EQUIPMENT ABBREVIATIONS AIR CONDITIONING UNIT ABOVE FINISHED FLOOR COMPRESSED AIR FILTER CUBIC FEET PER MINUTE CLEANOUT CLEANOUT DECK PLATE COLD WATER DRY BULB DIAMETER DOWN DRIP AND TRAP DRAWING DOMESTIC WATER HEATER ENTERING EQUIPMENT EMERGENCY SHOWER **EXPANSION TANK** EYEWASH ELECTRIC WATER COOLER ENTERING WATER TEMPERATURE EXISTING FILTER DEGREED FAHRENHEIT FINISHED FLOOR DRAIN FULL LOAD AMPS FLEXIBLE CONNECTION FLOOR FEET PER MINUTE FEET GALLON GALLONS PER MINUTE MERCURY HORSE POWER HOUR HEIGHT HOT WATER HOT WATER RETURN HWRP HOT WATER RETURN PUMP HERTZ INCHES INCHES WATER COLUMN JANITOR'S SINK KILOWATT LENGTH LAVATORY POUNDS LBS/HR POUNDS PER HOUR

LOCKED ROTOR AMPS

LEAVING WATER TEMPERATURE

MECHANICAL CONTRACTOR

MOTOR HORSE POWER

MINIMUM CIRCUIT AMPACITY MASTER GAS CONTROL VALVE

LEAVING

MAXIMUM

MINIMUM

NITROGEN

NUMBER

OPENING

PUMP PLATE

PHASE

PNEUMATIC

PRESSURE

PLUG VALVE QUANTITY

ROOF DRAIN RELIEF

SHOWER SINK SUMP PUMP

TRENCH DRAIN

TEMPERATURE

TYPICAL

URINAL UTILITY SINK VOLTS

VALVE

VACUUM

VELOCITY

WITH WITHOUT

WEIGHT

WATER CLOSET

VACUUM BREAKER

VENT THROUGH ROOF

WATER HAMMER ARRESTOR WATER PRESSURE DROP

RATED LOAD AMPS

REVOLUTIONS PER MINUTE

THERMOSTATIC MIXING VALVE

UNLESS OTHERWISE NOTED

PRESSURE SWITCH

POUNDS PER SQUARE INCH

PRESSURE TRANSMITTER

POUNDS PER SQUARE INCH GAUGE

NOT TO SCALE OUTSIDE DIAMETER

MISCELLANEOUS

NORMALLY CLOSED

MGCV

OPNG

PLUMBING PIPIN	IG SYMBOLS
	COLD WATER PIPING
	HOT WATER PIPING
	HOT WATER RETURN PIPING
	NATURAL GAS LINE
S	SANITARY PIPING ABOVE GROUND
— s— —	SANITARY PIPING BELOW GROUND
	SANITARY VENT PIPING
AW	ACID WASTE PIPING ABOVE GROUND
——————————————————————————————————————	ACID WASTE PIPING BELOW GROUND
AV	ACID VENT PIPING
PW	PROCESS WASTE PIPING ABOVE GROUND
—— PW—— ——	PROCESS WASTE PIPING BELOW GROUND
PV	PROCESS VENT PIPING BELOW GROUND
ST	STORM PIPING ABOVE GROUND
— ST— —	STORM PIPING BELOW GROUND
VAC	VACUUM PIPING
HE	HELIUM PIPING
CA	COMPRESSED AIR PIPING
N	NITROGEN PIPING
	HYDROGEN PIPING
DI	DI WATER PIPING
— · — · — RO— · — · —	RO WATER PIPING

<u> </u>	SYMBOLS							
	NEW WORK							
	EXISTING							
€	PIPE DROPPING DOWN							
├	PIPE RISING UP							
EHHHHHH	PIPE TO BE DEMOLISHED							
₩	CHECK VALVE							
≥——₹	BALL VALVE							
5 	STRAINER WITH BLOWDOWN VALVE AND HOSE BIB							
2—11—2	FLANGED CONNECTION							
≥	FLEXIBLE CONNECTOR							
<u></u> Θ ,	PRESSURE GAUGE							
	THERMOMETER							
	AUTOMATIC TWO WAY CONTROL VALVE							
	ROOF DRAIN (RD)							
	FLOOR DRAIN (FD)							
	HOSE BIB OR WALL HYDRANT							
	FLOOR RECEPTOR (FR)							
•	PUMP							
⊚ _{C.O.}	CLEAN OUT DECK PLATE							
	WATER HAMMER ARRESTER							
*	PRESSURE & TEMPERATURE RELIEF VALVE							
}	UNION							
≥	BUTTERFLY VALVE							
—————————————————————————————————————	GATE VALVE							
→	GLOBE VALVE							
	PRESSURE REGULATOR							
	FLOW BALANCING VALVE							
 	PLUG VALVE							
	PIPE CAP							
·	FLOW IN DIRECTION OF ARROW							
•	CONNECT NEW TO EXISTING							
<u></u>	FLOAT & THERMOSTATIC TRAP							
5	SOLENOID VALVE							
ı,	CLEAN OUT							
. P.								
\bowtie	PRESSURE REDUCING VALVE							

<u>DRA</u>	WING SYMBOLS
AC X	EQUIPMENT TAG
	SECTION NUMBER & DRAWING NUMBER
X	DETAIL NUMBER
⟨x⟩	SHEET NOTE

ALL ABBREVIATIONS AND SYMBOLS MAY NOT APPEAR ON THE DRAWINGS FOR THIS PROJECT.

PLUMBING NOTES

- 1. ALL NEW PLUMBING WORK SHALL CONFORM TO THE PLUMBING CODE OF NEW YORK STATE.
- 2. ALL MATERIALS USED SHALL BE NEW, UNLESS OTHERWISE NOTED.
- 3. THE PLUMBING CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR HIS WORK AND MATERIALS AND SHALL GUARANTEE THE WORK OF HIS CONTRACT FOR A PERIOD OF ONE YEAR FROM THE DATE OF COMPLETION OF HIS WORK.
- 4. PLUMBING CONTRACTOR SHALL CONSULT AND COOPERATE WITH THE GENERAL CONTRACTOR, HEATING AND VENTILATING CONTRACTOR,

AUTHORITIES HAVING JURISDICTION AND SUBMIT THE WORK TO ALL

- ELECTRICAL CONTRACTOR, ETC., IN ORDER TO AVOID INTERFERENCE DURING INSTALLATION OF PIPING, EQUIPMENT, ETC. 5. PLUMBING CONTRACTOR SHALL PERFORM ALL TESTS REQUIRED BY THE LOCAL
- 6. PLUMBING CONTRACTOR SHALL MAKE ALL FINAL CONNECTIONS TO ALL

INSPECTIONS REQUIRED BY THEM AT NO ADDITIONAL COST TO THE CLIENT.

CONTRACTOR SHALL FURNISH ALL CERTIFICATES OF INSURANCE AS REQUIRED

- PLUMBING EQUIPMENT REGARDLESS OF WHETHER SHOWN HERE-IN WITHOUT ANY ADDITIONAL COST TO THE CLIENT. 7. PLUMBING CONTRACTOR SHALL CHECK JOB SITE FOR EXISTING PLUMBING AND
- SIZES BEFORE BIDDING ON THE JOB. 8. PLUMBING CONTRACTOR SHALL DO ALL NECESSARY CUTTING, EXCAVATION,
- BACK-FILLING FOR THE INSTALLATION OF NEW PLUMBING AND PATCHING BACK TO ORIGINAL STATE.
- 9. ALL NEW PLUMBING CONNECTIONS TO THE NEW PLUMBING EQUIPMENT SHALL BE IN ACCORDANCE WITH THE PLUMBING CODE OF NEW YORK STATE AND THE
- MANUFACTURER'S SPECIFICATIONS.
- BE NO-HUB CAST IRON OR GALVANIZED.

10. ALL NEW SOIL, WASTE, VENT PIPING AND FITTINGS ABOVE FINISH FLOOR SHALL

- 11. ALL NEW COLD WATER PIPING, HOT WATER PIPING AND FITTINGS SHALL BE COPPER TUBING TYPE "L" WITH COPPER FITTINGS AND LEAD FREE SOLDER CONNECTION.
- 12. ALL NEW PIPING HANGERS AND SUPPORTS SHALL COMPLY WITH THE PLUMBING CODE OF NEW YORK STATE.
- 13. ALL NEW COLD AND HOT WATER SUPPLY PIPING SHALL HAVE QUARTER-TURN ANGLE STOP VALVES INSTALLED UNDER ALL NEW PLUMBING FIXTURES.
- 14. ALL NEW EXPOSED PIPING AND FITTINGS AT FIXTURES SHALL BE HEAVY PIPING
- PASSING THROUGH WALLS ON BOTH SIDES. 15. PROVIDE HEAVY CHROME PLATED ESCUTCHEON PLATES AROUND ALL NEW
- PIPING PASSING THROUGH WALLS ON BOTH SIDES. 16. PLUMBING CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS ON NEW PLUMBING FIXTURES AND EQUIPMENT FOR APPROVALS BEFORE INSTALLATION

REFERENCE CODES:

OF SAME.

- . 2020 BUILDING CODE OF NEW YORK STATE
- 2. 2020 EXISTING BUILDING CODE OF NEW YORK STATE
- 3. 2020 FIRE CODE OF NEW YORK STATE
- 4. 2020 MECHANICAL CODE OF NEW YORK STATE
- 5. 2020 PLUMBING CODE OF NEW YORK STATE
- 6. 2020 FUEL GAS CODE OF NEW YORK STATE
- . NATIONAL ELECTRICAL CODE 2017 (NFPA 70)
- 2020 ENERGY CONSERVATION CONSTRUCTION CODE OF NEW YORK STATE

GENERAL CONSTRUCTION NOTES

- . CONTRACTOR SHALL CHECK AND VERIFY THE EXACT LOCATION OF ALL PIPE PENETRATIONS AND MAKE CERTAIN THERE ARE NO OBSTRUCTIONS AND INTERFERENCES.
- 2. CONTRACTOR SHALL REFER TO AND COORDINATE WITH ARCHITECTURAL DRAWINGS AND WORK FOR EXACT LOCATION OF ALL PLUMBING FIXTURES.
- CONTRACTOR SHALL REFER TO AND COORDINATE WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS, INCLUDING WORK FOR ALL CONCRETE PITS,
- . UNDERGROUND PIPING REQUIREMENTS FOR PROTECTING THE PIPES, BACK FILLING AND UNIFORM SOIL BEARING ALONG THE LENGTH OF THE PIPE. REFER TO PLUMBING DETAILS & STRUCTURAL DRAWINGS FOR PIPE SUPPORT AND
- 5. CONTRACTOR SHALL COORDINATE ALL UNDER SLAB PIPE LAYOUT WITH FOUNDATION PLAN.

ENCASEMENT DETAILS.

TO ORIGINAL STATE.

UNDERGROUND PIPE SUPPORT AND OTHER RELEVANT DETAILS.

- 6. ALL PIPES PENETRATED THROUGH WALLS, FLOORS, AND UNDERGROUND FOUNDATION WALLS SHALL BE PROVIDED WITH REQUIRED OPENINGS, SLEEVES, SEALS AND PACKING.
- . THE PLUMBING CONTRACTOR SHALL ASSUME ALL RESPONSIBILITY FOR HIS WORK AND MATERIALS AND SHALL GUARANTEE THE WORK OF HIS CONTRACT
- FOR A PERIOD OF ONE YEAR FROM THE DATE OF COMPLETION OF HIS WORK. 8. PLUMBING CONTRACTOR SHALL DO ALL NECESSARY CUTTING, EXCAVATION, BACK-FILLING FOR THE INSTALLATION OF NEW PLUMBING AND PATCHING BACK
- 9. THROUGHOUT THE DURATION OF THE PROJECT REFRAIN FROM ACTIONS THAT COULD LEAD TO THE FILING OF CLAIMS OF LIEN BY SUBCONTRACTORS. SUPPLIERS OF MATERIALS, LABOR, SERVICE, EQUIPMENT, OR ANY OTHER INDIVIDUAL OR COMPANY SO ENTITLED UNDER GOVERNING LAWS AND REGULATIONS UNLESS REASONABLE AND JUSTIFIABLE CAUSE CAN BE SHOWN. APPROVAL FOR PAYMENT SHALL BE CONTINGENT UPON THE CONTRACTOR'S OBTAINING AND FURNISHING TO THE OWNER SIGNED RELEASES FROM SUCH INDIVIDUALS OR COMPANIES.
- 10. THE CONTRACTOR IS RESPONSIBLE FOR CHECKING CONTRACT DOCUMENTS, FIELD CONDITIONS, AND DIMENSIONS FOR ACCURACY AND CONFIRMING THAT WORK IS BUILDABLE AS SHOWN BEFORE PROCEEDING WITH CONSTRUCTION. IF THERE ARE ANY QUESTIONS REGARDING THESE OR OTHER COORDINATION ISSUES, THE CONTRACTOR SHALL SUBMIT THEM, IN WRITING, TO THE ENGINEER AND IS RESPONSIBLE FOR OBTAINING A WRITTEN CLARIFICATION FROM THE
- ENGINEER BEFORE PROCEEDING WITH WORK IN QUESTION, OR RELATED WORK. 1. EXECUTE WORK IN ACCORDANCE WITH ANY AND ALL APPLICABLE LOCAL, STATE, FEDERAL CODES, MANUFACTURER'S RECOMMENDATIONS, TRADE AND REFERENCE STANDARDS INCLUDING BUT NOT LIMITED TO: UBC, SEISMIC CODES,
- NEC, NFPA, ASME, UMC, LATEST ENFORCED EDITIONS. 12. THERE SHALL BE NO SUBSTITUTION OF MATERIALS WHERE A MANUFACTURER IS SPECIFIED, WHERE THE TERM "OR EQUAL" IS USED, THE ENGINEER ALONE SHALL DETERMINE EQUALITY BASED UPON INFORMATION SUBMITTED BY THE
- 3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISTRIBUTION OF

DRAWINGS TO ALL TRADES UNDER HIS JURISDICTION.

- 14. DO NOT PROCEED WITH ANY WORK REQUIRING ADDITIONAL COMPENSATION BEYOND THE CONTRACT AMOUNT WITHOUT WRITTEN AUTHORIZATION FROM
- THE OWNER. FAILURE TO OBTAIN AUTHORIZATION SHALL INVALIDATE ANY CLAIM FOR EXTRA COMPENSATION. 15. UPON NOTIFICATION OF COMPLETION OF THE WORK AND DELIVERY OF THE
- CONTRACTOR'S PUNCH-LIST, THE ENGINEER SHALL PREPARE A PUNCH-LIST OF CORRECTIONS, UNSATISFACTORY AND/OR INCOMPLETE WORK, FINAL PAYMENT WILL BE CONTINGENT UPON THE COMPLETION OF THESE ITEMS UNDER THE TERMS OF THE OWNER/CONTRACTOR AGREEMENT.
- 16. ALL MATERIALS SHALL BE NEW, UNUSED, AND OF THE HIGHEST QUALITY IN EVERY RESPECT UNLESS OTHERWISE NOTED. MANUFACTURED MATERIALS AND EQUIPMENT SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS, U.O.N.
- 17. THE CONTRACTOR AND SUBCONTRACTORS SHALL PURCHASE AND MAINTAIN CERTIFICATIONS OF INSURANCE WITH RESPECT TO WORKERS COMPENSATION, PUBLIC LIABILITY AND PROPERTY DAMAGE FOR THE LIMITS AS REQUIRED BY LAW. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INITIATING, MAINTAINING,
- AND SUPERVISING ALL SAFETY PRECAUTIONS IN CONNECTION WITH THE WORK. 18. VERIFY IN THE FIELD, THAT NO CONFLICTS EXIST WHICH WOULD PROHIBIT THE LOCATION OF ANY AND ALL MECHANICAL, TELEPHONE, ELECTRICAL, LIGHTING, PLUMBING, AND SPRINKLER EQUIPMENT (TO INCLUDE ALL REQUIRED PIPING,
- 19. CONTRACTOR SHALL BE RESPONSIBLE FOR HIS WORK WITH ITS COMPLETION AND FINAL ACCEPTANCE AND SHALL REPLACE ANY OF SAME WHICH MAY BE

DUCTWORK, AND CONDUIT) AND THAT ALL REQUIRED CLEARANCES FOR

INSTALLATION AND MAINTENANCE OF ABOVE EQUIPMENT ARE PROVIDED.

- DAMAGED, LOST OR STOLEN, WITHOUT ADDITIONAL COSTS TO THE OWNER. 20. ALL WELDING/BURNING WORK SHALL BE PROPERLY VENTILATED AND PURGED.
- 21. THE CONTRACTOR SHALL HAVE AN ON-SITE FOREMAN DURING ALL ASPECTS OF



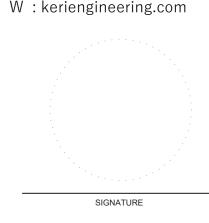
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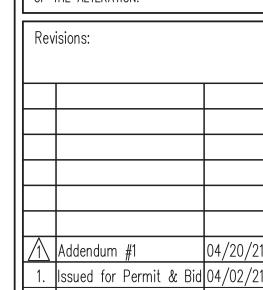


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Key Plan:

No. Revision



Chartwell Pharmaceuticals Building Shell



77 Brenner Drive Congers, New York

Drawing Title: ABBREVIATIONS, SYMBOLS & NOTES

Date:	11/02/2020
Scale:	AS NOTED
Drawn By:	JL
Reviewed By:	SR

KSD Project No.:

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			Г	PLUME	BING FIX	TURE SCHEDU	LE	T
FIXTURE TAG	FIXTURE TYPE	DRAIN	VENT	COLD WATER	HOT WATER	MANUFACTURER	MODEL	DESCRIPTION
FD-1	FLOOR DRAIN (BATHROOM)	4"	2"	-	-	JAY R SMITH	2010A	DUCO CAST IRON BODY WITH FLASHING COLLAR AND ADJUSTABLE STRAINER. OPTIONS: ROUND STRAINER: POLISHED BRONZE (-PB) VANDAL PROOF SCREWS (-U) P-TRAP
FD-2	FLOOR DRAIN (MECH RM.)	4"	2"	1/2"	-	JAY R SMITH	2230	DUCO CAST IRON BODY AND FLASHING COLLAR WITH CAST IRON ADA GRATE AND SLOTTED SEDIMENT BUCKET.DRAIN SHALL HAVE SLOTTED SEDIMENT BUCKET, TRAP PRIMER CONNECTION
FD-3	PROCESS FLOOR DRAIN	4"	2"	½"	-	BLUCHER	BFD-420	STAINLESS STEEL SANITARY FLOOR DRAIN WITH 8" ROUND TOP. OPTIONS: 316 STAINLESS STEEL MATERIAL (-316) STAINLESS STEEL P-TRAP (-P) TRAP PRIMER TAPPING (-TPT) HEAVY DUTY 316 SS LADDER GRATING (BHG-8R) GASTIGHT COVER (-GT) VACUUM HANDLE (-VH4)
FD-4	FUNNEL DRAIN	4"	2"	1/2"	-	JAY R SMITH	3811	CAST IRON FUNNEL DRAIN WITH TRAP PRIMER CONNECTION, 8" FUNNEL, AND ARC INTERIOR & EXTERIOR
RD-1	ROOF DRAIN	5"	-	-	-	BY ARCHITECT	BY ARCHITECT	MODEL BY ARCHITECT
JS-1	MOP SINK	3"	2"	3/4"	3/4"	BY ARCHITECT	BY ARCHITECT	FIXTURE SHALL INCLUDE THERMOSTATIC MIXING VALVE COMPLYING WITH ASSE 1070 WITH TEMPERATURE SET NO HIGHER THAN 110° F.
ES-1	EMERGENCY SHOWER	-	-	1"	1"	SPEAKMAN	SE-236	BARRIER FREE CONCEALED CEILING MOUNTED EMERGENCY SHOWER. OPTIONS: SPEAKMAN STW-362 THERMOSTATIC MIXING VALVE.
EW-1	EMERGENCY EYEWASH	-	-	1/2"	1/2"	GUARDIAN	G1805	DECK MOUNTD SWIVEL EMERGENCY EYEWASH. OPTIONS: G3600 LF THERMOSTATIC MIXING VALVE.
LAV-1	LAVATORY	1½"	1½"	½"	½"	BY ARCHITECT	BY ARCHITECT	WALL MOUNTED LAVATORY. OPTIONS: SUPPLY PIPING P-TRAP DRAIN CHAIR CARRIER BATTERY POWERED FAUCET THERMOSTATIC MIXING VALVE COMPLYING WITH ASSE 1070 WITH TEMPERATURE SET NO HIGHER THAN 110° F. FIXTURE AND ACCESSORIES SHALL BE BARRIER FREE
LAV-2	LAVATORY	1½"	1½"	1/2"	½"	BY ARCHITECT	BY ARCHITECT	UNDER COUNTER BOWL LAVATORY. OPTIONS: SUPPLY PIPING P-TRAP DRAIN BATTERY POWERED FAUCET THERMOSTATIC MIXING VALVE COMPLYING WITH ASSE 1070 WITH TEMPERATURE SET NO HIGHER THAN 110° F. FIXTURE AND ACCESSORIES SHALL BE BARRIER FREE
SK-1	SINK	1½"	1½"	1/2"	½"	BY ARCHITECT	BY ARCHITECT	MODEL BY ARCHITECT OPTIONS: SUPPLY PIPING P-TRAP DRAIN FAUCET THERMOSTATIC MIXING VALVE COMPLYING WITH ASSE 1070 WITH TEMPERATURE SET NO HIGHER THAN 110° F. FIXTURE AND ACCESSORIES SHALL BE BARRIER FREE
SK-2	SINK	1½"	1½"	½"	½"	BY ARCHITECT	BY ARCHITECT	MODEL BY ARCHITECT OPTIONS: SUPPLY PIPING P-TRAP DRAIN FAUCET THERMOSTATIC MIXING VALVE COMPLYING WITH ASSE 1070 WITH TEMPERATURE SET NO HIGHER THAN 110° F. FIXTURE AND ACCESSORIES SHALL BE BARRIER FREE
SK-3	SINK	1½"	1½"	1/2"	1/2"	BY ARCHITECT	BY ARCHITECT	MODEL BY ARCHITECT OPTIONS: SUPPLY PIPING P-TRAP DRAIN FAUCET THERMOSTATIC MIXING VALVE COMPLYING WITH ASSE 1070 WITH TEMPERATURE SET NO HIGHER THAN 110° F. FIXTURE AND ACCESSORIES SHALL BE BARRIER FREE
SK-4	SINK	2"	1½"	½"	½"	BY ARCHITECT	BY ARCHITECT	MODEL BY ARCHITECT OPTIONS: SUPPLY PIPING P-TRAP DRAIN FAUCET THERMOSTATIC MIXING VALVE COMPLYING WITH ASSE 1070 WITH TEMPERATURE SET NO HIGHER THAN 110° F. FIXTURE AND ACCESSORIES SHALL BE BARRIER FREE
SH-1	SHOWER	2"	1½"	½"	½"	BY ARCHITECT	BY ARCHITECT	MODEL BY ARCHITECT OPTIONS: SUPPLY PIPING P-TRAP DRAIN SHOWER HEAD THERMOSTATIC MIXING VALVE COMPLYING WITH ASSE1016 WITH TEMPERATURE SET NO HIGHER THAN 105° F
SH-2	SHOWER	2"	1½"	½"	½"	BY ARCHITECT	BY ARCHITECT	MODEL BY ARCHITECT OPTIONS: SUPPLY PIPING P-TRAP DRAIN SHOWER HEAD THERMOSTATIC MIXING VALVE COMPLYING WITH ASSE1016 WITH TEMPERATURE SET NO HIGHER THAN 105° F
SH-3	SHOWER	2"	1½"	1/2"	1/2"	BY ARCHITECT	BY ARCHITECT	MODEL BY ARCHITECT OPTIONS: SUPPLY PIPING P-TRAP DRAIN SHOWER HEAD THERMOSTATIC MIXING VALVE COMPLYING WITH ASSE1016 WITH TEMPERATURE SET NO HIGHER THAN 105° F
EWC-1	ELECTRIC WATER COOLER	1½"	1½"	½"	-	BY ARCHITECT	BY ARCHITECT	MODEL BY ARCHITECT. ELECTRICAL REQUIREMENTS: 120V/1PH/60HZ OPTIONS: P-TRAP FILTER FIXTURE AND ACCESSORIES SHALL BE BARRIER FREE
UR-1	URINAL	2"	1½"	3/4"	-	BY ARCHITECT BY ARCHITECT		BARRIER FREE WALL OUTLET URINAL. FIXTURE SHALL COME WITH BATTERY POWERED FLUSH VALVE AND CARRIER
WC-1	WATER CLOSET	4"	2"	1"	-	BY ARCHITECT	BY ARCHITECT	BARRIER FREE WALL OUTLET WATER CLOSET. FIXTURE SHALL COME WITH BATTERY POWERED FLUSH VALVE, CARRIER AND TOILET SEAT.
HB-1	HOSE BIB	-	-	3/4"	-	BY ARCHITECT	BY ARCHITECT	BRONZE NICKEL PLATED QUARTER TURN SELF DRAINING, NON-FREEZE HYDRANT WITH HOSE CONNECTION, INTEGRAL VACUUM BREAKER, ADJUSTABLE WALL CLAMP, CYLINDER LOCK, T-HANDLE KEY AND STAINLESS STEEL BOX WITH FULL 180° COVER OPENING.

	DOMESTIC WATER HEATER												
WATER	RECOVERY RATE @ GALLONS INPUT ELECTRICAL APPROX		APPROX DIMENSIONS (INCHES)										
HEATER	LOCATION	100° F (GPH)	STORAGE	KW	VOLT	PHASE	AMPS	WEIGHT LBS.	DIMENSIONS (INCHES) HxD	BASIS OF DESIGN	MODEL	REMARKS	
DWH-1	JANITOR'S CLOSET 126	148	100	30	480	3	36.1	406	70.25" x 28"	AO SMITH	DSE-100A	1,2,3,4	
DWH-2	JANITOR'S CLOSET 220	49	25	6	480	3	7.2	145	31.75" x 22"	AO SMITH	DSE-20A	1,2,3,4	
DWH-3	UNISEX BATH. 247	18	10	3	277	1	10.8	53	22-7/8"x 15-3/4"	RHEEM	EGSP10	2	

- 1. HEATER SHALL BE EQUIPPED WITH AN INTEGRATED CONTROL SYSTEM CONSISTING OF A 180°F ADJUSTABLE THERMOSTAT WITH UPPER AND LOWER SENSING BULBS.
- HEATER SHALL BE DESIGN-CERTIFIED BY UL (UNDERWRITERS LABORATORIES) TO CURRENT EDITION OF ANSI Z.21.10.3 CSA 4.3 STANDARDS GOVERNING STORAGE-TYPE WATER HEATERS.
 MEETS THE THERMAL EFFICIENCY AND STANDBY LOSS REQUIREMENTS OF THE U. S. DEPARTMENT OF ENERGY AND CURRENT EDITION OF
- 4. WATER HEATER SHALL HAVE LEONARD XL-32A-LF-BDT THERMOSTATIC MIXING VALVE.

	SUMP PUMP SCHEDULE											
NO.	SERVICE	LOCATION	GPM PER PUMP	FT TDH	MOTOR DATA				BASIS OF DESIGN	MODEL	REMARKS	
					HP	HP RPM VOLTAGE PH HZ						
SP-1	ELEVATOR SUMP	ELEVATOR PIT	30	15.00	1/2	3600	120	1	60	STANCOR	SE-50	1

1. PUMP SHALL BE SIMPLEX SETUP WITH STANCOR OIL MINDER CONTROL PANEL.

	HOT WATER RETURN PUMP SCHEDULE													
NO.	SERVICE	LOCATION	GPM PER PUMP	FT TDH		MOTOR DATA					MODEL	REMARKS		
					HP	RPM	VOLTAGE	PH	HZ					
HWRP-1	DWH-1	JANITOR'S CLOSET 126	4	18	1⁄8	2750	1	60	115	GRUNDFOS	UP15-55SFC	1,2		
HWRP-2	DWH-2	JANITOR'S CLOSET 220	4	18	1⁄8	2750	1	60	115	GRUNDFOS	UP15-55SFC	1,2		
HWRP-3	DWH-3	UTILITY ROOM (EXISTING BUILDING)	4	18	1/8	2750	1	60	115	GRUNDFOS	UP15-55SFC	1,2		
REMARKS:	•			•	•					· ·		•		

IN-LINE PUMP WITH AQUASTAT CONTROL.
 PUMP SHALL BE MADE OF BRONZE AND BE LEAD-FREE.

	EXPANSION TANK SCHEDULE													
			DESIGN PRESS	SURE (PSIG)		SIZE		ACCEPT	BASIS OF					
TAG	SERVICE	LOCATION	PRECHARGED	TANK	DIA. (IN)	LENGTH (IN)	VOLUME (GALLONS)	VOLUME (GALLONS)	DESIGN	MODEL	REMARKS			
ET-1	DWH-1	JANITOR'S CLOSET 126	55	150.00	12	15-5/8	6	3	BELL & GOSSETT	PTA-12	1			
ET-2	DWH-2	JANITOR'S CLOSET 220	55	150.00	12	15-5/8	6	3	BELL & GOSSETT	PTA-12	1			

1. UNIT SHALL BE LEAD FREE LISTED FOR DOMESTIC WATER USE

WATER HA	MMER ARR	ESTOR			
UNIT NO.	WHA-1	WHA-2			
LOCATION	AS SHOWN ON RISER DIAGRAM				
SERVING	DOMESTIC COLD WATER AND HOT WATER				
MANUFACTURER	WATTS INDUSTRIES, INC.				
MODEL	15M2-B	15M2-A			
SIZE	3⁄4"	1/2"			

VACUUM PUMP SCHEDULE														
TAG	SERVICE	NUMBER OF PUMPS	LOCATION	CAPACITY @19" HG	RECEIVER		DIMENSIONS	WT.	BASIS OF	MODEL	REMARKS			
				(SCFM)	(GALLONS)	HP	V	PH	HZ	LxWxH	(LBS)	DESIGN		
VAC-1	2ND FLOOR	2 (DUPLEX)	USP WATER 219	22.1	80	5	460	3	60	74x35x60	1204	PATTONS MEDICAL	70B-21-052(A)	1,2,3

- VACUUM PUMP PACKAGE SHALL BE INSTALLED WITH VIBRATION ISOLATION SYSTEM.
 VACUUM PUMPS SHALL BE OIL-LESS ROTARY VANE TYPE.
 VACUUM PUMP PACKAGE SHALL INCLUDE CONTROL SYSTEM WITH TOUCH SCREEN DISPLAY.



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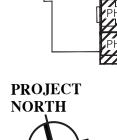
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THEIR SIGNATURE AND THE DATE OF SUCH
ALTERATION AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

Rev	isions:	
$\overline{\Lambda}$	Addendum #1	04/20/21

Issued for Permit & Bid 04/02

Key Plan:



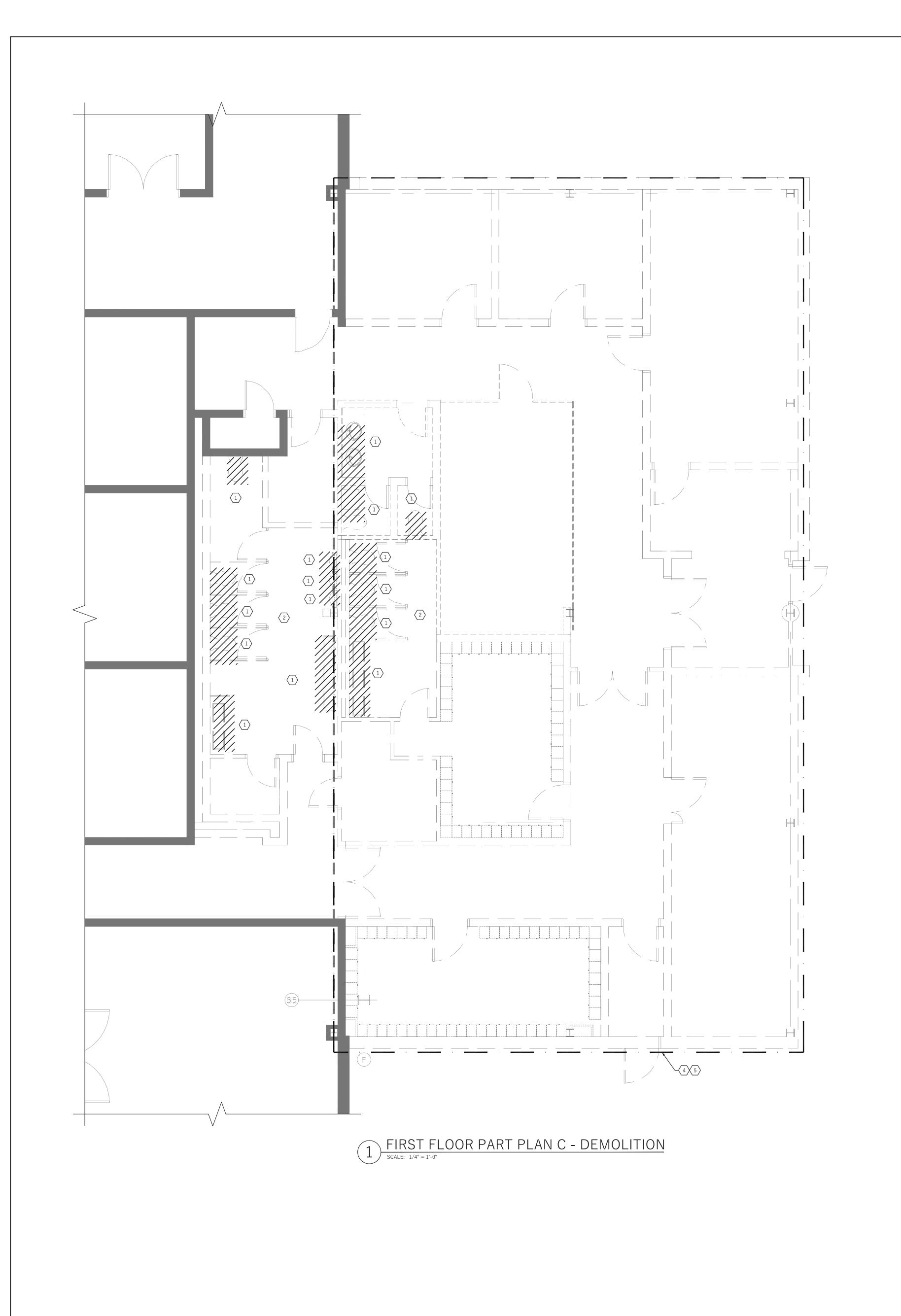
Chartwell Pharmaceuticals

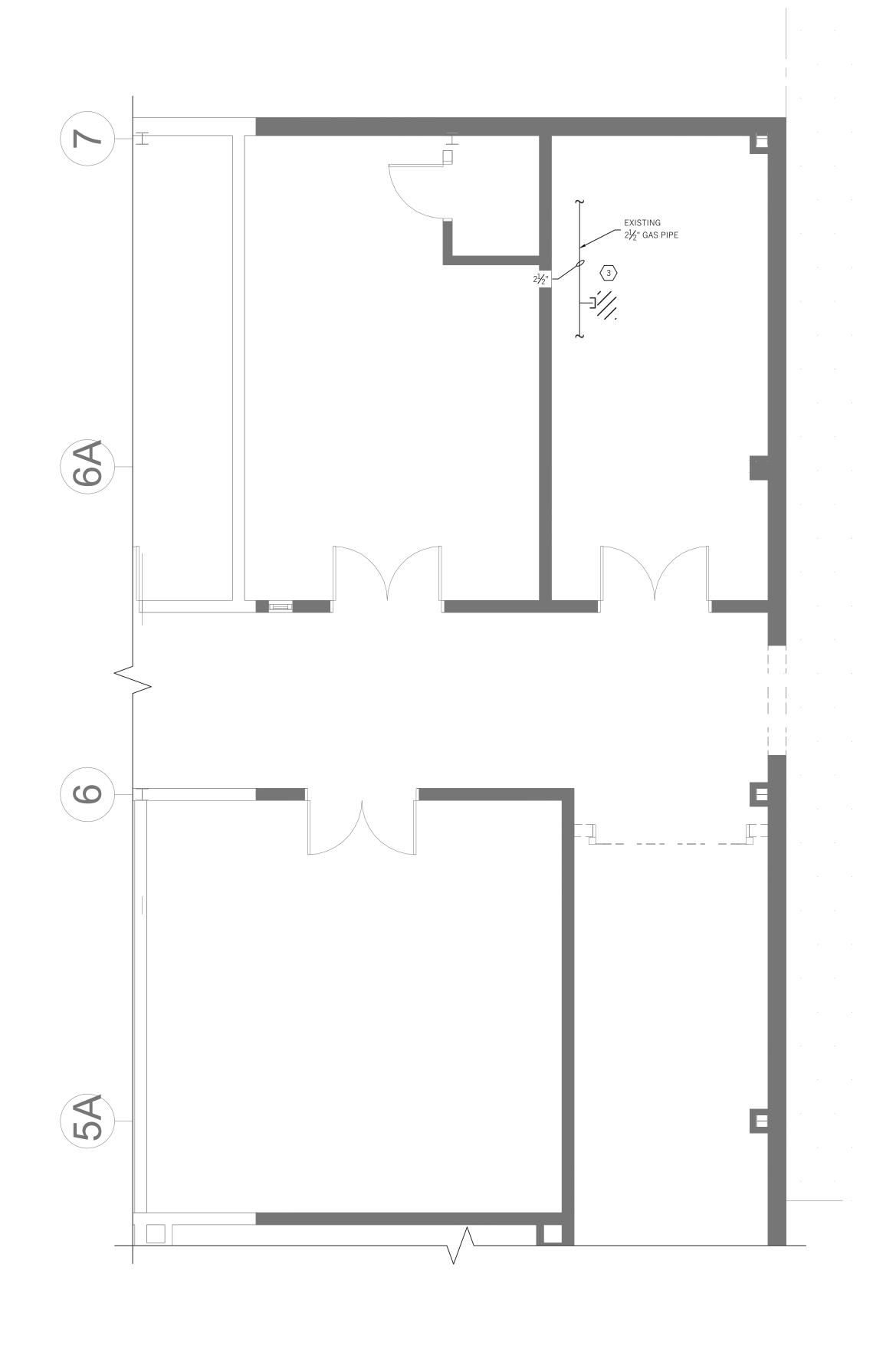


77 Brenner Drive

Congers, New York Drawing Title:
PLUMBING
SCHEDULES

	Date:	11/02/2020
	Scale:	AS NOTED
	Drawn By:	JL
	Reviewed By:	SR
- 1		





2 EXISTING ELECTRICAL ROOM - DEMOLITION
SCALE: 1/4" = 1'-0"

GENERAL NOTES:

- 1. CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT THE AREA OF WORK FROM ANY DAMAGE, DUST AND DEBRIS.
- CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS
- BEFORE PROCEEDING WITH ANY WORK. 3. CONTRACTOR SHALL COORDINATE WITH ALL OTHER TRADES BEFORE PROCEEDING WITH ANY WORK.



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SHEET NOTES:

FOR PHASE C, CONTRACTOR SHALL DEMOLISH AND REMOVE ALL EXISTING PLUMBING FIXTURES AND ASSOCIATED HOT

- HEAVY TRAFFIC USE AND BE FLUSH WITH FLOOR. FOR PHASE C, CONTRACTOR SHALL FIELD VERIFY LOCATION OF EXISTING FLOOR DRAINS IN THE BATHROOM.
 CONTRACTOR SHALL DEMOLISH AND REMOVE EXISTING FLOOR DRAINS AND REPLACE WITH HEAVY TRAFFIC RATED CLEANOUT THAT WILL BE FLUSH WITH NEW FLOOR.
- CONTRACTOR SHALL DEMOLISH AND CAP GAS PIPING DROP ABOVE CEILING.

WATER, COLD WATER, SANITARY, AND VENT PIPING BACK TO MAIN. SANITARY AND VENT PIPING SHALL BE DEMOLISHED AND CAPPED BELOW THE SLAB. CAP SHALL BE RATED FOR

- CONTRACTOR SHALL FIELD VERIFY DEMOLISH AND CAP EXISTING STORM DRAIN PIPING.
- CONTRACTOR SHALL FIELD VERIFY DEMOLISH AND CAP EXISTING GAS PIPING OUTSIDE OF DEMOLISHED BUILDING

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1. Issued for Permit & Bid 04/02/2

Key Plan:



Chartwell Pharmaceuticals Building Shell

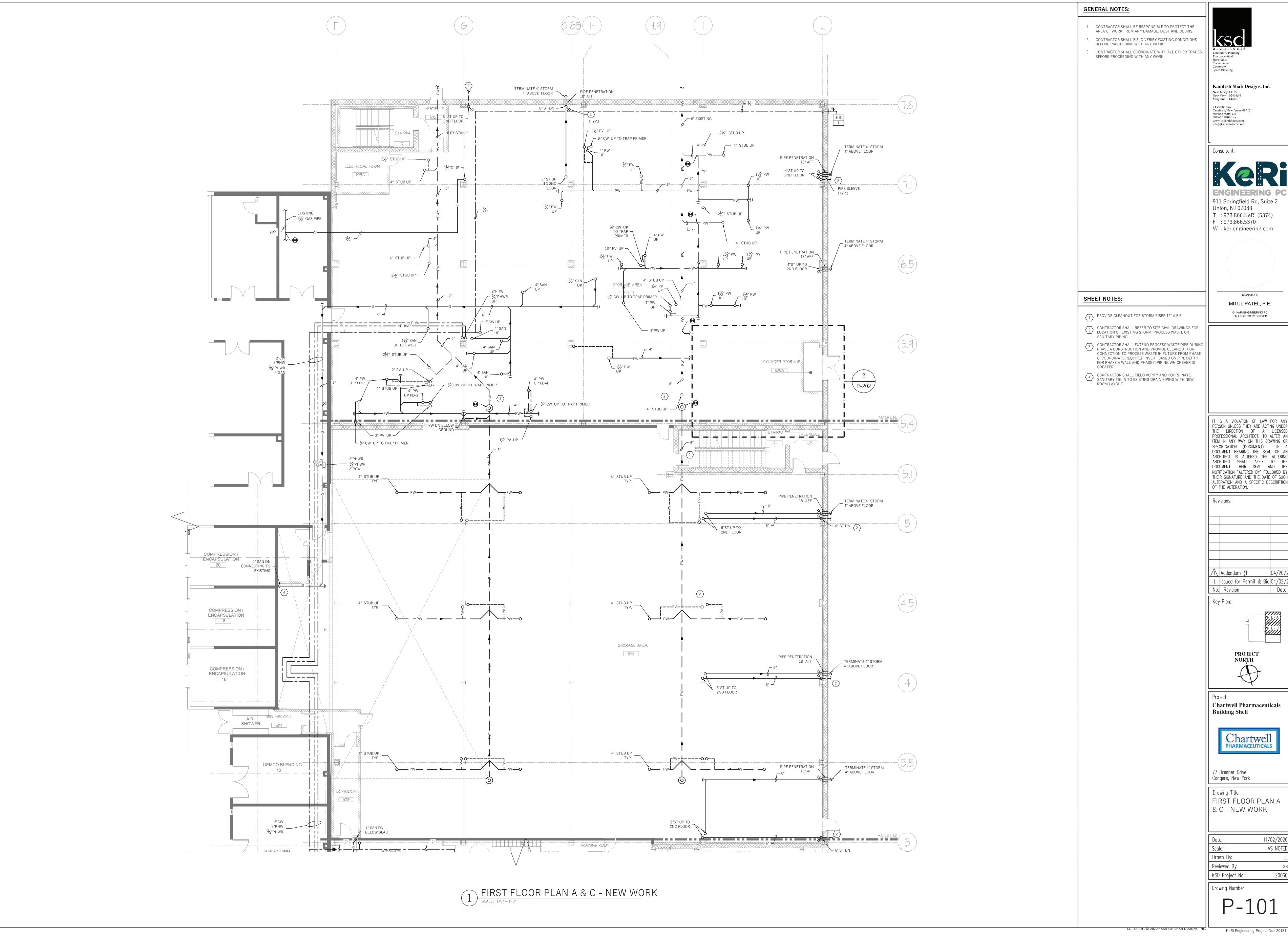


77 Brenner Drive Congers, New York

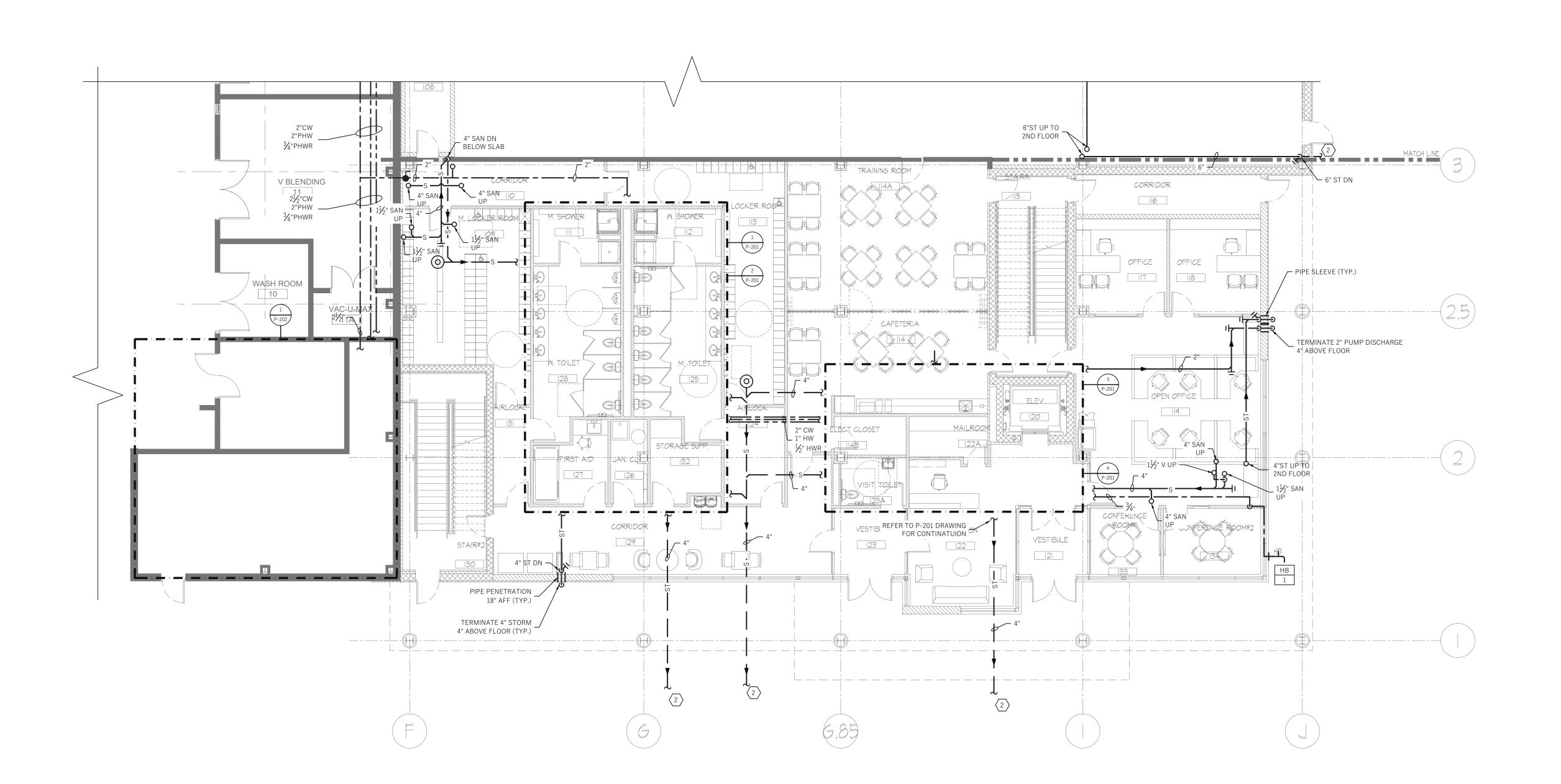
Drawing Title:
FIRST FLOOR PART
PLANS - DEMOLITION

AS NOTED Drawn By: Reviewed By:
KSD Project No.:

Drawing Number



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1 FIRST FLOOR PLAN B - NEW WORK
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

- 1. CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT THE AREA OF WORK FROM ANY DAMAGE, DUST AND DEBRIS.
- CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS BEFORE PROCEEDING WITH ANY WORK.
- 8. CONTRACTOR SHALL COORDINATE WITH ALL OTHER TRADES BEFORE PROCEEDING WITH ANY WORK.



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SHEET NOTES:

- PROVIDE CLEANOUT FOR STORM RISER 12" A.F.F.
- CONTRACTOR SHALL REFER TO SITE CIVIL DRAWINGS FOR LOCATION OF EXISTING STORM, PROCESS WASTE OR SANITARY PIPING.
- CONTRACTOR SHALL EXTEND PROCESS WASTE PIPE DURING PHASE A CONSTRUCTION AND PROVIDE CLEANOUT FOR CONNECTION TO PROCESS WASTE IN FUTURE FROM PHASE C. COORDINATE REQUIRED INVERT BASED ON PIPE DEPTH FOR PHASE A WALL AND PHASE C PIPING WHICHEVER IS
- CONTRACTOR SHALL FIELD VERIFY AND COORDINATE SANITARY TIE-IN TO EXISTING DRAIN PIPING WITH NEW ROOM LAYOUT

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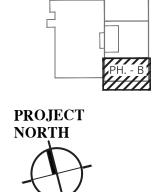
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OF THE ALTERATION.

1\ Addendum #1 Issued for Permit & Bid 04/02/2

Key Plan:

No. Revision



Chartwell Pharmaceuticals

Building Shell

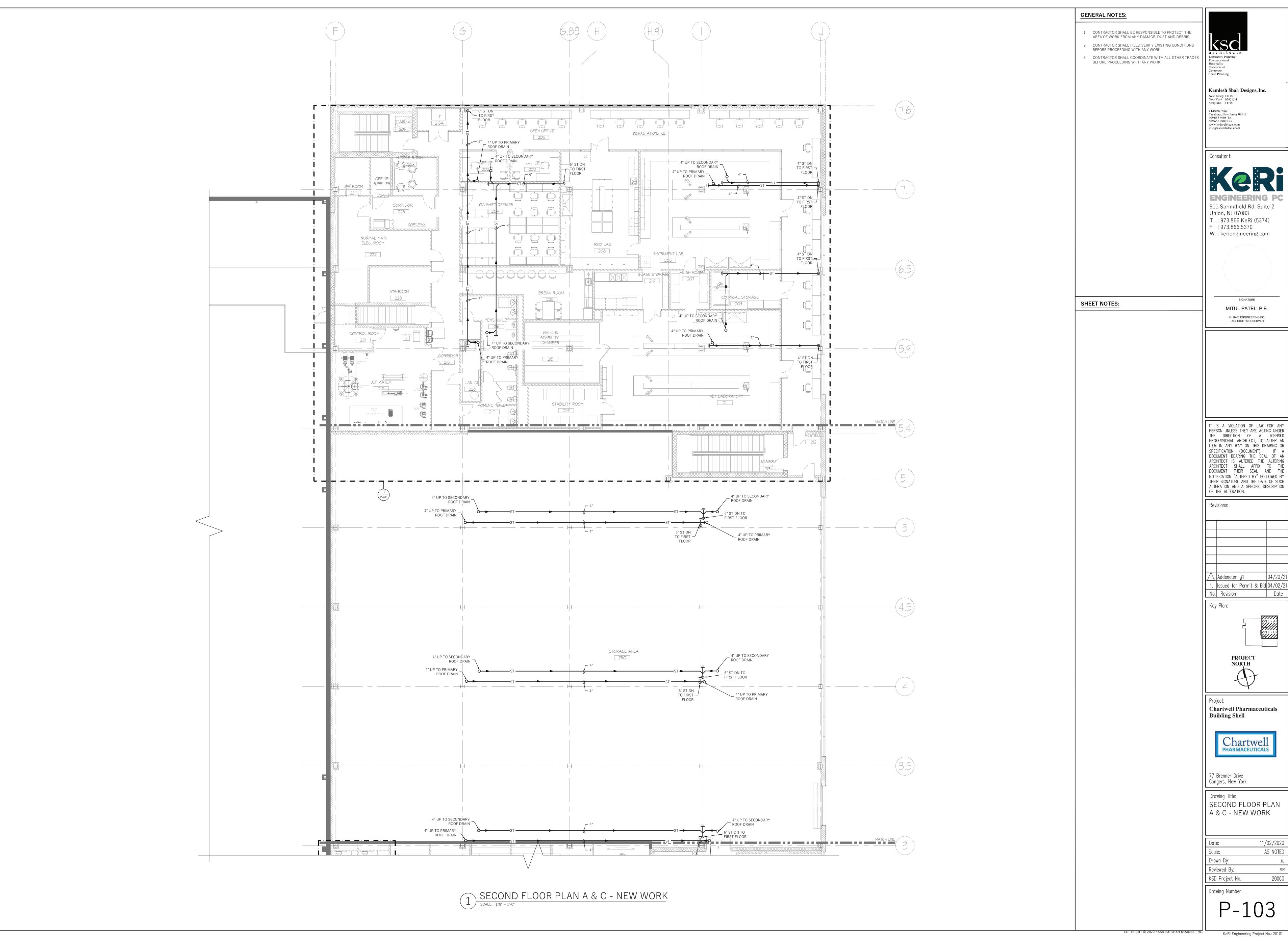


77 Brenner Drive Congers, New York

Drawing Title:
FIRST FLOOR PLAN B
- NEW WORK

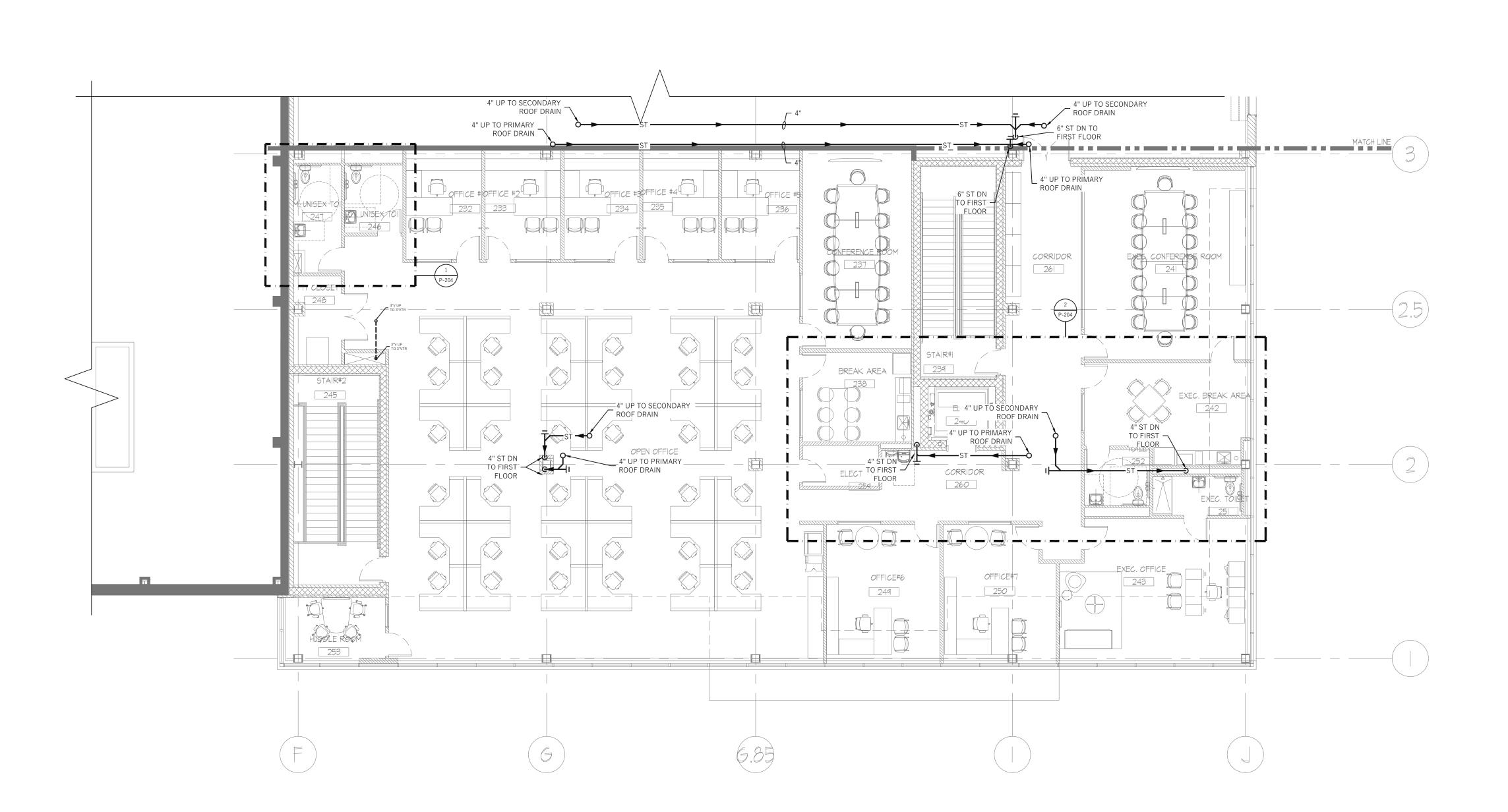
11/02/2020 Drawn By: Reviewed By:
KSD Project No.:

Drawing Number



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11/02/2020 AS NOTED



SECOND FLOOR PLAN B - NEW WORK

SCALE: 1/8" = 1'-0"

GENERAL NOTES:

- 1. CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT THE AREA OF WORK FROM ANY DAMAGE, DUST AND DEBRIS.
- 2. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS BEFORE PROCEEDING WITH ANY WORK.
- 3. CONTRACTOR SHALL COORDINATE WITH ALL OTHER TRADES BEFORE PROCEEDING WITH ANY WORK.



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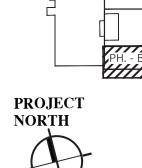
SHEET NOTES:

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1\ Addendum #1 Issued for Permit & Bid 04/02/2 No. Revision

Key Plan:



Chartwell Pharmaceuticals

Building Shell



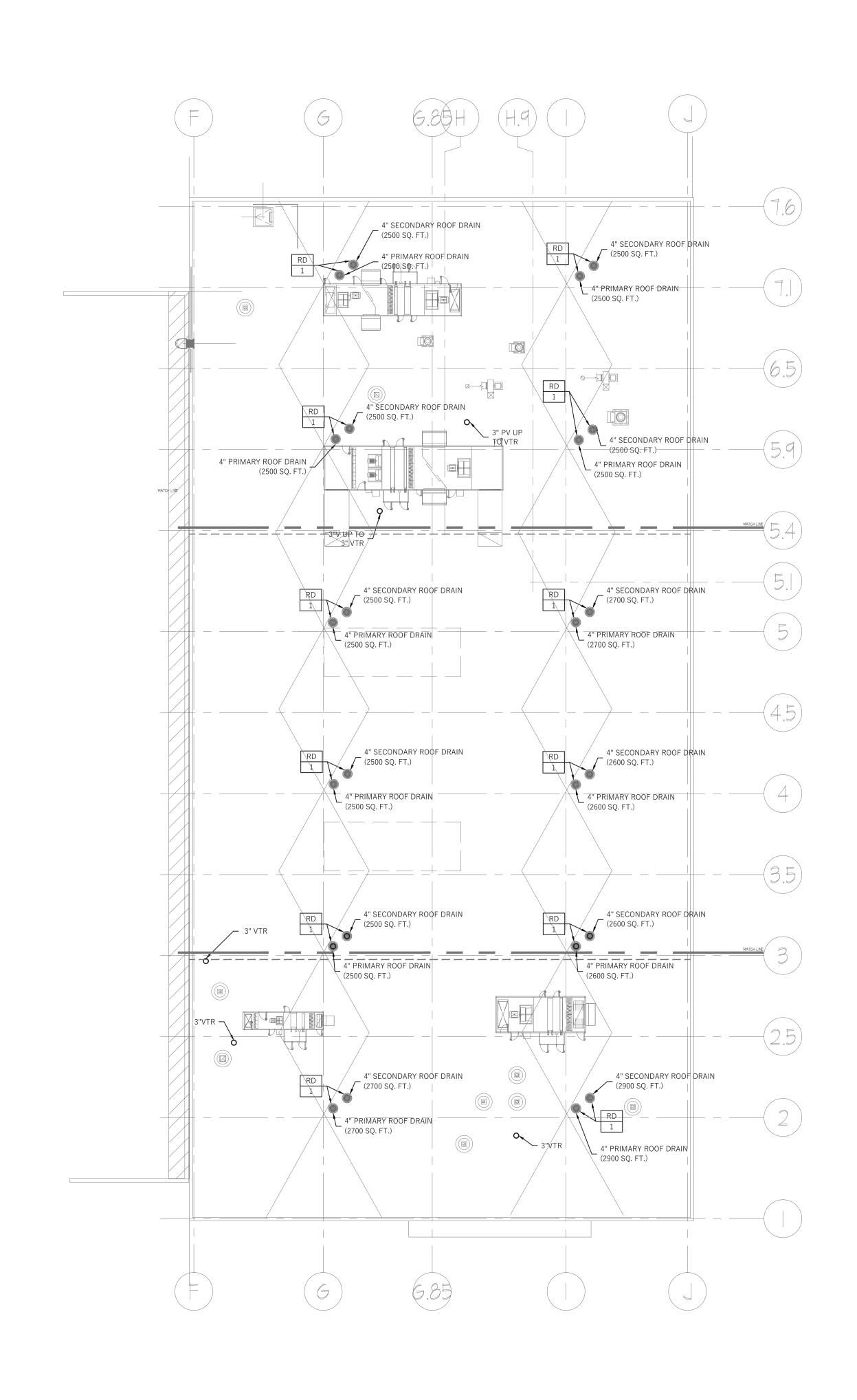
77 Brenner Drive Congers, New York

Drawing Title:
SECOND FLOOR PLAN
B - NEW WORK

11/02/2020 AS NOTED

Drawn By: Reviewed By:
KSD Project No.:

Drawing Number



ROOF PLAN - NEW WORK

SCALE: 1/16" = 1'-0"

GENERAL NOTES:

- CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT THE AREA OF WORK FROM ANY DAMAGE, DUST AND DEBRIS.
- 2. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS BEFORE PROCEEDING WITH ANY WORK.
- 3. CONTRACTOR SHALL COORDINATE WITH OTHER TRADES BEFORE PROCEEDING WITH ANY WORK.



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Addendum #1 04/20/21

1. Issued for Permit & Bid 04/02/21

No. Revision Date

Key Plan:



Project:
Chartwell Pharmaceuticals

Building Shell



77 Brenner Drive Congers, New York

Drawing Title:
ROOF PLAN - NEW
WORK

Scale: AS NOTED

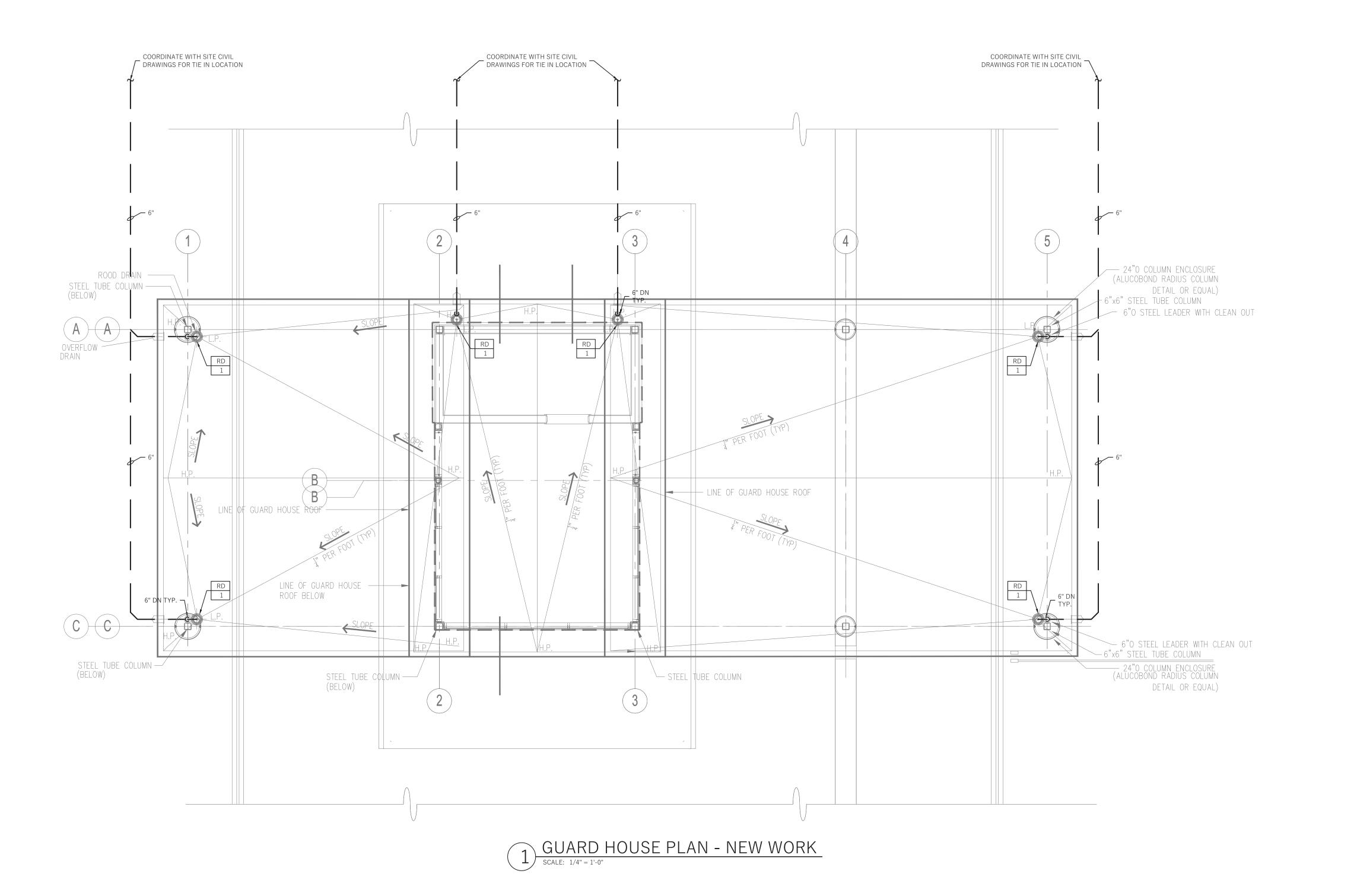
Drawn By: MB

Reviewed By: SR

KSD Project No.: 20060

Drawing Number

P-105



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Rev	Revisions:				
Λ	Addendum #1	04/20/21			
1.	Issued for Permit & Bid	04/02/21			
No.	Revision	Date			

Key Plan:



Project:

Chartwell Pharmaceuticals
Building Shell



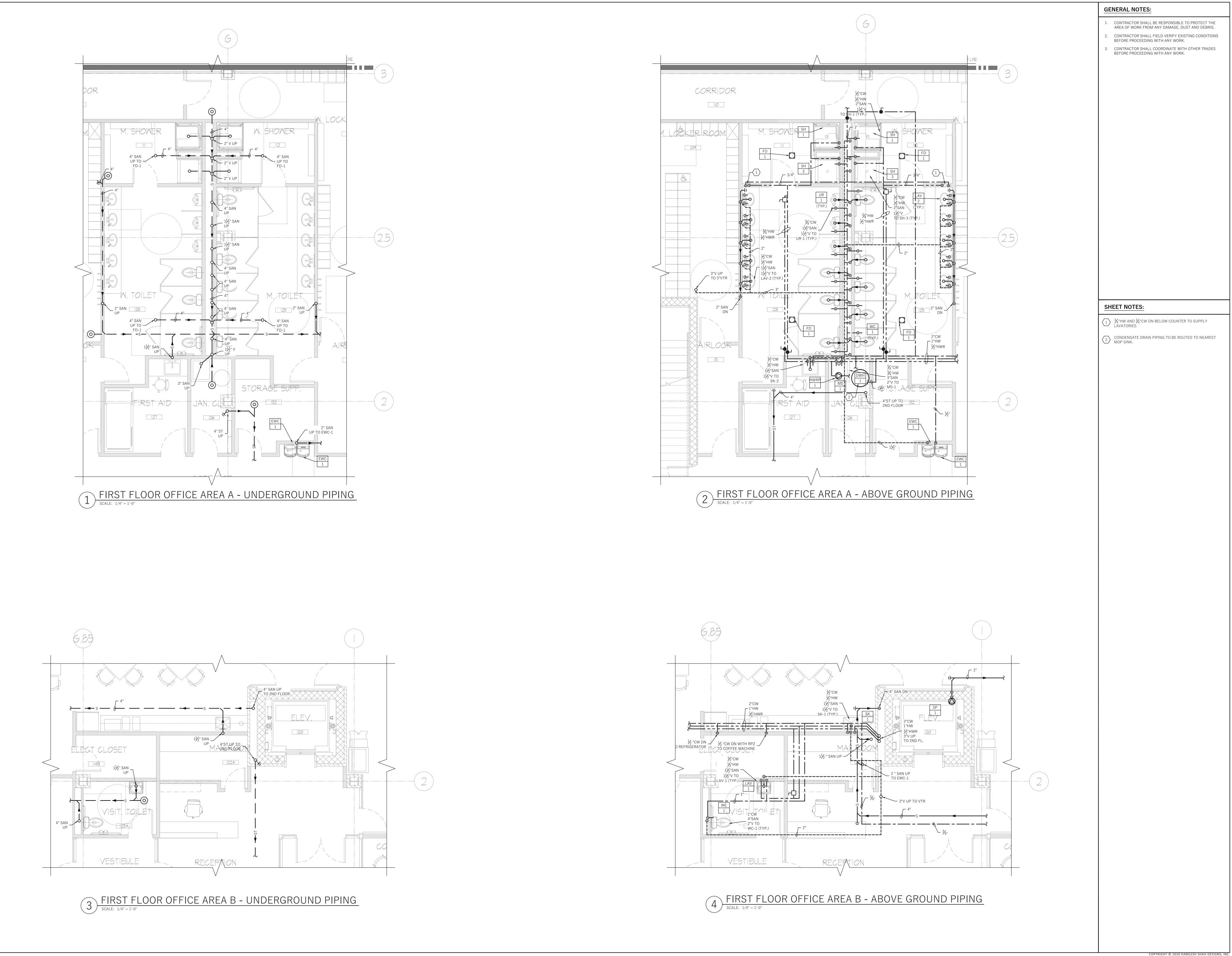
77 Brenner Drive Congers, New York

Drawing Title:
GUARD HOUSE PLAN
- NEW WORK

Date:	11/02/202
Scale:	AS NOTE
Drawn By:	N
Reviewed By:	S

KSD Project No.:

 $\frac{1}{P-106}$





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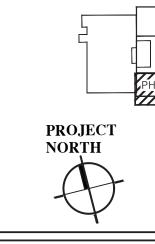
Revisions:

Addendum #1 04/20/21

1. Issued for Permit & Bid 04/02/21

No. Revision Date

Key Plan:



Project:
Chartwell Pharmaceuticals
Building Shell



77 Brenner Drive Congers, New York

Drawing Title:
FIRST FLOOR OFFICE
AREA PART PLANS NEW WORK

Date: 11/02/2020

Scale: AS NOTED

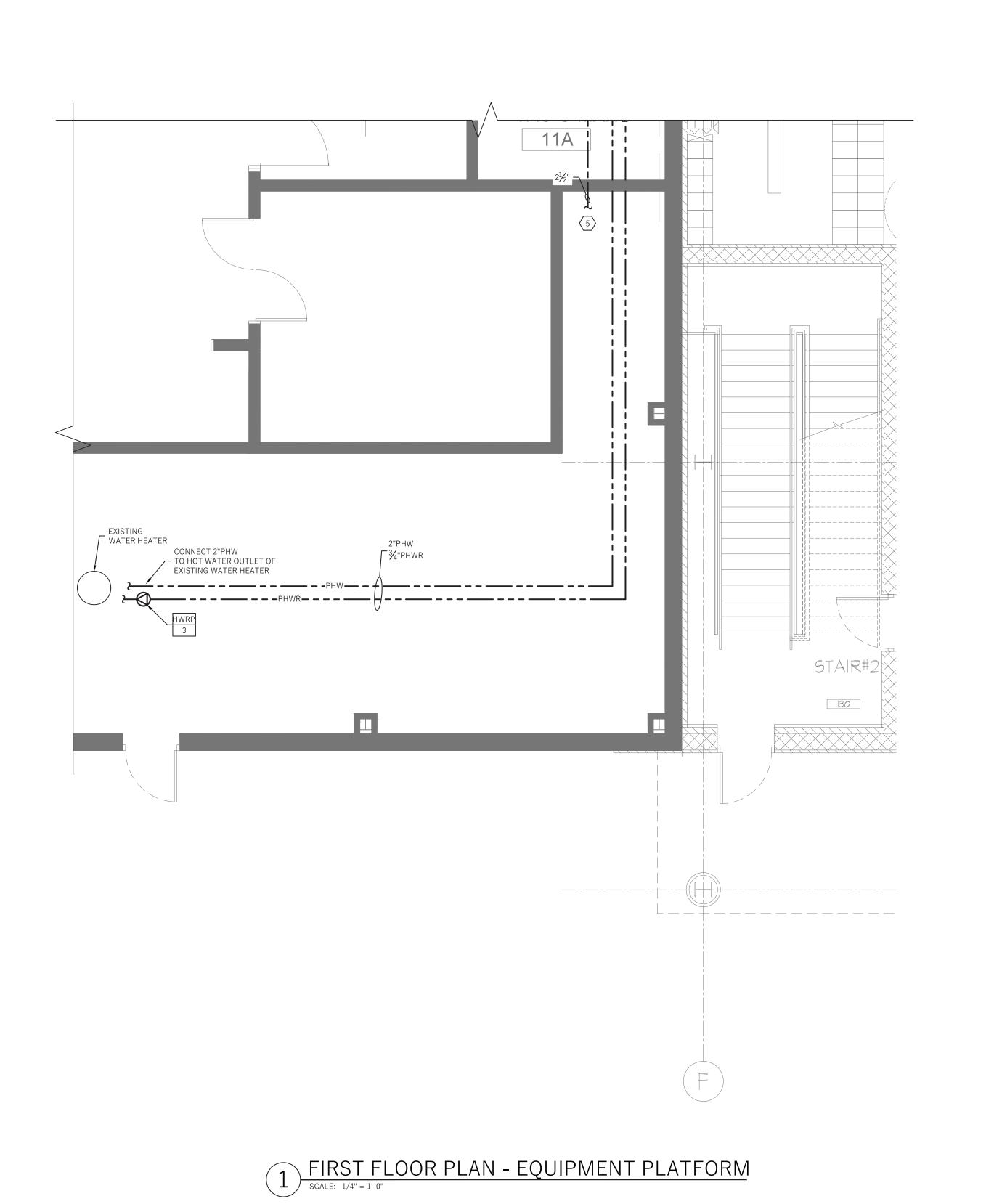
Drawn By: LM

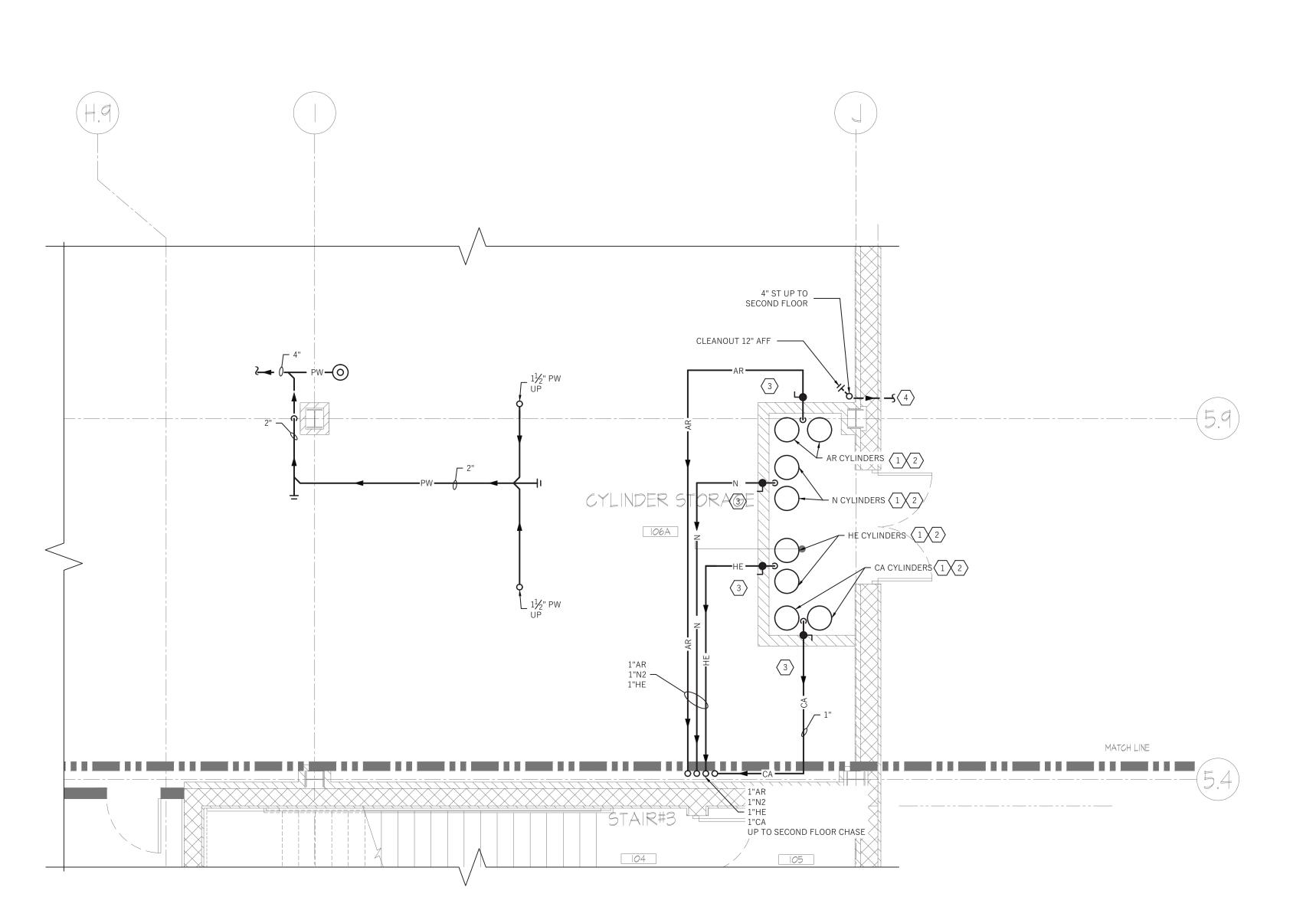
Reviewed By: SR

KSD Project No.: 20060

Drawing Number

P-201





PIRST FLOOR PLAN - CYLINDER CLOSET

SCALE: 1/4" = 1'-0"

GENERAL NOTES:

- CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT THE AREA OF WORK FROM ANY DAMAGE, DUST AND DEBRIS.
- 2. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS BEFORE PROCEEDING WITH ANY WORK.
- 3. CONTRACTOR SHALL COORDINATE WITH OTHER TRADES
 BEFORE PROCEEDING WITH ANY WORK.



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SHEET NOTES:

CONTRACTOR SHALL PROVIDE 1 GAS POINT OF USE PANEL FROM AIRGAS SERIES Y80 TO ALL SINGLE OUTLETS.

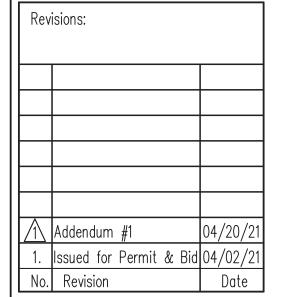
CONTRACTOR SHALL PROVIDE CYLINDER RACKS FROM AIRGAS MODEL G-STD. PROVIDE MANIFOLD FOR EACH GAS SYSTEM WITH ISOLATION VALVES, GAUGES, PRESSURE

PROVIDE MANIFOLD FOR EACH GAS SYSTEM WITH ISOLATION VALVES, GAUGES AND PRESSURE REDUCING

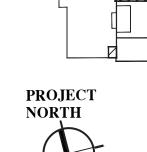
REDUCING VALVES FROM AIRGAS.

- CONTRACTOR SHALL REFER TO SITE CIVIL DRAWINGS FOR LOCATION OF EXISTING STORM PIPING.
- 5 CONTRACTOR SHALL FIELD VERIFY, EXTEND AND CONNECT CW TO EXISTING WATER SERVICE AFTER THE WATER METER AND RPZ.

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Key Plan:



Project:
Chartwell Pharmaceuticals

Building Shell



77 Brenner Drive Congers, New York

Drawing Title:

EXISTING UTILITY

ROOM AND

CYLINDER CLOSET

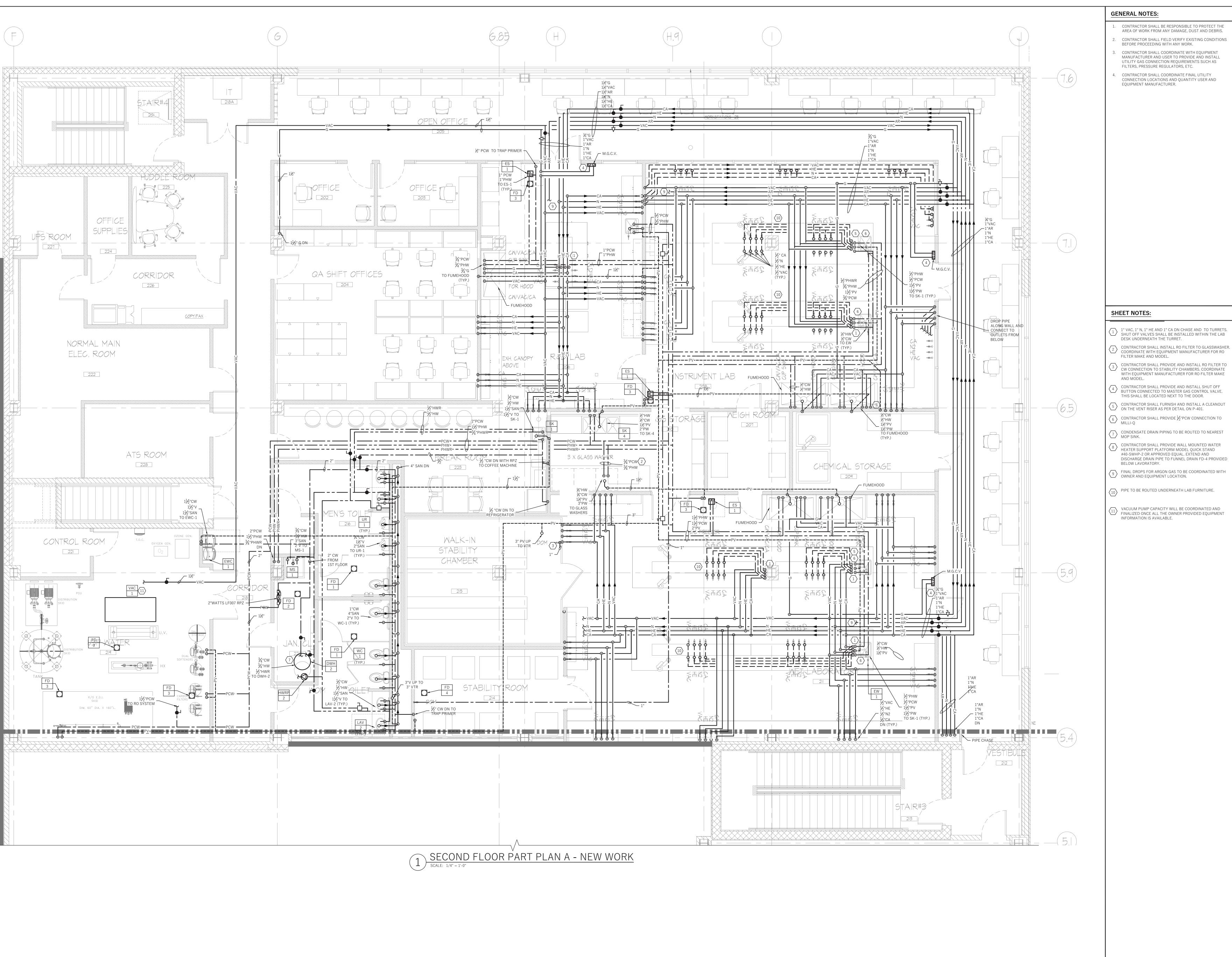
PLANS - NEW WORK

Date:	11/02/2020
Scale:	AS NOTED
Drawn By:	JL
Reviewed By:	SR

Drawing Number

KSD Project No.:

P-202



- CONTRACTOR SHALL BE RESPONSIBLE TO PROTECT THE AREA OF WORK FROM ANY DAMAGE, DUST AND DEBRIS.
 - CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS CONTRACTOR SHALL COORDINATE WITH EQUIPMENT
 - CONTRACTOR SHALL COORDINATE FINAL UTILITY



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- 1" VAC, 1" N, 1" HE AND 1" CA DN CHASE AND TO TURRETS. SHUT OFF VALVES SHALL BE INSTALLED WITHIN THE LAB
- WITH EQUIPMENT MANUFACTURER FOR RO FILTER MAKE
- THIS SHALL BE LOCATED NEXT TO THE DOOR.
- ON THE VENT RISER AS PER DETAIL ON P-401.
- CONDENSATE DRAIN PIPING TO BE ROUTED TO NEAREST MOP SINK.
- 8 CONTRACTOR SHALL PROVIDE WALL MOUNTED WATER HEATER SUPPORT PLATFORM MODEL QUICK STAND #40-SWHP-2 OR APPROVED EQUAL. EXTEND AND DISCHARGE DRAIN PIPE TO FUNNEL DRAIN FD-4 PROVIDED
- 9 FINAL DROPS FOR ARGON GAS TO BE COORDINATED WITH OWNER AND EQUIPMENT LOCATION.
- PIPE TO BE ROUTED UNDERNEATH LAB FURNITURE.
- VACUUM PUMP CAPACITY WILL BE COORDINATED AND FINALIZED ONCE ALL THE OWNER PROVIDED EQUIPMENT

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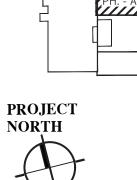
ALTERATION AND A SPECIFIC DESCRIPTION

OF THE ALTERATION.

I\ Addendum #1 I. |Issued for Permit & Bid|04/02

Key Plan:

No. Revision



Chartwell Pharmaceuticals Building Shell

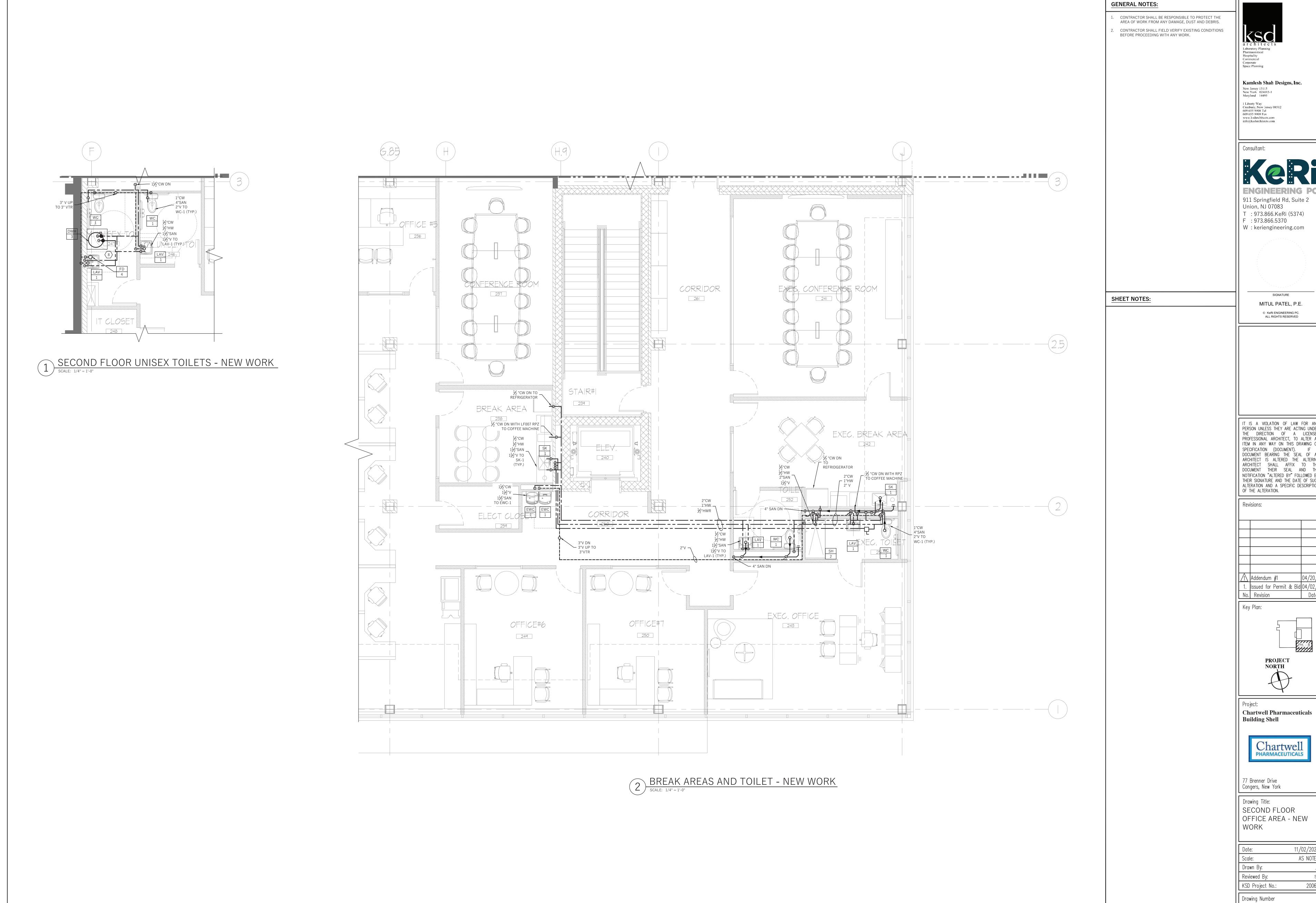


77 Brenner Drive Congers, New York

Drawing Title:
SECOND FLOOR PART PLAN A - NEW WORK

Drawn By: KSD Project No.:

Drawing Number



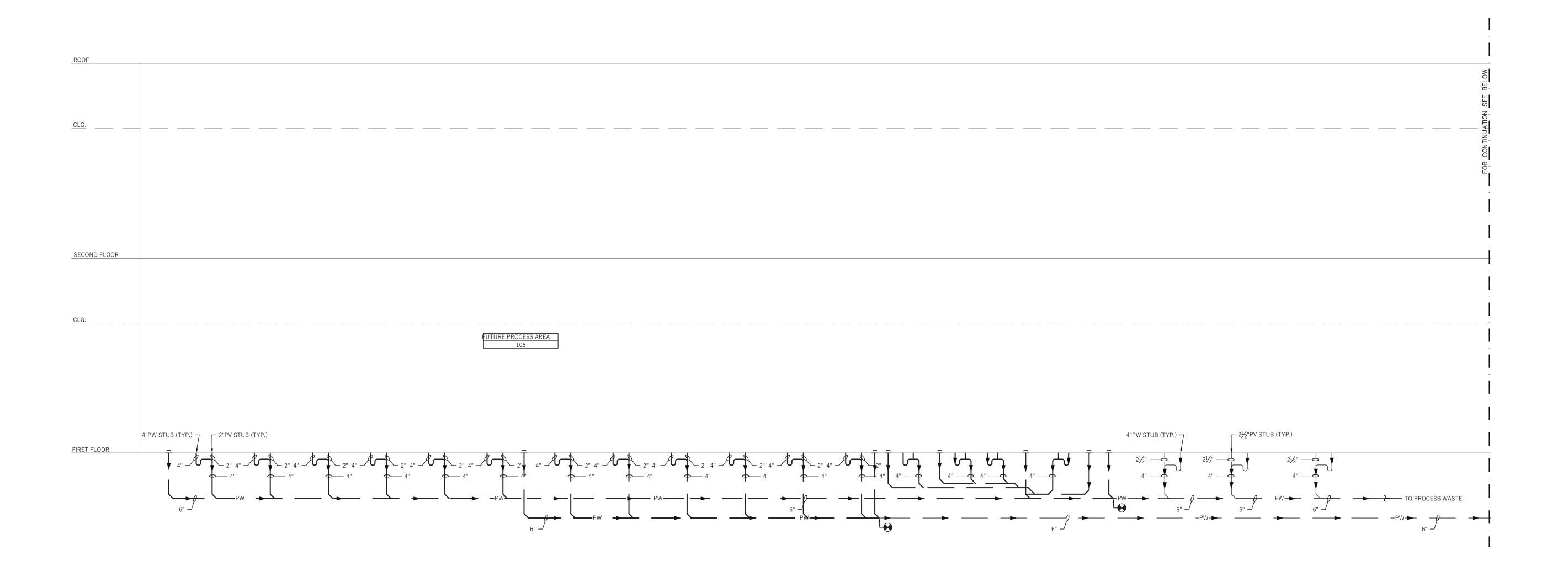
911 Springfield Rd, Suite 2

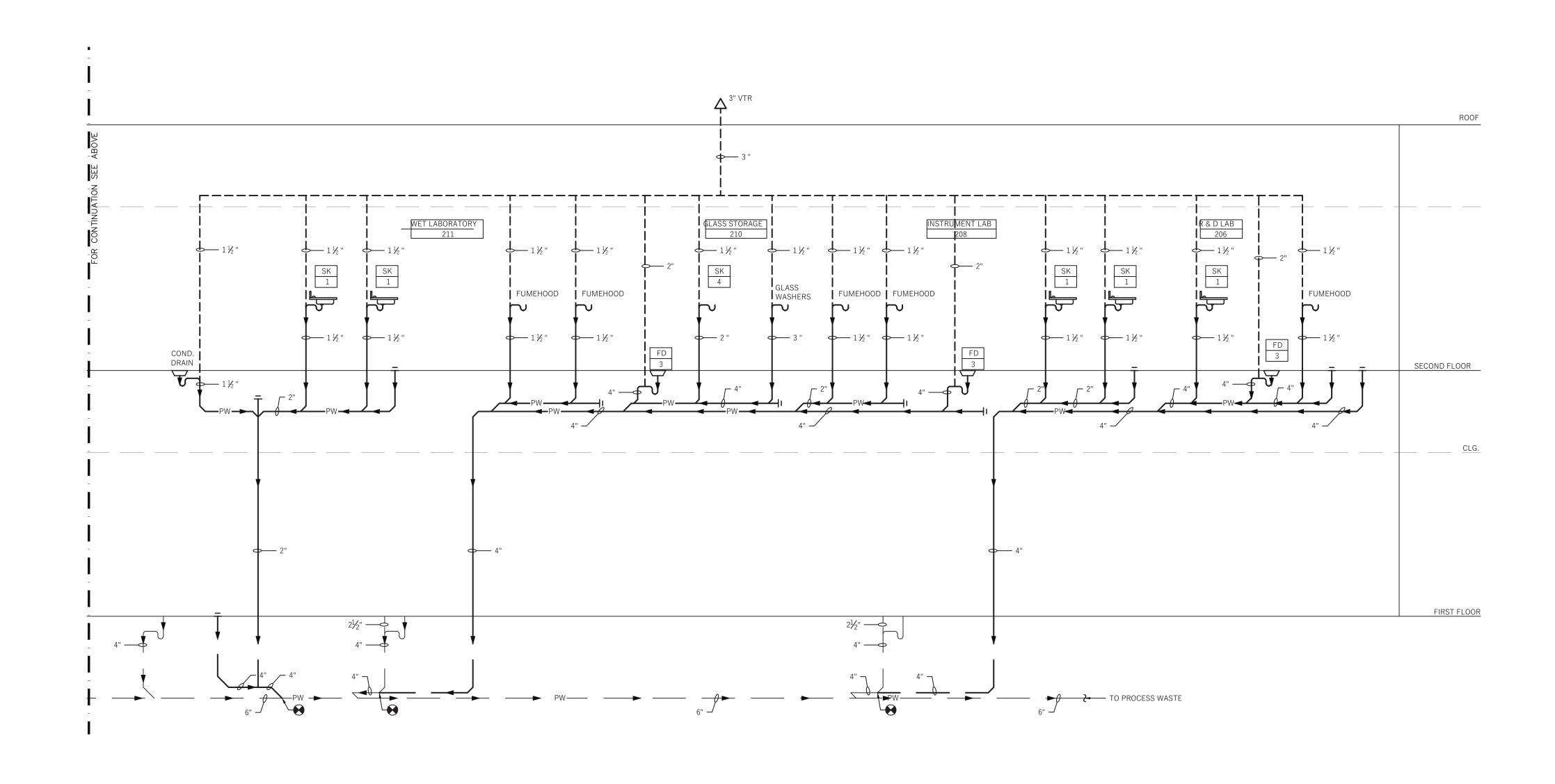
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Issued for Permit & Bid 04/02/



11/02/2020 AS NOTED





PROCESS WASTE RISER DIAGRAM

SCALE: N.T.S.

architects

architects

Laboratory Planning

Pharmaceutical

Hospitality

Commercial

Corporate

Space Planning

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Consultant:



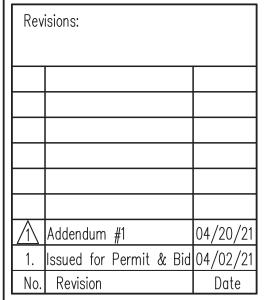
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SIGNATURE

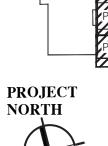
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Key Plan:



Project:

Chartwell Pharmaceuticals



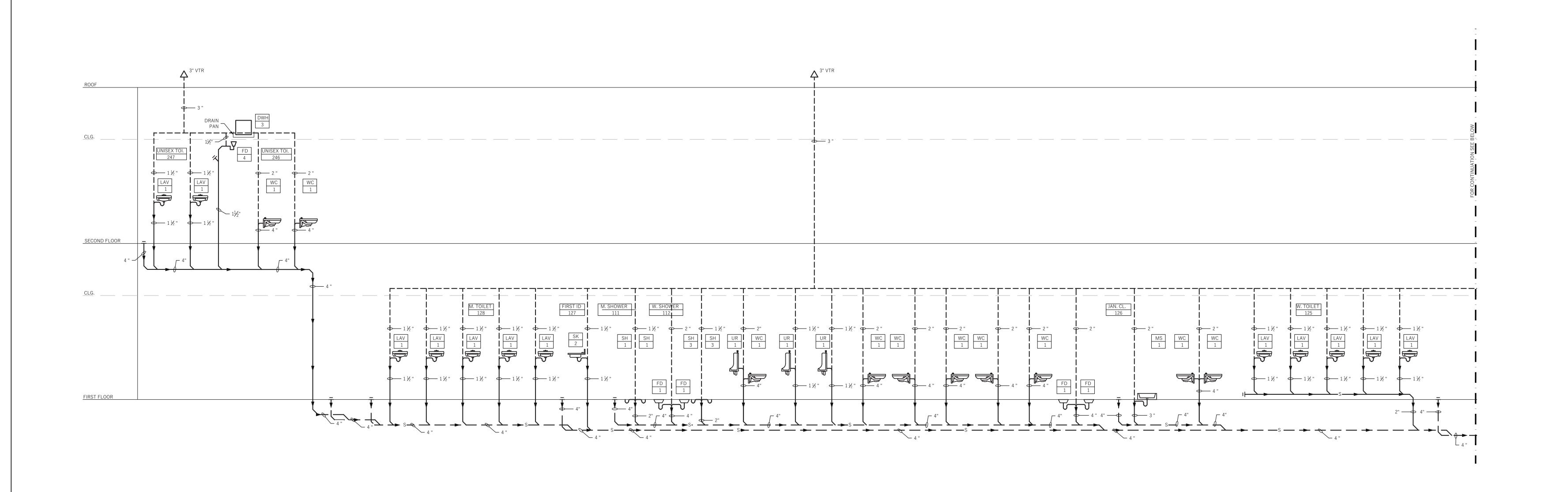
77 Brenner Drive Congers, New York

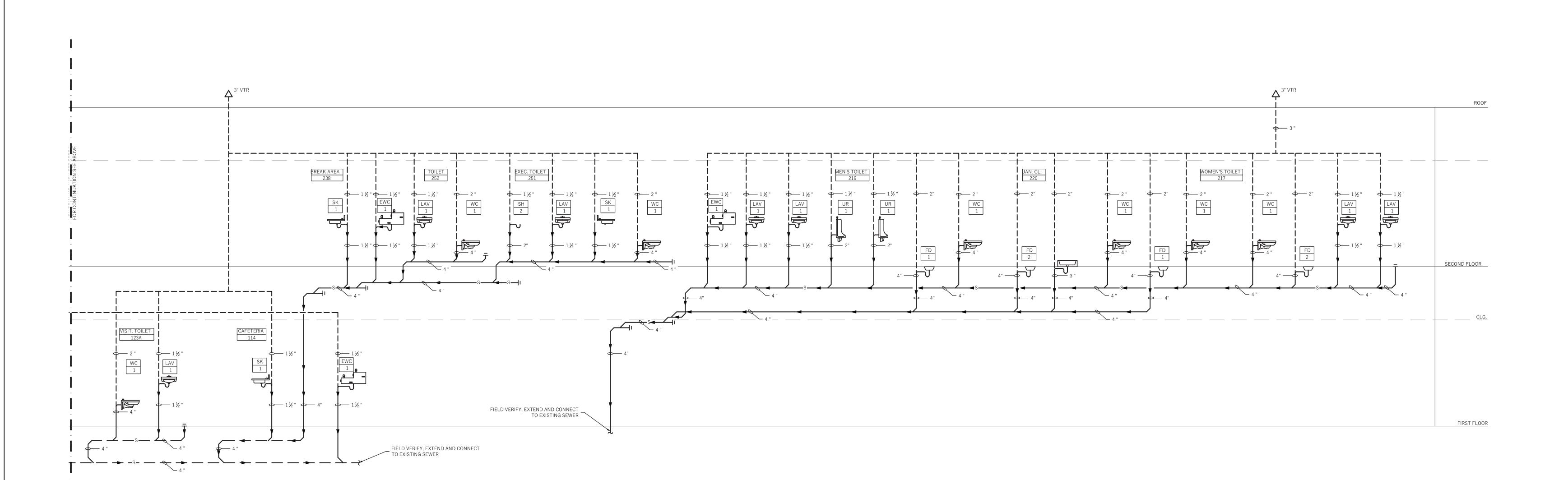
Drawing Title:
RISER DIAGRAMS 1
OF 4

Date: 11/02/2020
Scale: AS NOTED
Drawn By: JL
Reviewed By: SR
KSD Project No.: 20060

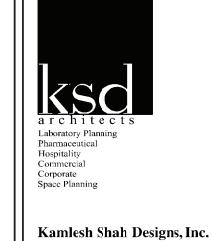
Drawing Number

P_301





1 SANITARY RISER DIAGRAM
SCALE: N.T.S.



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Consultant:

REPRING PC

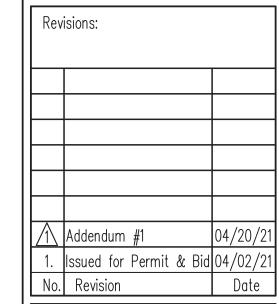
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Key Plan:



Project:

Chartwell Pharmaceuticals
Building Shell



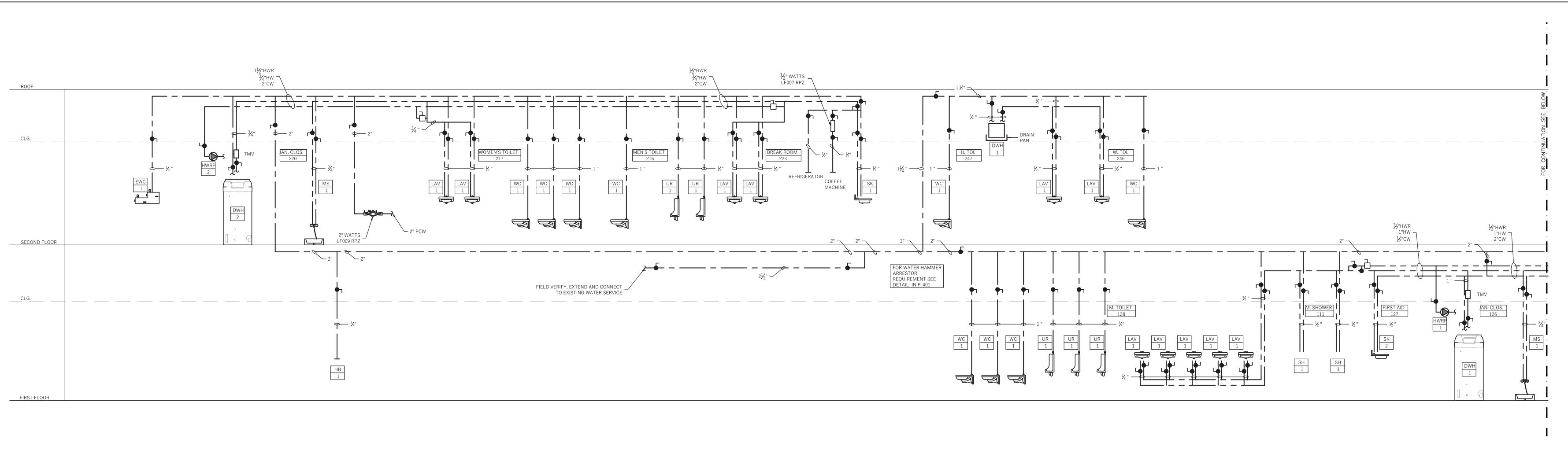
77 Brenner Drive Congers, New York

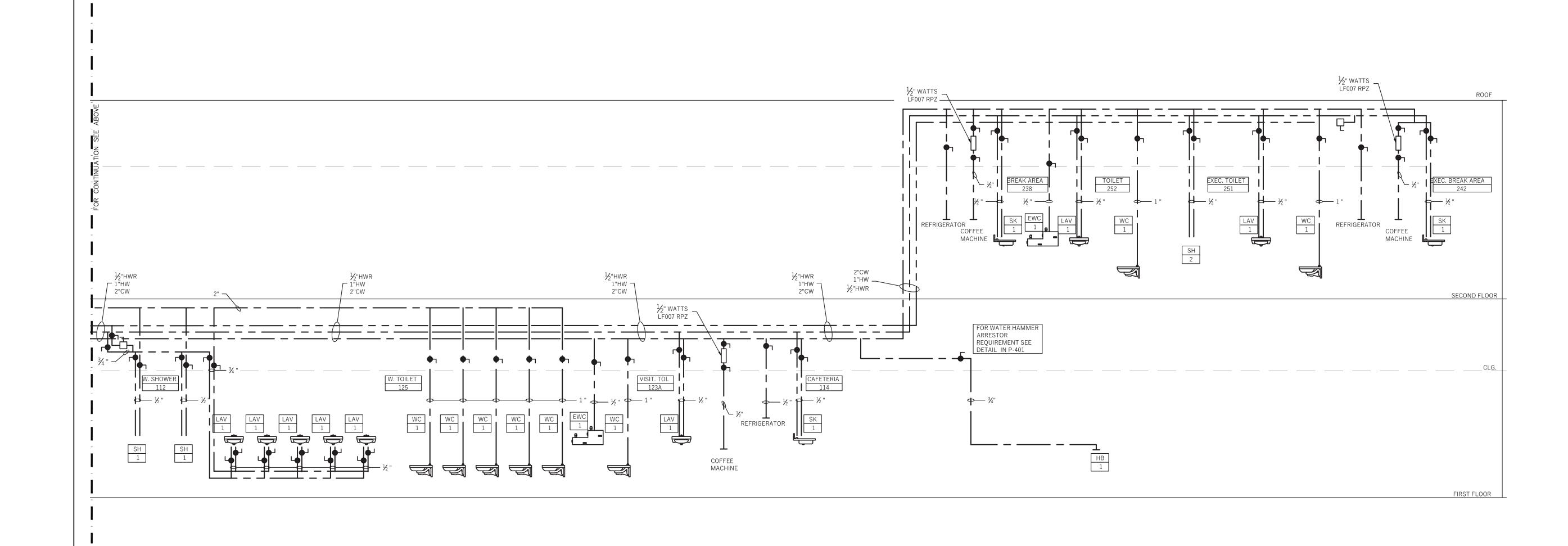
Drawing Title:
RISER DIAGRAMS 2
OF 4

	Date:	11/02/2020
	Scale:	AS NOTED
	Drawn By:	JL
	Reviewed By:	SR

Drawing Number

P-302





1 HOT & COLD WATER RISER DIAGRAM
SCALE: N.T.S.



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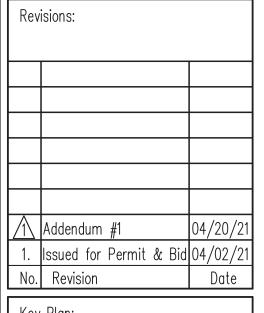


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Key Plan:



Project:

Chartwell Pharmaceuticals
Building Shell



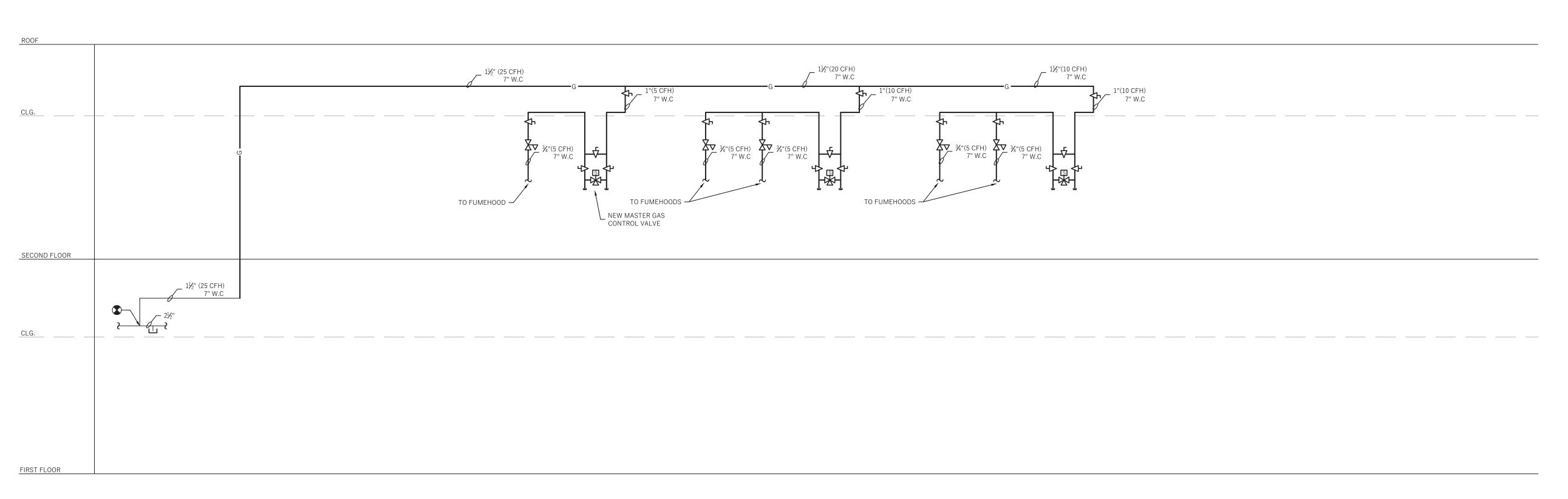
77 Brenner Drive Congers, New York

Drawing Title:
RISER DIAGRAMS 3
OF 4

Date:	11/02/2020
Scale:	AS NOTED
Drawn By:	JL
Reviewed By:	SR
I/CD Draigat No.	20060

)rawina Number

P-303



1 GAS RISER DIAGRAM

SCALE: N.T.S.



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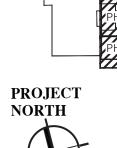
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Rev	isions:	
Λ	Addendum #1 Issued for Permit & Bid	04/20/2
1.	Issued for Permit & Bid	04/02/2
No.	Revision	Date

Key Plan:



Project:

Chartwell Pharmaceuticals
Building Shell



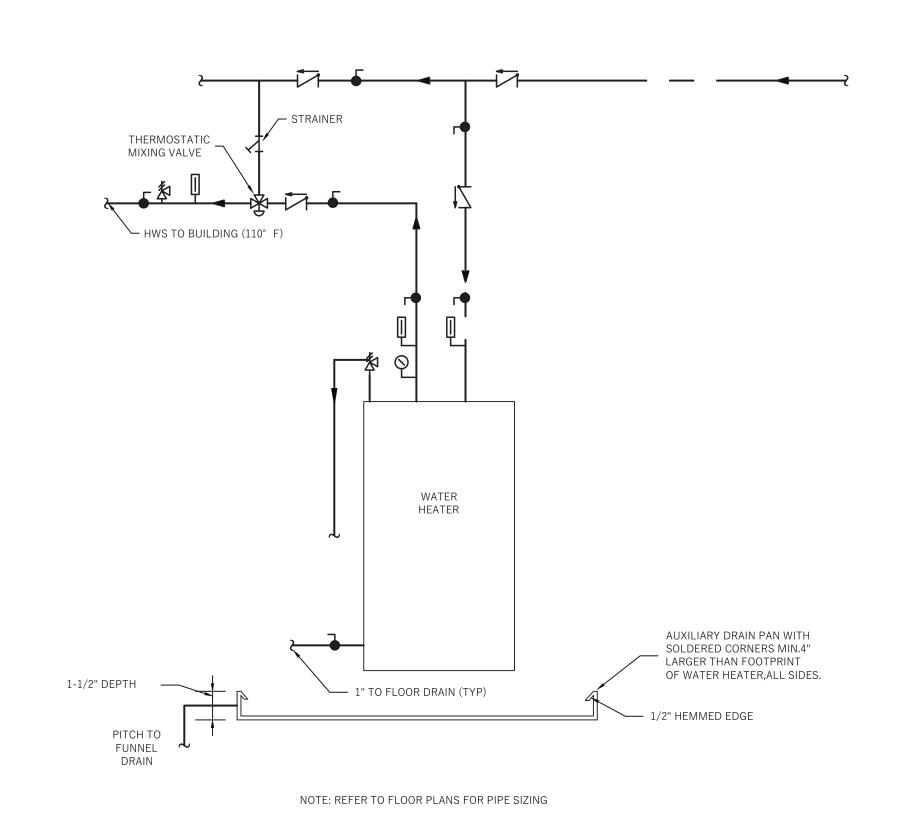
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Drawing Title:
RISER DIAGRAMS 4
OF 4

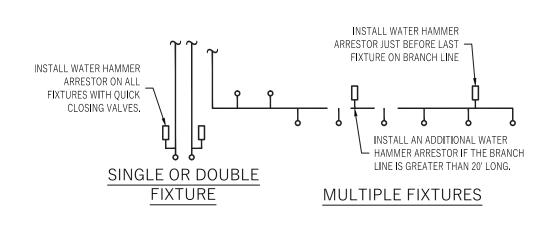
1	Date:	11/02/2020
	Scale:	AS NOTED
	Drawn By:	JL
	Reviewed By:	SR
1	KSD Project No.	20060

)rawina Number

D 3U/



1 DETAIL OF WATER HEATER PIPING SCALE: N.T.S.

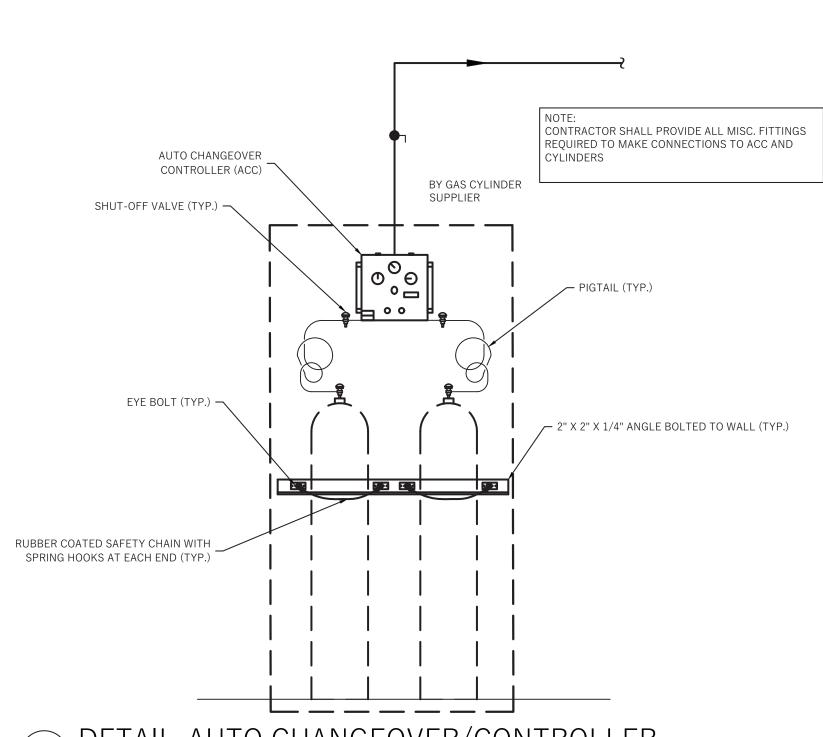


PDI SIZE	PIPE SIZE	FIXTURE UNIT	WATER SUPPLY FIXTURE UNIT (WSFU)		SFU)	
A	1/2"	1-11		FIXTURE	COLD	НОТ
В	3/4"	12-32		VALVE WATER CLOSET	5	
С	1"	33-60		URINAL	4	
D	11/4"	61-113		LAVATORY / SINK	1.5	1.5
E	1½"	114-154		JANITOR'S SINK	3	3
F	2"	154-330				
GEN	GENERAL NOTES:		•			

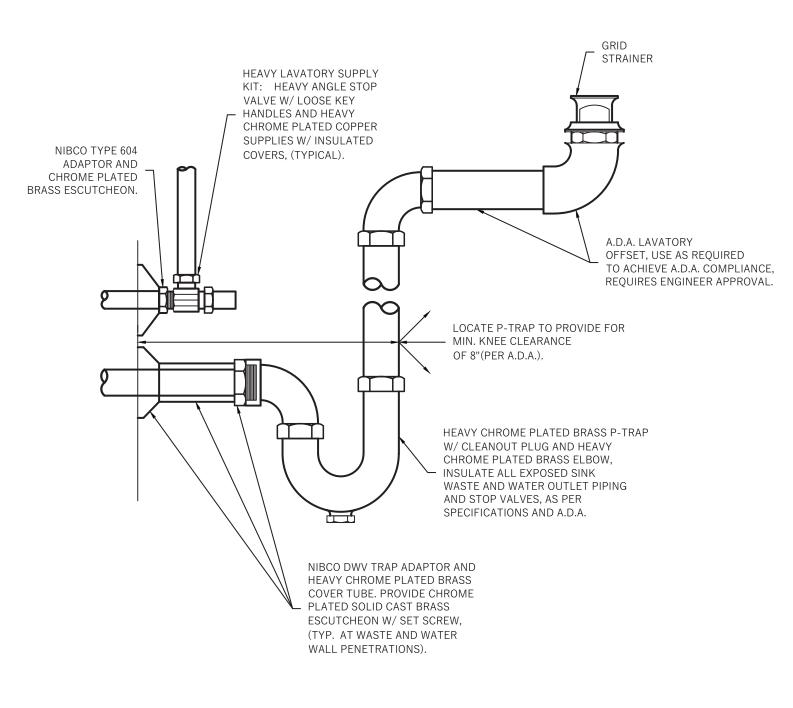
1. WATER HAMMER ARRESTERS SHALL BE HAVE PISTON AND 0-RING CONSTRUCTION WITH PDI #WH-201, ASSE # 1010 AND ANSI # A112.26.1M CERTIFICATION. INSTALL IN HORIZONTAL OR VERTICAL POSITION, BUT NEVER UPSIDE

DOWN. SIZE THE UNITS AS SHOWN PER THE TABLES SHOWN ABOVE.

4 WATER HAMMER ARRESTOR DETAIL SCALE: N.T.S.

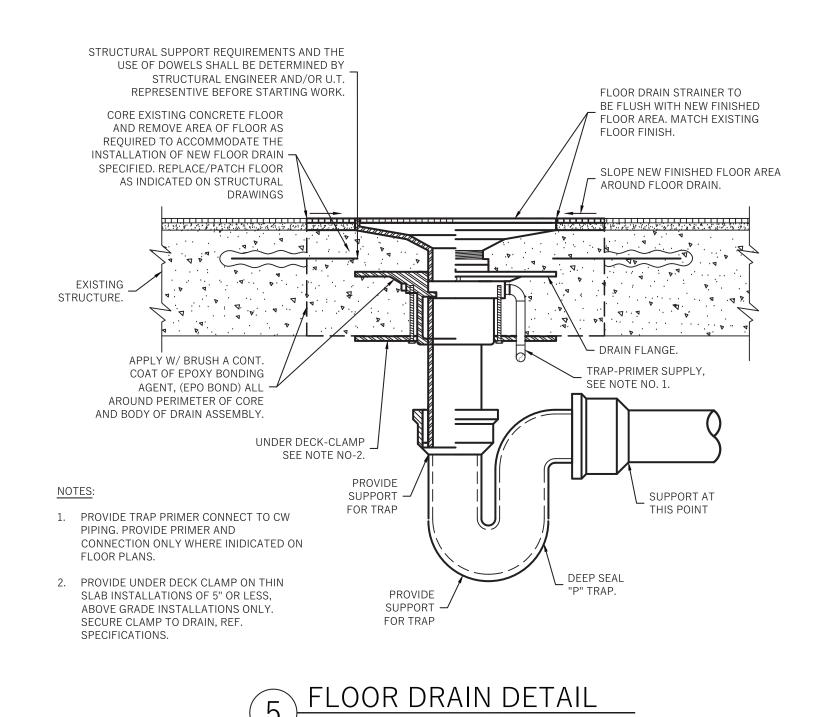


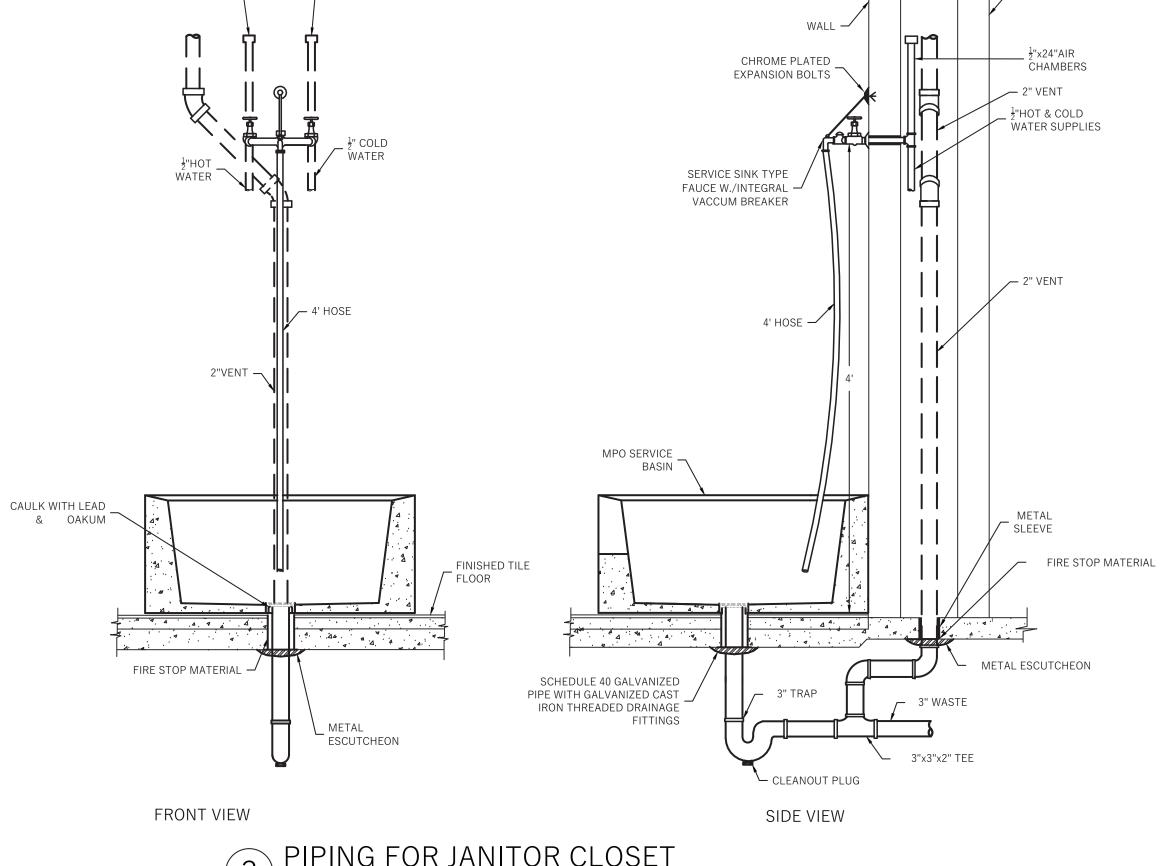
7 DETAIL-AUTO CHANGEOVER/CONTROLLER



2 TYPICAL LAVATORY & SINK CONNECTION DETAIL

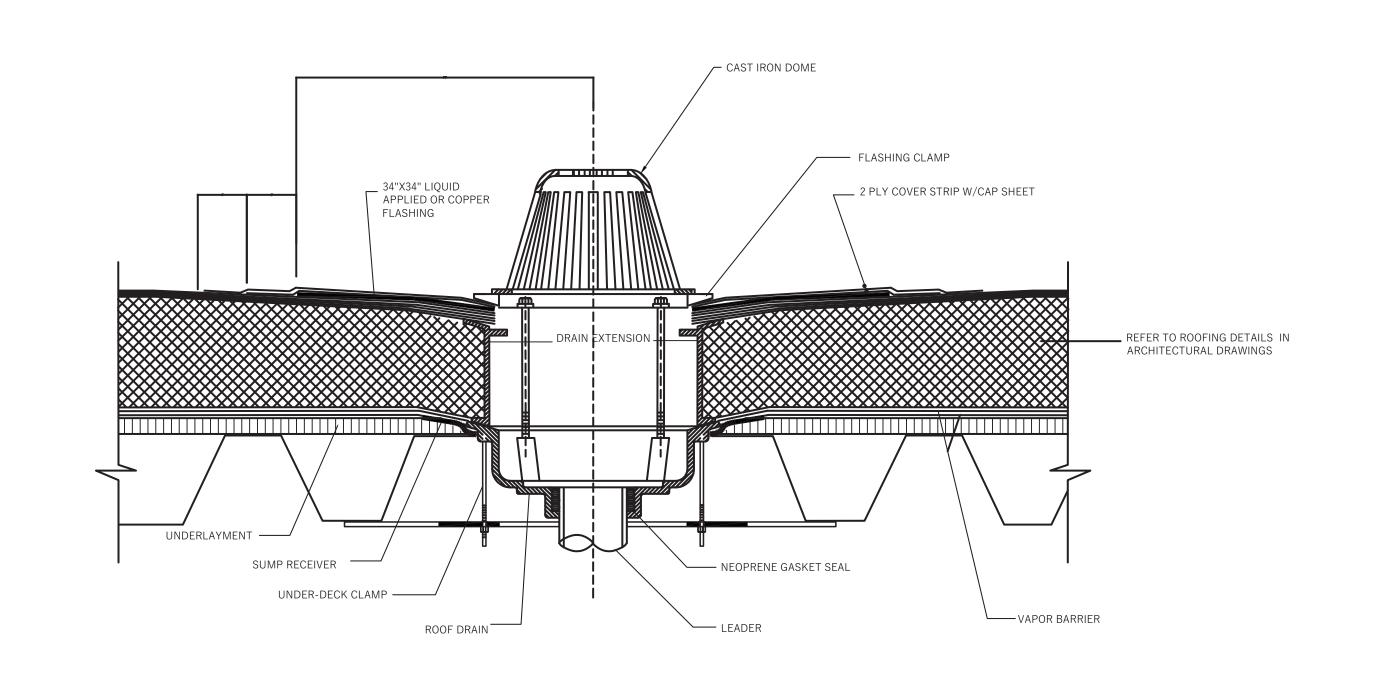
SCALE: N.T.S.



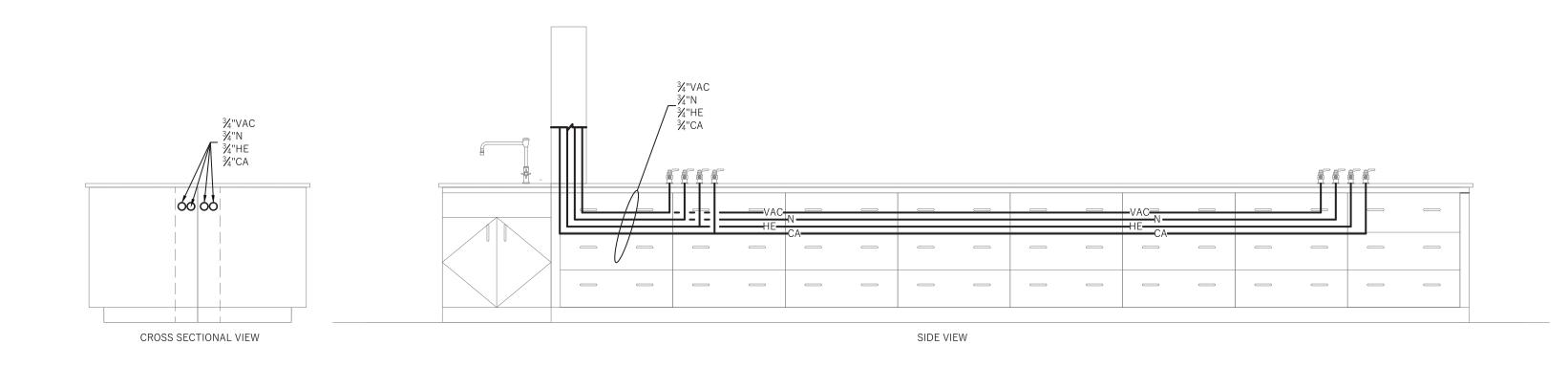




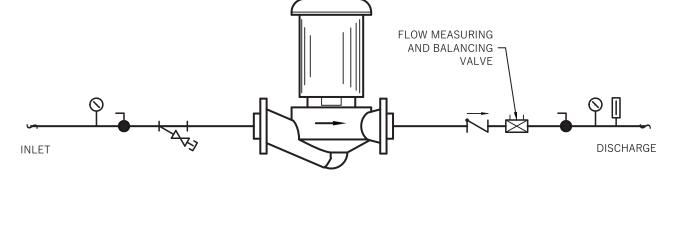
CHAMBERS



6 ROOF DRAIN DETAIL
INSULATION BUILT-UP ROOF ON METAL DECK



8 LAB GAS PIPING FOR BENCH (TYPICAL)
SCALE: N.T.S.



NOTES:
PROVIDE SUPPORTS FOR PUMPS, DO NOT SUPPORT PUMP FROM PIPING

9 INLINE PUMP DETAIL
SCALE: N.T.S.



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Revisions:

Addendum #1 04/20/21

1. Issued for Permit & Bid 04/02/21

No. Revision Date

Key Plan:



Project:

Chartwell Pharmaceuticals
Building Shell



77 Brenner Drive Congers, New York

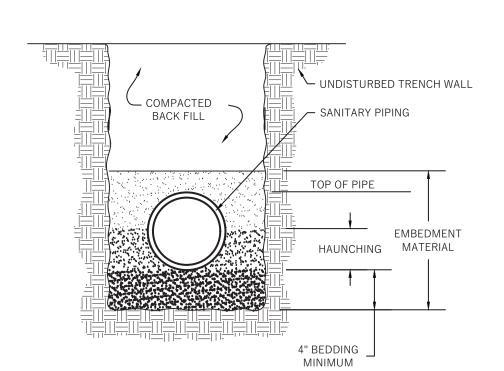
Drawing Title:
PLUMBING DETAILS
SHEET 1 OF 2

Date: 11/02/2020
Scale: AS NOTED
Drawn By: JL
Reviewed By: SR
KSD Project No.: 20060

Drawing Number

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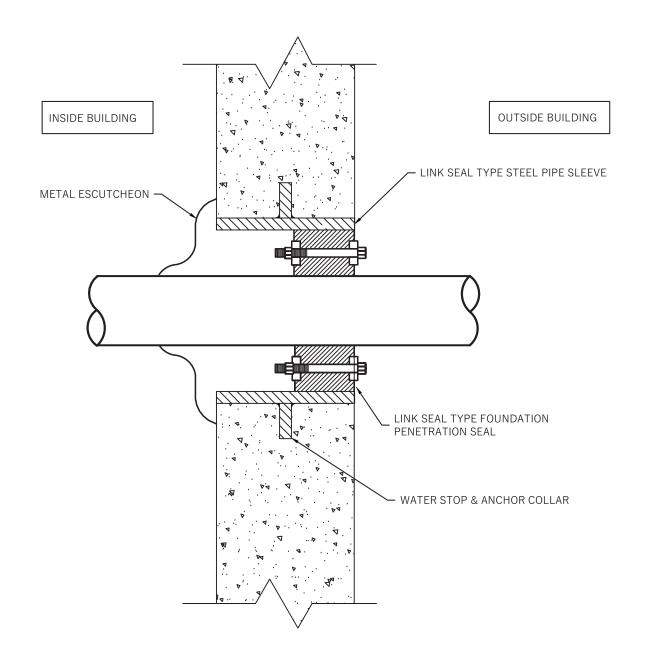
P-401



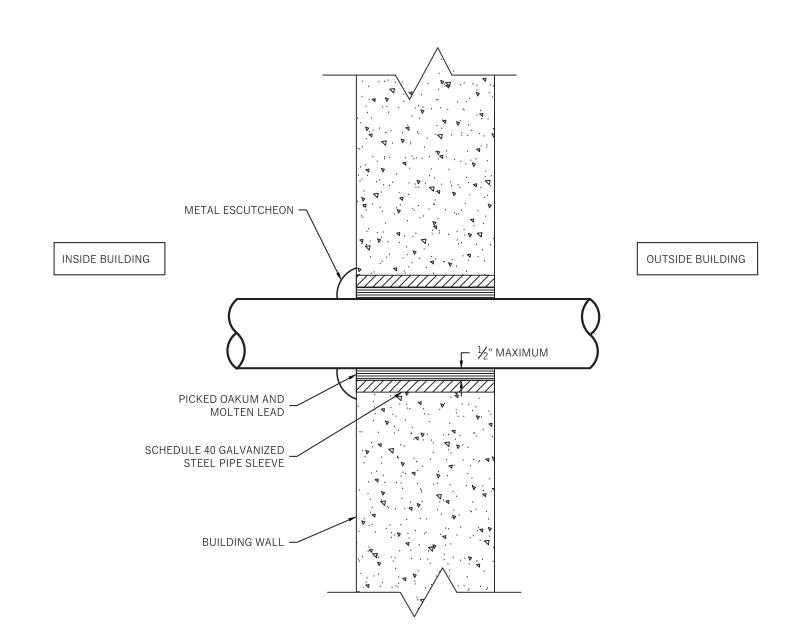
NOTES:

- 1. EMBEDMENT MATERIAL MUST BE CLASS I (#67 OR #78M WASHED STONE IS TYPICALLY USED).
- 2. EMBEDMENT MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% STANDARD PROCTOR DENSITY FOR CLASS I MATERIAL.
- 3. STANDARD BEDDING SHALL BE UTILIZED FOR ALL CASES WHERE TRENCH BOTTOMS ARE UNSTABLE DUE TO SOIL TYPE OR MOISTURE CONDITIONS.
- 4. ALL SANITARY SEWER LINES LESS THAN 3 FEET AND OVER 30 FEET IN DEPTH MUST BE DUCTILE

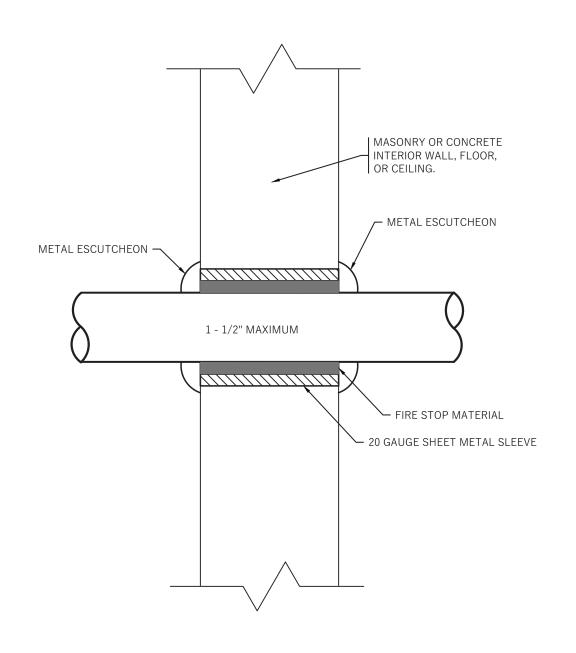
1 DETAIL OF BELOW GROUND SANITATRY PIPING



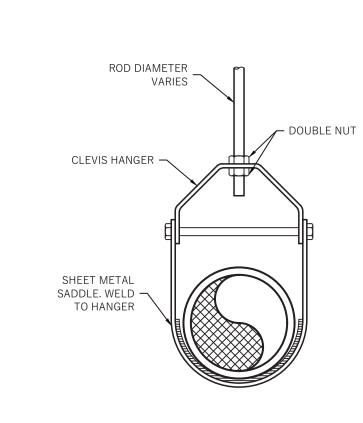
2 PIPE PENETRATION - FOUNDATION WALL BELOW GRADE



3 PIPE PENETRATION - EXTERIOR WALL ABOVE GRADE



4 PIPE PENETRATION IN INTERIOR WALL/FLOOR/CEILING



5 HANGER DETAIL

SCALE: N.T.S.

UNDERGROUND INSTALLATION OF PLASTIC PIPE

PLASTIC PIPE SHOULD ALWAYS BE BURIED IN STRICT ACCORDANCE WITH THE ASTM STANDARD RELEVANT TO THE TYPE OF PLASTIC PIPING SYSTEM BEING INSTALLED. THOSE STANDARDS ARE:

ASTM D2321 STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PIPE FOR SEWERS AND OTHER GRAVITY-FLOW APPLICATIONS.

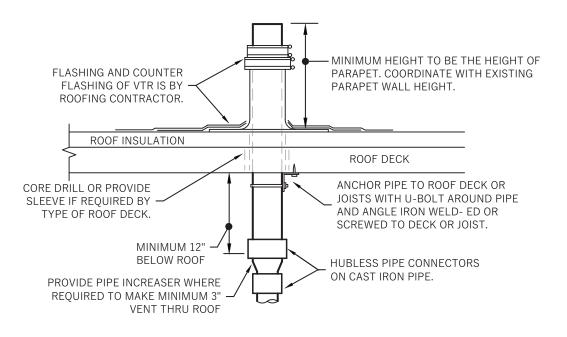
ASTM D2774 STANDARD PRACTICE FOR UNDERGROUND INSTALLATION OF THERMOPLASTIC PRESSURE

NOTE: IN ADDITION TO THESE STANDARDS, PIPE SHOULD ALWAYS BE INSTALLED IN ACCORDANCE WITH ALL LOCAL CODE REQUIREMENTS.

RECOMMENDATIONS FOR UNDERGROUND INSTALLATION OF PLASTIC DRAINAGE PIPE:

- 1. THE MINIMUM WIDTH OF THE TRENCH SHOULD BE THE PIPE OD (OUTSIDE DIAMETER) PLUS 16 INCHES OR THE PIPE OUTSIDE DIAMETER TIMES 1.25 PLUS 12 INCHES. THIS WILL ALLOW ADEQUATE ROOM FOR JOINING THE PIPE, SNAKING THE PIPE IN THE TRENCH TO ALLOW FOR EXPANSION AND CONTRACTION WHERE APPROPRIATE AND SPACE FOR BACKFILLING AND COMPACTION OF BACKFILL. THE SPACE BETWEEN THE PIPE AND TRENCH WALL MUST BE WIDER THAN THE COMPACTION EQUIPMENT USED TO COMPACT THE BACKFILL.
- 2. PROVIDE A MINIMUM OF 4 INCHES OF FIRM, STABLE AND UNIFORM BEDDING MATERIAL IN THE TRENCH BOTTOM. IF ROCK OR UNYIELDING MATERIAL IS ENCOUNTERED, A MINIMUM OF 6 INCHES OF BEDDING SHALL BE USED. BLOCKING SHOULD NOT BE USED TO CHANGE PIPE GRADE OR TO INTERMITTENTLY SUPPORT PIPE OVER LOW SECTIONS IN THE TRENCH.
- 3. THE PIPE SHOULD BE SURROUNDED WITH AN AGGREGATE MATERIAL WHICH CAN BE EASILY WORKED AROUND THE SIDES OF THE PIPE. BACKFILLING SHOULD BE PERFORMED IN LAYERS OF 6 INCHES WITH EACH LAYER BEING SUFFICIENTLY COMPACTED TO 85% TO 95% COMPACTION.
- 4. A MECHANICAL TAMPER IS RECOMMENDED FOR COMPACTING SAND AND GRAVEL. THESE MATERIALS CONTAIN FINE-GRAINS, SUCH AS SILT AND CLAY. IF A TAMPER IS NOT AVAILABLE, COMPACTING SHOULD BE DONE BY HAND.
- 5. THE TRENCH SHOULD BE COMPLETELY FILLED. THE BACKFILL SHOULD BE PLACED AND SPREAD IN UNIFORM LAYERS TO PREVENT ANY UNFILLED SPACES OR VOIDS. LARGE ROCKS, STONES, FROZEN CLODS, OR OTHER LARGE DEBRIS SHOULD BE REMOVED. STONE BACKFILL SHALL PASS THROUGH AN 1-1/2" SIEVE. ROCK SIZE SHOULD BE ABOUT ONE-TENTH OF THE PIPE OUTSIDE DIAMETER. HEAVY TAMPERS OR ROLLING EQUIPMENT SHOULD ONLY BE USED TO CONSOLIDATE THE FINAL BACKFILL.
- 6. TO PREVENT DAMAGE TO THE PIPE AND DISTURBANCE TO PIPE EMBEDMENT, A MINIMUM DEPTH OF BACKFILL ABOVE THE PIPE SHOULD BE MAINTAINED. PIPE SHOULD ALWAYS BE INSTALLED BELOW THE FROST LEVEL. TYPICALLY, IT IS NOT ADVISABLE TO ALLOW VEHICULAR TRAFFIC OR HEAVY CONSTRUCTION EQUIPMENT

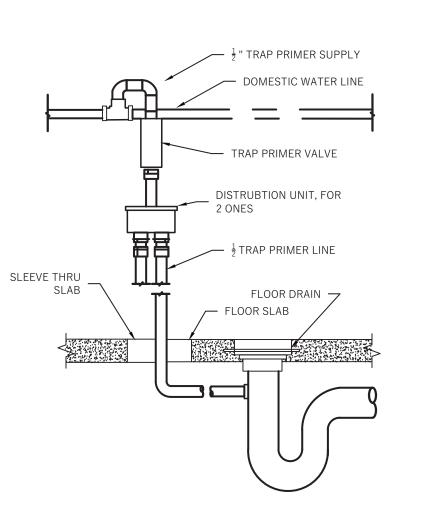
TO TRAVERSE THE PIPE TRENCH.



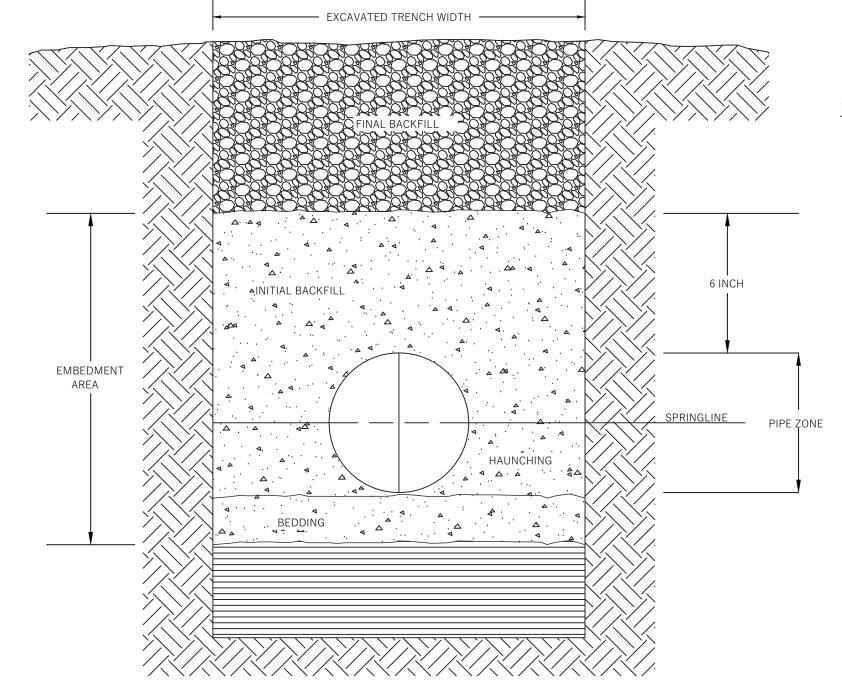
GENERAL NOTES:

1. REFER TO PLANS FOR VTR PIPE SIZES AND LOCATIONS. LOCATE VTR MINIMUM THREE FEET FROM PROPERTY LINE, OR TEN FEET HORIZONTAL OR THREE FEET VERTICAL ABOVE ANY BUILDING OPENING OR FRESH AIR INTAKE, OR ONE FOOT FROM ANY VERTICAL SURFACE. LOCATE VTR MINIMUM 18" FROM PARAPET, EXPANSION JOINT, EQUIPMENT CURB, ETC. OFFSET IN CEILING SPACE WHERE REQUIRED TO MEET THESE CONDITIONS.

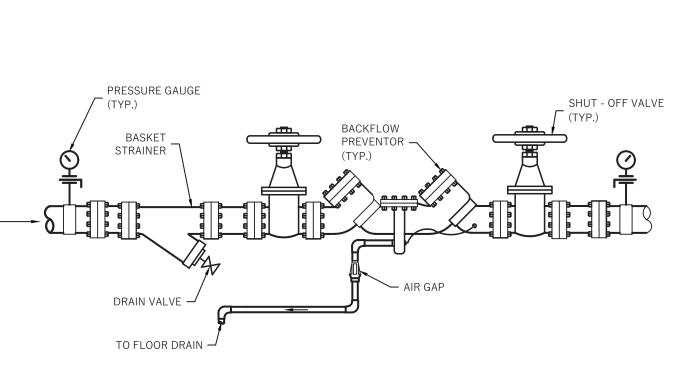
7 VENT THROUGH ROOF (VTR) DETAIL



8 TRAP SEAL PRIMER DETAIL SCALE: N.T.S.

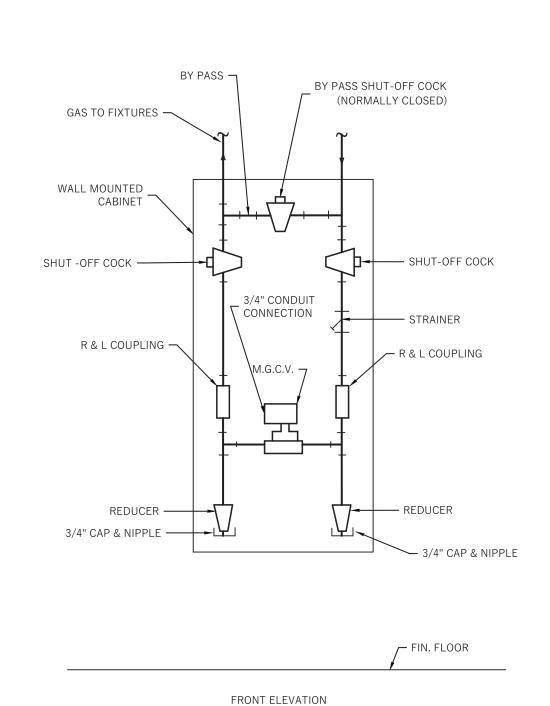


6 UNDERGROUND PLASTIC PIPE SYSTEM INSTALLATION SCALE: N.T.S.

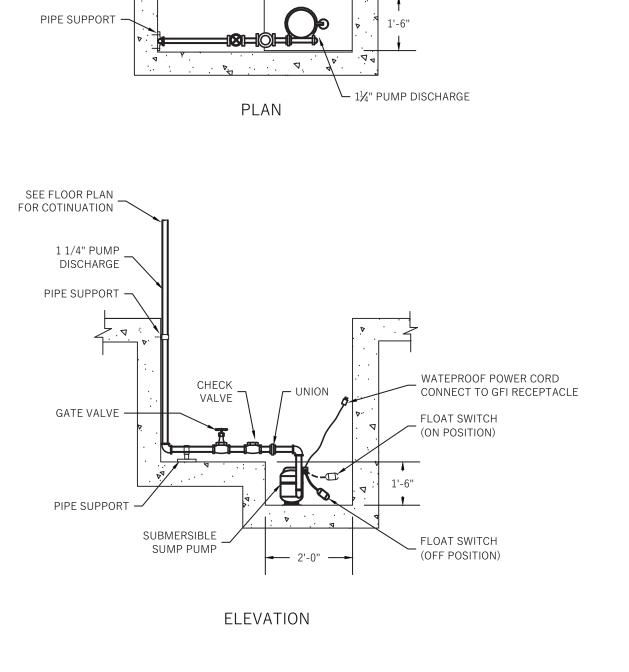


9 BACKFLOW PREVENTOR DETAIL

SCALE: N.T.S.

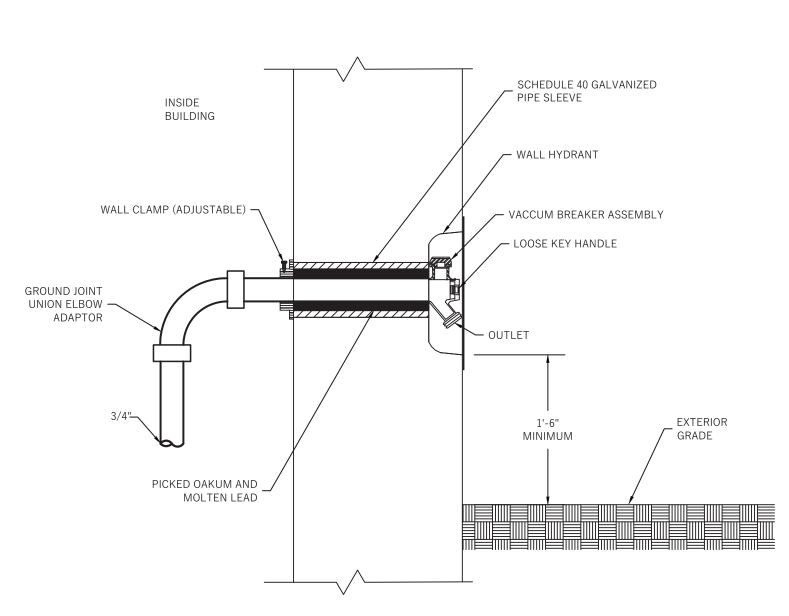


MASTER GAS CONTROL VALVE DETAIL
SCALE: N.T.S.



ELEVATOR PIT

ELEVATOR SUMP PUMP DETAIL
SCALE: N.T.S.



(12) WALL HYDRANT SCALE: NOT TO SCALE

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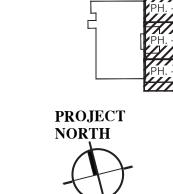
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Addendum #1 04/20/21

1. Issued for Permit & Bid 04/02/21

No. Revision Date

Key Plan:



Project:

Chartwell Pharmaceuticals
Building Shell



77 Brenner Drive Congers, New York

Drawing Title:
PLUMBING DETAILS
SHEET 2 OF 2

Date: 11/02/2020
Scale: AS NOTED
Drawn By: JL
Reviewed By: SR
KSD Project No.: 20060

Drawina Number

P-402

PLUMBING SPECIFICATIONS

PIPING AS SHOWN ON DRAWINGS.

- A. ALL PLUMBING WORK SHALL BE INSTALLED IN STRICT CONFORMITY WITH THE NATIONAL STANDARD PLUMBING CODE AND IBC.
- B. INCLUDE ALL LABOR, MATERIALS, APPLIANCES AND CONTRACTORS SERVICES REQUIRED FOR THE FURNISHING, INSTALLING AND TESTING, COMPLETE AND READY FOR OPERATION IN A MANNER SATISFACTORY TO THE ENGINEER NEW WATER, SANITARY, DRAINAGE, VENT AND ALL ASSOCIATED PIPING AND THE NECESSARY ANCILLARY WORK SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN.
- C. SCOPE OF WORK SHALL INCLUDE, BUT NOT NECESSARILY LIMITED TO, THE FOLLOWING 1. ALL REQUIRED DEMOLITION OF WORK INCLUDING CAPPING AND DEMOLITION OF EXISTING SANITARY DRAINAGE, VENT, HOT WATER, COLD WATER, STORM, AND GAS
- 2. ALL REQUIRED PROCESS WASTE, PROCESS VENT, SANITARY DRAINAGE AND VENT PIPING FROM FIXTURES AND DRAINS AS SHOWN ON DRAWINGS.
- 3. ALL HOT AND COLD WATER PIPING AND VALVES FOR NEW FIXTURES CONNECTING TO MAIN WATER LINE AS SHOWN ON DRAWINGS.
- 4. ALL NAUTRAL GAS PIPING TO NEW EQUIPMENT CONNECTING TO EXISTING PIPE AS
- SHOWN ON DRAWINGS 5. ALL PIPING, VALVES, CYLINDERS, AND ACCSSORIES FOR LAB GASES AS SHOWN ON
- 6. CUT SLAB, EXCAVATE, REQUIRED FOR THE INSTALLATION OF ALL UNDERGROUND

7. DISPOSE OF CONCRETE AND EXCAVATED MATERIAL REMOVED FROM WORK AREA

- PIPING. BACK FILL RESTORE SLAB/FLOOR. PROVIDE AND FINISH AS INDICATED IN ARCHITECTURAL DRAWINGS.
- AT CONTRACTORS EXPENSE. 8. FILE FOR, OBTAIN AND PAY FOR ALL PERMITS, APPROVALS AND INSPECTIONS

NECESSARY TO INSTALL ALL WORK OF THIS CONTRACT.

- 9. LOCATIONS ROUTES AND SIZES SHOWN ON DRAWINGS ARE APPROXIMATE AND FOR THE GUIDANCE OF THE PLUMBING CONTRACTOR. EXISTING CONDITIONS MUST BE VERIFIED ON THE FIELD. CONTRACTORS SHALL MAKE ALL REQUIRED ADDITIONS AND/ OR MODIFICATIONS NECESSARY TO SUIT ACTUAL FIELD CONDITIONS.
- 10. EXACT LOCATION OF FIXTURES SHALL BE AS INDICATED OR DIMENSIONED ON ARCHITECTURAL DRAWINGS.
- 11. PLUMBING CONTRACTOR SHALL CAREFULLY COORDINATE LOCATIONS OF ALL FIXTURES WITH OTHER TRADES IN CARRYING OUT HIS WORK.

- 1.SUBMIT MAXIMUM OF FOUR COPIES OF ALL EQUIPMENT AND PIPING LAYOUTS FOR ARCHITECT & ENGINEER'S REVIEW PRIOR TO PURCHASE OR FABRICATION OF
- 2.SUBMIT THREE COPIES OF ``AS-BUILT" DRAWINGS AND A CD-ROM OF CAD FILES AFTER
- INSTALLATION IS TESTED AND APPROVED.
- 1.ALL EQUIPMENT FURNISHED AND INSTALLED UNDER THIS CONTRACT SHALL BE COVERED BY A FULL ONE YEAR WARRANTY. THE WARRANTY SHALL COMMENCE ON THE DATE OF THE OWNER'S FINAL ACCEPTANCE.

II. PIPING, SUPPORTS AND ACCESSORIES

- A. ALL UNDERGROUND DRAINAGE PIPE, VENT PIPE AND FITTINGS SHALL BE STANDARD WEIGHT CAST IRON WITH COMPRESSION GASKET JOINTS.
- B. ALL ABOVE GROUND DRAINAGE PIPE, VENT PIPE AND FITTINGS (EXCEPT FOR LAB WASTE) SHALL BE STANDARD WEIGHT NO HUB CAST IRON SOIL PIPE AND FITTINGS WITH COMPRESSION COUPLING JOINTS SIMILAR TO "HUSKY".
- ALL ABOVE GROUND ACID WASTE PIPE SHALL BE POLYPROPYLENE SCHEDULE 40 PIPE WITH FUSION LOCK SEAL FITTINGS.
- D. ALL WATER PIPING SHALL BE COPPER TYPE "L" HARD TEMPER CONFORMING TO ASTM B-88. FITTINGS SHALL BE WROUGHT COPPER CONFORMING TO ASTM B-16.22. JOINTS SHALL BE SOLDERED WITH 95-5 TIN ANTIMONY OR OTHER APPROVED LEAD FREE SOLDER FILLER
- E. EXISTING PIPING SHALL BE FLUSHED AND DISINFECTED AS PER NSPC 10.9.

F. PIPING SUPPORT:

1.PIPING SHALL BE HUNG FROM CONCRETE SLAB DIRECTLY ABOVE. PROVIDE SUITABLE VIBRATION ISOLATION HANGERS AND CLAMPS TO SUPPORT THE PIPES. MANUFACTURERS INSTALLATION INSTRUCTIONS SHALL BE STRICTLY ADHERED TO. FOR LIGHTWEIGHT PIPING AND WHERE APPROVED BY ENGINEER, ATTACH THE ROD AND HANGER TO A 2 1-NCH X 2-INCH ANGLE FASTENED TO THE JOIST BASE BY TWO STAR NO 7000 DOUBLE EXPANSION SHIELDS NO SMALLER THAN ¾-INCH SIZE. THE RODS ON HANGER SHALL BE OF ADEQUATE SIZE TO SUPPORT THE LOADS WHICH THEY CARRY.

- 1.COPPER PRESSURE FITTINGS: ASME B16.18, CAST-COPPER ALLOW OR ASME B 16.22, WROUGHT-COPPER, SOLDER-JOINT FITTINGS. FURNISH WROUGHT COPPER FITTINGS IF
- 2.BRONZE FLANGES: ASME B1.24, CLASS 150, WITH SOLDER-JOINT END.
- 3. FLEXIBLE CONNECTORS: STAINLESS-STEEL BELLOWS WITH WOVEN, FLEXIBLE, BRONZE WIRE REINFORCED PROTECTIVE JACKET: MINIMUM 150 PSIG WORKING PRESSURE. MAXIMUM 250 DEG F OPERATING TEMPERATURE. CONNECTORS SHALL HAVE FLANGED OR THREADED-END CONNECTIONS TO MATCH EQUIPMENT CONNECTED AND SHALL BE CAPABLE OF 3/4-INCH MISALIGNMENT.
- 4. COPPER UNIONS: MSS SP-123, CAST-COPPER-ALLOY, HEXAGONAL-STOCK BODY, WITH BALL-AND-SOCKET, METAL-TO-METAL SEATING SURFACES AND SOLDER-JOINT OR THREADED ENDS

F. JOINING MATERIALS

- 1.SOLDER FILLER METAL: ASTM B 32, 95-5 TIN-ANTIMONY.
- 1.ALL VALVES UP TO 2" SHALL BE WATTS OR APPROVED EQUAL FIG. B-6111-EZ 3 PIECE BRONZE BALL VALVE.
- 2.VALVES 2 1/2" AND 3" SHALL BE NIBCO, INC. OR APPROVED EQUAL FIG. S590Y 3 PIECE BRONZE BALL VALVE, CONVENTIONAL PORT WITH TEFLON SEAT, 150 LB. SWP.
- 3. VALVES 4" AND ABOVE SHALL BE NIBCO, INC. OR APPROVED EQUAL FIG S-134 BRONZE VALVE, 150 LB., BLOCK PATTERN, BOLTED BONNET, RISING STEM, SOLID WEDGE,
- H. DRAIN VALVES 1.HOSE-END DRAIN VALVES: MSS SP-110, NPS 3/4 DN 20 BALL VALVE, RATED FOR
 - 400-PSIG 2760-KPA MINIMUM CWP. INCLUDE TWO-PIECE, COPPER-ALLOY BODY WITH STANDARD PORT, CHROME-PLATED BRASS BALL, REPLACEABLE SEATS AND SEALS, BLOWOUT-PROOF STEM, AND VINYL-COVERED STEEL HANDLE.
 - a. INLET: THREADED OR SOLDER JOINT. b. OUTLET: SHORT-THREADED NIPPLE WITH ASME B1.20.7, GARDEN-HOSE THREADS
- 2.HOSE-END DRAIN VALVE: MSS SP-80, GATE VALVE, CLASS 125, ASTM B 62 BRONZE BODY, WITH NPS 3/4 (DN 20) THREADED OR SOLDER-JOINT INLET AND ASME B1.20.7, GARDEN-HOSE THREADS ON OUTLET AND CAP. HOSE BIBS ARE PROHIBITED FOR THIS
- 3. STOP-AND-WASTE DRAIN VALVES: MSS SP-110, BALL VALVE, RATED FOR 200-PSIG (1380-KPA) MINIMUM CWP OR MSS SP-80, CLASS 125, GATE VALVE; ASTM B 62 BRONZE BODY, WITH NPS 1/8 (DN 6) SIDE DRAIN OUTLET AND CAP.
- I. SLEEVE PENETRATION SYSTEMS 1.MANUFACTURERS:
- a. PROSET SYSTEMS, INC.
- 2.DESCRIPTION: UL 1479, THROUGH-PENETRATION FIRE STOP ASSEMBLY CONSISTING OF SLEEVE AND STACK FITTING WITH FIRE STOPPING PLUG. a. SLEEVE: MOLDED PVC PLASTIC, OF LENGTH TO MATCH SLAB THICKNESS AND WITH INTEGRAL NAILING FLANGE ON ONE END FOR INSTALLATION IN CAST-IN-PLACE CONCRETE SLABS.
- APPROVED MANUFACTURERS: a. PROSET SYSTEMS, INC.

1.CLEANOUTS: COMPLY WITH ASME A112.36.2M ASME A112.3.1.

a. APPLICATION: FLOOR CLEANOUT WALL CLEANOUT FOR INSTALLATION IN EXPOSED PIPING. b. AVAILABLE PRODUCTS:

- c. PRODUCTS:
- i. SMITH, JAY R. MFG. CO.
- iii. INDUSTRIES, INC., SPECIFICATION DRAINAGE OPERATION.
- d. BODY OR FERRULE MATERIAL: CAST IRON. e. CLAMPING DEVICE: REQUIRED.
- f. OUTLET CONNECTION: THREADED. g. CLOSURE: BRASS PLUG WITH STRAIGHT THREADS AND GASKET.
- h. ADJUSTABLE HOUSING MATERIAL: CAST IRON WITH THREADS AND SETSCREWS. i. FRAME AND COVER MATERIAL AND FINISH: NICKEL-BRONZE, COPPER ALLOY. j. FRAME AND COVER SHAPE: SQUARE.
- k. TOP LOADING CLASSIFICATION: MEDIUM DUTY.

K. INSULATING MATERIALS

- 1.ALL INSULATION SHALL HAVE A COMPOSITE (INSULATION, JACKET FACING AND ADHESIVE USED TO ADHERE JACKET OR FACING TO THE INSULATION) FIRE AND SMOKE HAZARD RATINGS AS TESTED BY PROCEDURE ASTM E-84, NFPA 255 AND UL 73, NOT EXCEEDING FLAME SPREAD OF 25, FUEL CONTRIBUTED OF 50, AND SMOKE DEVELOPED OF 50. ACCESSORIES SUCH AS ADHESIVES, MASTICS, CEMENTS, TAPES AND CLOTHS FOR FITTINGS SHALL HAVE COMPONENT RATINGS AS LISTED ABOVE. INSULATION SHALL BE GLASS FIBER WITH A MAXIMUM K FACTOR 0.23 AT 750F. MEAN TEMPERATURE. DENSITY SHALL NOT BE NOT LESS THAN 3 LBS. PER CU. FT.
- 2.THE MATERIALS AS SPECIFIED BELOW HAVE BEEN SELECTED FROM THE CATALOG OF OWENS-CORNING FIBERGLASS CORP. AND ARE REPRESENTATIVE OF THE QUALITY, DESIGN AND FINISH DESIRED. INSULATION AS MANUFACTURED BY OTHER MANUFACTURERS MAY BE SUBMITTED FOR APPROVAL, PROVIDED THE PRODUCTS MEET FULLY IN ALL RESPECTS (SUCH AS DENSITY, MOISTURE ABSORPTION, ALKALINITY, THERMAL-CONDUCTIVITY, JACKET, ETC.) THE MATERIALS AS DESIGNATED BELOW.
- 3. FIBERGLASS PIPE INSULATION: FS HH-I-558B, FORM D, TYPE III, CLASS 12.
- 4. FIBERGLASS PIPE FITTING INSULATION: FS HH-I-558, FORM E, CLASS12.
- 5.FITTING AND VALVES: ZESTON 25/50 RATED -20 MIL P.V.C. COVERS OVER FIBERGLASS

6.RELATED MATERIALS AND REQUIREMENTS

- AT PIPE SUPPORTS INSUL-SHIELD PIPE SADDLES AND MATCHING HANGER SHALL BE USED. JOINTS OF INSULATION ABUTTING INSUL-SHIELDING PIPE SADDLES
- b. ALL CONCEALED AND EXPOSED PIPING SHALL BE PROVIDED WITH FACTORY ASJ (OWENS/CORNING FIBERGLASS) SECURED IN PLACE WITH VAPOR BARRIER

SHALL BE BUTTED WITH IC-405, AND THE JOINTS FIRMLY PRESSED TOGETHER.

ADHESIVE IC-225. PROVIDE 1/2" ALUMINUM BANDS SPACED 18" ON CENTERS. 7.INSULATION REQUIREMENTS

- a. COLD WATER -ABOVE GROUND, EXCEPT IN CRAWL SPACE ALL SIZES 1/2"
- INSULATION, A.S. JACKET. b. COLD WATER - IN CRAWL SPACE - ALL SIZES - 1" INSULATION, A.S. JACKET.
- COLD WATER BELOW GROUND 1" INSULATION WITH PIT WRAP COVER, FASTENED BY ¾" WIDE CHILDERS STAINLESS STEEL BANDS PROVIDED AT BOTH ENDS OF
- EACH PIPE SECTION.
- d. HOT WATER PIPING UP TO 1 ½" PIPE SIZE 1" INSULATION A.S. JACKET. PIPE e. AND ABOVE - 1 ½" INSULATION, A.S. JACKET.
- STORM WATER PIPING ALL HORIZONTAL RUNS OF STORM WATER PIPING 1" INSULATION, A. S. JACKET

III. COMPRESSED AIR PIPING

- A. SYSTEM DESCRIPTION
- 1. LABORATORY AIR OPERATING AT 125 PSIG B. PERFORMANCE REQUIREMENTS
- 1. SEISMIC PERFORMANCE: COMPRESSED-AIR MANIFOLDS SHALL WITHSTAND THE EFFECTS OF EARTHOUAKE MOTIONS DETERMINED ACCORDING TO SEISMIC ZONE DEFINED ON STRUCTURAL OR ARCHITECTURAL DRAWINGS
- C. PIPES, TUBES, AND FITTINGS 1. COMPLY WITH ASME B31.1, "POWER PIPING," FOR LABORATORY AIR PIPING OPERATING AT MORE THAN 150 PSIG
- 2. COMPLY WITH ASME B31.9, "BUILDING SERVICES PIPING," FOR LABORATORY AIR PIPING OPERATING AT 150 PSIG OR LESS.
- 3. CLEANED FOR OXYGEN SERVICE. MANUFACTURER CLEANED, PURGED, AND BAGGED ACCORDING TO CGA G-4.1 FOR OXYGEN SERVICE.
- 4. COPPER PIPING: TYPE K AND TYPE L, SEAMLESS, DRAWN TEMPER. 5. STAINLESS STEEL PIPING: 316L STAINLESS STEEL WITH SURFACE FINISH CONFINING TO ASME-BPE SF1. USED ONLY IN EXPOSED CLEAN ROOM AREAS. ACCEPTABLE
- MANUFACTURERS INCLUDE STEEL & O'BRIEN AND SWAGELOK 6. COPPER FITTINGS: COMPRESSION FITTINGS WITH EPDM O-RINGS. ACCEPTABLE
- MANUFACTURERS INCLUDE NIBCO, VIEGA, AND ELKHEART. 7. STAINLESS STEEL FITTINGS: 316L STAINLESS STEEL TRICLAMP FITTINGS. USED ONLY IN EXPOSED CLEAN ROOM AREAS. ACCEPTABLE MANUFACTURERS INCLUDE STEEL & O'BRIEN AND SWAGELOK.
- 8. COPPER TO STEEL FITTING: STEEL & O'BRIEN 22MP ADAPTER. D. VALVES
- BALL VALVES:
- i. STANDARD: MSS SP-110. DESCRIPTION: THREE-PIECE BODY, BRASS OR BRONZE. PRESSURE RATING: 300 PSIG MINIMUM.
- I. BALL: FULL-PORT, CHROME-PLATED BRASS. m. SEATS: PTFE OR TFE.
- n. HANDLE: LEVER TYPE WITH LOCKING DEVICE. o. STEM: BLOWOUT PROOF WITH PTFE OR TFE SEAL.
- p. ENDS: MANUFACTURER-INSTALLED ASTM B 819, COPPER-TUBE EXTENSIONS AND MANUFACTURER-INSTALLED ASTM B 819, COPPER-TUBE EXTENSIONS WITH PRESSURE GAGE ON ONE COPPER-TUBE EXTENSION. 2. BALL VALVES (EXPOSED IN CLEAN ROOM):
- i. STANDARD: 3A CERTIFIED. j. DESCRIPTION: THREE-PIECE BODY, 316L STAINLESS STEEL
- k. PRESSURE RATING: 300 PSIG MINIMUM. HANDLE: LEVER TYPE WITH LOCKING DEVICE. m. STEM: BLOWOUT PROOF
- n. MODEL: STEEL & O'BRIEN BLV2C SERIES STAINLESS STEEL BALL VALVE. CHECK VALVES:
- a. DESCRIPTION: IN-LINE PATTERN, BRONZE. b. PRESSURE RATING: 300 PSIG MINIMUM.
- SAFETY VALVES: a. BRONZE BODY b. ASME-CONSTRUCTION, POPPET, PRESSURE-RELIEF TYPE.

c. OPERATION: SPRING LOADED.

- c. SETTINGS TO MATCH SYSTEM REQUIREMENTS. PRESSURE REGULATORS: a. STAINLESS STEEL BODY AND TRIM.
- b. MAKE AND MODEL: SWAGELOK PRS SERIES c. SPRING-LOADED, DIAPHRAGM-OPERATED, RELIEVING TYPE. d. MANUAL PRESSURE-SETTING ADJUSTMENT.
- e. RATED FOR 250-PSIG MINIMUM INLET PRESSURE f. CAPABLE OF CONTROLLING DELIVERED AIR PRESSURE WITHIN 0.5 PSIG FOR EACH 10-PSIG INLET PRESSURE.
- 6.PRESSURE GAUGE a. STAINLESS STEEL BODY AND TRIM. b. RATED FOR 250-PSIG MINIMUM INLET PRESSURE.

- A. SYSTEM DESCRIPTION 1. LABORATORY HIGH VACUUM OPERATING AT 24 IN. HG 29 IN. HG.
- B. PIPES, TUBES, AND FITTINGS 1. COMPLY WITH NFPA 99 FOR MEDICAL VACUUM PIPING MATERIALS.
- COPPER MEDICAL GAS TUBE: ASTM B 819, TYPE L, SEAMLESS, DRAWN TEMPER THAT HAS BEEN MANUFACTURER CLEANED, PURGED, AND SEALED FOR MEDICAL GAS SERVICE OR ACCORDING TO CGA G-4.1 FOR OXYGEN SERVICE. INCLUDE STANDARD COLOR MARKING "OXY," "MED," "OXY/MED," "OXY/ACR," OR "ACR/MED" IN BLUE.
- 3. COPPER WATER TUBE: ASTM B 88, TYPE M, SEAMLESS, DRAWN TEMPER THAT HAS BEEN MANUFACTURER CLEANED, PURGED, AND SEALED FOR MEDICAL GAS SERVICE OR ACCORDING TO CGA G-4.1 FOR OXYGEN SERVICE. 4. STAINLESS STEEL PIPING: 316L STAINLESS STEEL WITH SURFACE FINISH CONFINING TO ASME-BPE SF1. USED ONLY IN EXPOSED CLEAN ROOM AREAS. ACCEPTABLE

5. WROUGHT-COPPER FITTINGS: ASME B16.22, SOLDER-JOINT PRESSURE TYPE THAT HAS

BEEN MANUFACTURER CLEANED, PURGED, AND SEALED FOR MEDICAL GAS SERVICE OR ACCORDING TO CGA G-4.1 FOR OXYGEN SERVICE. 6. COPPER UNIONS: ASME B16.22 OR MSS SP-123, WROUGHT-COPPER OR CAST-COPPER ALLOY.

- 7. CAST-COPPER-ALLOY FLANGES: ASME B16.24, CLASS 150. f. PIPE-FLANGE GASKET MATERIALS: ASME B16.21, NONMETALLIC, FLAT,
- ASBESTOS-FREE, 1/8-INCH MAXIMUM THICKNESS, FULL-FACE TYPE.
- g. FLANGE BOLTS AND NUTS: ASME B18.2.1, CARBON STEEL. SHAPE-MEMORY-METAL COUPLINGS:
- a. DESCRIPTION: CRYOGENIC COMPRESSION FITTING MADE OF NICKEL-TITANIUM, SHAPE-MEMORY ALLOY, AND THAT HAS BEEN MANUFACTURER CLEANED, PURGED, AND SEALED FOR OXYGEN SERVICE ACCORDING TO CGA G-4.1.
- 9. STAINLESS STEEL FITTINGS: 316L STAINLESS STEEL TRICLAMP FITTINGS. USED ONLY IN EXPOSED CLEAN ROOM AREAS. ACCEPTABLE MANUFACTURERS INCLUDE STEEL &
- O'BRIEN AND SWAGELOK. 10. COPPER TO STEEL FITTING: STEEL & O'BRIEN 22MP ADAPTER.
- 11. PRESSURE-SEAL FITTINGS: a. NPS 2 AND SMALLER: WROUGHT-COPPER FITTING WITH EPDM O-RING SEAL IN
- b. NPS 2-1/2 TO NPS 4 : BRONZE FITTING WITH STAINLESS-STEEL GRIP RING AND EPDM O-RING SEAL IN EACH END.

12. EXTRUDED-TEE OUTLETS: ASTM F 2014 PROCEDURE FOR MAKING BRANCH OUTLETS

- IN COPPER TUBE. 13. FLEXIBLE PIPE CONNECTORS:
- a. DESCRIPTION: CORRUGATED-BRONZE TUBING WITH BRONZE WIRE-BRAID COVERING AND ENDS BRAZED TO INNER TUBING. a. WORKING-PRESSURE RATING:250 PSIG MINIMUM.
- b. END CONNECTIONS: PLAIN-END COPPER TUBE. C. JOINING MATERIALS 1. SOLDER FILLER METALS: ASTM B 32, LEAD-FREE ALLOYS. INCLUDE
- WATER-FLUSHABLE FLUX ACCORDING TO ASTM B 813. 2. BRAZING FILLER METALS: AWS A5.8/A5.8M, BCUP SERIES, COPPER-PHOSPHORUS
- 3. THREADED-JOINT TAPE: PTFE. 4. SOLVENT CEMENT FOR JOINING PVC PIPING: ASTM D 2564. INCLUDE PRIMER COMPLYING
- a. PVC SOLVENT CEMENT SHALL HAVE A VOC CONTENT OF 510 G/L OR LESS WHEN CALCULATED ACCORDING TO 40 CFR 59, SUBPART D (EPA METHOD 24). b. ADHESIVE PRIMER SHALL HAVE A VOC CONTENT OF 550 G/L OR LESS WHEN CALCULATED ACCORDING TO 40 CFR 59, SUBPART D (EPA METHOD 24).
- c. SOLVENT CEMENT AND ADHESIVE PRIMER SHALL COMPLY WITH THE TESTING AND PRODUCT REQUIREMENTS OF THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES' "STANDARD PRACTICE FOR THE TESTING OF VOLATILE ORGANIC EMISSIONS FROM VARIOUS SOURCES USING SMALL-SCALE ENVIRONMENTAL
- 1. GENERAL REQUIREMENTS FOR VALVES: MANUFACTURER CLEANED, PURGED, AND BAGGED ACCORDING TO CGA G-4.1 FOR OXYGEN SERVICE.
- a. EXCEPTION: FACTORY CLEANING AND BAGGING ARE NOT REQUIRED FOR VALVES FOR WAGD SERVICE. 2. COPPER-ALLOY BALL VALVES:
 - a. STANDARD: MSS SP-110. b. DESCRIPTION: THREE-PIECE BODY, BRASS OR BRONZE.
- c. PRESSURE RATING: 300 PSIG MINIMUM.
- d. BALL: FULL-PORT, CHROME-PLATED BRASS. e. SEATS: PTFE OR TFE. f. HANDLE: LEVER TYPE WITH LOCKING DEVICE.
- g. STEM: BLOWOUT PROOF WITH PTFE OR TFE SEAL. h. ENDS: MANUFACTURER-INSTALLED ASTM B 819, COPPER-TUBE EXTENSIONS AND MANUFACTURER-INSTALLED ASTM B 819, COPPER-TUBE EXTENSIONS WITH
- PRESSURE GAGE ON ONE COPPER-TUBE EXTENSION. CHECK VALVES:
- a. DESCRIPTION: IN-LINE PATTERN, BRONZE. b. PRESSURE RATING: 300 PSIG MINIMUM.
- c. OPERATION: SPRING LOADED. d. ENDS: MANUFACTURER-INSTALLED ASTM B 819, COPPER-TUBE EXTENSIONS.

V. LABORATORY GASES

- A. SYSTEM DESCRIPTION 1.NITROGEN OPERATING AT 120 PSIG
- B. PERFORMANCE REQUIREMENTS
- 1.SEISMIC PERFORMANCE: GAS MANIFOLDS AND BULK GAS STORAGE TANKS SHALL WITHSTAND THE EFFECTS OF EARTHQUAKE MOTIONS DETERMINED ACCORDING TO SEISMIC ZONE DEFINED ON STRUCTURAL OR ARCHITECTURAL DRAWINGS
- C. PIPES, TUBES, AND FITTINGS 1.COMPLY WITH ASME B31.1, "POWER PIPING," FOR LABORATORY AIR PIPING OPERATING AT MORE THAN 150 PSIG
- 2.COMPLY WITH ASME B31.9, "BUILDING SERVICES PIPING," FOR LABORATORY AIR PIPING OPERATING AT 150 PSIG OR LESS 3. CLEANED FOR OXYGEN SERVICE. MANUFACTURER CLEANED, PURGED, AND BAGGED
- ACCORDING TO CGA G-4.1 FOR OXYGEN SERVICE. 4. COPPER PIPING: TYPE K AND TYPE L, SEAMLESS, DRAWN TEMPER. 5.STAINLESS STEEL PIPING: 316L STAINLESS STEEL WITH SURFACE FINISH CONFINING TO
- ASME-BPE SF1. USED ONLY IN EXPOSED CLEAN ROOM AREAS. ACCEPTABLE MANUFACTURERS INCLUDE STEEL & O'BRIEN AND SWAGELOK 6.COPPER FITTINGS: COMPRESSION FITTINGS WITH EPDM 0-RINGS. ACCEPTABLE MANUFACTURERS INCLUDE NIBCO, VIEGA, AND ELKHEART
- 7.STAINLESS STEEL FITTINGS: 316L STAINLESS STEEL TRICLAMP FITTINGS. USED ONLY IN EXPOSED CLEAN ROOM AREAS. ACCEPTABLE MANUFACTURERS INCLUDE STEEL & O'BRIEN AND SWAGELOK.
- 8. COPPER TO STEEL FITTING: STEEL & O'BRIEN 22MP ADAPTER. D. JOINING MATERIALS
- 1.BRAZING FILLER METALS: AWS A5.8/A5.8M, BCUP SERIES, COPPER-PHOSPHORUS ALLOYS.
- E. VALVES BALL VALVES:
 - a. STANDARD: MSS SP-110. b. DESCRIPTION: THREE-PIECE BODY, BRASS OR BRONZE.
 - c. PRESSURE RATING: 300 PSIG MINIMUM. d. BALL: FULL-PORT, CHROME-PLATED BRASS.
 - e. SEATS: PTFE OR TFE. f. HANDLE: LEVER TYPE WITH LOCKING DEVICE.
- g. STEM: BLOWOUT PROOF WITH PTFE OR TFE SEAL. h. ENDS: MANUFACTURER-INSTALLED ASTM B 819, COPPER-TUBE EXTENSIONS AND MANUFACTURER-INSTALLED ASTM B 819, COPPER-TUBE EXTENSIONS WITH

PRESSURE GAGE ON ONE COPPER-TUBE EXTENSION.

2. BALL VALVES (EXPOSED IN CLEAN ROOM: i. STANDARD: 3A CERTIFIED.

m. STEM: BLOWOUT PROOF

- j. DESCRIPTION: THREE-PIECE BODY, 316LSTAINLESS STEEL. k. PRESSURE RATING: 300 PSIG MINIMUM. I. HANDLE: LEVER TYPE WITH LOCKING DEVICE.
- n. MODEL: STEEL & O'BRIEN BLV2C SERIES STAINLESS STEEL BALL VALVE. CHECK VALVES:
- a. DESCRIPTION: IN-LINE PATTERN, BRONZE. b. PRESSURE RATING: 300 PSIG MINIMUM.
- c. OPERATION: SPRING LOADED. d. ENDS: MANUFACTURER-INSTALLED ASTM B 819, COPPER-TUBE EXTENSIONS. SAFETY VALVES:
- a. BRONZE BODY. b. ASME-CONSTRUCTION, POPPET, PRESSURE-RELIEF TYPE.

INDICATED.

ROUGHING-IN ASSEMBLY

- c. SETTINGS TO MATCH SYSTEM REQUIREMENTS. PRESSURE REGULATORS:
- a. STAINLESS STEEL BODY AND TRIM. b. MAKE AND MODEL: SWAGELOK PRS SERIES
- c. SPRING-LOADED, DIAPHRAGM-OPERATED, RELIEVING TYPE. d. MANUAL PRESSURE-SETTING ADJUSTMENT. e. RATED FOR 250-PSIG MINIMUM INLET PRESSURE.
- f. CAPABLE OF CONTROLLING DELIVERED GAS PRESSURE WITHIN 0.5 PSIG FOR EACH 10-PSIG INLET PRESSURE.
- F. GAS SERVICE CONNECTIONS 1. GENERAL REQUIREMENTS FOR GAS SERVICE CONNECTIONS:
 - b. INCLUDE ROUGHING-IN ASSEMBLIES, FINISHING ASSEMBLIES, AND COVER PLATES. c. INDIVIDUAL COVER PLATES ARE NOT REQUIRED IF SERVICE CONNECTION IS IN MULTIPLE UNIT OR ASSEMBLY WITH COVER PLATE. d. RECESSED-TYPE UNITS MADE FOR CONCEALED PIPING UNLESS OTHERWISE

a. STEEL OUTLET BOX FOR RECESSED MOUNTING AND CONCEALED PIPING.

a. SUITABLE FOR SPECIFIC GAS PRESSURE AND SUCTION SERVICE LISTED.

b. BRASS-BODY OUTLET BLOCK WITH SECONDARY CHECK VALVE THAT WILL PREVENT GAS FLOW WHEN PRIMARY VALVE IS REMOVED. SUCTION INLETS TO BE WITHOUT SECONDARY VALVE.

c. DOUBLE SEALS THAT WILL PREVENT GAS LEAKAGE.

- d. ASTM B 819, NPS 3/8 COPPER OUTLET TUBE BRAZED TO VALVE WITH SERVICE MARKING AND TUBE-END DUST CAP.
- FINISHING ASSEMBLY:
- a. BRASS HOUSING WITH PRIMARY CHECK VALVE. b. DOUBLE SEALS THAT WILL PREVENT GAS LEAKAGE.
- c. COVER PLATE WITH GAS-SERVICE LABEL. 4. QUICK-COUPLER PRESSURE SERVICE CONNECTIONS: OUTLETS FOR GAS WITH NONINTERCHANGEABLE KEYED INDEXING TO PREVENT INTERCHANGE BETWEEN SERVICES, CONSTRUCTED TO PERMIT ONE-HANDED CONNECTION AND REMOVAL OF

EQUIPMENT, AND WITH POSITIVE-LOCKING RING THAT RETAINS EQUIPMENT STEM IN

- VALVE DURING USE.
- G. GAS CYLINDER STORAGE RACKS WALL STORAGE RACKS: FABRICATE RACKS WITH CHAIN RESTRAINTS FOR UPRIGHT CYLINDERS AS INDICATED OR PROVIDE EQUIVALENT MANUFACTURED WALL RACKS.
- 2. FREESTANDING STORAGE RACKS: FABRICATE RACKS AS INDICATED OR PROVIDE EQUIVALENT MANUFACTURED STORAGE RACKS. H. NITROGEN
- 1. COMPLY WITH USP 32 NF 27 FOR OIL-FREE DRY NITROGEN.

RATED FOR 250-PSIG MINIMUM INLET PRESSURE.

I. PRESSURE GAUGE 1. STAINLESS STEEL BODY AND TRIM.

- 1.SANITARY, VENT, HW, & CW PIPING
- VERTICAL PIPING OF THE FOLLOWING MATERIALS SHALL BE SUPPORTED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS, BUT AT NO GREATER THAN THE DISTANCES LISTED
- 1.CAST-IRON SOIL PIPE AT BASE AND AT EACH STORY HEIGHT. 2.STEEL THREADED PIPE - AT BASE AND AT EACH STORY HEIGHT.

4. PLASTIC PIPE - REFER TO SECTION 8.7 IN NSPC 2009. 5.FLEXIBLE PLASTIC TUBING - EACH STORY HEIGHT AND AT MID-STORY.

HORIZONTAL PIPING OF THE FOLLOWING MATERIALS SHALL BE SUPPORTED ACCORDING TO

3. COPPER TUBE - AT EACH STORY HEIGHT BUT NOT MORE THAN 10-FOOT INTERVALS.

- MANUFACTURER'S RECOMMENDATIONS, BUT AT NO GREATER THAN THE DISTANCES LISTED 1. CAST-IRON SOIL PIPE - MINIMUM OF ONE HANGER PER PIPE LENGTH LOCATED WITHIN18 INCHES OF EACH JOINT (UP TO 10-FOOT MAXIMUM PIPE LENGTH, AT CHANGES IN DIRECTION, AND AT BRANCH CONNECTIONS. WHERE PIPE IS SUSPENDED BY NO-RIGID HANGERS MORE THAN 18 INCHES LONG, PROVIDE LATERAL SUPPORT AT 25-FOOT MAXIMUM SPACING. LATERAL SUPPORT SHALL CONSIST OF EITHER 1) A SWAY BRACE OR
- 2) EITHER A CHANGE IN DIRECTION OR A BRANCH CONNECTION THAT PROVIDES THE REOUIRED LATERAL SUPPORT 2. STEEL THREADED PIPE 3/4-INCH SIZE AND SMALLER - 10-FOOT INTERVALS. 3. STEEL THREADED PIPE ONE-INCH SIZE AND LARGER - 12 FOOT INTERVALS.
- 4. COPPER TUBE 1-1/4-INCH SIZE AND SMALLER- 6 FOOT INTERVALS. 4. COPPER TUBE 1-1/2-INCH SIZE AND LARGER- 10 FOOT INTERVALS.

5. PLASTIC PIPE - REFER TO SECTION 8.7 IN NSPC 2009.

6. FLEXIBLE PLASTIC TUBING - 32 INCHES.

GAS PIPING SUPPORT					
STEEL PIPE, NOMINAL SIZE OF PIPE (IN INCHES)	SPACING OF SUPPORTS (FEET)	NOMINAL SIZING OF TUBING (SMOOTH-WALL) (INCH 0.D.)	SPACING OF SUPPORTS (FEET)		
½	6	1/2	4		
¾ OR 1	8	1/2	6		
1¼ OR LARGER (HORIZONTAL)	10	⅓ OR 1 (HORIZONTAL)	8		
1¼ OR LARGER (VERTICAL)	EVERY FLOOR LEVEL	1 OR LARGER (VERTICAL)	EVERY FLOOR LEVEL		

- A. PIPE SHALL BE ASTM A 53, SCHEDULE 40, SEAMLESS, BLACK STEEL PIPE, BEVELED ENDS.
- B. FLEXIBLE CONNECTIONS TO GAS EQUIPMENT SHALL BE DORMANT MODEL B WITH MODEL V VALVE AT EACH PIECE OF EQUIPMENT. GAS COCKS SHALL BE JENKINS, LUNKENHEIMER OR

C. UNIONS SHALL BE MALLEABLE IRON TO ANSI B16.3, CLASS 150, STANDARD PATTERN, FOR

- THERADED JOINTS. THREADS SHALL CONFORM TO ANSI B1.20.1. D. UNION SHALL BE TO ANSI B16.39, CLASS 150, BLASK MALLEABLE IRON, FEMALE PATTERN, BRASS TO IRON SEAT, GROUND JOINT.
- E. DIELECTRIC UNIONS SHALL BE TO ANSI B16.39, CLASS 250, MALLEABLE IRON AND CAST F. WHEN PIPING WIL BE IN CONTACT WITH MATERIAL OR ATMOSPHERE EXERTING A CORROSIVE ACTION, PIPE AND FITTINGS SHALL BE FACTORY-COATED WITH POLYETHYLENE TAPE. PIPING

SHALL BE PRIMED WITH COMPATIBLE PRIMER BEFORE APPLYING TAPE.

- G. GAS COCKS 2" AND SMALLER: 150PSI WOG, BRONZE BODY, STRAIGHTAWAY PATTERN, SQUARE HEAD, THREADED ENDS. H. GAS VALVES 2½" AND LARGER: 150PSI WOG, CAST STEEL, FLANGED ENDS, BOLTED BONNET. I. SOLENOID VALVES: EXPLOSION PROOF, ALUMINUM BODY, 120V AC, A60 HZ., CLASS B CONTINUOUS DUTY MOLDED COIL, NEMA 4 COIL ENCLOSURE, ELECTRICALLY OPENED/
- ELECTRICALLY CLOSED, DUAL COILS, NORMALLY CLOSED, UL AND FM APPROVED AND MASTER GAS CONTROL VAVLE ASSEMBLIES SHALL BE INSTALLED WITHIN WALL MOUNTED VENTED CABINET, SIMILAR TO #ASVB FROM ACUDOR PRODUCTS INC.

K. GAS PRESSURE REGULATORS SHALL BE MAXITROL 325 SERIES. MAXITROL 210 CAN BE USED IF

GAS FLOW RATE IS HIGHER THAN CAPACITY OF 325 SERIES. INDOOR GAS PRESSURE

RECEIVE ONE COAT OF RUST INHIBITOR PAINT AND ONE COAT OF YELLOW FINISH PAINT. M. ELECTRICAL BONDING AND GROUNDING: 1.INSTALL ABOVE GROUND PORTIONS OF GAS PIPING SYSTEMS, UPSTREAM FROM

EOUIPMENT SHUTOFF VALVES ELECTRICALLY CONTINUOUS AND BONDED TO A

GAS DISTRIBUTION PIPING LOCATED ON THE ROOF OR EXPOSED TO THE ELEMENTS SHALL

GROUNDING ELECTRODE IN ACCORDANCE WITH NFPA 70 - "NATIONAL ELECTRICAL

C. PROVIDE IDENTIFICATION FOR PIPING, AND EQUIPMENT.

REGULATORS SHALL HAVE VENT LIMITING DEVICES

2.DO NOT USE GAS PIPING AS A GROUNDING ELECTRODE. 3. CONFORM TO NFPA 70 - "NATIONAL ELECTRICAL CODE", FOR ELECTRICAL CONNECTIONS

A. IDENTIFICATION SHALL BE IN ACCORDANCE WITH "SCHEME FOR IDENTIFICATION OF PIPING SYSTEM ANSI A13.1" AND OSHA SAFETY COLOR REGULATION. B. MARKERS SHALL BE SNAP-ON TYPE AS MANUFACTURED BY SETON NAMEPLATE CORP., (SETMARK SYSTEM) EMED CO., INC., BRIMAR INDUSTRIES, INC., MARKING SERVICES INC. MARKERS SHALL

COMPLETELY ENCIRCLE THE PIPE WITH A SUBSTANTIAL OVERLAP. NO ADHESIVE SHALL BE USED.

INCLUDING INSULATION (IF ANY) IS 6" DIAMETER AND LARGER, MARKERS SHALL BE STRAP ON TYPE.

PIPE SHALL BE LETTERED IN ACCORDANCE WITH THE SCHEDULE BELOW. LETTERING SHALL BE

THEY SHALL BE MANUFACTURED OF UL APPROVED, SELF-EXTINGUISHING PLASTIC. WHEN THE PIPE

LOCATED AT THE SUPPLY SIDE OF EACH VALVE AND BRANCH CONNECTION AND AT INTERVALS OF NOT

STRAIGHT RUNS OF PIPE. PROVIDE FLOW ARROWS FOR ALL PIPING AT EACH MARKER. ADJACENT TO

YELLOW WITH BLACK LETTERS, GREEN WITH WHITE LETTERS, BLUE WITH WHITE LETTERS AND RED

HE LEGEND, STENCIL THE SIZE OF THE PIPE. BACKGROUND AND LETTER COLORS ARE AS FOLLOWS:

OVER 20'(10' ON FIRE LINES IN THE BASEMENT AND CELLAR AND 5'-0" FOR GAS LINES EVERYWHERE) ON

BETWEEN WIRING AND ELECTRICALLY OPERATED CONTROL DEVICES.

STENCIL SCHEDULE

		COLOR
OLD WATER	COLD WATER	GREEN
FI WATER	WFI WATER	GREEN
ROCESS WASTE	PROCESS WASTE	ORANGE
ROCESS VENT	PROCESS VENT	ORANGE
4S	GAS	SAFETY YELLOW
OMPRESSED AIR	COMPRESSED AIR PSI	YELLOW ABOVE 90 PSI BLUE BELOW 90 PSI
TROGEN	NITROGEN	YELLOW
W PRESSURE EAM	LPS	GREEN
OW PRESSURE ONDENSATE	LPC	GREEN
JRE STEAM	PUS	YELLOW

E. THE NATURE OF SERVICE OF ALL MACHINERY, EQUIPMENT, TANKS, PUMPS, AND OTHER APPARATUS SHALL BE STENCILED IN 2" HIGH LETTERS UNLESS OTHERWISE DIRECTED.

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SIGNATURE

MITUL PATEL, P.E.

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Γ IS A VIOLATION OF LAW FOR AN` PERSON UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ARCHITECT, TO ALTER AN ITEM IN ANY WAY ON THIS DRAWING OR SPECIFICATION (DOCUMENT). IF DOCUMENT BEARING THE SEAL OF AN ARCHITECT IS ALTERED THE ALTERING ARCHITECT SHALL AFFIX TO THE DOCUMENT THEIR SEAL AND TI NOTIFICATION "ALTERED BY" FOLLOWED B THEIR SIGNATURE AND THE DATE OF SUCH ALTERATION AND A SPECIFIC DESCRIPTION

OF THE ALTERATION.

\ IAddendum #1

. ||ssued for Permit & Bid|04/0

lo. | Revision

Key Plan:

Chartwell Pharmaceuticals



7 Brenner Drive

Congers, New York

Drawing Title: PLUMBING **SPECIFICATIONS**

Drawn By: Reviewed By: KSD Project No.:

11/02/2020 AS NOTED

Drawing Number

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