

## PLUMBING LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	TRAP PIMER		DIRECTION OF SLOPE
	BALL VALVE		DIRECTION OF FLOW
	BUTTERFLY VALVE		PIPE UP OR UP & DN
	GATE VALVE		PIPE DOWN
	BALANCING VALVE		PIPE DROP
	SHUT OFF VALVE IN CONCRETE YARD BOX		TOP CONNECTION - BRANCH LINE
	ANGLE GATE VALVE		BOTTOM CONNECTION - BRANCH LINE
	OS & Y GATE VALVE (OUTSIDE SCREW & YOKE GATE VALVE)		FIRE MAIN
	OS & Y GATE VALVE WITH TAMPER SWITCH		AUTOMATIC WET SPRINKLER
	SOLENOID VALVE		COLD WATER
	LUBRICATED PLUG VALVE		HOT WATER (120°F)
	CHECK VALVE		HOT WATER CIRC (110°F)
	PRESSURE REDUCING VALVE		HOT WATER (140°F)
	RELIEF VALVE		HOT WATER CIRC (122°F)
	VACUUM RELIEF VALVE		SANITARY SEWER, WASTE OR SOIL BELOW GRADE OR FLOOR
	PRESSURE & TEMPERATURE RELIEF VALVE		STORM DRAIN
	AUTOMATIC AIR VENT		PIPING BELOW GRADE
	CIRCUIT SETTER		WASTE, OR SOIL ABOVE GRADE OR FLOOR
	BACKWATER VALVE		VENT
	DOUBLE DETECTOR CHECK VALVE ASSEMBLY		ROOF DRAIN PIPING, THE PIPES FROM ROOF DRAIN TO (STORM DRAIN)
	DOUBLE CHECK VALVE ASSEMBLY		OVERFLOW DRAIN PIPING
	REDUCED PRESSURE BACKFLOW PREVENTER		PUMPED DISCHARGE
	PRESSURE SWITCH		DRAIN LINE
	FLOW ALARM		INDIRECT WASTE
	FLOW SWITCH		GREASE WASTE
	UNION		PROCESS WASTE
	STRAINER		PROCESS VENT
	STRAINER WITH BLOW OFF		NATURAL GAS (7"W.C.)
	PIPE ANCHOR		MEDIUM PRESSURE GAS (2 PSIG TO 5 PSIG)
	PIPE ALIGNMENT GUIDE		LOW PRESSURE GAS
	EXPANSION JOINT		COMPRESSED AIR
	FLEXIBLE CONNECTOR		EXISTING PIPE
	CAP OR PLUG		INDUSTRIAL COLD WATER
	BLIND FLANGE		INDUSTRIAL HOT WATER
	CONCENTRIC REDUCER		INDUSTRIAL HOT WATER RETURN
	ECCENTRIC REDUCER		TEMPERED WATER
	AQASTAT		TEMPERED WATER RETURN
	WATER HAMMER ARRESTOR		DEIONIZED WATER
	PRESSURE GAUGE WITH COCK		OXYGEN
	THERMOMETER		ACETYLENE
	CLEANOUT/WALL CLEANOUT		COMBINATION STAND PIPE
	FLOOR CLEANOUT		DRY STAND PIPE
	YARD CLEANOUT		COMBINATION STAND PIPE
	TEST TEE		EXISTING TO BE REMOVED
	WALL HYDRANT		EMERGENCY SHUT OFF VALVE
	HOSE BIBB		WASTE STACK
	YARD HYDRANT		VENT STACKS
	THRUST BLOCK		COLD WATER RISER
	FIRE DEPARTMENT CONNECTION		HOT WATER RISER
	AUTO FIRE SPRINKLER RISER		HOT WATER RECIRC. RISER
	FIRE DEPARTMENT VALVE		GAS RISER
	FIRE DEPARTMENT VALVE CABINET		ROOF DRAIN RISER
	FIRE SPRINKLER FLOOR CONTROL VALVE		OVERFLOW DRAIN RISER
	SIEMESE FIRE DEPT. CONN.		PLANTER DRAIN
	FIRE HOSE VALVE		COMPRESSED AIR RISER
	FIRE ALARM BELL		AUTOMATIC WET SPRINKLER RISER
	FLOOR DRAIN		AUTOMATIC SPRINKLER DRAIN
	FLOOR SINK W/ GRATE AS SHOWN		WET STANDPIPE RISER
	HUB DRAIN		PLUMBING EQUIPMENT
	ROOF RECEPTOR		MISCELLANEOUS EQUIPMENT
	ROOF DRAIN		SHEET NOTE
	OVERFLOW DRAIN		DETAIL NO.
	DECK DRAIN, PLANTER DRAIN		SHEET NO.
			POINT OF CONNECTION
			POUNDS OR NUMBER

## ABBREVIATIONS

ABV	ABOVE	SD	STORM DRAIN
AD	ACCESS DOOR	SF	SQUARE FEET
ADA	AMERICANS WITH DISABILITIES ACT	SHT	SHEET
AFF	ABOVE FINISHED FLOOR	SN	SHEET NOTE
AFG	ABOVE FINISHED GRADE	SOV	SHUT-OFF VALVE
AP	ACCESS PANEL	SPR	SPRINKLER
ARCH	ARCHITECT	S.S.	STAINLESS STEEL
ASR	AUTO FIRE SPRINKLER RISER	SV	SOLENOID VALVE
BEL	BELOW	TB	THRUST BLOCK
BFV	BUTTERFLY VALVE	TP	TRAP PRIMER
BHP	BRAKE HORSEPOWER	TS	TAMPER SWITCH
BTU	BRITISH THERMAL UNIT	TT	TEST TEE
BV	BALL VALVE	TYP	TYPICAL
BWV	BACKWATER VALVE	U	URNAL
CA	COMPRESSED AIR	UN	UNION
CD	CONDENSATE DRAIN	VB	VACUUM BREAKER
CFE	CAP FOR FUTURE	V	VENT
CFH	CUBIC FEET PER HOUR	VTR	VENT THROUGH ROOF
CFM	CUBIC FEET PER MINUTE	W	WASTE
CFS	CUBIC FEET PER SECOND	WC	WATER CLOSET
CI	CAST IRON	WHA	WATER HAMMER ARRESTOR
CLG	CEILING	WCO	WALL CLEANOUT
CO	CLEANOUT	W/	WITH
CONC	CONCRETE	WGT	WEIGHT
CONN	CONNECTION	Y.B.	YARD BOX
CONTR	CONTRACTOR		
CONT	CONTINUATION		
CS	CIRCUIT SETTER		
CV	CHECK VALVE		
CW	COLD WATER		
CW(FU)	COLD WATER FIXTURE UNIT		
DN	DOWN		
DCVA	DOUBLE CHECK VALVE ASSEMBLY		
DDCVA	DOUBLE DETECTOR CHECK VALVE ASSEMBLY		
DFU	DRAINAGE FIXTURE UNIT		
HWR	HOT WATER RECIRC		
DIA	DIAMETER		
DSN	DOWNSPOUT NOZZLE		
DWG	DRAWING		
DWV	DRAINAGE WASTE AND VENT		
EXIST	EXISTING		
ELEC	ELECTRICAL		
FLW	FLOW ALARM		
FC	FLEXIBLE CONNECTION		
FCO	FLOOR CLEANOUT		
FDV	FIRE DEPARTMENT VALVE		
FDVC	FIRE DEPARTMENT VALVE CABINET		
FFE	FINISHED FLOOR ELEVATION		
FH	FIRE HYDRANT		
FHV	FIRE HOSE VALVE		
FN	FINISHED		
FLR	FLOOR		
FLSW	FLOW SWITCH		
FO	FUEL OIL		
FPS	FEET PER SECOND		
FRM	FROM		
FT	FEET		
FT	FLUSH TANK		
(FU)	FIXTURE UNIT		
FUT	FUTURE		
FV	FLUSH VALVE		
G	GAS		
GAL	GALLONS		
GC	GAS COCK		
GPH	GALLONS PER HOUR		
GPM	GALLONS PER MINUTE		
GV	GATE VALVE		
HD	HUB DRAIN		
HP	HORSEPOWER		
HW	HOT WATER		
HWFU	HOT WATER FIXTURE UNIT		
IAPMO	INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS		
ICBO	INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS		
I.E.	INVERT ELEVATION		
I.R.R.	IRRIGATION		
LAV	LAVATORY		
LBS	POUNDS (UNIT OF FORCE)		
LP	LUBRICATED PLUG VALVE		
MAX	MAXIMUM		
MBH	THOUSANDS BTU/HR		
MECH	MECHANICAL		
MFR	MANUFACTURER		
MIN	MINIMUM		
MH	MANHOLE		
N.C.	NORMALLY CLOSED		
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION		
NO.	NUMBER		
N.O.	NORMALLY OPEN		
NIC	NOT IN CONTRACT		
OFCI	OWNER FURNISHED CONTRACTOR		
OW	OIL WASTE		
POC	POINT OF CONNECTION		
PLBG	PLUMBING		
PRV	PRESSURE REDUCING VALVE		
PS	PRESSURE SWITCH		
PSI	POUNDS PER SQUARE INCH		
PT	PRESSURE TEMPERATURE TRAP (PETE'S PLUG)		
PV	PROCESS VENT		
PV	PLUG VALVE		
R&C	ROUGH IN AND CONNECT		
RPBFP	REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTER		
RPM	REVOLUTIONS PER MINUTE		
RV	RELIEF VALVE		

## PLUMBING DESIGN CRITERIA

- CODES AND STANDARDS
  - AMERICANS WITH DISABILITIES ACT, (ADA)
  - BUILDING CODES ENFORCED BY THE AUTHORITY HAVING JURISDICTION IN OREGON.
- 2011 OREGON PLUMBING CODE (OPC) WITH STATE AMENDMENTS.
2. WATER SUPPLY:
  - CONNECTING TO EXISTING SYSTEM IN THE BASEMENT OF EMU.
  - PIPE SIZES ARE BASED ON MAXIMUMS 3 PSI FRICTIONS LOSS FOR COPPER PIPE AT A MAXIMUM VELOCITY OF 8 FPS, AND PREDOMINANTLY FLUSH TANK TYPE SYSTEM REQUIRING A MINIMUM RESIDUAL PRESSURE OF 15 PSI.
- SANITARY SEWER:
  - BUILDING SEWER SIZE 4 INCHES @ 2 % SLOPE
  - TOTAL CAPACITY 216 DRAINAGE FIXTURE UNITS
  - CONNECTED LOAD 120 D.F.U.
- STORM DRAIN:
  - RAINFALL INTENSITY 1.3 INCHES/HOUR
  - STORM DRAIN (1) 4 INCH, (1) 6 INCH IS SIZED AT 3 INCHES/HOUR @ 1 % SLOPE
- GAS SERVICE:
  - MAIN SIZE 2 INCHES
  - MAXIMUM DISTANCE 150 FEET
  - CONNECTED LOAD 4630 CFH
  - DELIVERY PRESSURE: 2 PSI
- HOT WATER:
  - CIRCULATED? Y
  - CONNECTING TO EXIST DOMESTIC HOT HEAT EXCHANGER SYSTEM.

## GENERAL NOTES

- ALL WORK AND MATERIAL SHALL BE IN ACCORDANCE WITH PLUMBING SPECIFICATIONS.
- AS-BUILT RECORD DOCUMENTS: AT PROJECT CLOSEOUT, CONTRACTOR SHALL SUBMIT DETAILED INSTALLATION DRAWINGS, CHANGE ORDERS AND SPECIFICATION CHANGES TO ARCHITECT FOR APPROVAL. REFER TO SPECIFICATIONS FOR ADDITIONAL DETAILS.
- ALL EXCAVATORS MUST COMPLY WITH ALL STATE AND LOCAL REQUIREMENTS INCLUDING NOTIFICATION OF ALL OWNERS OF UNDERGROUND UTILITIES AT LEAST 2 BUSINESS DAYS, BUT NOT MORE THAN 10 BUSINESS DAYS, BEFORE COMMENCING AN EXCAVATION.
- CONTRACTOR TO COORDINATE INSTALLATION OF GAS SERVICE WITH THE LOCAL UTILITY COMPANY, CONTACT ENGINEERING DEPARTMENT. ALL EXTERIOR GAS PIPING SHALL BE PAINTED.
- DETAILED INVESTIGATION OF EXISTING CONDITIONS ARE PART OF THE CONTRACT WORK. VISIT THE JOB SITE PRIOR TO BID. REVIEW AVAILABLE EQUIPMENT LAYOUTS, ASSEMBLY DRAWINGS AND INSTALLATION SCHEDULES.
- CONTRACTOR SHALL COORDINATE ALL UTILITY LINES EXITING OR ENTERING BUILDING WITH DIVISION 2 SPECIFICATIONS AND CIVIL ENGINEER'S UTILITY PLAN DRAWINGS AND OTHER TRADES.
- BARRIER FREE REQUIREMENTS: PROVISIONS HAVE BEEN DESIGNED TO PROVIDE FIXTURES IN ACCORDANCE WITH A.D.A., ANSI AND STATE REGULATIONS. CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS AND REPORT TO ARCHITECT OR OWNERS REPRESENTATIVE WHEN FIELD CONDITIONS PREVENT CORRECT INSTALLATION
- REFER TO CRAFT CENTER OWNER EQUIPMENT LIST FOR ALL EQUIPMENT REQUIRING PLUMBING CONNECTION.
- FIRE SPRINKLER CONTRACTOR TO VERIFY ALL LOCATION IN THE CRAFT CENTER FOR HAZARD GROUPS.
- DESIGN AND INSTALLATION OF FIRE PROTECTION SYSTEM BASED ON THE REQUIREMENTS OF THE STATE OF OREGON FIRE CODE. INSTALLATION SHALL ALSO COMPLY WITH REQUIREMENTS OF THE LOCAL FIRE MARSHAL AND THE OWNERS INSURING AGENCY AND THE FIRE SPRINKLER SHALL COMPLY WITH THE STANDARDS OF THE CURRENT EDITION OF NFPA13.
- ALL SANITARY AND VENT PIPING SHALL BE SLOPED AT 1/4"FT., EXCEPT WHERE NOTED AT 1/8"FT. TO CLEAR STRUCTURE IN ACCORDANCE WITH OSPSC TABLE 7-5.
- CONTRACTOR TO COMPLY WITH THE (REDUCTION OF LEAD IN DRINKING WATER ACT) LEAD-FREE NSF STANDARDS NSF/ANSI 372 OR NSF/ANSI 61-G, PUBLIC LAW 111-380

## PLUMBING DRAWING LIST

NO.	DESCRIPTION
P000	LEGEND AND ABBREVIATIONS - PLUMBING
P001	SCHEDULES - PLUMBING
P150A	GROUND LEVEL - NORTH WING - PLUMBING
P150B	GROUND LEVEL - HEARTH - PLUMBING
P150C	GROUND LEVEL - 1962 ADDITION - PLUMBING
P150D	GROUND LEVEL - SOUTHWEST - PLUMBING
P151A	LEVEL 1 - NORTH WING - PLUMBING
P151B	LEVEL 1 - HEARTH & MILLS CENTER - PLUMBING
P151C	LEVEL 1 - 1962 ADDITION - PLUMBING
P151D	LEVEL 1 - FOOD SERVICE - PLUMBING
P151mD	MEZZANINE - LEVEL 1 SOUTH - PLUMBING
P152A	LEVEL 2 - NORTH WING - PLUMBING
P152B	LEVEL 2 - HEARTH & MILLS CENTER - PLUMBING
P152C	LEVEL 2 - 1962 ADDITION - PLUMBING
P152mB	MEZZANINE LEVEL 2 - HEARTH & MILLS CENTER - PLUMBING
P200A	ROOF PLAN - NORTHWING - PLUMBING
P200B	ROOF PLAN - HEARTH & MILLS CENTER - PLUMBING
P200C	ROOF PLAN - 1962 ADDITION - PLUMBING
P200D	ROOF PLAN - SOUTHWEST - PLUMBING
P201A	UPPER ROOF PLAN - NORTH WING - PLUMBING
P401	ENLARGED EXISTING PLANS - PLUMBING
P601	HOT & COLD WATER RISER DIAGRAM
P602	HOT & COLD WATER RISER DIAGRAM
P603	WASTE AND VENT RISER DIAGRAM - PLUMBING
P604	STORM RISER DIAGRAM (NORTH WING)
P605	FIRE PROTECTION RISER DIAGRAM
P801	DETAILS - PLUMBING
PU000	LEGENDS AND ABBREVIATIONS - PLUMBING
PU001	SCHEDULES - PLUMBING
PU100A	UNDERGROUND PLAN - SECTOR A - PLUMBING
PU100B	UNDERGROUND PLAN - SECTOR B - PLUMBING
PU100D	UNDERGROUND PLAN - SECTOR D - PLUMBING
DP100	DEMO PLAN - GROUND LEVEL - PLUMBING
DP101	DEMO PLAN - LEVEL 1 - PLUMBING
DP101m	DEMO PLAN - MEZZANINE LEVEL - PLUMBING
DP102	DEMO PLAN - LEVEL 2 - PLUMBING
DP102m	DEMO PLAN - LEVEL 3 - PLUMBING

PLUMBING FIXTURES SCHEDULE							
ITEM	DESCRIPTION	TRAP ARM	WASTE	VENT	CW	HW	REMARKS
WC-1	WATER CLOSET	INT	4"	2"	1 1/4"	---	WALL MOUNTED, FLUSH VALVE
WC-2	WATER CLOSET	INT	4"	2"	1 1/4"	---	WALL MOUNTED, FLUSH VALVE, ADA
UR-1	URINAL	2"	2"	1 1/2"	3/4"	---	WALL MOUNTED
UR-2	URINAL	2"	2"	1 1/2"	3/4"	---	WALL MOUNTED, ADA
L-1	LAVATORY	1 1/4"	1 1/2"	1 1/4"	1/2"	1/2"	COUNTER MOUNTED
L-2	LAVATORY	1 1/4"	1 1/2"	1 1/4"	1/2"	1/2"	WALL MOUNTED, ADA
S-1	SINK	1 1/2"	2"	1 1/2"	1/2"	1/2"	SELF-RIMMING, 18 GA. STAINLESS STEEL
S-2	SINK	1 1/2"	2"	1 1/2"	1/2"	1/2"	SELF-RIMMING, 18 GA. STAINLESS STEEL
FSH-1	FOOT SHOWER	1 1/2"	2"	1 1/2"	1/2"	1/2"	WITH MIXING VALVE
MS-1	MOP SINK	3"	3"	1 1/2"	3/4"	3/4"	WITH RIM & WALL GAURDS
DF-1	DUAL DRINKING FOUNTAIN	(2)1 1/4"	1 1/2"	1 1/4"	1/2"	---	WITH BOTTLE FILLER
HB-1	INTERIOR HOSE BIBB	---	---	---	3/4"	---	-
HB-2	INTERIOR HOSE BIBB	---	---	---	1/2"	1/2"	IN RECESSED BOX
FD-1	FLOOR DRAIN	2"	2"	1 1/2"	---	---	PROVIDE TRAP PRIMER FROM WATER CLOSET FLUSH VALVE OR TP-1/2
FD-2	FLOOR DRAIN	3" / 4"	3" / 4"	1 1/2" / 2"	---	---	WITH TRAP PRIMER
FS-1	FLOOR SINK	3" / 4"	3" / 4"	1 1/2" / 2"	---	---	HALF GRATE, WITH TRAP PRIMER
RD-1	LARGE ROOF DRAIN	---	---	---	---	---	SEE PLAN FOR PIPE SIZE
OD-1	LARGE OVERFLOW DRAIN	---	---	---	---	---	SEE PLAN FOR PIPE SIZE
DSN-1	DOWNSPOUT NOZZEL	---	---	---	---	---	SEE PLAN FOR PIPE SIZE, 12"AFG
TP-1	PRESSURE DROP TRAP PRIMER	---	---	---	1/2"	---	---
TP-2	ELECTRONIC TRAP PRIMER	---	---	---	1"	---	WALL MOUNTED, WITH TIMER
---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---

ELECTRIC WATER HEATER SCHEDULE										
FIXTURE	SYSTEM SERVED	TANK SIZE	RECOVERY	WATTS	VOLTS	PHASE	TEMP.	MANUFACTURER	MODEL NUMBER	REMARKS
EW1	NORTH WING EAST PENTHOUSE	50	25 GPH @ 100" ΔT	6 KW	480	3	115	BOCK	50F	ROUTE RELIEF TO FLOOR SINK

TANK SCHEDULE						
ITEM	SERVICE	MANUFACTURER AND MODEL	CAPACITY	SIZE	WEIGHT FULL	REMARKS
ET 1	EXPANSION TANK	WATTS	10	---	---	SET PRECHARGE TO 75 PSI
ET 2	EXPANSION TANK	WESSELS TTA-125	60	---	---	PART OF FTDW-1

PUMP SCHEDULE												
ITEM	SERVICE	MANUFACTURER AND MODEL	TYPE	CAPACITY		HP	RPM	VOLTS	PHASE	WGT	REMARKS	
				GPM	HEAD, FT							
GP 1	HOT WATER CIRCULATION	BELL & GOSSET PL SERIES	INLINE	6	30'	1/2	1750	120	1	---	---	

EQUIPMENT SCHEDULE															
ITEM	SERVICE	MANUFACTURER MODEL	TYPE	CAPACITY		L	W	H	VAC	HZ	PH	FLA	GPM / INCOMING STEAM PSIG	PHASE	REMARKS
				LIQUID	-										
GI 1	GREASE INTERCEPTOR	UTILITY VAULT 5106-2-GA	---	2000	---	11'-4"	5'-10"	7'-10"	---	---	---	---	---	---	ALL FOOD PREP AREAS, SEE CIVIL DRAWINGS, FOR EXACT LOCATION

SEWAGE EJECTOR/SUMP PUMP SCHEDULE														
ITEM	LOCATION	MANUFACTURER AND MODEL	TYPE	BASIN CAPACITY			PUMP CAPACITY		HP	RPM	VOLTS	PHASE	DSCH.	REMARKS
				GALS	DIA.	DEPTH	GPM	HEAD, FT						
SP 1	ELEVATOR SUMP	ZOELLER CO. MIGHTY-MATE	SUB.	40	24"x24"	24"	50	20	1/2	1750	120	1		W / HIGH LEVEL ALARM
SP 2	BOILER ROOM	WEIL 2445	SUB.	EXISTING	EXISTING	EXISTING	(2) 50	27	1	3450	120	1	2"	PROVIDE COVER 8805, (2) 20" 8817 PUMP OPENING COVERS, W / HIGH LEVEL ALARM (4) 8230 FLOATS WITH 40' CORDS

Domestic Heat Transfer Package Schedule									
TAG	MANUFACTURER	MODEL	SYSTEM RECOVERY (GPM) / INCOMING STEAM PRESSURE (PSIG)	MASTER CONTROL PANEL ELECTRICAL		INSTALLATION LOCATION	APPROX. WEIGHT (LBS.)		NOTES
				VAC / HZ / PHASE	FLA		SHIPPING	OPERATING	
FTDW-1	FlowTherm	FTDW	45 / 11	460 / 60 / 3	25	INDOOR	5,800	7,250	1-9
UL LISTED PACKAGED SYSTEM TO INCLUDE THE FOLLOWING MAJOR COMPONENTS PRE-PIPED AND WIRED ON STRUCTURAL STEEL FRAME:									
TAG	COMPONENT	MANUFACTURER	MODEL	QUANTITY	NOTES				
MCP-5	Master Control Panel (MCP)	FlowTherm	N/A	1 ea	UL listed panel in NEMA 1 (minimum) enclosure that includes: lockable main power disconnect handle, individual lockable motor service disconnects for recirculation/condensate/sump pumps, motor overload and short circuit protection for recirculation/condensate/sump pumps, protected control power transformer(s) on primary & secondary sides, recirculation pump "Hand-Off-Auto" switches, condensate & sump pump "Test-Off-Auto" switches with spring return to "Off" from "Test", recirculation/condensate/sump pump "Run" lights, condensate & sump pump electric alternating relays and lead pump failure backup, sump pump "High Water Alarm" light with automatic reset, and single point power connection for panel.				
SP-1 & 2	Sump Pumps (Shipped Loose)	Weil	No. 2445	2 ea	Cast iron, single-seal, submersible style, sized for 50 GPM @ 27' head, 1 HP, 3450 RPM, 2" discharge, passes 3/4" solids, and 40' power cord length. Weil items shipped loose with skid to be field installed/wired: SP-1 & 2, (4) model no. 8230 N.O. mechanical floats with 40' cord length and cover mounting bracket, and No. 8805 wet well cover with (2) 20" model no. 8817 pump opening covers.				
WH-1 & 2	Domestic Heater	Cemline	V45SSH1036-DW	2 ea	45 GPM recovery each, 50°F to 140°F, 7# shell pressure, 3/4" O.D. copper tubes with double-wall construction, 150# ASME, 0.0005 fouling factor, 45 gallon 316 stainless steel tank, integral bronze circulator, electronic control valve, double-solenoid safety relief, vacuum breaker, relief valve, with Control controller mounted to side of MCP.				
CRU-2	Condensate Pumps	Xylem Domestic Pump	301.5CC	1 ea	Bronze fitted pumps, duplex configuration, 36 gallon cast iron receiver, (2) heavy-duty 2-pole float switches, each pump sized for 30 GPM @ 15# discharge pressure, 1/2 HP, 3500 RPM, ODP motors, dial thermometer, discharge pressure gauges & balance valves for each pump, 2" vent & overflow, 1" drain and 3" inlet.				
RP-1	Domestic Recirculation Pump	Bell & Gossett	NBF-36B	1 ea	3-speed, all bronze construction, 0.36 HP, 3300 PM, sized for 5 GPM @ 17' head.				
TP-1	Tempered Domestic Recirculation Pump	Bell & Gossett	NBF-36B	1 ea	3-speed, all bronze construction, 0.36 HP, 3300 PM, sized for 10 GPM @ 27' head.				
ET-3	Expansion Tank	Wessels	TTA-125	1 ea	60 gallon tank volume, 150# ASME, pre-charged, FDA approved butyl diaphragm, 1" stainless steel system connection, sized at 50# system pressure, 150# maximum tank pressure, 50°F initial temperature, maximum temperature of 170°F, and system volume of 1,350 gallons of water.				
TCV-1	Tempering Valve	Heat Timer	ETV	1 ea	3-way mixing valve, 1-1/4" system connections, stainless steel body & trim, electronic actuator, with Heat Timer controller and module for BMS connectivity mounted to side of MCP.				
<b>NOTES:</b>									
1)	UL listed package includes a heavy-duty, welded structural steel frame and base built to AWS D1.1 specifications. All components are pre-mounted, piped, wired, and hydro-tested before being painted FlowTherm's standard gray, water-based enamel. All piping, pipe materials, welding procedures, valves, fittings, and hardware are in accordance with ASME B31.9 standards.								
2)	Package includes lot interconnecting headers, piping, fittings, strainers, isolation/balance/check/relief valves, suction diffusers, thermometers, pressure gauges, flex connectors, and steam traps as shown on the flow diagram.								
3)	Domestic heat transfer system is enabled, sequenced and monitored by the Building Management System. BMS contractor to ship skid mounted controllers, temperature sensors & wells, pressure switches & sensors, flow & steam meters, BTU meters, and wiring diagrams to FlowTherm for installation and wiring at fabrication facility. Control panel for local alarms, pilot lights, disconnects, etc. is provided and wired by FlowTherm. FlowTherm will install wiring & conduit between skid equipment and Master Control Panel. Other devices requiring remote installation are to be supplied, installed and wired by BMS contractor in the field. Steam meter shall be type that requires < 5 pipe diameters up and downstream of device, similar Veris Accelabur.								
4)	Power and control wiring to/from FlowTherm panel is by Div. 26 and BMS contractor, respectively.								
5)	Skid dimensions shall not exceed 12.5' L x 8' H x 6' W, including the anchor chairs.								
6)	42" of service clearance is required in front of the Master Control Panel.								
7)	Equipment vents/drain/overflows and other system piping connections to the package are the responsibility of the installing contractor.								
8)	Package does not include spring isolators, vibration eliminator mounts, special mounting brackets, special seismic construction, certification, seismic frame calculations, seismic anchorage calculations, or seismic testing, insulation for piping and components, calcium silicate pipe shields or insulated pipe supports. Skid shall be bolted to concrete floor or housekeeping pad.								
9)	Condensate piping shall be sloped towards condensate return unit's inlet.								



ARCHITECTURE  
URBAN DESIGN + PLANNING  
INTERIOR DESIGN

338 NW 5TH AVENUE  
PORTLAND OREGON 97209  
P: 503.445.7372  
F: 503.445.7365  
SERAPDX.COM

**GLUMAC**

900 SW Fifth Ave., Suite 1600  
Portland, OR 97204  
T: 503.227.6286 F: 503.274.7674  
www.glumac.com  
Job No. 02.13.0594  
Contact: TODD KOLIBABA  
engineers for a sustainable future™

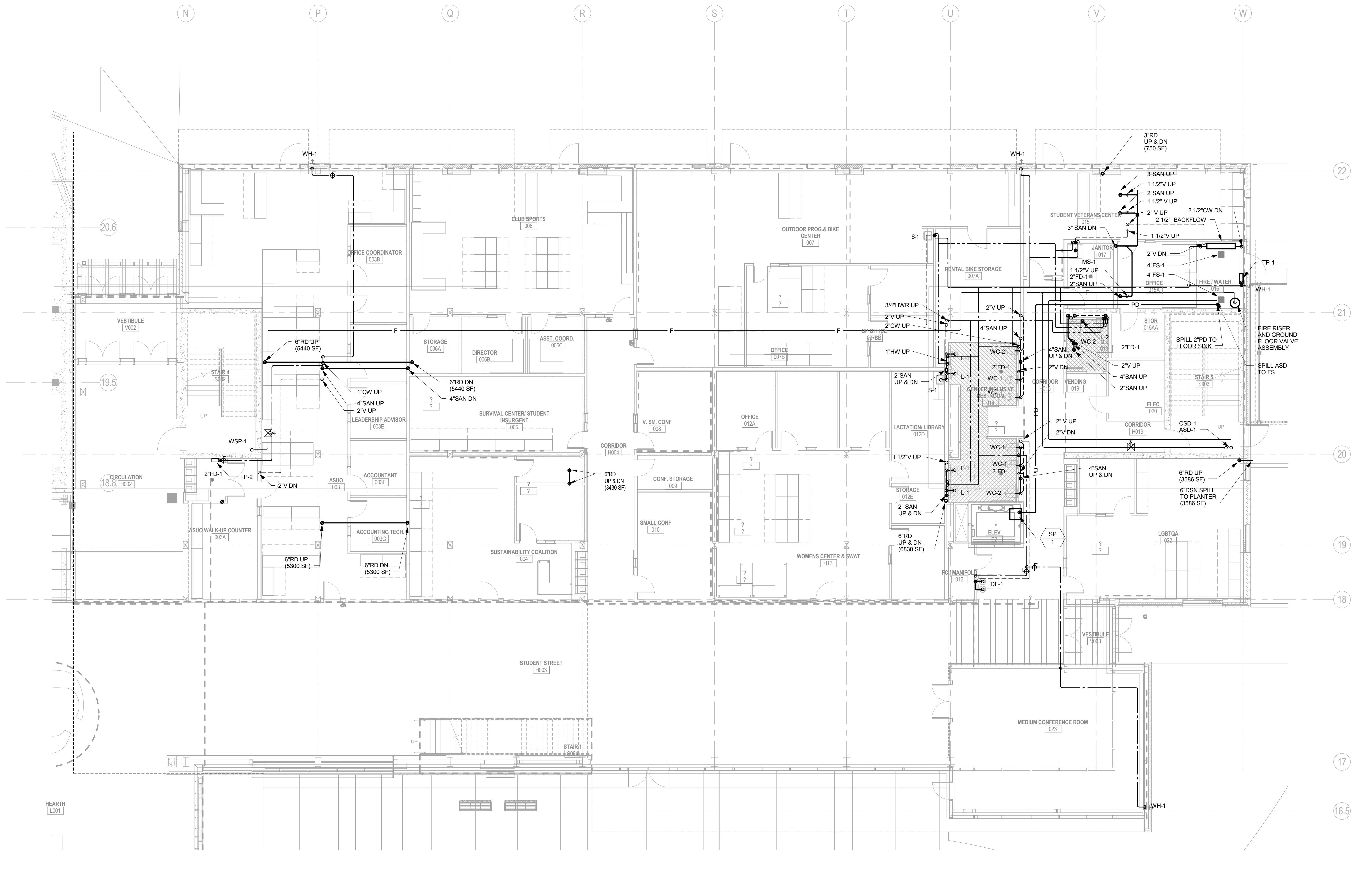
ERB MEMORIAL UNION - RENOVATION & ADDITION  
PACKAGE 4

UNIVERSITY OF OREGON  
13TH AVENUE & UNIVERSITY STREET

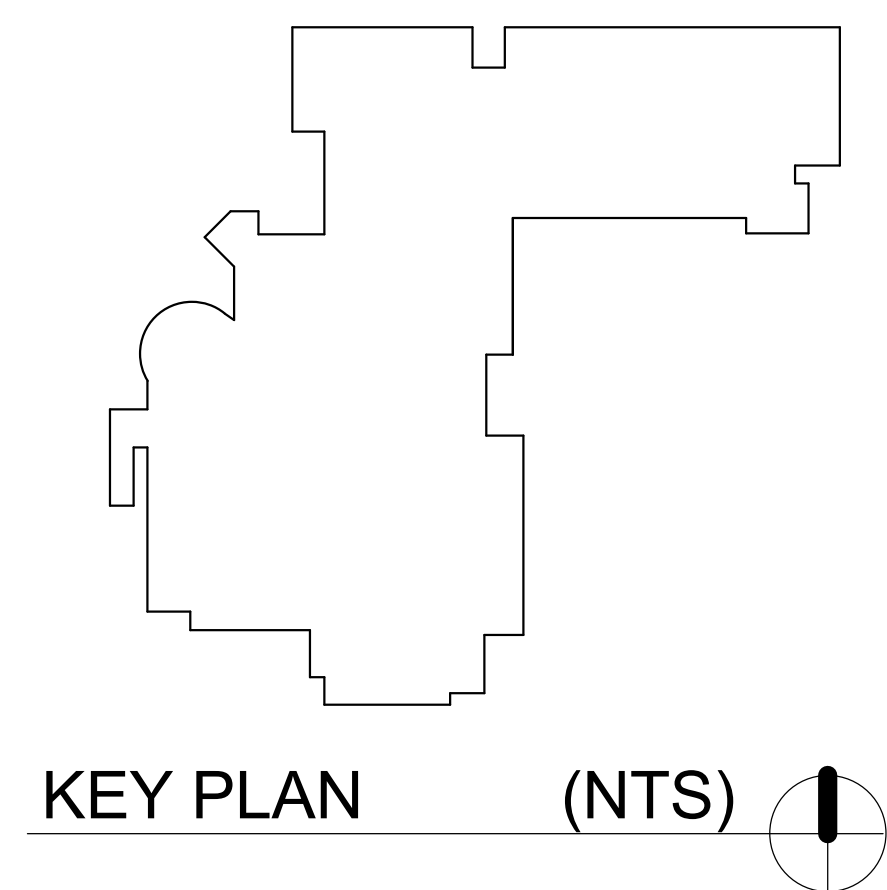
REVISIONS

CHECKED BY:  
ISSUE DATE: 2014.03.14  
PROJECT NO.: 11045

SCHEDULES -  
PLUMBING  
**P001**



**1 GROUND LEVEL FLOOR PLAN - SECTOR A - PLUMBING**  
 SCALE: 1/8" = 1'-0"

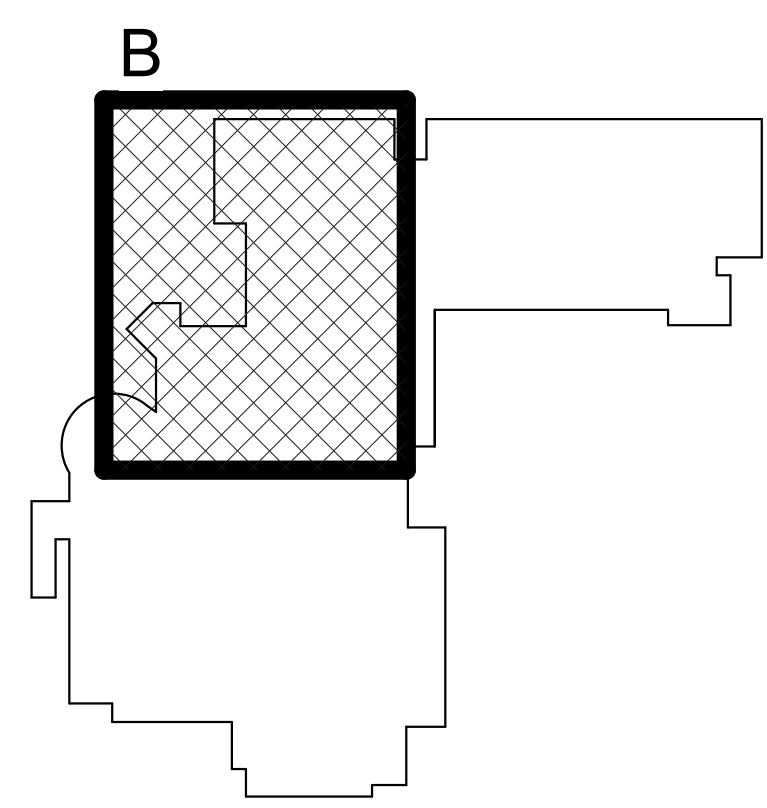
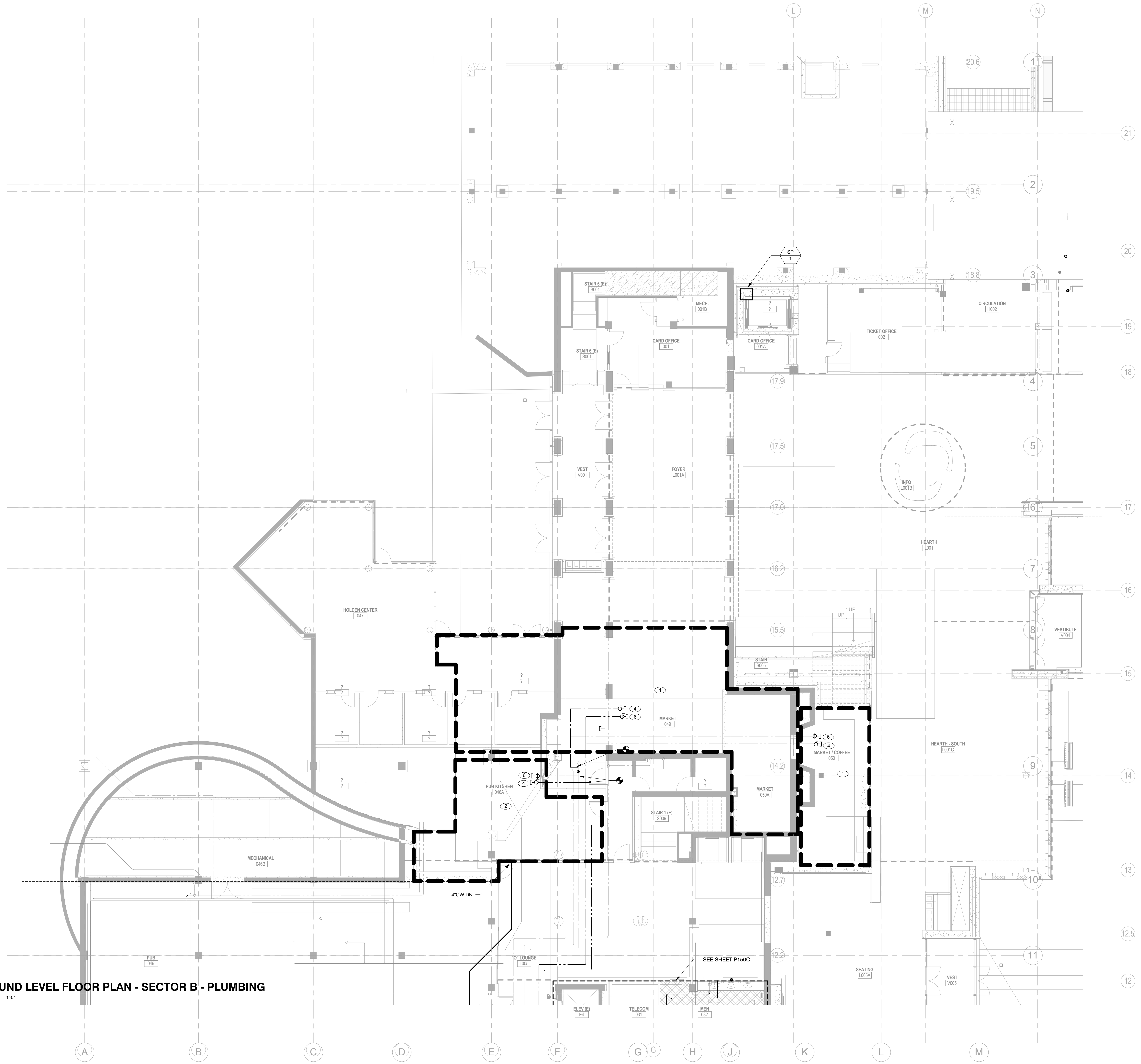


**SHEET NOTES**

1. NEW RETAIL SPACE PROVIDE 1" COLD WATER STUB FOR FUTURE T.I. WORK, PROVIDE INDIVIDUAL METERED FOR EACH RETAIL SPACE.
2. NEW PUB LOCATION PLUMBING FIXTURES - TBD. PROVIDE 1" COLD WATER STUB FOR T.I. WORK, AND INDIVIDUAL METER.
3. NEW COFFEE SHOP LOCATION PLUMBING FIXTURES - TBD. PROVIDE 1" COLD WATER STUB FOR T.I. WORK, AND INDIVIDUAL METER.
4. 3/4" HOT WATER SUBBED FOR FUTURE T.I. WORK, PROVIDE HOT WATER METER AT EACH RETAIL SPACE.
5. SEE DOMESTIC COLD WATER RISER DIAGRAM 1/P6.01 FOR NEW AND EXISTING SYSTEMS.
6. 1" COLD WATER STUBBED FOR FUTURE T.I. WORK, PROVIDE COLD WATER METER AT EACH RETAIL SPACE.

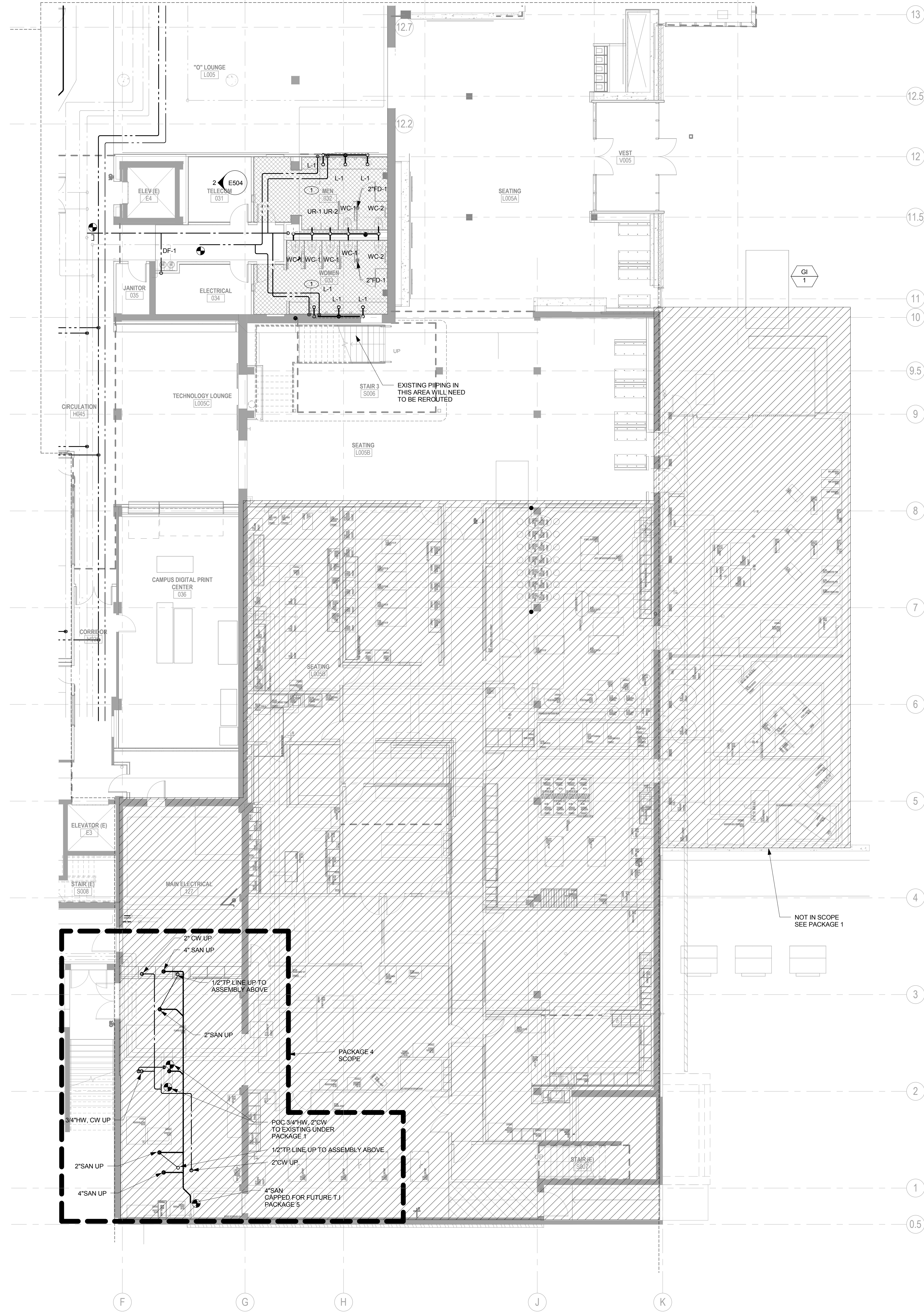
**1 GROUND LEVEL FLOOR PLAN - SECTOR B - PLUMBING**

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



KEY PLAN (NTS)

**1 GROUND LEVEL FLOOR PLAN - SECTOR C - PLUMBING**  
SCALE: 1/8" = 1'-0"



**SHEET NOTES**

- 1. RECONFIGURED RESTROOMS PROVIDE NEW LOW FLOW PLUMBING FIXTURES AND RECONNECT TO EXISTING SERVICE.

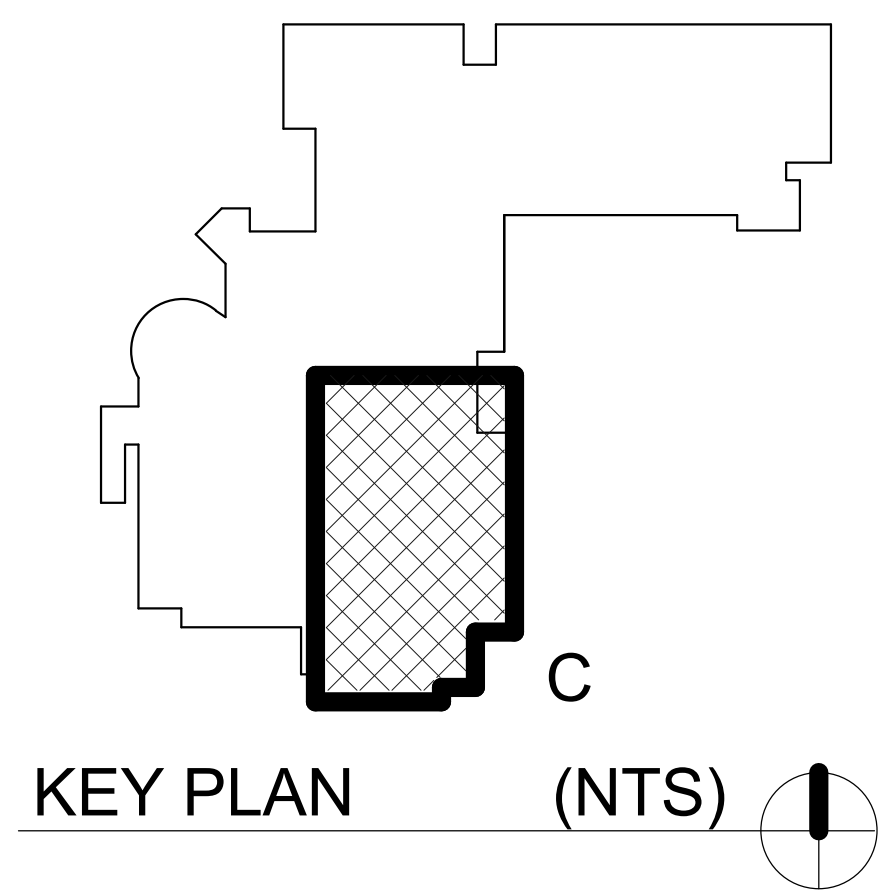
**ERB MEMORIAL UNION - RENOVATION & ADDITION**  
**PACKAGE 4**  
UNIVERSITY OF OREGON  
13TH AVENUE & UNIVERSITY STREET

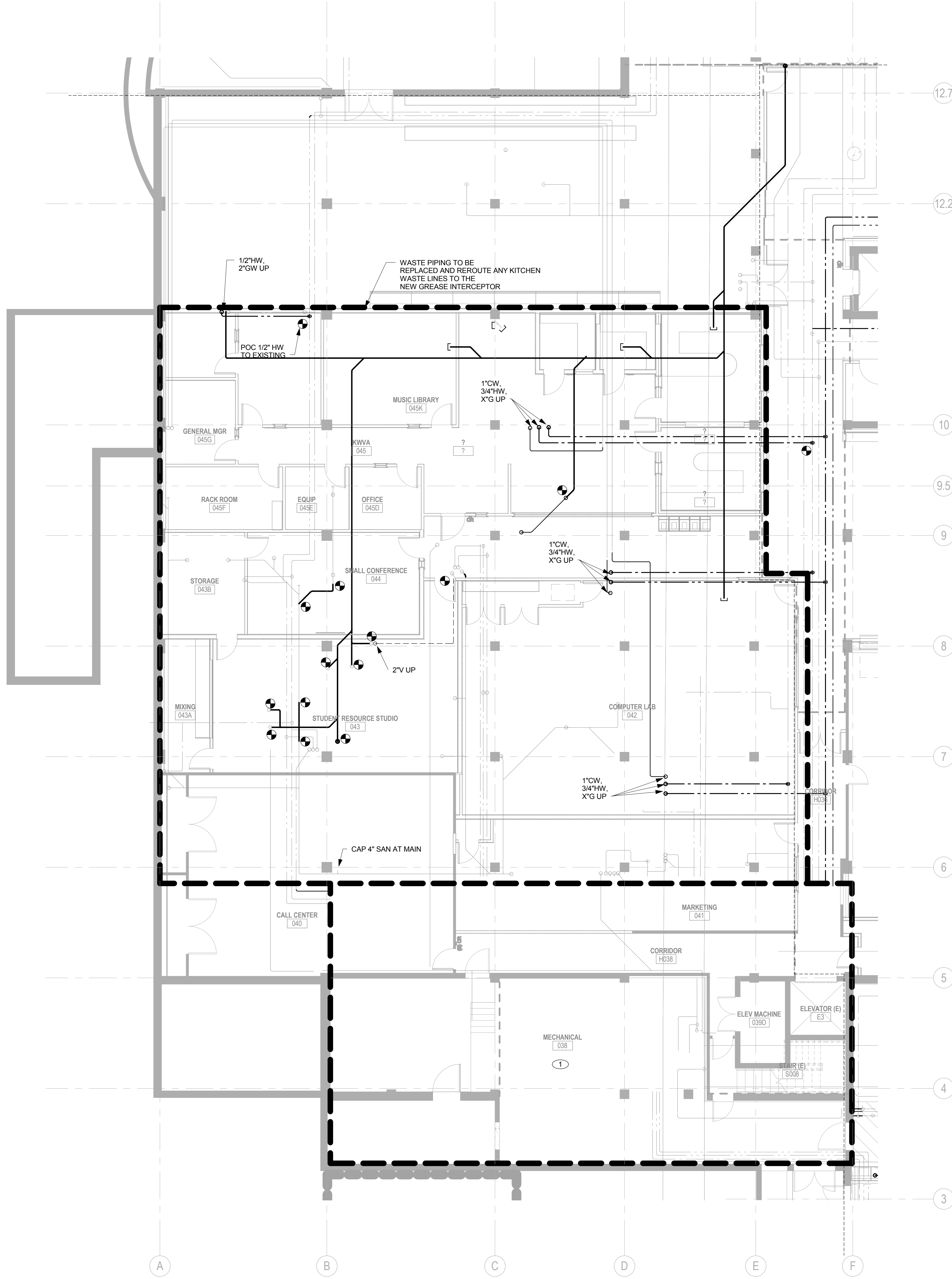
REVISIONS

CHECKED BY:  
ISSUE DATE: 2014.03.14  
PROJECT NO: 11045

GROUND LEVEL  
- 1962 ADDITION  
- PLUMBING  
**P150C**

50% CONSTRUCTION DOCUMENTS

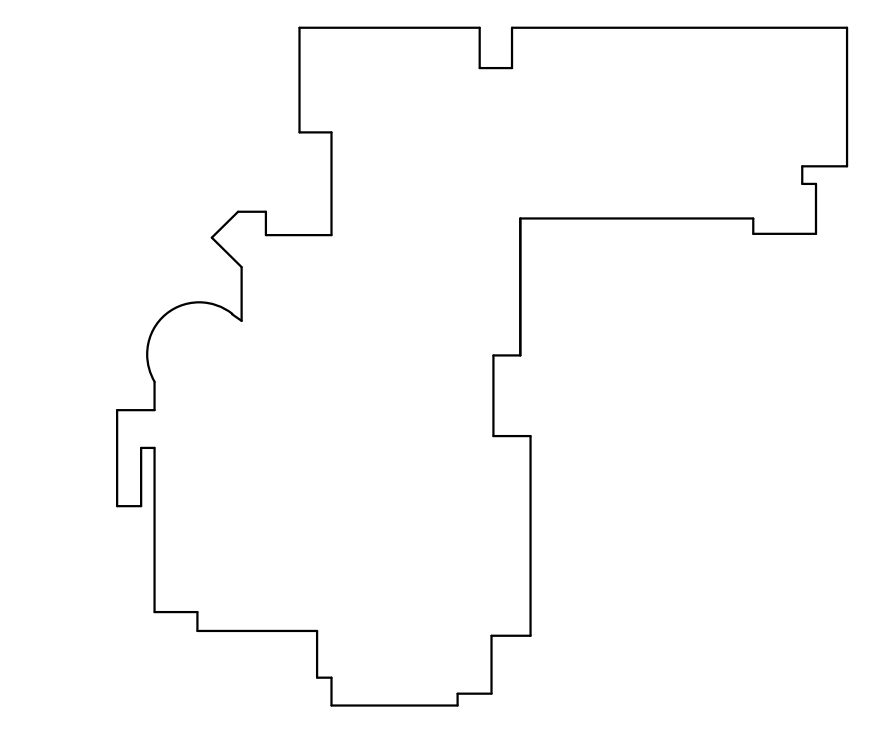




**1** GROUND LEVEL FLOOR PLAN - SECTOR D - PLUMBING  
 SCALE: 1/8" = 1'-0"

**KEYED NOTES**

1. SEE SHEET P5.01 FOR PLUMBING EQUIPMENT LAYOUT.



KEY PLAN (NTS)

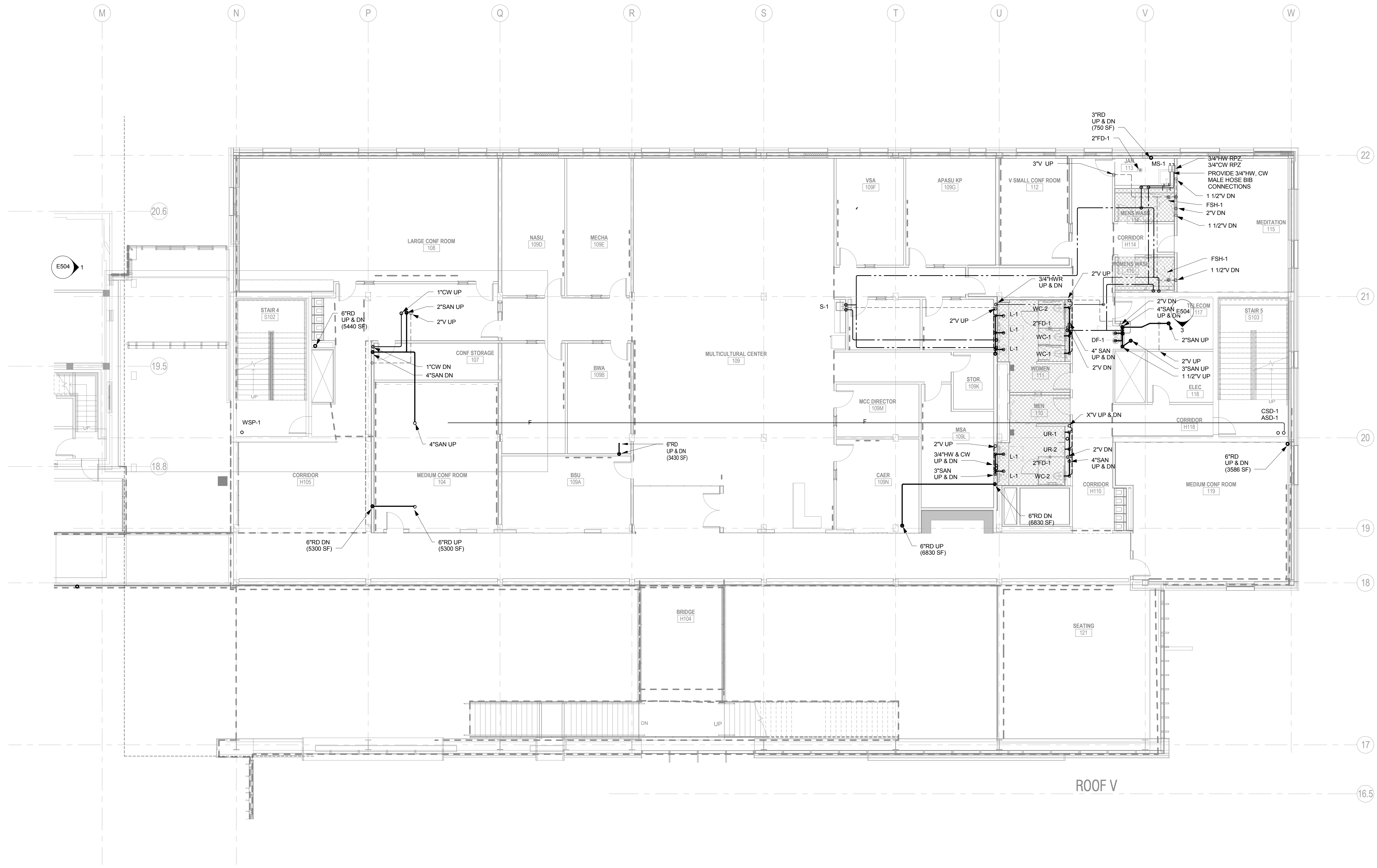
**ERB MEMORIAL UNION - RENOVATION & ADDITION**  
**PACKAGE 4**  
 UNIVERSITY OF OREGON  
 13TH AVENUE & UNIVERSITY STREET

REVISIONS

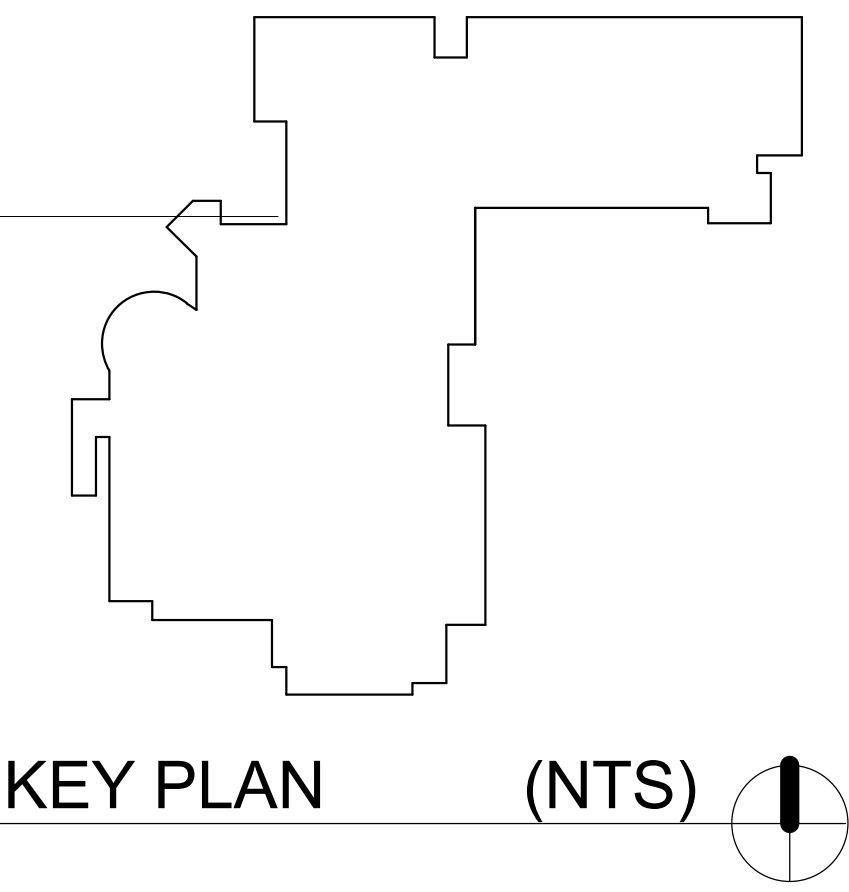
CHECKED BY:  
 ISSUE DATE: 2014.03.14  
 PROJECT NO: 11045

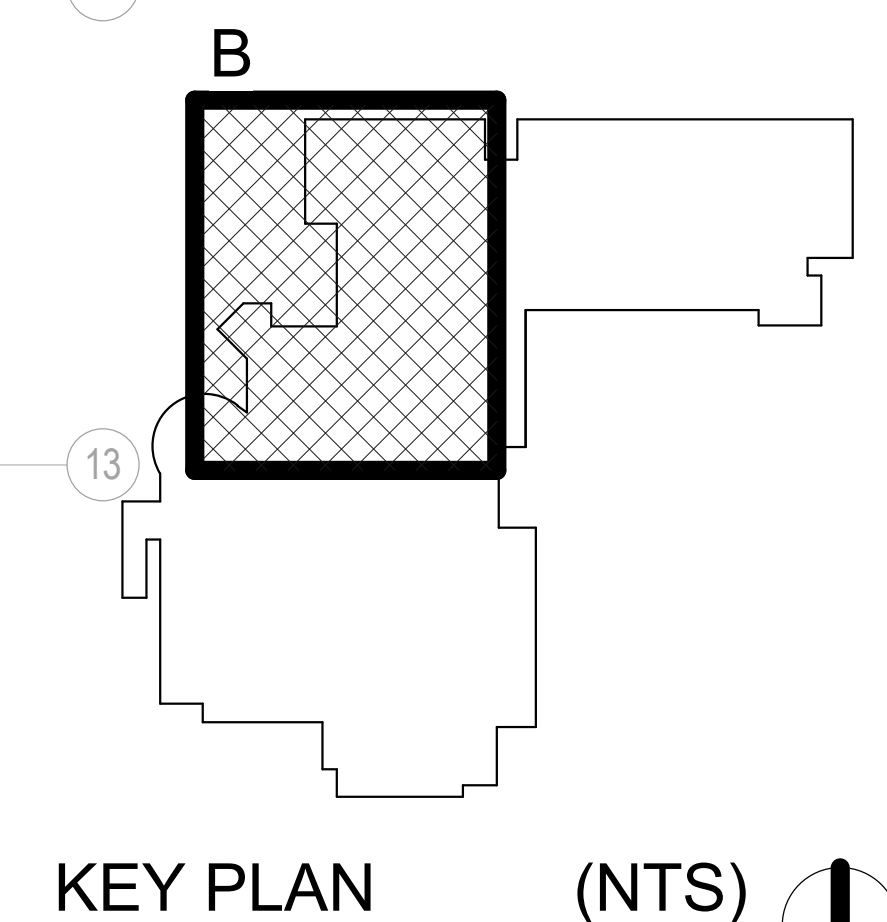
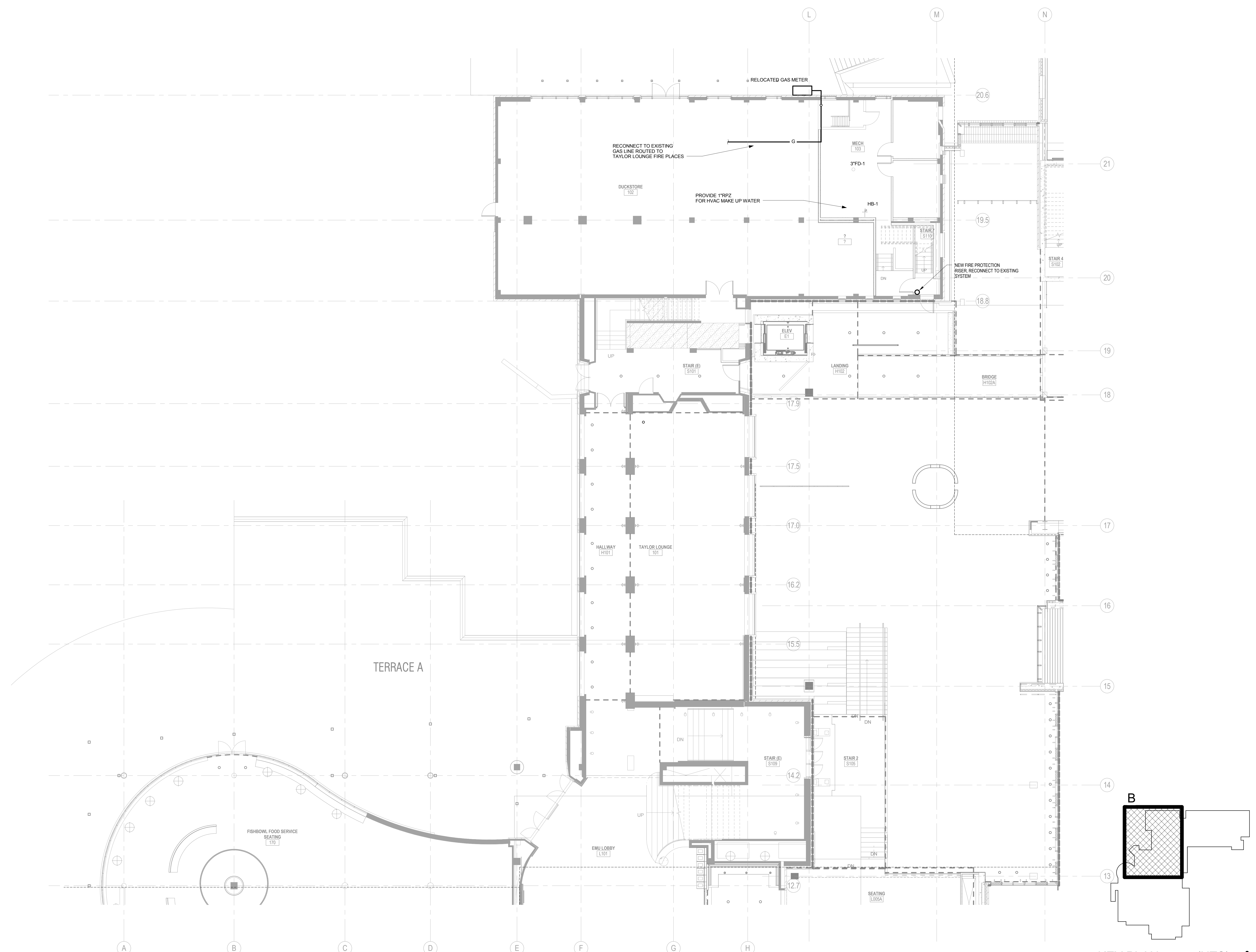
GROUND LEVEL -  
 SOUTHWEST -  
 PLUMBING

**P150D**



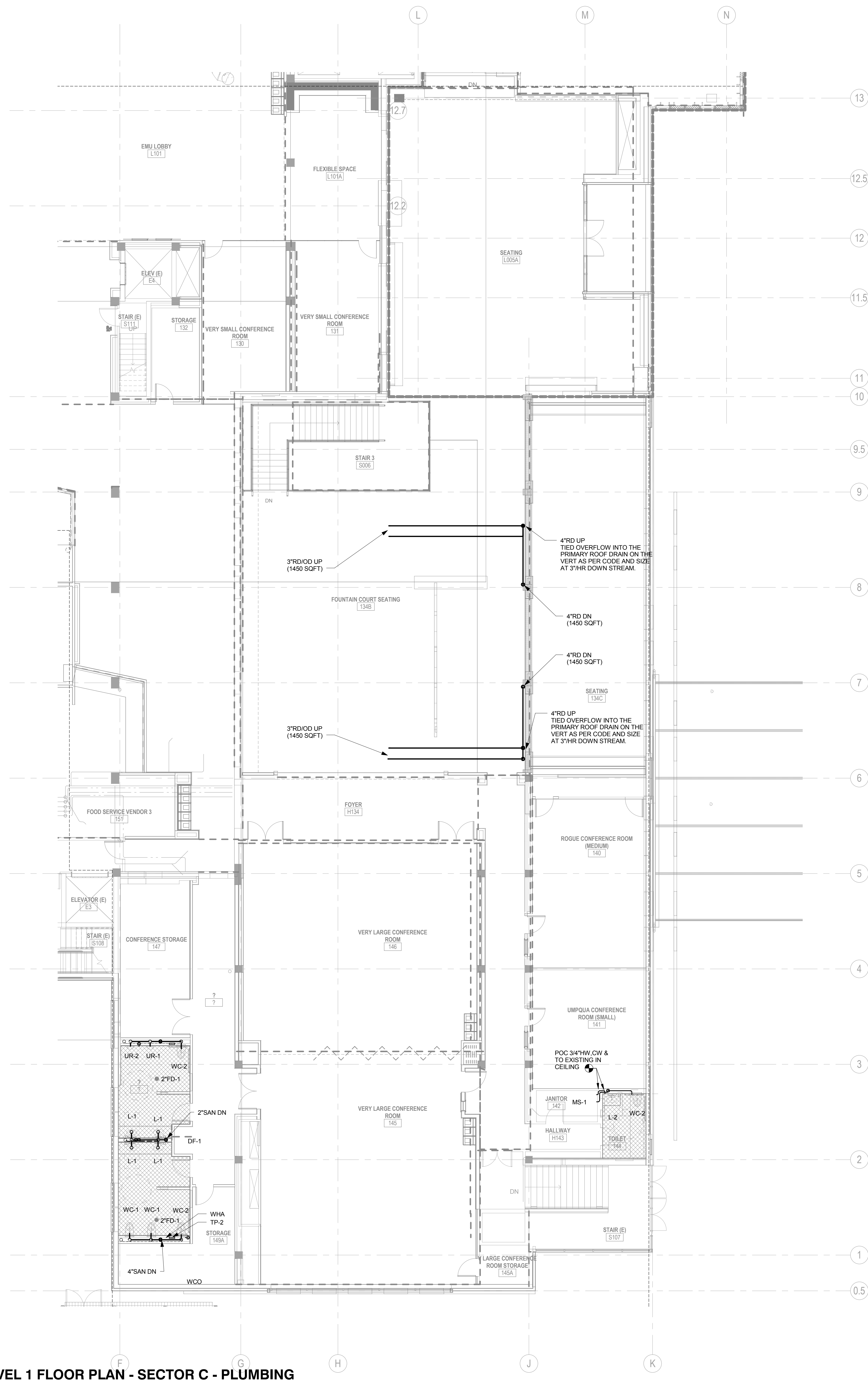
1 LEVEL 1 FLOOR PLAN - SECTOR A - PLUMBING  
SCALE: 1/8" = 1'-0"



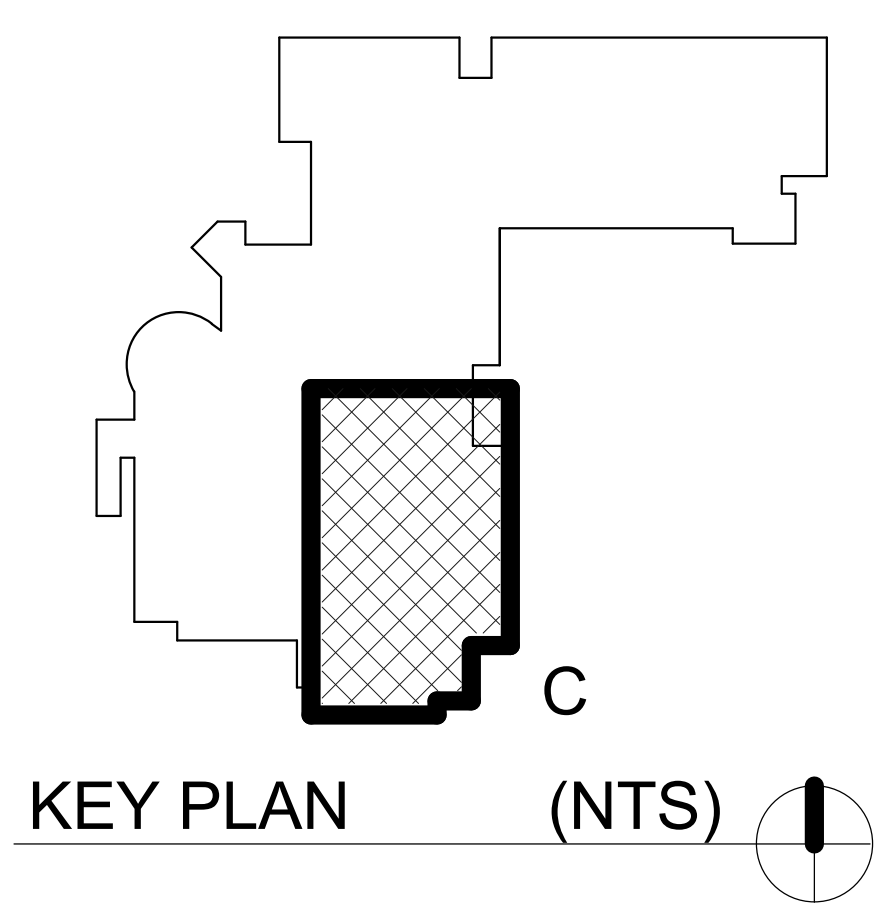


**1 LEVEL 1 FLOOR PLAN - SECTOR B - PLUMBING**  
SCALE: 1/8" = 1'-0"





**1** LEVEL 1 FLOOR PLAN - SECTOR C - PLUMBING  
SCALE: 1/8" = 1'-0"

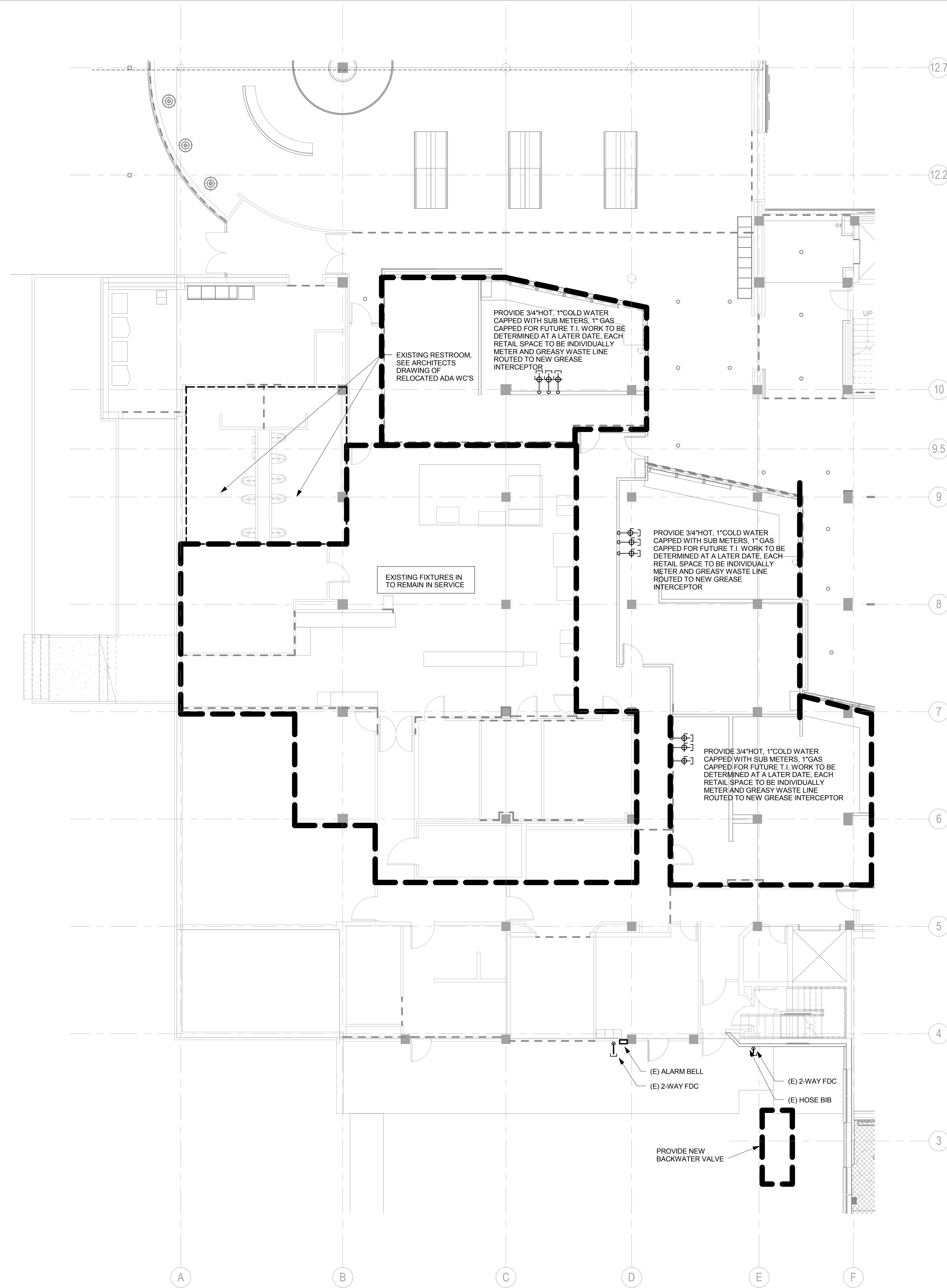


**ERB MEMORIAL UNION - RENOVATION & ADDITION  
PACKAGE 4**  
UNIVERSITY OF OREGON  
13TH AVENUE & UNIVERSITY STREET

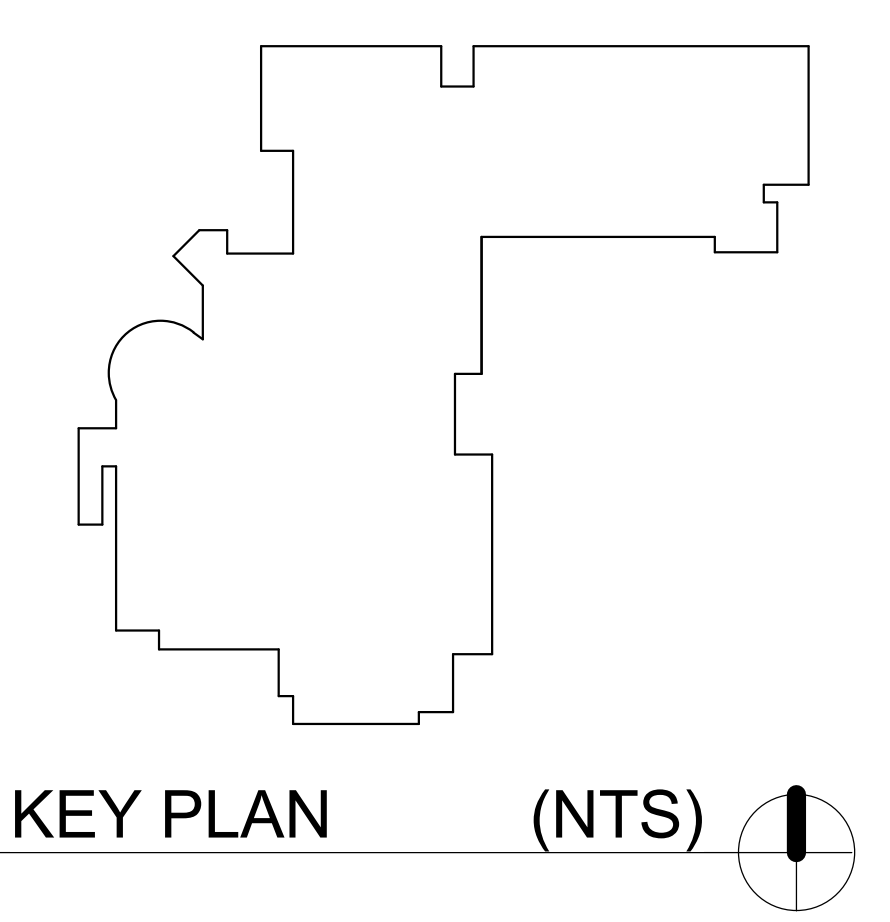
REVISIONS

NO.	DESCRIPTION	DATE

CHECKED BY:  
ISSUE DATE: 2014.03.14  
PROJECT NO: 11045



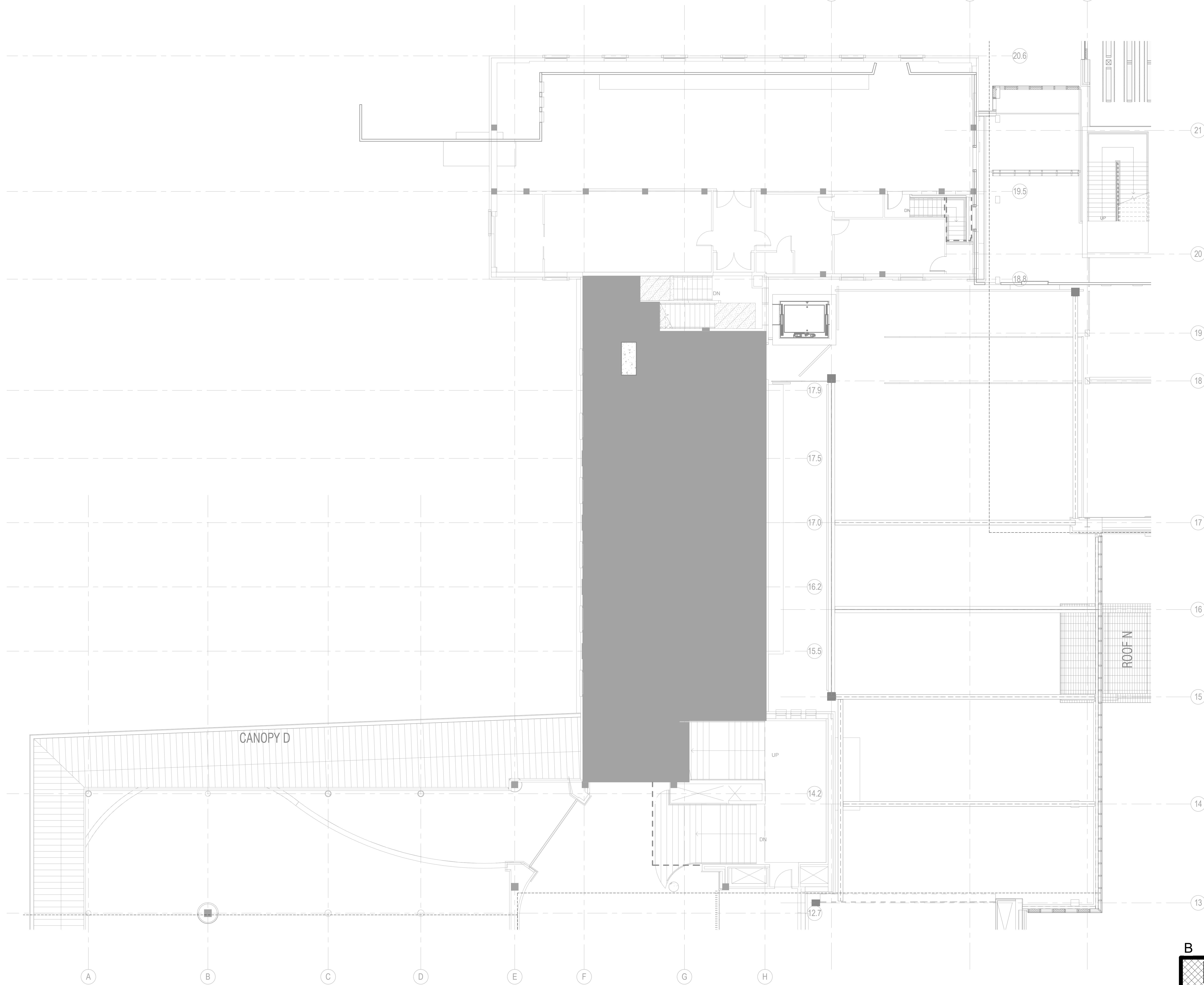
**1** LEVEL 1 FLOOR PLAN - SECTOR D - PLUMBING  
SCALE: 1/8" = 1'-0"



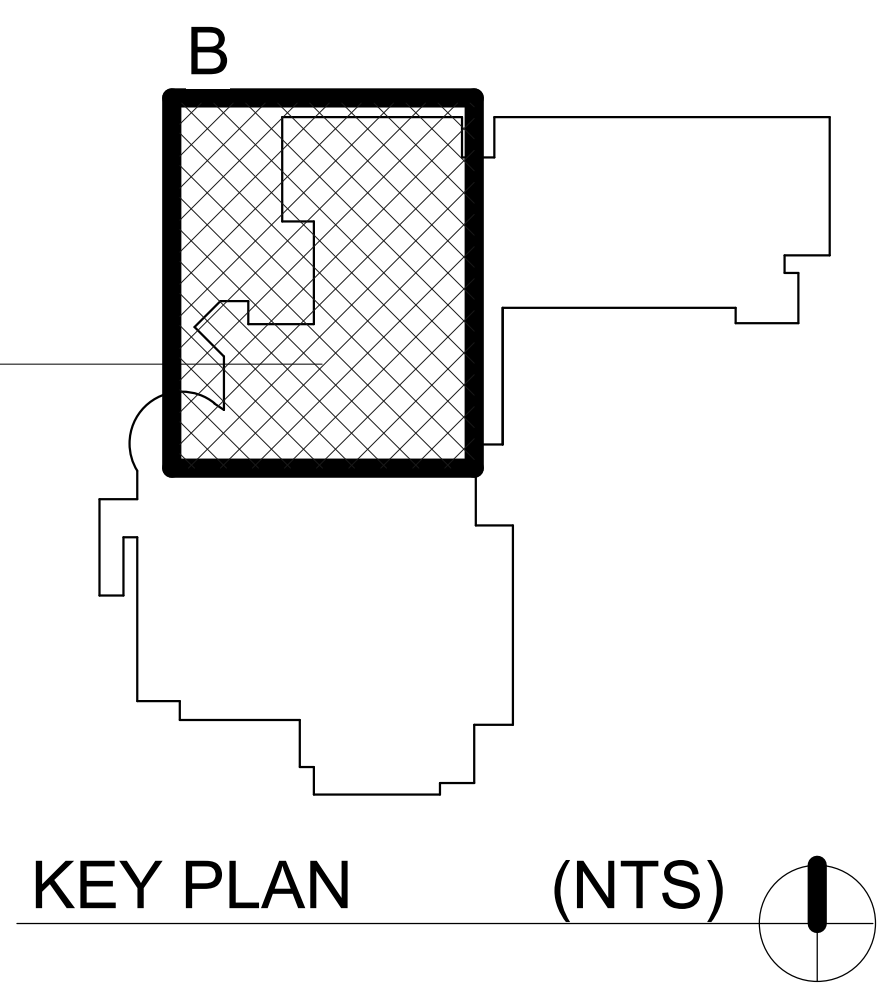
REVISIONS

NO.	DESCRIPTION	DATE

CHECKED BY: \_\_\_\_\_  
ISSUE DATE: 2014.03.14  
PROJECT NO: 11045



**1 MEZZANINE FLOOR PLAN - SECTOR B - PLUMBING**  
SCALE: 1/8" = 1'-0"



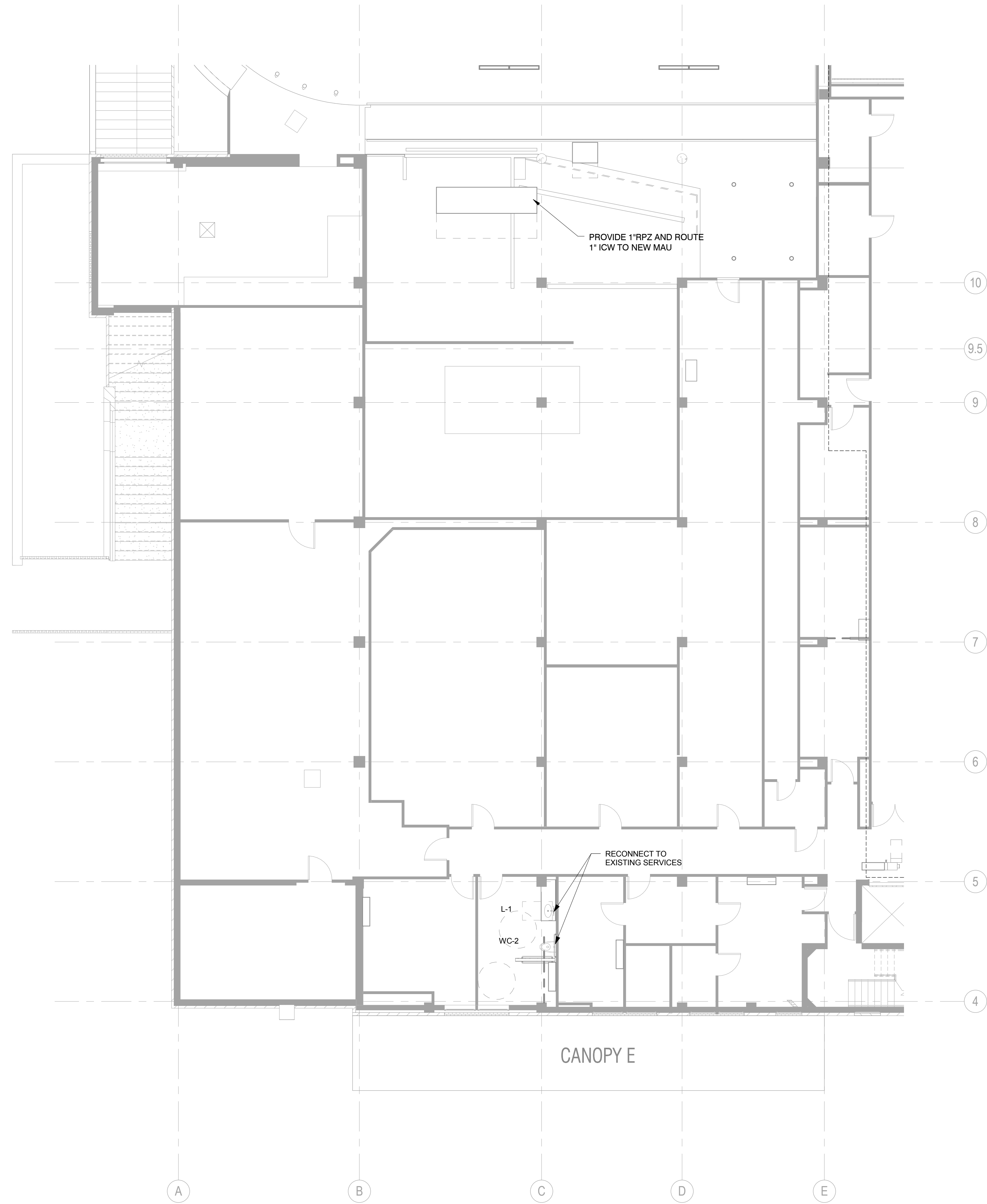
**SERA**  
ARCHITECTURE  
URBAN DESIGN + PLANNING  
INTERIOR DESIGN  
338 NW 5TH AVENUE  
PORTLAND OREGON 97209  
P: 503.445.7372  
F: 503.445.7355  
SERAPDX.COM

**GLUMAC**  
900 SW Fifth Ave., Suite 1600  
Portland, OR 97204  
T: 503.227.9280 F: 503.274.7674  
www.glumac.com  
Job No: 02.13.0594  
Contact: TODD KOLIBABA  
engineers for a sustainable future™

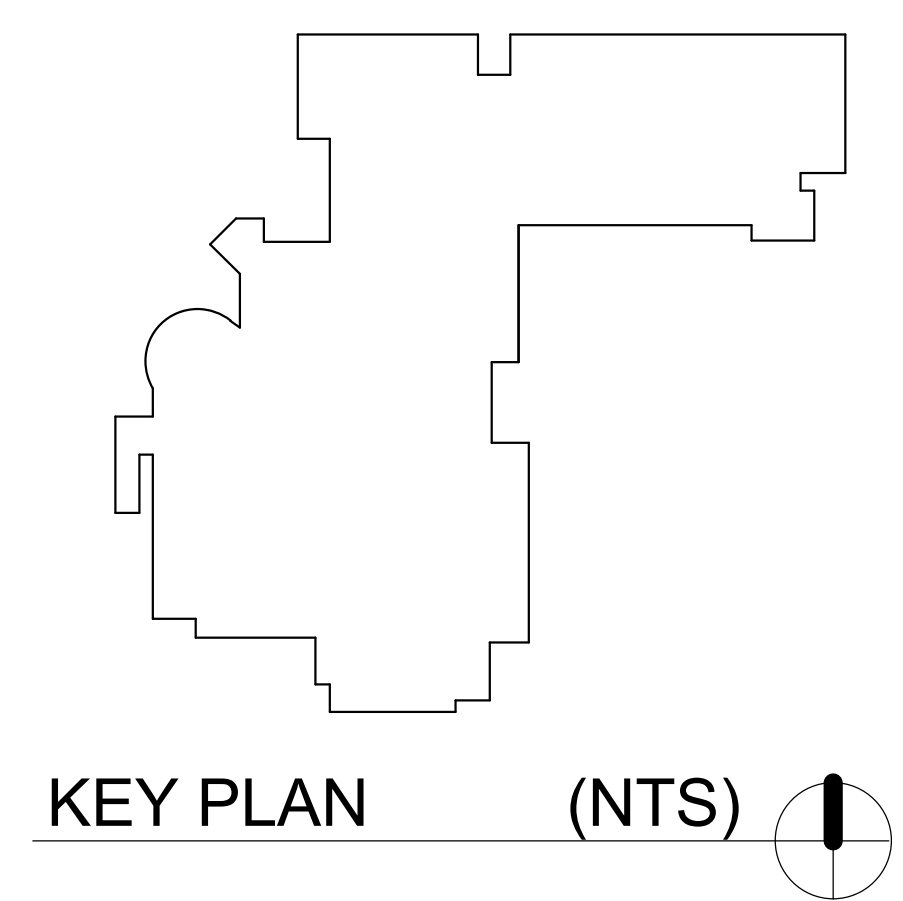
**ERB MEMORIAL UNION - RENOVATION & ADDITION**  
**PACKAGE 4**  
UNIVERSITY OF OREGON  
13TH AVENUE & UNIVERSITY STREET

REVISIONS  
CHECKED BY:  
ISSUE DATE: 2014.03.14  
PROJECT NO: 11045

MEZZANINE -  
LEVEL 1 HEARTH  
& MILLS CENTER  
- PLUMBING  
**P151mB**



**1 MEZZANINE FLOOR PLAN - SECTOR D - PLUMBING**  
 SCALE: 1/8" = 1'-0"



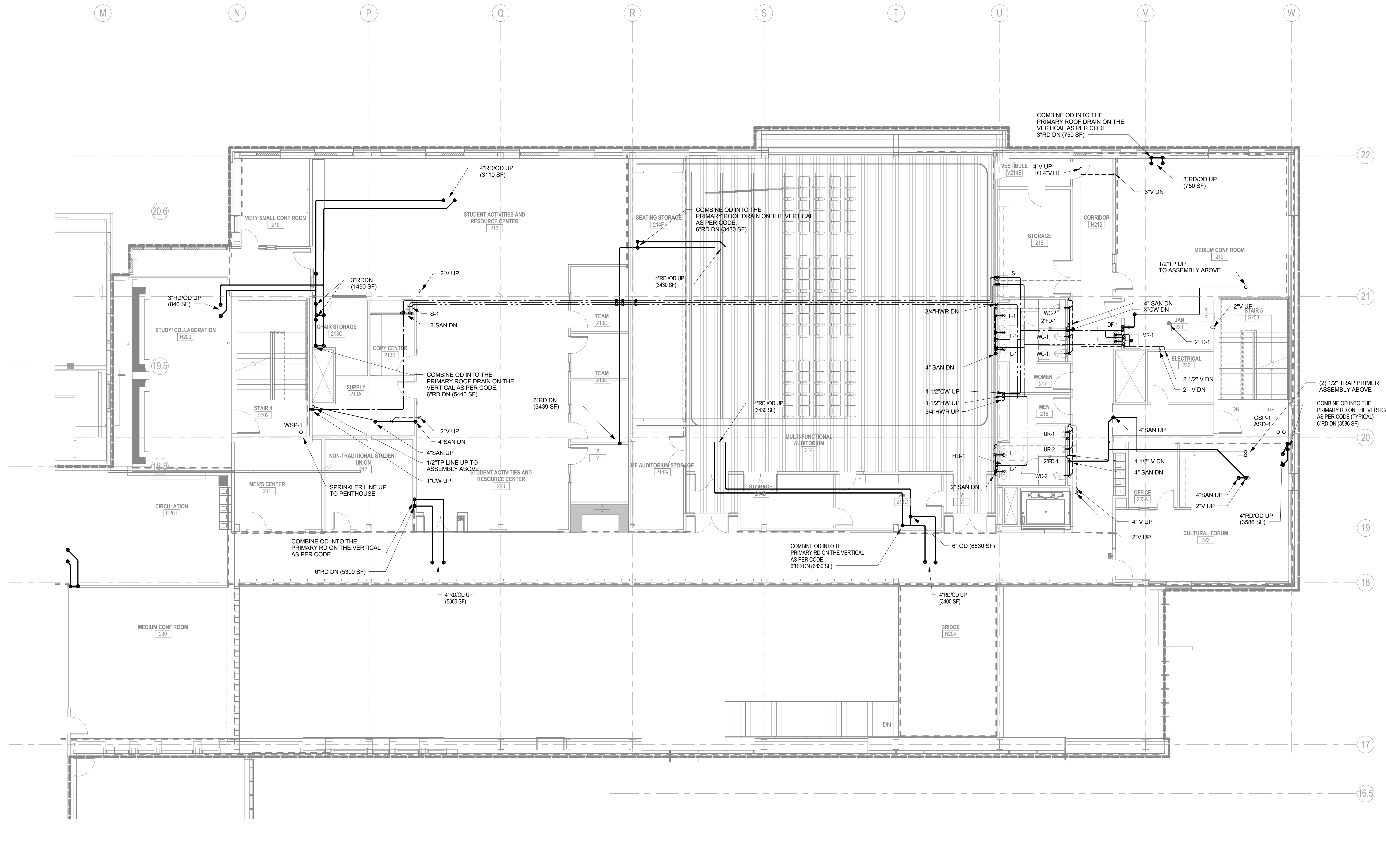
**ERB MEMORIAL UNION - RENOVATION & ADDITION**  
**PACKAGE 4**  
UNIVERSITY OF OREGON  
13TH AVENUE & UNIVERSITY STREET

REVISIONS

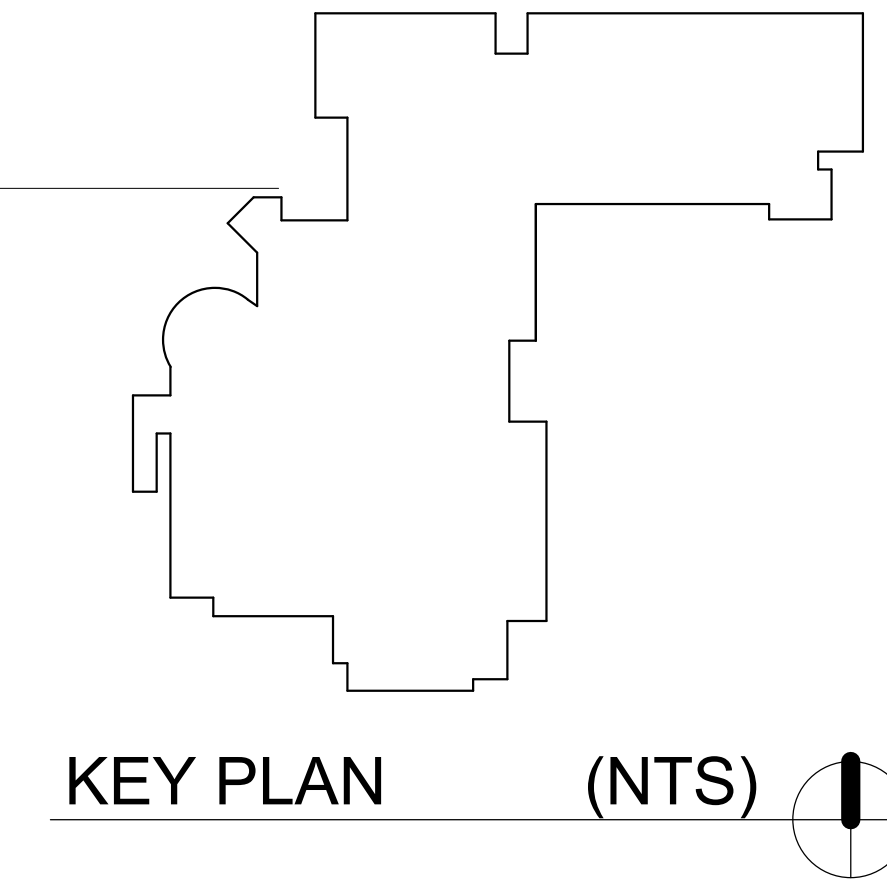
CHECKED BY:  
ISSUE DATE: 2014.03.14  
PROJECT NO: 11045

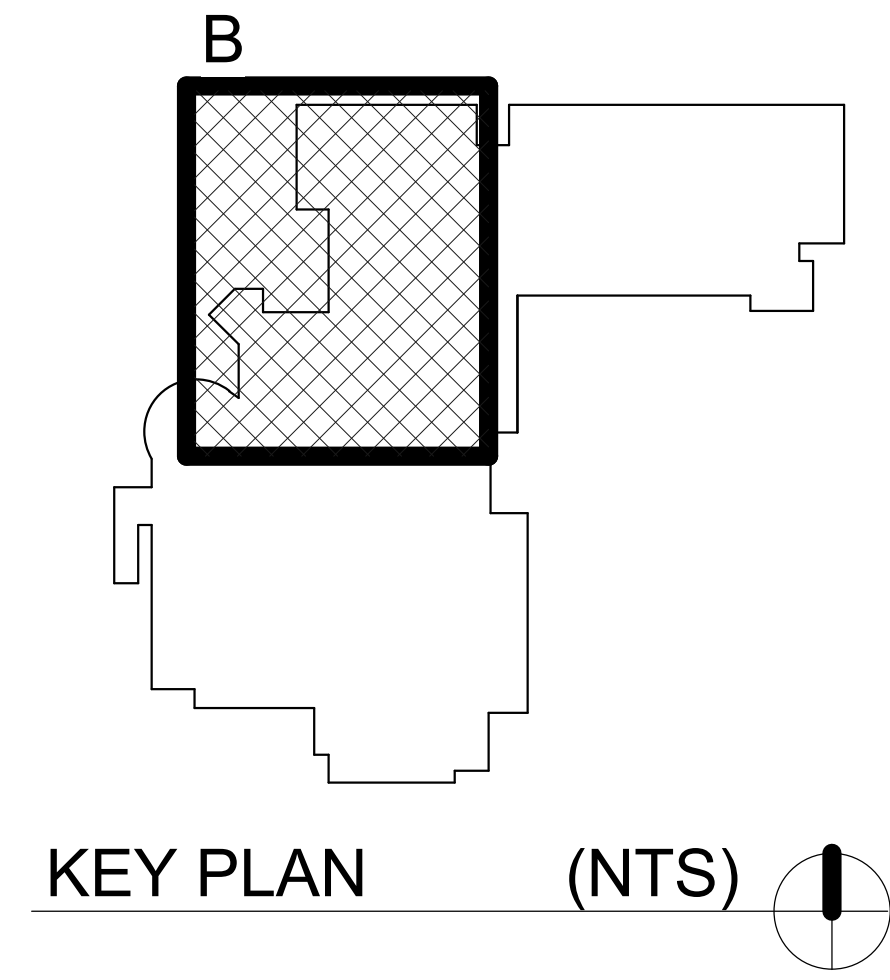
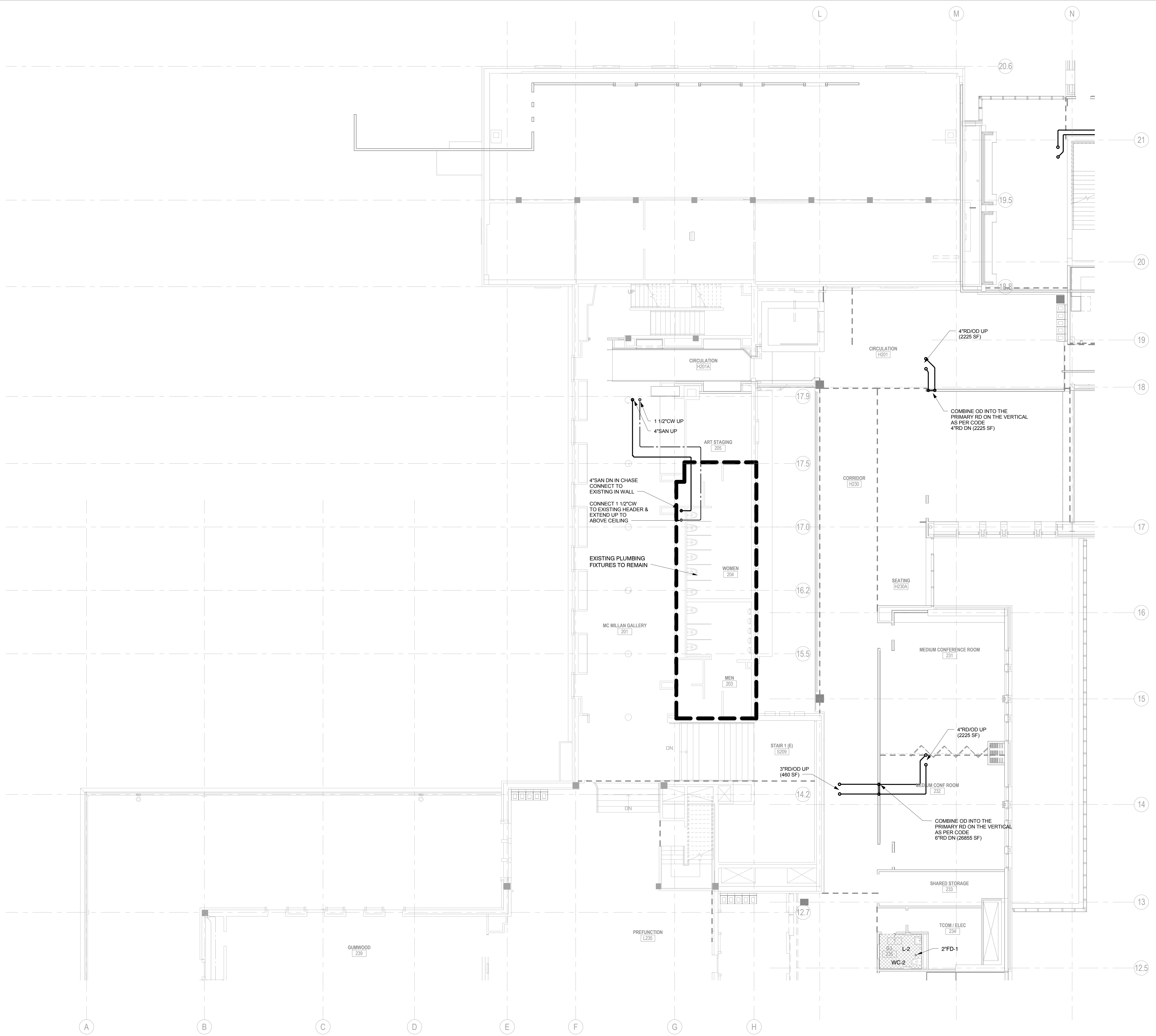
LEVEL 2 - NORTH WING - PLUMBING  
**P152A**

50% CONSTRUCTION DOCUMENTS



**1 LEVEL 2 FLOOR PLAN - SECTOR A - PLUMBING**  
SCALE: 1/8" = 1'-0"

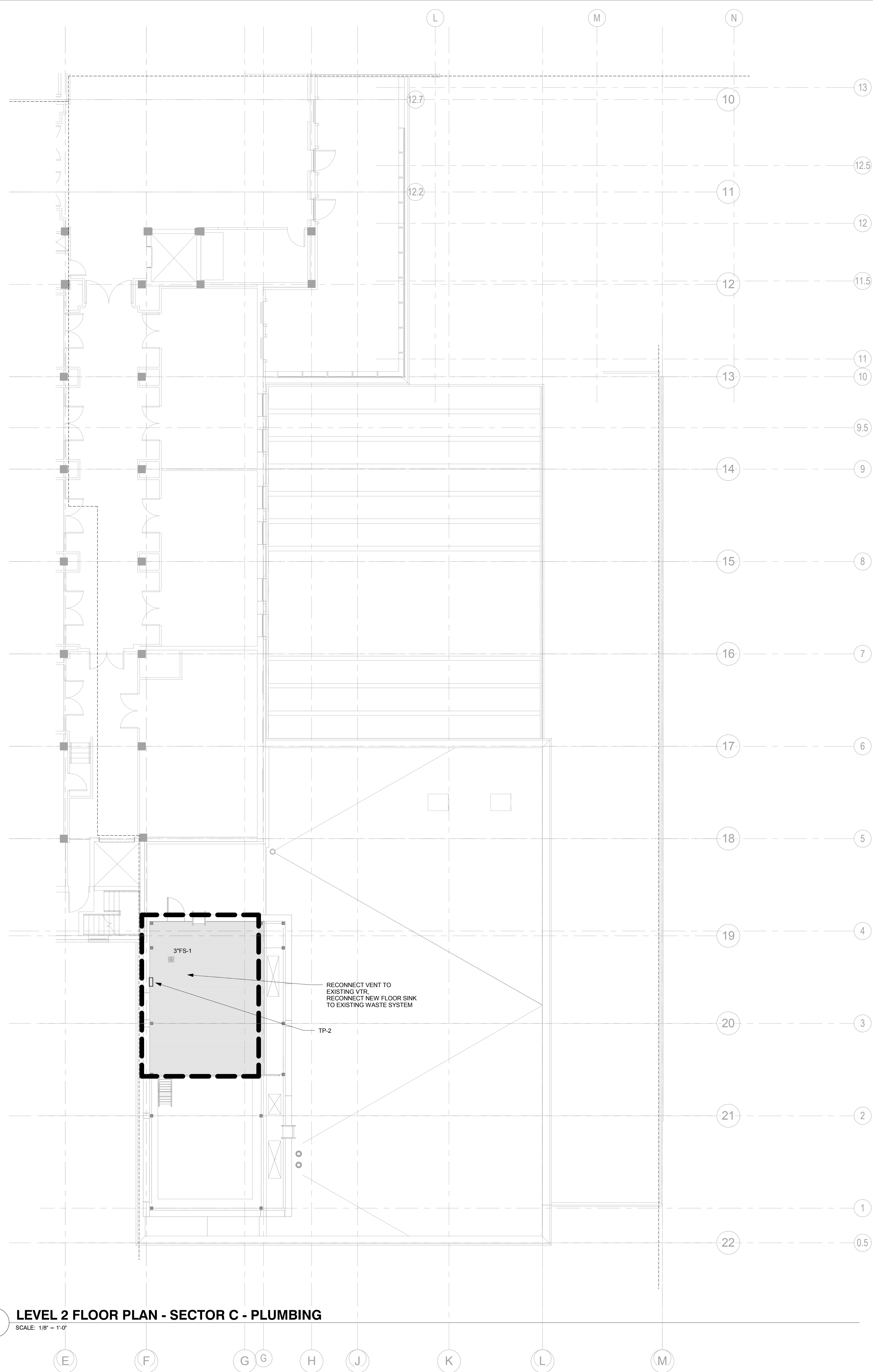




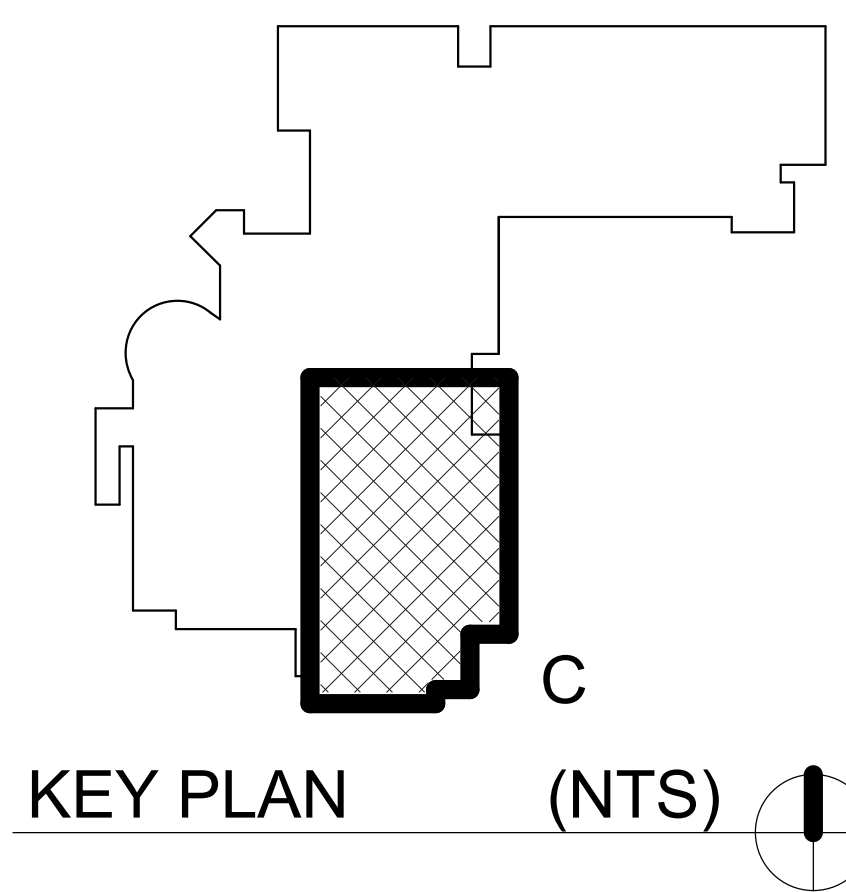
**ERB MEMORIAL UNION - RENOVATION & ADDITION**  
**PACKAGE 4**  
UNIVERSITY OF OREGON  
13TH AVENUE & UNIVERSITY STREET

REVISIONS

CHECKED BY:	2014.03.14
ISSUE DATE:	11045
PROJECT NO.:	



**1 LEVEL 2 FLOOR PLAN - SECTOR C - PLUMBING**  
 SCALE: 1/8" = 1'-0"

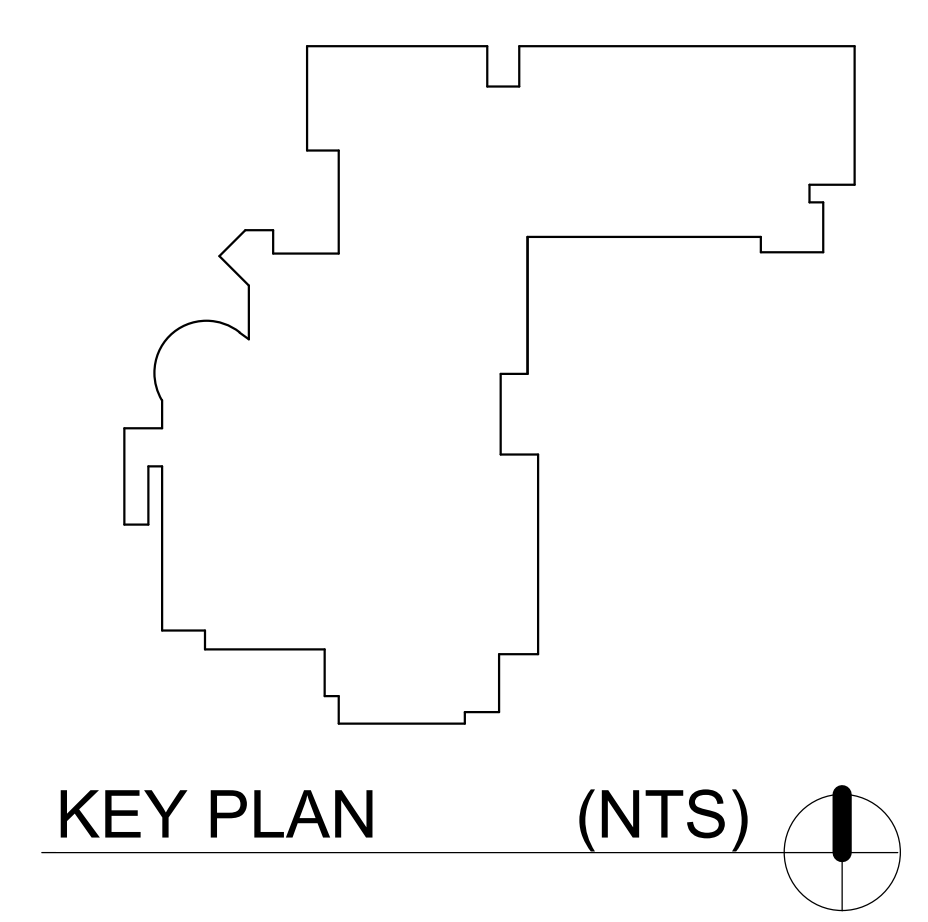
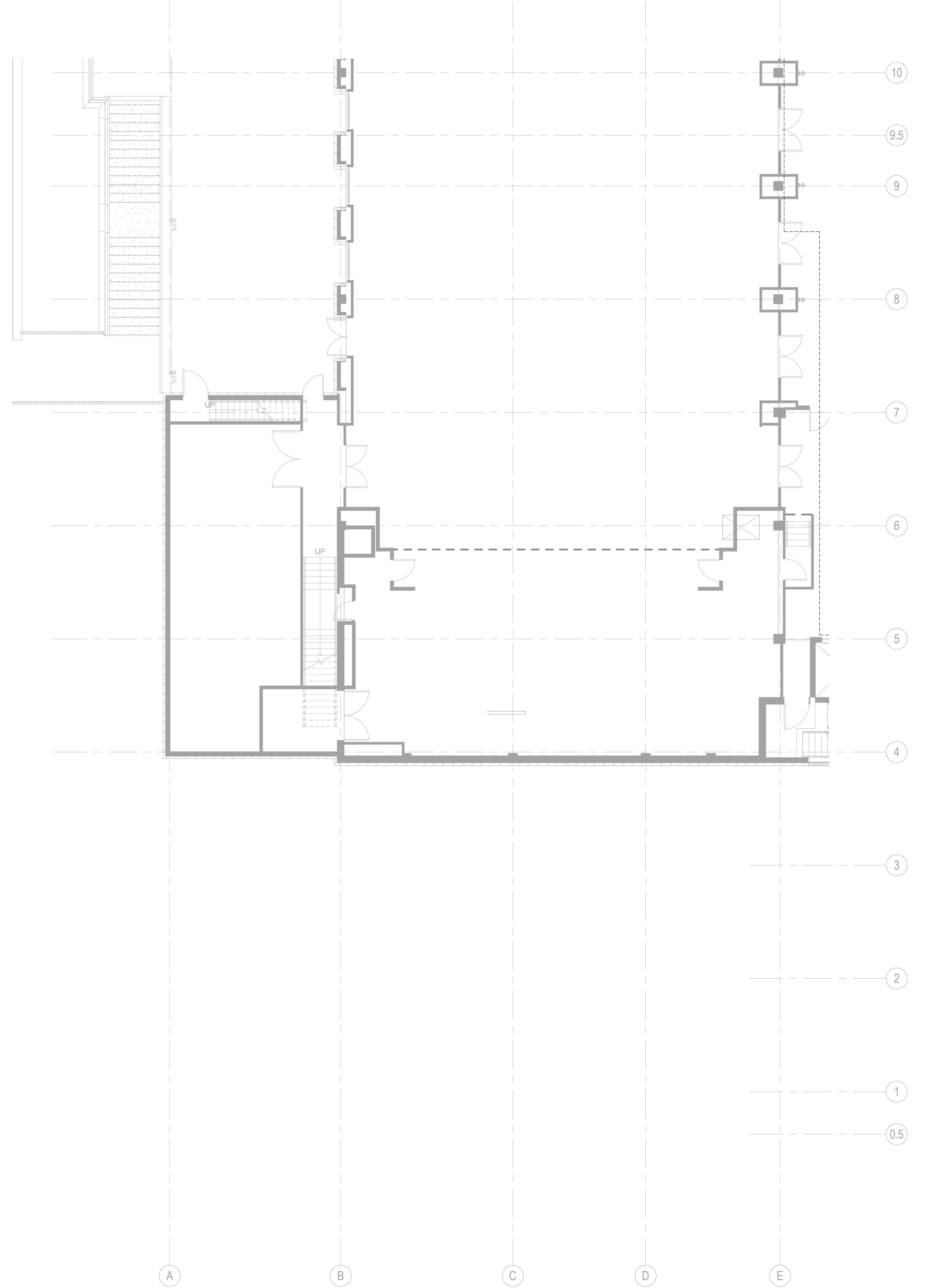


**KEY PLAN (NTS)**

REVISIONS

CHECKED BY:	2014.03.14
ISSUE DATE:	11045
PROJECT NO.:	

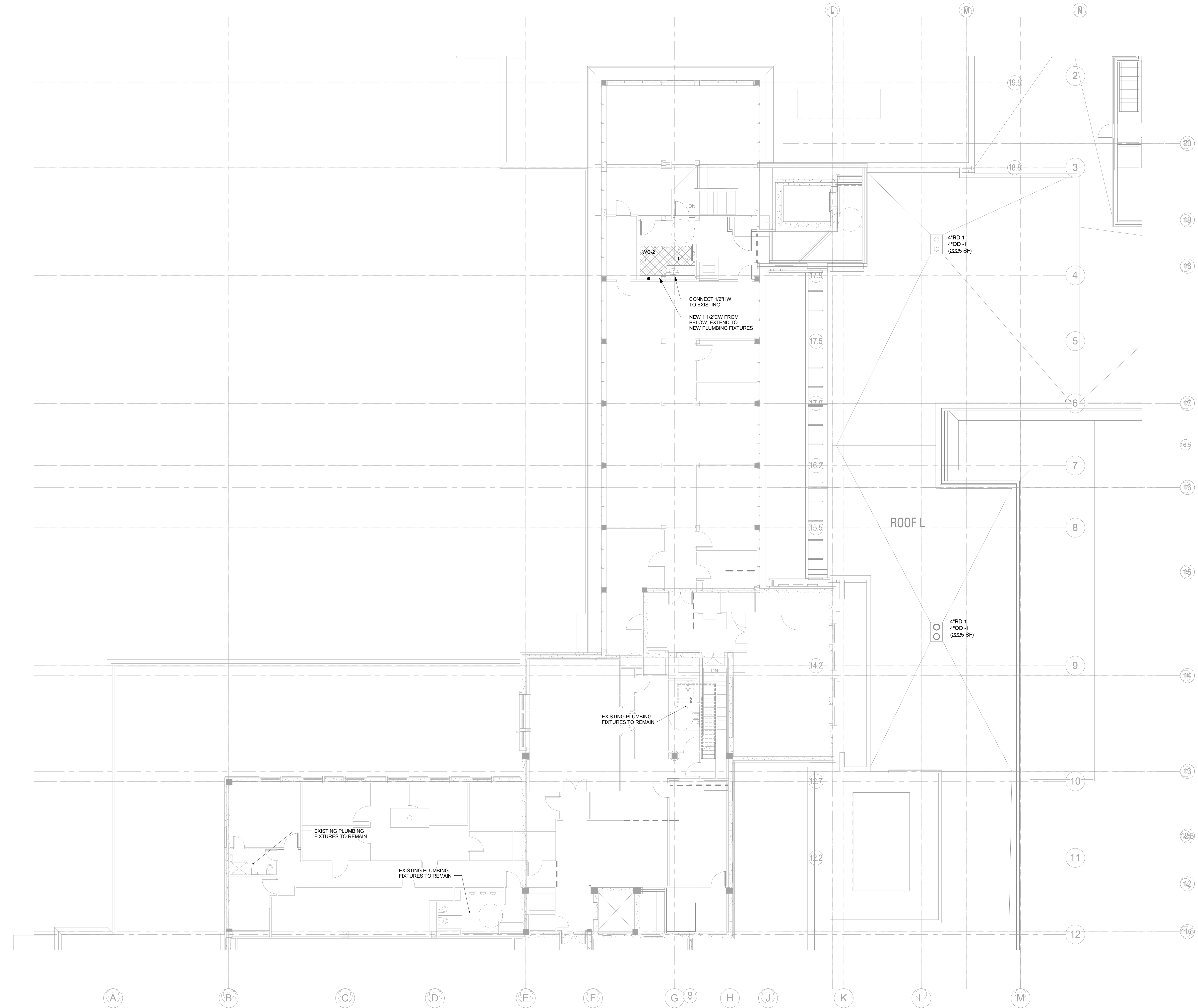
**1** LEVEL 2 FLOOR PLAN - SECTOR D - PLUMBING  
SCALE: 1/8" = 1'-0"



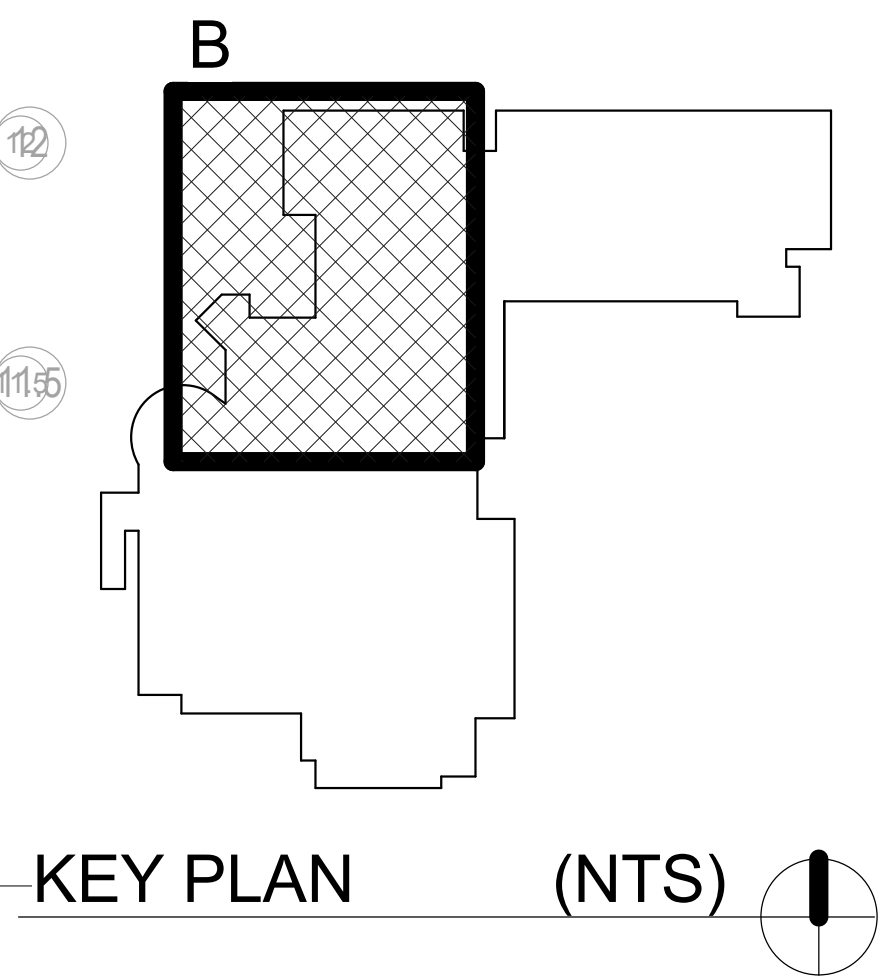
REVISIONS

CHECKED BY:	
ISSUE DATE:	2014.03.14
PROJECT NO.:	11045

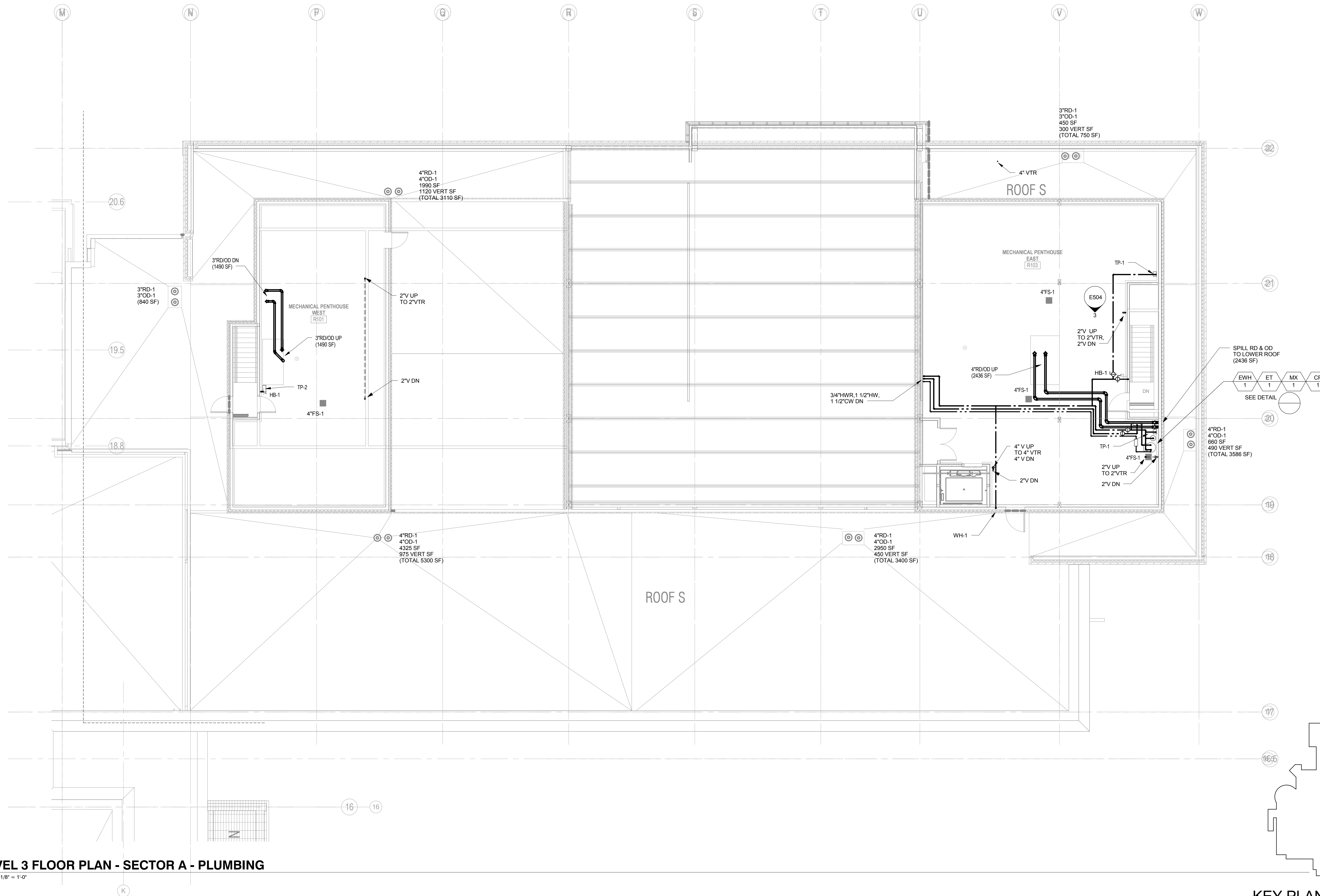




**1 LEVEL 3 FLOOR PLAN - SECTOR B - PLUMBING**  
 SCALE: 1/8" = 1'-0"



**1 LEVEL 3 FLOOR PLAN - SECTOR A - PLUMBING**  
SCALE: 1/8" = 1'-0"

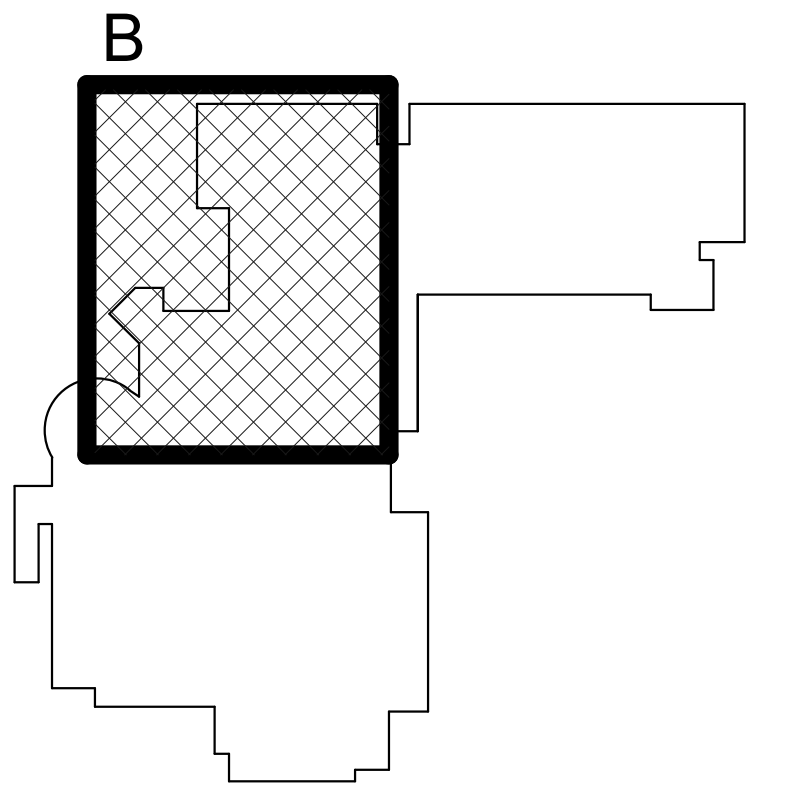
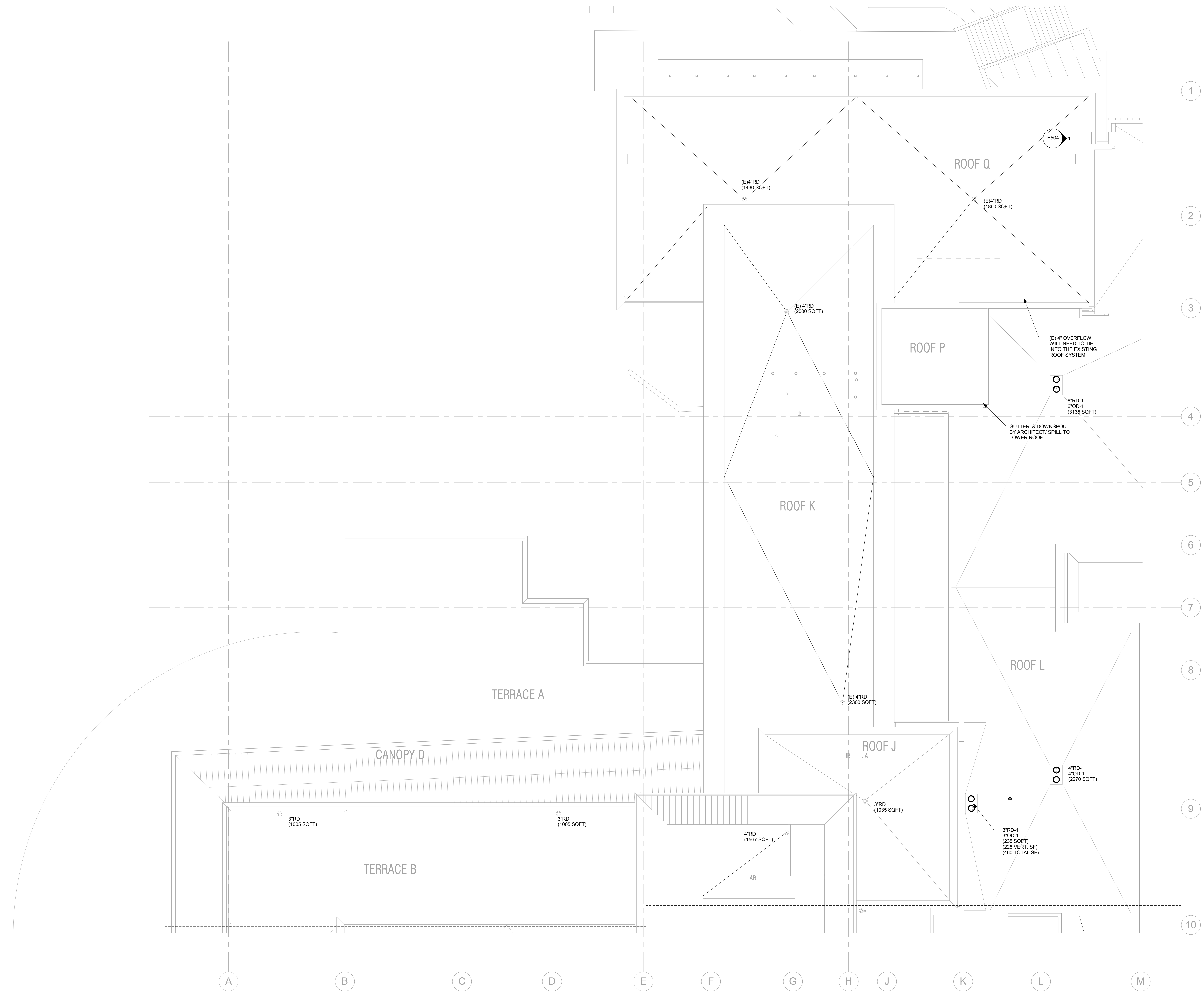


KEY PLAN (NTS)

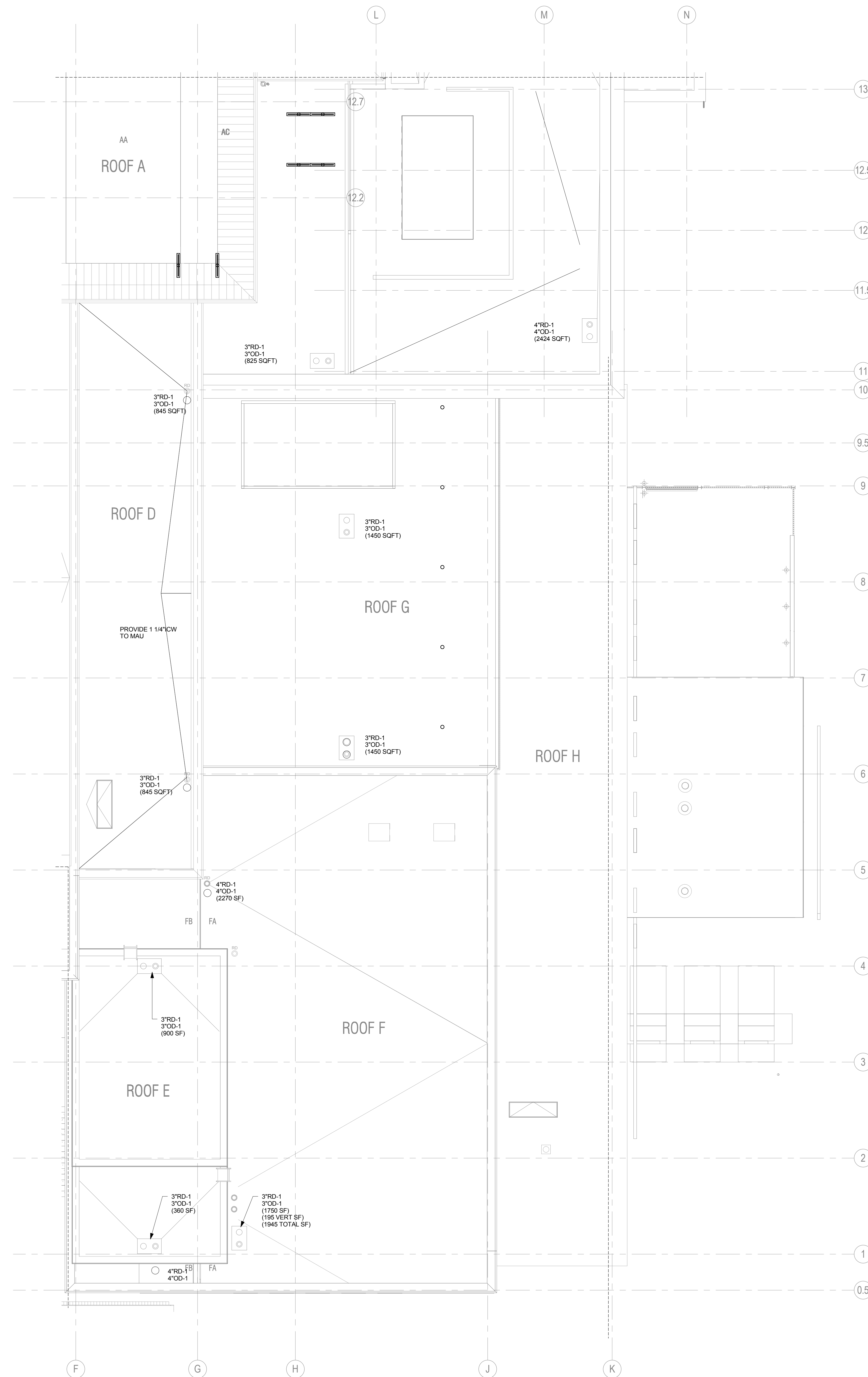
**ERB MEMORIAL UNION - RENOVATION & ADDITION**  
**PACKAGE 4**  
UNIVERSITY OF OREGON  
13TH AVENUE & UNIVERSITY STREET

REVISIONS

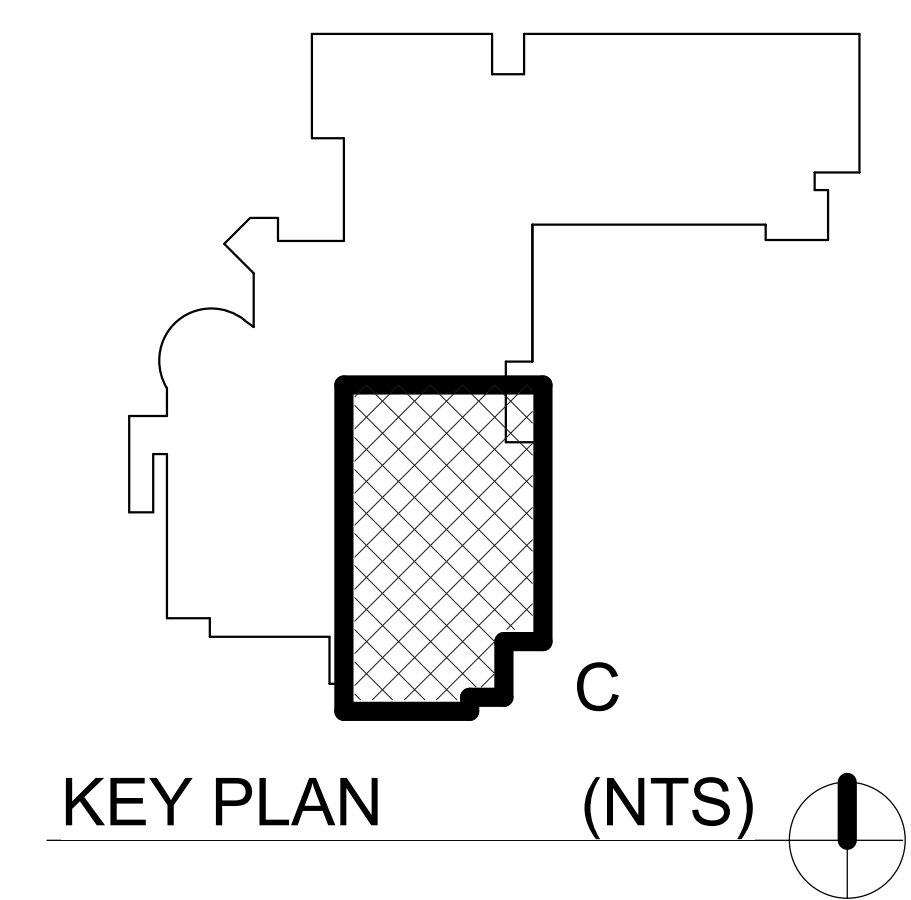
NO.	DESCRIPTION	DATE
1	ISSUE DATE	2014.03.14
1	PROJECT NO.	11045



**1 ROOF PLAN - SECTOR B - PLUMBING**  
SCALE: 1/8" = 1'-0"



**1 ROOF PLAN - SECTOR C - PLUMBING**  
SCALE: 1/8" = 1'-0"



**ERB MEMORIAL UNION - RENOVATION & ADDITION  
PACKAGE 4**

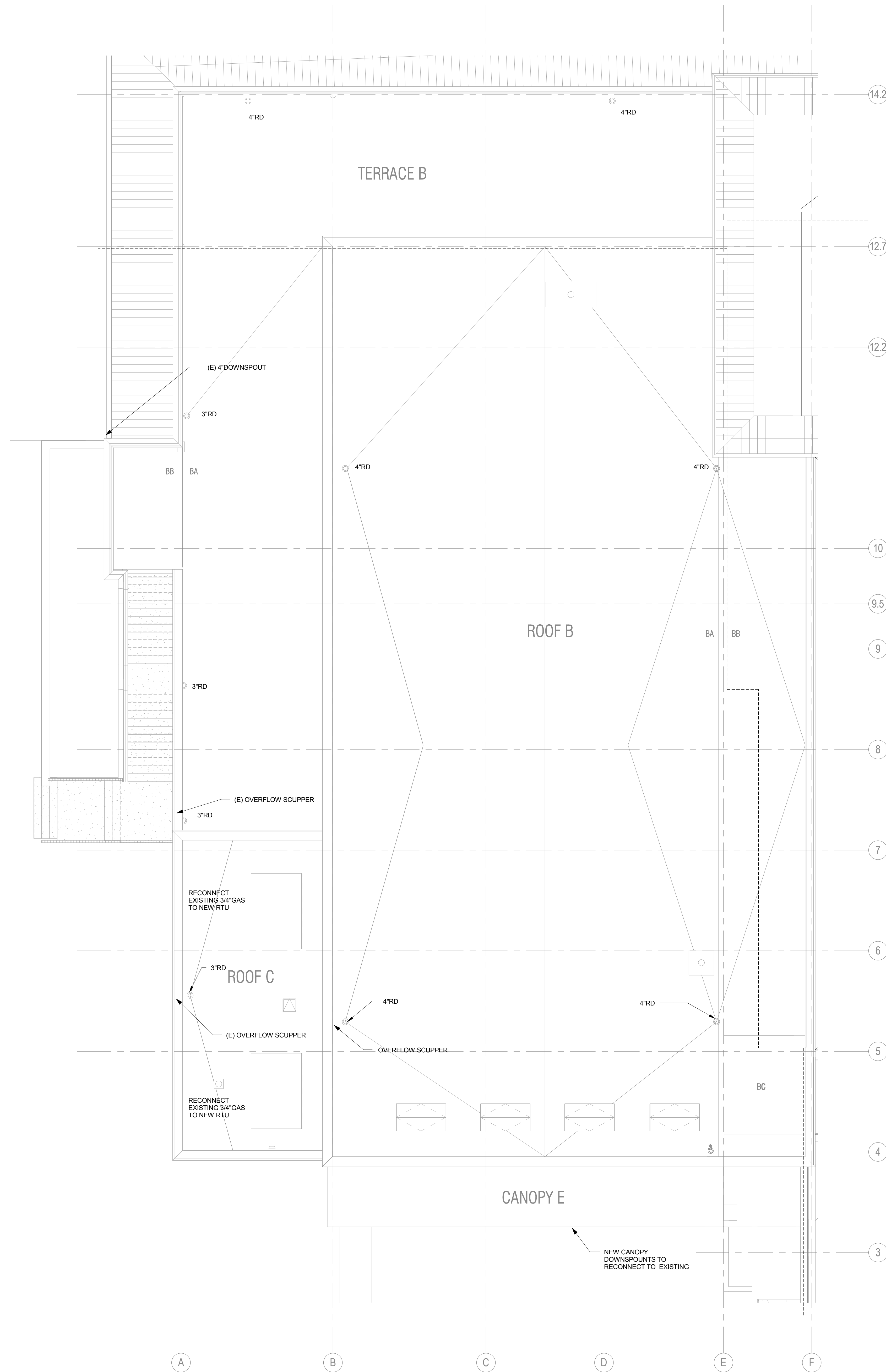
UNIVERSITY OF OREGON  
13TH AVENUE & UNIVERSITY STREET

REVISIONS

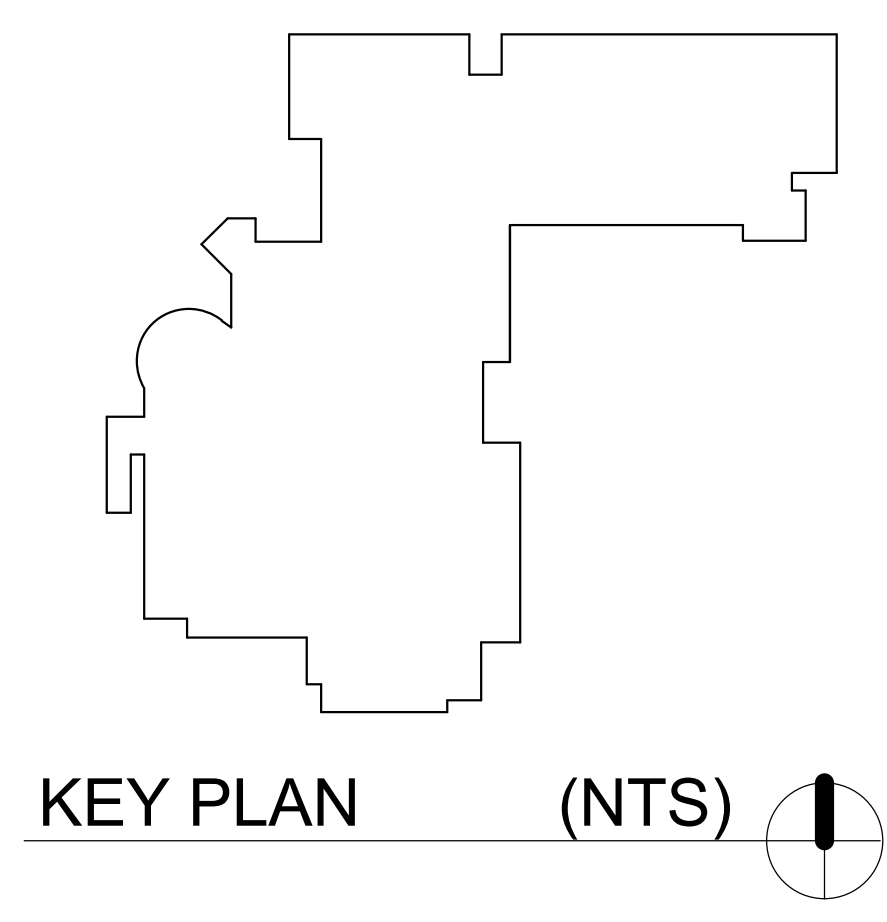
CHECKED BY:  
ISSUE DATE: 2014.03.14  
PROJECT NO: 11045

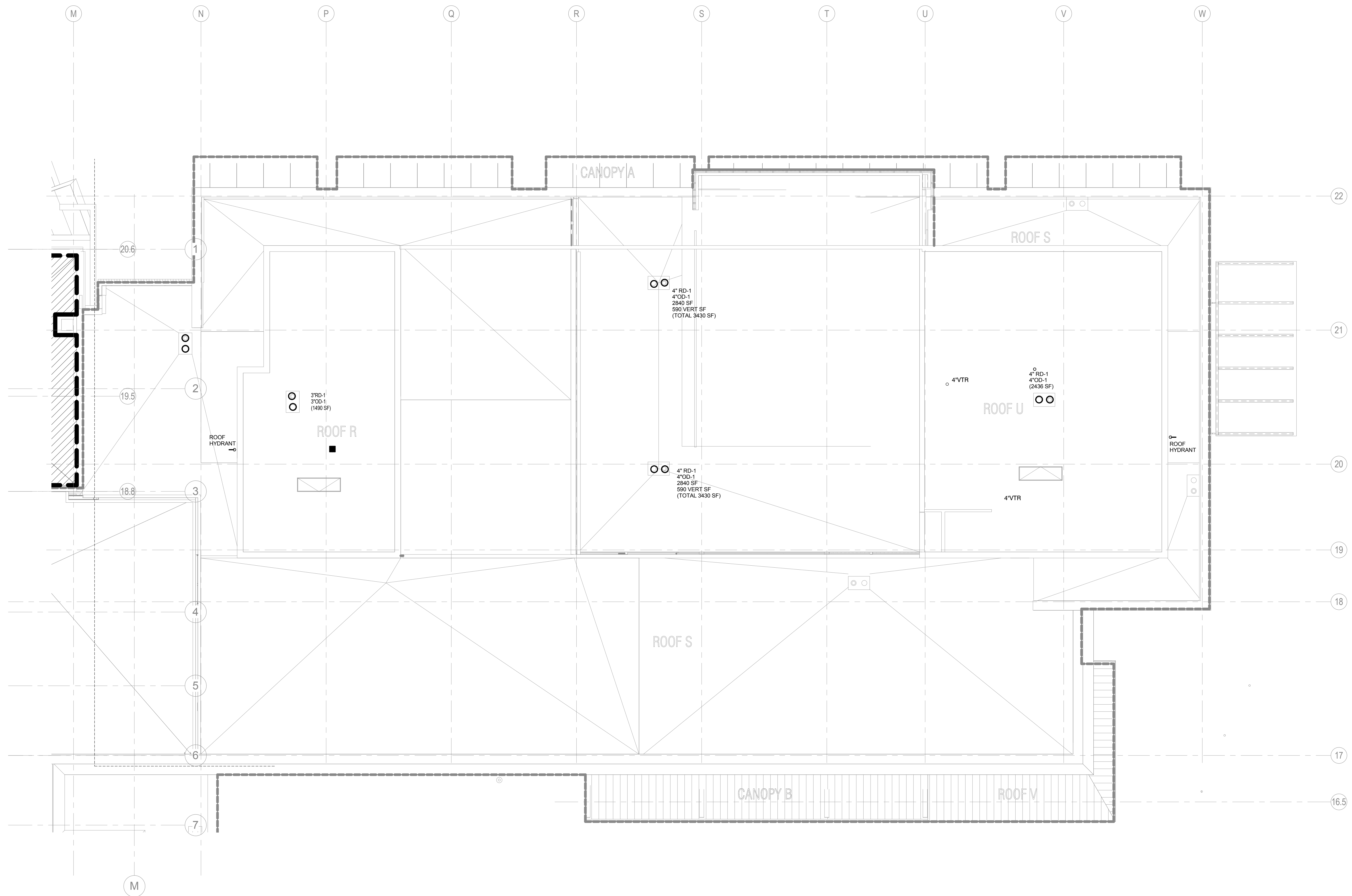
ROOF PLAN -  
1962 ADDITION -  
PLUMBING

**P200C**

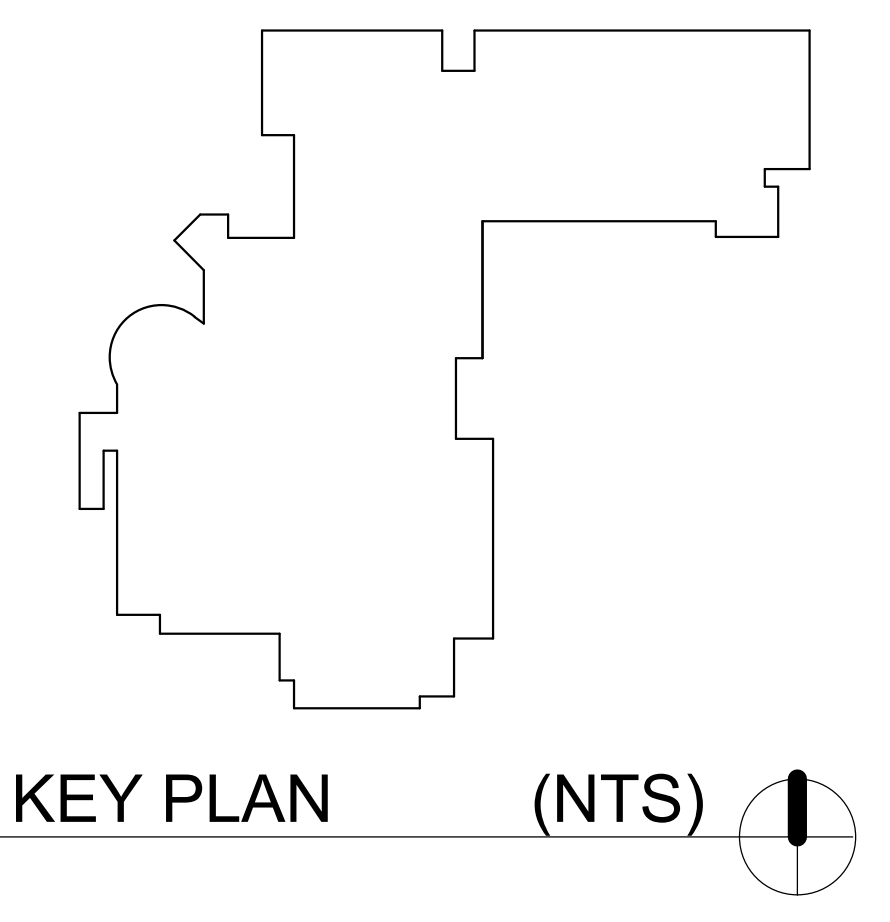


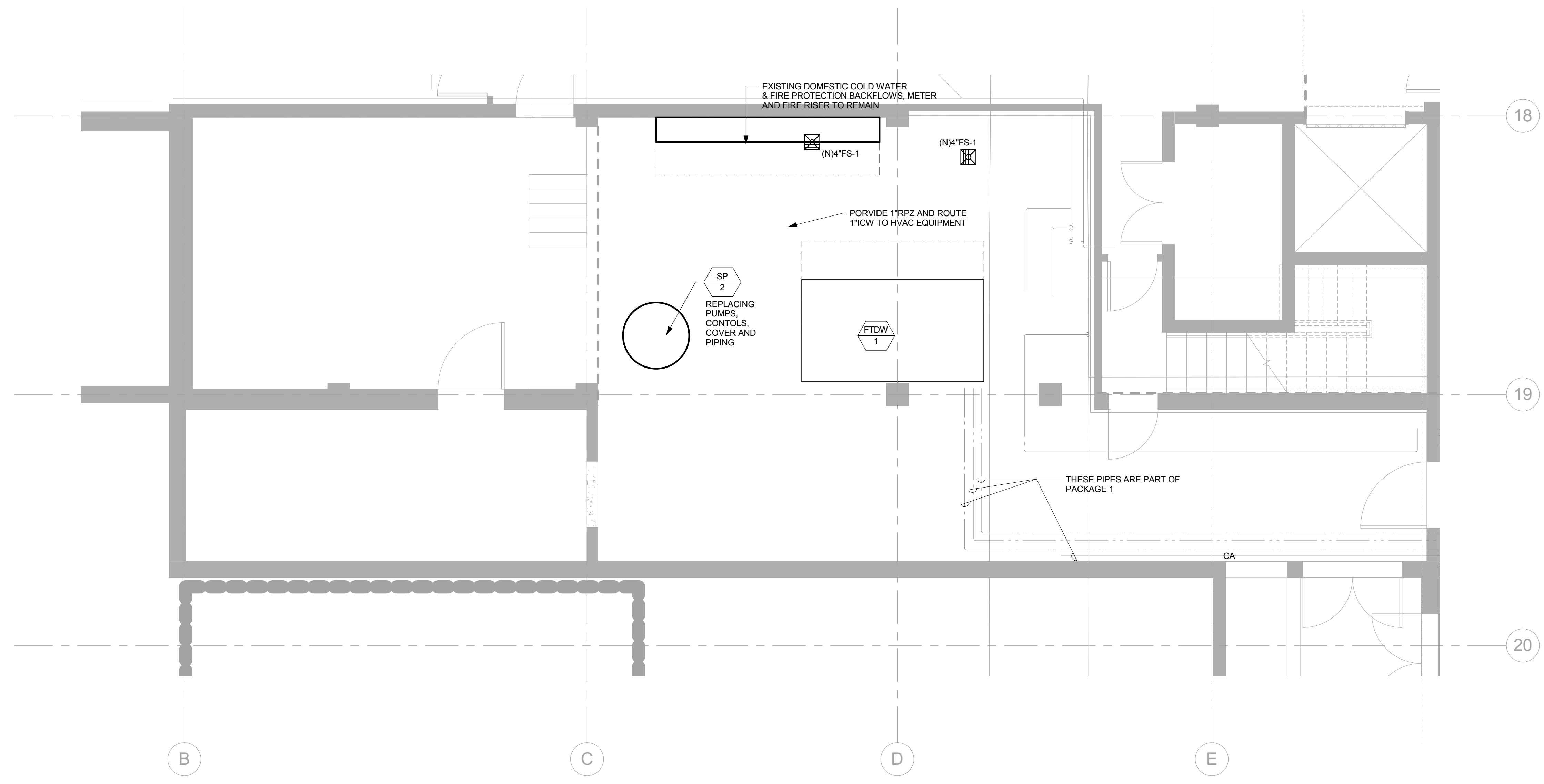
**1** ROOF PLAN - SECTOR D - PLUMBING  
SCALE: 1/8" = 1'-0"





**1 ROOF PLAN - SECTOR A - PLUMBING**  
 SCALE: 1/8" = 1'-0"

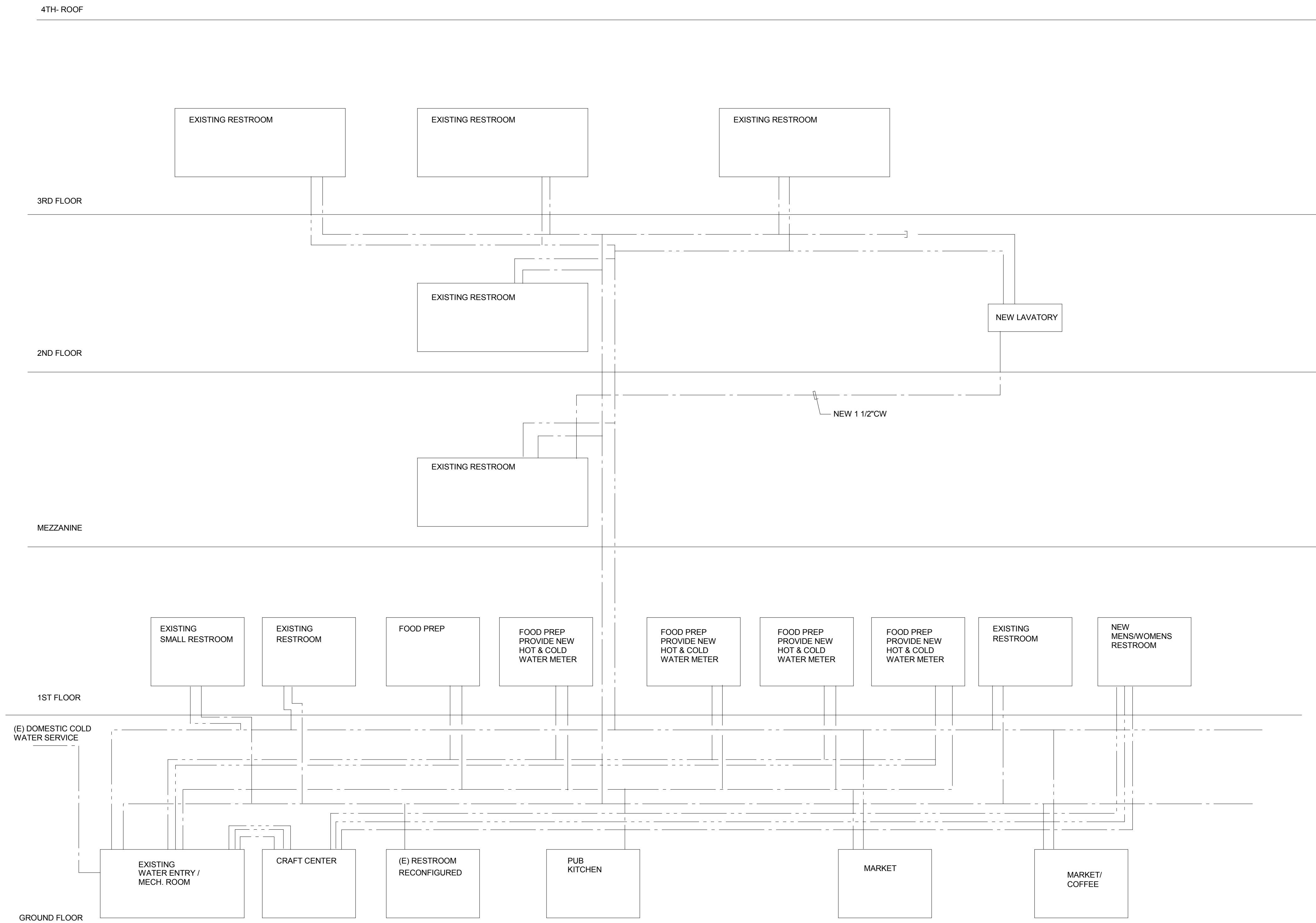




**1 GROUND LEVEL FLOOR PLAN - SECTOR D ENLARGED - PLUMBING**  
 SCALE: 1/4" = 1'-0"

REVISIONS

CHECKED BY:	2014.03.14
ISSUE DATE:	11045
PROJECT NO.:	



**1** HOT AND COLD RISER DIAGRAM  
SCALE: 1/8" = 1'-0"



UPPER ROOF

ROOF / PENTHOUSE

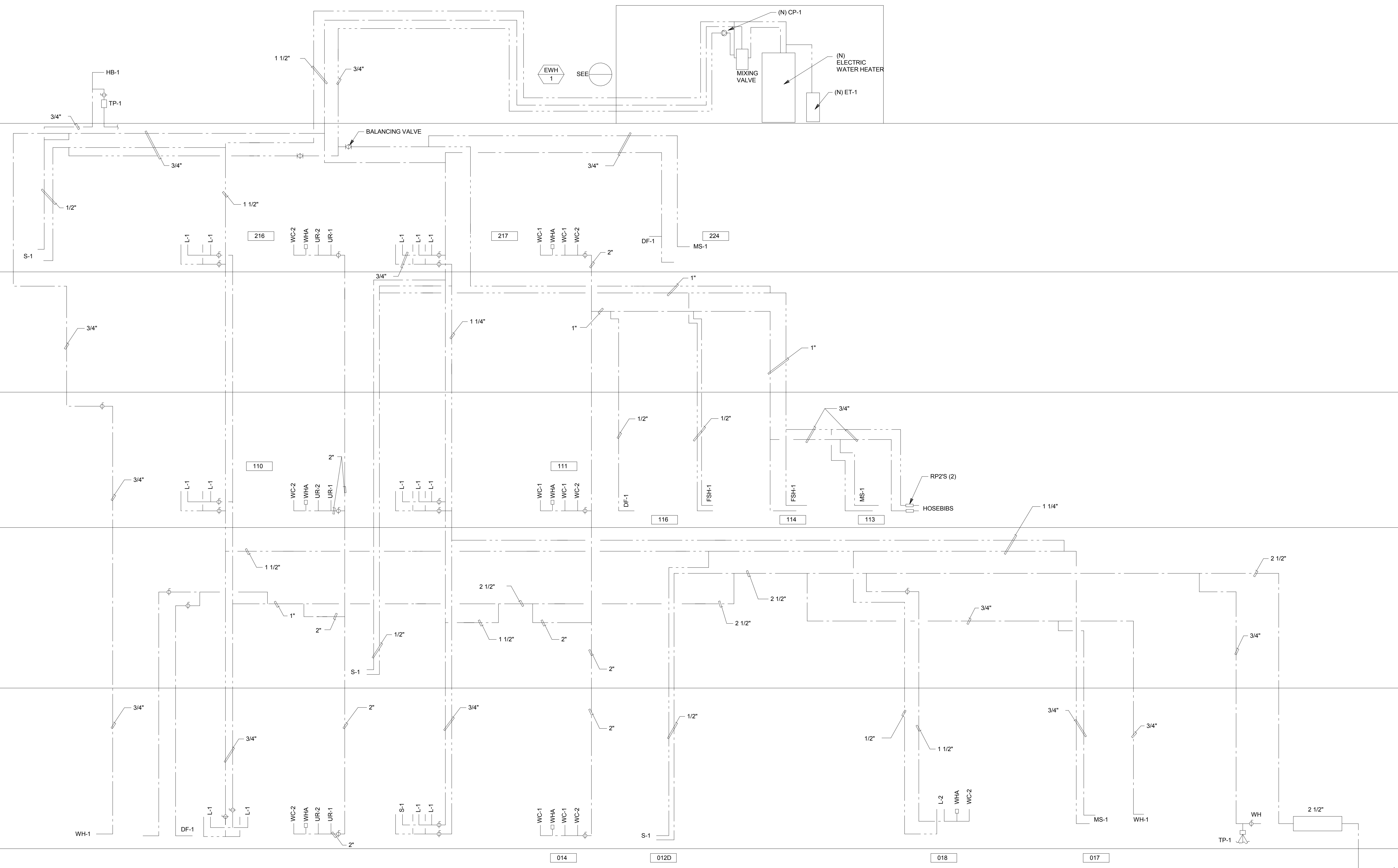
3RD FLOOR

2ND FLOOR

MEZZANINE FLOOR

1ST FLOOR

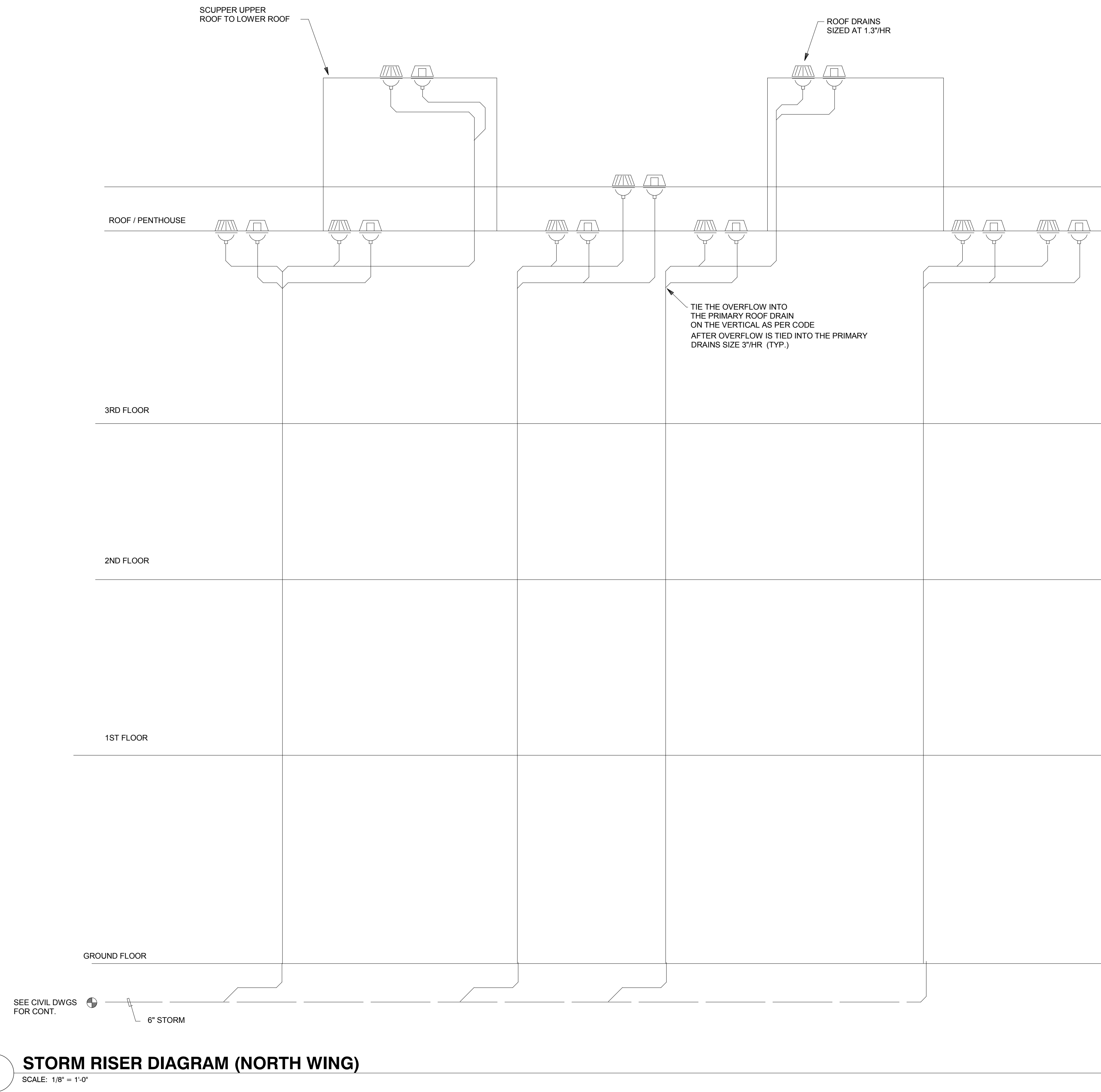
GROUND FLOOR

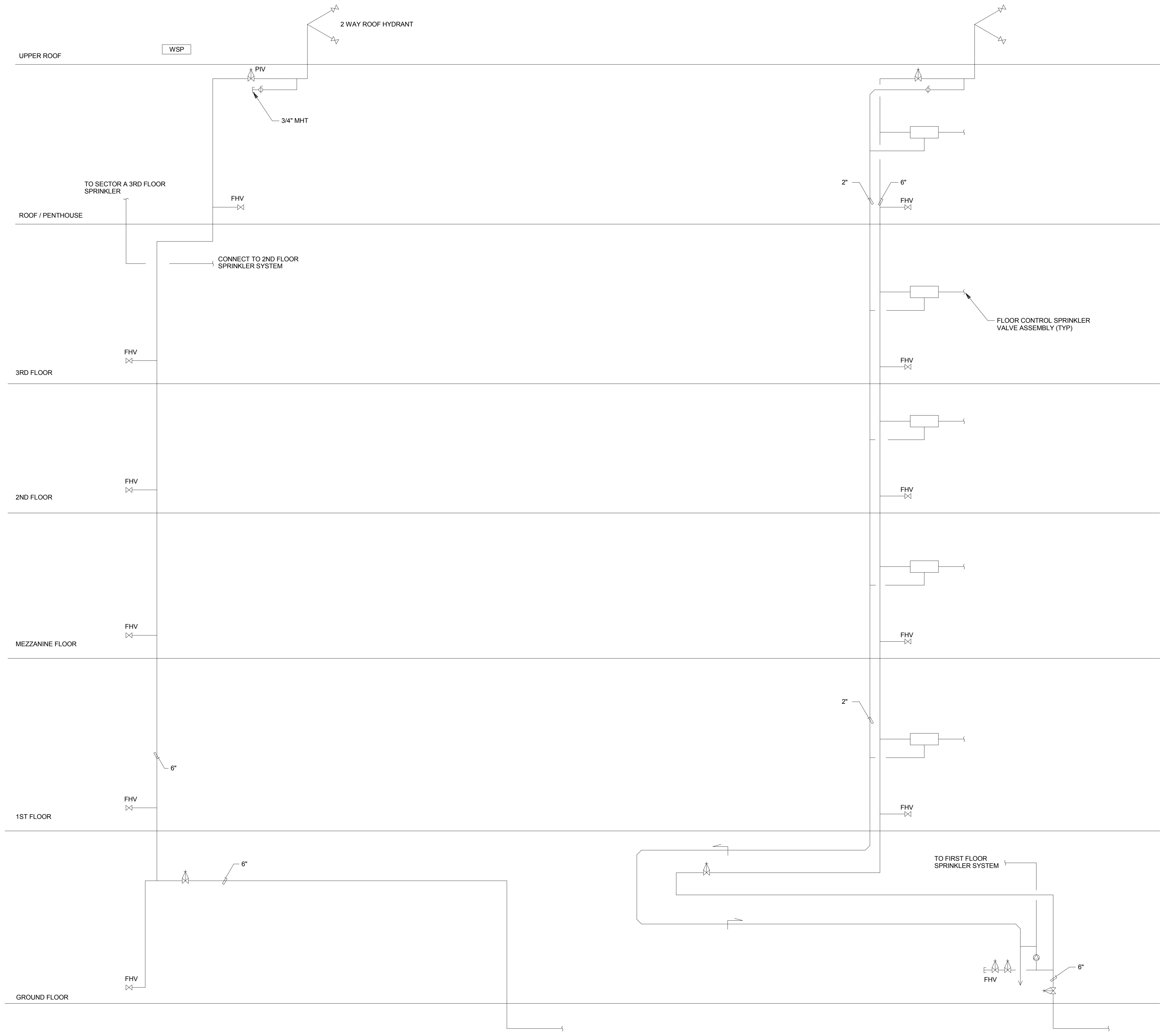


**1 HOT & COLD RISER DIAGRAM**  
 SCALE: 1/8" = 1'-0"



**1 WASTE AND VENT RISER DIAGRAM**  
 SCALE: 1/8" = 1'-0"



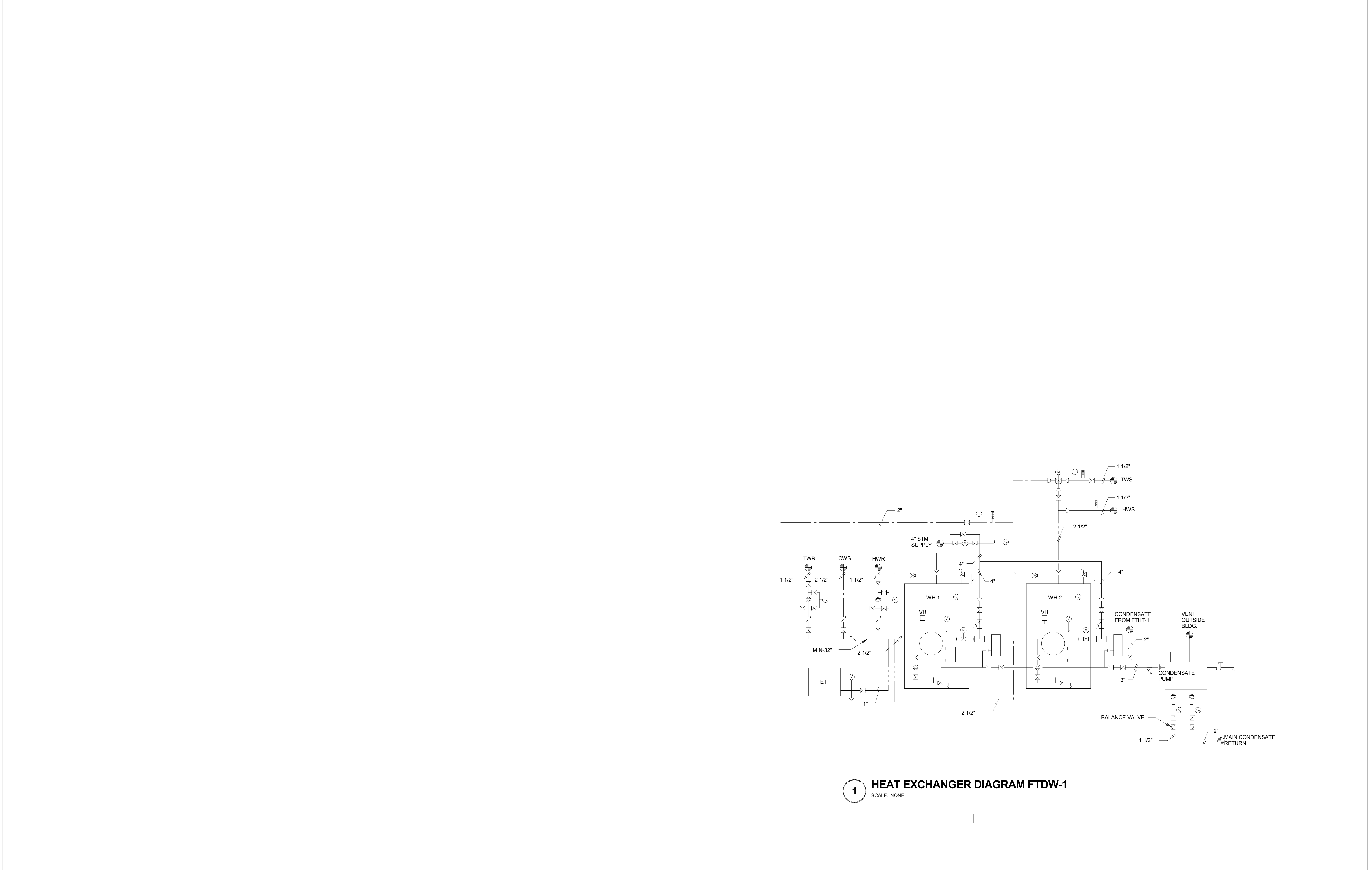


**1 FIRE PROTECTION RISER DIAGRAM**  
 SCALE: 1/8" = 1'-0"

**ERB MEMORIAL UNION - RENOVATION & ADDITION**  
**PACKAGE 4**  
 UNIVERSITY OF OREGON  
 13TH AVENUE & UNIVERSITY STREET

REVISIONS

CHECKED BY:	
ISSUE DATE:	2014.03.14
PROJECT NO.:	11045



**1 HEAT EXCHANGER DIAGRAM FTDW-1**  
SCALE: NONE



ARCHITECTURE  
URBAN DESIGN + PLANNING  
INTERIOR DESIGN

338 NW 5TH AVENUE  
PORTLAND OREGON 97209  
P: 503.445.7372  
F: 503.445.7365  
SERAPDX.COM

**GLUMAC**

900 SW Fifth Ave., Suite 1600  
Portland, OR 97204  
T: 503.227.6286 F: 503.274.7674  
www.glumac.com  
Job No: 02.13.0594  
Contact: TODD KOLIBABA  
engineers for a sustainable future™

**ERB MEMORIAL UNION - RENOVATION & ADDITION**  
**PACKAGE 4**  
UNIVERSITY OF OREGON  
13TH AVENUE & UNIVERSITY STREET

REVISIONS

CHECKED BY:  
ISSUE DATE: 2014.03.14  
PROJECT NO: 11045

DETAILS -  
PLUMBING  
**P801**