

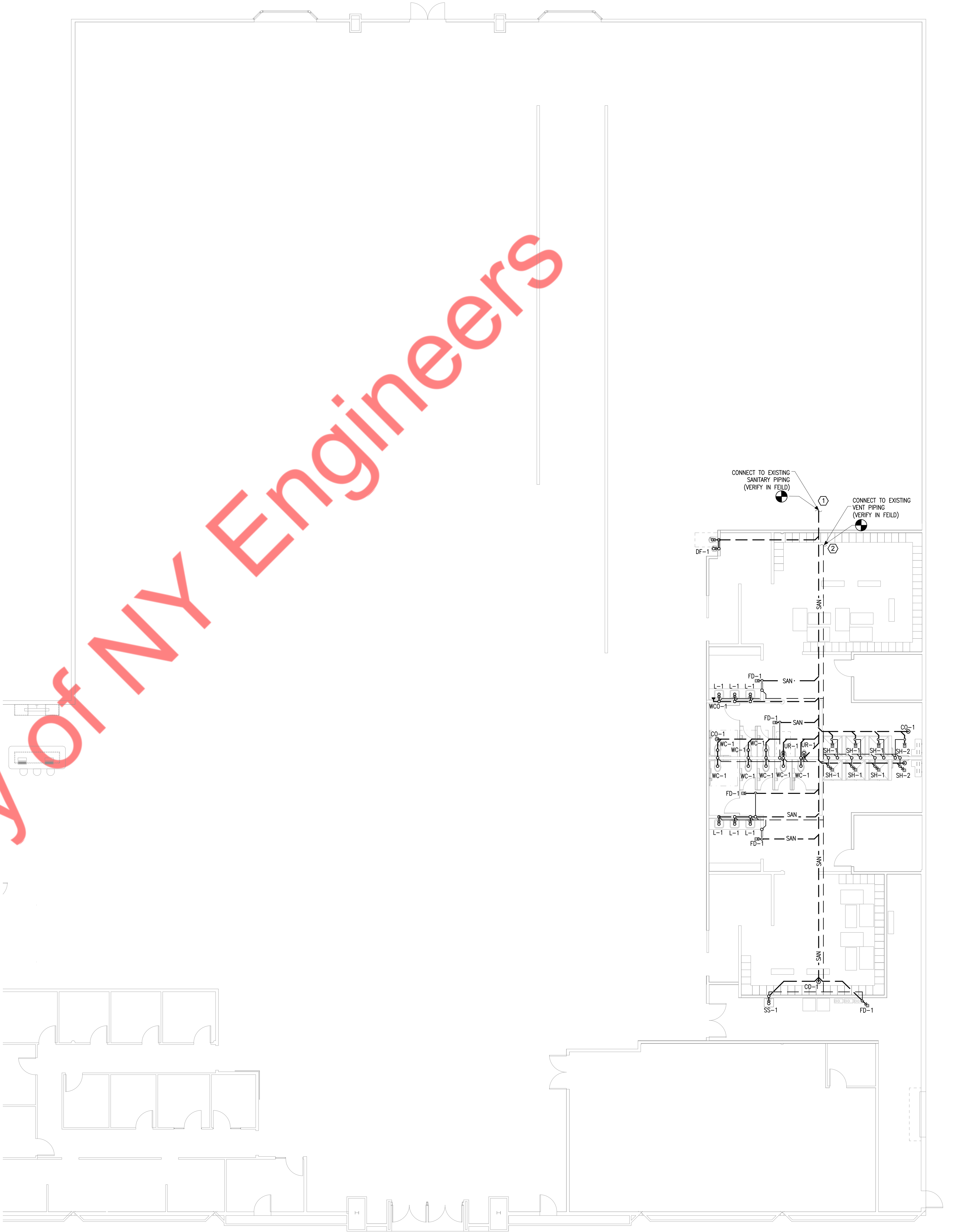
PLUMBING LEGEND	
SYMBOL	DESCRIPTION
---	SANITARY SEWER (UNDERFLOOR)
---	VENT PIPING
---	COLD WATER
---	HOT WATER
---	RECIRCULATING HOT WATER
---	CHECK VALVE
---	BALANCING VALVE
---	FLOOR DRAIN
---	PIPE UP OR DOWN
---	PIPE UP
---	UNION
---	ISOLATION VALVE
---	CAP ON END OF PIPE
---	CLEANOUT
---	DOUBLE CHECK VALVE ASSEMBLY
---	REDUCED PRESSURE BACKFLOW PREVENTER
---	POINT OF NEW CONNECTION
---	NEW GAS PIPING
---	GAS SHUT OFF VALVE

PLUMBING ABBREVIATIONS	
CO	CLEANOUT
CODP	CLEAN OUT DECK PLATE
CW	COLD WATER
HW	HOT WATER
HWR	HOT WATER RETURN
SAN	SANITARY
S	SOIL
W	WASTE
TYP.	TYPICAL
DN	DOWN
EXIST.	EXISTING
AFF	ABOVE FINISH FLOOR
FD	FLOOR DRAIN
SQ. FT.	SQUARE FEET
BFP	BACK FLOW PREVENTER

PLUMBING KEYED NOTES	
①	CONNECT NEW 4" SANITARY TO SEWER LINE FOR TENANT SPACE. CONTRACTOR TO FIELD VERIFY ACTUAL LOCATION AND SIZE IN FIELD.
②	CONNECT NEW 3" VENT PIPES. CONTRACTOR TO FIELD VERIFY ACTUAL LOCATION AND SIZE IN FIELD.

PLUMBING FIXTURE SCHEDULE							
LEGEND	QUANTITY	PLUMBING FIXTURE	CONNECTION SIZE - INCHES				DESCRIPTION
			SOIL/WASTE	VENT	COLD WATER	HOT WATER	
WC-1	8	WATER CLOSET	4"	2"	1"	-	AMERICAN STANDARD MODEL NO.2257.103 OR EQUIVALENT FLOOR MOUNTED OR WALL HUNG WATER CLOSET, TOP SPUD, SLOAN MODEL NO 111-1-28 FLUSH VALVE (1.28 GPF) CHURCH MODEL NO 9500C SEAT. J.R SMITH 0210 SERIES CARRIER.
DF-1	1	DRINKING FOUNTAIN	2"	1½"	½"	-	OASIS P8SBF BARRIER-FREE VERSACOOLER II, ELECTRIC WATER COOLER DRINKING FOUNTAIN OR EQUIVALENT, 120V, 1-PHASE, 460WATTS, 4.6AMPS, WALL MOUNTED (ADA). PROVIDE COMPLETE W/VERSA FILLER SPORTS BOTTLE FILLER.
UR-1	2	URINAL	2"	1½"	¾"	-	AMERICAN STANDARD MODEL NO.6541.132 OR EQUIVALENT WALL HUNG URINAL, TOP SPUD, SLOAN MODEL NO.186-0.5 FLUSH VALVE (0.5GPF), PROVIDE WALL HUNGER.
L-1	6	LAVATORY	2"	1½"	½"	½"	AMERICAN STANDARD STUDIO SUITE RECTANGULAR UNDERCOUNTER SINK/WHITE MODEL 0614.000.020 FAUCET-AMERICAN STANDARD SINGLE LEVER/CHROME FINISH MODEL 7186.101.002
FD-1	5	FLOOR DRAIN	2"	1½"	½"	-	J.R. SMITH NO. 2005Y02(-B05NB-P050-U), WITH TRAP PRIMER CONNECTION, VANDAL PROOF SCREWS, 5" ROUND NICKEL BRONZE STRAINER OR EQUIVALENT.
TP-1	3	TRAP PRIMER	-	-	½"	-	P.P.P. INC MODEL NO PR-500 TRAP PRIMER VALVE-INSTALL DISTRIBUTION UNIT #DU-U FOR MULTIPLE FLOOR DRAINS OR EQUIVALENT.
SH-1	6	SHOWER	2"	1½"	¾"	¾"	J.R SMITH NO 2005 SHOWER DRAIN, 5" ROUND CHROME PLATED STRAINER, SYMMONS MODEL NO. S-96-1-131 PRESSURE BALANCING MIXING VALVE WITH STOP SCREW, INTEGRAL VOLUME CONTROL SHOWER HEAD WITH ARM AND FLANGE OR EQUIVALENT.
SH-2	2	ADA SHOWER	2"	1½"	¾"	¾"	J.R SMITH NO 2005 SHOWER DRAIN, 5" ROUND CHROME PLATED STRAINER, SYMMONS MODEL NO. S-96-300-830-L-V HAND HELD SHOWER HEAD PRESSURE BALANCING MIXING VALVE WITH STOP SCREW, INTEGRAL VOLUME CONTROL SHOWER HEAD WITH ARM AND FLANGE OR EQUIVALENT.
WH-1	3	WATER HEATER	-	-	1½"	1½"	(3) RINNAI MODEL NO. CU199 CONDENSING TANKLESS INDOOR COMMERCIAL WALL MOUNTED CONTINUOUS FLOW WATER HEATER ,19900BTU/HR INPUT EA. 59700 BTU/HR TOTAL OR EQUIVALENT. COMPLETE WITH WALL MOUNTED REMOTE CONTROL UNIT, SET HEATER @140°F- SEE SHEET P-100.2 FOR LOCATION OF WATER HEATERS.
CP-1	1	RECIRCULATION PUMP	-	-	-	-	GRUNFOS MODEL NO. UP15-10B5 RE-CIRCULATION PUMP, 1GPM @1 FOOT OF HEAD, 115 (ELECTRICAL CONNECTION), 115-120 VAC (TIMER CONTROL), 60HZ (TIMER CONTROL), 16 AMPS (TIME CONTROL-CONTACT RATING) OR EQUIVALENT -SEE ELECTRICAL DRAWINGS FOR ELECTRICAL REQUIREMENTS.
ET-1	1	EXPANSION TANK	-	-	1"	-	WILKINS MODEL NO WXTP-75V 20 GALLON DIAPHRAGM TYPE, PRE PRESSURIZED WITH WELDED EXTERIOR BUTYL DIAPHRAGM AND EPOXY COATED EXTERIOR-ANCHOR EXPANSION TANK TO ROOF WITH L BRACKETS OR EQUIVALENT.
WHA-1		WATER HAMMER ARRESTOR	-	-	-	-	J.R SMITH SERIES 5000 STAINLESS STEEL CONSTRUCTION WITH HEAVY DUTY EXPANSION BELLOWS. EACH UNIT SHALL BE PROVIDED AND INSTALLED WITH WALL ACCESS COVER OR EQUIVALENT.
SS-1	1	SERVICE SINK	2"	1½"	½"	½"	-

NOTE: CONTRACTOR TO COORDINATE WITH ARCHITECTURAL DRAWINGS FOR ALL PLUMBING FIXTURES SPECIFICATIONS AND MOUNTING HEIGHT INSTALLATION.



② PLUMBING WASTE RISER
NTS

① PLUMBING WASTE PLAN
1/8" = 1'-0"

ENERGY CONSERVATION NOTES:

- AS PER 2018 INTERNATIONAL ENERGY CONSERVATION CODE C404.4, PIPING FROM A WATER HEATER TO THE TERMINATION OF HEATED WATER FIXTURE SUPPLY PIPE SHALL BE INSULATED IN ACCORDANCE WITH TABLE OF MINIMUM PIPE INSULATION THICKNESS.
- HOT WATER SYSTEM PIPING IS DESIGNED AS PER MAXIMUM ALLOWED PIPE LENGTH METHOD AS PER 2018 INTERNATIONAL ENERGY CONSERVATION CODE C404.5. THE HOT WATER VOLUME FROM THE NEAREST SOURCE OF HEATED WATER TO THE TERMINATION OF THE FIXTURE SUPPLY PIPE SHALL BE AS PER MAXIMUM PIPING LENGTH TABLE.

FLUID OPERATING TEMPERATURE RANGE AND USAGE (°F)	MINIMUM PIPE INSULATION THICKNESS		NOMINAL PIPE OR TUBE SIZE (INCHES)				
	CONDUCTIVITY BTU-IN./ (H·FT ² ·°F)	MEAN RATING TEMPERATURE °F	<1	1 to 1½	1½ to 2	2 to 4	4 to 8
141-200	0.25-0.29	125	1.5	1.5	2	2	2
105-140	0.21-0.28	100	1.0	1.0	1.5	1.5	1.5
40-60	0.21-0.27	75	0.5	0.5	1.0	1.0	1.0

- AS PER 2018 INTERNATIONAL ENERGY CONSERVATION CODE C404.7, PUMPS SHALL HAVE CONTROLS THAT COMPLY WITH BOTH OF THE FOLLOWING:
 - THE CONTROL SHALL START THE PUMP UPON RECEIVING A SIGNAL FROM THE ACTION OF A USER OF A FIXTURE OR APPLIANCE, SENSING THE PRESENCE OF A USER OF A FIXTURE OR SENSING THE FLOW OF HOT OR TEMPERED WATER TO A FIXTURE FITTING OR APPLIANCE.
 - THE CONTROL SHALL LIMIT THE TEMPERATURE OF THE WATER ENTERING THE COLD-WATER PIPING TO 104°F (40°C).
- AS PER 2018 INTERNATIONAL ENERGY CONSERVATION CODE C404.3, WATER HEATING EQUIPMENT NOT SUPPLIED WITH INTEGRAL HEAT TRAPS AND SERVING NON RE-CIRCULATING SYSTEM SHALL BE PROVIDED WITH HEAT TRAPS ON SUPPLY AND DISCHARGE PIPING ASSOCIATED WITH EQUIPMENT.
- HW SYSTEM PIPING IS DESIGNED AS PER MAXIMUM ALLOWED PIPE LENGTH METHOD AS PER INTERNATIONAL ENERGY CONSERVATION CODE 2018 C404.5.1, THE HW PIPE LENGTH FROM THE NEAREST SOURCE OF HEATED WATER TO THE TERMINATION OF THE FIXTURE SUPPLY PIPE SHALL BE AS PER FOLLOWING TABLE.

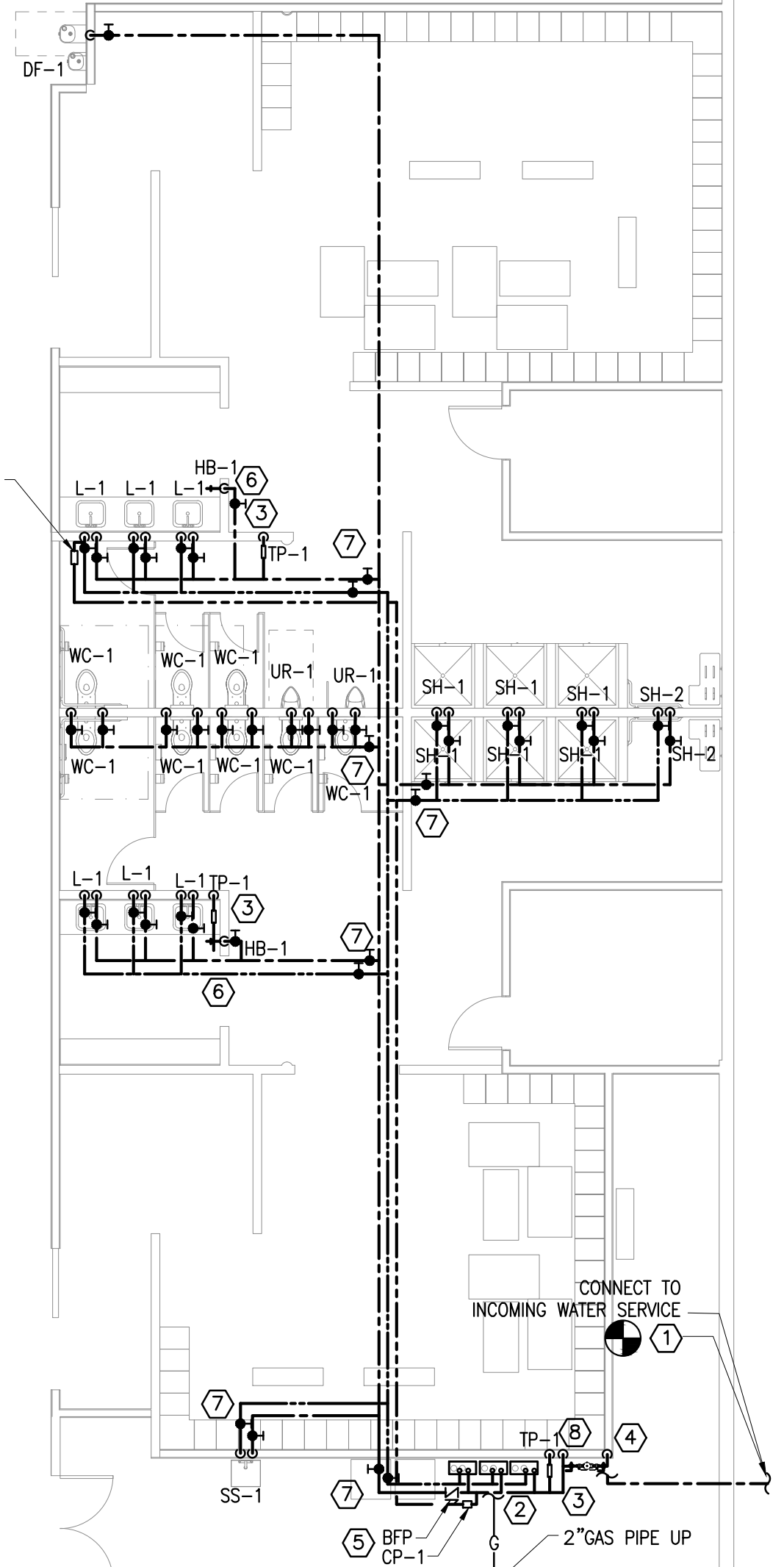
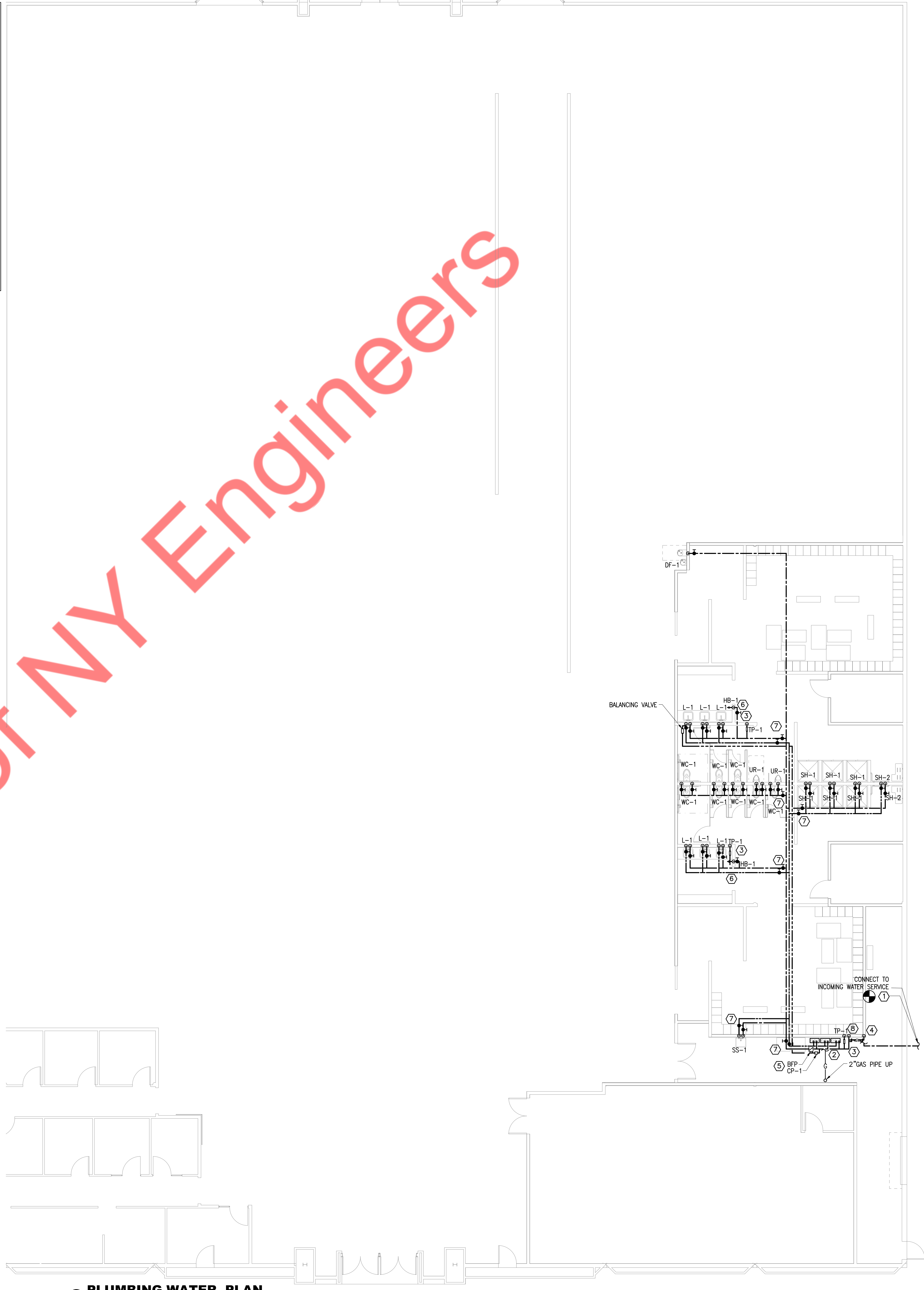
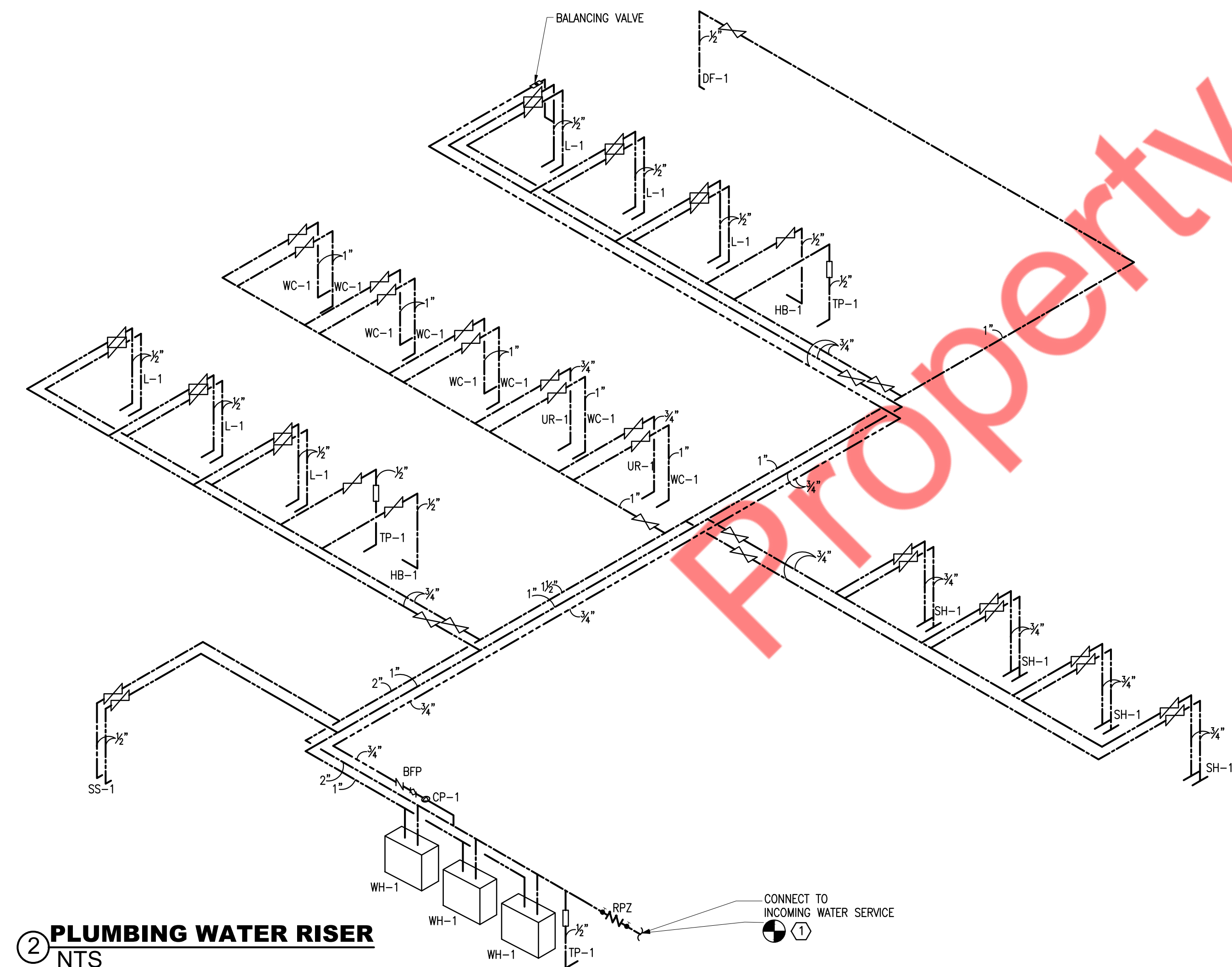
NOMINAL PIPE SIZE (INCHES)	MAXIMUM PIPING LENGTH (FEET)	
	PUBLIC LAV	OTHER FIXTURES
½"	2'	43'
¾"	0.5'	21'
1"	0.5'	13'
1½"	0.5'	8'
1½"	0.5'	6'
2" OR LARGER	0.5'	4'

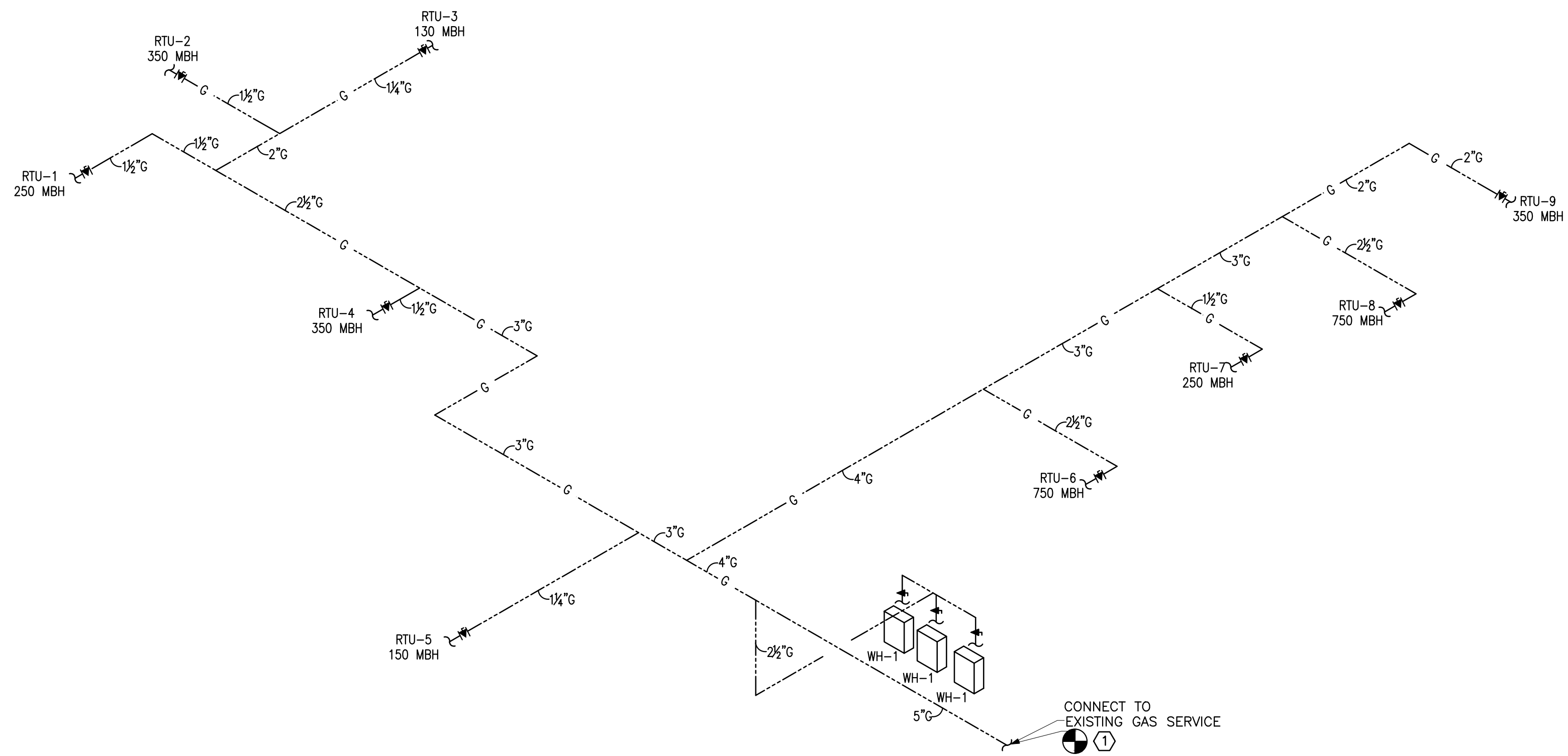
SANITARY SEWER AND WASTE SERVICE PLUMBING CALCULATION

FIXTURE TYPE	QUANTITY	D.F.U.	TOTAL D.F.U.	W.S.F.U.	TOTAL W.S.F.U.
WATER CLOSET (FLUSH VALVE)	8	6	48	10	80
URINALS	2	3	6	5	10
LAVATORY	6	1	6	1.5	9
HOSE BIB	2	-	-	1.5	3
FLOOR DRAIN	5	2	10	-	-
SHOWER	8	3	24	4	32
DRINKING FOUNTAIN	1	0.5	0.5	0.5	0.5
TOTAL FIXTURE UNITS:			94.5		134.5
W.S.F.U.	134.5 FU = 52.5 GPM (BASED ON INTERNATIONAL PLUMBING CODE, TABLE E103.3(3))				
D.F.U.	94.5 FU = 4" PIPING HORIZONTAL @ ½" PER FLOOR SLOPE (BASED ON 2018 INTERNATIONAL PLUMBING CODE, TABLE 710.1(1) BUILDING DRAINS AND SEWERS AND TABLE 710.1(2) HORIZONTAL FIXTURE BRANCHES AND STACKS.)				

PLUMBING KEYED NOTES

- EXTEND AND CONNECT NEW 2" CW PIPING TO INCOMING WATER LINE AND PROVIDE BACKFLOW PREVENTOR. CONTRACTOR SHALL VERIFY EXACT SIZE AND LOCATION.
- INSTALL WATER HEATER PER MANUFACTURER'S RECOMMENDATIONS. ROUTE DISCHARGE TO FLOOR DRAIN.
- INSTALL TRAP PRIMER ABOVE CEILING, OR PROVIDE ACCESS WALL-PANEL.
- PROVIDE R.P.Z. B.P.F. PRIOR TO FIRST FIXTURE TAP. ROUTE DISCHARGE TO FLOOR DRAIN.
- FOR HOT WATER CIRCULATION CONTROLS, PROVIDE AUTOMATIC SHUT DOWN OF PUMP WHEN DESIRED WATER TEMPERATURE IS ACHIEVED IN THE RETURN PIPING.
- PROVIDE CONCEALED HOSE BIB UNDER VANITY.
- PROVIDE ISOLATION VALVE ON COLD AND HOT WATER SUPPLY.
- PROVIDE MASTER SHUT-OFF VALVE. LOCATE IN WALL AT 48" A.F.F. IF POSSIBLE.





② PLUMBING GAS RISER
NTS

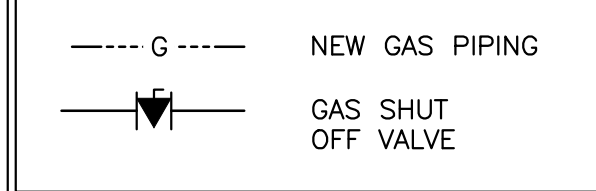
PLUMBING KEYED NOTES

① CONTRACTOR TO FIELD VERIFY EXISTING AVAILABLE GAS PRESSURE AND MAKE SURE TO PROVIDE ADEQUATE INLET PRESSURE REQUIRED FOR GAS FIRED WATER HEATER, RTU-1 TO RTU-9.

NAT. GAS DESIGN

INLET PRESSURE < 2.0PSI
PRESSURE DROP- 0.5 IN W.C
LONGEST LENGTH-APPROX. 300'

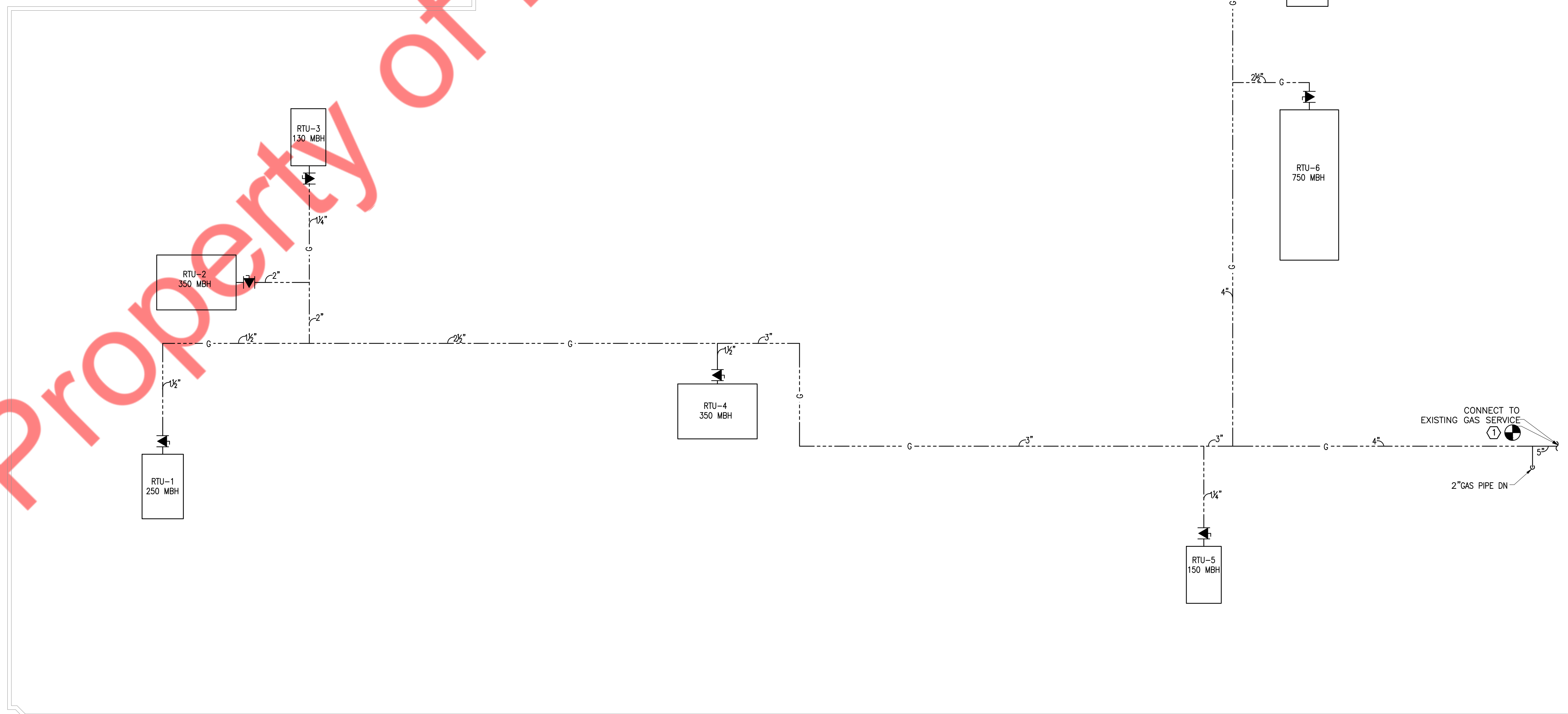
CONTRACTOR TO VERIFY EXACT TOTAL DEVELOPED LENGTH AND GAS SUPPLY PRESSURE IN FIELD AND NOTIFY ENGINEER IF DIFFERENT THAN SHOWN ON THIS PLAN



GAS LOAD SUMMARY

EQUIPMENT TAG	CFH LOAD
WH-1(3)	597
RTU-1	250
RTU-2	350
RTU-3	130
RTU-4	350
RTU-5	150
RTU-6	750
RTU-7	250
RTU-8	750
RTU-9	350
NEW LOAD	3927
TOTAL LOAD	3927

GAS PIPE SIZING BASED ON TABLE 402.4(2).
2018 INTERNATIONAL FUEL GAS CODE.



① PLUMBING GAS PLAN
1/8" = 1'-0"