

ABBREVIATION LIST

A AMPERE	JB JUNCTION BOX	SHT SHEET
AC ALTERNATING CURRENT	J BOX JUNCTION BOX	SIG SIGNAL
A/C AIR CONDITIONING		S1, S2 START CONTACTOR COILS
AF AMPERE FRAME, CKT. BKR. RATING		SP SPARE
AFF ABOVE FINISHED FLOOR	KVA KILO VOLT AMPERES	SPDT SINGLE POLE DOUBLE THROW
AHU AIR HANDLING UNIT	KW KILOWATTS	SPECS SPECIFICATIONS
AL ALUMINUM	KWH KILOWATT HOUR	SP HTR SPACE HEATER
AM AMMETER	KMIL 1,000 CIRCULAR MILS	SP ST SINGLE POLE SINGLE THROW
ANN ANNUNCIATOR		SS SOLID STATE
AMP AMPERES, AMPERAGE	LC LIGHTING CONTACTOR	ST SHUNT TRIP
APPD APPROVED	LCP LOCAL CONTROL BOARD	STA STATION
AS AMMETER SWITCH	LCP LOCAL CONTROL PANEL	STD STANDARD
AT AMPERE TRIP	LOC LOCAL	STL STEEL
ATS AUTOMATIC TRANSFER SWITCH	LO LOCKOUT	STR STARTER
AUTO AUTOMATIC	LOS LOCKOUT STOP	SOV SOLENOID OPERATED VALVE
AUX AUXILIARY	LS LEVEL SWITCH	SW SWITCH
AWG AMERICAN WIRE GAUGE	LT LIGHT	SYS SYSTEM
	LTS LIGHTING	SYM SYMMETRICAL
BATT BATTERY	M MOTOR CONTACTOR COIL	TB TERMINAL BOX
BKR BREAKER	MA MILLIAMPS	TC TIME CLOCK
BLDG BUILDING	MAN MANUAL	TACH TACHOMETER
	MAG MAGNETIC	TEMP TEMPERATURE
C CONDUIT	MAX MAXIMUM	TERM TERMINAL
CAB CABINET	MCC MOTOR CONTROL CENTER	T'STAT THERMOSTAT
CB CIRCUIT BREAKER	MCB MAIN CONTROL BOARD	TR TIMING RELAY
CKT CIRCUIT	MCP MOTOR CIRCUIT PROTECTOR	TD TIME DELAY
CO CONDUIT ONLY	MD MOTORIZED DAMPER	TS TEMPERATURE SWITCH
COND CONDUIT	MH MANHOLE	TP TYPICAL
COMPT COMPARTMENT	MH MOUNTING HEIGHT	TDON TIME DELAY - ON
COMPR COMPRESSOR	MIN MINIMUM, MINUTES	TDOFF TIME DELAY - OFF
CP CONTROL PANEL	MLO MAIN LUGS ONLY	UG UNDERGROUND
CPT CONTROL POWER TRANSFORMER	MOV MOTOR OPERATED VALVE	UH UNIT HEATER
CR CONTROL RELAY	MS MOTOR STARTER	UON UNLESS OTHERWISE NOTED
CT CURRENT TRANSFORMER	MMS MANUAL MOTOR STARTER	US UNIT SUBSTATION
CU COPPER	MTD MOUNTED	
	MTR MOTOR	V VOLTAGE, VOLTS
DC DIRECT CURRENT	MUX MULTIPLEXING PANEL	VAR VAR METER
DH DATA HIGHWAY		VFD VARIABLE FREQUENCY DRIVE
DISC DISCONNECT	N NEUTRAL	VP VAPOR PROOF
DISTR DISTRIBUTION	NA NON-AUTOMATIC	VS VOLTMETER SWITCH, VARIABLE SPEED
DPTD DOUBLE POLE DOUBLE THROW	N.C. NORMALLY CLOSED	
DWG DRAWING	N.O. NORMALLY OPEN	
	NO NUMBER	
E EMPTY	NOS NUMBERS	W WATTS, WIRE
EF EXHAUST FAN	NP NAMEPLATE	WHD WATTHOUR DEMAND METER
ELEV ELEVATION	N.P.CO. NEVADA POWER COMPANY	WHM WATTHOUR METER
EMERG EMERGENCY	NIC NOT IN CONTRACT	WHP WEATHERPROOF
EMT ELECTRICAL METALLIC TUBING	NTS NOT TO SCALE	
ENCL ENCLOSURE		
EP EXPLOSION PROOF	O OPEN	XD TRANSDUCER
EQPT EQUIPMENT	OC ON CENTER	XFMR TRANSFORMER
ER CONDUCTANCE RELAY	CC CENTER TO CENTER	XFER TRANSFER
ETM ELAPSED TIME METER	OL OVERLOAD RELAY	XMTR TRANSDUCER
EHU ELECTRIC HEATING UNIT	OSC OSCILLATION	XPDR TRANSPONDER
EXH EXHAUST		
EXIST EXISTING	P POLE	
	PB PUSH BUTTON	
FDR FEEDER	FCM PROCESS CONTROL MODULE	
FLEX FLEXIBLE	PCP PROCESS CONTROL PANEL	
FLUOR FLUORESCENT	PF POWER FACTOR	
FUT FUTURE	PH, Ø PHASE	
FVR FULL VOLTAGE REVERSING	PLC PROGRAMMABLE LOGIC CONTROLLER	
FVNR FULL VOLTAGE NON-REVERSING	PNL PANEL	
FWD FORWARD	PNLBD PANELBOARD	
	POS POSITION	
GALV GALVANIZED	PQM POWER QUALITY MONITOR	
GEN GENERATOR	POT POTENTIOMETER	
GND GROUND	PRI PRIMARY	
	PS PRESSURE SWITCH	
HH HAND HOLE	PT POTENTIAL TRANSFORMER	
HID HIGH INTENSITY DISCHARGE	PIT PUSH TO TEST	
HG MERCURY	PVC POLYVINYL CHLORIDE	
HOA HAND-OFF-AUTOMATIC	PW PART WINDING	
HP HORSEPOWER	PWR POWER FACTOR	
HPS HIGH PRESSURE SODIUM	REC RECEPTACLE	
HTR HEATER	RECP'S RECEPTACLES	
HT TR HEAT TRACED	REQ'D REQUIRED	
HVAC HEATING, VENTILATING, A/C	REV REVERSE	
HZ HERTZ - CYCLES PER SECOND	RGS RIGID GALVANIZED STEEL	
	RTU REMOTE TERMINAL UNIT	
IMC INTERMEDIATE METAL CONDUIT	RVAT REDUCED VOLTAGE AUTOTRANSFORMER	
INCAND INCANDESCENT	RVNR REDUCED VOLTAGE NON-REVERSING	
IND INDICATION, INDICATING	RVSS REDUCED VOLTAGE SOLID STATE	
I/O INPUT/OUTPUT	SCH SCHEDULE	
INST INSTANTANEOUS	SEC SECONDARY, SECONDS	
INSTR INSTRUMENT	SECT SECTION	
Isc SHORT CIRCUIT CURRENT	SEL SW SELECTOR SWITCH	
INVT INVERT	SEQ SEQUENCE	
	SH SHIELD	
	SHLD SHIELDED	

GENERAL NOTES

- PRIOR TO BEGINNING EXCAVATION, VERIFY LOCATIONS OF EXISTING AND NEW UNDERGROUND UTILITIES, PIPING, ETC. PROVIDE EXCAVATION, BACKFILL, SUPPORT, SAWCUTTING, PATCHING, PAVING, ETC. AS REQUIRED. BACKFILL EXCAVATIONS TO 90 PERCENT COMPACTION AND PATCH TO MATCH EXISTING CONDITIONS. COORDINATE UNDERGROUND ACTIVITIES IN ACCORDANCE WITH SECTION 2300.
- ALL DIRT AND DEBRIS SHALL BE REMOVED FROM ALL MANHOLES AND PULLBOXES. DISPOSE OF AS DIRECTED BY THE LAS VEGAS VALLEY WATER DISTRICT.
- DO NOT SCALE DRAWINGS. VERIFY DIMENSIONS IN FIELD PRIOR TO BEGINNING WORK.
- FINAL CONNECTIONS TO EQUIPMENT SHALL BE PER MANUFACTURER'S APPROVED WIRING DIAGRAMS, DETAILS AND INSTRUCTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT ACTUALLY SUPPLIED.
- CONTRACTOR SHALL VISIT JOB SITE PRIOR TO BID AND VERIFY THAT CONDITIONS ARE AS INDICATED. CONTRACTOR SHALL INCLUDE IN HIS BID COSTS, THE REQUIREMENTS TO MAKE HIS WORK MEET THE EXISTING CONDITIONS.
- THIS IS A STANDARD LEGEND SHEET. SOME SYMBOLS OR ABBREVIATIONS MAY APPEAR ON THIS SHEET AND NOT ON THE PLANS.
- TOTAL WIRING/CONDUIT-WIRE AND CONDUITS SIZES ARE CITED THROUGHOUT THE DRAWINGS AND SPECIFICATIONS IN MULTIPLE LOCATIONS. SCHEDULES, NOTES, SCHEMATICS, SPECIFICATION PARAGRAPHS IN SOME CASES MISCELLANEOUS CONTROL/MONITORING WIRING AND CONDUIT/TRAY IS IMPLIED THROUGH SCHEMATICS AND SPECIFICATION CITATIONS.

ELECTRICAL LEGEND

SYMBOL	DESCRIPTIONS	SYMBOL	DESCRIPTIONS
	A = REFERENCE TO LIGHTING FIXTURE SCHEDULE		DISTRIBUTION PANEL
	3 = LIGHTING PANEL CIRCUIT NUMBER		LIGHTING AND BRANCH CIRCUIT PANEL
	e = SWITCH ASSOCIATED WITH FIXTURE CONTROL		TERMINAL CABINET, TYPE AS SPECIFIED
	1' x 4' FLUORESCENT FIXTURE, SURFACE MOUNTED		MOTOR, NUMBER INDICATES HORSEPOWER
	FLUOR. FIXTURE, NIGHT LIGHT		MOTOR, FRACTIONAL HORSEPOWER
	FLUOR. FIXTURE, EMERGENCY LIGHT		FIRE/SECURITY ALARM CONTROL PANEL
	LUMINAIRE, CEILING MOUNTED (SURFACE)		THERMOSTAT
	LUMINAIRE, EXTERIOR WALL MOUNTED (SURFACE)		JUNCTION BOX
	LUMINAIRE, CEILING MOUNTED, (RECESSED)		INTRUSION DETECTOR, INSTRUMENT, DEVICE AS NOTED
	FLOODLIGHT, MOUNTING AND WATTAGE AS SPECIFIED		SHUNT TRIP
	LUMINAIRE, PENDANT MOUNTED, LAMP AS SPECIFIED		HEAT DETECTOR
	EMERGENCY LIGHTING		FIRE ALARM PULL STATION
	POWERED EMERGENCY EXIT SIGN		LIGHTING CONTACTOR
	SMOKE DETECTOR		MOTION SWITCH, ADJUSTABLE "ON" TIMER
	TEL. RECEPTACLE, 3/4" HOME RUN U.O.N.		CONDUIT RUN INTERRUPTED
	SPECIAL SINGLE GANG DEVICE BOX		CONDUIT, TURNED UP, TOWARD VIEWER
	DUPLEX RECEPTACLE, MT. HEIGHT SHOWN		CONDUIT, TURNED DOWN, AWAY FROM VIEWER
	GFCI DUPLEX RECEPTACLE, MT. HEIGHT SHOWN		CROSSHATCHING INDICATES COUNTS OF No. 12 CONDUCTORS IF MORE THAN 3. NO CROSSHATCHING INDICATES 2 No. 12 AND 1 No. 12 GROUND. LONG HATCH IS A NEUTRAL AND * IS GROUND CONDUCTOR
	DUPLEX RECEPTACLE, WEATHERPROOF, GROUND FAULT TYPE		FUTURE BRANCH CIRCUIT FEEDER OR DUCT EXPOSED
	SPECIAL RECEPTACLE AS NOTED		FUTURE BRANCH CIRCUIT, FEEDER OR DUCT CONCEALED OR BELOW GRADE
	SINGLE POLE SWITCH		EXISTING BRANCH CIRCUIT FEEDER OR DUCT EXPOSED
	THREE-WAY SWITCH		EXISTING BRANCH CIRCUIT, FEEDER OR DUCT CONCEALED OR BELOW GRADE
	FOUR-WAY SWITCH		NEW BRANCH CIRCUIT FEEDER OR DUCT EXPOSED
	LIGHTED SWITCH		NEW BRANCH CIRCUIT, FEEDER OR DUCT CONCEALED OR BELOW GRADE
	DIMMER SWITCH		EXISTING EQUIPMENT, CONDUIT AND WIRING TO BE REMOVED
	MANUAL MOTOR STARTER		
	CONDUIT SEAL		
	CONDUIT UNION		
	TRANSFORMER		
	PHOTOCELL		

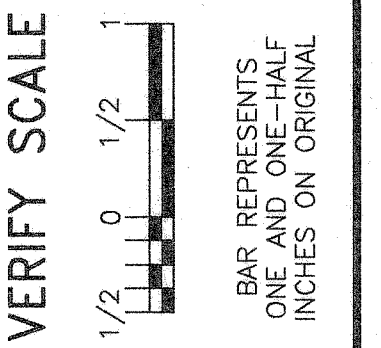
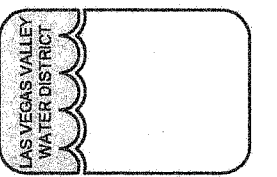
SINGLE LINE LEGEND

	COMBINATION MOTOR STARTER, FULL VOLTAGE, NON-REVERSING, WITH THERMAL MAGNETIC CIRCUIT BREAKER. MAGNETIC CIRCUIT PROTECTOR SHOWN WITH RATING AND TRIP () SETTINGS.		VACUUM CONTACTOR, 5kv, 3-POLE, RATINGS AND OPERATING MECHANISM AS DESCRIBED IN SPECIFICATIONS
	FULL VOLTAGE, NON-REVERSING MOTOR STARTER, SIZE 2 SHOWN, WITH RATINGS AND SIZE AS SPECIFIED OR REQUIRED BY THE APPLICATION.		VACUUM CONTACTOR, MECHANICAL LATCH, 5kv, 3-POLE, RATINGS AND OPERATING MECHANISM AS DESCRIBED IN SPECIFICATIONS
	FULL VOLTAGE, REVERSING MOTOR STARTER, SIZES AND RATINGS AS SPECIFIED ON THE DIAGRAM OR BY MOTOR RATINGS.		ISOLATION SWITCH, LOAD BREAK RATED, GANG OPERATED, 3-POLE, WITH REPLACEABLE ARC SUPPRESSION, INTERLOCK WITH VACUUM CONTACTOR TO INHIBIT OPENING UNDER NORMAL OPERATING CONDITIONS
	FULL VOLTAGE, 2 - SPEED MOTOR STARTER, SIZE AND RATINGS AS SPECIFIED ON THE DIAGRAM OR BY MOTOR RATINGS.		INSTRUMENT CLASS CURRENT TRANSFORMER, RATINGS AND BURDEN TO MATCH SYSTEM AND MONITORING DEVICES ONE PER PHASE PROVIDE WITH GROUND SHORTING TERMINAL STRIP
	REDUCED VOLTAGE MOTOR STARTER, NON-REVERSING, TYPE AS SPECIFIED, RATINGS IN ACCORDANCE WITH APPLICATION.		GROUND SENSING CURRENT TRANSFORMER, INSTRUMENT CLASS, RATINGS TO MATCH INSTRUMENT BURDEN
	REDUCED VOLTAGE MOTOR STARTER, NON-REVERSING, SOLID STATE WITH STARTING CHARACTERISTICS AND RATINGS AS SPECIFIED.		BUSHING CURRENT TRANSFORMER (BCT), METERING CLASS, RATINGS AS INDICATED, FOR DIFFERENTIAL SERVICE ACROSS DELTA-WYE TRANSFORMER, PROVIDE MIRRORRED WYE-DELTA CONNECTIONS, ALL CT'S TO BE TERMINATED ON GROUND SHORTING TERMINAL STRIPS
	THERMAL MAGNETIC CIRCUIT BREAKER, TRIP RATINGS AS INDICATED ON THE DIAGRAM, CHARACTERISTICS AS SPECIFIED.		VOLTAGE TRANSFORMER, INSTRUMENT CLASS, FUSED PRIMARY AND SECONDARY, OPEN DELTA CONFIGURATION
	MAGNETIC CIRCUIT PROTECTOR, MAXIMUM CONTINUOUS RATING AND TRIP SETTINGS AS INDICATED ON THE DIAGRAM.		REDUCED VOLTAGE, NON-REVERSING AUTOTRANSFORMER TYPE STARTER WITH VACUUM CONTACTOR, OPEN-TRANSITION CONFIGURATION, AND FACTORY PREWIRED TAP SELECTION AT 65% FURNISH HEAVY DUTY STARTER WITH HIGH WINDING TEMPERATURE THERMISTOR AND ALARM RELAY
	FULL VOLTAGE CONTACTOR, RATINGS AND SIZE AS INDICATED ON THE DIAGRAM.		AUTOTRANSFORMER WITH MULTIPLE TAPS SHOWN
	DISCONNECT SWITCH, NUMBER OF POLES AND RATINGS AS SPECIFIED OR REQUIRED BY THE APPLICATION. "F" DENOTES FUSED.		PREWIRED - BY OEM / INTEGRATOR
	TRANSFORMER, NUMBER OF PHASES, CONFIGURATION, RATINGS, AND IMPEDANCE AS INDICATED OR SPECIFIED.		FIELD WIRING
	MOTOR, TYPE AS REQUIRED BY THE APPLICATION, HORSEPOWER AND FULL LOAD AMPERES () AS SHOWN ON THE DIAGRAM.		
	EQUIPMENT OUTLINE		
	VENDOR PACKAGED EQUIPMENT		

ELECTRICAL SCHEMATIC LEGEND

	LEVEL SWITCH, LSHH, LSH, LSL N.O. OR N.C. AS INDICATED
	FLOW SWITCH, N.C. OR N.O. AS INDICATED
	PRESSURE SWITCH, PSL, PSH, N.O. OR N.C. AS INDICATED
	TEMPERATURE SWITCH, TSH, TSL, N.O. OR N.C. AS INDICATED
	LIMIT SWITCH, N.C. OR N.O. AS INDICATED
	RELAY/CONTROL CONTACT, N.C. OR N.O. AS INDICATED
	TIME DELAY CONTACT, TIME DELAY ON/OFF, N.C./N.O. AS INDICATED
	RELAY COIL, FUNCTION, NUMBER AND CONTACTS () AS SHOWN
	INDICATING LIGHT, LENS COLORS (R) RED, (G) GREEN, (W) WHITE
	PUSHBUTTON, MOMENTARY, N.O. OR N.C., L.O. = LOCKOUT
	PUSHBUTTON, MAINTAINED UNIVERSAL CONTACT
	ON-OFF SELECTOR SWITCH, MAINTAINED, FUNCTION AS SHOWN
	SELECTOR SWITCH, MAINTAINED L-O-R = LOCAL-OFF-REMOTE, OR OTHER FUNCTION AS DESIGNATED
	FUSE, SIZE AS NOTED
	CONTROL POWER TRANSFORMER RATINGS AS INDICATED
	TERMINAL IN RELAY PANEL
	TERMINAL IN RTU
	TERMINAL IN PLC
	TERMINAL IN MOTOR STARTER
	TERMINAL AT FIELD DEVICE
	TERMINAL - EQUIPMENT OR DEVICE
	GROUND CONNECTION
	CIRCUIT BREAKER
	OVERLOAD ELEMENT
	AUTOTRANSFORMER WITH MULTIPLE TAPS SHOWN
	PREWIRED - BY OEM / INTEGRATOR
	FIELD WIRING

LAS VEGAS VALLEY WATER DISTRICT
1001 S. VALLEY VIEW BOULEVARD
LAS VEGAS, NEVADA 89165
702 870-2001

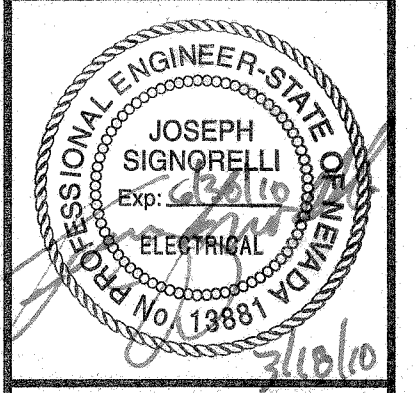


CHEYENNE 2975 ZONE MOTOR OPERATED VALVES

ELECTRICAL ABBREVIATIONS, SYMBOLS, LEGEND AND GENERAL NOTES

DRAWN BY: J. LISHEVSKY
CHECKED BY: J. SIGNORELLI
RECOMMENDED BY: RYAN PEARSON
ACCEPTED BY: PETER J. JAUCH

DATE: _____
DATE: _____



CONTRACT NUMBER

C1280
DRAWING NUMBER E1
SHEET 11 OF 22

H#36700. CLV DWG # 566-476

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