

D SIZE 22" x 34" (569mm x 864mm)

PLOT: 15/04/09 11:41:05 AM

AECOM REVIEW DRFT CHK
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INSTRUMENT FUNCTIONAL DESIGNATIONS				
FIRST LETTER		SUCCEEDING LETTERS		
MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS	ALARM		
B	BURNER, COMBUSTION			
C	CONDUCTIVITY		CONTROL	CLOSE
D	DENSITY			DEVIATION
E	VOLTAGE	SENSOR, PRIMARY ELEMENT		
F	FLOW, FLOW RATE			FAILURE/FAULT
G		GLASS, GAUGE VIEWING DEVICE		
H	HAND (MANUAL)			HIGH
I	CURRENT	INDICATE		
J	POWER	SCAN		
K	TIME, SCHEDULE		CONTROL STATION	
L	LEVEL	LIGHT		LOW
M	MOISTURE, HUMIDITY			MIDDLE, INTERMEDIATE
N				
O	TORQUE	ORIFICE, RESTRICTION		OPEN
P	PRESSURE	POINT (TEST CONNECTION)		
Q	QUANTITY	INTEGRATE, TOTALIZE		
R	RADIATION	RECORD		RUN
S	SPEED, FREQUENCY		SWITCH	STOP
T	TEMPERATURE		TRANSMITTER	
U	MULTIVARIABLE	MULTIFUNCTION	MULTIFUNCTION	
V	UNCLASSIFIED		VALVE, DAMPER, LOUVER	
W	WEIGHT, FORCE	WELL, PROBE		
X	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE OR PRESENCE	X AXIS	AUXILIARY DEVICE	
Z	POSITION, DIMENSION	Z AXIS, SAFETY INSTRUMENTED SYSTEM	DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

NOTES FOR INSTRUMENT AND DEVICE IDENTIFICATION TABLE:

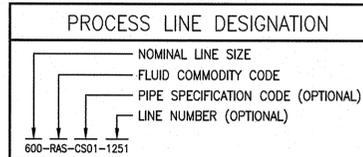
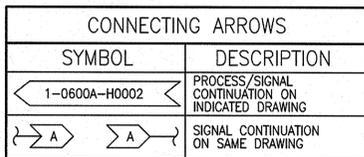
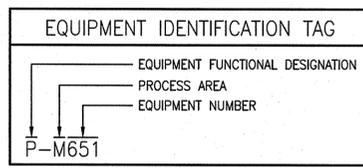
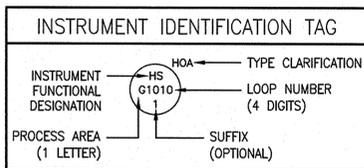
- THE LETTER X IS TO BE DEFINED AT THE TIME OF USE, AND MAY BE USED FOR MULTIPLE DEFINITIONS WHERE NO OTHER LETTER IS APPLICABLE.

INSTRUMENT TYPE CLARIFICATION			
IDENTIFIER	DEFINITION	IDENTIFIER	DEFINITION
(N)	N MULTIPLE INSTRUMENTS	L/O	LOCAL/OFF
AA	AUDIBLE ALARM	LOR	LOCAL/OFF/REMOTE
ACC	ACCELERATION	LOS	LOCK OFF STOP
A/M	AUTO/MANUAL	L/R	LOCAL/REMOTE
C/H	COMPUTER/HAND	LSR	LASER
C/L	COMPUTER/LOCAL	MAG	MAGNETIC
CLS	CLOSE	O/A	OFF/AUTO
C/D	COMPUTER/OFF	O/C	OPEN/CLOSE
COB	COMPUTER/OFF/BYPASS	O/M	OFF/MAINTENANCE
COH	COMPUTER/OFF/HAND	O/O	OFF/ON
COT	COMPUTER/OFF/TIME	OPN	OPEN
DCS	DISTRIBUTED CONTROL SYSTEM	PROX	PROXIMITY
DP	DIFFERENTIAL PRESSURE	RAD	RADAR
DS	DECREASE SPEED	RST	RESET
E/R	EXTEND/RETRACT	RTD	RESISTIVE TEMPERATURE DEVICE
ESTOP	EMERGENCY STOP	SEL	SELECTOR
FOR	FORWARD/OFF/REVERSE	S/F	SLOW/FAST
H/A	HAND/AUTO	SOF	SLOW/OFF/FAST
HOA	HAND/OFF/AUTO	SOL	SOLENOID
HOR	HAND/OFF/REMOTE	S/S	START/STOP
I/D	INCREASE/DECREASE	S/W	SUMMER/WINTER
INT/EXT	INTERNAL/EXTERNAL	TC	THERMOCOUPLE
IS	INCREASE SPEED	US	ULTRASONIC
LCP	LOCAL CONTROL PANEL	VEL	VELOCITY
LD	LOCKABLE DISCONNECT	ΔT	THERMAL DISPERSION
LJB	LOCAL JUNCTION BOX		

COMMON INSTRUMENT FIELD DEVICE IDENTIFIERS			
IDENTIFIER	DEFINITION	IDENTIFIER	DEFINITION
AA	ANALYSIS ALARM	LSH	LEVEL SWITCH HIGH
AAH	ANALYSIS ALARM - HIGH	LSHL	LEVEL SWITCH HIGH/LOW
AAHH	ANALYSIS ALARM - HIGH-HIGH	LSHH	LEVEL SWITCH HIGH/HIGH
AE	ANALYSIS ELEMENT	LSLL	LEVEL SWITCH LOW/LOW
AIT	ANALYSIS INDICATING TRANSMITTER (ANALYTIC INST.)	LT	LEVEL TRANSMITTER
AK	ANALYSIS (AMPLER) CONTROL STATION	LV	LEVEL VALVE
ASH	ANALYSIS SWITCH - HIGH	LY	LEVEL RELAY (1/1 CONVERTER)
ASHH	ANALYSIS SWITCH - HIGH-HIGH	ME	MOISTURE SENSOR
AT	ANALYSIS TRANSMITTER (ANALYTIC INST.)	MT	MOISTURE TRANSMITTER
BK	BURNER CONTROL STATION	OSH	TORQUE SWITCH HIGH
BCS	BURNER SWITCH FLAME	PCV	PRESSURE CONTROL VALVE
DE	DENSITY ELEMENT	PE	PRESSURE ELEMENT
DR	DENSITY RECORDER	PG	PRESSURE GAUGE
DT	DENSITY TRANSMITTER	PI	PRESSURE INDICATOR
DX	DENSITY SOURCE (X = SOURCE)	PIC	PRESSURE INDICATING CONTROLLER
EE	VOLTAGE ELEMENT/TRANSFORMER	PIT	PRESSURE INDICATING TRANSMITTER
EG	VOLTAGE VIEWING DEVICE (CAPACITOR VOLTAGE INDICATOR)	PR	PRESSURE RECORDER
EI	VOLTAGE INDICATOR	PS	PRESSURE SWITCH
EL	VOLTAGE LIGHT	PSH	PRESSURE SWITCH HIGH
ET	VOLTAGE TRANSMITTER	PSHH	PRESSURE SWITCH HIGH (2ND STAGE)
FAL	FLOW ALARM LOW	PSL	PRESSURE SWITCH LOW
FE	FLOW ELEMENT	PSV	PRESSURE SAFETY VALVE (RELIEF)
FI	FLOW INDICATOR	PT	PRESSURE TRANSMITTER
FIC	FLOW INDICATING CONTROLLER	PY	PRESSURE RELAY (1/1 CONVERTER)
FIT	FLOW INDICATING TRANSMITTER	SI	SPEED INDICATOR
FQI	FLOW TOTALIZING INDICATOR	SK	SPEED CONTROL STATION
FQY	FLOW TOTALIZING/INTEGRATING RELAY	ST	SPEED/VELOCITY TRANSMITTER
FR	FLOW RECORDER	TE	TEMPERATURE ELEMENT
FT	FLOW TRANSMITTER	TG	TEMPERATURE GAUGE
FV	FLOW VALVE	TI	TEMPERATURE INDICATOR
FZ	FLOW METER ULTRASONIC GENERATOR	TIC	TEMPERATURE INDICATING CONTROLLER
GE	GAS ELEMENT	TIT	TEMPERATURE INDICATING TRANSMITTER
GS	GAS SWITCH MODULE	TR	TEMPERATURE RECORDER
HK	HAND CONTROL STATION	TS	TEMPERATURE SWITCH
HS	HAND SWITCH	TSH	TEMPERATURE SWITCH LIGHT
HSR	HAND SWITCH - START/RUN	TSL	TEMPERATURE SWITCH LOW
HSS	HAND SWITCH - STOP	TT	TEMPERATURE TRANSMITTER
HV	HAND VALVE	TV	TEMPERATURE VALVE
IS	CURRENT SWITCH	TW	TEMPERATURE THERMOWELL
IE	CURRENT ELEMENT/TRANSFORMER	TY	TEMPERATURE RELAY (SOLENOID VALVE OR M/P)
II	CURRENT INDICATOR	VE	VIBRATION ELEMENT
IY	CURRENT RELAY	VI	VIBRATION INDICATOR
JIT	POWER INDICATING TRANSMITTER	VIT	VIBRATION INDICATING TRANSMITTER
KY	TIMER RELAY	VT	VIBRATION TRANSMITTER
LCV	LEVEL CONTROL VALVE	XV	ON/OFF VALVE (TYPICAL)
LE	LEVEL ELEMENT	YL	STATE INDICATOR
LI	LEVEL INDICATOR	ZI	POSITION INDICATOR
LIC	LEVEL INDICATING CONTROLLER	ZS	POSITION SWITCH
LIT	LEVEL INDICATING TRANSMITTER	ZSC	POSITION SWITCH CLOSED (LIMIT SWITCH)
LR	LEVEL RECORDER	ZSO	POSITION SWITCH OPEN (LIMIT SWITCH)
LSL	LEVEL SWITCH LOW	ZT	POSITION TRANSMITTER

NOTES FOR INSTRUMENT FIELD DEVICE IDENTIFIERS:

- THE LAST IDENTIFIER LETTER IS IN SOME CASES OPTIONAL (EG. FSL)
- THIS TABLE IS DERIVED FROM THE INSTRUMENT & DEVICE IDENTIFICATION TABLE, AND IS NOT EXHAUSTIVE.



INSTRUMENT SYMBOLS			
	DISCRETE INSTRUMENTS FIELD MOUNTED		OTHER COMPUTER FUNCTION
	DISCRETE INSTRUMENTS PRIMARY LOCATION (CONTROL ROOM) FRONT PANEL MOUNTED		SUBCOMPONENT OR DISCRETE INSTRUMENTS FIELD MOUNTED NO LOOP IDENTIFIER
	DISCRETE INSTRUMENTS PRIMARY LOCATION (CONTROL ROOM) REAR PANEL MOUNTED		PILOT LIGHT (FIELD)
	DISCRETE INSTRUMENTS SECONDARY LOCATION (NORMALLY ACCESSIBLE) FRONT PANEL MOUNTED		PILOT LIGHT (CONTROL ROOM) W = WHITE, R = RED, G = GREEN, A = AMBER, B = BLUE, Y = YELLOW
	DISCRETE INSTRUMENTS SECONDARY LOCATION (NORMALLY ACCESSIBLE) REAR PANEL MOUNTED		PILOT LIGHT (FIELD PANEL)
	PRIMARY CONTROL SYSTEM FUNCTION		PILOT LIGHT (FIELD PANEL, REAR MOUNTED)
	SECONDARY OR SAFETY CONTROL SYSTEM FUNCTION PRIMARY LOCATION DATA ACCESSIBLE TO OPERATOR		PROCESS VARIABLE ALARMS
	SECONDARY OR SAFETY CONTROL SYSTEM FUNCTION AUXILIARY LOCATION DATA NOT ACCESSIBLE TO OPERATOR		INTERLOCK
	SECONDARY OR SAFETY CONTROL SYSTEM FUNCTION AUXILIARY LOCATION DATA NOT ACCESSIBLE TO OPERATOR		RESET

PID STANDARDS

- DRAWINGS UTILIZE CITY OF WINNIPEG STANDARDS FOR BORDER AND TITLE BLOCK. ALL DRAWINGS ARE PRODUCED ON AUTOCAD (LATEST REV R2010 OR LATER).
- ALL UNITS ARE IN METRIC, EXCEPT AS NOTED OTHERWISE. ALL DIMENSIONS SHOWN ARE IN MILLIMETERS (mm).
- DRAWING CONTENT GENERALLY CONFORMS WITH ISA-5.1 STANDARD.
- PID'S INDICATE MAJOR PROCESS PIPING AND EQUIPMENT AND ASSOCIATED LOCAL INSTRUMENTATION, SCADA PLC AND OTHER PROCESS I/O.
- EQUIPMENT INCLUDING VESSELS, DRUMS, EXCHANGERS, HEATERS, PUMPS, COMPRESSORS, ETC. ARE ARRANGED IN SEQUENCE WITH PRINCIPLE FUNCTIONS AND FLOWS.
- ALL MAJOR EQUIPMENT INCLUDING PUMPS, COMPRESSORS, TANKS, ETC. ARE LABELED AS TO FUNCTION WITH DESIGN SIZES AND RATINGS.
- ALL PROCESS LINES ARE LABELED ACCORDING TO FUNCTION AND SIZE UTILIZING SYSTEM CODES DEFINED HEREIN.
- EACH SYSTEM INTERCONNECTION POINT BETWEEN DRAWINGS IS LABELED WITH A SOURCE DRAWING NUMBER OR DESTINATION DRAWING NUMBER. ARROWS ON PROCESS PIPING INDICATE DIRECTION OF FLOW BETWEEN DRAWINGS.

EQUIPMENT FUNCTIONAL DESIGNATIONS MECHANICAL AND PROCESS EQUIPMENT		
IDENTIFIER	DEFINITION	NOTES
CV	CHECK VALVE	
FEX	FIRE EXTINGUISHER	
FIL	FILTER	
HV	HAND/MANUAL VALVE	
P	PUMP	
STR	STRAINER	
TK	TANK	
U	MISCELLANEOUS	

PROCESS AREA IDENTIFIER	
IDENTIFIER	DEFINITION
A	GENERAL OR PROCESS AREA IS NOT APPLICABLE
G	GATEHOUSE
P	PUMPHOUSE (INCLUDING ELECTRICAL AND CONTROL ROOM)

LOCATION APPROVED UNDERGROUND STRUCTURES

NOTE: LOCATION OF UNDERGROUND STRUCTURES AS SHOWN ARE BASED ON THE BEST INFORMATION AVAILABLE. BUT NO GUARANTEE IS GIVEN THAT ALL EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.



DESIGNED BY	CC	CHECKED BY	GD
DRAWN BY	DRL	APPROVED BY	
HOR. SCALE	NTS	RELEASED FOR CONSTRUCTION	
VERT. SCALE		DATE	



THE CITY OF WINNIPEG WATER AND WASTE DEPARTMENT

SHOAL LAKE INTAKE FUEL STORAGE AND DELIVERY SYSTEM REHABILITATION PROCESS

PROCESS & INSTRUMENTATION DIAGRAM LEGEND & DETAILS

SHEET 6 OF 23
CITY DRAWING NUMBER 1-0600A-P0005-001 0

BID OPPORTUNITY NO. 231-2015