INSTRUMENT IDENTIFICATION LETTERS (NOTE 2)

	FIRST LETTER		SUCCEEDING LETTERS		
	MEASURED OR PROCESS VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM		
B	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C	USER'S CHOICE			CONTROL	
D	DENSITY	DIFFERENTIAL			
E	VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F	FLOW RATE	RATIO (FRACTION)			
G	USER'S CHOICE		GLASS, VIEWING DEVICE		
H	HAND				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L	LEVEL		LIGHT		LOW
M	MOISTURE	MOMENTARY			MIDDLE, INTERMEDIATE
N	USER'S CHOICE		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
O	USER'S CHOICE		ORIFICE,RESTRICTION		
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q	QUANTITY	INTEGRATE, TOTALIZE			
R	RADIATION		RECORD		
S	SPEED, FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, OR LOUVER	
W	WEIGHT, FORCE		WELL		
X	UNCLASSIFIED	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT, STATE, PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

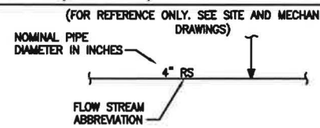
GENERAL INSTRUMENT OR FUNCTION SYMBOLS (NOTE 2)

	FIELD MOUNTED	PRIMARY LOCATION, ACCESSIBLE TO OPERATOR	AUXILIARY LOCATION, ACCESSIBLE TO OPERATOR	NORMALLY INACCESSIBLE OR BEHIND THE PANEL
DISCRETE INSTRUMENTS				
SHARED DISPLAY, SHARED CONTROL				
COMPUTER FUNCTION				
PROGRAMMABLE LOGIC CONTROL				

A INSTRUMENT IDENTIFICATION LETTERS (SEE TABLE ABOVE)
B LOOP NUMBER
C MODIFIER
D SEQUENCE
E USER

PIPE SIZE, SERVICE, AND MATERIAL IDENTIFICATION

(FOR REFERENCE ONLY. SEE SITE AND MECHANICAL DRAWINGS)



LINE SYMBOLS

LINE	DESCRIPTION
	MAIN PROCESS FLOW (WITH TYPICAL DIRECTION OF FLOW SHOWN)
	MAIN (EXISTING)
	SUBSIDIARY PROCESS FLOW
	SUBSIDIARY (EXISTING)
	INSTRUMENT SUPPLY, PROCESS TAPS, NON PROCESS FLOW
	PNEUMATIC SIGNAL (ANALOG)
	ELECTRIC SIGNAL (ANALOG)
	PNEUMATIC SIGNAL (DISCRETE)
	ELECTRIC SIGNAL (DISCRETE)
	CAPILLARY TUBE OR FILLED SYSTEM
	ELECTROMAGNETIC OR SONIC SIGNAL (GUIDED)
	ELECTROMAGNETIC OR SONIC SIGNAL (UNGUIDED)
	SOFTWARE OR DATA LINK
	MECHANICAL LINK
	HYDRAULIC
120V	ELECTRIC POWER SUPPLY 120VAC, 60HZ U.N.O.
XX	SERVICE AIR OR INSTRUMENT AIR SUPPLY
	STRUCTURES AND SPECIAL EQUIPMENT

MECHANICAL		ELECTRICAL
OR	CONNECTED	
	NOT CONNECTED	

FLOW ELEMENTS

	ORIFICE PLATE
	SINGLE PORT PITOT TUBE OR PITOT-VENTURI TUBE
	AVERAGING PITOT TUBE
	FLUME
	WEIR
	TURBINE OR PROPELLER-TYPE PRIMARY ELEMENT
	ROTAMETER
	POSITIVE DISPLACEMENT TYPE FLOW TOTALIZING INDICATOR
	VORTEX SENSOR
	TARGET TYPE SENSOR
	FLOW NOZZLE
M	MAGNETIC FLOWMETER
	SONIC FLOWMETER
D	DENSITY METER
	VENTURI

VALVES

GATE VALVE	BUTTERFLY VALVE	SELF ACTUATED REGULATING VALVE W/ EXTERNAL TAP
3 WAY VALVE	DIAPHRAM VALVE	COMBINATION AIR/VAC RELEASE VALVE
BALL VALVE	SWING CHECK VALVE	PRESSURE SAFETY VALVE
3 WAY BALL VALVE	WAFER CHECK VALVE	MUD VALVE
GLOBE VALVE	BALL CHECK VALVE	AIR RELEASE VALVE
3 WAY GLOBE VALVE	PINCH VALVE	VACUUM RELEASE VALVE
PLUG VALVE	REGULATED SIDE	
ECCENTRIC PLUG VALVE	SELF ACTUATED REGULATING VALVE	
NEEDLE VALVE		

VALVE IDENTIFIERS

A = TAG
B = SIZE
C = NORMAL STATE

VALVE OPERATORS

	HAND
M	MOTORIZED
	CYLINDER OPERATOR
S	SOLENOID
	DIAPHRAGM

INSTRUMENT & MECHANICAL EQUIPMENT SYMBOLS & MISCELLANEOUS

CENTRIFUGAL PUMP	INTAKE SCREEN/FILTER	IN-LINE PRESSURE SENSOR
SUBMERSIBLE PUMP - RAIL MOUNTED	EXPANSION JOINT, FLEXIBLE SPOOL	PUMP SEAL OR VALVE WATER SUPPLY, PLANT WATER
VERTICAL PUMP	HOSE	FLANGE
METERING PUMP	INTERFACE CONTROL (E) = EXISTING (N) = NEW	UNION
PROGRESSING CAVITY PUMP	MIXER	Y STRAINER
SUBMERSIBLE PUMP	SLUICE GATE	FLOW STRAIGHTENING VANE
ROTARY PUMP	FLAP GATE	HOSE CONNECTION
BLOWER	SLIDE GATE	CAP OR PLUG
CALIBRATION CHAMBER	STOP GATE	BLIND FLANGE
SILENCER	INJECTOR	PURGE
MOTOR	FILTER OR SEPARATOR	DRAIN
SUBMERSIBLE MIXER	DRIP TRAP	THERMOWELL
	HOSE BIBB CONNECTION	AIR COMPRESSOR
	DIAPHRAGM SEAL	PULSATION DAMPENER
	RUPTURE DISK, PRESSURE	REDUCER
	RUPTURE DISK, VACUUM	STATIC MIXER
		HEAT TRACE
		INTERLOCK. NUMBER IS THE NOTE IDENTIFIER (NOTE 2)
		CONNECTION TO PROCESS WITHIN PROJECT (X DWG # DESCRIPTION)
		SYSTEM CONNECTION OUTSIDE PROJECT

ABBREVIATIONS

AAS - ALKALINITY ADJUSTMENT SOLUTION
AC - ACID
AL - ALUM
AMP - AMPERE
AS - AIR SUPPLY
BW - BELT WASH WATER
BWR - BELT WASH WATER RECYCLE
CD - CONDENSATE
CDR - CONDENSER RETURN
CDS - CONDENSER SUPPLY
CP - CONTROL PANEL
CWR - CHILLED WATER RETURN
CWS - CHILLED WATER SUPPLY
D - GRAVITY DRAIN
DE - DISINFECTED EFFLUENT
DIS - DISTILLED WATER
DS - DIGESTED SLUDGE
ECR - EFFLUENT COOLING RETURN
ECS - EFFLUENT COOLING SUPPLY
ED - EQUIPMENT DRAIN
EE - ENGINE EXHAUST
EFF - EFFLUENT
ETM - ELAPSED TIME METER
ES - ELECTRICAL SUPPLY
F - FIRE SPRINKLER
FC - FAIL CLOSED
FD - FLOOR DRAIN
FE - FINAL EFFLUENT
FIL - FILTRATE
FO - FAIL OPEN
FOR - FUEL OIL RETURN
FOS - FUEL OIL SUPPLY
FV - FUEL OIL, GASOLINE OR OIL VENT
GR - GRIT
GRC - GAS RECIRCULATION
HOA - HAND-OFF-AUTO
HOH - HIGH PRESSURE HYDRAULIC OIL
HOL - LOW PREDDURE HYDRAULIC OIL
HOR - HAND-OFF-REMOTE
HRR - HEAT RESERVOIR RETURN
HRS - HEAT RESERVOIR SUPPLY
HWS - DOMESTIC HOT WATER SUPPLY
IA - INSTRUMENT AIR
I/O - ON/OFF
JOR - JOG-OFF-REMOTE
LCP - LOCAL CONTROL PANEL
LOR - LOCAL-OFF-REMOTE
LSR - LOWER-STOP-RAISE
ML - MIXED LIQUOR
MUD - MUD VALVE
MV - MOTORIZED VALVE
NaOH - SODIUM HYDROXIDE
NC - NORMALLY CLOSED
NG - NATURAL GAS
NO - NORMALLY OPEN
OA - ODORUS AIR
OF - OVERFLOW
OO - ON-OFF
OSC - OPEN-STOP-CLOSE
PA - PROCESS AIR
PD - PUMPED DRAINAGE
PLC - PROGRAMMABLE LOGIC CONTROLLER
POL - POLYMER SOLUTION
PRS - PROCESS SAMPLING
PSV - PRESSURE SAFETY VALVE
PV - PNEUMATIC VALVE
PVC - POLYVINYL CHLORIDE
RP - RAW POLYMER
RS - RAW SEWAGE
SA - SERVICE AIR
SC - SCUM
SD - SANITARY DRAIN
SE - SECONDARY EFFFLUENT
SG - SLUICE GATE
SLG - SLIDE GATE
SN - SUPERNANANT
SRS - SCREENED/DEGRITTED RAW SEWAGE
STD - STORM DRAIN
STG - STOP GATE
SV - SOLENOID VALVE
TD - TANK DRAIN
THS - THICKENED SLUDGE
TO - THICKENER OVERFLOW
TURB - TURBIDITY
UNO - UNLESS NOTED OTHERWISE
V - VENT
VAC - VACUUM
VFD - VARIABLE FREQUENCY DRIVE
W1 - POTABLE
WN - NON-POTABLE
WAS - WASTE ACTIVATED SLUDGE
WML - WASTE MIXED LIQUOR

NOTES:

1. THIS IS A GENERALIZED LEGEND SHEET. THIS PROJECT MAY NOT USE ALL INFORMATION SHOWN.
2. INSTRUMENT SYMBOLS AND IDENTIFICATION ARE BASED ON INSTRUMENT SOCIETY OF AMERICA STANDARD ANSI/ISA 5.1-1984 (R 1992)

Approved: March 16, 2018
City Engineer Date
SANITARY SEWER STANDARD DETAIL

City of BONNEY Lake

Dwg No: SS17

SCHEMATIC LEGEND AND ABBREVIATIONS