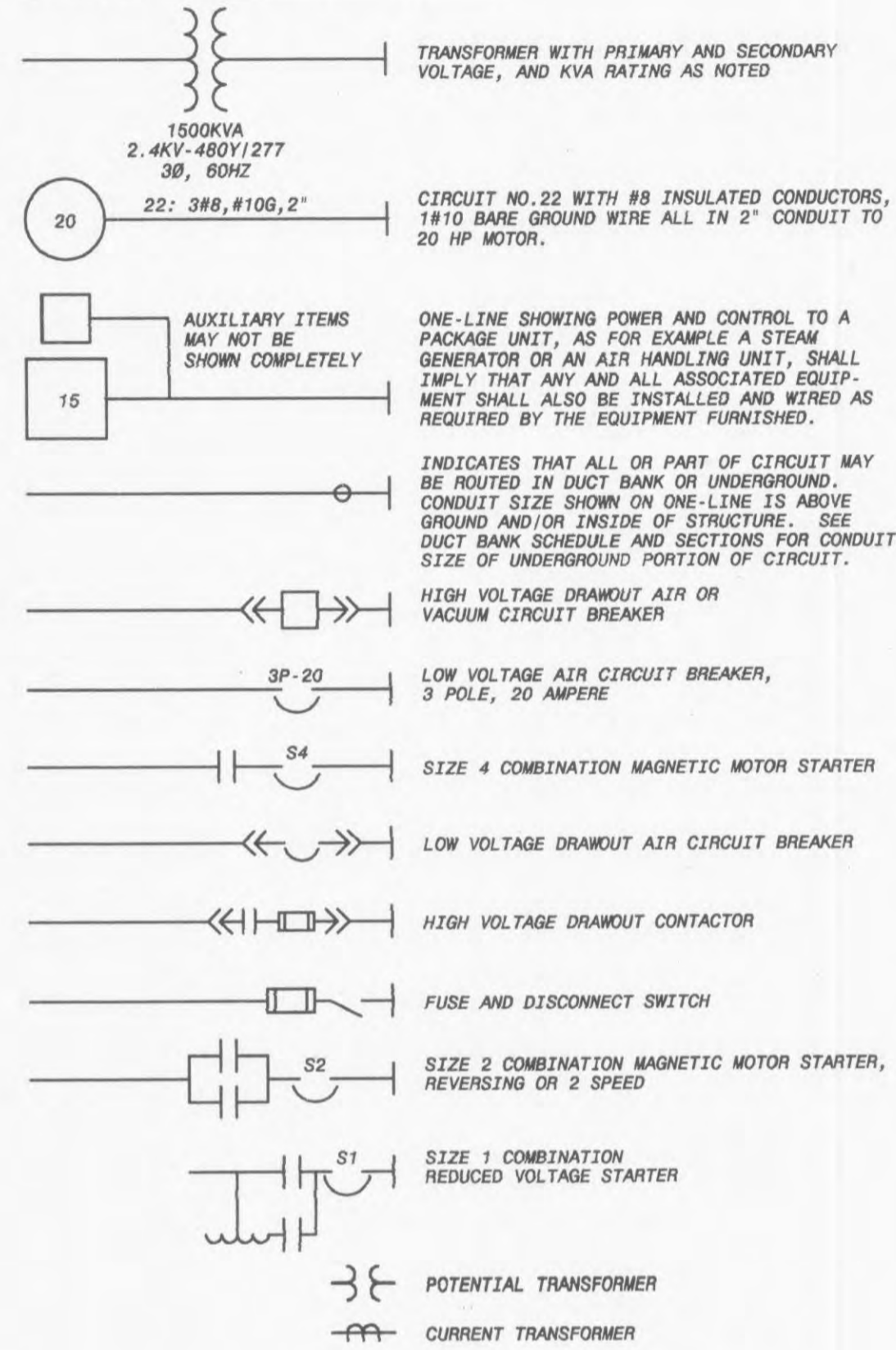
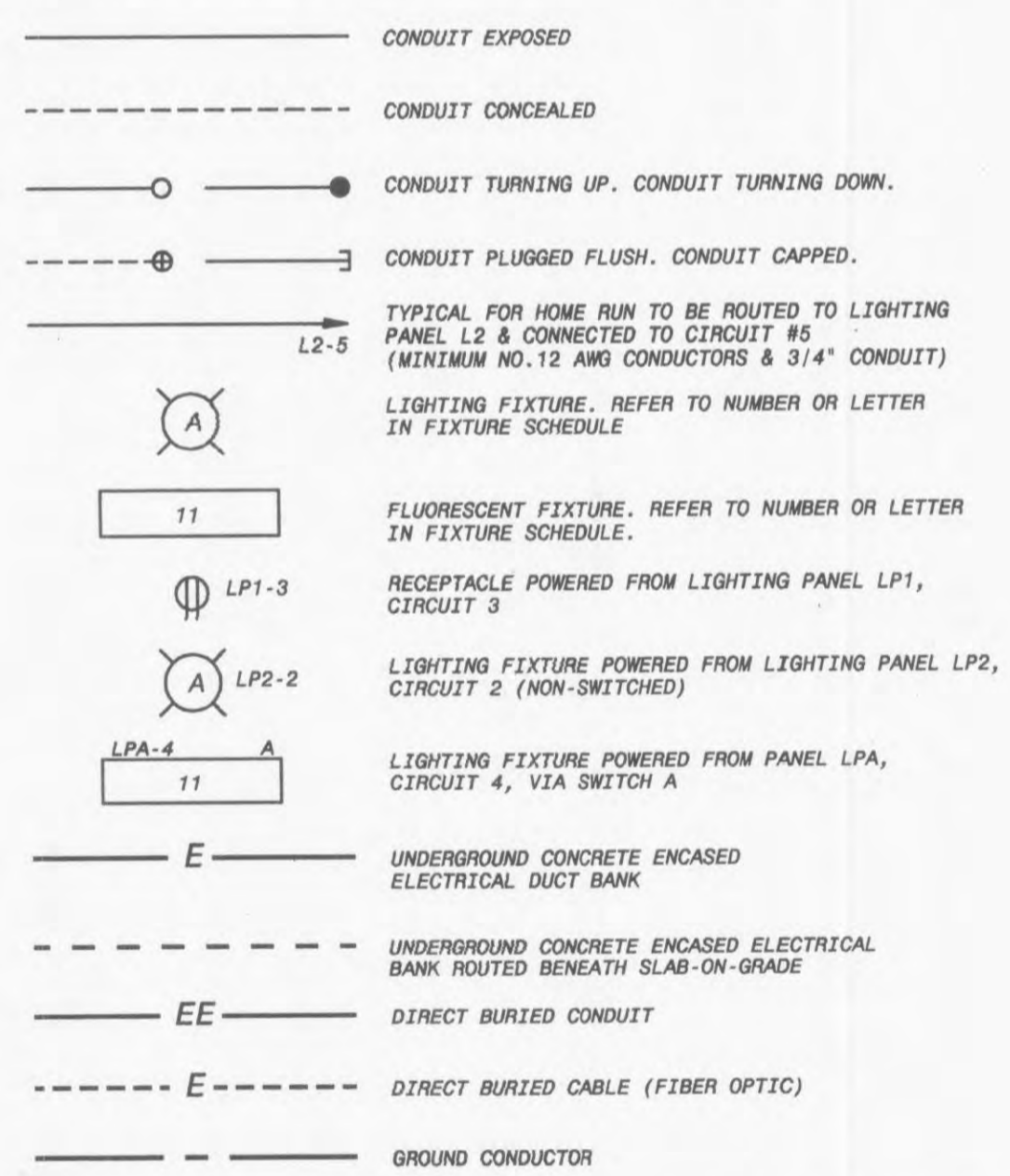


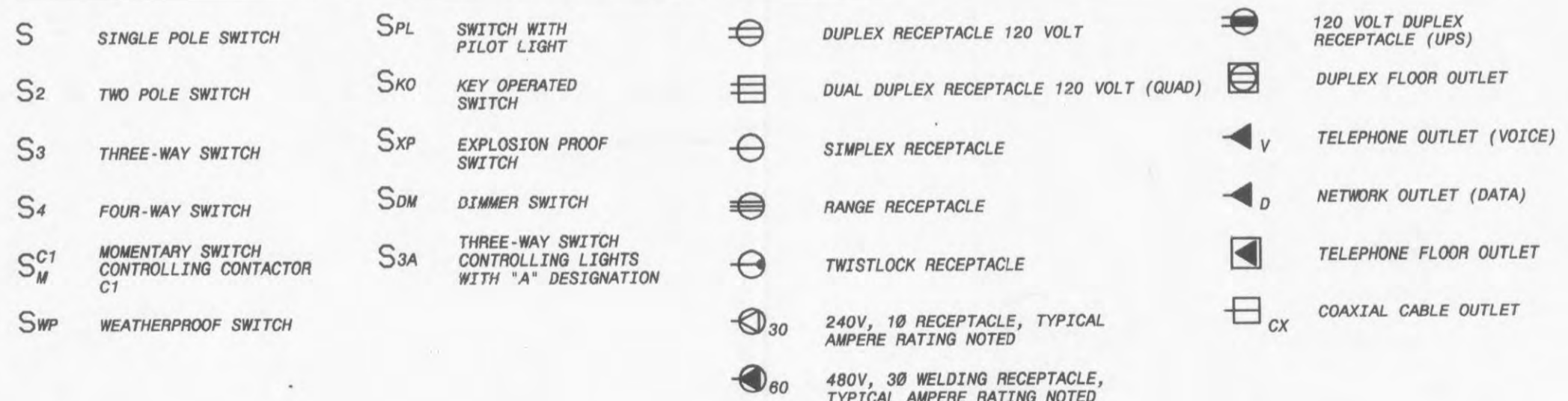
**ONE-LINE DIAGRAM LEGEND**



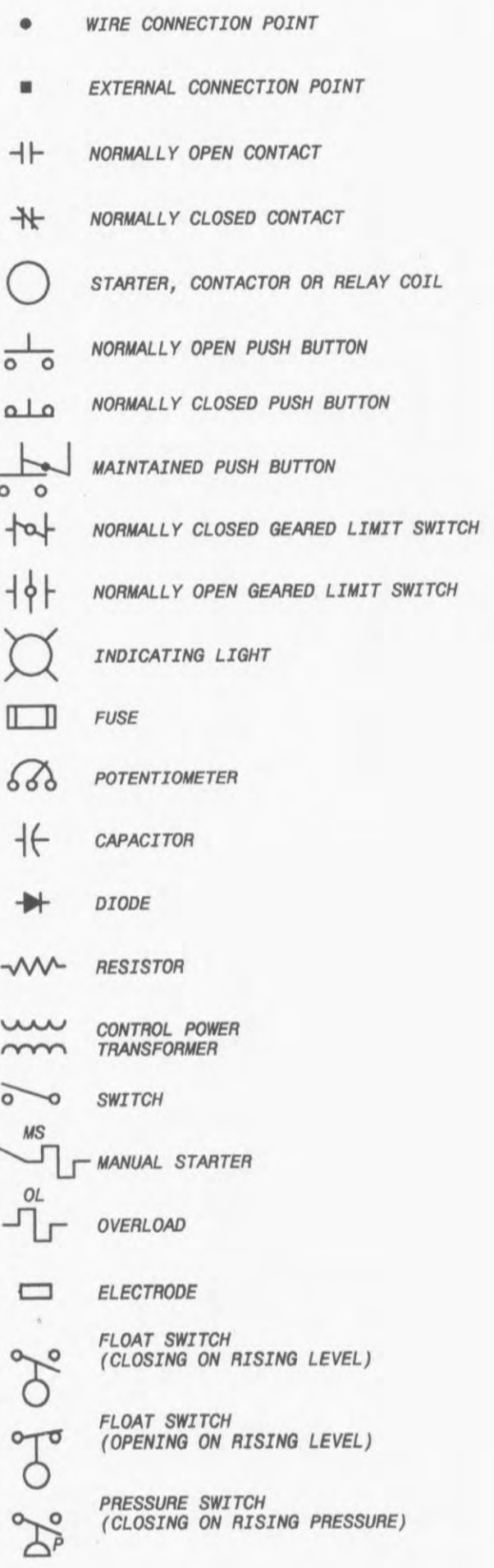
**CONDUIT & WIRING INSTALLATION LEGEND**



**SWITCH & OUTLET SYMBOLS**

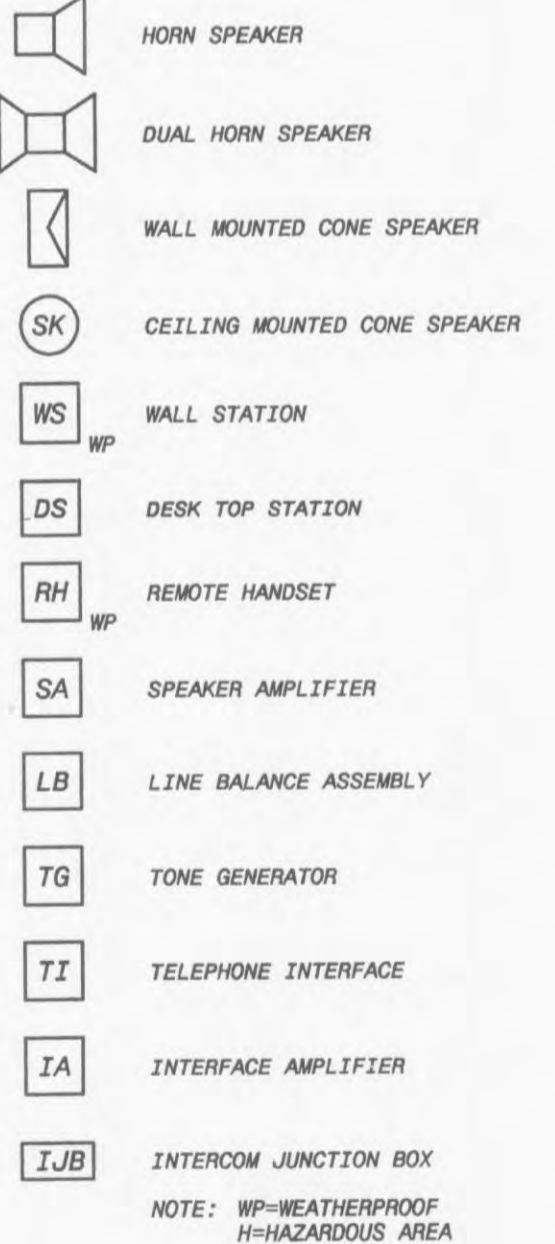


**SCHEMATIC SYMBOLS**



**MISCELLANEOUS SYMBOLS**

**COMMUNICATION SYMBOLS**



**ABBREVIATIONS**

A	AMBER, AMPERE, ALARM	M	MAGNETIC MOTOR STARTER
AC	ALTERNATING CURRENT	MA	MILLIAMPERE
ACB	AIR CIRCUIT BREAKER	MCB	MAIN CIRCUIT BREAKER
AF	AMPERE FRAME	MCC	MOTOR CONTROL CENTER
AFD	ADJUSTABLE FREQUENCY DRIVE	MCLU	MOTOR CONTROL LINEUP
AM	AMMETER	MCM	THOUSAND CIRCULAR MIL
ANN	ANNUNCIATOR	MD	MOISTURE DETECTOR
AR	ALARM RELAY	MFM	MAGNETIC FLOW METER
AS	AMMETER SWITCH	MFR	MANUFACTURER
AT	AMPERE TRIP	MH	MANHOLE OR MOUNTING HEIGHT
ATO	AUTOMATIC THROW-OVER	MOV	MOTOR OPERATED VALVE
AWG	AMERICAN WIRE GAGE	MPR	MOTOR PROTECTION RELAY
BC	BATTERY CHARGER	MS	MOTOR SPACE STARTER
BR	BRAKE	MSH	MOTOR SPACE HEATER
BT	BEARING TEMPERATURE	MV	MILLIVOLT
		MVA	MEGA VOLT AMPERE
		N	NEUTRAL
C	CLOSE, COUNTER OR CONTACTOR	NC	NORMALLY CLOSED
CAP	CAPACITOR	NO	NORMALLY OPEN, NUMBER
CB	CIRCUIT BREAKER	O	OPEN
CB*A	CIRCUIT BREAKER AUXILIARY CONTACT (OPEN WHEN BREAKER IS OPEN OR TRIPPED)	OCH	OIL CIRCUIT BREAKER OVER-HEAD (UNES)
CB*B	CIRCUIT BREAKER AUXILIARY CONTACT (CLOSED WHEN BREAKER IS OPEN OR TRIPPED)	OL	OVERLOAD
		OA	ON-OFF-AUTO
		OOR	ON-OFF-REMOTE
CD	CONTROL DAMPER	P	PRIMARY
CEL	CELL INTERLOCK	PCS	PLANT CONTROL SYSTEM
CKT	CIRCUIT	PB	PUSH BUTTON OR PULL BOX
CL2	CHLORINE	PF	POWER FACTOR METER
COS	CABLE OPERATED SWITCH	PH	PHASE, CHEMICAL TERM
CP	CONTROL PANEL	PLC	PROGRAMMABLE LOGIC CONTROLLER
CPT	CONTROL POWER TRANSFORMER	PP	POWER PANEL
CR	CURRENT OR CONTROL RELAY	PQM	POWER QUALITY METER
CS	CONTROL STATION	PS	PROXIMITY SWITCH
CT	CYCLE TIMER OR CURRENT TRANSFORMER	PS	PRESSURE SWITCH
CTC	CYCLE TIMER CLUTCH	PT	POTENTIAL TRANSFORMER, PROGRAM TIMER
CTM	CYCLE TIMER MOTOR	2P	2 POLE
2/C	2 CONDUCTOR		
4"C	4" CONDUIT		
DC	DIRECT CURRENT	R	RED, RAISE, RELAY OR REVERSE
DI	DOOR INTERLOCK	REC	RECEPTACLE
DM	DAMPER MOTOR OR DEMAND METER	RES	RESISTOR
DPDT	DOUBLE POLE DOUBLE THROW	RT	REPEATING TIMER
DPST	DOUBLE POLE SINGLE THROW	RTD	RESISTANCE TYPE TEMP DETECTOR
DPR	DIFFERENTIAL PRESSURE REGULATOR	RTU	REMOTE TERMINAL UNIT
DPS	DIFFERENTIAL PRESSURE SWITCH	RVSS	REDUCED VOLTAGE SOLID STATE STARTER
DS	DISCONNECT SWITCH	S2	SIZE 2 STARTER
DVLS	DISCHARGE VALVE LIMIT SWITCH	S2	SUPERVISORY CONTROL AND DATA ACQUISITION
		SH	SPACE HEATER
E	ELECTRIC OPERATOR FOR CONTROL DAMPER OR VALVE	SN	SOLID NEUTRAL
EC	EMPTY CONDUIT	SO	SOLENOID OILER
EL	ELEVATION OR EMERGENCY LIGHT	SP	SINGLE POLE
EMH	ELECTRICAL MANHOLE	SPDT	SINGLE POLE DOUBLE THROW
ER	ELECTRODE RELAY	SPST	SINGLE POLE SINGLE THROW
ES	END SWITCH	SS	SELECTOR SWITCH
ETM	ELAPSED TIME METER	SSS	SOLID STATE STARTER
EX	EXISTING	SUPY	SUPERVISORY CONTROL
F	FORWARD	SV	SOLENOID VALVE
FS	FLOW SWITCH	SWB	SWITCHBOARD
		SWR	SWITCHGEAR
G	GREEN OR GROUND	T	THERMOSTAT, TIMER, OR TOTALIZER
GD	GROUND DETECTOR	TACH	TACHOMETER
GEN	GENERATOR	TB	TERMINAL BLOCK
GF	GROUND FAULT INTERRUPTER	TC	TIMER CLUTCH
GLS	GEARED LIMIT SWITCH	TD	TIME DELAY RELAY
#GG	#8 GROUND WIRE	TEMP	TEMPERATURE
		TM	TIMER MOTOR
		TQ	TORQUE
H	HIGH OR HUMIDISTAT	TS	TEMPERATURE SWITCH
HC	HOT CIRCUIT	TTB	TELEPHONE TERMINAL BOX
HH	HANDHOLE		
HMT	HIGH MOTOR TEMPERATURE	UG	UNDERGROUND
HOA	HAND-OFF-AUTO	UV	UNDER VOLTAGE
HOR	HAND-OFF-REMOTE	UPS	UNINTERRUPTIBLE POWER SUPPLY
HP	HORSEPOWER	V	VOLTS
HWCO	HIGH WATER CUTOFF	VA	VOLT AMPERE
HZ	HERTZ (CYCLE)	VAR	VARMETER
		VLS	VALVE LIMIT SWITCH
I/O	INPUT/OUTPUT	VM	VOLTMETER
INST	INSTANTANEOUS	VPI	VALVE POSITION INDICATOR
J	JUNCTION BOX	VS	VOLTMETER SWITCH
JB	JUNCTION BOX	W	WHITE OR WATTS
K	KEY INTERLOCK	WH	WATTHOUR METER
KV	KILOVOLT	WM	WATT METER
KVA	KILOVOLT AMPERE	WP	WEATHERPROOF
KVAR	KILOVAR	WS	WORKSTATION
KW	KILOWATT	X	AUXILIARY RELAY
KWH	KILOWATT HOUR	XFMR	TRANSFORMER
		XP	EXPLOSION PROOF
L	LOW, LEVEL	Y	YELLOW
LA	LIGHTNING ARRESTER	Z	AUXILIARY RELAY
LAN	LOCAL AREA NETWORK	ZO	DAMPER LIMIT SWITCH
LC	LIGHTING CONTACTOR	ZS	POSITION SWITCH
LCL	LOCAL ON-OFF	ZSS	ZERO SPEED SWITCH
LOR	LOCAL OFF-REMOTE	ZSD	DOOR INTRUSION SWITCH
LP	LIGHTING PANEL		
LS	LIMIT OR LEVEL SWITCH		
LWCO	LOW WATER CUTOFF		
1-1PR#16S	ONE, SINGLE PAIR, TWISTED, SHIELDED #16 CABLE		
3-7/C#14	THREE, SINGLE, SEVEN CONDUCTOR #14 MULTICONDUCTOR CONTROL CABLES		

**AREA DESIGNATIONS**

THE SPECIAL AREA DESIGNATION BOXES, AS DEFINED BELOW, ARE LOCATED ON THE PLAN DRAWINGS TO DEFINE ELECTRICAL INSTALLATION REQUIREMENTS. DESIGNATION BOXES ARE LOCATED WITHIN ROOM OR BELOW ROOM NUMBER. ALL INDOOR AREAS NOT INDICATED OTHERWISE ARE AREA TYPE 1 AND MINIMUM NEMA TYPE 1 ENCLOSURES.

AREA TYPE 1A	CORROSIVE CHEMICAL FEED AND STORAGE ROOMS. CONDUIT SYSTEM SHALL BE EXPOSED PVC RIGID NON-METALLIC CONDUIT WITH PVC FITTINGS, BOXES, AND ACCESSORIES.
AREA TYPE 4	INDOOR WET LOCATIONS SUCH AS VAULTS, HOSEDOWN AREAS, BASEMENTS, ETC. MINIMUM NEMA TYPE 4 ENCLOSURE FOR EQUIPMENT AND GASKETED FITTINGS IN A CONDUIT SYSTEM.
AREA TYPE 7A	CLASS I, DIVISION 1 AREA AS DEFINED BY NEC. ALL EQUIPMENT AND CONDUIT SYSTEMS SHALL BE RATED FOR USE IN THIS AREA.
AREA TYPE 7B	CLASS I, DIVISION 2, GROUP C AND D (METHANE, GASOLINE) AS DEFINED BY NEC. EQUIPMENT AND CONDUIT SYSTEMS SHALL BE RATED FOR USE IN THIS AREA.
AREA TYPE 12	INDOOR, DRY, DIRTY AREA. REQUIRES MINIMUM NEMA TYPE 12 GASKETED ENCLOSURES FOR ALL EQUIPMENT AND GASKETED FITTINGS IN CONDUIT SYSTEMS.

**GENERAL REQUIREMENTS**

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ROUTING ALL CONDUITS NOT SHOWN ON THE PLANS. THIS SHALL INCLUDE ALL CONDUITS SHOWN ON THE ONE-LINES AND HOME-RUNS SHOWN ON THE PLAN DRAWINGS. CONDUITS SHALL BE ROUTED AS DEFINED IN THE SPECIFICATIONS.
- SPARE WIRES SHALL BE TAPED AND COILED.
- IF EQUIPMENT SUPPLIED BY MANUFACTURER HAS A LARGER LOAD THAN VALUE SHOWN, THE CABLE CONDUIT AND ELECTRICAL EQUIPMENT SHALL BE ENLARGED, AS REQUIRED, TO ACCOMMODATE THE HIGHER VALUE.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING PROPERLY SIZED STARTER OVERLOADS FOR EQUIPMENT FURNISHED.
- LIGHTING AND RECEPTACLE CIRCUITS DESIGNATED ON THE FLOOR PLANS ARE NOT SHOWN ON THE ONE-LINES. CONDUCTORS FOR LIGHTING, RECEPTACLES, AND MISCELLANEOUS 120VAC CIRCUITS SHALL BE MINIMUM NO. 12AWG. CONDUIT FOR LIGHTING, RECEPTACLES, AND MISCELLANEOUS 120VAC CIRCUITS SHALL BE MINIMUM 3/4".
- IN AREAS WHERE THERE ARE OVERHEAD BRIDGE CRANES, HOISTS, ETC., NO CONDUITS SHALL BE RUN OVERHEAD THAT WILL INTERFERE WITH THE OPERATION OF THE EQUIPMENT.

**GENERAL NOTES**

- SOLID LINES (——) INDICATE NEW WORK OR EQUIPMENT.
- SCREENED LINES (——) INDICATE EXISTING WORK OR EQUIPMENT.
- DASHED LINES (---) INDICATE FUTURE WORK OR EQUIPMENT.
- THIS IS A GENERAL LEGEND SHEET. SOME SYMBOLS AND ABBREVIATIONS MAY NOT BE UTILIZED ON THIS SPECIFIC PROJECT.
- INFORMATION RELATED TO CIRCUIT IDENTIFICATION, WIRE & CONDUIT SIZES, AND ROUTING, IS ON THE FOLLOWING DRAWING TYPES.
  - ONE-LINE DIAGRAMS SHOW CIRCUIT IDENTIFICATION, WIRE QUANTITY AND SIZES, AND CONDUIT SIZE WITHIN STRUCTURES. ONE-LINE DIAGRAMS ALSO INDICATE ORIGIN AND DESTINATION OF CIRCUITS, AND IDENTIFY CIRCUITS ROUTED UNDERGROUND.
  - FOR CIRCUITS WITHOUT UNDERGROUND PORTIONS, BUILDING FLOOR PLANS SHOW LOCATION OF EQUIPMENT FOR DETERMINING CIRCUIT LENGTH WITHIN THE STRUCTURE. FOR CIRCUITS WITH UNDERGROUND PORTIONS, ANTICIPATED PENETRATION OF UNDERGROUND CONDUITS ARE SHOWN ON STRUCTURE PLANS FOR DETERMINING THE LENGTH OF THE IN-STRUCTURE PORTIONS OF CIRCUITS. BUILDING FLOOR PLANS MAY ALSO SHOW HOME RUNS FOR LIGHTING, RECEPTACLE, AND OTHER MISCELLANEOUS EQUIPMENT CIRCUITS.
  - SITE PLANS INDICATE THE GENERAL ROUTING OF UNDERGROUND CONDUITS AND DUCT BANKS. CIRCUITS ROUTED IN UNDERGROUND CONDUITS OR DUCT BANKS ARE INDICATED IN DUCT BANK SECTIONS REFERENCED ON THE SITE PLAN.
  - DUCT BANK SECTIONS AND SCHEDULES IDENTIFY CONDUIT SIZE, CONDUIT MATERIAL, ARRANGEMENT OF THE UNDERGROUND CONDUITS, AND CIRCUITS ROUTED IN EACH UNDERGROUND CONDUIT.

NO.	BY	CHK	APP
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1			

DATE: 10/08/01

CONFORMED TO CONSTRUCTION RECORDS

ADDENDUM

REVISIONS AND RECORD OF ISSUE

CY/NET ID: 97515-00-E-T00000CPN

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SW: ACAD-20001

\*THIS DRAWING WAS ORIGINALLY APPROVED FOR CONSTRUCTION BY JOSEPH J. FORBES FOR THE CITY OF O'FALLON, MISSOURI. APPROVED BY JOSEPH J. FORBES, A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF MISSOURI, No. E 275984.



CITY OF O'FALLON, MISSOURI  
WATER TREATMENT PLANT  
ELECTRICAL  
LEGEND AND ABBREVIATIONS

DESIGNED: MEP
DETAILED: MEP
CHECKED: KHI
APPROVED: JTF
DATE: 10/08/01
PROJECT NO. 97515
M1
SHEET 56 OF 96