND REQUIRED TO COMPLETE ALL WORK AS SHOWN OR INFERRED ON THE DRAWINGS AND IN THE SPECIFICATIONS (CONTRACT

PROVIDE FIXED ELECTRICAL EQUIPMENT, EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE. PROVIDE EQUIPMENT AND/OR WIRING NORMALLY FURNISHED OR REQUIRED FOR COMPLETE ELECTRICAL SYSTEMS BUT NOT SPECIFICALLY SPECIFIED ON THE DRAWINGS AND/OR IN

SPECIFICATIONS. AS THOUGH SPECIFIED BY BOTH. ALL EQUIPMENT AND WIRING SHALL BE NEW, EXCEPT WHERE SPECIFICALLY SHOWN OR

RELATED WORK SPECIFIED ELSEWHERE COORDINATION: THE CIVIL, ARCHITECTURAL, MECHANICAL, KITCHEN AND INTERIOR DRAWINGS CONTAIN DETAIL DESCRIPTIONS, CIRCUITING AND CONNECTION REQUIREMENTS WHICH ARE PART OF

DIVISION 26 RESPONSIBILITIES. ELECTRICAL CONTRACTOR SHOULD NOT SUBMIT BIDS ON THIS PROJECT BEFORE REVIEWING ALL PROJECT DRAWINGS, SPECIFICATIONS AND ADDENDA. INTERNATIONAL BUILDING CODE (IBC) PUBLISHED BY THE INTERNATIONAL CODE COUNCIL (ICC).

NATIONAL ELECTRICAL CODE (NEC) PUBLISHED BY THE NATIONAL FIRE PROTECTION INTERNATIONAL FIRE CODE (IFC) PUBLISHED BY THE INTERNATIONAL CODE COUNCIL

NATIONAL FIRE CODES (NFPA STANDARDS) PUBLISHED BY THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) AS REFERENCED IN THE 2006 INTERNATIONAL FIRE CODE. INTERNATIONAL ENERGY CONSERVATION CODE (IECC) PUBLISHED BY THE INTERNATIONAL CODE COUNCIL. ASHRAE / IESNA STANDARD 90.1-2004 IS INCORPORATED BY REFERENCE.

ADMINISTRATIVE CODE (NAC), INCLUDING THOSE LISTED BELOW. THE MOST CURRENT REGULATIONS OF THE STATE FIRE MARSHAL, NEVADA DEPARTMENT OF PUBLIC SAFETY, CARSON CITY, NEVADA (NAC CHAPTER 471, STATE FIRE MARSHAL). THE MOST CURRENT EDITION OF THE AMERICANS WITH DISABILITIES ACT (ADA) PUBLISHED BY

FURNISH, INSTALL, CONNECT AND TEST UNTIL COMPLETE FURNISH ALL NECESSARY WIRING, CONNECT AND TEST UNTIL COMPLETE FURNISH, SET IN PLACE, WIRE AND TEST UNTIL COMPLETE MATERIALS COMPLETELY INSTALLED, CONNECTED, AND TESTED UNTIL COMPLETE ACCEPTABLE EQUAL AS DETERMINED BY THE ENGINEER

REQUIREMENTS OF REGULATORY AGENCIES OBTAIN AND PAY FOR ALL PERMITS AND INSPECTIONS REQUIRED FOR THE WORK, COMPLY WITH ALL ORDINANCES PERTAINING TO WORK DESCRIBED HEREIN. PAY ALL EXPENSES ARISING FROM THE PROCUREMENT OF THESE CERTIFICATES AND INCLUDE IN THE BASE CONTRACT

INSTALL WORK UNDER THIS DIVISION PER DRAWINGS, SPECIFICATIONS, LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE, (NFPA-70) INCLUDING LOCAL AMENDMENTS AND INTERPRETATIONS, LOCAL ADOPTED BUILDING CODES, AND ANY SPECIAL CODES HAVING JURISDICTION OVER SPECIFIC PORTIONS OF WORK WITHIN COMPLETE INSTALLATION. IN EVENT OF CONFLICT, INSTALL WORK PER MOST STRINGENT CODE REQUIREMENTS DETERMINED BY ENGINEER. THIS DOES NOT RELIEVE THE CONTRACTOR FROM FURNISHING AND INSTALLING WORK SHOWN OR SPECIFIED WHICH MAY EXCEED THE REQUIREMENTS OF SUCH ORDINANCES, LAWS, REGULATIONS AND CODES.

ALL MATERIALS, PRODUCTS, DEVICES, FIXTURES, FORMS OR TYPES OF CONSTRUCTION INCLUDED IN THIS PROJECT SHALL MEET OR EXCEED THE PUBLISHED REQUIREMENTS OF NATIONAL ELECTRICAL CODE (NEC), AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI), INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE) AND NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATIONS (NEMA). ALL EQUIPMENT SHALL BEAR THE UNDERWRITER'S LABORATORIES (UL) LABEL OR EQUIVALENT FROM APPROVED INDEPENDENT TESTING LABORATORY. ARRANGE, PAY FEES FOR AND COMPLETE WORK TO PASS REQUIRED TESTS BY AGENCIES

HAVING AUTHORITY OVER WORK. DELIVER TO ENGINEER COPIES OF THE CERTIFICATES OF INSPECTION AND APPROVAL ISSUED BY AUTHORITIES AND PROVIDE ORIGINAL COPY OF EACH CERTIFICATE TO OWNER.

WHEN REQUIRED BY LAW OR REGULATIONS, THE GOVERNMENTAL AGENCY HAVING JURISDICTION FOR INSPECTIONS SHALL BE GIVEN REASONABLE NOTICE AND OPPORTUNITY TO INSPECT THE WORK. ANY WORK THAT IS ENCLOSED OR COVERED UP BEFORE SUCH INSPECTION AND TEST SHALL BE UNCOVERED AT THE CONTRACTOR'S EXPENSE; AFTER IT HAS BEEN INSPECTED, THE CONTRACTOR SHALL RESTORE THE WORK TO ITS ORIGINAL CONDITION AT HIS OWN EXPENSE.

DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY. WORK CALLED FOR BY ONE IS BINDING AS IF CALLED FOR BY BOTH. ANY DISCREPANCIES BETWEEN DRAWINGS AND SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR CLARIFICATION DURING THE BIDDING PERIOD. NO ALLOWANCE SHALL SUBSEQUENTLY BE MADE TO THE CONTRACTOR BY REASON OF HIS FAILURE TO HAVE BROUGHT SAID DISCREPANCIES TO THE ATTENTION OF THE CONSULTANT DURING THE BIDDING PERIOD OR BY REASON OF ANY ERROR ON THE CONTRACTOR'S PART.

DRAWINGS ARE SCHEMATIC AND DIAGRAMMATIC IN NATURE. DRAWINGS SHOW GENERAL RUN OF CIRCUITS AND APPROXIMATE LOCATION OF EQUIPMENT. THE CONTRACTOR SHALL REVIEW DRAWINGS OF ALL TRADES TO ASSURE COORDINATION PRIOR TO PLACEMENT OF WORK, RIGHT IS RESERVED TO CHANGE LOCATION OF EQUIPMENT AND DEVICES, AND ROUTING OF CONDUITS

WITHIN IO FEET, WITHOUT EXTRA COST TO OWNER (PRIOR TO ROUGH-IN). USE DIMENSIONS IN FIGURES, SHOP DRAWINGS, ETC. AND ACTUAL SITE MEASUREMENTS IN PREFERENCE TO SCALED DIMENSIONS, DO NOT SCALE DRAWINGS FOR EXACT SIZES OR LOCATIONS - USE DIMENSIONED DETAILS OR ACTUAL FIELD CONDITIONS. VERIFY ITEM MOUNTING HEIGHTS AS REQUIRED BY PROJECT CONDITIONS PRIOR TO ROUGH-IN. THE ARCHITECTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER ALL OTHER DRAWINGS IN

MATTERS OF DIMENSIONS, DISCREPANCIES BETWEEN DIFFERENT DRAWINGS OR BETWEEN DRAWINGS AND SPECIFICATIONS, OR REGULATIONS AND CODES GOVERNING THE INSTALLATION SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER IN WRITING FOR DETERMINATION. LAYOUT EQUIPMENT AS SHOWN ON DRAWINGS AS CLOSE AS POSSIBLE, VERIFY ACCESS REQUIREMENTS FOR EQUIPMENT ACTUALLY FURNISHED, AND ADJUST LAYOUT TO COMPLY WITH

ALL DEVICES, LIGHT FIXTURES, ETC. LOCATED IN CEILING TILES SHALL BE LOCATED IN THE CENTER OF THE CEILING TILE UNLESS SPECIFICALLY NOTED OR APPROVED TO DO OTHERWISE. THE CONTRACTOR IS RESPONSIBLE TO FIELD MEASURE AND CONFIRM THE MOUNTING HEIGHTS AND LOCATION OF ELECTRICAL EQUIPMENT WITH RESPECT TO COUNTERS, DOORWAYS, AND OTHER ARCHITECTURAL, MECHANICAL OR STRUCTURAL WORK. DO NOT SCALE DISTANCES OFF

EXECUTION OF CONTRACT IS EVIDENCE THAT CONTRACTOR HAS EXAMINED ALL EXISTING CONDITIONS, DRAWINGS AND SPECIFICATIONS RELATED TO WORK, AND IS INFORMED AS TO EXTENT AND CHARACTER OF WORK. LATER CLAIMS FOR LABOR AND MATERIALS REQUIRED DUE TO DIFFICULTIES ENCOUNTERED, WHICH COULD HAVE BEEN FORESEEN HAD EXAMINATION BEEN MADE, WILL NOT BE RECOGNIZED.

ALL WORK CALLED FOR IN THIS SECTION OF THE PLANS AND SPECIFICATIONS SHALL BE PERFORMED UNDER THIS SECTION, REGARDLESS OF WHETHER SUCH WORK MAY ALSO HAVE BEEN CALLED FOR IN OTHER SECTION(S). DISCREPANCIES IN OR CONFLICTS AMONG THE VARIOUS PARTS OF THE CONTRACT DRAWINGS SHALL NOT RELIEVE CONTRACTOR OF HIS

NO ATTEMPT HAS BEEN MADE TO ESTABLISH THE REQUIRED SECTIONS OR SPLITS OF EQUIPMENT RELATIVE TO THE SIZE OF ACCESS INTO THE SPACE, BUILDING, ETC. CONTRACTOR SHALL ESTABLISH ALL SAID SPLITS, SECTIONS, ETC. NECESSARY TO INSTALL EQUIPMENT COMPLETE WITHOUT UNDUE DISASSEMBLY OF EQUIPMENT OR DEMOLITION OF BUILDING PARTS

CHARGES FOR EXTRA WORK ARE NOT ALLOWED UNLESS WORK IS AUTHORIZED BY WRITTEN ORDER FROM THE OWNER'S REPRESENTATIVE APPROVING CHARGES FOR WORK. CHECK ALL DOOR SWINGS SO LIGHTING CONTROL DEVICES ARE NOT LOCATED BEHIND DOORS. RELOCATE DEVICES AS REQUIRED WITH THE CONSULTANT'S REVIEW.

COPYRIGHT THESE PLANS, SPECIFICATIONS, AND ALL RELATED ADDENDA AND DOCUMENTS CONSTITUTE COPYRIGHT MATERIALS OF PK ELECTRICAL. ALL RIGHTS CONFERRED BY THE COPYRIGHT AND SIMILAR LAWS ARE RESERVED TO PK ELECTRICAL. THESE MATERIALS SHALL REMAIN THE SOLE PROPERTY OF PK ELECTRICAL AND MAY NOT BE REPRODUCED, DISTRIBUTED TO OTHERS OR USED FOR ANY PURPOSE WHATSOEVER WITHOUT THE PRIOR WRITTEN CONSENT OF PK ELECTRICAL.

SUBMITTALS BEFORE ORDERING ANY EQUIPMENT, CONTRACTOR SHALL SUBMIT SIX COPIES OF FACTORY SHOP DRAWINGS FOR ALL LIGHTING FIXTURES, LIGHTING CONTROLS, SWITCHGEAR, PANELS, CIRCUIT BREAKERS, MOTOR CONTROLLERS, DISCONNECTS WIRING DEVICES, PLATES, RACEWAYS AND FITTINGS, ETC. PROPOSED FOR THIS PROJECT.

ITEM | DESCRIPTION

SUBSTITUTIONS PROPOSED SUBSTITUTIONS SHALL BE EQUAL OR SUPERIOR TO SPECIFIED ITEMS IN ALL RESPECTS. DETERMINATION OF EQUALITY RESTS SOLELY WITH ENGINEER. SUBSTITUTIONS MUST BE SUBMITTED A MINIMUM OF 10 WORKING DAYS PRIOR TO BID FOR CONSIDERATION. PROPOSED SUBSTITUTIONS PROVIDED LATER WILL NOT BE REVIEWED OR ALLOWED. BID SUBSTITUTED MATERIAL WILL ONLY BE ALLOWED IF ACCEPTED IN WRITING BY ENGINEER. 1.10 EXAMINATION OF SITE AND EXISTING CONDITIONS

BEFORE SUBMITTING A PROPOSAL, CONTRACTOR SHALL EXAMINE THE SITE AND FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS AND LIMITATIONS. NO EXTRAS WILL BE ALLOWED BECAUSE OF THE CONTRACTOR'S MISUNDERSTANDING OF THE AMOUNT OF WORK INVOLVED OR HIS LACK OF KNOWLEDGE OF ANY SITE CONDITIONS WHICH MAY AFFECT HIS WORK. ANY APPARENT VARIANCE OF THE DRAWINGS OR SPECIFICATIONS FROM THE EXISTING CONDITIONS AT THE SITE SHALL BE CALLED TO ATTENTION OF THE ENGINEER BEFORE SUBMITTING A PROPOSAL.

EXISTING OUTLETS EXISTING OUTLETS AND CIRCUITING NOT IN CONFLICT WITH NEW CONDITIONS SHALL REMAIN. EXTEND OUTLETS TO NEW SURFACES, CAULK AND PROVIDE JUMBO PLATES AS REQUIRED TO PRESENT A SERVICEABLE AND FINISHED APPEARANCE.

EXISTING SWITCHGEAR REUSE EXISTING SMITCHGEAR AND PANELS IN PLACE WHERE SO INDICATED. MODIFY AS REQUIRED TO ACCOMMODATE NEW WORK, PROVIDE NEW CIRCUIT BREAKERS AND/OR FUSES AS REQUIRED. MATCH AIC RATINGS. REARRANGE EXISTING CIRCUITS WITHIN PANELS TO AGREE WITH NEW PANEL SCHEDULES. TRACE AND IDENTIFY ALL EXISTING CIRCUITS ON NEW RECORD PANEL SCHEDULES.

EXISTING PANELBOARDS RING OUT CIRCUITS IN EXISTING PANELS. WHERE ADDITIONAL CIRCUITS ARE NEEDED REUSE CIRCUITS AVAILABLE FOR REUSE. INSTALL NEW BREAKERS AS INDICATED ON DRAWINGS.

TAG UNUSED CIRCUITS AS SPARE. WHERE EXISTING CIRCUITS ARE INDICATED TO BE REUSED, USE SENSING MEASURING DEVICES TO VERIFY THAT CIRCUITS FEEDING PROJECT AREA ARE NOT IN USE OR OVERLOADED.

REMOVE EXISTING WIRE NO LONGER IN USE FROM PANEL TO EQUIPMENT.

PROVIDE NEW UPDATED TYPED DIRECTORIES.

PART 2 - PRODUCTS

CIRCUITING

2.7

MATCH AIC RATINGS

<u>MATERIALS</u> ALL MATERIAL SHALL BE NEW, AND HAVE A UL LABEL WHERE AVAILABLE. IF UL LABEL IS NOT AVAILABLE, MATERIAL SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE NEMA, IEEE AND FEDERAL STANDARDS. USE UL LABELED COMPONENTS IN ASSEMBLIES THAT DO NOT HAVE OVERALL UL LABEL. ALL EQUIPMENT SHALL COMPLY WITH THE TERMS "LISTED AND LABELED" AS DEFINED IN THE NEC 70, ARTICLE 100. SUBMIT LETTER STATING COMPLIANCE WITH THESE REQUIREMENTS

UTILIZE ONE OF THE MANUFACTURERS LISTED TO FURNISH ALL OF THE MAJOR EQUIPMENT (I.E. PANELS, TRANSFORMERS, BUS DUCT, SWITCHGEAR, CIRCUIT BREAKERS, ETC.) REQUIRED FOR THIS PROJECT.

ALL MATERIAL AND EQUIPMENT SHALL BE NEW AND OF THE HIGHEST QUALITY AVAILABLE ("SPECIFICATION GRADE"). SERVICE EQUIPMENT SHALL BE FACTORY-ASSEMBLED COMMERCIAL-GRADE, CONFIGURED PER SERVING UTILITY STANDARDS. WIRING DEVICES SHALL BE SPECIFICATION GRADE WITH NYLON PLATES, WHITE UNLESS OTHERWISE NOTED, RAISED STEEL BOX COVERS MAY BE USED IN UTILITY AREAS.

ALL EQUIPMENT AND CIRCUITING ACCESSIBLE BY THE PUBLIC SHALL BE TAMPER-PROOF AND VANDAL RESISTANT. OPENABLE DEVICES AND EQUIPMENT SHALL BE PADLOCKABLE.

DISTRIBUTION EQUIPMENT DISTRIBUTION EQUIPMENT SHALL BE DEAD-FRONT, PANELBOARD OR SWITCHBOARD TYPE AS INDICATED, UL-LABELED AND ENCLOSED IN A NEMA HOUSING APPROPRIATE TO ITS LOCATION AND APPLICATION WITH HINGED WIREWAY COVERS. BUSSING, DEVICE FINGERS AND LUGS SHALL BE COPPER UNLESS INDICATED ON DRAWINGS. AIC RATINGS SHOWN ON PLANS ARE MINIMUM RATINGS; CIRCUIT BREAKERS SHALL BE IN EXCESS OF THE AVAILABLE FAULT CURRENT. SERIES-RATING OF UPSTREAM AND DOWNSTREAM CIRCUIT BREAKERS TO ACHIEVE REQUIRED FAULT CURRENT RATINGS S PROHIBITED UNLESS APPROVED BY ENGINEER IN WRITING. ANELBOARDS

ANELS SHALL HAVE FLUSH MONO-FLAT TRIM, LOCKING DOOR-IN-DOOR HINGED COVERS AND BOLT-ON CIRCUIT BREAKERS. BUSSING SHALL BE COPPER UNLESS INDICATED ON DRAWINGS. FLUSH-MOUNTED PANELS SHALL HAVE EMPTY CONDUITS STUBBED TO ACCESSIBLE ATTIC SPACE: ONE I" CONDUIT FOR EACH FOUR SPARE/SPACE CIRCUITS. PROVIDE ONE TYPED AND ONE SPARE PANEL SCHEDULE FOR OWNER'S USE. SCHEDULES SHALL BE TWO COLUMN TYPE WITH ODD CIRCUIT NUMBERS ON THE LEFT AND EVEN NUMBERS ON THE RIGHT. TRANSFORMERS

TRANSFORMERS SHALL BE SELF VENTILATED DRY-TYPE WITH COPPER BUSSING UNLESS INDICATED OTHERWISE AND SHALL BE UL LISTED AS SUITABLE FOR INSTALLATION IN INTERIOR LOCATIONS. INSULATION SHALL BE MINIMUM 220 DEGREE CELSIUS OPERATION. PROVIDE SIX 2 1/2% VOLTAGE ADJUSTING TAPS - TWO ABOVE AND FOUR BELOW RATED PRIMARY VOLTAGE. IMPEDANCE FOR JNITS ABOVE 15KVA SHALL BE MINIMUM 5%. TRANSFORMERS SHALL BE CONNECTED WITH SEALTIGHT FLEXIBLE CONDUIT WITH SEPARATE INTERNAL GROUND WIRE.

ALL WIRING SHALL BE IN CONDUIT, CONCEALED EXCEPT WHERE NOTED. EMT WITH STEEL SET SCREW INSULATED-THROAT FITTINGS SHALL BE USED IN DRY, PROTECTED INTERIOR LOCATIONS. PVC SCHEDULE 40 SHALL BE USED BELOW GRADE AT MINIMUM-24". WRAPPED RIGID ELBOWS AND RISERS SHALL BE USED FOR ALL THROUGH-GRADE AND CONCRETE SLAB TRANSITIONS AND STUB-UPS, RGS OR IMC CONDUIT WITH THREADED FITTINGS SHALL BE USED IN ALL LOCATIONS WHERE EXPOSED TO THE ELEMENTS OR SUBJECT TO PHYSICAL DAMAGE. FMC MAY BE USED FOR FINAL CONNECTION TO LIGHTING FIXTURE FROM J-BOX. FIXTURE WHIPS MAY NOT EXCEED 6' IN LENGTH. METAL CLAD CABLE (TYPE MC) MAY NOT BE USED. ENT IS NOT ALLOWED. CONNECT RECESSED AND SUSPENDED LIGHTING FIXTURES, MOTORIZED AND VIBRATING EQUIPMENT WITH STEEL FLEX. ALL CONDUIT SHALL HAVE PULL CORD IF OTHERWISE EMPTY. CONNECT PUMP MOTORS WITH LIQUID TIGHT FLEXIBLE METAL CONDUIT. 2.6 <u>MIRING</u>

WIRE SHALL BE COPPER UNLESS OTHERWISE INDICATED. MINIMUM WIRE SIZE SHALL BE #12 AWG. WHERE ALUMINUM IS ALLOWED, WIRE SHALL BE TERMINATED IN AN INSULATED CU/AL RATED COMPRESSION TERMINAL FITTING (MAC-ADAPT OR EQUAL). INSULATION SHALL BE THM, THWN OR

UNLESS OTHERWISE REQUIRED BY LOCAL ORDINANCES, GROUND WIRES SHALL BE GREEN, NEUTRAL WIRES SHALL BE WHITE (120V) OR GREY (27TV) AND PHASE WIRES SHALL BE BLACK (PHASE A), RED (PHASE B), AND BLUE (PHASE C) FOR A 120/208 VOLT SYSTEM AND BROWN (PHASE A), ORANGE (PHASE B), AND YELLOW (PHASE C) FOR A 271/480 VOLT SYSTEM.

FUSES SHALL BE SIZED PER ACTUAL NAMEPLATE OF EQUIPMENT SERVED. FUSES SHALL BE DUAL-ELEMENT, CURRENT-LIMITING, AND SHALL BE INTERCHANGEABLE BETWEEN FRAME SIZES WITH STANDARD FACTORY FUSE REDUCERS, FUSES SHALL BE AS FOLLOWS UNLESS OTHERWISE INDICATED:

CIRCUITS 601 TO 6000 AMPERES SHALL BE PROTECTED BY CURRENT LIMITING BUSSMANN LOW-PEAK TIME-DELAY FUSES KRP-C - UL CLASS L. CIRCUITS O TO 600 AMPERES SHALL BE PROTECTED BY CURRENT LIMITING BUSSMANN LOW-PEAK DUAL-ELEMENT FUSES LPN-RK (600 VOLTS) - UL CLASS RKI.

ALL DUAL-ELEMENT FUSES SHALL HAVE SEPARATE OVERLOAD AND SHORT-CIRCUIT ELEMENTS. PROVIDE SPARE FUSE CABINET AFTER THE COMPLETION OF THE PROJECT WITH ONE SET OF SPARE FUSES FOR EVERY SIZE USED.

<u>WIRING DEVICES</u> WIRING DEVICES SHALL BE AS FOLLOWS: RECEPTACLES - 120V, 20A, NEMA 5-20R, SPECIFICATION GRADE, SIDE AND BACK WIRED WITH

CLAMP TYPE TERMINALS, NYLON, WHITE, 2 POLE, 3 WIRE GROUNDING. SWITCHES - 120V/27TV, 20A, WHITE, HEAVY DUTY, SILENT TYPE SPECIFICATIONS GRADE.

DEVICE PLATE SHALL BE NYLON, WHITE COLOR WITH MATCHING SCREWS. RECEPTACLES IN WET LOCATIONS SHALL BE INSTALLED WITH A HINGED OUTLET COVER/ENCLOSURE CLEARLY MARKED SUITABLE FOR WET LOCATIONS WHILE IN USE AND UL LISTED EQUAL TO TAY MAC SPECIFICATIONS GRADE.

PART 3 - EXECUTION VISIT TO SITE

VISIT SITE, AND SURVEY EXISTING CONDITIONS AFFECTING WORK PRIOR TO BID. INCLUDE NECESSARY MATERIALS AND LABOR TO ACCOMPLISH THE ELECTRICAL WORK, INCLUDING RELOCATION OF EXISTING SERVICES AND UTILITIES ON BUILDING SITE IN BID. NO CONSIDERATION SHALL BE GIVEN TO FUTURE CLAIMS DUE TO EXISTING CONDITIONS. ANY DISCREPANCIES OR INTERFERENCES SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER.

3.2 MORKMANSHI

ALL WORK PERFORMED SHALL BE FIRST CLASS WORK IN EVERY ASPECT. THE WORK SHALL BE PERFORMED BY MECHANICS SKILLED IN THEIR RESPECTIVE TRADES, WHO SHALL AT ALL TIMES BE UNDER THE SUPERVISION OF COMPETENT PERSONS. ALL WORK SHALL BE INSTALLED TO COMPLY WITH NECA'S "STANDARD OF INSTALLATION."

IN ADDITION TO THE MATERIALS SPECIFIED ELSEWHERE, FURNISH AND INSTALL ALL OTHER MISCELLANEOUS ITEMS NECESSARY FOR THE COMPLETION OF THE WORK TO THE EXTENT THAT ALL SYSTEMS ARE COMPLETE AND OPERATIVE.

ITEM DESCRIPTION IN ADDITION TO THE MATERIALS SPECIFIED ELSEWHERE, FURNISH AND INSTALL ALL OTHER MISCELLANEOUS ITEMS NECESSARY FOR THE COMPLETION OF THE WORK TO THE EXTENT THAT

3.3

3.4

3.5

ALL SYSTEMS ARE COMPLETE AND OPERATIVE. ALL WORK UNDER THIS SECTION SHALL BE PERFORMED IN COOPERATION WITH THE WORK PERFORMED UNDER ALL OTHER SECTIONS OF THE SPECIFICATIONS FOR THE PROJECT IN ORDER TO AVOID INTERFERENCE WITH OTHER WORK AND TO SECURE THE PROPER INSTALLATION OF ALL WORK. REFER THE DRAWINGS AND SPECIFICATIONS COVERING THE WORK TO BE PERFORMED UNDER ALL SECTIONS, SO THAT THE RELATION AND EXTENT OF THE WORK OF THIS SECTION WITH RESPECT TO THE WORK OF ALL OTHER SECTIONS IS UNDERSTOOD. GIVE RIGHT OF WAY TO RACEWAYS AND PIPING SYSTEMS INSTALLED AT A REQUIRED SLOPE. CONDUIT SYSTEMS MUST BE COMPLETE PRIOR TO INSTALLATION OF WIRING.

CHANGE ORDERS ADDITIONAL WORK MAY BE REQUIRED ON THE PROJECT WHICH IS OUTSIDE THE SCOPE OF THE CONTRACT. SUCH ADDITIONAL WORK WILL BE DESCRIBED IN SUPPLEMENTAL INSTRUCTIONS AND/OR CLARIFICATIONS, TO BE ESTIMATED AND PRICED BY THE CONTRACTOR, AND ACCEPTED BY THE OWNER, PRIOR TO COMMENCING WORK, PROPOSALS SHALL INCLUDE A LIST OF QUANTITIES OF ALL MATERIAL BEING USED WITH UNIT COSTS BROKEN DOWN INTO MATERIAL AND LABOR COSTS PER UNIT. CONTRACTOR SHALL PROVIDE ACTUAL EQUIPMENT QUOTES WHEN REQUESTED BY ENGINEER.

MATERIAL COSTS AND LABOR UNITS SHALL NOT EXCEED THE LATEST EDITION OF RS MEANS ELECTRICAL COST DATA. <u>GUARANTEE</u>

FURNISH THE OWNER A WRITTEN GUARANTEE, STATING THAT IF THE WORKMANSHIP AND/OR MATERIAL EXECUTED UNDER THIS DIVISION IS PROVEN DEFECTIVE WITHIN (I) YEAR AFTER THE FINAL ACCEPTANCE BY THE OWNER, SUCH DEFECTS AND OTHER WORK DAMAGED WILL BE REPAIRED AND/OR REPLACED. SUBMIT WITH OPERATION AND MAINTENANCE MANUALS. OBTAIN FROM THE VARIOUS MANUFACTURERS OR VENDORS GUARANTEES OR WARRANTIES FOR THEIR PARTICULAR EQUIPMENT OR COMPONENTS, AND DELIVER THEM TO THE OWNER. ALL

GUARANTEES AND WARRANTIES PROVIDED SHALL BE REFERENCED TO THIS PROJECT. IN EVENT THAT SYSTEMS ARE PLACED IN OPERATION IN SEVERAL PHASES AT THE OWNER'S REQUEST, GUARANTEE WILL BEGIN ON DATE EACH SYSTEM OR ITEM OF EQUIPMENT IS ACCEPTED FOR SERVICE BY THE OWNER. PROVIDE O&M MANUALS FOR ALL EQUIPMENT WHEN EQUIPMENT IS ACCEPTED FOR SERVICE BY THE OWNER.

ALL GUARANTEES AND WARRANTIES SHALL INCLUDE LABOR AND MATERIAL AT THE SITE OF INSTALLATION FOR THE DURATION OF THE GUARANTEE PERIOD OBSERVATIONS OF WORK AND DEMONSTRATION OF OPERATION (ACCEPTANCE)

AT ALL OBSERVATIONS OF WORK, OPEN PANEL COVERS, JUNCTION BOX COVERS, PULL BOX

COVERS, DEVICE COVERS, AND OTHER EQUIPMENT WITH REMOVABLE PLATES FOR OBSERVATION AS REQUESTED BY AHJ OR ENGINEER. PROVIDE SUFFICIENT PERSONNEL TO EXPEDITE COVER REMOVAL AND REPLACEMENT. CONTRACTOR TO DEMONSTRATE OPERATION OF NEW EQUIPMENT AND/OR SYSTEMS TO

SATISFACTION OF OWNER/ENGINEER. CONTRACTOR TO HAVE MANUFACTURER AVAILABLE FOR DEMONSTRATION OF EQUIPMENT AND/OR SYSTEMS WHERE REQUESTED BY OWNER/ENGINEER. FURNISH AFFIDAVIT SIGNED BY OWNER'S REPRESENTATIVE INDICATING THAT DEMONSTRATION OF OPERATION HAS BEEN PERFORMED. **COOPERATION** 

3.6 CAREFULLY COORDINATE WORK WITH OTHER CONTRACTORS AND SUBCONTRACTORS. REFER CONFLICTS BETWEEN TRADES TO ENGINEER. PROVIDE NECESSARY INFORMATION TO OTHER TRADES FOR SUCH COORDINATION. SUCH INFORMATION SHALL INCLUDE SHOP DRAWINGS, PRODUCT DATA AND ALL OTHER REQUIRED DATA. PROVIDE A SYSTEM ERECTION/COORDINATION DRAWING SHOWING ELECTRICAL, HVAC, PLUMBING AND

ARCHITECTURAL FOR INSTALLATION IN CONGESTED AREAS, WHEN REQUESTED. WHENEVER SUCH INFORMATION IS NOT PROVIDED IN A TIMELY MANNER OR WHENEVER SUCH INFORMATION IS INCORRECT, THIS CONTRACTOR SHALL BEAR ALL COSTS FOR PROVIDING OR CORRECTING AFFECTED WORK OF RELATED TRADES WITH NO CHANGE TO THE CONTRACT PRICE OR CONSTRUCTION SCHEDULE.

WORK TO BE INSTALLED AS PROGRESS OF PROJECT WILL ALLOW. SCHEDULE OF WORK DETERMINED BY GENERAL CONTRACTOR, OWNER, AND/OR ARCHITECT/ENGINEER. COORDINATION OF UTILITY SERVICES

DRAWINGS INDICATE PROPOSED SERVICE LAYOUTS. THE CONTRACTOR SHALL PROVIDE ALL CONCRETE STRUCTURES, PULLBOXES, VAULTS, TRENCHING, RACEWAYS, PROTECTIVE BOLLARDS, ETC., AS REQUIRED PER NV ENERGY STANDARDS (ELECTRICAL UTILITY), AT&T (TELEPHONE COMPANY) AND CHARTER (CATY UTILITY) STANDARDS.

CONTRACTOR IS RESPONSIBLE FOR SUBMITTING PROJECT DRAWINGS, APPLICATION, AND EQUIPMENT SHOP DRAWINGS TO THE UTILITY. UTILITY FEES TO BE PAID BY PROJECT OWNER. HVAC CONTROL WIRING CONTROL WIRING INCLUDING LOW VOLTAGE AND LINE VOLTAGE INTERLOCK WIRING WILL BE

FURNISHED AND INSTALLED UNDER DIVISION 23, EXCEPT WHERE SPECIFICALLY SHOWN OTHERWISE. CAREFULLY COORDINATE POWER AND CONTROL WIRING INTERFACE. THIS CONTRACTOR SHALL OBTAIN FROM DIVISION 23 ALL WIRING DIAGRAMS ASSOCIATED WITH THE HVAC WORK AND FURNISH ALL POWER AND 120V CONTROL WIRING, DISCONNECTS AND STARTERS FOR EQUIPMENT NOT ALREADY PACKAGED WITH THESE ITEMS. THE CONTRACTOR SHALL INCLUDE IN HIS BID CONNECTIONS, DISCONNECTS AND CIRCUITING FOR ALL ADDED AND RELOCATED EQUIPMENT AS DIRECTED BY THE TEMPERATURE CONTROLS CONTRACTOR EVEN IF IT IS NOT SHOWN ON THE BID DOCUMENTS. ALL WIRING AND CONDUIT ASSOCIATED WITH THE HVAC TEMPERATURE CONTROL SYSTEM IS INCLUDED UNDER DIVISION 23. WIRING AND CONDUIT SHALL COMPLY WITH DIVISION 26. ALL ELECTRICAL WORK ASSOCIATED

WITH THE HVAC SYSTEM SHALL BE DONE UNDER THE SUPERVISION OF DIVISION 23. 3.9 SEPARATELY MOUNTED STARTERS ARE FURNISHED AND INSTALLED UNDER DIVISION 26 UNLESS SPECIFICALLY SHOWN OTHERWISE. ALL POWER WIRING, FUSES, THERMAL OVERLOADS, AND DISCONNECT SWITCHES AND CONNECTION OF ALL MOTORS IS UNDER THIS DIVISION. PROVIDE THE PROPER FUSING AND THERMAL OVERLOADS AS RECOMMENDED BY THE MANUFACTURER OF THE

EQUIPMENT.

DELIVERY, STORAGE AND HANDLING DELIVER EQUIPMENT AND MATERIALS TO JOB SITE IN ORIGINAL, UNOPENED, LABELED CONTAINER. PRODUCTS SHALL BE PROPERLY IDENTIFIED WITH NAMES, MODEL NUMBERS. TYPES. GRADES, COMPLIANCE LABELS AND OTHER INFORMATION NEEDED FOR IDENTIFICATION. STORE TO PREVENT DAMAGE AND INJURY, STORE MATERIALS TO PREVENT CORRODING, STORE FINISHED MATERIALS AND EQUIPMENT TO PREVENT STAINING AND DISCOLORING. STORE MATERIALS AFFECTED BY CONDENSATION IN WARM DRY AREAS, PROVIDE HEATERS. CONTRACTOR SHALL VERIFY THE AVAILABILITY OF ON SITE STORAGE SPACE, IF NO ON SITE STORAGE SPACE IS AVAILABLE THEN THE CONTRACTOR SHALL COVER THE COST FOR OFF SITE STORAGE. MATERIALS STORED AT THE PROJECT SITE THAT BECOMES SOILED WITH CONSTRUCTION DIRT, CONCRETE, OR MOISTURE SHALL BE REMOVED FROM THE SITE AND REPLACED WITH NEW, DO NOT INSTALL SOILED MATERIAL

INSTALL EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. CONFLICTS BETWEEN CONTRACT DOCUMENTS AND THESE RECOMMENDATIONS SHALL BE REFERRED TO ENGINEER FOR REMEDY. ELECTRICAL OR ELECTRONIC EQUIPMENT THAT HAS BEEN DAMAGED, EXPOSED TO WEATHER OR IS, IN THE OPINION OF THE ENGINEER OR ARCHITECT, OTHERWISE UNSUITABLE BECAUSE OF IMPROPER FABRICATION, STORAGE OR INSTALLATION SHALL BE REMOVED AND REPLACED BY THIS CONTRACTOR AT HIS EXPENSE.

<u>ANCHORS</u> PROVIDE ANCHORS FOR ALL EQUIPMENT, RACEWAYS, HANGERS, ETC. TO SAFELY SUPPORT WEIGHT OF ITEM INVOLVED PLUS 100% FOR DEAD LOADS. LIVE LOADS SHALL BE CONSIDERED

IN ADDITION TO DEAD LOADS. ANCHORS TO CONSIST OF EXPANSION TYPE DEVICES SIMILAR TO "REDHEAD" OR LEAD EXPANSION ANCHORS. PLASTIC ANCHORS ARE NOT ACCEPTABLE. USE PRESET ANCHOR STEEL INSERTS IN CONCRETE SLABS. PROVIDE PRESET ANCHOR SIZE AND

TYPE FOR ANTICIPATED OR SPECIFIED ROD/BOLT SIZE AND LIVE/DEAD LOAD.

3.12 HOUSEKEEPING PADS FURNISH 2500 # CONCRETE PADS, 4" HIGH (INTERIOR LOCATIONS) OR 6" HIGH (EXTERIOR LOCATIONS) UNLESS OTHERWISE NOTED, FOR ALL FREESTANDING EQUIPMENT, I.E. SWITCHBOARDS, PANELS, CONTROL PANELS, MOTOR CONTROL CENTERS, TRANSFORMERS, ETC. PADS SHALL HAVE I" X 45° CHAMFERED EDGES, AND SHALL EXTEND 2" TO 4" BEYOND EQUIPMENT MOUNTINGS. CLEANING AND PAINTING

CLEAN EQUIPMENT FURNISHED IN THIS DIVISION AFTER COMPLETION OF WORK, CLEAN WIPE THE INTERIOR OF ALL CONDUIT, PULLBOXES, JUNCTION BOXES, OUTLET BOXES, AND PANELBOARD BACKBOXES SOILED WITH DIRT AND DEBRIS PRIOR TO INSTALLATION OF WIRING. TOUCH-UP OR RE-PAINT DAMAGED PAINTED FINISHES AS DETERMINED BY THE ENGINEER. 3.14 RECORD DRAWINGS

CONTRACTOR SHALL PROVIDE, PRIOR TO FINAL ACCEPTANCE AND OBSERVATION, ONE-SET OF REVISED RECORD ELECTRICAL CONSTRUCTION DOCUMENTS ON REPRODUCIBLE MEDIUM. ALSO INCLUDE THE FOLLOWING INFORMATION: EXACT ROUTING OF ALL CONDUITS LARGER THAN ONE INCH. EXACT LOCATION OF ALL SERVICE GROUNDING/ BONDING CONNECTIONS.

CONTRACTORS NAME, ADDRESS, AND TELEPHONE NUMBER. RECORD NOTATIONS SHALL BE CLEARLY DRAWN AT A DRAFTING APPEARANCE EQUAL TO THE ORIGINAL DRAWINGS. CONTRACTOR SHALL ALSO PROVIDE ALL OPERATING AND MAINTENANCE MANUALS PRIOR TO FINAL PAYMENT.

ITEM DESCRIPTION

3.15

ELECTRICAL SYSTEM TESTING PRIOR TO PLACING IN SERVICES, ALL ELECTRICAL SYSTEMS SHALL BE TESTED FOR OPENS, GROUNDS, AND PHASE ROTATION. THE MAIN SERVICE GROUND AND ALL LOCAL TRANSFORMER MADE GROUNDS SHALL BE MEGGER-TESTED. PROVIDE GFI TESTING FOR SERVICE SWITCHBOARD. THE CONTRACTOR SHALL RETAIN THE SERVICES OF AN INDEPENDENT TESTING FIRM DEEMED BY THE OWNER AS QUALIFIED TO PERFORM INTERNATIONAL ELECTRICAL TESTING ASSOCIATION TESTING. TESTING SERVICES SHALL BE PAID FOR AND COORDINATED BY THE CONTRACTOR. NETA TESTING PROCEDURES AND REQUIREMENTS FOR TESTED VALUES SHALL BE IN ACCORDANCE WITH THE MOST CURRENT EDITION OF THE NETA ACCEPTANCE TESTING SPECIFICATIONS. ANY DEFICIENCIES OR FAILURES DISCOVERED DURING THE NETA TESTING PROCEDURES SHALL BE PROMPTLY CORRECTED BY THE ENSURE TIMELY COMPLETION OF THE PROJECT AND TO MINIMIZE THE TIME REQUIRED FOR THE INDEPENDENT TESTING FIRM TO COMPLETE THEIR WORK.

TESTING REQUIREMENTS SHALL BE AS FOLLOWS: GROUNDING SYSTEM

GROUND FAULT PROTECTION

CIRCUIT BREAKERS (OVER 100A)

MAIN SWITCHBOARD; DISTRIBUTION BOARDS; BRANCH CIRCUIT PANELS. LIGHTING CONTROL SYSTEMS FIRE ALARM SYSTEM

LOW VOLTAGE FEEDERS (UP TO 600 VOLTS) SERVING LOADS OF 100 AMPS OR GREATER

3.16 <u>IDENTIFICATION</u>

> PROVIDE ENGRAVED NAMEPLATES FOR ALL SWITCHBOARDS, PANELS, TRANSFORMERS, DISCONNECTS, MOTOR STARTERS, CONTACTORS, TIME SWITCHES AND CABINETS. NAMEPLATES SHALL BE WHITE LETTERS ON BLACK FOR NORMAL EQUIPMENT AND WHITE LETTERS ON RED FOR EMERGENCY EQUIPMENT. NAMEPLATES SHALL INCLUDE THE FOLLOWING INFORMATION AS APPLICABLE:

DESIGNATION (I.E. PANEL A); FUNCTION (I.E. AIR HANDLER AH-I); VOLTAGE, PHASE, WIRE (I.E. 480 VOLT, 3 PHASE, 4W); FEEDER SIZE (I.E. 4-#4/0 THWN CU IN 2" C); SOURCE (I.E. SWITCHBOARDS MSB).

JUNCTION, PULL AND CONNECTION BOXES: IDENTIFICATION OF SYSTEMS AND CIRCUITS SHALL INDICATE SYSTEM VOLTAGE AND CONTAINED CIRCUITS ON OUTSIDE OF BOX COVER, USE SELF-ADHESIVE MARKING TAPE LABELS AT EXPOSED LOCATIONS AND INDELIBLE BLACK MARKER AT CONCEALED BOXES. ALL FIRE ALARM BOXES SHALL HAVE COVERS PAINTED RED. ALL TEMPERATURE CONTROL BOXES SHALL HAVE COVERS PAINTED BLUE.

BRANCH CIRCUIT CONDUCTORS SHALL BE IDENTIFIED IN EACH JUNCTION BOX AND PULL BOX WITH WIRE MARKERS AS MANUFACTURED BY T&B, PANDUIT, 3M, OR IDEAL TO INDICATE PANEL/CIRCUIT NUMBER.

JUNCTION BOX COVERS IN BRANCH CIRCUIT WIRING SHALL BE LABELED WITH PANEL AND CIRCUIT NUMBERS. JUNCTION BOX COVERS FOR SPECIAL SYSTEMS SHALL BE LABELED WITH SYSTEM NAME AND OTHER IDENTIFICATION AS DIRECTED; FOR EXAMPLE, "FIRE ALARM-ZONE I". WHERE BOXES ARE INSTALLED FLUSH MOUNTED IN FINISHED AREAS OR SURFACE MOUNTED IN UNFINISHED AREAS, LABELING SHALL BE WITH ENGRAVED PLASTIC NAMEPLATE AS SPECIFIED HEREIN. WHERE BOXES ARE INSTALLED ABOVE ACCESSIBLE CEILINGS, LABELING MAY BE NEAT HAND WRITTEN LETTERING WITH INDELIBLE MARKER.

DEVICE PLATES - SWITCHES AND RECEPTACLES: IDENTIFY THE PANELBOARD AND BRANCH CIRCUIT NUMBER FROM WHICH SERVED ON THE FRONT OF THE DEVICE PLATE WITH PERMANENT POLYESTER TAPE. LOCATE ALL LABELS AT THE BOTTOM OF THE PLATE IN THE SAME LOCATION THROUGHOUT.

SUSPENDED CEILING SYSTEMS

3.17

3.21

ALL LAY-IN FIXTURES SHALL BE INDEPENDENTLY SUPPORTED BY TWO #12 SLACK WIRES ATTACHED TO TWO OPPOSITE CORNERS OF THE FIXTURE PER IBC & NEC REQUIREMENTS. THESE WIRES SHALL BE SECURED TO THE STRUCTURAL FRAMING SUCH THAT FAILURE OF THE SUSPENDED CEILING SHALL NOT ALLOW THE FIXTURE TO DROP. 3.18 <u>ONGOING OPERATION</u>

CONDUCT WORK TO MINIMIZE DISRUPTION OF OWNER'S ONGOING OPERATIONS. PROVIDE BARRICADES, NOISE ABATEMENT AND DUST CONTAINMENT MEASURES TO ENSURE THE SAFETY AND COMFORT OF PATRONS, STAFF, AND WORKERS. INTERRUPTIONS OF EXISTING POWER, COMMUNICATIONS OR FIRE ALARM SYSTEMS SHALL BE PERFORMED ONLY AT SUCH TIMES AS DIRECTED BY GENERAL CONTRACTOR / OWNER. OUTAGES SHALL BE MOMENTARY IN NATURE. EACH SUCH OUTAGE (OR OPERATION WHICH MAY POSE RISK OF AN ACCIDENTAL OUTAGE) SHALL BE SCHEDULED 48 HOURS IN ADVANCE.

FLEXIBLE CONNECTIONS PROVIDE FLEXIBLE ELECTRICAL CONDUIT AND CONDUCTORS HAVING A SLACK, 90-DEGREE BEND OR LOOP IN ANY PLANE BETWEEN CONNECTIONS AT ALL VIBRATION ISOLATED EQUIPMENT AND THE FIRST ATTACHMENT TO BUILDING STRUCTURE OR CABINETS, PANELS OR BOXES MOUNTED THEREON. 3.20 SEISMIC PROTECTION

THIS PROJECT IS SUBJECT TO THE SEISMIC BRACING REQUIREMENT OF THE INTERNATIONAL BUILDING CODE, 2012 EDITION. THE FOLLOWING CRITERIA ARE APPLICABLE TO THIS PROJECT SEISMIC USE GROUP: II; SEISMIC CLASS CATEGORY: D; SEISMIC DESIGN CATEGORY: D IT IS RECOMMENDED THAT THE CONTRACTOR ENLIST THE SERVICES OF A QUALIFIED SEISMIC BRACING VENDOR/ SUPPLIER. PROVIDE BRACING FOR IDENTIFIED EQUIPMENT AND SYSTEM.

ELECTRICAL EQUIPMENT: ELECTRICAL EQUIPMENT SHALL INCLUDE THE FOLLOWING ITEMS TO THE EXTENT REQUIRED ON THE DRAWINGS OR IN OTHER SECTIONS OF THESE SPECIFICATIONS TO BE SEISMICALLY PROTECTED: LIGHT FIXTURES, TRANSFORMERS, SWITCHBOARDS, PANELBOARDS. ELECTRICAL SYSTEMS: THE FOLLOWING ELECTRICAL SYSTEMS SHALL BE SEISMICALLY

PROTECTED IN ACCORDANCE WITH THIS SPECIFICATION: LIGHTING, POWER, SECURITY, COMMUNICATIONS AND FIRE ALARM. CONDUITS REQUIRING NO SPECIAL SEISMIC RESTRAINTS: SEISMIC RESTRAINTS MAY BE OMITTED FROM ELECTRICAL CONDUIT LESS THAN 2-1/2 INCHES TRADE SIZE. ALL OTHER INTERIOR CONDUIT SHALL BE SEISMICALLY PROTECTED AS SPECIFIED.

SHORT CIRCUIT AND PROTECTIVE DEVICE COORDINATION STUDY COMPLETE SHORT CIRCUIT AND PROTECTIVE DEVICE COORDINATION STUDY TO MEET REQUIREMENTS OF NFPA 70.

PREPARE STUDY PRIOR TO ORDERING DISTRIBUTION EQUIPMENT TO VERIFY EQUIPMENT RATINGS REQUIRED. PROVIDE OWNER WITH MODEL. PROVIDE A HARD COPY SINGLE LINE IN A TUBE WITH A CD COPY OF THE MODEL THAT

SHALL BE MAGNETICALLY ATTACHED TO THE SIDE OF THE SERVICE ENTRANCE. STUDY SHALL ENCOMPASS ALL PORTIONS OF ELECTRICAL DISTRIBUTION SYSTEM FROM NORMAL POWER SOURCE AND/OR STANDBY SOURCES UP TO AND INCLUDING BREAKERS IN SERVICE ENTRANCE SWITCHBOARD, MAIN BREAKER IN SUB-DISTRIBUTION PANELS, MAIN BREAKER IN EACH PANELBOARD.

CALCULATE SHORT CIRCUIT INTERRUPTING AND, WHEN APPLICABLE, MOMENTARY DUTIES FOR ASSUMED 3-PHASE BOLTED FAULT SHORT CIRCUIT CURRENT AND PHASE TO GROUND FAULT SHORT CIRCUIT CURRENT AT EACH OF THE FOLLOWING:

\* UTILITY SUPPLY BUS \* AUTOMATIC TRANSFER SWITCH

\* ENGINE GENERATOR \* LOW-VOLTAGE SWITCHGEAR \* SWITCHBOARDS

\* MOTOR CONTROL CENTERS \* DISTRIBUTION PANELBOARDS

\* BRANCH CIRCUIT PANELBOARDS \* EACH OTHER SIGNIFICANT EQUIPMENT LOCATION THROUGHOUT SYSTEM ARC FLASH HAZARDS ANALYSIS STUDIES COMPLETE ARC FLASH HAZARDS ANALYSIS STUDY TO MEET REQUIREMENTS OF NFPA TOE.

PERFORM STUDY WITH AID OF COMPUTER SOFTWARE PROGRAM AND BY A NEVADA LICENSED ELECTRICAL ENGINEER. PROVIDE OWNER WITH MODEL.

SHALL INCLUDE DETERMINING THE SHORT-CIRCUIT CURRENT AVAILABLE AT THE DESIGNATED POINT OF CONTACT AND INCLUDE PERFORMING THE FOLLOWING TO PROVIDE ADEQUATE PROTECTION:

\* CALCULATE THE FLASH PROTECTION BOUNDARY

\* CALCULATE THE ARC-FLASH INCIDENT ENERGY \* CONFIRM THE REQUIRED LABELING

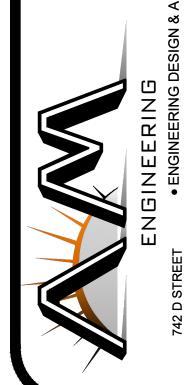
\* CONFIRM THE REQUIRED PERSONAL PROTECTIVE EQUIPMENT WITH ARC RATING TO

PROVIDE \* ADEQUATE PROTECTION FOR PERSONNEL WORKING ON OR NEAR-ENERGIZED

CONDUCTORS OR COMPONENTS PROVIDE NEW AND/OR UPDATED LABELS THROUGHOUT ENTIRE SYSTEM AS REQUIRED.

END OF SECTION 260000







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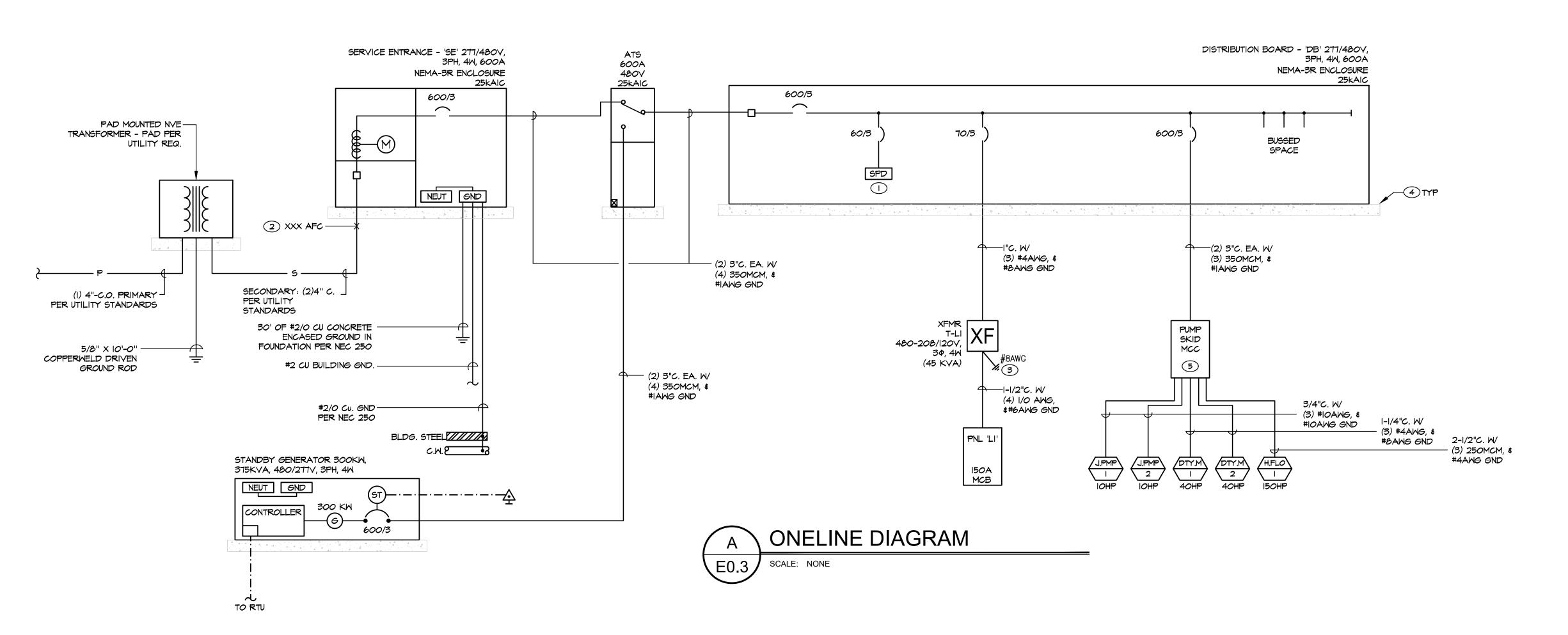
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FEBRUARY 2024 DRAWN BY: DESIGNED BY: CHECKED BY: KDP JOB NO.: 24004



LO	DAD CALCULAT	ION:	DISTRIBU	TION BOA	RD 'DB'			
LOAD	DESCRIPTION	LIGHTING	RECEPTS.	EQUIP.	MOTOR	KITCHEN	HEAT	TOTAL
	DB			45,000	258,132			303,13
_	Total Connected Load: Largest Motor:			45,000	258,132 154,878			303,13
NEC Demand Factor		100%	100%, 1st 10KW 50% for rest	100%	100% + 25% of Largest Load	65%	100%	
NEC Code Reference		NEC 220.42	NEC 220.44		NEC 430.24	NEC 220.56	NEC 220.51	
	Total Demand Load:			45,000	296,852			341,85
	NEC Load:	341,852	at 480/27	, F	411.2 /	\	٦	

## GENERAL NOTES

- I. PANELBOARD AND BREAKER INTERRUPTING CAPACITIES (AIC) SHALL BE FULLY RATED AS AN ASSEMBLY. SERIES RATING OF BREAKER DEVICES AND EQUIPMENT IS NOT PERMITTED.
- 2. ALL CONDUCTOR SIZES ARE BASED ON COPPER. ALUMINUM IS NOT PERMITTED.
- INSTALL NV ENERGY TRANSFORMER PAD, CONDUIT, ETC. PER UTILITY REQUIREMENTS. SEE UTILITY DRAWINGS FOR ALL WORK REQUIRED. ALL WORK SHALL CONFORM WITH THE MOST CURRENT NV ENERGY STANDARD. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK, INCLUDING THAT REQUIRED BY CONTRACTOR IN BID. COORDINATE UTILITY INSTALLATION WITH NV ENERGY.
- ALL SWITCHBOARDS AND DISTRIBUTION BOARDS SHALL BE FULLY BUSSED.
- ALL CONTRACTOR PROVIDED EQUIPMENT SHALL COMPLY WITH NV ENERGY SPECIFICATIONS AND REQUIREMENTS.
- 6. DO NOT SPLICE FEEDER CONDUCTORS UNLESS PRIOR APPROVAL HAS BEEN OBTAINED FROM THE

# SHEET NOTES

- INTERNALLY MOUNTED SURGE PROTECTIVE DEVICE WITH INTEGRAL DISCONNECT: 240KA PER PHASE, I25KA PER MODE, WITH STATUS INDICATOR LIGHT ON EACH PHASE, AUDIBLE ALARM, TRANSIENT COUNTER AND PUSH-TO-TEST. INSTALL SPD WITHIN MANUFACTURER'S SPECIFIED MAXIMUM LEAD LENGTH.
- 2 REPRESENTS AVAILABLE SHORT CIRCUIT CURRENT AT SPECIFIC POINT IN SYSTEM.
- GROUND TRANSFORMERS BACK TO MAIN SYSTEM GROUND ELECTRODE (SEPARATE CONDUIT. MAY NOT BE RUN IN FEEDER).
- PROVIDE 4-6" CONCRETE EQUIPMENT PAD UNDER EQUIPMENT. COORDINATE CONCRETE PAD REQUIREMENTS WITH CIVIL.
- 5 VENDOR FURNISHED PACKAGED EQUIPMENT. INSTALLED BY CONTRACTOR.

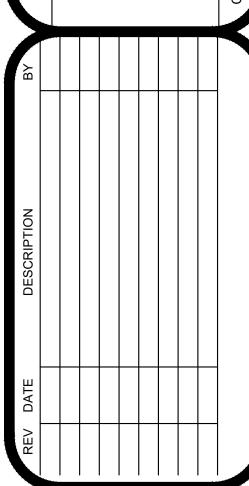






ELKO MOUNTAIN STER PUMP STATION NELINE DIAGRAM

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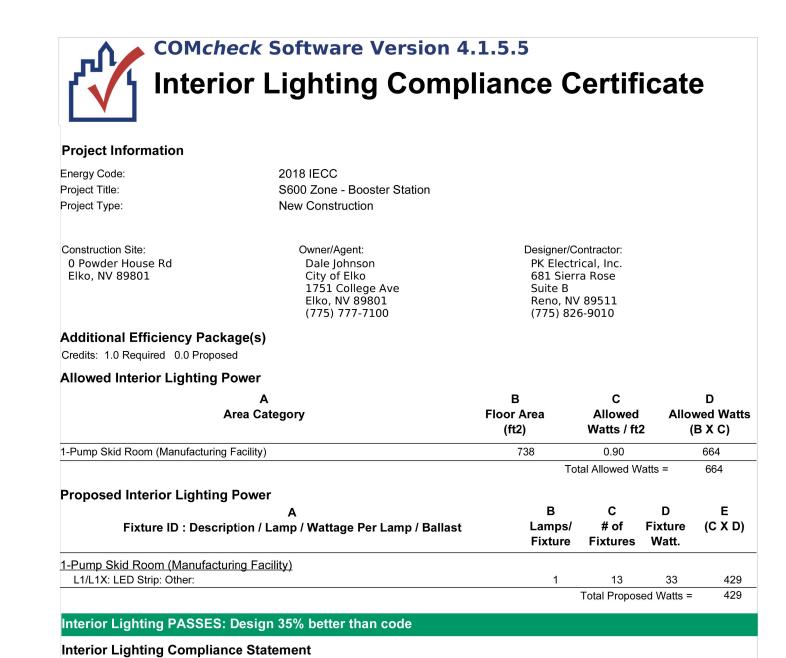


E0.3

14-Fel	p-24	PANEL: L1 LOCATION:					PUMP I	ROOM				
TYPE	DESCRIPTION	LOAD	BKR	CIR	Α	В	С	CIR	BKR	LOAD	DESCRIPTION	TYPE
Н	UNIT HEATER 1	3423	40/3	1	4173			2	20	750	RECEPTACLES	R
Н	X	3423	Χ	3		3963		4	20	540	RECEPTACLES	R
Н	X	3423	Χ	5		-	3783	6	20	360	RECEPTACLES	R
Е	SCADA RTU	1000	20	7	1120			8	15	120	EXTERIOR LIGHTS	L
L	GEN RM LIGHTS	132	15	9		396		10	15	264	PUMP RM LIGHTS	L
L	CHEM RM LIGHTS	33	15	11			141	12	20	108	EXHAUST FAN	M1
Н	GEN BLOCK HEATER	1500	20/2	13	2500			14	20	1000	GEN BATTERY CHARGER	Е
Н	X	1500	Χ	15		1860		16	20	360	CHEM RM RECEPTACLE	R
Н	UNIT HEATER 2	1124	20/2	17		•	1124	18	20		SPARE	
Н	X	1124	Χ	19	1124			20	20		SPARE	
	SPARE		20	21		0		22	20		SPARE	
***************************************	SPARE		20	23		-	0	24	20		SPARE	
	SPACE			25	0			26			SPACE	
***************************************	SPACE			27		0		28			SPACE	
	SPACE			29			0	30			SPACE	
	SPACE			31	0			32			SPACE	
***************************************	SPACE			33		0		34			SPACE	
***************************************	SPACE			35		•	0	36			SPACE	
	SPACE			37	0			38			SPACE	
	SPACE			39		0		40			SPACE	
***************************************	SPACE			41			0	42			SPACE	
					8917	6219	5048					
COPP	ER BUS SIZE:	225			GROUND	:		STAI	NDARD		NOTES:	
VOLT	AGE:	208			MOUNTIN	lG:		SUR	FACE			
PHASE:		3			ENCLOS			NEM	A 1			
WIRE		4 # OF 1-POLE CIRCUITS 42		42								
LUGS	:	MCB			CONNEC.	TED KVA:		20.2				
	KER AIC RATING:	22K				TED AMPS	);			56.0		
NEUT		100%			NET KVA					20.2		
FEED	ER OCPD SIZE:	150			NET AMP	S:				56.1		

	CONTROL CONDUIT AND WIRE LIST										
				CONDUIT			SIGNAL/CONTROL			TA	
CONDUIT	FROM	то	QTY	SIZE	TYPE	QTY	SIZE	TYPE	QTY	TYPE	REMARKS
C001	SCADA RTU	AUTOMATIC TRANSFER SWITCH (ATS)	1	1"	PVC/GRS	14	#14	THWN			
C002	AUTOMATIC TRANSFER SWITCH (ATS)	GENERATOR	1	1"	PVC/GRS	8	#14	THWN			
C003	SCADA RTU	PUMP SKID MCC	1	1"	PVC/GRS				1	CAT6	ETHERNET CONNECTION TO NETWORK SWITCH
C004	SCADA RTU	PUMP SKID MCC	1	1"	PVC/GRS						SPARE W/ PULL STRING

NOTES: 1. CXX - CONTROL CONDUCTOR AND CONDUIT RUN(S).



Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been

designed to meet the 2018 IECC requirements in COMcheck Version 4.1.5.5 and to comply with any applicable mandatory

requirements listed in the Inspection Checklist.

#### LIGHTING FIXTURE SCHEDULE

LIGHTING FIXTURE CATALOG NUMBERS ARE SERIES TYPE ONLY. PROVIDE TRIMS, BALLASTS, MOUNTING EQUIPMENT, FITTINGS AND LAMPS AS REQUIRED BY THE SPECIFICATIONS AND PROJECT CONDITIONS FOR A COMPLETE INSTALLATION. THIS IS NOT A STANDALONE SCHEDULE AND FIXTURES MUST INCORPORATE ALL WORK INDICATED OR IMPLIED THROUGHOUT THE DRAWINGS AND SPECIFICATIONS.

SUBSTITUTION: DEFINITIONS

● OR EQUAL = EQUAL OR SUPERIOR TO SPECIFIED IN ALL RESPECTS WILL BE ALLOWED. ENGINEER'S PRE-BID APPROVAL IS NOT REQUIRED. PROPOSED EQUAL FIXTURES ARE SUBJECT TO REVIEW DURING THE STANDARD SUBMITTAL PROCESS.

● NO EQUAL = PROVIDE SPECIFIED FIXTURE. SUBSTITUTIONS ARE NOT ALLOWED.

● SUBJECT TO REVIEW = EQUAL OR SUPERIOR TO SPECIFIED IN ALL RESPECTS MAY BE ALLOWED ONLY WITH ENGINEER'S APPROVAL. ALL SUBSTITUTIONS MUST BE SUBMITTED AS REQUIRED BY SPECIFICATIONS AND ACCOMPANIED WITH POINT BY POINT LIGHTING CALCULATIONS. DETERMINATION OF EQUAL IS ENGINEER'S SOLE DISCRETION.

TYPE	SYMBOL	DESCRIPTION AND MANUFACTURER
[L]		LED, 4FT SURFACE MOUNTED STRIP FIXTURE WITH FROSTED ACRYLIC ROUNDED LENS.  DAMP LOCATION LISTED, PROVIDE WITH O-IOV DIMMING DRIVER. 4000K COLOR  TEMPERATURE, 5000 LUMEN.  LAMP: LED 4000K/5000LM  VOLTAGE: MVOLT  MANUFACTURER: HE WILLIAMS #15R-4-L50-840-FP-DIM-I20  SUBSTITUTIONS: OR EQUAL SUBJECT TO REVIEW NO EQUAL
LIX)		SAME AS LIGHTING FIXTURE TYPE 'LI' WITH 90-MINUTE EMERGENCY BATTERY.  LAMP: LED 4000K/5000LM  VOLTAGE: MVOLT  MANUFACTURER: HE WILLIAMS #15R-4-L50-840-EM/IOWLP-FP-DIM-I20  SUBSTITUTIONS: OR EQUAL SUBJECT TO REVIEW NO EQUAL
L2)	Ю	LED, WALL PACK FIXTURE WITH FULL CUTOFF, 4000K COLOR, 120-277V, 24W.  LAMP: LED  VOLTAGE: 120-2770V  MANUFACTURER: LITHONIA LIGHTING WPXI LED P2 40K MVOLT DDBXD M4  SUBSTITUTIONS: OR EQUAL SUBJECT TO REVIEW NO EQUAL
L2X)	Ю	SAME AS LIGHTING FIXTURE TYPE 'L2' WITH 90-MINUTE EMERGENCY BATTERY.  LAMP: LED  VOLTAGE: 120-27TV  MANUFACTURER: LITHONIA LIGHTING WPXI LED P2 40K MVOLT DDBXD M4 EM SUBSTITUTIONS: © OR EQUAL SUBJECT TO REVIEW NO EQUAL
(XI)	⊗	LED EMERGENCY EXIT SIGN, 120/277V, RED EXIT WITH BACKUP BATTERY, WHITE.  LAMP: LED  VOLTAGE: 120/277V  MANUFACTURER: LITHONIA LIGHTING LQM S W 3 R 120/277 EL N M6  SUBSTITUTIONS: © OR EQUAL SUBJECT TO REVIEW NO EQUAL



# COMcheck Software Version 4.1.5.5

# **Exterior Lighting Compliance Certificate**

#### Project Information

Energy Code: 2018 IECC
Project Title: S600 Zone - Booster Station
Project Type: New Construction
Exterior Lighting Zone 1 (Developed area on forest land (LZ1))

Construction Site: Owner/Agent: Designer/Contractor:

0 Powder House Rd Dale Johnson PK Electrical, Inc.
Elko, NV 89801 City of Elko 681 Sierra Rose
1751 College Ave Suite B
Elko, NV 89801 Reno, NV 89511

(775) 777-7100

#### Allowed Exterior Lighting Power

A Area/Surface Category	B Quantity	C Allowed Watts / Unit	D Tradable Wattage	E Allowed Watts (B X C)
Exterior Walkway (Walkway < 10 feet wide)	1713 ft of	0.5	Yes	856
		Total Tradab	le Watts (a) =	856
		Total All	owed Watts =	856
	Total All	owed Supplement	al Watts (b) =	350
<ul><li>(a) Wattage tradeoffs are only allowed between tradable areas/surfaces.</li><li>(b) A supplemental allowance equal to 350 watts may be applied toward of</li></ul>	ompliance of b	oth non-tradable a	ınd tradable are	eas/surfaces.

Proposed Exterior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	(C X E
Exterior Walkway ( Walkway < 10 feet wide 1713 ft of walkway length): Tradable Watta	<u>ge</u>			
L2/L2X: LED Wallpack: Other:	1	5	24	12

#### Exterior Lighting PASSES: Design 90% better than code

#### Exterior Lighting Compliance Statement

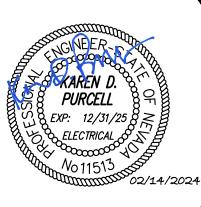
Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed exterior lighting systems have been designed to meet the 2018 IECC requirements in COMcheck Version 4.1.5.5 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.



Total Tradable Proposed Watts =

(775) 826-9010

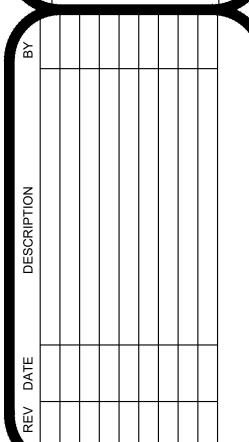
ENGINEERING DESI
ELKO, NEVADA 89801
TEL: (775) 738 - 6100
CONSTRUCTION MA
TEL: (775) 738 - 6100
CONSTRUCTION CONSTRUCTION



STATION

CO MOUNTA ER PUMP ST FIXTURE SC

BOOSTER FIGHTING FIX



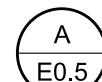
E0.4

## RTU CONTROL WIRING NOTES

- 1. ALL CONTROL WIRING SHALL BE LABELED WITH PRINTED HEAT SHRINK IDENTIFICATION LABELS (COORDINATE IDENTIFICATION NOMENCLATURE WITH CITY OF ELKO) ON BOTH THE RTU AND EQUIPMENT/DEVICE SIDE OF THE CABLING.
- 2. ALL CONTROL WIRING SHALL BE INSTALLED IN CONDUIT. 3/4" MINIMUM, UNLESS NOTED OTHERWISE.

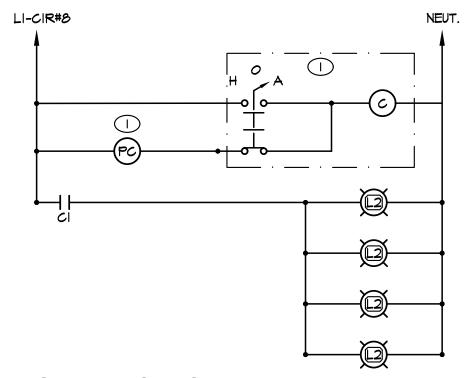
## RTU LEGEND

- Δ = ANALOG INPUT
- ▲ = DISCRETE INPUT
- ▼ = DISCRETE OUTPUT
- B = 24VDC BLUE CONDUCTOR
- Y = 120VAC YELLOW CONDUCTOR



REMOTE TERMINAL UNIT - BLOCK DIAGRAM

SCALE: NONE



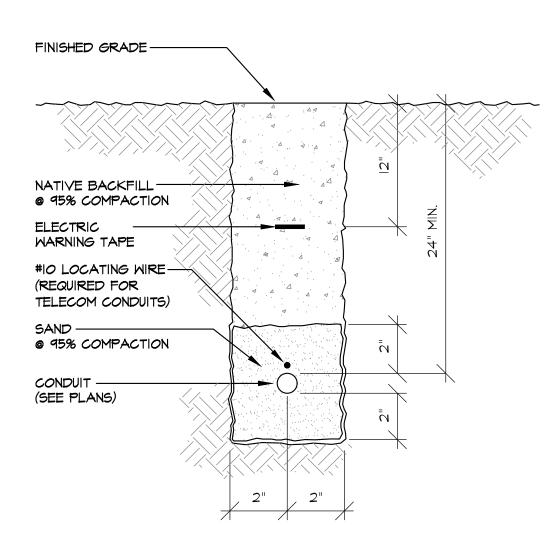
#### DIAGRAM NOTES

PROVIDE NEMA-I LIGHTING CONTACTOR WITH HAND, OFF, AUTOMATIC SELECTOR SWITCH. EXTERIOR LIGHTING SHALL BE PHOTOCELL CONTROLLED, EACH LIGHTING FIXTURE SHALL BE EQUIPPED WITH AN INTEGRAL MOTION SENSOR (REFER TO LIGHTING FIXTURE SCHEDULE).



EXT. LIGHTING CONTROL DIAGRAM

0.5 SCALE: NONE



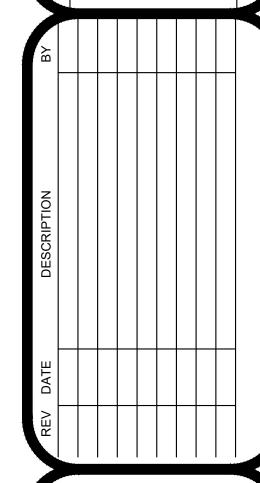




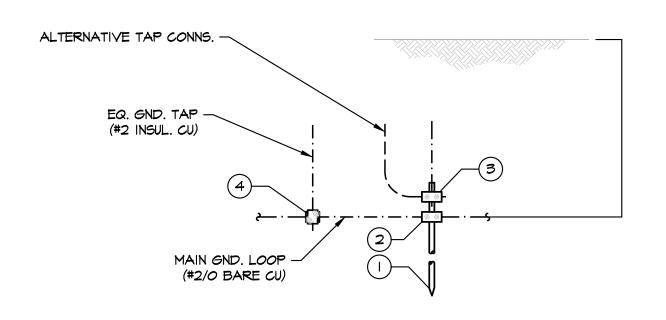




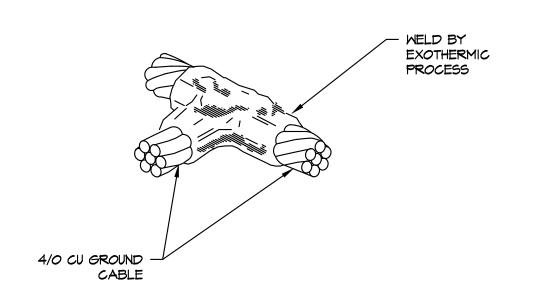
ELKO MOUNTAIN OSTER PUMP STATIC DETAILS

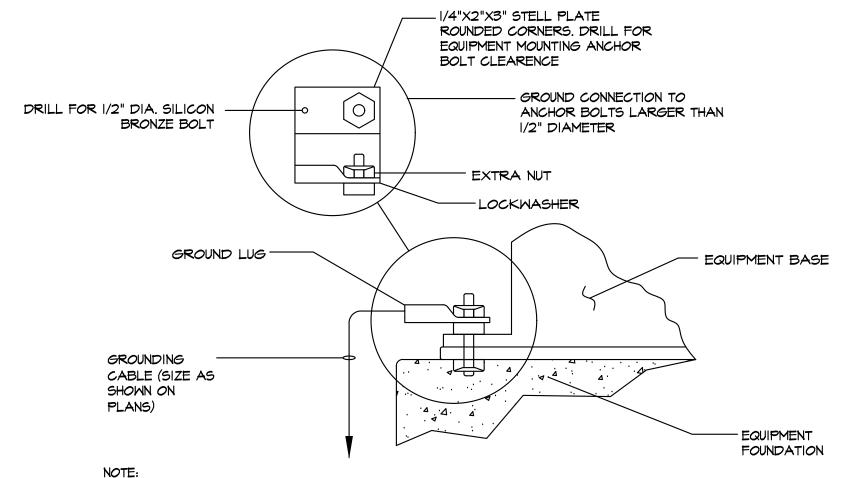


E0.5



	BILL OF MATERIALS	
NO.	DESCRIPTION	QTY
	GROUND ROD, 3/4" DIA. × 10', COPPER-CLAD STEEL	l
2	GROUND ROD CONNECTOR (5/8"-3/4", 2/0 SOL-250) BURNDY #GAR6429 OR EQUAL.	I
3	GROUND ROD CONNECTOR (5/8"-3/4", #4 SOL-2/0) BURNDY #GAR6426 OR EQUAL.	I
4	GROUND CABLE CONNECTOR (#2/0-250 TO #4-#2/0) BURNDY #GX2926 OR EQUAL.	I





GROUND LUG SHALL BE BOLTED TO THE ANCHOR WITH A SECOND NUT AND LOCKWASHER. WHEN THE ANCHOR BOLT IS TOO LARGE FOR THE GROUND LUG A STEEL PLATE SHALL BE PROVIDED. DRILLED FOR ANCHOR BOLT CLEARANCE AND INSTALLED AS SHOWN WITH GROUND CONNECTOR BOLTED TO THE STEEL PLATE WITH 1/2" SILICONE BRONZE BOLT NUT AND FLAT WASHER.

GROUND ROD INSTALLATION DETAIL

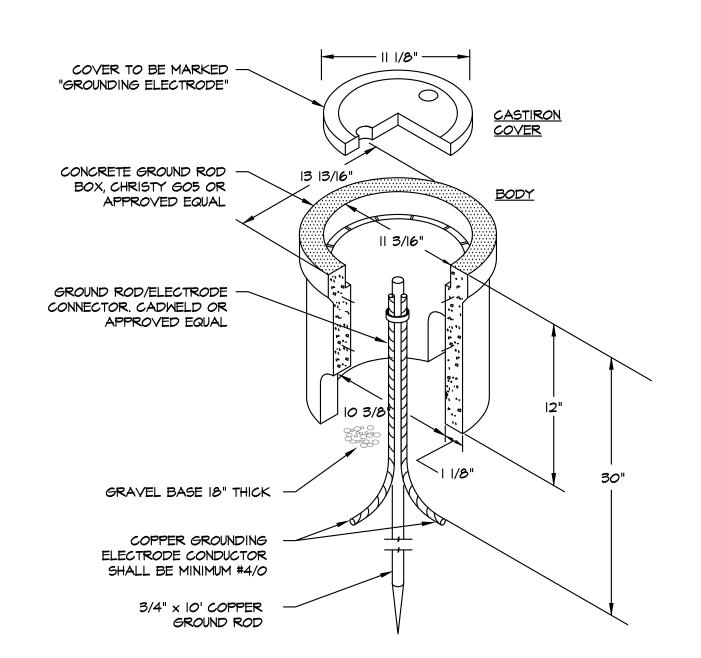
SCALE: NONE

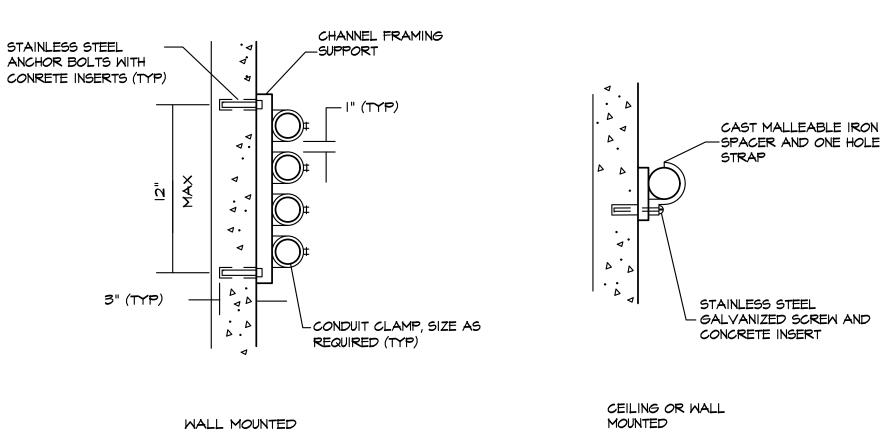
GROUND RING CONNECTION DETAIL SCALE: NONE

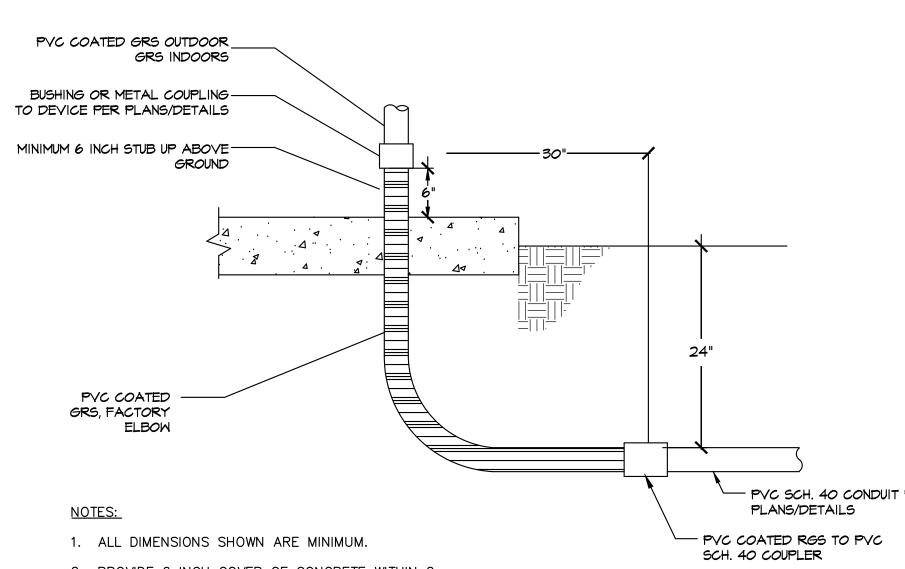


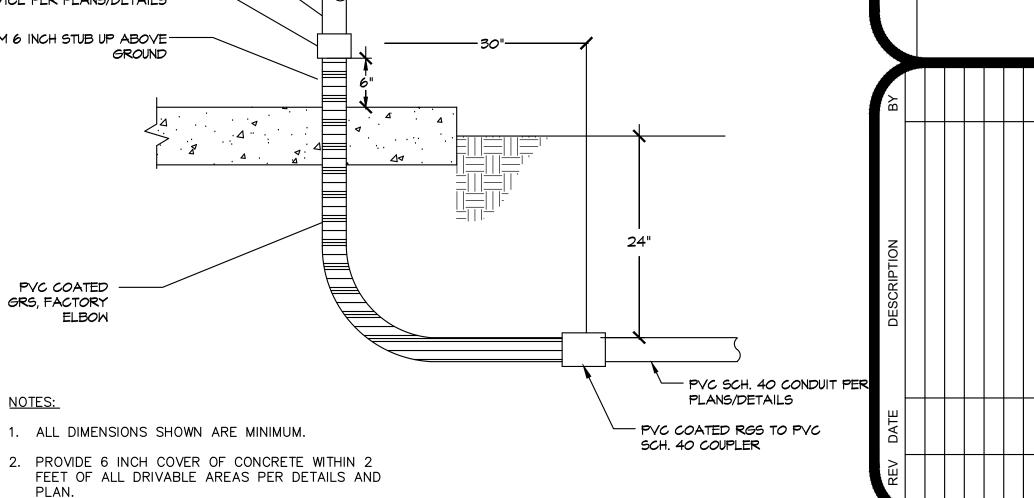
**EQUIPMENT GROUNDING DETAIL** 

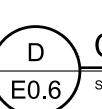
E0.6 SCALE: NONE





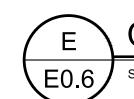






CONCRETE GROUND ROD INSPECTION DETAIL

SCALE: NONE



CONDUIT MOUNTING DETAILS

SCALE: NONE

TYPICAL CONDUIT STUB-UP DETAIL

DATE: DRAWN BY: **DESIGNED BY:** 

FEBRUARY 2024 CHECKED BY: JOB NO.: 24004

**PURCELL** 

0

BO

CAST MALLEABLE IRON -SPACER AND ONE HOLE

681 Sierra Rose Drive, Suite B | Reno, NV 89511 | 775.826.9010 4601 DTC Boulevard, Suite 740 | Denver, CO 80237 | 720.481.3290 pkelectrical.com | PK#24004

## **GENERAL NOTES**

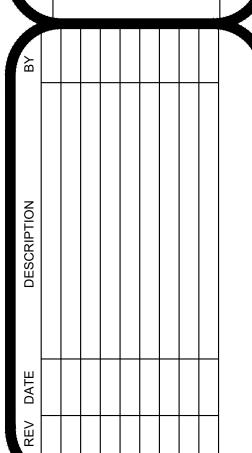
- I. CONDUIT TRENCHES PER DETAIL "B" SHEET EO.5.
- 2. CONDUIT ROUTING IS SHOWN DIAGRAMMATICALLY. CONTRACTOR SHALL INSTALL PULL POINTS WHERE REQUIRED FOR PULLING TENSION AND MAINTAINING LESS THAN (4) 90 DEGREE BENDS.
- 3. ALL CONDUITS SHALL BE ROUTED IN SUCH A WAY AS TO AVOID TRIP HAZARDS AND MAINTAIN CLEARANCE REQUIREMENTS.

# SHEET NOTES

REFER TO UTILITY DRAWINGS FOR LOCATION AND INSTALLATION REQUIREMENTS.



KO MOUNTAIN ER PUMP STATIOI FRICAL SITE PLAN



E1.1

DATE: FEBRUARY 20
DRAWN BY: D
DESIGNED BY: I
CHECKED BY: KI
JOB NO.: 240

PK Electrical, Inc.

ENGINEERING | DESIGN | CONSULTING

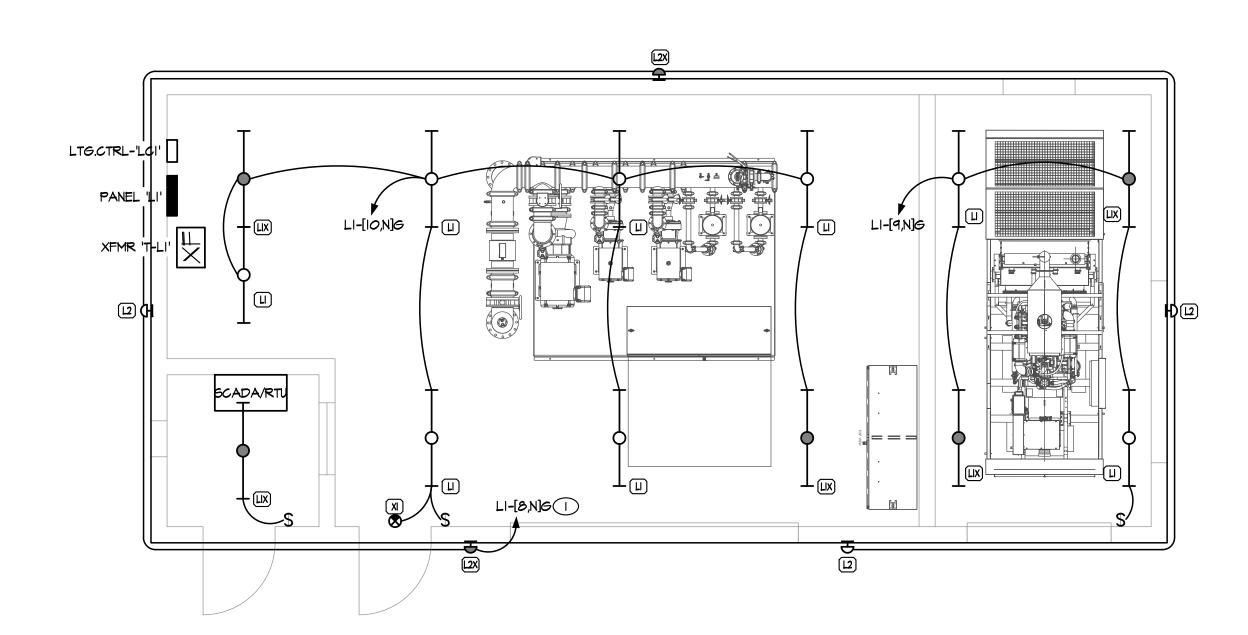
681 Sierra Rose Drive, Suite B | Reno, NV 89511 | 775.826.9010

4601 DTC Rouleward Suite 7/0 | Denver CO. 80337 | 730./81 3390

E1.1 SCALE: 1/16" = 1'-0"

**POWER PLAN** 

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



LIGHTING PLAN

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

#### POWER GENERAL NOTES

- CONTRACTOR SHALL OBTAIN ALL WIRING DIAGRAMS AND CUT SHEETS ASSOCIATED WITH MECHANICAL EQUIPMENT. CONTROL WIRING SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH EQUIPMENT CUT SHEETS AND SHOP DRAWINGS. ANY CONDUIT AND CONDUCTORS REQUIRED FOR CONTROL WIRING SHALL BE PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR.
- 2. LOCATE ALL DISCONNECTS, STARTERS AND DRIVES WHERE ACCESSIBLE. PROVIDE ACCESS AND CLEARANCE AS REQUIRED PER NEC. PROVIDE ACCESS HATCH IF LOCATED ABOVE HARD LID CEILING.
- 3. REFER TO CIVIL / MECHANICAL DRAWINGS FOR EQUIPMENT MODEL NUMBERS AND SPECIFIC ELECTRICAL REQUIREMENTS, OPTIONS AND ACCESSORIES.
- 4. INFORMATION ON CIVIL / MECHANICAL DRAWINGS SUPERSEDE INFORMATION SHOWN ON ELECTRICAL DRAWINGS. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH MECHANICAL DRAWINGS PRIOR TO ROUGH-IN.
- ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR VERIFYING ELECTRICAL REQUIREMENTS FOR FINAL MECHANICAL EQUIPMENT INSTALLED. SHOULD THERE BE ANY DISCREPANCY BETWEEN ACTUAL EQUIPMENT INSTALLED AND ELECTRICAL OR MECHANICAL DRAWINGS, CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY FOR CLARIFICATION AND FURTHER DIRECTION.

#### POWER SHEET NOTES

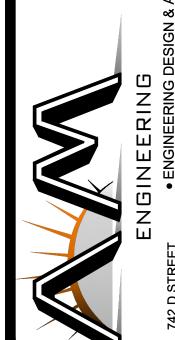
- REFER TO ONELINE DIAGRAM FOR CONDUIT AND CONDUCTOR REQUIREMENTS.
- CONTRACTOR SHALL PROVIDE CONTROL CONDUITS AND CONDUCTORS PER CONTROL CONDUIT AND WIRE SCHEDULE AND MECHANICAL WIRING DIAGRAMS AND CUT SHEETS. SEE CONTROL CONDUIT AND WIRE SCHEDULE ON SHEET EO.4.

## LIGHTING GENERAL NOTES

- . CONDUIT FOR EXTERIOR BUILDING MOUNTED EQUIPMENT AND LIGHTING FIXTURES IS NOT PERMITTED TO BE RUN EXPOSED ON THE EXTERIOR OF THE BUILDING. ROUTE ALL CONDUITS CONCEALED WITHIN BUILDING CONSTRUCTION OR ON THE INTERIOR OF THE BUILDING.
- 2. PROVIDE AN UN-SWITCHED CONSTANT HOT CIRCUIT TO ALL EXIT LIGHTING FIXTURES OR LIGHTING FIXTURES DESIGNATED AS 'EMERGENCY'.
- 3. ANY CONDUIT PENETRATIONS SHALL BE SEALED WITH APPROVED SEALANTS MATCHING THE FIRE OR WEATHER RATING OF THE SURFACE THAT IS PENETRATED.

#### LIGHTING SHEET NOTES

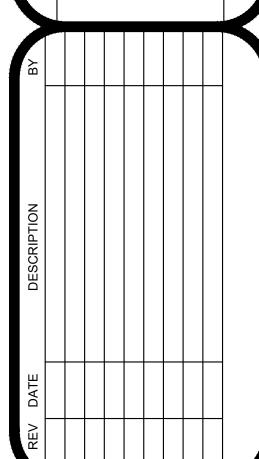
ROUTE EXTERIOR LIGHTING CIRCUIT THROUGH LIGHTING CONTACTOR 'LCI'. REFER TO DIAGRAM DETAIL "B" SHEET EO.5 FOR ADDITIONAL INFORMATION AND CONNECTION REQUIREMENTS.





ELKO MOUNTAIN JOSTER PUMP STATION TING AND POWER PLA

BO LIGHT



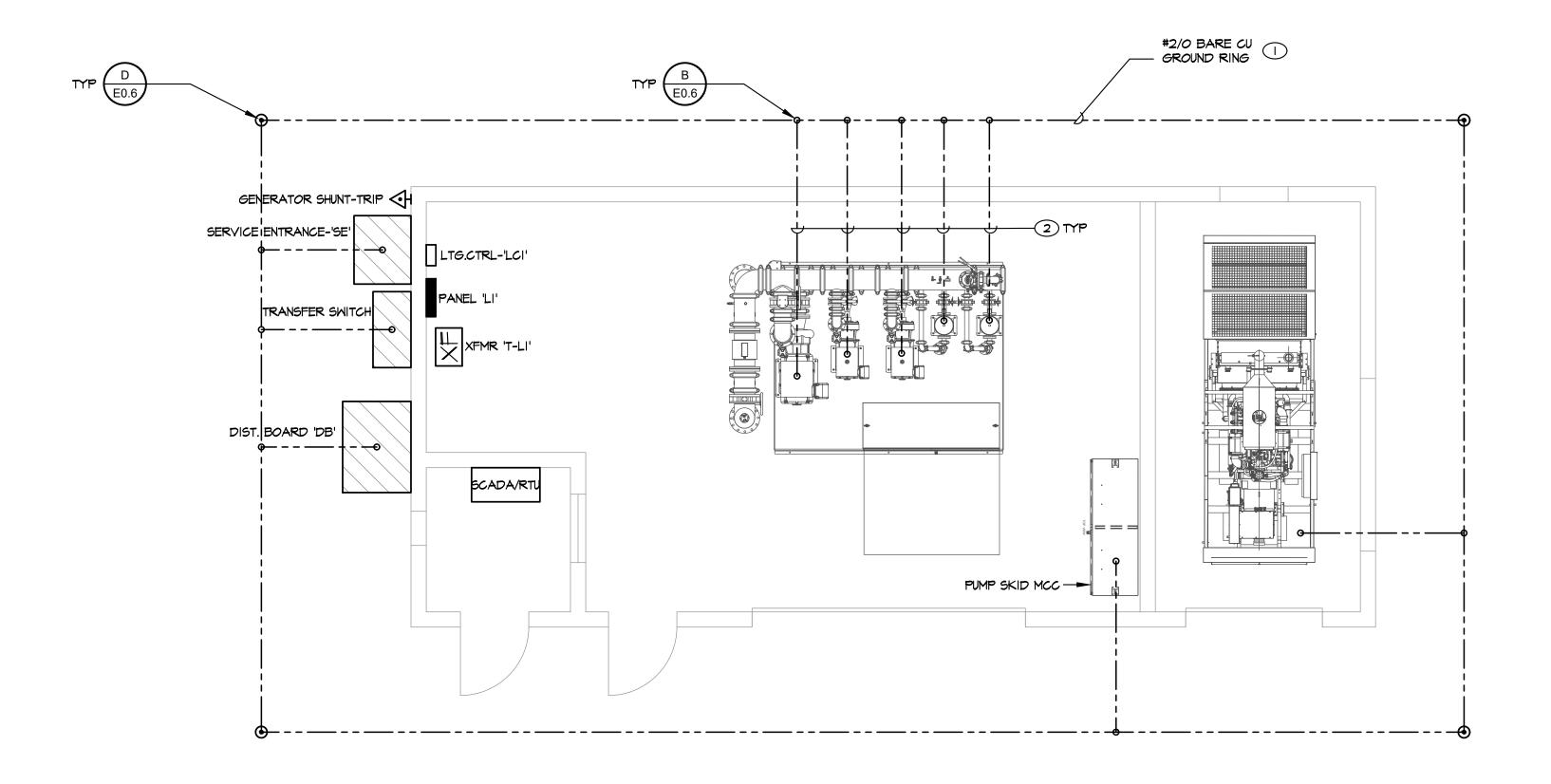
**E2.1** 

DATE: FEBRUARY 2024
DRAWN BY: DJD
DESIGNED BY: DH
CHECKED BY: KDP
JOB NO.: 24004

PK Electrical, Inc.

ENGINEERING | DESIGN | CONSULTING

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4601 DTC Boulevard, Suite 740 | Denver, CO 80237 | 720.481.3290
pkelectrical.com | PK#24004



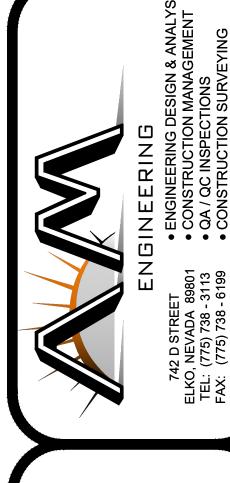


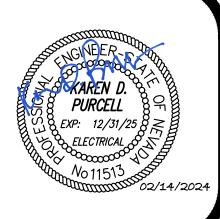
# **GENERAL NOTES**

- I. GROUND AND BOND ALL EQUIPMENT AND ENCLOSURES PER MANUFACTURER REQUIREMENTS AND NEC 250.
- 2. GROUND AND BOND ALL MOTOR FRAMES TO THE GROUNDING RING.
- 3. ALL METALLIC ENCLOSURES INCLUDING RAILINGS, FENCES OR OTHER METAL THAT PERSONNEL MAY COME IN CONTACT WITH SHALL BE EFFECTIVELY GROUNDED.
- 4. BARE GROUND CONNECTIONS EXPOSED TO THE ATMOSPHERE SHALL BE COVERED WITH GLYPTAL OR EQUIVALENT.

## SHEET NOTES

- #2/0 BARE GROUND RING, MINIMUM 30" BELOW GRADE.
- 2 REFERENCE ELECTRICAL ONELINE FOR GROUND CONDUCTOR SIZE.





UNTAIN MP STATION VG PLAN

ELKO MOUNTA BOOSTER PUMP S' GROUNDING PI

ATE DESCRIPTION BY

E2.2

DATE: FEBRUARY 2024
DRAWN BY: DJD
DESIGNED BY: DH
CHECKED BY: KDP
JOB NO.: 24004

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