



PIPING / EQUIPMENT / INSTRUMENTATION LEGEND										SYMBOL LEGEND	
AE	ANALYZER ELEMENT	CA	COUPLING ADAPTOR	FM	FLOW METER	LASP	LIQUID AMMONIA SULFATE PUMP	NaOCL	SODIUM HYPOCHLORITE		DIAPHRAGM SEAL
AIT	ANALYZER INDICATOR TRANSMITTER	DR	DRAIN LINE	FS	FLOW SWITCH	NC	NORMALLY CLOSED	NaOCLP	SODIUM HYPOCHLORITE PUMP		
BCV	BALL CHECK VALVE	ESVC	ELECTRIC SOLENOID VALVE - CLOSE	FITQ	FLOW TOTALIZER	NO	NORMALLY OPEN	SV	SOLENOID VALVE		FLOW PACED CONTROLLER
BV	BALL VALVE	ESVC	ELECTRIC SOLENOID VALVE - OPEN	GV	GATE VALVE	PG	PRESSURE GAUGE	SW	SURFACE WATER		
BFV	BUTTERFLY VALVE	ESVC	ELECTRIC SOLENOID VALVE - OPEN	GST	GROUND STORAGE TANK	PIT	PRESSURE INDICATOR TRANSMITTER	SWL	SURFACE WATER LINE		INJECTOR
CV	CHECK VALVE	EV	ELECTRIC VALVE	LAH	LEVEL ALARM - HIGH	PRV	PRESSURE RELIEF VALVE	TS	TEMPERATURE SWITCH		
CW	CHLORINATED WATER	EVNH	ELECTRIC VALVE - AMMONIA	LAL	LEVEL ALARM - LOW	PS	PRESSURE SWITCH	WL	WATER LINE		PULSATION DAMPENER
CL	CHLORINATOR	EVCL	ELECTRIC VALVE - CHLORINE	LIT	LEVEL INDICATOR TRANSMITTER	SDR	SAMPLE DRAIN LINE	WI	WEIGHT INDICATOR		
CBP	CHLORINE BOOSTER PUMP	FCV	FLOW CONTROL VALVE	LS	LEVEL SWITCH	SL	SAMPLE LINE	WCL	WELL COLLECTION LINE		ROTAMETER
CG	CHLORINE GAS LINE	FE	FLOW ELEMENT	LAS	LIQUID AMMONIA SULFATE	SLS	SANITARY SEWER LIFT STATION FOR SAMPLE BYPASS FLOW				
CS	CHLORINE SOLUTION LINE	FIC	FLOW INDICATOR CONTROLLER	LASL	LIQUID AMMONIA SULFATE LINE						STATIC MIXER & INJECTION POINT

DESIGN ENGINEER NOTES:

- DESIGN ENGINEER WILL UPDATE DRAWINGS AS NEEDED PER MANUFACTURER RECOMMENDATIONS.
- V1 REFERS TO THE SYSTEM THAT HAS SEPARATE ANALYZERS FOR FREE AMMONIA AND TOTAL CHLORINE. V2 REFERS TO THE SYSTEM THAT HAS A COMBINED FREE AMMONIA AND TOTAL CHLORINE ANALYZER. DESIGN ENGINEER WILL DELETE THE DRAWINGS FOR THE SYSTEM THAT WAS NOT CHOSEN.
- DESIGN ENGINEER WILL REMOVE V1 OR V2 FROM THE DRAWING TITLES.

NOTES:

- CHLORINE GAS SUPPLY CAN BE 1 TON CYLINDERS OR 150 LB CYLINDERS. SEE REF. NO. 78 & 79 IF TOTAL CHLORINE USAGE IS LESS THAN 90 LBS/DAY THEN ONLY ONE CHLORINE GAS SUPPLY IS NEEDED.
- SEE REF. NO. 60.
- FOR TYPICAL LAS AND NaOCL(BLEACH) SYSTEM EQUIPMENT LAYOUT, SEE REF. NO. 80 & 81.
- IF BYPASS AND PRV ARE REQUIRED BY METERING PUMP MANUFACTURER, MANUFACTURER WILL PROVIDE INTERLOCK TO SHUT OFF PUMP WHEN PRV OPENS.
- SEE REF. NO. 105

**North Harris County REGIONAL WATER Authority**

**GAS CHLORINATION AND LIQUID AMMONIUM SULFATE (LAS) PROCESS SCHEMATIC- V1**

APPROVED BY: *Shanabgini*

DESIGN MANAGER

EFF. DATE: 12/22/2020

REF. NO. 74