EQUIPMENT IDENTIFIERS

IDENTIFIER	DEFINITION
AB	AIR BLOWER
AC	AIR COMPRESSOR
ACU	AIR CONDITIONING UNIT
AD	AIR DRYER
AEF	AXIAL EXHAUST FAN
AF	AERATION FAN (EXISTING OR NEW)
AHU	AIR HANDLING UNIT
AP	ANALYSIS/SAMPLE PUMP
BD	BACK DRIVE
BF	BOILER FAN (EXISTING OR NEW)
BFP	BACKFLOW PREVENTER
BP	BOILER PUMP (EXISTING OR NEW)
CA	CAKE AGITATOR
CAP	CAKE PUMP
CC	COOLING COIL
CE	CENTRIFUGE
CFP	CHEMICAL FEED PUMP
CM	CLARIFIER MECHANISM
CMP	COMPRESSOR
CON	CONVEYOR
CP	CIRCULATING PUMP
CR	CRANE OR HOIST
CU	CONDENSING UNIT
DC	DRAG CONVEYOR
DF	DIGESTER FAN (EXISTING OR NEW)
DP	DIGESTER PUMP (EXISTING OR NEW)
DR	DIGESTER COMPRESSOR (EXISTING OR NEW)
DU	DIGESTER UNIT HEATER (EXISTING OR NEW)
DWP	DEWATERING PUMP
EF	EXHAUST FAN
ET	EXPANSION TANK
EW	EYEWASH
EXH	HEATER EXCHANGER
F OR FN	FAN
FE	FILTER
FG	FLAP GATE
FIL	FILTER STRAINER
GB	GRIT BLOWER
GP	GLYCOL PUMP
HC	HEATING COIL
HRC	HEAT RECOVERY COIL
HRV	HEAT RECOVERY VENTILATOR
HWP	HOT WATER PUMP
HWT	HOT WATER TANK
M	MOTOR
MAU	MAKE-UP AIR UNIT
MXR	MIXER MOTOR
P	PUMP
PB	PURGE BLOWER
PF	PRIMARY FAN (EXISTING OR NEW)
PM	PRIMARY MOTOR
POD	POLYMER BLOWER
POF	POLYMER FEED PUMP
POM	POLYMER MIXER
PP	PRIMARY PUMP (EXISTING OR NEW)
PR	PRIMARY AIR COMPRESSOR
PSF	POLYMER SCREW FEEDER
PU	PRIMARY UNIT HEATER (EXISTING OR NEW)
R	COMPRESSOR (REFRIGERANT)
RAP	RAS PUMP
RH	RADIANT HEATER
S	SAMPLER
SF	SCREW FEEDER
SC	SLUDGE COLLECTOR (TRAVELING BRIDGE)
SCA	SLUDGE CAKE AUGER
SE	SAMPLER ELEMENT
SFP	SLUDGE FEED PUMP
SG	SLUICE GATE
SL	STOP LOG
SLP	PRIMARY SLUDGE PUMP
SMP	SUMP PUMP
SP	SCUM PUMP
SST	SLUDGE STORAGE TANK
ST	STRAINER
STP	SLUDGE TRANSFER PUMP
UPS	UNINTERRUPTIBLE POWER SUPPLY
UH	UNIT HEATER
VFD	VARIABLE FREQUENCY DRIVE
VP	VACUUM PUMP
WAP	WAS PUMP
WP	WELL PUMP
W	WEIR
WG	WEIR GATE

INSTRUMENT SIGNAL IDENTIFIERS

IDENTIFIER	DEFINITION	SIGNAL TYPE
AA	ANALYSIS ALARM (1ST STAGE)	DIGITAL INPUT
AF	ANALYSIS (SAMPLER) FAIL	DIGITAL INPUT
AH	ANALYSIS HIGH ALARM (1ST OR 2ND STAGE)	DIGITAL INPUT
AM	ANALYSIS (SAMPLER) ON/OFF STATUS	DIGITAL INPUT
AN	ANALYSIS (SAMPLER) START	DIGITAL OUTPUT
AT	ANALYSIS TRANSMIT (APPLIED TO ALL TYPES OF ANALYTICAL MEASUREMENTS)	ANALOG INPUT
AU	ANALYSIS MULTIFUNCTION (USED FOR COMMON ANALYTICAL POINT)	DIGITAL INPUT
BF	BURNER FLAME FAILURE	DIGITAL INPUT
BL	BOILER LOW FIRE	DIGITAL INPUT
BH	BOILER HIGH FIRE	DIGITAL INPUT
BM	BURNER FLAME STATUS ON	DIGITAL INPUT
BS	BOILER SAFETY (BOILER FIRE ENABLED)	DIGITAL INPUT
DT	DENSITY TRANSMIT	ANALOG INPUT
ET	VOLTAGE TRANSMIT	ANALOG INPUT
FL	FLOW RATE LOW	DIGITAL INPUT
FT	FLOW TRANSMIT	ANALOG INPUT
GA	GAS ALARM	DIGITAL INPUT
HM	MANUAL STATUS ON	DIGITAL INPUT
LH	LEVEL HIGH	DIGITAL INPUT
LL	LEVEL LOW	DIGITAL INPUT
LT	LEVEL TRANSMIT	ANALOG INPUT
MF	MOTOR FAILURE	DIGITAL READOUT
MM	MOTOR ON/OFF STATUS	DIGITAL INPUT
MN	MOTOR START	DIGITAL OUTPUT
MO	MOTOR STOP	DIGITAL OUTPUT
MX	MOTOR UNCLASSIFIED (X = RESET)	DIGITAL OUTPUT
NA	HUMIDITY ALARM	DIGITAL INPUT
PA	PRESSURE ALARM (1ST STAGE)	DIGITAL INPUT
PH	PRESSURE HIGH ALARM (1ST OR 2ND STAGE)	DIGITAL INPUT
PL	PRESSURE LOW	DIGITAL INPUT
PT	PRESSURE TRANSMIT	ANALOG INPUT
QA	COMMON ALARM (OR TROUBLE)	DIGITAL INPUT
QF	COMMON FAIL ALARM	DIGITAL INPUT
SB	SPEED DECREASE	MODULATING OUTPUT
SD	SPEED INCREASE	MODULATING OUTPUT
SM	SPEED CONTROLLER STATUS	DIGITAL INPUT
ST	SPEED TRANSMIT	ANALOG INPUT
TH	TEMPERATURE HIGH	DIGITAL INPUT
TT	TEMPERATURE TRANSMIT	ANALOG INPUT
UA	MULTIFUNCTION ALARM (MULTIPLE SYSTEM ALARM-ALTERNATE SYMBOL = QA)	DIGITAL INPUT
VB	VALVE CLOSE (OR DECREASE)	DIGITAL OR MODULATING OUTPUT
VD	VALVE OPEN (OR INCREASE)	DIGITAL OR MODULATING OUTPUT
XA	UNCLASSIFIED ALARM (X = FIRE)	DIGITAL INPUT
XT	UNCLASSIFIED TRANSMIT (X = POWER FACTOR)	ANALOG INPUT
YK	COMPUTER/LOCAL STATION	DIGITAL INPUT
YM	COMPUTER OPERATIONAL	DIGITAL INPUT
YS	COMPUTER SWITCH STATUS	DIGITAL INPUT
YX	COMPUTER UNCLASSIFIED (STATUS ON)	DIGITAL INPUT
ZB	POSITION CLOSED (LIMIT SWITCH)	ANALOG INPUT
ZD	POSITION OPEN (LIMIT SWITCH)	DIGITAL INPUT
ZL	POSITION LOW (BELT TENSION)	DIGITAL INPUT
ZT	POSITION TRANSMIT	ANALOG INPUT

PROCESS LINE DESIGNATION

150ø — CO2

- PROCESS LINE
- LINE CODE
- LINE SIZE

PROCESS AREA IDENTIFIERS

IDENTIFIER	DEFINITION
B	BOILERS
C	CENTRATE NITROGEN REMOVAL
D	DIGESTERS
G	PRE-AERATION AND GRIT REMOVAL
H	SLUDGE GAS
M	MAIN BUILDING
P	PRIMARY CLARIFIERS
R	OXYGEN REACTORS
S	SECONDARY CLARIFIERS
T	WAS SLUDGE THICKENING
U	UV DISINFECTION
W	SLUDGE DEWATERING
X	LEACHATE BUILDING
Y	HAULED WASTEWATER BUILDING

EQUIPMENT IDENTIFICATION

R 120 – MXR3 – 1A

- LOCATION IDENTIFIER TO DEFINE SPECIFIC EQUIPMENT LOCATION (IF NEEDED)
- EQUIPMENT IDENTIFIER MAX. OF 4 DIGITS AS PER LISTING HEREIN. LAST NUMERIC SUFFIX IS USED FOR MULTIPLE DEVICES ON THE SAME LOOP
- LOOP OR DEVICE NUMBER (001–999)
- PROCESS AREA IDENTIFIER

OR

R120
MXR3–1A

- PROCESS AREA IDENTIFIER
- LOOP OR DEVICE NUMBER (001–999)
- LOCATION IDENTIFIER TO DEFINE SPECIFIC EQUIPMENT LOCATION (IF NEEDED)
- EQUIPMENT IDENTIFIER MAX. OF 4 DIGITS AS PER LISTING HEREIN. LAST NUMERIC SUFFIX IS USED FOR MULTIPLE DEVICES ON THE SAME LOOP

IMPERIAL PIPE SIZE CHART (METRIC EQUIVALENT)

IN	MM	IN	MM	IN	MM
1/8	3	6	150	30	750
1/4	6	7	175	32	800
3/8	10	8	200	34	850
1/2	12	9	225	36	900
3/4	20	10	250	38	950
1	25	11	275	40	1000
1 1/4	32	12	300	42	1050
1 1/2	38	14	350	44	1100
2	50	16	400	46	1150
2 1/2	65	18	450	48	1200
3	75	20	500	50	1250
3 1/2	90	22	550	52	1300
4	100	24	600	54	1350
4 1/2	112	26	650		
5	125	28	700		

PROCESS LINE CODES

IDENTIFIER	DEFINITION
AC	ALTERNATING CURRENT (ELECTRICAL)
ALP	LOW PRESSURE AIR
CA	COMPRESSED AIR
CDW	COLD DOMESTIC WATER
CE	CENTRATE
CG	CALIBRATION GAS
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CL	CHLORINE
CLR	COMPRESSED LIQUEFIED REFRIGERANT
CO2	CARBON DIOXIDE
CON	CONDENSATE
CS	SLUDGE CAKE
CWR	COOLING WATER RETURN
CWS	COOLING WATER SUPPLY
DGH	HIGH PRESSURE DIGESTER GAS
DL	DECANT LIQUOR
DS	DIGESTERD SLUDGE
EDR	EVAPORATED REFRIGERANT
EDR	EVAPORATED REFRIGERANT
ES	ELECTRICAL SUPPLY
FE	FINAL EFFLUENT
FW	FLUSHING WATER
GE	GRIT EFFLUENT
GR	GLYCOL RETURN
GS	GLYCOL SUPPLY
HCO	HYDRAULIC OIL
HDW	HOT DOMESTIC WATER
HFW	HOT FLUSHING WATER
HWR	HOT WATER RETURN
HWS	HOT WATER SUPPLY
HYD	HYDROGEN
IAS	INSTRUMENT AIR SUPPLY
LCP	LIQUID CONCENTRATED POLYMER
LE	LEACHATE
LGO	LUBRICATING OIL
LPS	LOW PRESSURE STEAM
ML	MIXED LIQUOR
MP	MIXED POLYMER
N2	NITROGEN
NLG	NATURAL GAS
O2	OXYGEN
PD	PROCESS DRAIN
PE	PRIMARY EFFLUENT
PO	PROCESS OVERFLOW
PS	PRIMARY SLUDGE
PV	PROCESS VENT
PW	POTABLE WATER
RAS	RETURN ACTIVATED SLUDGE
RW	RECIRCULATED WATER
RS	RAW SEWAGE
SE	SECONDARY EFFLUENT
SEA	SERVICE AIR
SC	SCUM
SD	SUMP DISCHARGE
SW	SEAL WATER
TS	THIN SLUDGE
VMA	VACUUM AIR
VTA	VENT TO ATMOSPHERE
W	WATER
WA	WASTE AIR
WAS	WASTE ACTIVATED SLUDGE

PRELIMINARY
NOT TO BE USED FOR CONSTRUCTION

METRIC
WHOLE NUMBERS INDICATE MILLIMETRES
DECIMALIZED NUMBERS INDICATE METRES

APEGM
Certificate of Authorization
Stantec Consulting Ltd.
No. 1301

LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE — DATE

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.

B.M. ELEV.

NO.	REVISIONS	DATE	BY

Stantec
Stantec Consulting Ltd.
905 Waverley Street, Winnipeg, Manitoba
Tel 204-489-5900 Fax 204-453-9012

DESIGNED BY	D.W.D.	CHECKED BY	B.S.J.
DRAWN BY	D.K.G.	APPROVED BY	D.W.D.
HOR. SCALE: VERTICAL:	–	RELEASED FOR CONSTRUCTION:	
DATE	2012.01.23	DATE	

ENGINEER'S SEAL

BID OPPORTUNITY NO.

Winnipeg
THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT

NORTH END WATER POLLUTION CONTROL CENTRE
REHABILITATION OF DIGESTER No., II, SLUDGE HOLDING TANKS
No. 5 AND No. 7 AND ASSOCIATED WORKS

PROCESS & INSTRUMENTATION DIAGRAM LEGEND & DETAILS-SHEET 3

CITY DRAWING NUMBER: 187-2012_Drawing_A-3-R0
SHEET 1 OF 1

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2012 May 17, 8:24 a.m.