







NOTE: SYMBOLS AND ABBREVIATIONS INDICATED HERE AND NOT USED IN THE CONTRACT DOCUMENTS DO NOT APPLY TO THIS PROJECT. ADDITIONAL SYMBOLS MAY BE INDICATED IN THE CONTRACT DOCUMENTS.



	FLOOR DRAIN/FLOOR SINK		FIXTURE WASTE TRAP
	ROOF DRAIN		CLEANOUT
	HUB DRAIN		FLOOR CLEANOUT

FIXTURE INSTALLATION

<u>FIXTURE</u>	<u>BARRIER FREE DESIGN</u>	<u>NON-BARRIER FREE</u>
WATER CLOSET	FLOOR TO RIM 17"	FLOOR TO RIM 15"
URINAL	FLOOR TO RIM 17" MIN. ONE PER ROOM	FLOOR TO RIM 24"
LAVATORY	FLOOR TO RIM 34" MAX. FLOOR TO UNDER APRON 27"	FLOOR TO RIM 31"
DRINKING FOUNTAIN	FLOOR TO SPOUT 36" MAX. FLOOR TO UNDER APRON 27"	FLOOR TO SPOUT 43" MAX
SHOWER VALVE	FLOOR TO VALVE 42"	FLOOR TO VALVE 48"
SHOWER HEAD	FLOOR TO HEAD 60" ON HOSE ADJ. 48"	FLOOR TO HEAD 78" VARIES

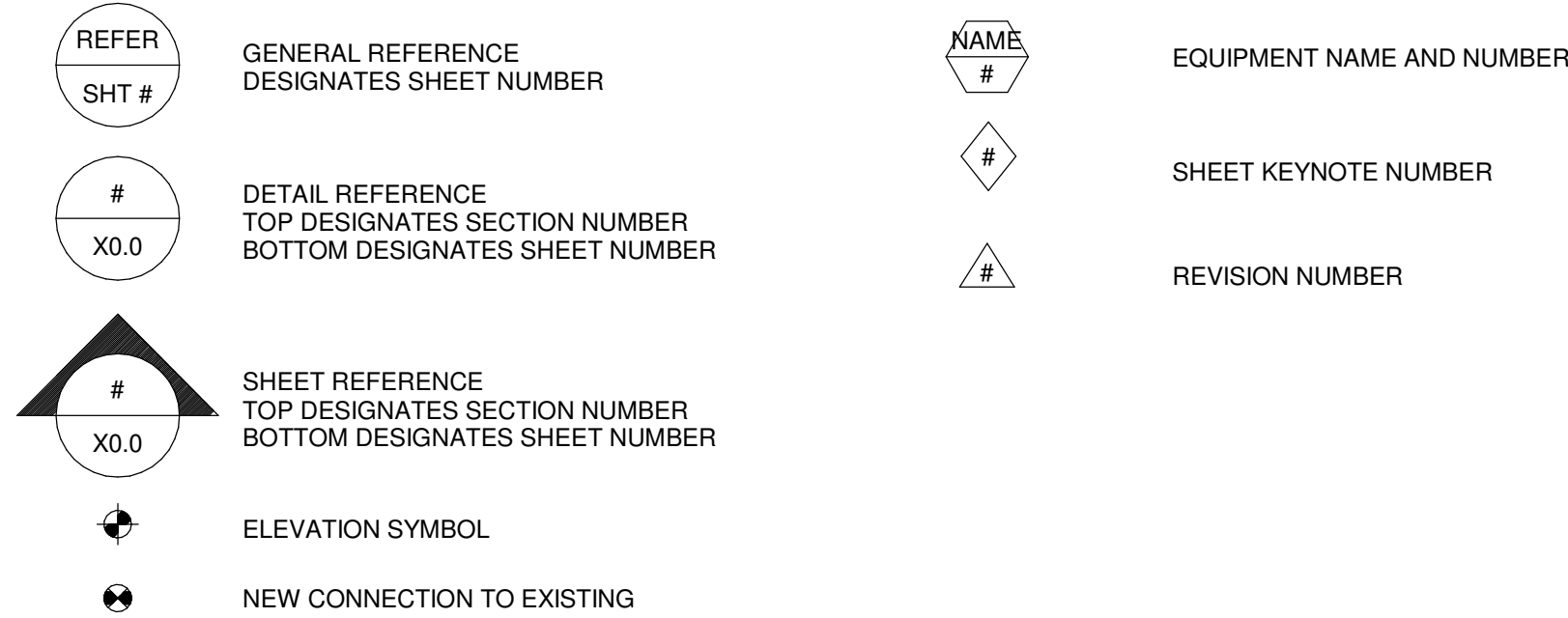
PDI SIZE	N.P.T.	FIXTURE UNITS
A	1/2"	1-11
B	3/4"	12-32
C	1"	33-60
D	1-1/4"	61-113
E	1-1/2"	114-154
F	2"	155-330

DOMESTIC WATER SUPPLY FIXTURE UNITS			
FIXTURE	QUANTITY	SFU'S PER FIXTURE	TOTAL SFUS
WATER CLOSET	18	10	180
URINAL	6	5	30
LAVATORY	17	2	34
MOP BASIN	3	3	9
DRINKING FOUNTAIN	3	0.25	0.75
HOSE BIBB	1	2.5	2.5
HOSE BIBB EACH ADDITIONAL	10	1.0	10
SINK	5	4	20
EMERGENCY EYE WASH	1	4	4
		TOTAL	290.25

290.25 SUPPLY FIXTURE UNITS = 108 GPM (PEAK)

NEW	EXISTING	DOUBLE LINE		NEW	EXISTING	DOUBLE LINE	
—DCW—	—X-DCW—	—DCW—	DOMESTIC COLD WATER	—SAN—	—X-SAN—	—SAN—	SANITARY
—DHW—	—X-DHW—	—DHW—	DOMESTIC HOT WATER	—SD—	—X-SD—	—SD—	SUBSOIL DRAIN LINE
—DHR—	—X-DHR—	—DHR—	DOMESTIC HOT WATER RETURN	—S—	—X-S—	—S—	STORM
—CS—	—X-CS—	—CS—	COLD SOFT WATER	—OD—	—X-OD—	—OD—	OVERFLOW DRAIN LINE
—HT—	—X-HT—	—HT—	HEAT TRACE HOT WATER	—FM—	—X-FM—	—FM—	FORCE MAIN
—NP—	—X-NP—	—NP—	NON-POTABLE WATER	—CWW—	—X-CWW—	—CWW—	CLEARWATER WASTE
—DI—	—X-DI—	—DI—	DEIONIZED WATER	—IW—	—X-IW—	—IW—	INDIRECT WASTE
—ROS—	—X-ROS—	—ROS—	REVERSE OSMOSIS WATER SUPPLY	—CRW—	—X-CRW—	—CRW—	CORROSION RESISTANT WASTE
—ROR—	—X-ROR—	—ROR—	REVERSE OSMOSIS WATER RETURN	—GW—	—X-GW—	—GW—	GREASE WASTE
—PUW—	—X-PUW—	—PUW—	PURE WATER	—LW—	—X-LW—	—LW—	LAB WASTE
—PCW—	—X-PCW—	—PCW—	PROCESS COLD WATER	—PW—	—X-PW—	—PW—	PROCESS WASTE
—PHW—	—X-PHW—	—PHW—	PROCESS HOT WATER	—V—	—X-V—	—V—	UNDERFLOOR FOR WASTE OR SUBSOIL STORM & FORCE MAIN
—PHR—	—X-PHR—	—PHR—	PROCESS HOT WATER RETURN	—V—	—X-V—	—V—	SANITARY VENT
—LCW—	—X-LCW—	—LCW—	LAB COLD WATER	—CWW—	—X-CWW—	—CWW—	CLEARWATER VENT
—LHW—	—X-LHW—	—LHW—	LAB HOT WATER	—CRV—	—X-CRV—	—CRV—	CORROSION RESISTANT VENT
—LHR—	—X-LHR—	—LHR—	LAB HOT WATER RETURN	—GWV—	—X-GWV—	—GWV—	GREASE WASTE VENT
—TF—	—X-TF—	—TF—	TRAP FILLER LINE	—PV—	—X-PV—	—PV—	PROCESS VENT
—W—	—X-W—	—W—	WATER MAIN	—LWV—	—X-LWV—	—LWV—	LAB WASTE VENT
—WGE—	—X-WGE—	—WGE—	WASTE GAS EVACUATION	—RCW—	—X-RCW—	—RCW—	RECLAIMED WATER
—LA—	—X-LA—	—LA—	LAB COMPRESSED AIR	—VC—	—X-VC—	—VC—	VACUUM CLEANING
—MA—	—X-MA—	—MA—	MEDICAL COMPRESSED AIR	—H2—	—X-H2—	—H2—	HYDROGEN
—CA—	—X-CA—	—CA—	PROCESS COMPRESSED AIR	—O2—	—X-O2—	—O2—	OXYGEN
—LVAC—	—X-LVAC—	—LVAC—	LAB VACUUM	—N2—	—X-N2—	—N2—	NITROGEN
—MV—	—X-MV—	—MV—	MEDICAL VACUUM	—NG—	—X-NG—	—NG—	NATURAL GAS
				—SGS—	—X-SGS—	—SGS—	SOLAR GLYCOL SUPPLY
				—SGR—	—X-SGR—	—SGR—	SOLAR GLYCOL RETURN

REFERENCE SYMBOLS



GENERAL NOTES

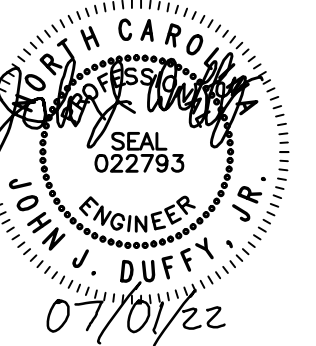
- | | | |
|---|---|--|
| <p>THE PIPING CONTRACTOR SHALL PROVIDE ALL NECESSARY OFFSETS, RISERS OR DROPS AS REQUIRED BY BUILDING CONDITIONS AND SHALL COORDINATE THE INSTALLATION WITH ALL OTHER TRADES.</p> | <p>GPM - GALLONS PER MINUTE
GW - GREASE WASTE
GWV - GREASE WASTE VENT</p> | <p>HB - HOSE BIBB
HD - HUB DRAIN
HP - HOT/SEPOWER
HR - HOSE REEL
HT - HEAT TRACE HOT WATER
HTR - HEATER
HVAC - HEATING VENTILATING & AIR CONDITIONING
HZ - HEIRT</p> |
| <p>2. OFFSET PIPING WHERE REQUIRED TO ALLOW ADEQUATE ACCESSIBILITY TO EQUIPMENT PROVIDED BY THIS CONTRACTOR AND ALL OTHER TRADES.</p> | | |
| <p>3. REFER TO ARCHITECTURAL DRAWINGS FOR ALL MILLWORK AND DETAILS SHOWING EXACT LOCATIONS AND TYPE FOR ALL FIXTURES AND TRIM.</p> | | |
| <p>4. EACH DISCIPLINE SHALL COORDINATE EXACT LOCATIONS OF THEIR WORK WITH ALL OTHER DISCIPLINES PRIOR TO AND DURING INSTALLATION OF ALL SERVICES. ALL SYSTEMS SHALL BE INSTALLED IN COMPLIANCE WITH DESIGN INTENT WHILE MEETING ALL CODE REQUIREMENTS, EQUIPMENT CLEARANCE REQUIREMENTS, ACCESS SPACE REQUIREMENTS NECESSARY FOR MANUFACTURER SPECIFIED EQUIPMENT OPERATION, AND OSHA COMPLIANCE FOR NORMAL BUILDING MAINTENANCE.</p> | <p>ID - INSIDE DIAMETER
IE - INVERT ELEVATION
IN - INCHES
IN WC - INCHES WATER COLUMN
IW - INDIRECT WASTE
KW - KILOWATT</p> | |
| <p>5. COORDINATE AND SEAL AROUND ALL PIPING PENETRATIONS THROUGH WALLS BASED ON THE REQUIRED SPECIFICATION FOR EACH WALL TYPE. REFER TO ARCHITECTURAL PLANS FOR WALL TYPES AND DETAILS.</p> | | |
| <p>6. THE CONTRACTOR SHALL VERIFY EXACT LOCATION AND INVERT ELEVATION OF EXISTING SANITARY/STORM PIPING PRIOR TO CONSTRUCTION AND ENSURE THAT SANITARY/STORM PIPING CAN BE PROPERLY CONNECTED AND INSTALLED WITH MIN. SLOPE AS REQUIRED BY NC PLUMBING CODE.</p> | | |
| <p>7. PLUMBING CONTRACTOR TO INSTALL THE ISOLATION VALVES NO MORE THAN 2'-0" ABOVE THE CEILING AND IN ACCESSIBLE LOCATIONS. THE CONTRACTOR SHALL INSTALL ACCESS DOORS FOR SHUT OFF VALVES LOCATED ABOVE HARD CEILING. REFER TO ARCHITECTURAL DRAWINGS FOR LOCATIONS.</p> | | |
| <p>8. THE CONTRACTOR SHALL COORDINATE SINKS DIMENSIONS AND SPACE REQUIREMENTS WITH ARCHITECTURAL CABINETS, AND OBTAIN WRITTEN APPROVAL FROM CABINET FABRICATOR THAT SINKS WILL FIT INTO CABINETS, PRIOR TO ORDERING SINKS.</p> | | |
| <p>9. MECHANICAL ROOM FLOOR SHALL SLOPE TO THE FLOOR DRAIN/SINK.</p> | | |
| <p>10. PROVIDE A CLEANOUT AT BASE OF ALL SANITARY/STORM RISER STACKS.</p> | | |
| <p>11. REFER TO UNCW DESIGN AND CONSTRUCTION GUIDELINES FOR MORE REQUIREMENTS.</p> | | |

ABBREVIATIONS

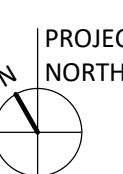
AAP	AIR	LA	LENGTH
AAP	AREA ALARM PANEL	LAV	LABORATORY AIR
ACC	ACCESS	LBS	POUNDS
ACFM	ACTUAL CUBIC FEET PER MINUTE	LG	LIGHTING
ADB	AIR DILUTION BASIN	LIV	LEAVING VACUUM
ADJ	ADJUSTABLE	LWT	LEAVING WATER TEMPERATURE
AFB	ABOVE FINISHED FLOOR		
ALT	ALTERNATE		
AMPS	AMPERES	MA	MASTER ALARM PANEL
AP	ACCESS PANEL	MAX	MAXIMUM
APPROX	APPROXIMATE	MB	MINI BASIN
ARCH	ARCHITECTURAL	MBH	ONE THOUSAND BTUH
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS	MEZ	MEZZANINE
ASSY	ASSEMBLY	MFR	MANUFACTURER
		MH	MANHOLE
BHP	BRAKE HORSEPOWER	MN	MINIMUM MINUTE
BLDG	BUILDING	MISC	MISCELLANEOUS
BOP	BOTTOM OF PIPE ELEVATION	MTD	MOUNTED
BOT	BOTTOM	MTG	MOUNTING
BTU	BATHTUB		
BTU	BRITISH THERMAL UNIT	NC	NORMALLY CLOSED
BTUH	BRITISH THERMAL UNITS PER HOUR	NO	NOT IN CONTRACT
BTWN	BETWEEN	NOM	NOMINAL
		NPSH	NET POSITIVE SUCTION HEAD
CA	COMPRESSED AIR	NTS	NATURAL PIPE THREAD
CFI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED		
CFM	CUBIC FEET PER HOUR		
CLG	CLEARING		
CMU	CONCRETE MASONRY UNIT	ON	ON CENTER
CO	CLEANOUT	OD	OUTSIDE DIAMETER / OVERFLOW DRAIN
CO2	CARBON DIOXIDE	OFI	OWNER FURNISHED CONTRACTOR INSTALLED
CONN	CONNECTION / CONNECT		OWNER FURNISHED OWNER INSTALLED
CONTR	CONTRACTOR		
CP	CORRIDOR	P	PUMP
CS	CLINICAL SINK / COLD SOFT WATER	PH	PHASE
CTR	CENTER	PIV	PISTON DRIVE VALVE
CU	COPPER	PLBG	PLUMBING
CHVTR	CORROSIVE WENT THROUGH ROOF	PRESS	PRESSURE
OWW	CLEARWATER WAST	PRV	PRESSURE REDUCING VALVE
		PSF	POUNDS PER SQUARE FOOT
		PSI	POUNDS PER SQUARE INCH
		PSIG	POUNDS PER SQUARE INCH GAUGE
		PW	PURE WATER
D	DEPTH / DRAIN LINE	R	RADIUS
DCW	DOMESTIC COLD WATER	RCW	RECLAIMED WATER
DET	DETAIL	REC	RECESSED
DFU	DRAINAGE FIXTURE UNIT	RECTPT	RECTANGLE
DHR	DOMESTIC HOT WATER RETURN	REF	REFERENCE
DHW	DOMESTIC HOT WATER	REQD	REQUIRED
DI	DIMETER	RI	ROUGH IN
DM	DIMENSION	RP	REVOLUTIONS PER MINUTE
DISCH	DISCHARGE	RV	RELIEF VALVE
DN	DOWN		
DS	DOWNSPOUT		
DWG	DRAWING	S	STORM
DIS	DI WATER SUPPLY	SA	MECHANICAL SHOCK ARRESTOR
		SAN	SANITARY
DIR	DI WATER RETURN	SCH	SCHEDULE
		SCFM	STANDARD CUBIC FEET PER MINUTE
E	EACH	SD	SUBSOIL DRAIN
EEW	EMERGENCY EYEWASH	SF	SQUARE FEET
EFF	EFFICIENCY	SGS	SOLAR GLASS SUPPLY
ELEC	ELECTRICAL	SGR	SOLAR GLYCOL RETURN
ELEV	ELEVATION	SH	SHOWER
EQUIP	EQUIPMENT	SHT	SHEET
ET	EXPANSION TANK	SPEC	SPECIFICATION
ETR	EXISTING TO REMAIN	SQ	SQUARE
EMER	EMERGENCY SHOWER	SR	SERVICE RECEPTOR
EWC	ELECTRIC WATER COOLER	SS	STAINLESS STEEL
EW	ENTERING WATER TEMPERATURE	STD	STANDARD
EXP	EXPANSION	STRM	STORM
EXT	EXTERIOR	STRU	STRUCTURAL / STRUCTURE
		SUCT	SUCTION
F	FAHRENHEIT	TD	TRENCH DRAIN
FCO	FLOOR CLEANOUT	TDH	TOTAL DYNAMIC HEAD
FD	FLOOR DRAIN	TEMP	TEMPERATURE
FLR	FULL LOAD AMPERES	TMV	THERMOSTATIC MIXING VALVE
F	FLOOR	TB	TOP OF BEAM
FM	FORCE MAIN	TOB	TOP OF JOIST
FFP	FEET PER FOOT	TOJ	TOP OF JOIST
FFM	FEET PER MINUTE	TS	TOP OF SLAB/TOP OF STEEL
FTD	FEET	TF	TRAP FILLER
FT	FEET HEAD	TP	TRAP PRIMER
FTG	FOOTING	TYR	TYPICAL
G	GAS	U	URINAL
GAL	GALLON		
GALV	GALVANIZED	V	VENT / VACUUM / VOLTS
GPH	GALLONS PER HOUR	VACUUM	VACUUM
GPM	GALLONS PER MINUTE	VEL	VELOCITY
GW	GREASE WASTE	VFD	VARIABLE FREQUENCY DRIVE
GWV	GREASE WASTE VENT	VB	VALVE-IN-BOX
		VIF	VALVE-IN-VERTICAL
		VOL	VOLUME
		VTR	VENT THROUGH ROOF
H	HOSE BIBB	W	WASTE / WATER
HD	HUB DRAIN	W/O	WITHOUT
HP	HORSEPOWER	WC	WATER CLOSET
HR	HOSE REEL	WCO	WALL CLEANOUT
HT	HEAT TRACE HOT WATER	WGE	WASTE GAS EXHAUST
HYAC	HEATER	WH	WALL HYDRANT
HZ	HEATING VENTILATING & AIR CONDITIONING	WFSU	WATER SUPPLY FIXTURE UNIT
ID	INSIDE DIAMETER	X	EXISTING
IE	INVERT ELEVATION		
IN	INCHES		
IN WC	INCHES WATER COLUMN		
IN	INDIRECT WASTE		
KW	KILOWATT		



AEI Affiliated Engineers*
 Affiliated Engineers, Inc.
 14 Raleigh Road, Suite 305
 Chapel Hill, North Carolina 27517
 Tel 919.419.9802 Fax 919.913.4300
 www.aeleng.com
 C LIC. NO. C-2982



5162 RANDALL DRIVE
WILMINGTON, NC
SSCO ID: 18-19656-02C
LS3P PROJECT: 7202-19798

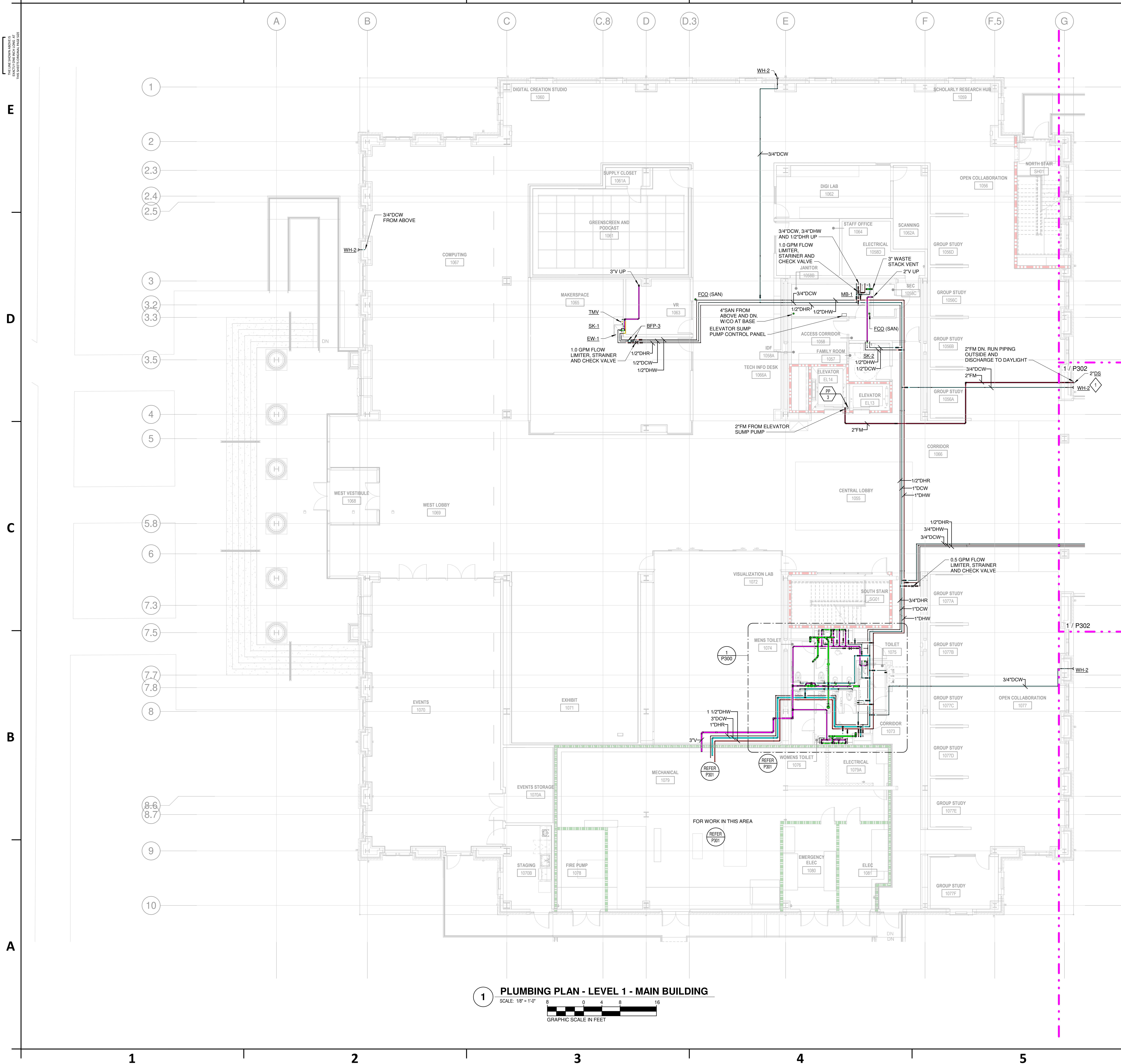
[illegible]

LUMBING PLAN - LEVEL 1




PACKAGE C - BID DOCUMENTS

201

PACKAGE C - BID DOCUMENTS

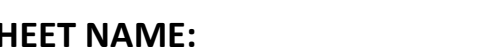


1 INSTALL DOWNSPOUT NOZZLE 8" ABOVE FINISHED GRADE. PROVIDE SPLASH BLOCK BELOW DOWNSPOUT.

 NEW NON-RATED PARTITION
 EXISTING WALL TO REMAIN
 UNRATED SMOKE BARRIER TO DECK
 1 HR. RATED BARRIER TO DECK
 2 HR. RATED BARRIER TO DECK
 3 HR. RATED FIRE WALL TO DECK

**AEI Affiliated Engineers®**

UNCW
5162 RANDALL DRIVE
WILMINGTON, NC
SCO ID: 18-19656-02C
LSP PROJECT: 7202-19798

[illegible]

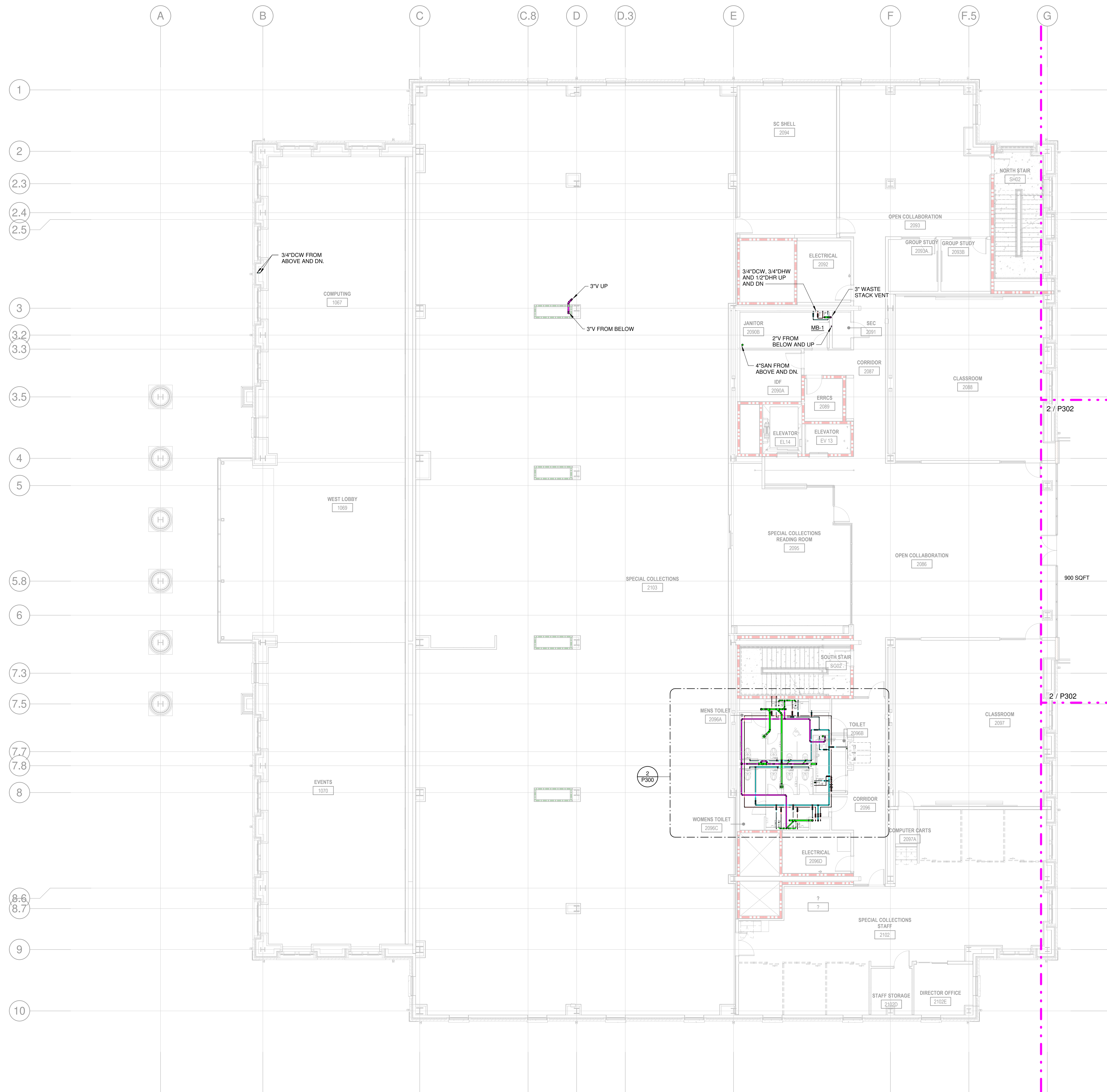
PLUMBING PLAN - LEVEL 2

CURRENT: 2022.07.01

PACKAGE C - BID DOCUMENTS

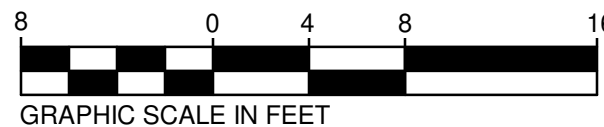
HEET:

202



PACKAGE C - BID DOCUMENTS

1 PLUMBING PLAN - LEVEL 2 - MAIN BUILDING

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



LIFE SAFETY LEGEND

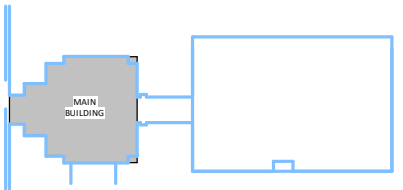
- NEW NON-RATED PARTITION
 EXISTING WALL TO REMAIN
 UNRATED SMOKE BARRIER TO DECK
 1 HR. RATED BARRIER TO DECK
 2 HR. RATED BARRIER TO DECK
 3 HR. RATED FIRE WALL TO DECK

RANDALL LIBRARY RENOVATION & EXPANSION

3162 RANDALL DRIVE
WILMINGTON, NC
SCO ID: 18-19656-02C
LS3P PROJECT: 7202-19798

[illegible]

KEY PLAN:



SHEET NAME:

LUMBING PLAN - LEVEL 3

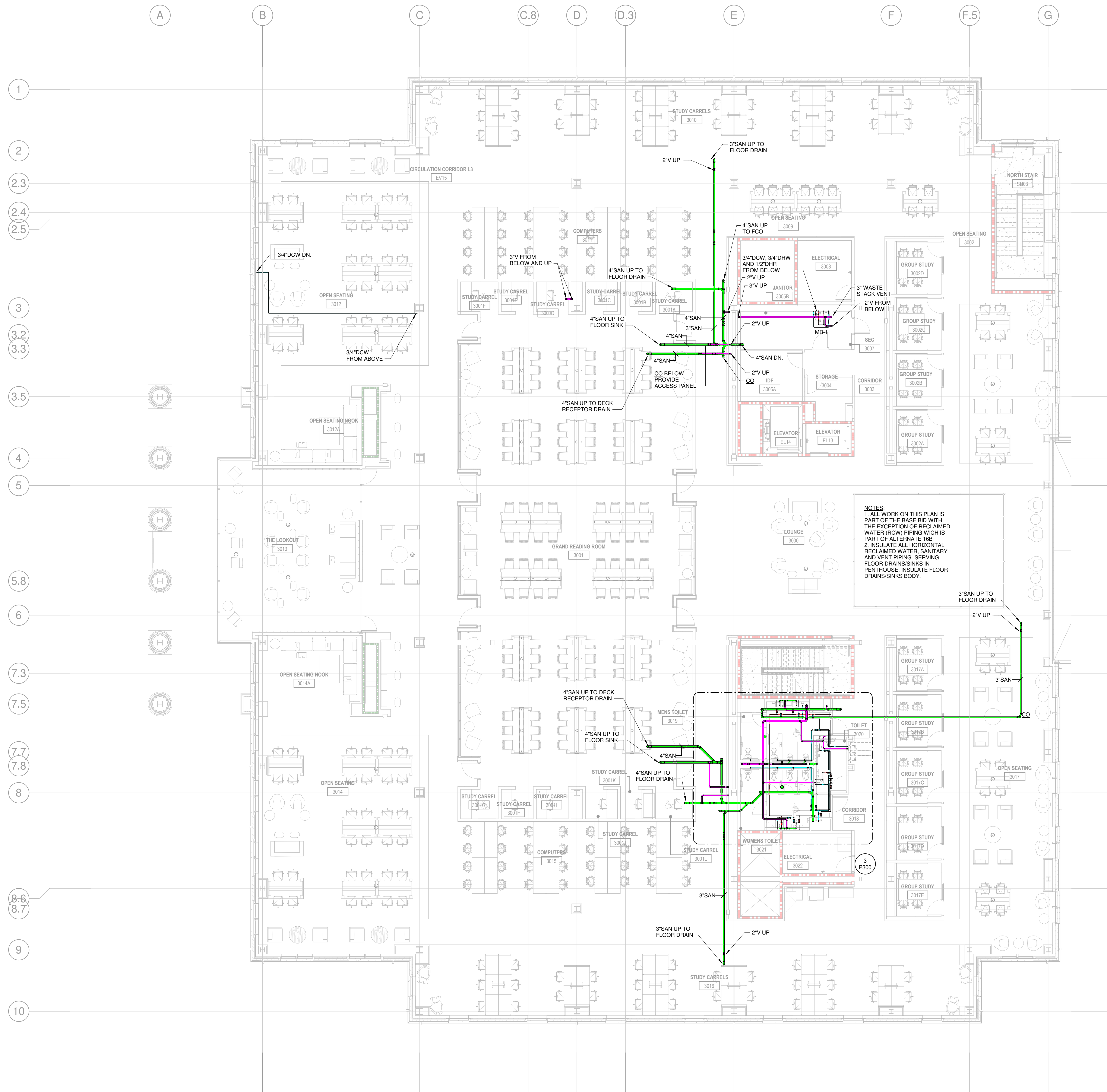
ORIGINAL SUBMISSION: 2022.07.01

CURRENT: 2022.07.01

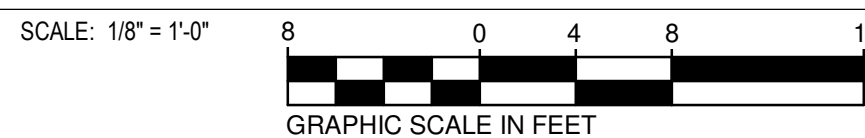
PACKAGE C - BID DOCUMENTS

SHEET:



P203

PACKAGE C - BID DOCUMENTS

1 PLUMBING PLAN - LEVEL 3 - MAIN BUILDING
SCALE: 1/8" = 1'-0" 8 0 4 8 16



LIFE SAFETY LEGEND

- NEW NON-RATED PARTITION
 EXISTING WALL TO REMAIN
 UNRATED SMOKE BARRIER TO DECK
 1 HR. RATED BARRIER TO DECK
 2 HR. RATED BARRIER TO DECK
 3 HR. RATED FIRE WALL TO DECK

THE LINE SHOWN ABOVE IS
BASED ON THE FOLLOWING SIZE
THIS DRAWING IS NOT TO SCALE

E

D

C

B

A

1

2

3

4

5

6

1

2

2.3

2.4

2.5

3

3.2

3.3

3.5

4

5

5.8

6

7.3

7.5

7.7

7.8

8

8.6

8.7

9

10

A

B

C

C.8

D

D.3

E

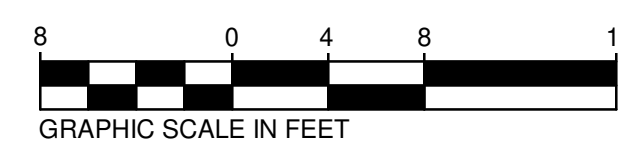
F

F.5

G

1 PLUMBING PLAN - LEVEL 4 - MAIN BUILDING

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



LIFE SAFETY LEGEND

- NEW NON-RATED PARTITION
- EXISTING WALL TO REMAIN
- UNRATED SMOKE BARRIER TO DECK
- 1 HR. RATED BARRIER TO DECK
- 2 HR. RATED BARRIER TO DECK
- 3 HR. RATED FIRE WALL TO DECK

SHEET KEYNOTES

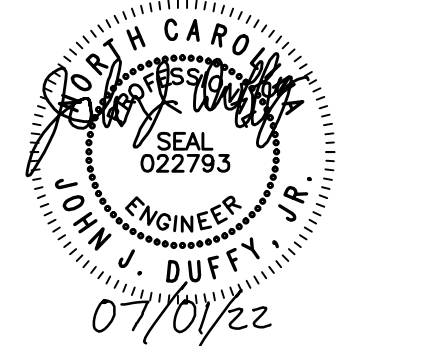
- GENERAL CONTRACTOR TO PROVIDE A 36"x36"x16" CURB AROUND THE FLOOR SINK. PROVIDE WALL STAINLESS STEEL WALL GUARD.



LS3P

101 NORTH THIRD STREET SUITE 500
WILMINGTON, NORTH CAROLINA 28401
TEL. 910.790.9901 FAX 910.790.3111
WWW.LS3P.COM

AEI Engineers
Affiliated Engineers, Inc.
1414 Raleigh Road, Suite 305
Chapel Hill, North Carolina 27517
Tel 919.419.9802 Fax 919.913.4301
www.aeifirm.com
NC LIC. NO. C-2982



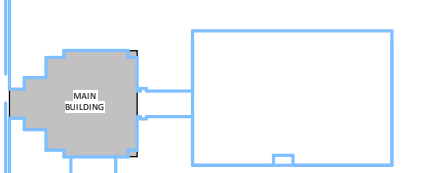
RANDALL LIBRARY
RENOVATION & EXPANSION
UNCW
5162 RANDALL DRIVE
WILMINGTON, NC

SCO ID: 18-19656-02C
LS3P PROJECT: 7202-197980

A DATE DESCRIPTION

0 2022.07.01 PACKAGE C - BID DOCUMENTS

KEY PLAN:



SHEET NAME:

PLUMBING PLAN - LEVEL 4

ORIG SUBMISSION: 2022.07.01

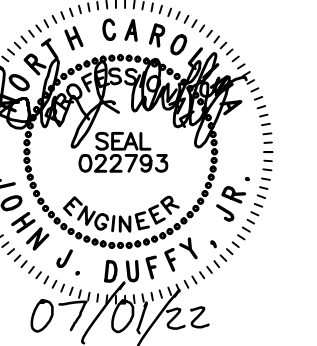
CURRENT: 2022.07.01

PACKAGE C - BID DOCUMENTS

SHEET:

P204

PACKAGE C - BID DOCUMENTS

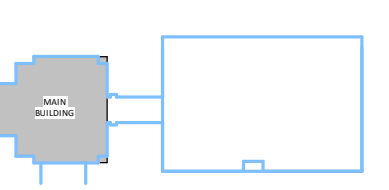


**KANDALL LIBRARY
RENOVATION & EXPANSION
UNCW**

5162 RANDALL DRIVE
WILMINGTON, NC
SCO ID: 18-19656-02C
LS3P PROJECT: 7202-197988

[illegible]

KEY PLAN:



SHEET NAME:

CLIMBING PLAN - ROOF

ORIGINAL SUBMISSION: 2022.07.01

CURRENT: 2022.07.01

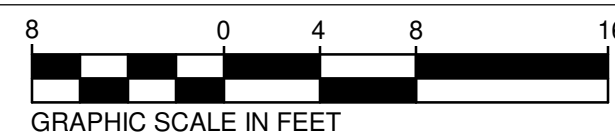
PACKAGE C - BID DOCUMENTS

SHEET:




205

PACKAGE C - BID DOCUMENTS

1 PLUMBING PLAN - ROOF - MAIN BUILDING
SCALE: 1/8" = 1'-0" 8 0 4 8 16



LIFE SAFETY LEGEND

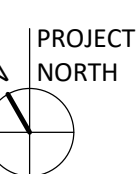
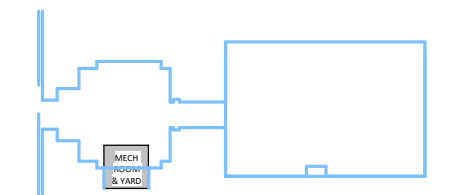
-  NEW NON-RATED PARTITION
 EXISTING WALL TO REMAIN
 UNRATED SMOKE BARRIER TO DECK
 1 HR. RATED BARRIER TO DECK
 2 HR. RATED BARRIER TO DECK
 3 HR. RATED FIRE WALL TO DECK

6

55162 RANDALL DRIVE
WILMINGTON, NC
SSCO ID: 18-19656-02C
LS3P PROJECT: 7202-19798

[illegible]

KEY PLAN:



SHEET NAME:

ROOM & YARD PLAN

BIG SUBMISSION: 2022.07.01

RECEIVED 2022.07.01

CURRENT: 2022.07.01

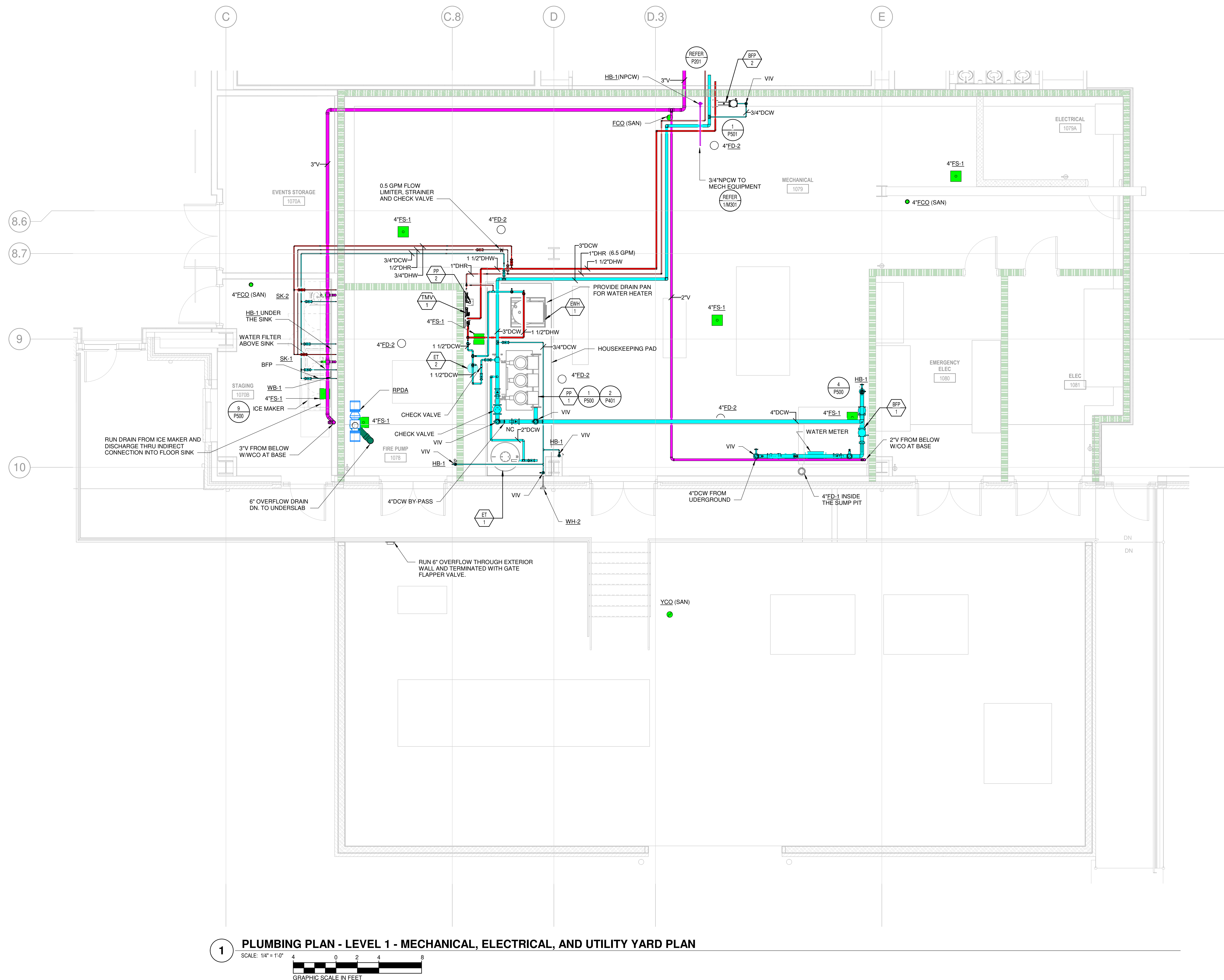
SHEET:

D301

P301




1501

PACKAGE C - BID DOCUMENTS



LIFE SAFETY LEGEND

- NEW NON-RATED PARTITION
- EXISTING WALL TO REMAIN
- UNRATED SMOKE BARRIER TO DECK
- 1 HR. RATED BARRIER TO DECK
- 2 HR. RATED BARRIER TO DECK
- 3 HR. RATED FIRE WALL TO DECK

-  NEW NON-RATED PARTITION
 EXISTING WALL TO REMAIN
 UNRATED SMOKE BARRIER TO DECK
 1 HR. RATED BARRIER TO DECK
 2 HR. RATED BARRIER TO DECK
 3 HR. RATED FIRE WALL TO DECK

RANDALL LIBRARY
RENOVATION & EXPANSION
UNCW
15162 RANDALL DRIVE
WILMINGTON, NC
SCO ID: 18-19656-02C
LSSP PROJECT: 7202-197980

[illegible]

HEET NAME:
PLUMBING RISER DIAGRAMS

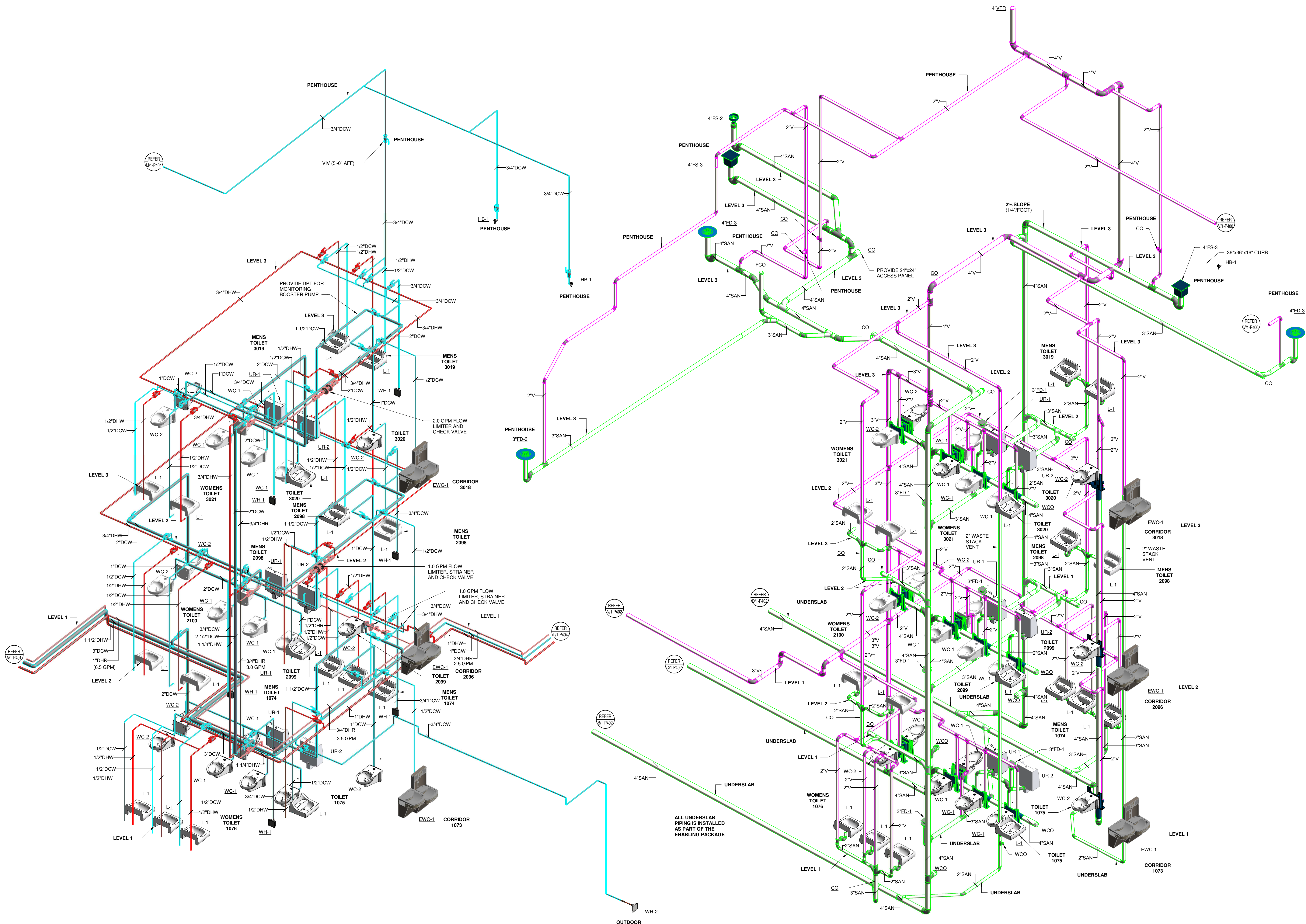
RIG SUBMISSION: 2022.07.01
CURRENT: 2022.07.01
PACKAGE C - BID DOCUMENTS

HEET:

P400

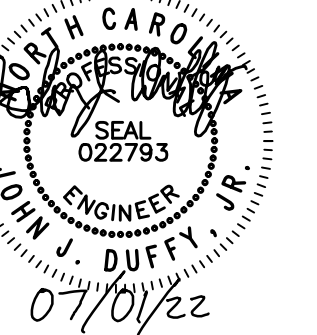
PACKAGE C - BID DOCUMENTS

A vertical scale with five points labeled A, B, C, D, and E from bottom to top. Each label is positioned to the left of a horizontal tick mark on a vertical line.



2 WATER PUBLIC RESTROOMS

1 SAN AND VENT PUBLIC RESTROOMS
SCALE: NOT TO SCALE



**KANDALL LIBRARY
RENOVATION & EXPANSION
UNCW**

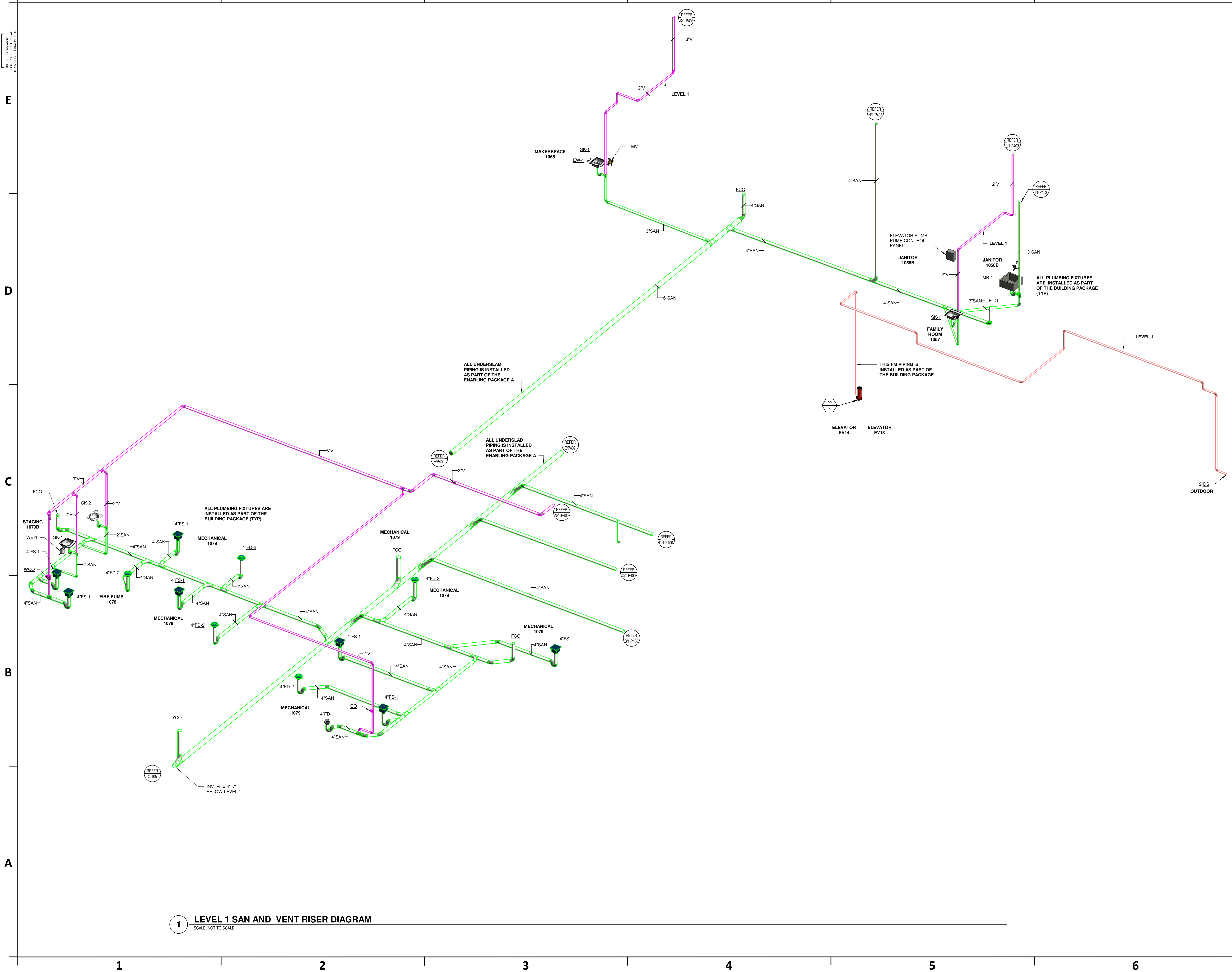
5162 RANDALL DRIVE
WILMINGTON, NC
SCO ID: 18-19656-02C
LS3P PROJECT: 7202-197988

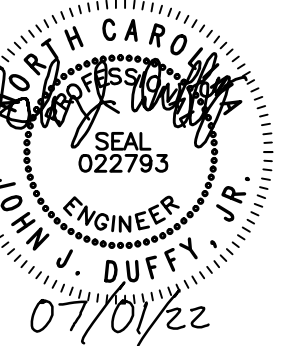
[illegible]

RIG SUBMISSION: 2022.07.01
CURRENT: 2022.07.01
PACKAGE C - BID DOCUMENTS

P402

PACKAGE C - BID DOCUMENTS



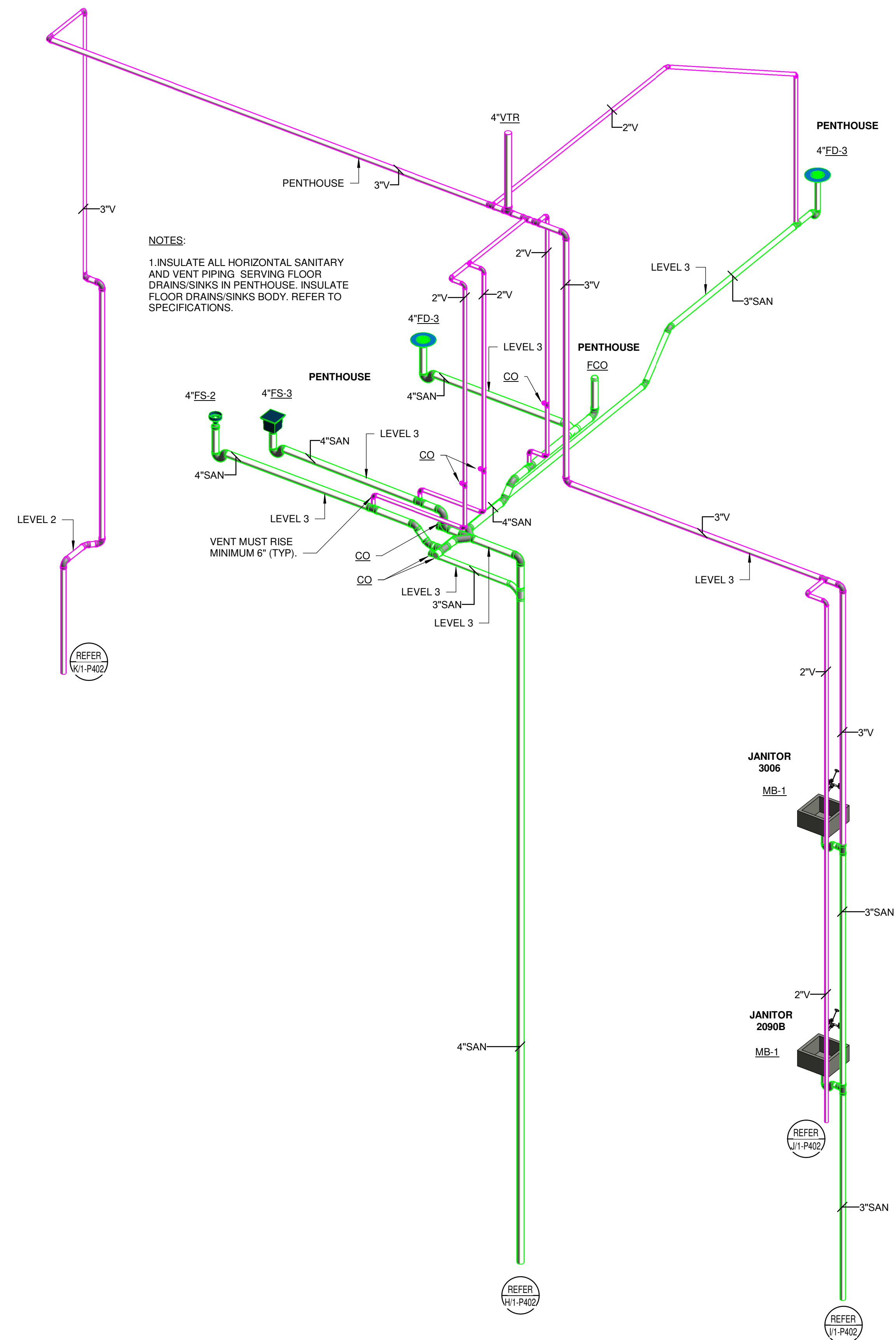


**KANDALL LIBRARY
RENOVATION & EXPANSION
UNCW**

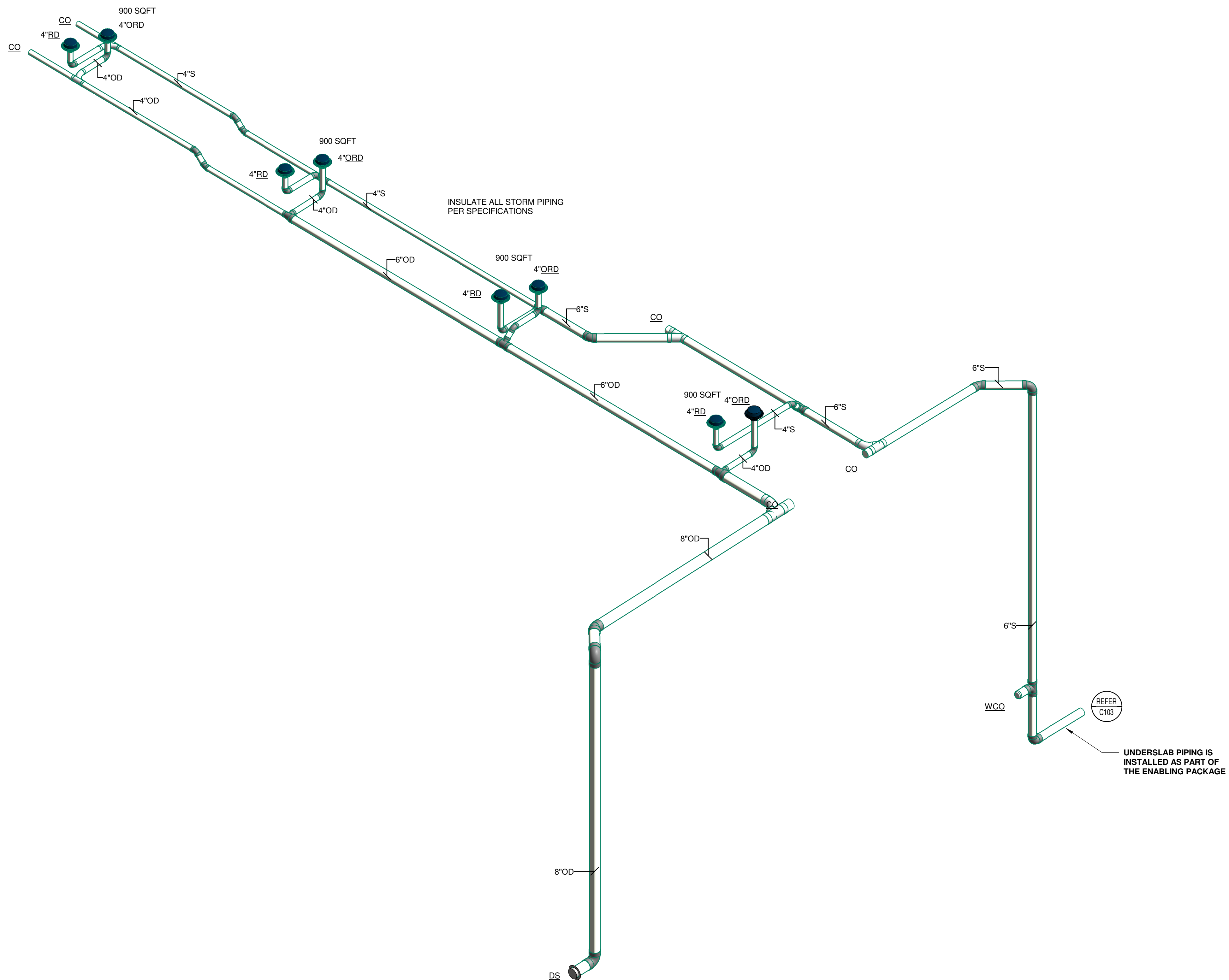
5162 RANDALL DRIVE
WILMINGTON, NC
SCO ID: 18-19656-02C
LS3P PROJECT: 7202-197980

[illegible]

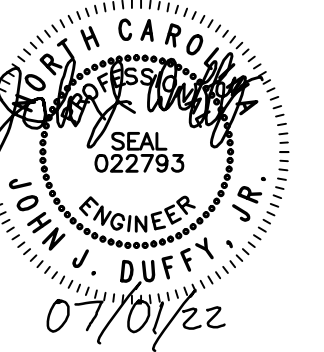
HEET:

PACKAGE C - BID DOCUMENTS

1 SAN AND VENT RISER DIAGRAM
SCALE: NOT TO SCALE



2 STORM RISER DIAGRAM - LINK
SCALE: NOT TO SCALE



RANDALL LIBRARY
RENOVATION & EXPANSION
UNCW

5162 RANDALL DRIVE
WILMINGTON, NC
SCO ID: 18-19656-02C
LS3P PROJECT: 7202-197988

[illegible]

HEET NAME:

PLUMBING RISER DIAGRAMS

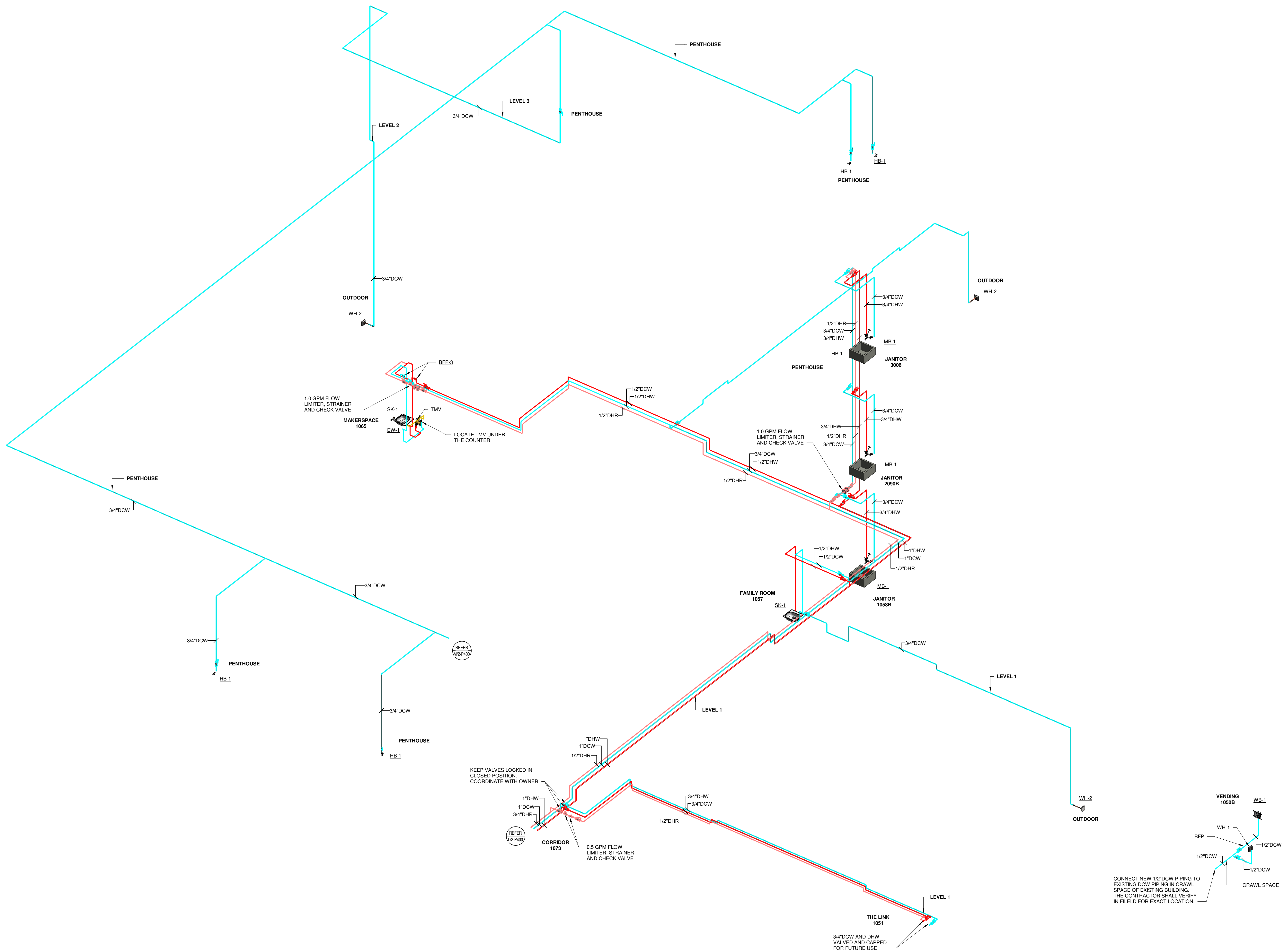
ORIGINAL SUBMISSION: 2022.07.01
CURRENT: 2022.07.01

PACKAGE C - BID DOCUMENTS

HEET:

P404

PACKAGE C - BID DOCUMENTS



1 WATER RISER DIAGRAM

7 ELEVATOR SUMP PUMP
SCALE: NOT TO SCALE

NOTES:

1. EACH CONTRACTOR IS RESPONSIBLE FOR TERMINATING WIRING AND CONDUIT PROVIDED BY THAT CONTRACTOR. DIV 22 CONTRACTOR SHALL TERMINATE WIRE AT MOTOR AND AT LOAD SIDE OF VFD / STARTER / DISCONNECT. DIV 26 CONTRACTOR SHALL TERMINATE WIRE AT POWER SOURCE CIRCUIT BREAKER AND LINE SIDE OF VFD / STARTER / DISCONNECT.
2. WHERE EQUIPMENT IS NOT PROVIDED UNDER THIS CONTRACT BUT SERVICES ARE BEING PROVIDED FOR FUTURE EQUIPMENT IDENTIFIED BY THE OWNER, THE DIV 26 CONTRACTOR SHALL PROVIDE WIRING AND CONDUIT AS SPECIFIED TO LINE SIDE OF DISCONNECT SWITCH PROVIDED BY DIV 26. ALL LOAD SIDE WIRING SHALL BE ACCOMPLISHED BY THE OWNER WHEN EQUIPMENT IS INSTALLED.
3. REFER TO ELECTRICAL PANEL DRAWINGS, ELECTRICAL PANEL SCHEDULES, SHEET KEYNOTES AND SPECIFICATIONS FOR DETAILS ON WIRING AND CONDUIT TO BE PROVIDED.

9 ICE MACHINE
SCALE: NOT TO SCALE

4 BACKFLOW PREVENTER PIPING

5 VERTICAL IN-WALL PIPING SUPPORTS

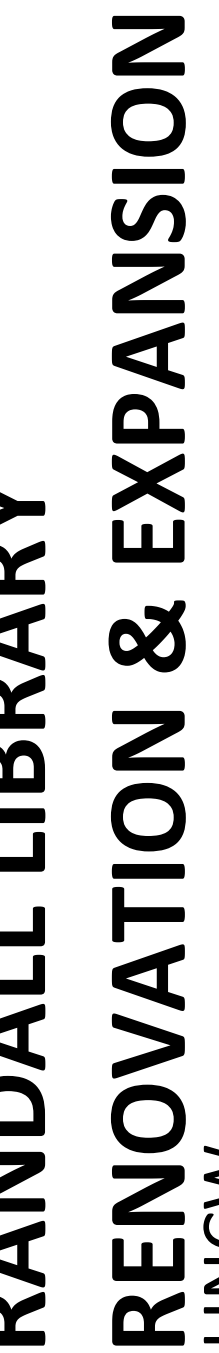
6 SUPPLY PIPE SUPPORT AT FIXTURE CONNECTION
SCALE: NOT TO SCALE

1 TRIPLEX WATER BOOSTER PUMP
SCALE: NOT TO SCALE

SECTION A-A

SECTION A-A

3 ELEVATED CONCRETE DECK FLOOR DRAIN
SCALE: NOT TO SCALE

[illegible]

PLUMBING DETAILS

CURRENT: 2022.07.01

PACKAGE C - BID DOCUMENTS

P502

PACKAGE C - BID DOCUMENTS



THE USER SHALL MAINTAIN A RECORD OF ALL CHANGES TO THIS DOCUMENT. SEE THE USER MANUAL FOR MORE INFORMATION.

E

D

C

B

A

1

2

3

4

5

6

THERMOSTATIC MIXING VALVES

22 21 18

MARK TMV.	SYSTEM USAGE	INLET TEMPERATURE		TEMP	MAX.	OUTLET FLOW RANGE		MAX	BASIS OF DESIGN		REMARKS
		COLD (degF)	HOT (degF)	SETPOINT (degF)	OUTLET TEMP (degF)	MIN (GPM)	MAX (GPM)	PRESSURE DROP (PSI)	MANUFACTURER	MODEL	
1	DOMESTIC HOT WATER	40	140	120	120	5	26	5	LEONARD	3NB-LF	HIGH LOW SYSTEM MIXING VALVE. PUMP - BELL AND GOSSET model N 36-45 SERIES. BRONZE BODY

PUMPS

22 1100

MARK PP-	LOCATION	SERVICE	TYPE	CAPACITY EACH (GPM)	CAPACITY TOTAL (GPM)	HEAD (FT) BOOST	SIZE (IN) SUCT.	DISCH.	MOTOR HP (EACH)	RPM	VOLT	SYSTEM FLA	PH	STANDBY POWER	BASIS OF DESIGN
1	MECH ROOM	DCW	BOOSTER	50	150	80	4"	4"	3.0	3500	460		3	YES	GRUNDFOS TRIPLEX VFD PUMP PACKAGE (3-3HP PUMPS), TOUCH SCREEN, BACNET, HYDRO-PNEUMATIC TANK, CONNECT TO BAS
2	MECH ROOM	DHW	CIRCULATOR	7	7	23	1"	1"	1/6	3100	120	2	1	NO	BELL AND GOSSET ecorox/LN 36-45 SERIES, STAINLESS STEEL, CONNECT TO BAS
3	ELEVATOR	FM	SUMP	50	50	30	-	3"	1	3450	115	12	1	NO	SIMPLEX STANCOR SUBMERSIBLE WITH ALARM, CONNECT TO BAS

EXPANSION TANKS

22 3314

MARK ET-	SYSTEM	BASIS OF DESIGN	MODEL NO	TANK VOLUME (GAL)	MAX. ACCUM. VOLUME (GAL)	DIMENSIONS DIA. (IN)	HEIGHT (IN)	SYSTEM CONN.	MAXIMUM PRESSURE (PSI)	LINE PRESSURE (PSI)	REMARKS
1	DHW	AMTROL	WX-449C	106	106	24	73	2"	125	70	PRESSURE BOOSTER HYDRO-PNEUMATIC TANK, CHARGE TO LINE PRESSURE
2	DHW	AMTROL	ST-12C	6.4	3.2	12	14	3/4"	150	80	EXPANSION TANK, CHARGE TO LINE PRESSURE

BACKFLOW PREVENTER (RPZ)

22 2114

MARK BFP	BASIS OF DESIGN	SERVICE	INLET/ OUTLET SIZE	GPM	MAX PD PSI	REMARKS SYSTEM USAGE
1	ZURN 350AST-OSV	DOMESTIC COLD WATER	4"	100	5	DUAL CHECK VALVE ASSEMBLY, 304L STAINLESS STEEL, LEAD FREE, TYPE "Y" STRAINER
2	ZURN 975XL2	MAKE-UP WATER	3/4"	8	12	BACKFLOW PREVENTER, LEAD FREE, WITH FULL PORT QT BALL VALVES, BRONZE TYPE "Y" STRAINER.
3	ZURN 460XL	DOMESTIC COLD AND HOT WATER	1/2"	4	7	SPILL RESISTANT PRESSURE VACUUM BREAKER ASSEMBLY, LEAD FREE, WITH FULL PORT QT BALL VALVES, BRONZE TYPE "Y" STRAINER.

CLEANOUTS AND DRAINS

22 1300

MARK	FIXTURE	BASIS OF DESIGN	REMARKS
WCQ	WALL CLEANOUT	ZURN ZS1468-VP	CAST IRON FURNACE, THREADED PLUG, VANDAL PROOF SECURED STAINLESS STEEL ACCESS COVER.
YQD	YARD CLEANOUT	ZURN Z1474-VP-N	DURA-COATED CAST IRON BODY WITH INTEGRAL ANCHOR FLANGE, SECURED SCORIATED COVER WITH LIFTING DEVICE, VANDAL PROOF, WITH INTERNAL CLEANOUT
FCQ	FLOOR CLEANOUT	ZURN Z1400-VP-T-BP	CAST IRON BODY, SQUARE, VANDAL PROOF NICKEL BRONZE COVER, WITH TILE OR CARPET RECESS AS REQUIRED.
FD-1	FLOOR DRAIN	ZURN ZN4155-Y	CAST IRON BODY, SQUARE, NICKEL BRONZE STRAINER, SEDIMENT BUCKET, CLAMP COLLAR, TRAP SEAL DEVICE BY PROSET OR EQUAL
FD-2	FLOOR DRAIN	ZURN ZS20-G-T-Y-VP	CAST IRON BODY, GALVANIZED, HEAVY DUTY GRATE, SEDIMENT BUCKET, CLAMP COLLAR, TRAP SEAL DEVICE BY PROSET OR EQUAL
FD-3	FLOOR DRAIN	ZURN ZS30-G-T-Y	CAST IRON BODY, GALVANIZED, HEAVY DUTY GRATE, SEDIMENT BUCKET, SURFACE FLANGE, TRAP SEAL DEVICE BY PROSET OR EQUAL
FS-1	FLOOR SINK	ZURN Z1901-K-2	9 1/2" DIAMETER, DECK RECEPTOR, DURA-COATED CAST IRON BODY, ACID RESISTANT EPOXY COATED, UNDERDECK CLAMP, STATIC EXTENSION, DOME STRAINER, TRAP SEAL DEVICE BY PROSET OR EQUAL
FS-2	FLOOR SINK	ZURN Z127-AR-DP-E	CAST IRON BODY, ACID RESISTANT COATED, 1/2 GRATE, ANCHOR FLANGE, LESS DOME STRAINER, TRAP SEAL DEVICE BY PROSET OR EQUAL
FS-3	FLOOR SINK	ZURN Z1902-DX-K	CAST IRON BODY, ACID RESISTANT COATED, SURFACE FLANGE, ANCHOR FLANGE, TRAP SEAL DEVICE BY PROSET OR EQUAL
RD	ROOF DRAIN	ZURN Z100-ZC-C-E	CAST IRON BODY, CAST IRON DOME, EXTENTION, CLAMP, PROVIDE STAINLESS STEEL HARDWARE PART NO. P100-C2-PARTS-SS
ORD	OVERFLOW ROOF DRAIN	ZURN Z100-ZC-C-E-W2	CAST IRON BODY, CAST IRON DOME, EXTENTION, CLAMP, WEIR, PROVIDE STAINLESS STEEL HARDWARE PART NO. P100-C2-PARTS-SS
DS	DOWNSPOUT NOZZLE	ZURN ZS 199-DC-VP	S.S BODY, HINGED PERFORATED GRATE, VANDAL PROOF.

HEAT PUMP STORAGE WATER HEATERS

22 67 20

MARK EWH	LOCATION	SERVICE	TYPE	STORAGE CAPACITY (GAL)	TEMP RISE (F)	RECOVERY				COP	ELEMENTS (#)	ELEMENT INPUT VALUE (KW)	VOLTAGE (V)	PHASE (Ø)	FREQ. (HZ)	F.L.A. (AMPS)	STANDBY POWER	REFRIGERANT	BASIS OF DESIGN		REMARKS
						RATE - EFFICIENCY (GPH)	RATE - HYBRID (GPH)	RATE - ELECTRIC (GPH)											MANUFACTURER	MODEL	
1	MECHANICAL 1079	HOT WATER	HEAT PUMP/ELECTRIC STORAGE	119	100	40	90	50		4.2	2	6	240	1	60		NO	R134	AO SMITH OR EQUAL	CAHP 120	1, 2

REMARKS:

- (1) SET WATER TEMPERATURE TO 140 F.
- (2) PROVIDE PLASTIC PAN UNDER THE WATER HEATER. RUN DRAIN PIPE TO NEAREST FLOOR DRAIN.

PLUMBING FIXTURES

22 4000

MARK	ITEM	BASIS OF DESIGN	REMARKS
WC-1	Water Closet	American Standard 3351.101	White vitreous china, wall-mounted siphon jet, top spud, rear outlet, elongated bowl, 1.28 GPF design. MaP score 1,000 grams of miso @ 1.28 gpf
	Flush Valve	Zurn ZER6000AV-W2-HET-LTE	Polish chrome finish, top spud, single flush, exposed sensor battery operated flushometer, 1.28 gpf, manual override push button, vacuum breaker, 6VDC motor actuator, Zurn plumbSMART web portal and mobile app.
	Seat	Bemis 1955SSTFR	White plastic seat with self-sustaining check hinge, elongated open front, fire retardant material.
	Carrier	Zurn Z1201-N-4, Z1201-ND4	Left or right, horizontal or vertical, adjustable no-hub floor carrier, -JC 2" auxiliary inlet(plug if not used).
WC-2	Water Closet	As above, except provide carrier support for barrier free (ADA) The	height of the water closet shall be 17" to 19" measured to the top of the toilet seat.
	Urinal	American Standard 6590.001	White vitreous china, wall mounted, 0.125 GPF.
UR-1	Flush Valve - Sensor	Zurn ZER6003AV-W2-ULF-LTE	Polish chrome finish, top spud, single flush, exposed sensor battery operated flushometer, 0.125 gpf, manual override push button, vacuum breaker, 6VDC motor actuator, Zurn plumbSMART web portal and mobile app.
	Carrier	Zurn Z1222	Rectangular uprights, bearing plate, barrier free.
UR-2	Urinal	As above, rim maximum 17" above the finished floor.	
L-1	Lavatory - Public ADA	Kohler K-2007	21-1/4"x11-1/8", white vitreous china, wall-mount, overflow drain, ADA.
	Faucet	Zurn Z6913-XL	Polish chrome, single hole, infrared sensor, 0.5 gpm, battery power, deck-mounted, in-line filter, hydro-powered, 4" cover plate, ADA.
	Drain	Zurn Z6743	P.O. perforated grate strainer, 1-1/4" tailpiece.
	Trap	Zurn Z6701	Cast brass, 17 ga with cleanout, size 1-1/4"x1-1/2".
	Stops and Supplies	Zurn Z6808-XL-O-PC	Chrome plated, quarter turn ball valve with wheel handle, extension and flexible riser.
	Utility Cover	Trubro 2018-KO-K	LAV SHIELD rigid enclosure, ADA
SK-1	Thermostatic mixing valve	Powers LFLM495	Thermostatic mixing valve for lavatories, lead free.
	Sink - ADA	Elkay LZAD312685	Single bowl, 31"x 22"x 6 1/2", 304 stainless steel, 18ga, drop-in, bowl dimensions 28"x 16"x 6 3/8", 3 holes.
	Faucet	Chicago Faucets 796-E36XXABCP	Deck mounted, 8" fixed centers, 5-1/4" rigid/swing gooseneck spout, 1.5 gpm non-aerating laminar outlet, 4" wristblade handle
	Drain	Elkay LKAD35	Perforated S.S. strainer with off-set tail piece.
SK-2	Trap	Zurn Z6702 Series	1-1/2" chrome plated brass with cleanout plug.
	Stops and Supplies	Zurn Z6808-XL-O-LK	Chrome plated, quarter turn ball valve with loose key, extension and flexible riser.
	Sink - ADA	Elkay LZAD312685	Single bowl, 17"x 15"x 6 1/2", 304 stainless steel, 18ga, drop-in, bowl dimensions 14"x 10"x 6 3/8".
	Faucet	Chicago Faucets 796-E36XXABCP	Deck mounted, 8" fixed centers, 5-1/4" rigid/swing gooseneck spout, 1.5 gpm non-aerating laminar outlet, 4" wristblade handle
	Drain	Elkay LKAD35	Perforated S.S. strainer with off-set tail piece.
	Trap	Zurn Z6702 Series	1-1/2" chrome plated brass with cleanout plug.
MB-1	Stops and Supplies	Zurn Z6808-XL-O-LK	Chrome plated, quarter turn ball valve with loose key, extension and flexible riser.
	Mop Basin	Fiat TSB100-MSG	24"x24"x12" precast terrazzo floor basin with rim guards and stainless steel wall guards.
	Faucet	Chicago Faucets 952-1/2CP	Wall mounted sill fittings, atmospheric vacuum breaker, (2) one for DCW and one for DHW.
	Hose	Delta ZBT910 and ZBT911	Heavy duty reinforce hose and SS mop hanger
WB-1	Backflow Preventer	Zurn Wilkins 700XL	In-line check assembly
	Drain	Fiat 1453-69	Stainless steel strainer.
	Trap	Cast Iron	3" p-trap to match piping system.
	Hose Bibb	Zurn Z1341XL-P34-PB-VB	Exposed, 3/4 male hose connection, back-flow protected, anti-siphon, with loose key operator, interior locations only.
WH-1	Wall Hydrant - Int	Zurn Z1350-VB	Stainless steel box and door, back-flow protected, loose key operator, interior locations only.
WH-2	Wall Hydrant - Ext	Zurn Z1320XL	Nickel bronze box and door, back-flow protected, anti-siphon, freeze proof with loose key operator, automatic draining, lead free, coordinate with architect for length before ordering.
EWG-1	Electric Water Cooler	Elkay LZSTLBWSLK	Dual high-low bowls, ADA, 120 VAC, bottle filler, filter.
WB-1	Stops and Supplies	Zurn Z6808-XL-O-PC	Chrome plated, quarter turn ball valve with wheel handle, extension and flexible riser.
	Carrier	Zurn Z1225	8-level cooler support
	Trap	Zurn Z6701	Cast brass, 17 ga with cleanout, size 1-1/2".
	Eye Wash - ADA	Guardian GBF1848-TMV	Eye/face wash, wall mounted, stay-open valve, ADA compliant, mixing valve G6020
WB-1	Backflow Preventer	Zurn Wilkins 700XL	In-line check assembly
	Wall Supply Box	Water Tite IPS Corporation - Model no. DW120_HA	MulBox, Commercial ice maker wall box system with lead free quarter turn arrestor valve and drain. For fire rated wall use FRDW120_HA
WB-1	Backflow Preventer	Zurn Wilkins 700XL	In-line check assembly

NOTES:

1. ALL FIXTURES SHALL HAVE BALL VALVE ISOLATION VALVES ABOVE CEILING DIRECTLY IN FRONT OF THE FIXTURE.
2. MOP SINK TO BE PROVIDED WITH CHECK VALVE ON HOT AND COLD SUPPLY LINES.
3. SINKS SHALL HAVE DROP EAR 90 DEGREE ELBOWS WITH BRASS THREADED NIPPLES FOR ANGLE STOP CONNECTIONS.

FIXTURE PIPING

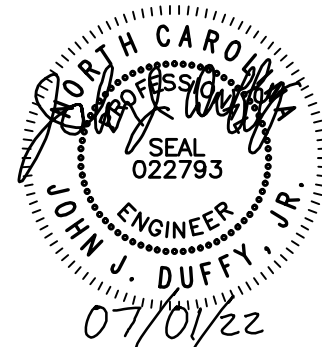
22 4000

MARK	FIXTURE	WASTE	VENT	TRAP	COLD WATER	HOT WATER	SHOCK ARRESTER SIZE	REMARKS
WC-1	WATER CLOSET	4"	2"	INTEGRAL	1"	N/A	"A"	PROVIDE SHOCK ARRESTER ON DCW SUPPLY
WC-2	WATER CLOSET	4"	2"	INTEGRAL	1"	N/A	"A"	PROVIDE SHOCK ARRESTER ON DCW SUPPLY
UR-1	URINAL	2"	2"	INTEGRAL	3/4"	N/A	"A"	PROVIDE SHOCK ARRESTER ON DCW SUPPLY
UR-2	URINAL	2"	2"	INTEGRAL	3/4"	N/A	"A"	PROVIDE SHOCK ARRESTER ON DCW SUPPLY
L-1	LAVATORY	2"	2"	1-1/4" x 1-1/2"	1/2"	1/2"	"A"	PROVIDE SHOCK ARRESTER ON BOTH DHW & DCW SUPPLY
SK-1	SINK	2"	2"	1-1/2"	1/2"	1/2"	"A"	PROVIDE SHOCK ARRESTER ON BOTH DHW & DCW SUPPLY
SK-2	SINK	2"	2"	1-1/2"	1/2"	1/2"	"A"	PROVIDE SHOCK ARRESTER ON BOTH DHW & DCW SUPPLY
EW-C-1	ELECTRIC WATER COOLER	2"	2"	1-1/4" x 1 1/2"	1/2"	N/A	"A"	PROVIDE SHOCK ARRESTER ON DCW SUPPLY
MB-1	MOP BASIN	3"	2"	3"	3/4"	3/4"	"A"	PROVIDE SHOCK ARRESTER ON BOTH DHW & DCW SUPPLY
HB-1	HOSE BIBB	N/A	N/A	N/A	3/4"	N/A	N/A	
WH-1	WALL HYDRANT	N/A	N/A	N/A	3/4"	N/A	N/A	
WH-2	WALL HYDRANT	N/A	N/A	N/A	3/4"	N/A	N/A	
EW-1	EMERGENCY SHOWER	N/A	N/A	N/A	1/2"	1/2"	"A"	PROVIDE SHOCK ARRESTER ON BOTH DHW & DCW SUPPLY
WB-1	WALL BOX	N/A	N/A	N/A	1/2"	1/2"	"A"	PROVIDE SHOCK ARRESTER ON BOTH DHW & DCW SUPPLY



101 NORTH THIRD STREET SUITE 500
WILMINGTON, NORTH CAROLINA 28401
TEL. 910.790.9901 FAX 910.790.3111
WWW.LS3P.COM

AEI Engineers
Affiliated Engineers, Inc.
1414 Raleigh Road, Suite 305
Chapel Hill, North Carolina 27517
Tel 919.419.9802 Fax 919.913.4301
www.aeieng.com
NC LIC. NO. C-2982



RANDALL LIBRARY
RENOVATION & EXPANSION
UNCW
5162 RANDALL DRIVE
WILMINGTON, NC
SCO ID: 18-19656-02C
LS3P PROJECT: 7202-197980

SHEET NAME:

PLUMBING SCHEDULES

ORIG SUBMISSION: 2022.07.01

CURRENT: 2022.07.01

PACKAGE C - BID DOCUMENTS

SHEET:

P600

PACKAGE C - BID DOCUMENTS