

**DIVISION 15A - PLUMBING**

**1.1 DESCRIPTION OF THE WORK**

- A. Work under this section includes, but is not necessarily limited to, furnishing and installing the following:
1. Plumbing fixtures, water heaters, and any other equipment necessary.
  2. Cold and hot water piping and insulation.
  3. DWV piping.
  4. LP gas piping.
  5. Connection of all equipment; drain, vent, water, gas.
- B. All work under this contract shall be installed in compliance with the latest edition of the following codes and standards insofar as they apply.
1. The National Electrical Code.
  2. 2012 N.C. Building Code - Plumbing Edition, Fuel Gas Edition.
  3. American Society of Sanitary Engineering Standard 1010.
  4. All local codes and ordinances.
- C. These codes are minimum standards. If codes require a more stringent method of construction than the specifications require, the codes shall govern.
- D. The Plumbing Contractor shall be licensed in the State of North Carolina and have all local licenses required for the work.
- E. Obtain all permits, licenses, inspections, etc., required for the work, and pay for the same.
- 1.2 INTENT**
- A. The intent of these specifications and accompanying drawings is to convey as reasonably as possible the requirements for a complete job ready for the building to operate. The Plumbing Contractor shall take this into consideration and include in his base bid allowance for contingencies as will allow him to provide minor pieces of equipment and labor not specifically indicated but required for the job to operate properly, at no additional cost to the Owner.
- 1.3 COORDINATION**
- A. Coordinate work with other contractors. Notify Architect of apparent conflicts early to expedite construction. If structural damage appears imminent, stop work and notify Architect for a decision before resuming operations.
- B. Locations shown are approximate. The Plumbing Contractor shall refer to the architectural drawings for placement of equipment, fixtures, etc. Where locations are not clear, the Contractor shall obtain the exact locations from the Architect.
- 1.4 SHOP DRAWINGS**
- A. Shop drawings shall be submitted for plumbing fixtures and for pipe. These may consist of the manufacturer's standard catalog or tear sheets and shall have the exact items being offered clearly identified.

**PART 2 - PRODUCTS**

**2.1 FIXTURES**

- A. Each fixture shall be properly supported from the building structure as required to the end effect that all fixtures and accessories will be held rigidly in place. Water pipes supplying the fixtures must also be held rigidly in place.
- B. Provide loose key angle stops and chrome plated supply pipe water supplies to fixtures.
- C. All exposed piping traps and accessories for fixtures shall be chrome plated. Provide chrome plated escutcheon plates where pipes enter walls.
- D. Provide shutoff valves for all sinks, water heaters, toilets, washing machines, refrigerator icemaker, exterior hose bibbs and all other plumbing fixtures.
- E. Provide trap primers for all floor drains in areas not served by hose bibbs.

**2.2 PIPING**

- A. Drain waste: All waste piping shall be Schedule 40 PVC-DWV with the following exceptions: Use cast iron piping in all return air plenums and penetrations of walls/floors/ceilings. Review Arch. and Mech. drawings. Use CPVC or cast iron piping for drainage of fluid temperature greater than 140 deg. F for a minimum distance of 10'-0".
- B. Hot and cold water piping above grade: Type "L" copper w/solder joints (ASTM-B88), hard drawn with wrought copper fittings (ANSI B16.22) PEX piping with copper fittings may be used with owner/tenant approval, and as allowed per code.
- C. Cold water piping below grade: Type "K" copper (ASTM-B8A) soft drawn.
- D. LP gas piping shall be black steel pipe with screwed or welded joints. Support all piping as required by code. Use commercial style hangers, pipe strapping will not be allowed. Provide dirtleg, union, shut-off valve and flexible connection to all equipment. Pressure test all piping prior to putting into use. Verify size requirements prior to installation. Coordinate requirements with local gas company prior to submitting bid. Provide all components necessary for a complete operation system.
- E. Hangers: Use pipe hangers where required on 8-foot centers with saddles to avoid crushing insulation.
- F. Solder: 95/5. Lead free.
- G. Unions: Provide unions where indicated on drawings, in long runs of piping (except drainage) and at equipment to provide convenient disassembly. Provide dielectric unions when connecting copper tubing to equipment and piping made of ferrous materials.
- 2.3 CLEANOUTS**
- A. Hex plugs in rough areas: Recessed plugs with cover plates in exposed locations.
- 2.4 SHOCK ARRESTERS**
- A. Provide shock arresters as required by codes, manufacturer's recommendations and accepted industry standards for quality construction. Provide for all quick closing valves.

**PART 3 - EXECUTION**

**3.1 CONNECTIONS**

- A. This contract includes complete connection of cold water, hot water, drain, vent, and natural gas piping as required. All fittings, valves, accessories, cutoffs, drains, etc., required to complete such connections shall be included.
- B. The connection to water closets shall be made watertight with gasket and wax ring. Floor flanges shall be caulked into position. Plastic caps shall be provided on the tie down bolts, and shall be secured in place by screwing down on threaded brass washers.
- C. Where water pipes connect to exposed chrome plated trim, use proper chrome plated escutcheons.
- 3.2 SERVICE ACCESS**
- A. All valves and accessories shall be insulated so that they can be properly serviced. In no case shall the Plumbing Contractor install equipment or other components in situations that do not meet code requirements or manufacturer's requirements. Provide access doors as required to access valves, etc.

**3.3 ROUTING OF PIPING**

- A. Coordinate routing of piping with others, line up work true to or at right angle to adjacent surfaces and in a workmanlike manner. Support all interior piping from building structure by means of hanger or inserts to maintain pitch of lines, to prevent vibration, and to secure piping place.
- B. Space pipe hangers 8'-0" on center for one inch and smaller pipe, 4'-0" on center for 1-1/4 inch and larger pipe. Provide expansion loops as required.
- C. Pipe hangers for insulated lines shall have suitable saddles to protect insulation.
- 3.4 INSULATION**
- A. All H/W and C/W piping shall be insulated with a min. of 1" inch elastomeric insulation (R=6.5 min.) in unconditioned areas. See NCSBC-Plumbing Sect. 305 for all protection requirements. All H/W piping of circulating systems shall be insulated with 1" insulation per Sect. 304.5 of the NCSBC 2012 Energy Conservation Code.
- B. Provide pre-fabricated insulation kits for all sink and lavatory exposed drain and supply piping.

**3.5 INSPECTIONS AND TESTS**

- A. Before being conceded, all water, soil and vent piping shall be tested to determine if they are water- and air-tight.
- B. Prior to placing into service, entire system shall be tested for leaks in strict accordance with state and local codes.

**3.6 STERILIZATION OF PIPING**

- A. Sterilize the new water piping thoroughly with a solution containing not less than 50 parts per million of available chlorine, using liquid chlorine, or sodium hydrochloride solution, introduced into the system in an approved manner. The sterilizing solution shall remain in the system in an approved manner. The sterilizing solution shall remain in the system for a period of 24 hours. After sterilization, flush the solution from the system with clean water until the residual chlorine content is not greater than 0.2 parts per million, unless otherwise directed.

**3.7 SERVICE PRESSURE**

- A. Provide approved water-pressure reducing valve (PRV) if service pressure exceeds 80 psi to reduce pressure to 80 psi static or less and as required per NCSBC-Plumbing Sect. 304.8.

**3.8 DRAINDOWN**

- A. Contractor to provide for complete plumbing system drain down.

**3.9 CLEAN UP**

- A. During construction, keep the site clear of debris and upon completion, and before final inspection, clean up the premises to remove all evidence of his work. In addition, upon completion of construction, clean, wash, and/or polish all fixtures, equipment and exposed material and leave them bright and clean.

**3.10 GUARANTEES**

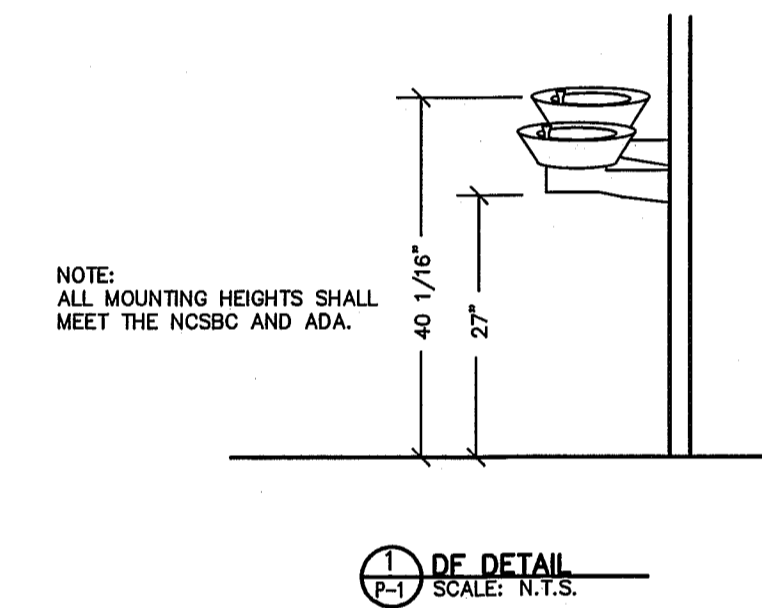
- A. Guarantee all materials and labor included in the plumbing work for a period of one year from date of final acceptance by the Owner.
- B. Any defects in the system which become evident during the guarantee period shall be corrected without cost to the Owner. This shall include the replacing of defective materials where required, and the repair of damage caused by leaking pipes, etc., and damage to building surfaces caused in making repairs.

**GENERAL NOTES - PLUMBING**

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE CODE, ALL LOCAL AND OTHER APPLICABLE CODES.
2. ALL WORK SHALL BE PERFORMED BY EXPERIENCED AND SKILLED CRAFTSMEN. THE PLUMBING CONTRACTOR (PC) SHALL COORDINATE ALL OF HIS WORK WITH THE GENERAL CONTRACTOR (GC).
3. THE PLUMBING PLANS AND SPECIFICATIONS SHALL BE THOROUGHLY REVIEWED PRIOR TO PURCHASING MATERIALS AND INSTALLATION AND ALL DISCREPANCIES OR INTERFERENCES BROUGHT TO THE ENGINEERS ATTENTION.
4. THESE PLANS ARE DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS. THE PC SHALL PROVIDE ALL MISC. ITEMS NEEDED FOR A COMPLETE SYSTEM REGARDLESS IF NOTED ON THE DRAWINGS OR NOT. FOR DIMENSIONS REFER TO ARCHITECTURAL PLANS.
5. THE GC SHALL PROVIDE ALL WALL, FLOOR AND ROOF OPENINGS OF THE SIZE AND LOCATION REQUIRED BY THE PC AND SHALL BE RESPONSIBLE FOR PAINTING AND FLOOR FINISHES. THE PC SHALL PROPERLY SEAL ALL PENETRATIONS AND PROVIDE ESCUTCHEON PLATES AT ALL FINISHED LOCATIONS.
6. ALL NEW WATER PIPING SHALL BE INSTALLED TIGHT TO STRUCTURE, ADEQUATELY SUPPORTED AND PROTECTED AND PROPERLY PITCHED TO ALLOW TOTAL DRAINAGE.
7. ALL WATER PIPING SHALL BE HYDROSTATICALLY TESTED FOR 2 - HOURS AT 150 PSIG BEFORE COVERING AND ALL LEAKS CORRECTED. THE ENTIRE WATER DISTRIBUTION SYSTEM SHALL BE DISINFECTED PRIOR TO PLACING IN SERVICE.
8. PROVIDE MIN. 18" SHOCK ABSORBERS WITH STOPS ON ALL HOT AND COLD WATER FIXTURE RUNS AS REQUIRED BY CODE.
9. VENT LINES SHALL SLOPE UP TO ALL STACKS AND TERMINATE A MIN. OF 12" ABOVE ROOF LINE.
10. PROVIDE CUT SHEETS ON ALL PLUMBING FIXTURES FOR ARCHITECT AND OWNER APPROVAL PRIOR TO ORDERING ANY FIXTURES.
11. PROVIDE HOT WATER TO FIXTURES AT 110 DEGREES (MAX) F.
12. PROVIDE CLEANOUTS AS REQUIRED BY CODE. NOT MORE THAN 100 FEET FOR 4" DRAIN.

**SYMBOL LEGEND - PLUMBING**

SYMBOL	DESCRIPTION
—————	WASTE PIPING (W)
-----	VENT PIPING (V)
-----	COLD WATER PIPING (CW)
-----	HOT WATER PIPING (HW)
----- G -----	LP GAS PIPING (G)
○ COFF	CLEANOUT FINISH FLOOR
⊥ WCO/HCO	WALL/HORIZONTAL CLEANOUT
□ COFG	CLEANOUT FINISH GRADE-PROVIDE FLUSH CONCRETE COLLAR AND BRONZE COVER
⊕	DIELECTRIC UNION
⊗	SHUT-OFF VALVE
⊥	VENT THRU ROOF (VTR)
A.F.F.	ABOVE FINISHED FLOOR
U.O.N.	UNLESS OTHERWISE NOTED
⊙	POINT OF NEW CONNECTION TO EXISTING
⊥	FREEZE PROOF, HOSE BIBB (FPHB/HB)



**FIXTURE SCHEDULE - PLUMBING \***

- WC \* WATER CLOSET (ADA FLUSH TANK)  
TOTO NEXUS WATER CLOSET, CST7849F, ADA COMPLIANT 1.6 GPF. PROVIDE #01 COTTON COLOR WITH ADA SEAT, SUPPLY AND STOP, WAX SEAL, CLOSET BOLT KIT. PROVIDE MODEL WITH FLUSH CONTROL ON SIDE OPPOSITE GRAB BAR.
- LAV \* LAVATORY (DROP-IN)  
KOHLER YN-YANG LAVATORY, K-2354-1, VITREOUS CHINA, SINGLE HOLE, ADA COMPLIANT. PROVIDE KOHLER FAUCET K-14402, POLISHED CHROME FINISH. PROVIDE P-TRAP, SHUT-OFF VALVES. COORDINATE EXACT UNIT WITH OWNER AND G.C. COORDINATE SIZE WITH CABINERY PRIOR TO ORDERING.
- DF \* DRINKING FOUNTAIN  
HALSEY TAYLOR BARRIER FREE DRINKING FOUNTAIN MODEL #0VL-II SEBP, ADA COMPLIANT. INSTALL PER MFR'S SPECIFICATIONS. PIPE TO SINGLE DRAIN AND SUPPLY LINE.
- TD \* TRENCH DRAIN  
J. R. SMITH MODEL #9930 TRENCH DRAIN SYSTEM, 4", POLYPROPYLENE CONSTRUCTION, 1 METER SECTIONS. COORDINATE GRATE MODEL W/OWNER. PROVIDE CHANNEL SECTIONS AS REQUIRED BY LENGTH NEEDED FOR EACH TRENCH DRAIN. FIELD TRIM AT SHALLOW END OF CHANNEL AS NEEDED. PROVIDE STRAINER OR SEDIMENT BASKET IF REQUIRED. INSTALL PER MFR'S SPECS.
- HB \* WALL HOSE BIBB  
WOODFORD MODEL #24 ANTI-SIPHON HOSE BIBB. COORDINATE MOUNTING W/TENANT.

\* OR APPROVED EQUAL. SUBMIT ALL ITEMS FOR APPROVAL BY TENANT AND ARCHITECT PRIOR TO ORDERING.



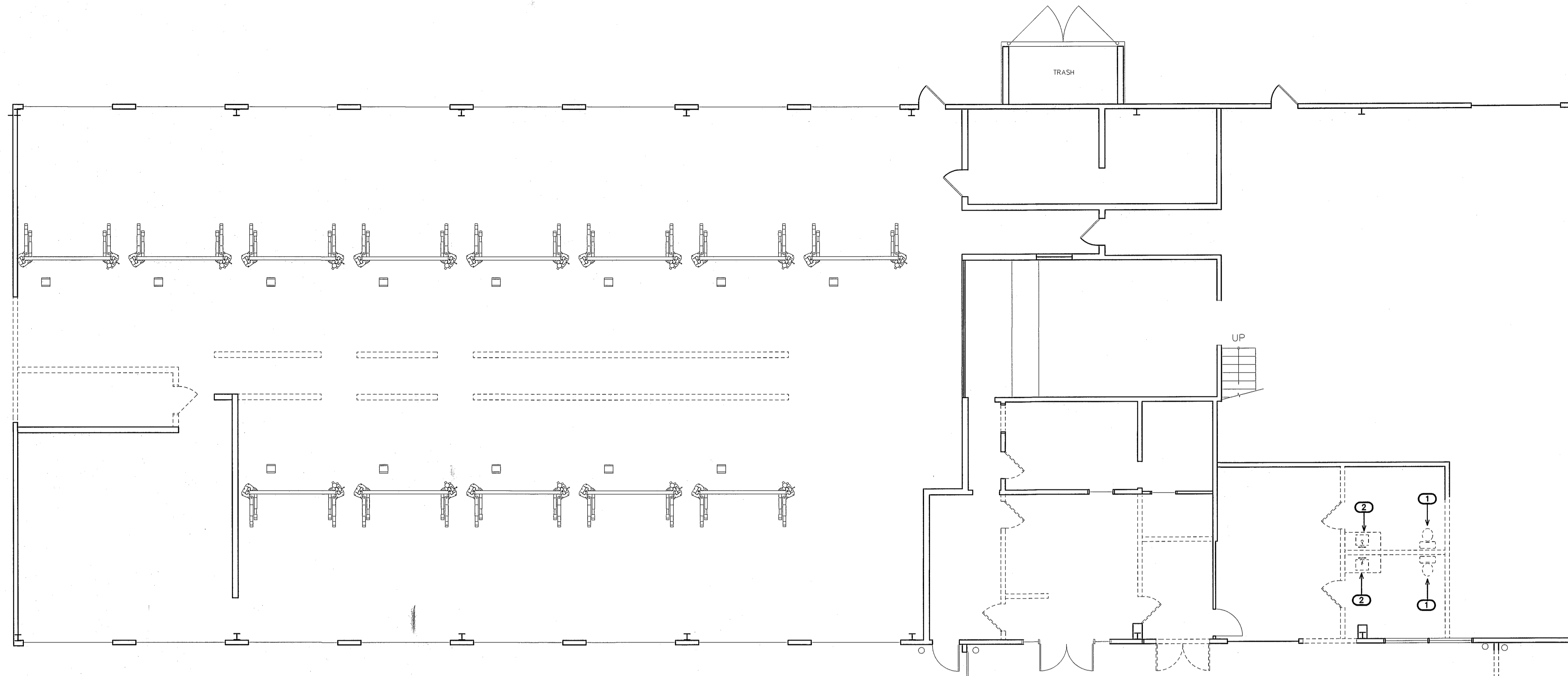
PLUMBING SPECIFICATIONS

14022

ISSUED: 10-23-14  
DWG BY: DS  
CKD BY: BEB  
REVISIONS

SHEET NO.  
P-1

1 OF 5



NOTE:  
THE EXISTING INFORMATION SHOWN ON THIS DRAWING IS FROM FIELD INVESTIGATION. THE CONTRACTOR IS RESPONSIBLE FOR VISITING THE SITE AND FIELD VERIFYING ALL RELEVANT INFORMATION. THE SUBMISSION OF A BID INDICATES ACCEPTANCE OF EXISTING CONDITIONS. NOTIFY THE ENGINEER OF ANY DISCREPANCIES NOTED.

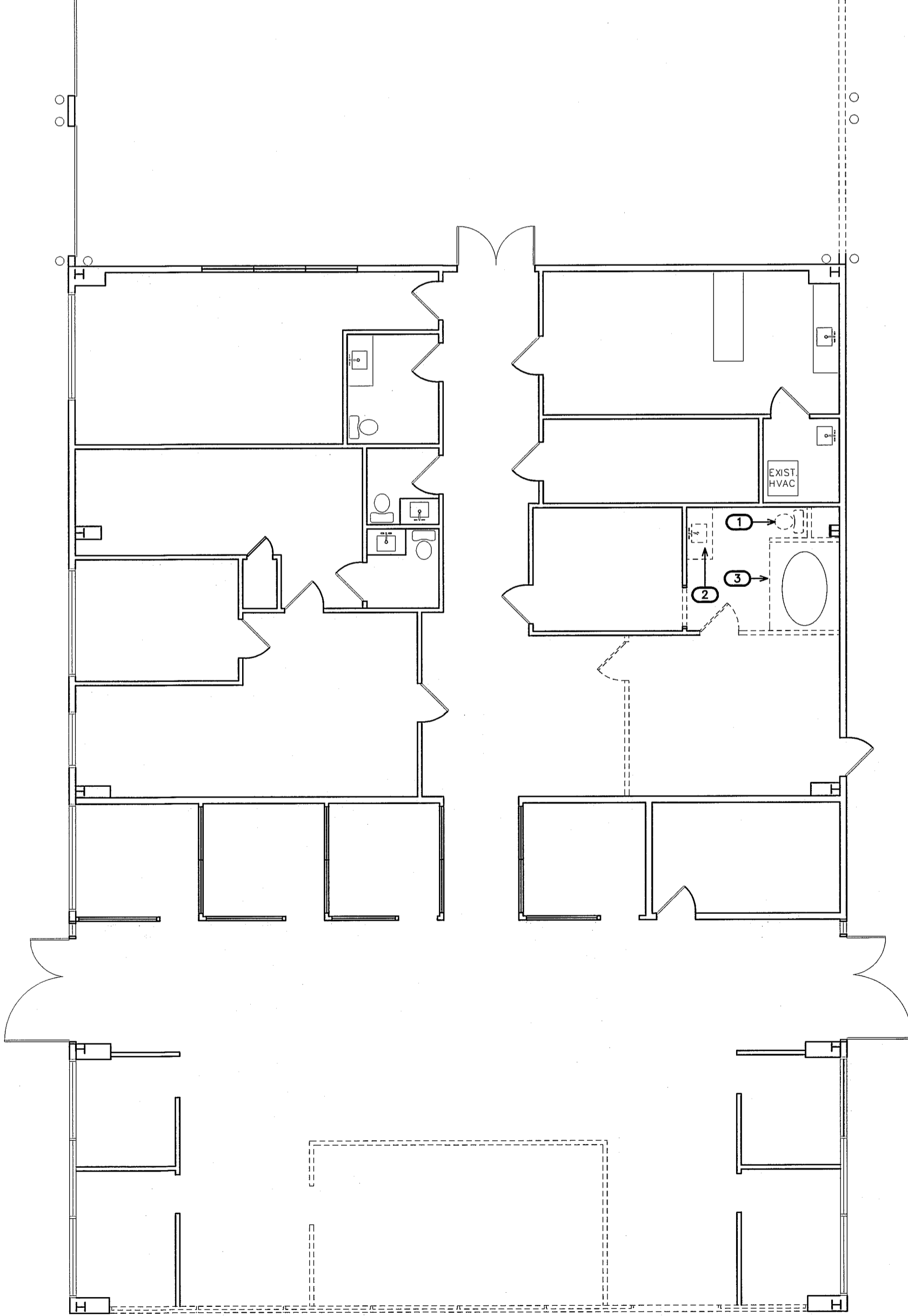
THE SCOPE OF DEMOLITION IS AS FOLLOWS--  
REMOVE EXISTING FIXTURES IN WORK AREA AS SHOWN. PROVIDE CLEANOUTS ON UNUSED DRAIN LINES AT FINAL FINISHES TO PREVENT DEAD-ENDS PER CODE. REMOVE UNUSED VENT LINES TO ABOVE CEILING AND CAP AT MAIN. REMOVE ALL UNUSED CW & HW LINES/STUB-OUTS, ETC., AND CAP LINES BEHIND FINAL FINISHES. REMOVE AND REPLACE ALL CONCRETE, WALL BOARD AND CEILINGS AS REQUIRED TO LOCATE EXISTING LINES/INSTALL NEW LINES. COORDINATE WITH REVISED PLANS FOR LINES TO BE REUSED.

THE PLUMBING CONTRACTOR SHALL TRACE ALL EXISTING DRAIN LINES PRIOR TO THE START OF WORK UTILIZING DYE AND/OR CAMERAS IF NECESSARY. PROVIDE AS-BUILT DRAWINGS FOR ENGINEER REVIEW. VERIFY AVAILABLE DEPTH OF EXISTING DRAIN LINES PRIOR TO START OF WORK.

KEY NOTES FOR SHEET P-2

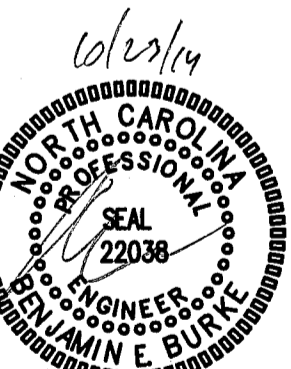
- ① WATER CLOSET TO BE REMOVED.
- ② LAVATORY TO BE REMOVED.
- ③ TUB TO BE REMOVED.

NOTE:  
ALL OTHER FIXTURES SHOWN ARE EXISTING TO REMAIN.



DEMOLITION/EXISTING PLUMBING PLAN  
SCALE: 1/8"=1'-0"

LOOKOUT FORD  
5557 U.S. HWY 70  
MOREHEAD CITY, NORTH CAROLINA



DEMOLITION/EXISTING PLUMBING PLAN

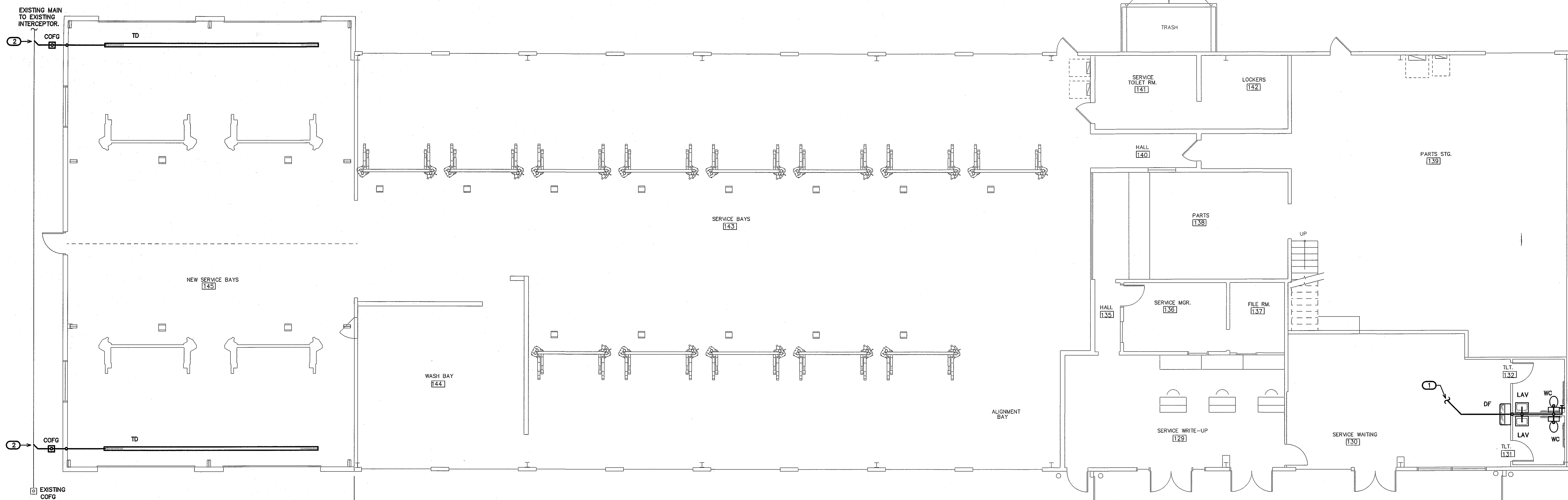
14022

ISSUED: 10-23-14  
DWG BY: DS  
CKD BY: BEB

REVISIONS

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SHEET NO.  
**P-2**  
2 OF 5



NOTE:  
COORDINATE SIZE AND LOCATION OF TRENCH DRAIN W/OWNER, ARCH.  
COORDINATE THE TRENCH DRAIN INSTALLATION WITH THE TRENCH  
DRAIN MANUFACTURER. PROVIDE ALL PARTS AS REQUIRED FOR  
A COMPLETE SYSTEM. SLOPE DRAINS AS REQUIRED FOR PROPER  
DRAINAGE. SEE ARCHITECTURAL PLANS FOR ANY FLOOR SLOPES.

**OIL INTERCEPTOR SIZING**  
PER 2012 IPC CHAPTER 10, SECT. 1003.4.2.2:  
6 CU. FT. PER 1ST 100 SQ. FT. DRAIN AREA  
+ 1 CU. FT. PER EACH ADDITIONAL 100 SQ. FT.  
FOR MINIMUM CAPACITY OF INTERCEPTOR.  
NEW SERVICE BAY AREA = 2400 SQ. FT.  
  
TOTAL: 6 + 23 = 29 CU. FT.  
  
CONVERSION:  
29.0 X 7.48052 (GAL/CF) = 217 GALLONS  
A 2000 GAL. CAPACITY UNIT IS EXISTING.

NOTE:  
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IS RESPONSIBLE FOR VISITING THE SITE AND FIELD VERIFYING ALL RELEVANT INFORMATION. THE  
SUBMISSION OF A BID INDICATES ACCEPTANCE OF EXISTING CONDITIONS. NOTIFY THE ENGINEER  
OF ANY DISCREPANCIES NOTED.  
  
REMOVE AND REPLACE ALL CONCRETE, WALL BOARD AND CEILINGS AS REQUIRED TO LOCATE EXISTING  
LINES AND INSTALL NEW LINES.  
  
THE PLUMBING CONTRACTOR SHALL TRACE ALL EXISTING DRAIN LINES PRIOR TO THE START OF WORK  
UTILIZING DYE AND/OR CAMERAS IF NECESSARY. PROVIDE AS-BUILT DRAWINGS FOR ENGINEER REVIEW.  
VERIFY AVAILABLE DEPTH OF EXISTING DRAIN LINES PRIOR TO START OF WORK.

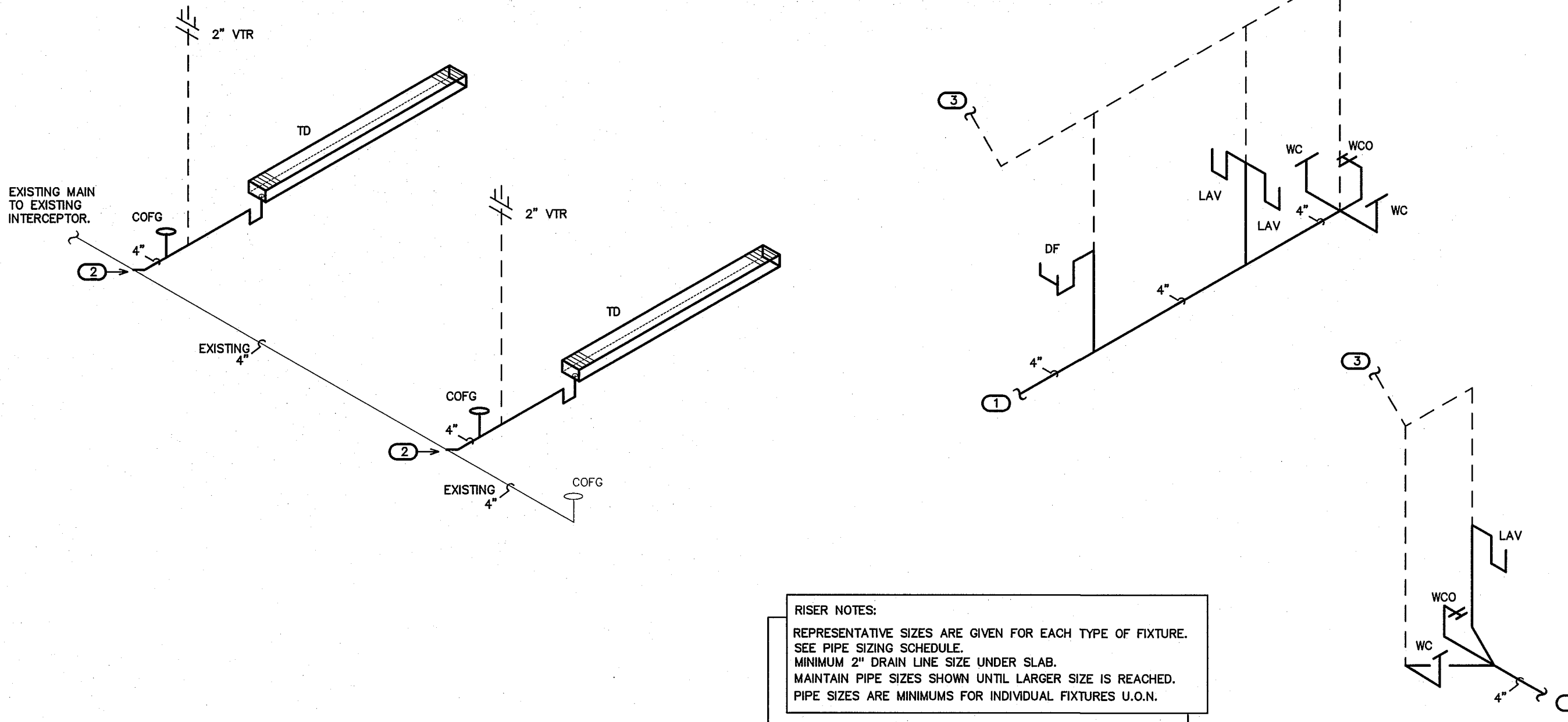
KEY NOTES FOR SHEET P-3

- 1 CONNECT TO EXISTING 4" WASTE MAIN  
IN AREA OF REMOVED FIXTURES.
- 2 CONNECT TO EXISTING 4" MAIN TO  
2000 GAL. GREASE/OIL INTERCEPTOR.  
COORDINATE W/SITE.
- 3 CONNECT TO EXISTING 2" VENT MAIN  
IN AREA OF REMOVED FIXTURES.

(VERIFY ALL EQUIPMENT REQUIREMENTS PRIOR TO ROUGH-IN)

FIXTURE TYPE	DRAIN	VENT
(WC) FLUSH TANK WATER CLOSET	3"	1 1/2"
(LAV) LAVATORY	1 1/2"	1 1/4"
(TD) TRENCH DRAIN	4"	2"
(DF) DRINKING FOUNTAIN	1 1/4"	1 1/4"

NOTE:  
PROVIDE PROPER VENTS THRU ROOF (VTR).  
RUN HORIZONTALLY AS REQUIRED TO  
MAINTAIN 10'-0" CLEARANCE FROM ANY  
INTAKES. PROPERLY FLASH ANY ROOF  
PENETRATION.

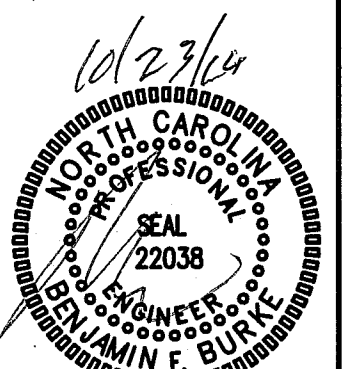


**RISER NOTES:**  
REPRESENTATIVE SIZES ARE GIVEN FOR EACH TYPE OF FIXTURE.  
SEE PIPE SIZING SCHEDULE.  
MINIMUM 2" DRAIN LINE SIZE UNDER SLAB.  
MAINTAIN PIPE SIZES SHOWN UNTIL LARGER SIZE IS REACHED.  
PIPE SIZES ARE MINIMUMS FOR INDIVIDUAL FIXTURES U.O.N.

1 DWV RISER  
SCALE: N.T.S.

1 REVISED DWV PLAN  
SCALE: 1/8" = 1'-0"

ENGINEER  
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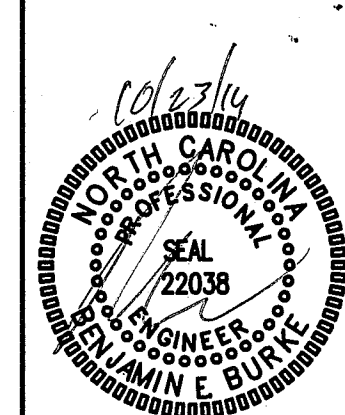
REVISED DWV PLAN

14022

ISSUED: 10-23-14  
DWG BY: DS  
CKD BY: BEB

REVISIONS

SHEET NO.  
**P-3**  
3 OF 5



REVISED  
SUPPLY PLAN

14022

ISSUED: 10-23-14

DWG BY: DS

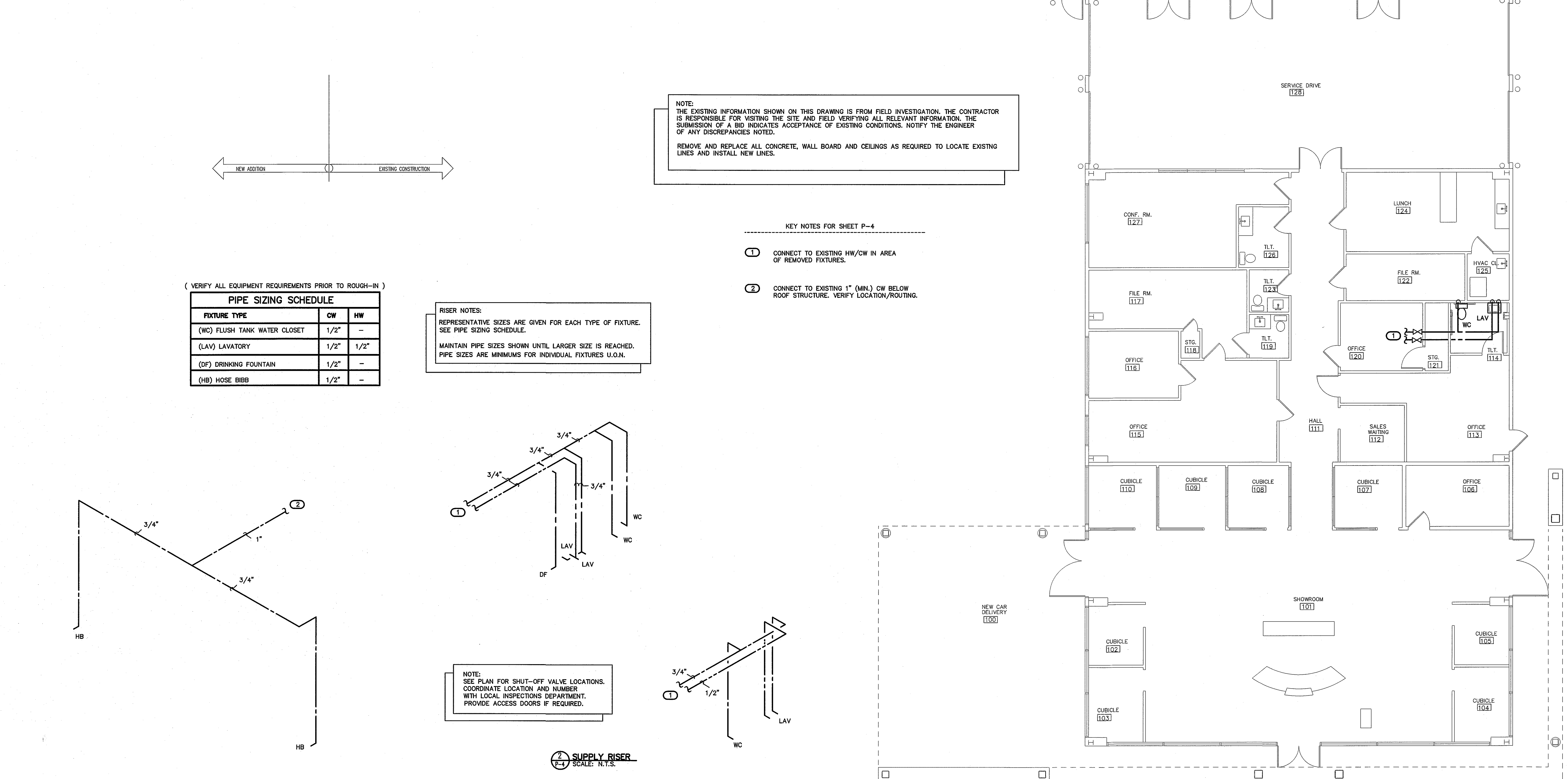
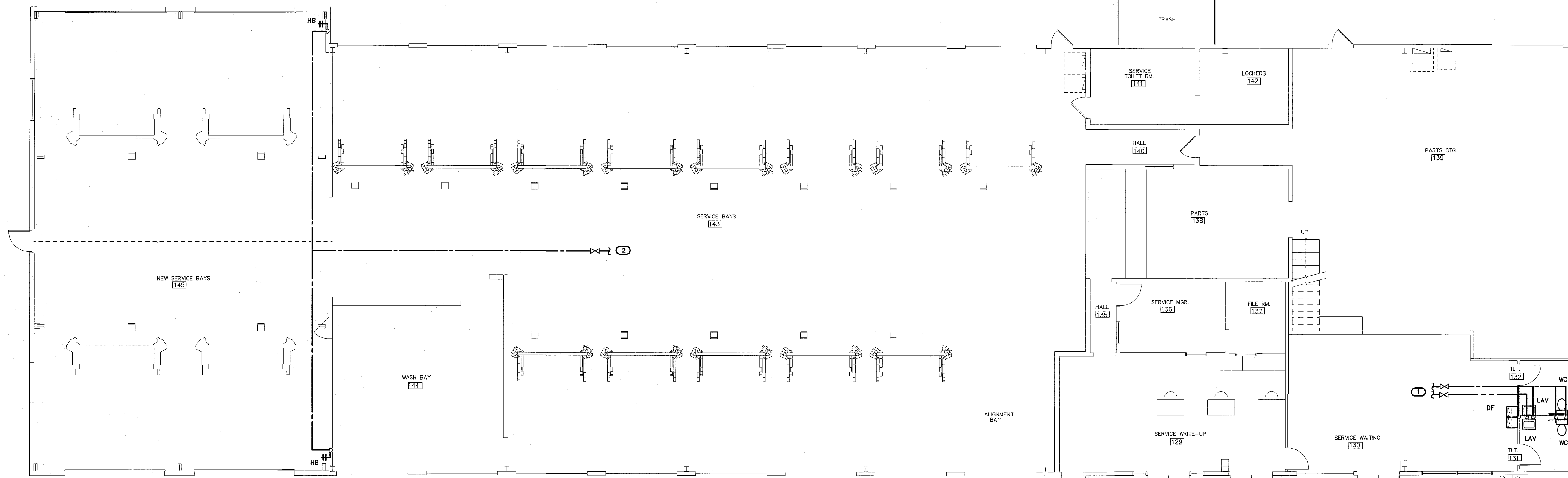
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REVISIONS

SHEET NO.

P-4

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NOTE:  
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REMOVE AND REPLACE ALL CONCRETE, WALL BOARD AND CEILINGS AS REQUIRED TO LOCATE EXISTING LINES AND INSTALL NEW LINES.

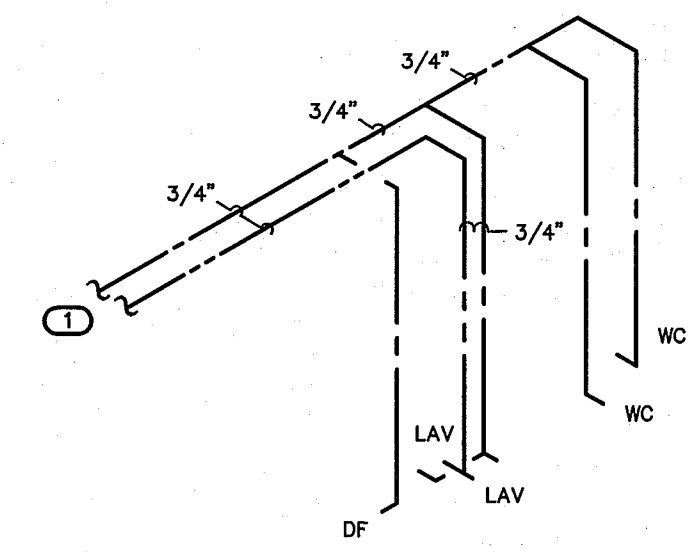
KEY NOTES FOR SHEET P-4

- ① CONNECT TO EXISTING HW/CW IN AREA OF REMOVED FIXTURES.
- ② CONNECT TO EXISTING 1" (MIN.) CW BELOW ROOF STRUCTURE. VERIFY LOCATION/ROUTING.

(VERIFY ALL EQUIPMENT REQUIREMENTS PRIOR TO ROUGH-IN)

PIPE SIZING SCHEDULE		
FIXTURE TYPE	CW	HW
(WC) FLUSH TANK WATER CLOSET	1/2"	-
(LAV) LAVATORY	1/2"	1/2"
(DF) DRINKING FOUNTAIN	1/2"	-
(HB) HOSE BIBB	1/2"	-

RISER NOTES:  
REPRESENTATIVE SIZES ARE GIVEN FOR EACH TYPE OF FIXTURE. SEE PIPE SIZING SCHEDULE.  
MAINTAIN PIPE SIZES SHOWN UNTIL LARGER SIZE IS REACHED. PIPE SIZES ARE MINIMUMS FOR INDIVIDUAL FIXTURES U.O.N.

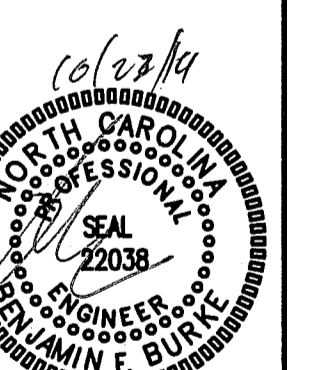


NOTE:  
SEE PLAN FOR SHUT-OFF VALVE LOCATIONS. COORDINATE LOCATION AND NUMBER WITH LOCAL INSPECTIONS DEPARTMENT. PROVIDE ACCESS DOORS IF REQUIRED.

② SUPPLY RISER  
SCALE: N.T.S.

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LP GAS PLAN

14022

ISSUED: 10-23-14

DWG BY: DS

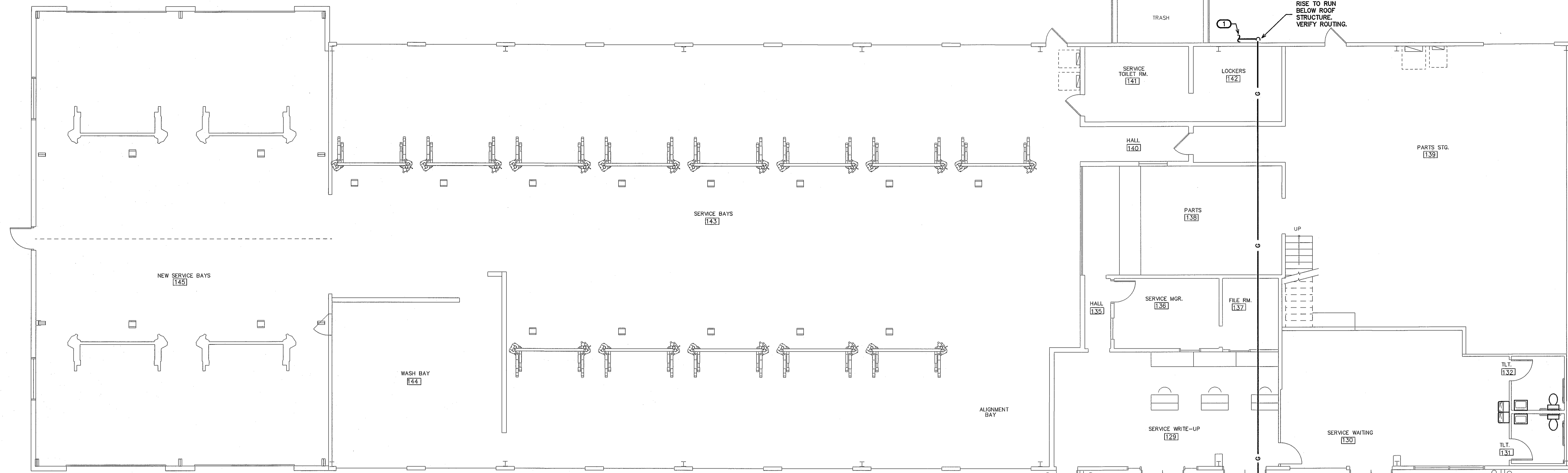
CKD BY: BEB

REVISIONS

SHEET NO.

P-5

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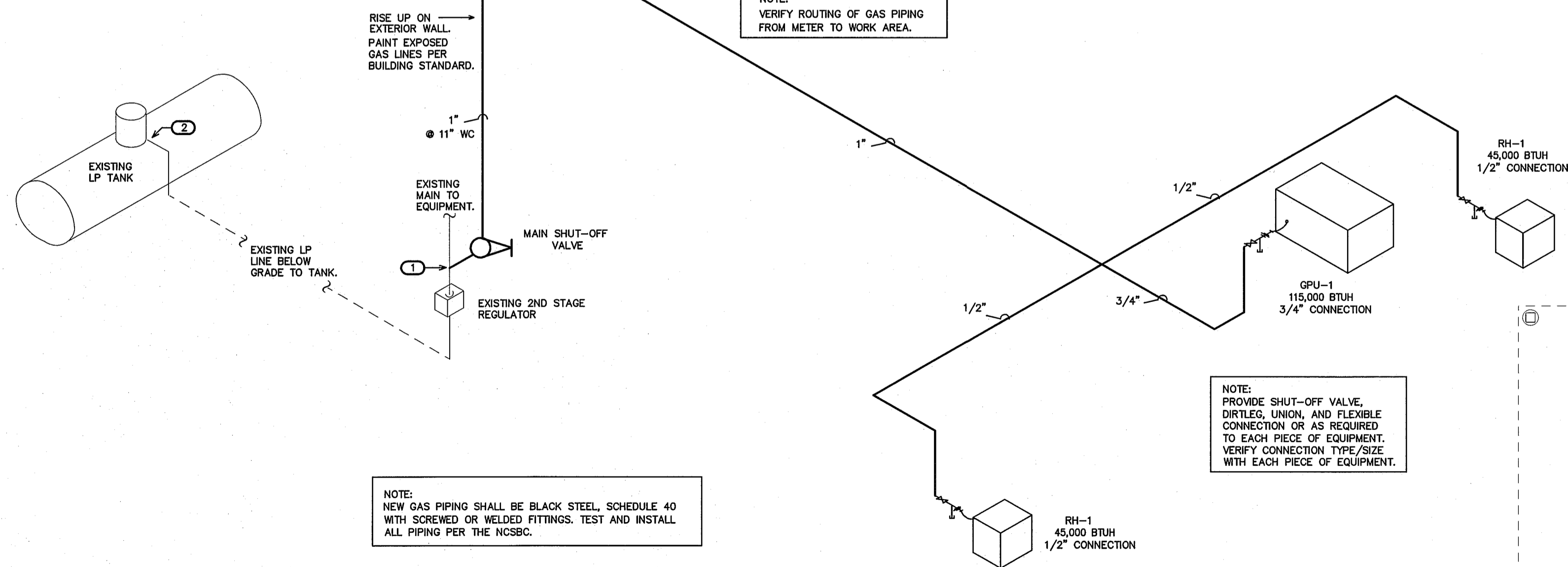
2012 NCSBC, FUEL GAS CODE- TABLE 402.4(26)  
NOTE:  
2ND STAGE PIPE SIZES BASED UPON AN INITIAL PRESSURE OF 11" WC AND A PRESSURE DROP OF 1/2" WC AT 120 FEET IN TOTAL LENGTH.  
TOTAL NEW CONNECTED LOAD = 205,000 BTUH

- KEY NOTES FOR SHEET P-5
- 1 CONNECT TO EXISTING LP MAIN AFTER 2ND STAGE REGULATOR. VERIFY REGULATOR RATED FOR NEW PLUS EXISTING LOAD. REPLACE IF REQUIRED.
  - 2 VERIFY EXISTING 1ST STAGE REGULATOR RATED FOR NEW PLUS EXISTING LOAD. REPLACE IF REQUIRED.

NOTE:  
VERIFY ROUTING OF GAS PIPING FROM METER TO WORK AREA.

NOTE:  
PROVIDE SHUT-OFF VALVE, DIRTLEGS, UNION, AND FLEXIBLE CONNECTION OR AS REQUIRED TO EACH PIECE OF EQUIPMENT. VERIFY CONNECTION TYPE/SIZE WITH EACH PIECE OF EQUIPMENT.

NOTE:  
NEW GAS PIPING SHALL BE BLACK STEEL, SCHEDULE 40 WITH SCREENED OR WELDED FITTINGS. TEST AND INSTALL ALL PIPING PER THE NCSBC.



LP GAS RISER  
SCALE: N.T.S.

LP GAS PLAN  
SCALE: 1/8"=1'-0"

ENGINEER  
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