

ELECTRICAL SYMBOL LEGEND

SINGLE LINE

	LOAD BREAK SWITCH
	UNFUSED DISCONNECT SWITCH
	FUSED CUTOFF SWITCH
	FUSED DISCONNECT SWITCH
	FUSE
	CIRCUIT BREAKER
	DRAW OUT CIRCUIT BREAKER
	CIRCUIT BREAKER C/W CURRENT LIMITERS
	POWER CIRCUIT BREAKER C/W FRAME SIZE INDICATION
	STAB TYPE DISCONNECT
	LIGHTNING ARRESTER
	SURGE ARRESTER
	THERMAL OVERLOAD DEVICE
	CONTACT
	CONTACT
	CAPACITOR C/W KVAR RATING
	POTENTIAL TRANSFORMER C/W VOLTAGE AND QUANTITY
	CURRENT TRANSFORMER C/W RATIO AND QUANTITY
	ZSCCT
	DIGITAL METERING
	TRANSIENT VOLTAGE SURGE SUPPRESSOR
	VARIABLE FREQUENCY DRIVE
	METERING DEVICE
	ELECTRIC MOTOR
	HARMONIC FILTER kW RATED
	DISTRIBUTION TRANSFORMER
	ISOLATION TRANSFORMER
	SHIELDED ISOLATION TRANSFORMER
	TERMINAL
	CABLE TERMINATION
	WEATHERHEAD
	BUS BAR WITH CONNECTION

LINE SYMBOLS	
	CONDUCTOR
	UNDERGROUND CONDUCTOR
	OVERHEAD CONDUCTOR
	TRIPPING OR INTERLOCKING CIRCUIT
	EQUIPMENT OUTLINE
	KEY INTERLOCKING
	CAT 5E NETWORK CABLE IN MINIMUM 27mm CONDUIT
SWITCH GEAR DEVICE NUMBER AND FUNCTIONS	
	15 SYNCHRONIZATION CHECK RELAY
	27 AC UNDER VOLTAGE
	32 DIRECTIONAL POWER RELAY
	40 LOSS OF FIELD PROTECTION RELAY
	46 PHASE BALANCE CURRENT RELAY
	47 PHASE SEQUENCE RELAY
	48 INCOMPLETE SEQUENCE RELAY
	49 AC THERMAL OVERLOAD RELAY
	50 AC INSTANTANEOUS OVERCURRENT RELAY
	51 AC TIME DELAY OVERCURRENT RELAY
	52 AC CIRCUIT BREAKER
	59 AC OVER VOLTAGE RELAY
	63 SUDDEN PRESSURE RELAY
	78 PHASE ANGLE MEASURING RELAY
	81 UNDER FREQUENCY RELAY
	86 LOCKOUT RELAY
	87 DIFFERENTIAL CURRENT RELAY
	92 REVERSE POWER RELAY
SPECIALIZED RELAY FUNCTION ARE INDICATED BY A LETTER SUFFIX. e. g. S - STALL. G - GROUND. T - TEMPERATURE.	
	OHM RATING IDENTIFIER
	RESISTOR
	POTENTIOMETER
	THERMISTOR
3 PHASE TRANSFORMER CONNECTION SYMBOLS	
	DELTA
	WYE
	WYE OR STAR WITH SOLID GROUNDED NEUTRAL
	WYE OR STAR WITH RESISTANCE GROUNDED NEUTRAL AND MAXIMUM CURRENT INDICATED
	FEEDER IDENTIFICATION SYMBOL
	GROUND
	STARTER - FVNR FULL VOLTAGE NON-REVERSING
	REDUCED VOLTAGE SOLID STATE STARTER WITH BY-PASS CONTACTOR
	STARTER - 2 SPEED, 1 WINDING
	AUTOMATIC TRANSFER SWITCH
	STAND-BY GENERATOR

SCHEMATIC

	DRAW-OUT DEVICE
	BREAKER
	FUSE
	THERMAL OVERLOAD
	CONTROL TRANSFORMER
	GROUND
	BATTERY
	N.O. CONTACT
	N.C. CONTACT
	TIME DELAY CLOSE ON ENERGIZE
	TIME DELAY OPEN ON DE-ENERGIZE
	TIME DELAY CLOSE ON DE-ENERGIZE
	TIME DELAY OPEN ON ENERGIZE
	SINGLE POLE SINGLE THROW SWITCH
	SINGLE POLE DOUBLE THROW SWITCH
	LEVEL SWITCH (N.C.) OPENS ON RISING LEVEL
	LEVEL SWITCH (N.O.) CLOSES ON RISING LEVEL
	FLOW SWITCH (N.C.) OPENS ON FLOW
	FLOW SWITCH (N.O.) CLOSES ON FLOW
	PRESSURE SWITCH (N.C.) OPENS ON RISING PRESSURE
	PRESSURE SWITCH (N.O.) CLOSES ON RISING PRESSURE
	TEMPERATURE SWITCH (N.C.) OPENS ON RISING TEMPERATURE
	TEMPERATURE SWITCH (N.O.) CLOSES ON RISING TEMPERATURE
	VIBRATION SWITCH (N.C.)
	VIBRATION SWITCH (N.O.)
	LIMIT SWITCH (N.C.)
	LIMIT SWITCH (N.C. HELD OPEN)
	LIMIT SWITCH (N.O.)
	LIMIT SWITCH (N.O. HELD CLOSED)
	MOMENTARY PUSHBUTTON (N.C.)
	MOMENTARY PUSHBUTTON (N.O.)
	MUSHROOM HEAD
	NO CONNECTION
	CONNECTION
	CONTROL PANEL TERMINAL
	MCC TERMINAL
	FIELD TERMINAL
	SWITCH GEAR
	EQUIPMENT CONTROL PANEL
	FIELD JUNCTION BOX TERMINAL
	PANEL WIRING
	FIELD WIRING
	CONTROL RELAY 284 (TYP.) COIL
	MOTOR CONTROL RELAY (TYP.) COIL
	TIME - DELAY RELAY (TYP.) COIL
	PILOT LIGHT
	INDICATING LIGHT: A - AMBER G - GREEN B - BLUE R - RED C - CLEAR W - WHITE
	PUSH-TO-TEST PILOT LIGHT
	SOLENOID
	2 POSITION MAINTAINED SELECTOR SWITCH
	3 POSITION MAINTAINED SELECTOR SWITCH

 Certificate of Authorization Earth Tech Canada Inc. No. 730 Expiry: April 30, 2006	B.M. ELEV.	 Frederickson Cooper ARCHITECTS	 A Tech International Ltd. Company	ENGINEER'S SEAL	 THE CITY OF WINNIPEG WATER AND WASTE DEPARTMENT ENGINEERING DIVISION	CITY FILE NUMBER
	DESIGNED BY PS	CHECKED BY BM	ORIGINAL SIGNED BY	B.L. MOORE		SHEET OF
	DRAWN BY CPG	APPROVED BY AHL	2006/03/29	WATER TREATMENT PLANT GENERAL PLANT SERVICES MECHANICAL AND ELECTRICAL		CITY DRAWING NUMBER
	SCALE: NONE	RELEASED FOR CONSTRUCTION BY: R. SOROKOWSKI	CONSULTANT DRAWING NO. WM-E0010	ELECTRICAL SYMBOLS LEGEND		1-0601M-D-E0010-001-000
NO. REVISIONS	DATE BY	DATE 2005/07/28	DATE 2006/03/29			