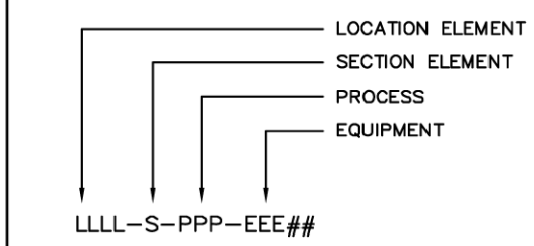
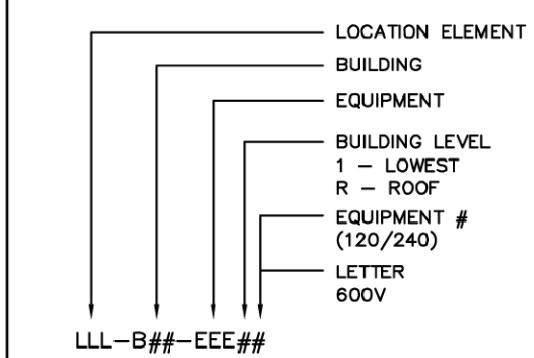
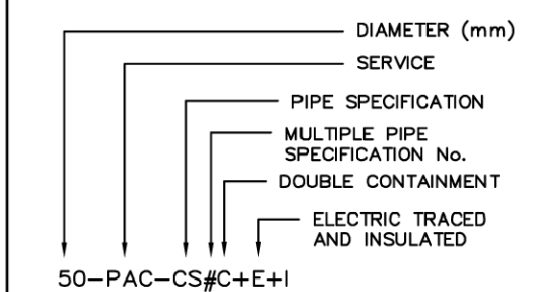


## PROCESS LEGEND – MISCELLANEOUS

EQUIPMENT  
FRAGMENT No. DESIGNATION

NOTE:  
EQUIPMENT No.'s RESTART AT 1 FOR EACH SECTION.

NON PROCESS RELATED  
EQUIPMENT  
(ie. PANEL, PUMP, ETC.)PIPING  
LINE DESIGNATION

## PIPE SIZE CONVERSION

IMPERIAL(in)	METRIC(mm)	IMPERIAL(in)	METRIC(mm)
1/8	3	14	380
1/4	6	15	380
3/8	10	16	400
1/2	12	18	450
3/4	20	20	500
1	25	24	600
1-1/4	32	30	750
1-1/2	40	36	900
2	50	42	1050
2-1/2	65	48	1200
3	75	54	1350
4	100	60	1500
5	125	66	1650
6	150	72	1800
8	200	78	2000
10	250	84	2100
12	300		

NOTE:  
-PIPE SIZES ARE NOMINAL  
-PIPE SIZES FROM 2" TO 60" CONVERSION BASED ON CSA STANDARD Z245.1  
-PIPE SIZES FROM 2" AND SMALLER CONVERSION BASED ON EUROPEAN ISO STANDARD  
-OTHER PIPE SIZES ARE CONVERSIONS ROUNDED TO THE NEAREST ARBITRARILY ASSIGNED WHOLE NUMBER

PIPE MATERIAL  
ABBREVIATIONS

SYMBOL	MATERIAL
ABS	ACRYLONITRILE BUTADIENE STYRENE
AL	ALUMINUM
AC	ASBESTOS CEMENT
CONC	CONCRETE GRAVITY
CPP	CONCRETE PRESSURE
CS#	CARBON STEEL
CU#	COPPER
DI	DUCTILE IRON
FRP	FIBERGLASS REINFORCED PLASTIC
GALV	GALVANIZED STEEL
RR	REINFORCED RUBBER
PE	POLYETHYLENE
PPL	POLYPROPYLENE LINED CARBON STL.
PVC#	POLYVINYL CHLORIDE
SS#	STAINLESS STEEL
TUB#	TUBING

# FOLLOWING SYMBOL INDICATES PIPING WITH MULTIPLE MATERIAL SPECIFICATIONS  
EXAMPLE : SS1 (SCH. 40 316SS)  
SS2 (SCH. 80 316SS)

## PROCESS LEGEND – VALVE SYMBOLS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	GATE		GLOBE
	THREE-WAY		ANGLE
	BALL		PLUG
	BUTTERFLY		STOP COCK
	KNIFE GATE		NEEDLE
	DIAPHRAGM		PINCH
	MUD		SQUARE HEAD COCK
	SWING CHECK		SPRING CHECK
	WEIGHTED CHECK		ELECTRIC CHECK
	DOUBLE DOOR CHECK		BALL CHECK
	FLAP		FOOT VALVE/STRAINER
	AIR VACUUM		AIR & VACUUM
	AIR RELEASE		SAFETY RELIEF
	PRESSURE REDUCING (SELF CONTAINED)		PRESSURE REDUCING
	BACK PRESSURE (SELF CONTAINED)		BACK PRESSURE
	STOP GATE		ADJUSTABLE WEIR GATE
	SLIDE GATE		STOP LOGS
	ROTARY		YARD HYDRANT
	DAMPER		

1. DIRECTION OF FLOW FOR THE ABOVE SYMBOLS IS FROM LEFT TO RIGHT.
2. STATUS MAY BE SHOWN- N.O.=NORMALLY OPEN, N.C.=NORMALLY CLOSED.
3. (VKG\*) VKG INDICATES VALVE TYPE AND \* INDICATES SPECIFICATION No..
4. ADD ACTUATORS TO VALVES FROM VALVE ACTUATOR TABLE.

## PROCESS LEGEND – EQUIPMENT

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	CENTRIFUGAL PUMP		ROTARY PUMP
	METERING PUMP		DUPLEX METERING PUMP
	VERTICAL TURBINE PUMP		CIRCULATING PUMP
	SUBMERSIBLE PUMP		PROGRESSIVE CAVITY PUMP
	SUMP PUMP		RECIPROCATING PUMP
	RECIPROCATING COMPRESSOR		BLOWER (LOBE TYPE)
	COMBUSTION ENGINE		GENERATOR
	CENTRIFUGAL COMPRESSOR		BLOWER (CENTRIFUGAL)
	VACUUM PUMP		CENTRIFUGE
	INLINE MIXER		TRAVELLING WATER SCREEN
	MIXER		HEAT EXCHANGER
	TANK (OPEN)		PRESSURE TANK OR ACCUMULATOR
	TANK (CLOSED)		GAS CYLINDER (INDICATE CONTENTS)
	SWAB LAUNCHER		SWAB CATCHER

(M) – DENOTES CONSTANT SPEED DRIVE

(VS) \* – DENOTES VARIABLE SPEED DRIVE (\* M FOR MECHANICAL, E FOR ELECTRICAL)  
CONSTANT SPEED DRIVES ARE USED FOR ILLUSTRATION PURPOSES ONLY.

## PROCESS LEGEND – P &amp; ID SYMBOL DESIGNATIONS

SYMBOL	DESCRIPTION
	PRIMARY FLOW LINE
	SECONDARY FLOW LINE
	TERTIARY LINE
	EXISTING PRIMARY FLOW LINE
	EXISTING SECONDARY FLOW LINE
	EXISTING TERTIARY LINE
	FUTURE LINE
	DIRECTION OF FLOW
	DIRECTION OF SLOPE
	CONNECTION LINE
	LINE CROSSING OVER (BREAK VERTICAL LINE)
	CHANNEL
	LINE CONTINUATION-TO ANOTHER DRAWING
	LINE CONTINUATION-FROM ANOTHER DRAWING
	LINE SPECIFICATION CHANGE
	PNEUMATIC LINE
	ELECTRICAL SIGNAL
	HYDRAULIC LINE
	INSULATED LINE
	INSULATED LINE WITH ELECTRIC TRACING
	FLEXIBLE LINE

## PROCESS LEGEND – INSTRUMENTATION

INSTRUMENTATION DESIGNATION – TYPICAL LETTER COMBINATION													
FIRST-LETTERS	INITIATING OR MEASURED VARIABLE	CONTROLLERS INDICATING	BLIND	READOUT DEVICES INDICATING	SWITCHES AND ALARM DEVICES*	COMB	INDICATING	BLIND	PRIMARY ELEMENT	VIEWING DEVICE GLASS	SAFETY DEVICE	VALVE	
A ***	ANALYSIS	AIC	AC	AI	ASH	ASL	ASHL	AIT	AT	AE			
D	DENSITY	DIC	DC	DI	DSH	DSL	DSLH	DIT	DT	DE			
F	FLOW RATE	FIC	FC	FI	FSH	FSL	FSHL	FIT	FT	FE			FCV
H	HAND ON/OFF	HIC	HC										HV
I	CURRENT	IIC		II	ISH	ISL	ISHL	IT	IT	IE			LCV
L	LEVEL	LIC	LC	LI	LSH	LSL	LSHL	LIT	LT	LE			LV
M	MOTORIZED												MV
P	PRESSURE/ VACUUM	PIC	PC	PI	PSH	PSL	PSHL	PIT	PT	PE			PCV
PD	PRESSURE, DIFFERENTIAL	PDIC	PDC	PDI	PDSH	PDSL		PDIT	PDT	PE			PCV
S	SPEED/ FREQUENCY	SIC	SC	SI	SSH	SSL	SSHL	SIT	ST	SE			SCV
T	TEMPERATURE	TIC	TC	TI	TSH	TSL	TSHL	TIT	TT	TE			TCV
V	VIBRATION	VIC	VC	VI	VSH	VSL	VSHL	VIT	VT	VE			
W	WEIGHT/FORCE	WIC	WC	WI	WSH	WSL	WSHL	WIT	WT	WE			WCV
Y	STATUS	YIC	YC	YI	YSH	YSL		YIT	YT	YE			
Z	POSITION/ DIMENSION	ZIC	ZC	ZI	ZSH	ZSL	ZSHL	ZIT	ZT	ZE			ZCV

WATER TREATMENT		WASTEWATER		GENERAL INSTRUMENTATION	
***	DESCRIPTION	***	DESCRIPTION	SYMBOL	DESCRIPTION
pH	pH	pH	pH		LOGIC GATE – AND (INTERLOCK IS EFFECTIVE ONLY IF ALL INPUTS ARE ACTIVE)
CLR	CHLORINE RESIDUAL	CLR	CHLORINE RESIDUAL		LOGIC GATE – OR (INTERLOCK IS EFFECTIVE IF ONE OR MORE INPUTS ARE ACTIVE)
CLC	CHLORINE LEAK	CLC	CHLORINE LEAK		LOGIC GATE – OR (INTERLOCK IS EFFECTIVE IF ONE OR MORE INPUTS ARE ACTIVE)
Tu	TURBIDITY	CB	COMBUSTION GAS		COMPLEX OR UNDEFINED INTERLOCK
OZR	OZONE RESIDUAL	H2S	HYDROGEN SULPHIDE		PANEL NUMBER n
OZL	OZONE LEAK	CO	CARBON MONOXIDE		MOTOR CONTROL CENTRE NUMBER n
SCD	STREAMING CURRENT DETECTOR	CH4	METHANE		PROGRAMMABLE CONTROLLER I/O RACK NUMBER n
ALU	ALUMINUM	DO	DISSOLVED OXYGEN		SUPPLIED AND INSTALLED BY OTHER DIVISIONS
COL	COLOUR	ALU	ALUMINUM		RESET FOR LATCH TYPE ACTUATOR
F	FLUORIDE	Tu	TURBIDITY		PURGE OR FLUSHING DEVICE
CON	CONDUCTIVITY	SS	SUSPENDED SOLIDS		
SBI	SLUDGE BLANKET INTERFACE				

NOTE:  
THIS TABLE IS NOT ALL-INCLUSIVE.  
\*A. ALARM, THE ANNUNCIATING DEVICE, MAY BE USED IN THE SAME FASHION AS S, SWITCH, THE ACTUATING DEVICE.

\*\*THE LETTERS H AND L MAY BE OMITTED IN THE UNDEFINED CASE.

## PROCESS LEGEND – PRIMARY FLOW ELEMENTS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	WEIR		SNAP-ON FLOW METER
	INSERT VENTURI		SONIC FLOW METER
	PITOT TUBE (SINGLE)		MAGNETIC FLOW METER
	PITOT TUBE (AVERAGING)		ORIFICE PLATE
	FLUME		FLOW SIGHT GLASS
	TURBINE / PROPELLER		ROTAMETER
	POSITIVE DISPLACEMENT		STATIC INLINE MIXER
	GUAGE INDICATOR		

## PROCESS LEGEND – MISCELLANEOUS SYMBOLS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SAMPLE POINT (12mm)		UNION
	DRAIN POINT (MIN. 12mm)		HOSE CONNECTION
	IN LINE STRAINER		EYEWASH
	DRAIN / OVERFLOW		

## Conditions of Use

Verify elevations and/or dimensions on drawing prior to use.  
Report any discrepancies to Dillon Consulting Limited.

Do not scale dimensions from drawing.

Do not modify drawing, re-use it, or use it for purposes other than those intended at the time of its preparation without prior written permission from Dillon Consulting Limited.

THE ASSOCIATION OF  
PROFESSIONAL ENGINEERS,  
GEOLOGISTS AND GEOPHYSICISTS  
OF THE NORTHWEST TERRITORIES  
**PERMIT NUMBER**  
77010710  
DILLON CONSULTING  
LIMITED



No.	ISSUED FOR	DATE	BY
3	ISSUED FOR TENDER	06/06/08	GS
2	ISSUED FOR 100% CLIENT REVIEW	04/30/08	GS
1	ISSUED FOR CLIENT REVIEW	03/15/08	GS

DESIGN	REVIEWED BY
GS	GS
DRAWN	CHECKED BY
NTB	GS
DATE	JUNE 2008
SCALE	NTS

TALOYOAK WATER TREATMENT PLANT  
TALOYOAK, NUNAVUT

P & ID PROCESS LEGEND

PROJECT NO.  
07-8107-2000

SHEET NO.

301