BASIC SYMBOLS

SINGLE FUNCTION / MULTIPLE FUNCTION

- OR — FIELD MOUNTED INSTRUMENT OR DEVICE
- OR — FRONT OF PANEL MOUNTED INSTRUMENT ON LOCAL PANEL
- OR — REAR OF PANEL MOUNTED INSTRUMENT ON LOCAL PANEL
- OR — FRONT OF PANEL MOUNTED INSTRUMENT ON MAIN PANEL
- OR — REAR OF PANEL MOUNTED INSTRUMENT ON MAIN PANEL
- PLC PROGRAMMED FUNCTION OPERATOR ACCESSIBLE THRU WORKSTATION HMI DISPLAY
- PLC PROGRAMMED FUNCTION OPERATOR ACCESSIBLE THRU REMOTE OIT DISPLAY
- XX / XXX — I/O POINT OR PORTAL. EITHER VIRTUAL OR HARDWIRED.
- I — ELECTRICAL INTERLOCK
- PA — PROFIBUS PA I/O INTERFACE
- HW — HARDWIRED I/O INTERFACE
- DP — PROFIBUS DP I/O INTERFACE
- IP — ETHERNET IP I/O INTERFACE

CODES AND ABBREVIATIONS

*	SUPPLIED WITH ELECTRICAL OR MECHANICAL EQUIPMENT
**	SUPPLIED WITH VENDOR PACKAGE
△	SUPPLIED BY CONTROL SYSTEMS INTEGRATOR
E-STOP	EMERGENCY STOP
O/R	OVERRIDE
RST	RESET
OCR	OPEN-CLOSE-REMOTE
HOA	HAND-OFF-AUTO
HOR	HAND-OFF-REMOTE
LOR	LOCAL/OFF/REMOTE
S/S	START / STOP
OSC	OPEN-STOP-CLOSE
O/C	OPEN / CLOSE
O/O	ON / OFF
FOS	FAST-OFF-SLOW
LOS	LOCK OUT STOP
LAR	LOWER-AUTO-RAISE
L/R	LOWER/RAISE
F/R	FORWARD/REVERSE
FOR	FORWARD-OFF-REVERSE
SIL	SILENCE
POC	POINT OF CONTROL

EXAMPLE: HOA (HS 103.1)

HMI	HUMAN MACHINE INTERFACE
OIT	OPERATOR INTERFACE TERMINAL
LCS	LOCAL CONTROL STATION
NIP	NETWORK INTERFACE PANEL
LCP	LOCAL CONTROL PANEL
RIO	REMOTE I/O PANEL
LAP	LOCAL ALARM PANEL
IP	ETHERNET I/P
PA	PROFIBUS PA
DP	PROFIBUS DP

SEE D0-001 FOR ALL OTHER ABBREVIATIONS

LINE CODES

- PROCESS LINE OR MECHANICAL CONNECTION
- ELECTRICAL SIGNAL LINE (DIGITAL OR ANALOG)
- PLC/SCADA DATA HIGHWAY
- PNEUMATIC LINE
- HYDRAULIC LINE
- SHEET — PROCESS LINE CONTINUATION ON SHEET INDICATED
- DIGITAL COMMUNICATION LINK
- FLEXIBLE HOSE
- CAPILLARY
- HEAT TRACING
- FLEXIBLE TUBING
- FLEXIBLE CONNECTOR

PROCESS SYMBOLS

VALVES

- GATE VALVE
- K — KNIFE GATE VALVE
- PLUG VALVE
- BALL VALVE
- BUTTERFLY VALVE
- DIAPHRAGM VALVE
- ANGLE VALVE
- GLOBE VALVE
- NEEDLE VALVE
- 3-WAY VALVE
- S — SOLENOID VALVE (2-WAY)
- S — SOLENOID VALVE (3-WAY)
- S — SOLENOID VALVE (4-WAY)
- PNEUMATIC DIAPHRAGM CONTROL VALVE
- SELF-CONTAINED PRESSURE REGULATING VALVE
- SELF-CONTAINED BACK PRESSURE REGULATING VALVE

GATES

- SLUICE OR SLIDE GATE
- WEIR OR WEIR GATE
- OR — STOP GATE

ACTUATORS

- M — ELECTRIC MOTOR
- P — PNEUMATIC ACTUATOR
- PNEUMATIC CYLINDER
- V/S — MECHANICAL VARIABLE SPEED REDUCER
- HAND ACTUATOR (SHOWN W/BUTTERFLY VALVE)

PUMPS

- M — SUBMERSIBLE PUMP
- M — CENTRIFUGAL PUMP
- M — VERTICAL TURBINE PUMP
- M — PROGRESSIVE CAVITY PUMP
- M — ROTORY LOBE PUMP
- M — SUBMERSIBLE CHOPPER PUMP
- M — PERISTALTIC OR HOSE PUMP
- M — DIAPHRAGM PUMP
- M — BLOWER
- M — GRINDER

FIELD INSTRUMENT ELEMENTS

- ORIFICE PLATE
- FI — ROTAMETER
- MAG — MAGNETIC FLOW METER
- FE — ANNULAR FLOW ELEMENT (PITOT TUBE)
- TURBINE OR PROPELLER METER
- FE — DOPPLER OR TRANSIT TIME SONIC FLOW ELEMENT
- LE — SONIC LEVEL ELEMENT (LE → FE FOR HEAD TYPE FLOW METER)
- FLOAT ON DISPLACER LEVEL ELEMENT
- LE — CONDUCTANCE PROBE TYPE LEVEL ELEMENT
- ULTRASONIC LEVEL TRANSDUCER
- LIT / RADAR — RADAR LEVEL TRANSMITTER
- PI — PRESSURE INDICATOR
- FE — THERMAL DISPERSION FLOW ELEMENT
- TRANSIT TIME OR DOPPLER ULTRASONIC FLOWMETER

MISCELLANEOUS MECHANICAL ITEMS

- "Y" TYPE STRAINER
- CHECK VALVE (→ FLOW DIRECTION)
- CHECK VALVE
- DOUBLE CHECK VALVE (→ FLOW DIRECTION)
- DIAPHRAGM CHECK (→ FLOW DIRECTION)
- RUPTURE DISC
- PRESSURE OR VACUUM RELIEF VALVE
- AIR RELIEF VALVE
- CHEMICAL DIAPHRAGM SEAL
- INLINE PRESSURE SEAL
- M — MIXER
- M — AGITATOR
- M — SURFACE AERATOR
- F OR F — FILTER
- VENT W/CAP OR SCREEN
- SPRAY SYSTEM
- CHANNEL AIR DIFFUSER
- FLOAT OPERATED VALVE
- IN-LINE STATIC MIXER
- EJECTOR / EDUCTOR
- HOSE COUPLING
- SAMPLE TAP (REMOTE)
- SAMPLE TAP (LOCAL)
- PULSATION DAMPENER
- ES — ELECTRICAL SUPPLY
- PTZ — CAMERA w/PAN, TILT, & ZOOM
- CAMERA w/FIXED POSITION & FOCAL LENGTH

FUNCTION PREFIX SCHEDULE

LETTER	FIRST LETTER: MEASURED OR INITIATING VARIABLE	FIRST LETTER: MODIFIER	SUCCEEDING LETTERS: READOUT OR PASSIVE FUNCTION	SUCCEEDING LETTERS: OUTPUT FUNCTION	SUCCEEDING LETTERS: MODIFIER
A	ANALYSIS		ALARM		
B	BURNER		PROGRAMMER		
C	CONDUCTIVITY (ELECTRICAL)		CLOSE/CLOSED	CONTROL	
D	DENSITY (MASS) OR SPECIFIC GRAVITY	DIFFERENTIAL		DIFFERENTIAL	
E	VOLTAGE (EMF)		PRIMARY ELEMENT		
F	FLOW RATE	RATIO (FRACTION)			
G	GAGING		GLASS		
H	HAND (MANUALLY INITIATED)				HIGH
I	CURRENT (ELECTRICAL)		INDICATE		
J	POWER	SCAN			
K	TIME OR TIME SCHEDULE			CONTROL STATION	
L	LEVEL		LIGHT (PILOT) OR TEXT		LOW
M	MOTOR				MIDDLE OR INTERMEDIATE
N	VIBRATION	IGNITER			
O	OPERATION	OFFSET	OPEN		
P	PRESSURE OR VACUUM		POINT (TEST CONNECTION)		
Q	QUANTITY	INTEGRATE OR TOTALIZE			
R	RADIOACTIVITY		RECORD OR PRINT		
S	SPEED OR FREQUENCY	SAMPLE		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTI-VARIABLE	TREND	MULTI-FUNCTION	MULTI-FUNCTION	MULTI-FUNCTION
V	VISCOSITY			VALVE DAMPER OR LOUVER	
W	WEIGHT, FORCE OR TORQUE		WELL		
X	EVENT		SPECIAL		
Y	STATUS			RELAY OR COMPUTE	
Z	POSITION				DRIVE, ACTUATE OR UNCLASSIFIED FINAL CONTROL ELEMENT

INSTRUMENT TAG NUMBERING CONVENTION
EXAMPLE: 08-LIT-100A

(LIT / 100A)

WHERE:

'08' IS THE FUNCTION AREA DESIGNATOR FOR THE MBR
'LIT' IS THE ISA STANDARD DESIGNATOR FOR A LEVEL INDICATING TRANSMITTER
'100' IS THE LOOP NUMBER BASED ON THE PROCESS EQUIPMENT NUMBER
'A' IS THE ITEM DESIGNATOR WHEN THERE ARE IDENTICAL COMPONENTS WITH THE SAME LOOP NUMBER. OR IS THE PROCESS AREA DESIGNATOR WHEN THERE ARE MULTIPLE IDENTICAL PROCESS AREAS

TO INSURE LEGIBILITY OF THE INSTRUMENT TAG NUMBER WITHIN THE CONFINES OF THE INSTRUMENT SYMBOLS, (BUBBLES), ON THE P&ID DRAWINGS ONLY. THE FUNCTIONAL AREA DESIGNATORS I.E. "08" WILL NOT BE SHOWN. A NOTE ON EACH P&ID SHEET WILL STATE THAT IS SHOULD BE UNDERSTOOD THAT EACH INSTRUMENT TAG NUMBER BE PREFIXED BY I.E. '08' FOR REFERENCE ON ALL OTHER PROJECT DOCUMENTS.

NOTES:

CONTRACTOR SHALL PROVIDE ALL INTERFACES AND PROGRAMMING BETWEEN INSTRUMENTS, ELECTRICAL, PUMPS, UTILITIES, AND EXISTING CITY OF ATLANTA COMPONENTS TO PRODUCE A COMPLETE, WORKING, AND FUNCTIONAL INSTRUMENTATION, CONTROLS, AND MONITORING SYSTEM.

PROVIDE FULL RANGE OF PROGRAMMING REQUIREMENTS INCLUDING LEVEL AND FLOW LIMITING CONDITIONS.

AtlasGroup

GEORGIA REGISTERED PROFESSIONAL ENGINEER No. PE032753 KUNG C. VEN. 10/29/12

PEACHTREE CREEK SOUTH FORK RELIEF STORAGE AND PUMPING STATION

CITY OF ATLANTA
DEPARTMENT of WATERSHED MANAGEMENT

REV	DATE	REVISION DESCRIPTION
0	10/28/12	100 PERCENT BID PACKAGE

THIS LINE IS ONE INCH LONG WHEN PLOTTED FULL SCALE

THIS DRAWING MUST BE USED IN CONJUNCTION WITH THE APPLICABLE OR GOVERNING TECHNICAL SPECIFICATIONS AND OTHER CONTRACT DOCUMENTS.

PROJECT NO: FC-6260
DATE: OCTOBER 2012
RESP PROF: KCV | DESIGNER: WHP | CHECKER: BLB

SHEET TITLE: INSTRUMENTATION 00 - GENERAL LEGEND ABBREVIATIONS AND NOTES

SHEET NO. I-001 REV. 0