

### ABBREVIATIONS

A	AMPERES	NF	NON-FUSED
ACK	ACKNOWLEDGE	NC	NORMALLY CLOSED
AFR	AMPERES FRAME RATING	NO	NORMALLY OPEN
ALC	ALUMINUM CONDUIT	OL(S)	OVERLOAD RELAY CONTACT(S)
ALT	ALTERNATOR	OP	OPERATOR
AM	AMMETER	PF	POWER FACTOR
ANN	ANNUNCIATOR	PT(S)	POTENTIAL TRANSFORMER(S)
AS	AMMETER SWITCH	PRS	PLASTIC COATED RIGID STEEL CONDUIT
ATR	AMPERES TRIP RATING	PU	PICK UP OR PER UNIT
AWG	AMERICAN WIRE GAGE	PUR	PER UNIT RESISTANCE
		PUX	PER UNIT REACTANCE
		PUZ	PER UNIT IMPEDANCE
		PVC	POLYVINYLCHLORIDE CONDUIT
BKR	BREAKER	REQ'D	REQUIRED
BLDG	BUILDING	RM	ROOM
		RS	RIGID STEEL CONDUIT
CKT	CIRCUIT	RTD	RESISTANCE TEMPERATURE DEVICE
Q	CENTER LINE	RTM	RUNNING TIME METER
CO	CONVENIENCE OUTLET	SDS	SPECIFIED IN OTHER DIVISION OF SPECIFICATIONS
CONN	CONNECTIONS	SE	SERVICE ENTRANCE
CONTR	CONTRACTOR	SEC	SECOND OR SECONDARY
CP	CONTROL PANEL	SIG	SIGNAL
CPT	CONTROL POWER TRANSFORMER	SOL Vv	SOLENOID VALVE
CS	CONTROL STATION	SP	SINGLE POLE
CT	CURRENT TRANSFORMER	SPECS	SPECIFICATIONS
CU	COPPER	SW	SWITCH
		TD	TIME DELAY
DE	DUAL ELEMENT	TEMP	TEMPERATURE
DIA	DIAMETER	TYP	TYPICAL
DISC	DISCONNECT	UH	UNIT HEATER
DP	DISTRIBUTION PANEL	V	VOLTS
DPS	DIFFERENTIAL PRESSURE SWITCH	VAR	VOLT-AMPERES REACTIVE
		VARM	VOLT-AMPERES REACTIVE METER
ELECT	ELECTRICAL	VFD	VARIABLE FREQUENCY DRIVE
EMT	ELECTRICAL METALLIC TUBING	VM	VOLTMETER
EO	ELECTRICAL OPERATOR	VS	VOLTMETER SWITCH
EP	EXPLOSION PROOF	Vv	VALVE
EQUIP	EQUIPMENT	W	WATTS OR WIRE
		W/	WITH
FA	FIRE ALARM	WHM	WATT-HOUR METER
FACP	FIRE ALARM CONTROL PANEL	WM	WATT METER
F & I	FURNISH AND INSTALL	WW	WIREWAY
F	FUSE OR FUSIBLE	WP	WEATHERPROOF
		XFMR	TRANSFORMER
GFI	GROUND FAULT INTERRUPTER	XMTR	TRANSMITTER
GND	GROUND	Y	WYE
GRS	GALVANIZED RIGID STEEL CONDUIT	Z	IMPEDANCE
HD	HEAVY DUTY		
HP	HORSEPOWER		
HPS	HIGH PRESSURE SODIUM		
HTR	HEATER		
HZ	HERTZ (CYCLES/SECOND)		
IMC	INTERMEDIATE METAL CONDUIT		
INCAN	INCANDESCENT		
IND	INDICATING OR INDICATOR		
INST	INSTANTANEOUS		
I & C	INSTRUMENTATION AND CONTROL		
JB	JUNCTION BOX		
KV	KILOVOLTS		
kVA	KILOVOLT-AMPERES		
kVAR	KILOVOLT-AMPERES REACTIVE		
kW	KILOWATTS		
LT	LIGHT		
LMF	LIQUID-TIGHT METALLIC CORE FLEXIBLE CONDUIT		
M	MOTOR STARTER OPERATING COIL		
MAX	MAXIMUM		
MCM	THOUSAND CIRCULAR MILS		
MCP	MOTOR CIRCUIT PROTECTOR		
MECH	MECHANICAL		
MFR	MANUFACTURER		
MH	METAL HALIDE		
MIN	MINUTE OR MINIMUM		
MTD	MOUNTED		
MV	MERCURY VAPOR		

### COLORS

A	AMBER	O	ORANGE
BK	BLACK	R	RED
BR	BROWN	V	VIOLET
BU	BLUE	W	WHITE
GRN	GREEN	Y	YELLOW
GY	GRAY		

### DEVICE SYMBOLS

	WALL MOUNTED/CEILING EXIT LIGHT - LETTER & NUMBER SIMILAR TO HID OR INCANDESCENT FIXTURE, SLASH(ES) DENOTE FACE(S) AND ARROW(S) IF REQUIRED
	WALL MOUNTED/CEILING INCANDESCENT OR HID FIXTURE - CAPITAL LETTER DENOTES TYPE, NUMBER DENOTES CIRCUIT, SMALL LETTER DENOTES SWITCH LEG
	WALL MOUNTED/CEILING FLUORESCENT FIXTURES - LETTERS & NUMBERS SIMILAR TO INCANDESCENT FIXTURES
	DUPLEX CONVENIENCE OUTLET - NUMBER DENOTES CIRCUIT, INCHES DENOTE MOUNTING HEIGHT IF OTHER THAN NORMAL, LETTERS SPECIFY OTHER CONDITIONS IE. WP OR GFI
	JUNCTION BOX - CEILING/WALL MOUNTED
	THERMOSTAT
	SPECIAL PURPOSE OUTLET
	SWITCH-NO MARKING IS SINGLE POLE, 2 IS DOUBLE POLE, 3 IS 3-WAY, 4 IS 4-WAY
	MOTOR
	PUSHBUTTON STATION
	TELEPHONE
	CONTROL STATION
	BRANCH CIRCUIT - EXPOSED
	BRANCH CIRCUIT CONCEALED
	SLASHES INDICATE NUMBER OF #12 AWG WIRES IN CONDUIT, g SUBSCRIPT DENOTES AN INSULATED GROUND CONDUCTOR
	DOUBLE DUPLEX CONVENIENCE OUTLET

### SCHEMATIC SYMBOLS

	PRESS TO TEST LAMP - LETTER DENOTES COLOR
	SELECTOR SWITCH
	TORQUE SWITCH - NC, NO
	SHEAR PIN SWITCH - NC, NO
	CIRCUIT BREAKER
	MAGNETIC TRIP
	THERMAL TRIP
	RUNNING TIME METER
	CONTACT - NC, NO
	OPERATING COIL, LETTER OR NUMBER DENOTES DEVICE
	PLUG AND RECEPTACLE
	PUSHBUTTON CONTACT - NC, NO
	PUSHBUTTON SWITCH, MUSHROOM HEAD - NC, NO
	DOUBLE CIRCUIT PUSHBUTTON SWITCH
	MAINTAINED CONTACT PUSHBUTTON SWITCH
	ENERGIZED TIMER CONTROL - NC, NO
	DE-ENERGIZED TIMER CONTROL - NC, NO
	FLOW SWITCH - NC, NO
	LIQUID LEVEL SWITCH - NC, NO
	TEMPERATURE SWITCH - NC, NO
	PRESSURE SWITCH - NC, NO
	LIMIT SWITCH - NC, NO
	FUSE
	DISCONNECT SWITCH
	FUSED SWITCH
	GROUND CONNECTION
	INDICATING LIGHT - LETTER DENOTES COLOR
	CONTROL TRANSFORMER
	THERMAL OVERLOAD TRIP UNITS
	STABS

### ONE-LINE DIAGRAM SYMBOLS

	AIR CIRCUIT BREAKER - DRAW OUT TYPE WITH OPERATING MECHANISM
	DISCONNECT SWITCH
	FUSED SWITCH
	LIGHTNING ARRESTER - GENERAL
	FUSE - NUMBER DENOTES RATING
	GROUND CONNECTION
	CONTROL OR INSTRUMENT SWITCH - LETTERS DENOTES FUNCTION
	RELAY OR CONTROL DEVICE - NUMBER DENOTES FUNCTION, AMERICAN NATIONAL STANDARD (ANSI)
	POTENTIAL TRANSFORMER - DRAW OUT TYPE WITH PRIMARY FUSES
	CURRENT TRANSFORMER
	CONTROL STATION
	INSTRUMENT - LETTER DENOTES TYPE
	INDICATING LIGHT - LETTER DENOTES COLOR
	MOTOR - NUMBER DENOTES HORSEPOWER
	MOTOR CIRCUIT PROTECTOR (MCP)
	MOLDED CASE CIRCUIT BREAKER
	CONTROL TRANSFORMER
	RUNNING TIME METER
	GROUND CONNECTION
	THERMAL OVERLOAD TRIP UNITS
	STABS
	POWER TRANSFORMER
	POWER FACTOR CAPACITORS WITH FUSING AND INDICATING LIGHTS
	SURGE CAPACITORS
	RELAY WITH SHORTING CONTACTS

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I hereby certify that this report, plan, or specification was prepared by me or under my direct supervision and I am a duly registered Professional Engineer under the laws of the State of Minnesota.  
  
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**CITY OF ELK RIVER**  
**WASTEWATER TREATMENT PLANT U.V. DISINFECTION**  
**SYMBOLS & ABBREVIATIONS**

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