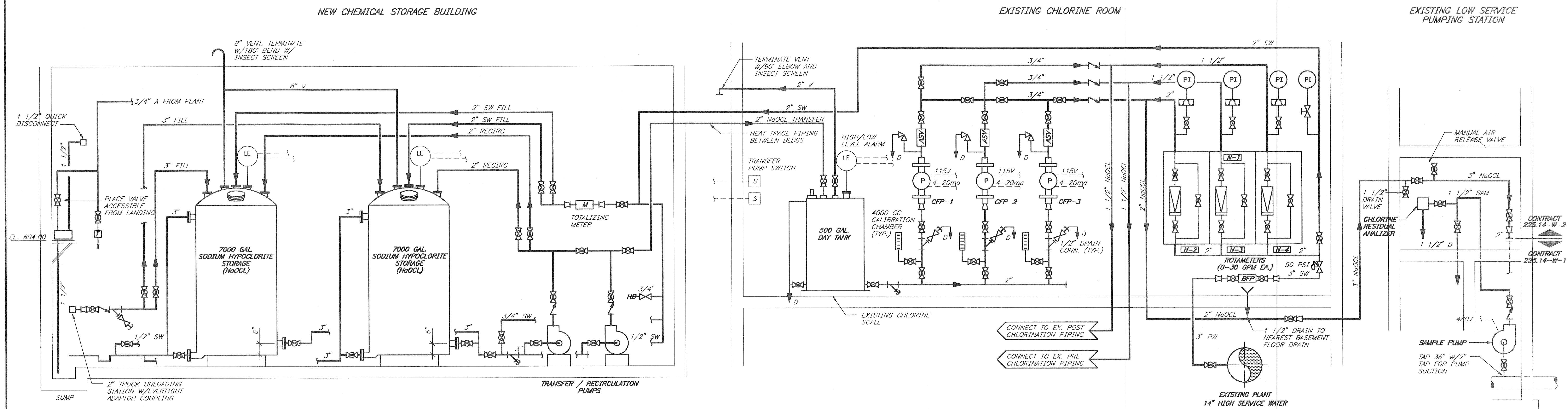


REV	DESCRIPTION	BY	DATE	CHK'D
1	ISSUED FOR PERIT		1/9/85	
2				
3				
4				



**HYPOCHLORITE PIPING SCHEMATIC**  
SCALE: NONE

**GRAPHIC SYMBOLS FOR PIPING AND EQUIPMENT ITEMS**

	PULSATION DAMPENER W/PRESSURE GAUGE (SINGLE DIAPHRAM)
	CHEMICAL SEAL W/PRESS GAUGE
	QUICK DISCONNECT (AIR) (3/4")
	ELBOW UP
	ELBOW DOWN
	TEE UP
	TEE DOWN
	REDUCER-CONCENTRIC
	REDUCER-ECCENTRIC
	WYE STRAINER
	UNION
	METER (TOTALIZING)
	ROTAMETER
	EMERGENCY SHOWER AND EYEWASH
	PIPING (BELOW SLAB)
	FLOOR DRAIN
	ROOF DRAIN
	PIPE TO DRAIN
	CENTRIFUGAL PUMP
	ELECTRIC CONNECTION TO EXISTING
	FLEXIBLE CONNECTOR

**GRAPHIC SYMBOLS FOR INSTRUMENTATION**

FE	FLOW ELEMENT
LE	LEVEL ELEMENT
PI	PRESSURE INDICATOR

**GRAPHIC SYMBOLS FOR VALVES**

	GLOBE VALVE
	BALL VALVE
	BUTTERFLY VALVE
	CHECK VALVE
	PRESSURE REGULATING VALVE (SELF CONTAINED)
	H.O.B. (3/4")
	ANTISIPHON VALVE
	PLUG VALVE

**GRAPHIC SYMBOLS FOR HEATING, VENTILATION, & AIR CONDITIONING**

	THERMOSTAT
	DUCT, (FIRST FIGURE, SIDE SHOWN SECOND FIGURE, SIDE NOT SHOWN)
	DUCT SECTION (EXHAUST OR RETURN)
	DUCT SECTION (SUPPLY)
	AIR EXTRACTOR
	SUPPLY AIR REGISTER
	RETURN OR EXHAUST AIR REGISTER
	LOUVERS & SCREEN WITH DAMPER
	WALL EXHAUST FAN W/DAMPER LOUVER

**PLUMBING ABBREVIATIONS**

A	HIGH PRESSURE AIR
CAS	CARBON SOLUTION
D	DRAIN
F	FLORIDE
NaOCl	SODIUM HYPOCHLORITE SOLUTION
NG	NATURAL GAS
PW	POTABLE WATER
RD	ROOF DRAIN
RDL	ROOF DRAIN LEADER
SAM	SAMPLE
SW	SERVICE WATER
TV	TEMPERED WATER
V	VENT
VTR	VENT TO ROOF

**HVAC ABBREVIATIONS**

HVAC	HEATING VENTILATING AND AIR CONDITIONING UNIT
RA	RETURN AIR
RAR	RETURN AIR REGISTER

**GENERAL NOTES:**

- 1.) A SUFFICIENT NUMBER OF UNIONS SHALL BE PROVIDED AND INSTALLED AT EACH PIECE OF EQUIPMENT TO FACILITATE REMOVAL OF EQUIPMENT WITHOUT HAVING TO CUT PIPE.
- 2.) PIPE SIZES SHOULD BE THE SAME SIZE OR LARGER THAN THE OPENING ON THE EQUIPMENT THEY ARE CONNECTED TO.
- 3.) PRESSURE TAPS SHALL BE LOCATED ON THE TOP OF PROCESS PIPE LINES.
- 4.) SAMPLE AND CHEMICAL TAPS SHALL BE LOCATED ON THE SIDE OF PROCESS PIPE LINES.
- 5.) DRAIN TAPS SHALL BE LOCATED ON THE BOTTOM OF PROCESS PIPE LINES.
- 6.) MINIMUM CLEARANCE BETWEEN PIPES INCLUDING INSULATION SHALL BE 3".
- 7.) ALL INSTRUMENTATION SYMBOLS ARE I.S.A. STANDARDS.
- 8.) SHUT-OFF VALVES TO BE FURNISHED AT ALL EQUIPMENT LOCATIONS AND WHERE PIPING ENTERS OR LEAVES STRUCTURES.
- 9.) ALL ROTAMETERS SHALL BE INSTALLED 5'-0" ABOVE FINISH FLOOR TO CENTER OF METER AND VALVES.
- 10.) LIGHTER WEIGHT LINES SHOW EXISTING OR NON-MECHANICAL WORK, DARKER LINES SHOW NEW MECHANICAL WORK.
- 11.) DENOTES EQUIPMENT, PIPE & DUCT AREAS OF DEMOLITION.

MARK	NAME/PLATE
N-1	SODIUM HYPOCHLORITE DISTRIBUTION PANEL
N-2	RAW WATER INTAKE CHLORINATION
N-3	PLANT PRE CHLORINATION
N-4	PLANT POST CHLORINATION

Ann Arbor, Michigan  
Detroit, Michigan  
Escanaba, Michigan  
Grand Rapids, Michigan  
Lansing, Michigan

**McNAMEE, PORTER & SEELEY, INC.**  
ENGINEERING EXCELLENCE SINCE 1914

DESIGNED **E. SCHRADER** CHECKED **W. ORINTAS**  
SCALE: **NONE** CADD DATE: **01-05-94 JCT 4**  
PART: **WPS/0225/01430/M/SCHEM AC**

CITY OF TRAVERSE CITY, MICHIGAN  
WATER TREATMENT PLANT IMPROVEMENTS  
SODIUM HYPOCHLORITE SYSTEM ADDITION

**MECHANICAL**  
**LEGEND AND SODIUM HYPOCHLORITE SCHEMATIC**

DIVISION: CONTRACT: **225.14-W-2(R)** SHEET: **M-1**  
OF 3