

ABBREVIATIONS

a	
A	AMPERE OR AMBER INDICATING LIGHT
AH	ANALYSIS ALARM HIGH
AAX	ANALYSIS ALARM AUXILIARY RELAY
AC	ALTERNATING CURRENT
AE	ANALYSIS ELEMENT
AIC	ANALYSIS INDICATING CONTROLLER
AIT	ANALYSIS INDICATING TRANSMITTER
AM	AMMETER
ARC	ANALYSIS RECORDING CONTROLLER
AS	AMMETER SWITCH
ASH	ANALYSIS SWITCH-HIGH
ASZ	
AT	ANALYSIS TRANSMITTER

b	
B	BLUE INDICATING LIGHT OR
BE	TELEPHONE BELL OUTLET
BS	
BTU	BRITISH THERMAL UNITS

c	
C	CONTACTOR OR CONDUIT
4-CC	4 CONDUCTOR CABLE
CF	CENTRIFUGAL FAN
CPT	CONTROL POWER TRANSMITTER
CR	CONTROL RELAY
CS	CONTROL STATION
CTC	CYCLE TIME CLUTCH
CTM	CYCLE TIMER MOTOR
3-CT	3 CURRENT TRANSFORMERS

d	
D	DESK TELEPHONE OUTLET
DM	DAMPER MOTOR
DS	DISCONNECT SWITCH

e	
EH	ELECTRICAL HAND HOLE
E OR EP	EXPLOSION-PROOF
EUH	ELECTRICAL UNIT HEATER

f	
F	FAST OR FORWARD CONTACTOR
FE	FLOW ELEMENT
FIT	FLOW INDICATING TRANSMITTER
FM	FREQUENCY METER
FQ	FLOW INTEGRATOR
FR	FLOW RECORDER
FSL	LOW FLOW SWITCH
FU	FUSE UNIT
FT	
FV-2 SPEED	FULL VOLTAGE, 2 SPEED STARTER
FY	FLOW RELAY
g	
G	GROUND OR GREEN INDICATING LIGHT
GF	GROUND FAULT
GFI	GROUND FAULT INTERRUPTER
GLS	GEARED LIMIT SWITCH
GND	GROUND
G ROD	GROUND ROD
GUH	GAS UNIT HEATER

h	
H	HANDLE CLIP
HV	HIGH VOLTAGE
HZ	HERTZ

i	
IC	INSTANTANEOUS CLOSING
IO	INSTANTANEOUS OPENING
INST	INSTRUMENTATION

j	
J OR JB	JUNCTION BOX

k	
KC	TIME CONTROL
KV	KILOVOLT
KVA	KILOVOLT AMPERES
KW	KILOWATT

l	
L	LEVEL
L2	LIGHTING PANEL NO. 2
LAH	LEVEL ALARM HIGH
LAL	LEVEL ALARM LOW
LE	LEVEL SENSING ELEMENT
LI	LEVEL INDICATOR
LIC	LEVEL INDICATING CONTROLLER
LIT	LEVEL INDICATING TRANSMITTER
LOS	LOCK OUT STOP
LP	LOCAL CONTROL PANEL
LS	LEVEL SWITCH
LSH	LEVEL SWITCH HIGH
LSL	LEVEL SWITCH LOW
LSLL	LEVEL SWITCH LOW LOCKOUT
LSW	LIMIT SWITCH
LT	LEVEL TRANSMITTER
LTG	LIGHTING
LV	LOW VOLTAGE
LY	LEVEL CONTROL

m	
M	MAGNETIC MOTOR STARTER OR MANUAL RESET
MCC	MOTOR CONTROL CENTER
MCM	THOUSAND CIRCULAR MILS
MH	MANHOLE
MS	MANUAL MOTOR STARTER
MTR	MOTOR
MX	MOTOR STARTER AUXILIARY RELAY

n	
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION

o	
OL	OVERLOAD
OLX	AUXILIARY RELAY

p	
2P	2 POLE
PE	PHOTOELECTRIC CELL
PF	PROPELLER FAN
PIT	PRESSURE INDICATING TRANSMITTER
PMT	PAT MOUNTED TRANSFORMER
POS	POSITIVE
PR	PAIR
PS	PRESSURE SWITCH
PSH	PRESSURE SWITCH HIGH
PSL	PRESSURE SWITCH LOW
PT	PRESSURE TRANSMITTER
PY	PRESSURE CONTROL
Ø	PHASE

r	
R	RELAY OR
	RED INDICATING LIGHT
R2	RELAY
RAL	RED ALARM LIGHT
RTM	RUNNING TIME METER
RTU	REMOTE TERMINAL UNIT (PROGRAMMABLE CONTROLLER)

s	
S	SOLENOID VALVE
S3	SIZE 3 STARTER
SC	STEPPING SWITCH CONTRACT
SPP	SIERRA PACIFIC POWER CO.
SS	SELECTOR SWITCH
SS2	SELECTOR SWITCH NO. 2
ST	SHUNT TRIP
SWGR	SWITCHGEAR

t	
T	THERMOSTAT
TC	TIMED CLOSING
TDODE	TIME DELAY ON DEENERGIZATION
TDOE	TIME DELAY ON ENERGIZATION
TEL	TELEPHONE
TIT	TEMPERATURE INDICATING TRANSMITTER
TO	TIMED OPENING
TR	TIME DELAY RELAY
TSH	TEMPERATURE SWITCH HIGH
TU	CIRCUIT BREAKER TRIP UNIT

u	
UG	UNDERGROUND
UH-1	UNIT HEATER NO. 1
UI	MULTIVARIABLE INDICATOR
UY	MULTIVARIABLE RELAY

v	
V	VOLT
VM	VOLTMETER
VS	VARIABLE SPEED
VSH	VIBRATION SWITCH HIGH

w	
W	WHITE
WAH	TORQUE ALARM HIGH
WAL	TORQUE ALARM LOW
WHM	WATT-HOUR METER
WM	WATTMETER
WP	WEATHERPROOF
WS	TORQUE SWITCH

z	
ZC	POSITION CONTROLLER
ZI	POSITION INDICATOR
ZS	POSITION SWITCH
ZSC	POSITION SWITCH CLOSED
ZSO	POSITION SWITCH OPEN

SYMBOLS

	OPERATING COIL AS NOTED OF STARTER, RELAY, SOLENOID VALVE, ETC.
	CONTACTS, NORMALLY OPEN & NORMALLY CLOSED
	PUSH BUTTONS, NORMALLY OPEN & NORMALLY CLOSED
	3-POSITION SELECTOR SWITCH
	OVERLOAD RELAY HEATER
	FUSE
	INDICATING LIGHT R-HUN, G-STOP
	SIZE 2 CIRCUIT BREAKER COMBINATION FVNR STARTER
	3 POLE, 20 AMP CIRCUIT BREAKER
	MOTOR, WITH ASSUMED HORSEPOWER, ACTUAL HORSEPOWER MAY DIFFER
	NO-MOTOR LOAD WITH ASSUMED KW, ACTUAL KW MAY DIFFER
	AUXILIARY OR CONTR. DEVICE (CONTROL STATION SHOWN). SAME AUXILIARY DEVICES MAY NOT BE SHOWN
	SPECIAL CONNECTION, USE SHOWN
	400 V, 30 A RECEPTACLE, RATING SHOWN
	TRANSFORMER WITH PRIMARY VOLTAGE, SECONDARY VOLTAGE AND KVA RATING SHOWN
	1 PAIR INSTRUMENT CABLE
	HOME RUN TO PANEL
	CONDUIT AND WIRING RUN, CONDUIT SIZE AND CONDUCTORS SHOWN. IF NOTHING IS SHOWN IT IS 3/4" C-3 #10. SLASH MARKS SHOW IF MORE THAN 3 #10 IN A 3/4" CONDUIT. ALL CIRCUITS TO INCLUDE A GROUND WIRE.
	S LIGHT SWITCH
	S3 3-WAY LIGHT SWITCH
	S4 4-WAY LIGHT SWITCH
	SD DIMMER SWITCH, 600 W.
	SWP WEATHERPROOF LIGHT SWITCH
	SE EXPLOSION PROOF LIGHT SWITCH
	⊕ DUPLEX 120 V, 20 A RECEPTACLE
	⊕ SIMPLEX 240 V, 20 A RECEPTACLE
	⊕ THERMOSTAT
	⊕ TELEPHONE OUTLET
	⊕ WP WEATHERPROOF OUTLET
	⊕ GFI GROUND FAULT OUTLET
	⊕ CLOCK OUTLET, 7'-0" UP
	⊕ DAMPER MOTOR
	S M TOGGLE SWITCH TYPE MANUAL MOTOR STARTER
	CS PEDESTAL MOUNTED DEVICE
	DS DISCONNECT SWITCH
	M MAGNETIC MOTOR STARTER
	MS MANUAL MOTOR STARTER
	EL EMERGENCY LIGHTING UNIT

GENERAL NOTES:

- IN GENERAL, CONDUIT ROUTINGS ARE NOT SHOWN ON FLOOR PLANS. ROUTE CONDUIT AS REQUIRED BY EQUIPMENT FURNISHED AND THE FOLLOWING:
 - FINISHED AREAS OF NEW BUILDINGS: CONCEALED
 - ITEMS NOT ADJACENT TO WALLS IN NEW BUILDINGS: CONCEALED IN FLOOR
 - ALL OTHER AREAS: EXPOSED ALONG WALLS, CEILINGS, EQUIPMENT AND PIPING
- CIRCUIT SIZES ARE MINIMUM AND SHALL BE INCREASED AS REQUIRED FOR EQUIPMENT FURNISHED
- WHERE NEW AND EXISTING WORK APPEARS ON THE SAME PLAN, LIGHT LINE WEIGHT DENOTES EXISTING ITEMS, CIRCUITS AND WORK; HEAVY LINE WEIGHT DENOTES NEW ITEMS, CIRCUITS AND WORK UNLESS WORK IS SPECIFICALLY IDENTIFIED. ALL WORK TO BE ASSUMED TO BE NEW UNLESS SHOWN OTHERWISE.
- CONTRACTOR SHALL REFER TO FOLLOWING DRAWINGS OF PREVIOUS CONSTRUCTION:
 - CONTRACT 2, CWC, MAY 16, 1980
 - CONTRACT 5, CWC, JULY 28, 1980
 - 1965 IMPROVEMENTS, CAROLLO, 1965
 - 1956 IMPROVEMENTS, HFC, 1956

CULP-WESNER-CULP
CONSULTING ENGINEERS
CAMERON PARK, CA. SANTA ANA, CA.
DENVER, CO.

CWC

H. D. R.
CWC, Inc.
Consulting Engineers

SEAL OF THE STATE OF CALIFORNIA
JULY 1980
No. 555

Job No. 100-19-41
Designed WFE
Drawn JDB
Checked JAY
Approved DAP
Date 7-80

No.	By	Revision	Description	Date

City of Las Vegas
WASTEWATER TREATMENT PLANT
NEW BAR SCREEN FACILITY AND
PLANT NO. 1 GRIT BASIN RENOVATION

ELECTRICAL SYMBOLS
& ABBREVIATIONS

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