SITE PLAN REVIEW TECHNICAL ADVISORY COMMITTEE PORTSMOUTH, NEW HAMPSHIRE

WORK SESSION

Conference Room A City Hall, Municipal Complex, 1 Junkins Avenue

2:00 PM

April 9, 2024

AGENDA

- 2:00 PM 413 Lafayette Road Friends of Lafayette House, Owner Jones & Beach, Engineer (LUTW-24-6)
- 2:30 PM 921 Islington St Ampet Inc., Owner Applicant (LUTW-24-5)

Site Plan Review

Site Plan Review/CUP



85 Portsmouth Avenue, PO Box 219, Stratham, NH 03885 603.772.4746 - JonesandBeach.com

April 2, 2024

Portsmouth Technical Review Advisory Committee Attn: Board Members 1 Junkins Avenue, Suite 3rd Floor Portsmouth, NH 03801

RE: TAC Work Session Application Friends of Lafayette House 413 Lafayette Road, Portsmouth, NH Tax Map 230, Lot 23A JBE Project No. 23036

Dear Board Members,

Jones & Beach Engineers, Inc., respectfully submits a TAC Work Session Application on behalf of the applicant and owner, Friends of Lafayette House. This structure houses 12 developmentally disabled residents with full-time inhouse care. The intent of this application is to add a 635 S.F. addition to the existing building for the use of the full-time caretaker onsite. Currently the caretaker has a unit inside the building and works 5 days a week all day. On weekends, they have a secondary caretaker that comes in and covers the weekend workload, but they have to live with the full-time caretaker in the same unit. It is tight quarters and they share a bathroom and kitchen and it's not an ideal living situation. The proposed addition is to give the full-time caretaker their own unit and then the weekend caretaker would use the existing space just on the weekends. There is no increase in staffing or residency proposed with this expansion.

The reason for this request to be heard at the work session is to determine what level of plans we need to submit for this small addition. There are no proposed changes to the utilities outside of the building. The addition will be plumbed internally from the existing building. There are no changes proposed for the parking area and minimal increase in impervious coverage. We are removing the existing sheds on the property. Therefore, we would prefer to not provide a full drainage report for these small changes to the site. We are also not proposing any additional landscaping and the lighting modifications will be minimal. The owner would just have a small light above the doorway providing access to the caretaker unit.

The following items are provided in support of this Application:

- 1. Completed TAC Work Session Application (submitted online).
- 2. Letter of Authorization.
- 3. Current Deed.
- 4. One (1) Full Size Plan Set Folded.
- 5. One (1) Full Size set of architectural drawings

If you have any questions or need any additional information, please feel free to contact our office. Thank you very much for your time.

Very truly yours, ONES & BEACH ENGINEERS, INC.

Joseph A. Coronati

Vice President

cc: Melanie Merz, Friends of Lafayette House (via email) John Bosen, Esq (via email) Chris Mulligan, Esq (via email)



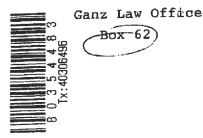
Letter of Authorization

Friends of Lafayette House, 400 Little Harbor Road, Suite 1104. Portsmouth, NH 03801, owner of property located in Portsmouth, NH, known as Tax Map 230, Lot 23A, do hereby authorize Jones & Beach Engineers, Inc., PO Box 219, Stratham, NH, and Bosen & Associates, 266 Middle Street, Portsmouth, NH 03801, to act on my behalf concerning the previously mentioned property. The parcel is located at 413 Lafayette Road in Portsmouth, NH.

We hereby appoint Jones & Beach Engineers, Inc., as my agent to act on my behalf in the review process, to include any required signatures.

Friends of Lafayette House Date Date

Witness



19052508 12/10/2019 02:36:58 PM Book 6065 Page 669 Page 1 of 2 Register of Deeds, Rockingham County

LCHIP R0A474216 25.00 TRANSFER TAX R0093549 2,884.00 RECORDING 14.00 SURCHARGE 2.00

WARRANTY DEED

KNOW ALL MEN BY THESE PRESENTS that **Community Home Solutions, Inc., a New Hampshire corporation**, of 14 New Zealand Road, Seabrook, New Hampshire 03874, for consideration paid, grant to **Friends of Lafayette House, a New Hampshire non-profit corporation**, with a mailing address of PO Box 4545, Portsmouth, New Hampshire 03802, with warranty covenants, the following:

A certain parcel of land, together with the buildings and improvements thereon, situate in Portsmouth, County of Rockingham and State of New Hampshire, identified as Lot 2 on subdivision plan entitled "Plan of Land of J. Philip McCaffery for Great Bay School and Training Center, by Richard P. Millette & Associates", dated December 1981, with Revision I dated January 7, 1982, and recorded in the Rockingham County Registry of Deeds as Plan No. D- 10590 (the "Premises"), as more particularly bounded and described as follows:

Beginning at a point which is 155 feet distant from the Southwest corner of land now or formerly of Lester A. and Priscilla M. Pettis, on a bearing S 79° 23' 39" E from Lafayette Road and from said point of beginning, and being at the Southerly side of Lot 3 on aforesaid plan; thence running S 79° 23' 39" E a distance of 154.32 feet to a point at land now or formerly of Church of Jesus Christ of Latter Day Saints; thence running South by said Church land S 22° 05' 21" W a distance of 179.22 feet to land now or formerly of the City of Portsmouth; thence running S 88° 21' 21"W a distance of 183.14 feet to Lot 1 on said Plan; thence running N 21° 15' 21" E a distance of 187.72 feet to a point at a right of way in common of fifty (50) feet in width; thence running S 79° 23' 39" E a distance of twenty (20) feet to a point; thence running N 21° 15' 21" E, a distance of 30.53 feet to the point of beginning.

There is granted herewith a fifty (50) foot easement right of way as shown on said Plan, extending from Lot 2 to Lafayette Road. This right of way shall run with the land, for all purposes of vehicular and pedestrian passage, for the benefit of Lot 1, Lot 2 and Lot 3 on said Plan, and also for the benefit of land abutting this right of way to the North, now or formerly owned by Lester A. Pettis and Priscilla M. Pettis.

Premises are conveyed subject to the terms of an Option Agreement, a Notice of which is recorded in Rockingham County Registry of Deeds at Book 5879, Page 1258.

Book:6065 Page:670

Said conveyance is subject to the mortgage to the Newburyport Five Cents Savings Bank dated December 14, 2017 and recorded at Book 5879, Page 120, the Assignment of Rents to the Newburyport Five Cents Savings Bank dated December 14, 2017 and recorded at Book 5879, Page 1247 and a UCC-1 Financing Statement dated December 14, 2017 and recorded at Book 5888, Page 630.

The grantee herein has assumed the financial obligations to Newburyport Five Cents Savings Bank.

Subject to all rights, restrictions and easements of record.

This is not homestead property of Grantor.

Meaning and intending to describe the same premises conveyed to Grantor by deed of Great Bay Services, Inc. dated December 14, 2017 and recorded in the Rockingham County Registry of Deeds at Book 5879, Page 1225.

Executed this 10th day of December, 2019.

Community Home Solutions, Inc.

By Francis G. Chase, President

Witness

STATE OF NEW HAMPSHIRE ROCKINGHAM, SS.

December 10, 2019

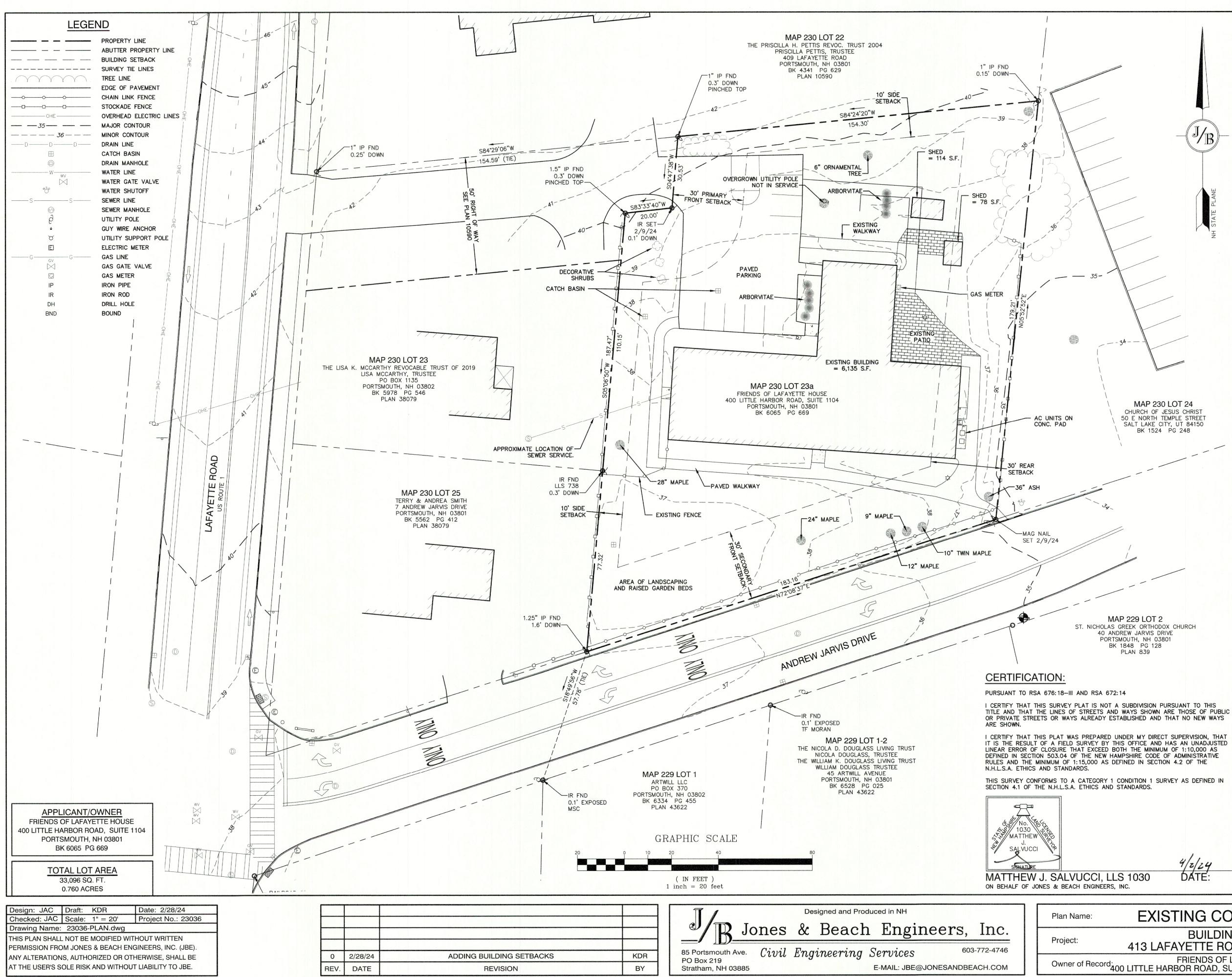
Then appeared the above-named Francis G. Chase, duly authorized President of Community Home Solutions, Inc., known to me or satisfactorily proven through proof of identification (i.e. his driver's license) to be the individual who executed the foregoing instrument, and acknowledged same to be his voluntary act and deed.

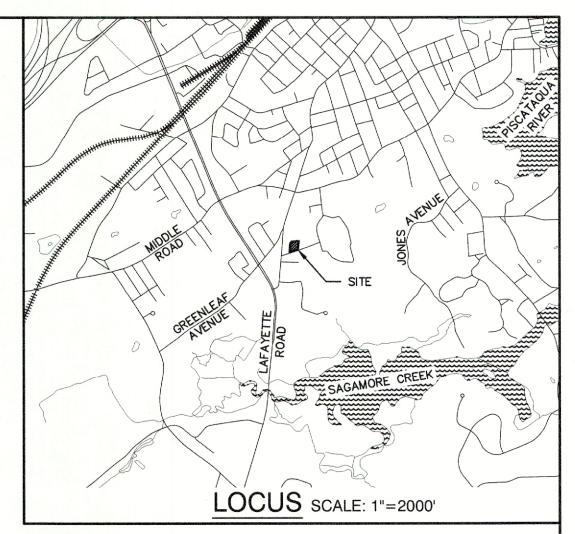
Before me,

Mary Keohan Ganz, Justice of the Peace State of New Hampshire My Commission Expires: August 28, 2024

Mary Keehan Ganz - Justice of the Peace My Commission Expires: 08/28/2024

#8784-A/BF C:\Users\alang\Google Drive\0 - WORD PERFECT DOCS\Real Estate\Community Home Solutions - 413 Lafayette Road 8784-ABF\2019-12-10 Warranty Deed.wpd





NOTES:

- 1. THE INTENT OF THIS PLAN IS TO SHOW THE BOUNDARY AND EXISTING CONDITIONS OF LOT 23A AS SHOWN ON CITY OF PORTSMOUTH TAX MAP 230.
- 2. THE UTILITY LOCATIONS SHOWN HEREON WERE DETERMINED BY OBSERVED ABOVE GROUND EVIDENCE AND SHOULD BE CONSIDERED APPROXIMATE IN LOCATION ONLY. LOCATION, DEPTH, SIZE, TYPE, EXISTENCE OR NONEXISTENCE OF UNDERGROUND UTILITIES AND/OR UNDERGROUND STORAGE TANKS WAS NOT VERIFIED BY THIS SURVEY. ALL CONTRACTORS SHOULD NOTIFY IN WRITING ALL UTILITY COMPANIES AND GOVERNMENT AGENCIES PRIOR TO ANY EXCAVATION WORK OR CALL DIG-SAFE AT 1-888-DIG-SAFE.
- 3. THE SUBJECT PARCEL IS NOT LOCATED WITHIN AN AREA HAVING A SPECIAL FLOOD HAZARD ZONE DESIGNATION BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA), ON FLOOD INSURANCE RATE MAP NO. 33015C0270F, WITH EFFECTIVE DATE OF JANUARY 29, 2021.
- 4. BASIS OF BEARING: HORIZONTAL NH STATE PLANE. VERTICAL NAVD88.
- 5. CERTAIN DATA HEREON MAY VARY FROM RECORDED DATA DUE TO DIFFERENCES IN DECLINATION, ORIENTATION, AND METHODS OF MEASUREMENT.
- 6. ALL BOOK AND PAGE NUMBERS REFER TO THE ROCKINGHAM COUNTY REGISTRY OF
- 7. THE TAX MAP AND LOT NUMBERS ARE BASED ON THE CITY OF PORTSMOUTH TAX RECORDS AND ARE SUBJECT TO CHANGE.
- RESEARCH WAS PERFORMED AT THE CITY OF PORTSMOUTH ASSESSOR'S OFFICE AND THE ROCKINGHAM COUNTY REGISTRY OF DEEDS.
- 9. THIS SURVEY IS NOT A CERTIFICATION TO OWNERSHIP OR TITLE OF LANDS SHOWN. OWNERSHIP AND ENCUMBRANCES ARE MATTERS OF TITLE EXAMINATION NOT OF A BOUNDARY SURVEY. THE INTENT OF THIS PLAN IS TO RETRACE THE BOUNDARY LINES OF DEEDS REFERENCED HEREON. OWNERSHIP OF ADJOINING PROPERTIES IS ACCORDING TO ASSESSOR'S RECORDS. THIS PLAN MAY OR MAY NOT INDICATE ALL ENCUMBRANCES EXPRESSED, IMPLIED OR PRESCRIPTIVE.
- 10. ANY USE OF THIS PLAN AND OR ACCOMPANYING DESCRIPTIONS SHOULD BE DONE WITH LEGAL COUNSEL, TO BE CERTAIN THAT TITLES ARE CLEAR, THAT INFORMATION IS CURRENT, AND THAT ANY NECESSARY CERTIFICATES ARE IN PLACE FOR A PARTICULAR CONVEYANCE, OR OTHER USES.
- 11. NO WETLANDS WERE OBSERVED ON THE SUBJECT PREMISES.
- 12. SURVEY TIE LINES SHOWN HEREON ARE NOT BOUNDARY LINES. THEY SHOULD ONLY BE USED TO LOCATE THE PARCEL SURVEYED FROM THE FOUND MONUMENTS SHOWN AND LOCATED BY THIS SURVEY.
- 13. THE SEWER SERVICE FOR THE SUBJECT PROPERTY RUNS THROUGH LOTS 23 AND 25. THOSE LOTS AND THE SUBJECT LOT WERE FORMERLY IN COMMON OWNERSHIP. AND NO EASEMENT WAS RESERVED WHEN LOTS 23 AND 25 WERE CONVEYED. SEE PLAN REFERENCES 3 AND 4 FOR ADDITIONAL DETAILS.

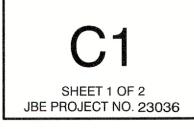
PLAN REFERENCES:

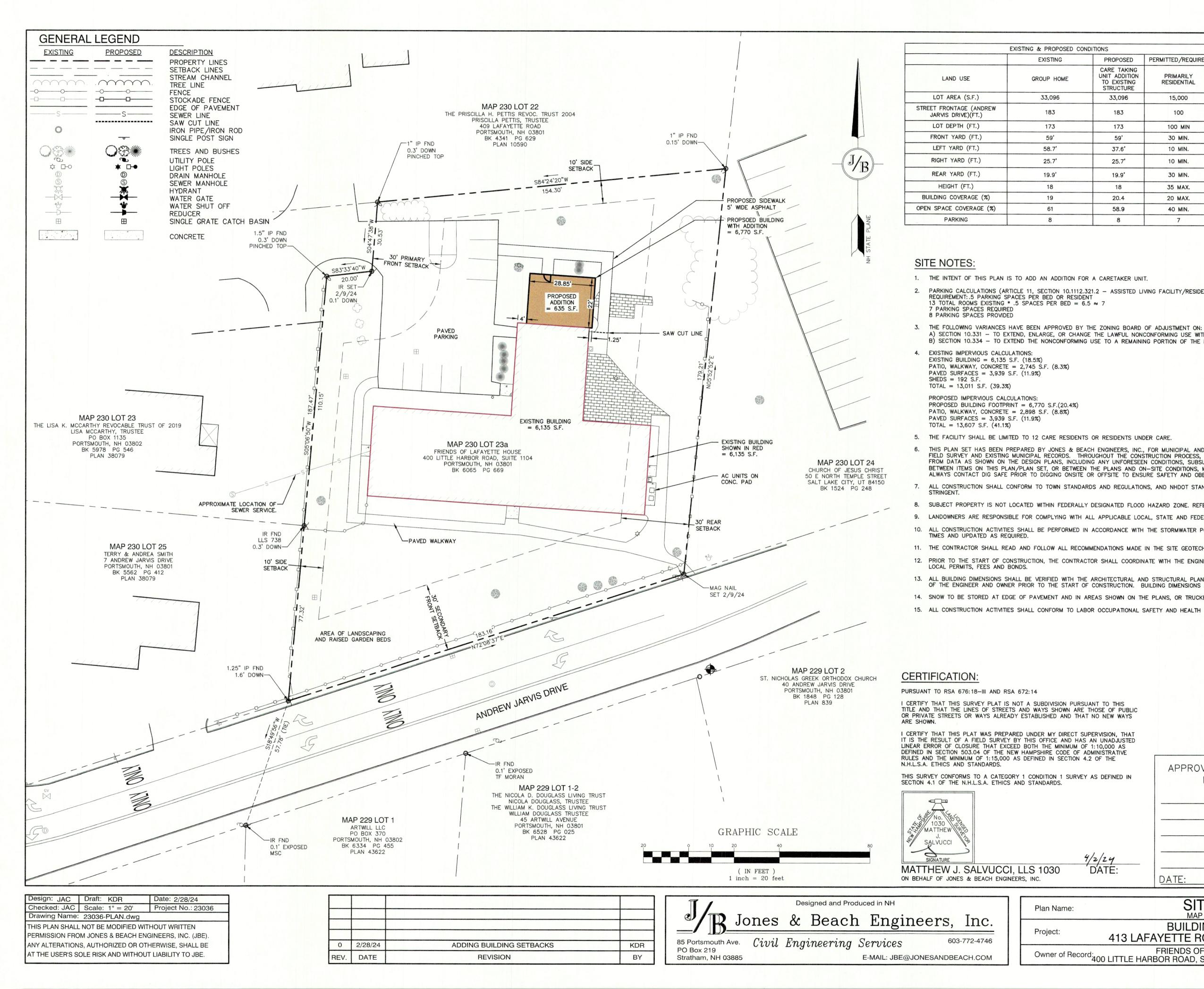
- 1. "PLAN OF THE HOMESTEAD FARM OF THE LATE SAMUEL LANGDON, PORTSMOUTH, N.H." DATED MAY 23, 1882. PREPARED BY A. C. HOYT. R.C.R.D. 0364.
- 2. "SUBDIVISION PLAN OF LAND OF J. PHILIP MCCAFFERY FOR GREAT BAY SCHOOL AND TRAINING CENTER, LAFAYETTE ROAD, COUNTY OF ROCKINGHAM, PORTSMOUTH, N.H." DATED DECEMBER 1981. PREPARED BY RICHARD P. MILLETTE AND ASSOCIATES. R.C.R.D. 10590.
- 3. "SEWER EASEMENT, LOT 1 TO LOT 2, 411 LAFAYETTE ROAD, GREAT BAY SCHOOL AND TRAINING CENTER, LAFAYETTE ROAD, COUNTY OF ROCKINGHAM, PORTSMOUTH, N.H." DATED JULY 21, 1982. PREPARED BY RICHARD P. MILLETTE AND ASSOCIATES. R.C.R.D. 11034.
- "SUBDIVISION PLAN, TAX MAP 230 LOT 23, OWNER: GREAT BAY SCHOOL AND TRAINING CENTER, FOR LEMIEUX BUILDERS, INC. 417 LAFAYETTE ROAD, CITY OF PORTSMOUTH, COUNTY OF ROCKINGHAM, STATE OF NEW HAMPSHIRE." DATED SEPTEMBER 2013. PREPARED BY AMBIT ENGINEERING. R.C.R.D. 38079.
- "EASEMENT PLAN, TAX MAP 230 D. R. LEMIEUX BUILDERS, INC TO THE CITY OF PORTSMOUTH, 7 ANDREW JARVIS DRIVE, CITY OF PORTSMOUTH, COUNTY OF ROCKINGHAM, STATE OF NEW HAMPSHIRE." DATED JUNE 2014. PREPARED BY AMBIT ENGINEERING. R.C.R.D. 38417.

EXISTING CONDITIONS PLAN

BUILDING ADDITION 413 LAFAYETTE ROAD, PORTSMOUTH, NH

FRIENDS OF LAFAYETTE HOUSE Owner of Record 400 LITTLE HARBOR ROAD, SUITE 1104, PORTSMOUTH, NH 03801 DRAWING No.

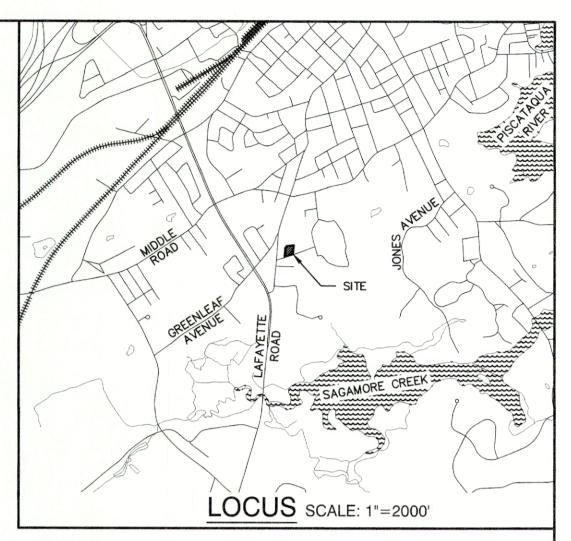




Project: Owner of Record: 400

Plan Name:

S	
PROPOSED	PERMITTED/REQUIRED
ARE TAKING IIT ADDITION O EXISTING STRUCTURE	PRIMARILY RESIDENTIAL
33,096	15,000
183	100
173	100 MIN
59'	30 MIN.
37.6'	10 MIN.
25.7'	10 MIN.
19.9'	30 MIN.
18	35 MAX.
20.4	20 MAX.
58.9	40 MIN.
8	7



EXISTING

GROUP HOME

33,096

183

173

59'

58.7'

25.7'

19.9'

18

19

61

8

PARKING CALCULATIONS (ARTICLE 11, SECTION 10.1112.321.2 - ASSISTED LIVING FACILITY/RESIDENTIAL CARE FACILITY):

A) SECTION 10.331 - TO EXTEND, ENLARGE, OR CHANGE THE LAWFUL NONCONFORMING USE WITHOUT CONFORMING TO THE ORDINANCE. B) SECTION 10.334 - TO EXTEND THE NONCONFORMING USE TO A REMAINING PORTION OF THE LAND.

6. THIS PLAN SET HAS BEEN PREPARED BY JONES & BEACH ENGINEERS, INC., FOR MUNICIPAL AND STATE APPROVALS AND FOR CONSTRUCTION BASED ON DATA OBTAINED FROM ON-SITE FIELD SURVEY AND EXISTING MUNICIPAL RECORDS. THROUGHOUT THE CONSTRUCTION PROCESS, THE CONTRACTOR SHALL INFORM THE ENGINEER IMMEDIATELY OF ANY FIELD DISCREPANCY FROM DATA AS SHOWN ON THE DESIGN PLANS, INCLUDING ANY UNFORESEEN CONDITIONS, SUBSURFACE OR OTHERWISE, FOR EVALUATION AND RECOMMENDATIONS. ANY CONTRADICTION BETWEEN ITEMS ON THIS PLAN/PLAN SET, OR BETWEEN THE PLANS AND ON-SITE CONDITIONS, MUST BE RESOLVED BEFORE RELATED CONSTRUCTION HAS BEEN INITIATED. CONTRACTOR TO ALWAYS CONTACT DIG SAFE PRIOR TO DIGGING ONSITE OR OFFSITE TO ENSURE SAFETY AND OBEY THE LAW.

ALL CONSTRUCTION SHALL CONFORM TO TOWN STANDARDS AND REGULATIONS, AND NHDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, WHICHEVER IS MORE

8. SUBJECT PROPERTY IS NOT LOCATED WITHIN FEDERALLY DESIGNATED FLOOD HAZARD ZONE. REFERENCE FEMA COMMUNITY PANEL NO. 33015C0270FB, DATED JANUARY 29, 2021. 9. LANDOWNERS ARE RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL WETLAND REGULATIONS, INCLUDING PERMITTING REQUIRED UNDER THESE REGULATIONS. 10. ALL CONSTRUCTION ACTIVITIES SHALL BE PERFORMED IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN (S.W.P.P.P.). THIS DOCUMENT IS TO BE KEPT ONSITE AT ALL

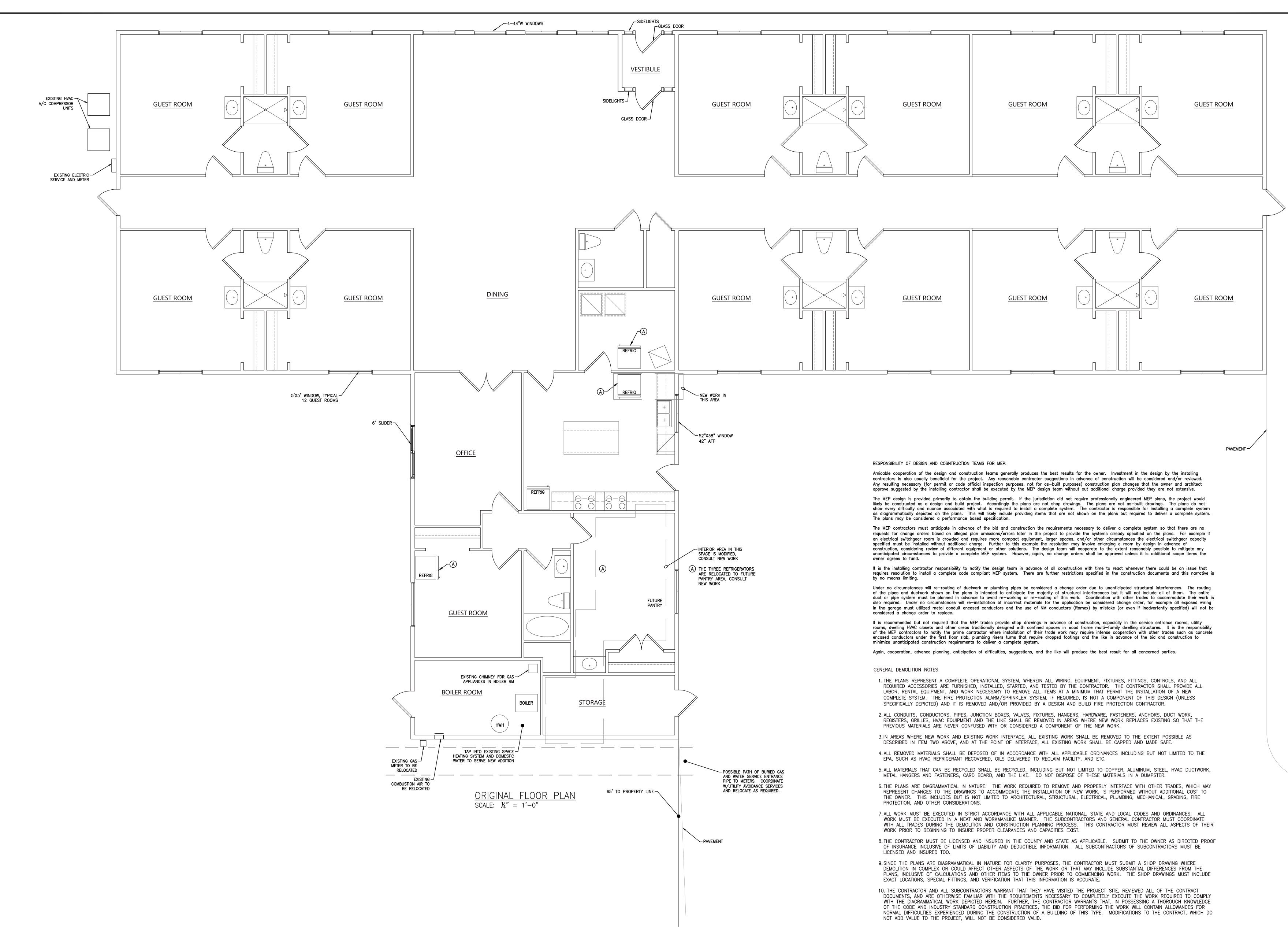
11. THE CONTRACTOR SHALL READ AND FOLLOW ALL RECOMMENDATIONS MADE IN THE SITE GEOTECHNICAL ENGINEER REPORT, PREPARED BY , DATED

12. PRIOR TO THE START OF CONSTRUCTION, THE CONTRACTOR SHALL COORDINATE WITH THE ENGINEER, ARCHITECT AND/OR OWNER, IN ORDER TO OBTAIN AND/OR PAY ALL THE NECESSARY

13. ALL BUILDING DIMENSIONS SHALL BE VERIFIED WITH THE ARCHITECTURAL AND STRUCTURAL PLANS PROVIDED BY THE OWNER. ANY DISCREPANCIES SHOULD BE BROUGHT TO THE ATTENTION OF THE ENGINEER AND OWNER PRIOR TO THE START OF CONSTRUCTION. BUILDING DIMENSIONS AND AREAS TO BE TO OUTSIDE OF MASONRY, UNLESS OTHERWISE NOTED. 14. SNOW TO BE STORED AT EDGE OF PAVEMENT AND IN AREAS SHOWN ON THE PLANS, OR TRUCKED OFFSITE TO AN APPROVED SNOW DUMPING LOCATION.

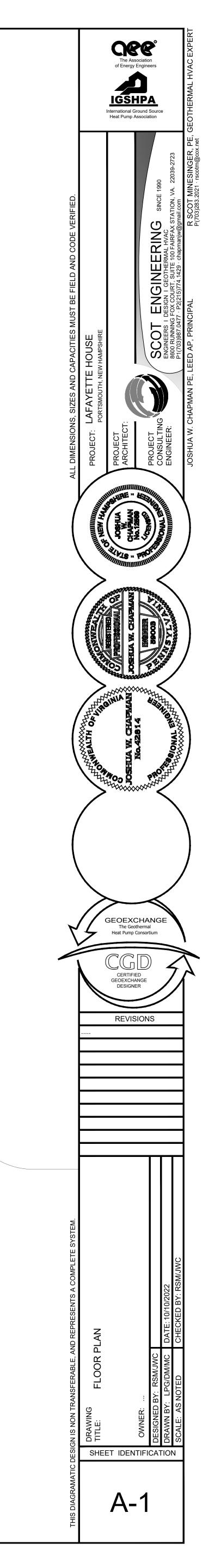
15. ALL CONSTRUCTION ACTIVITIES SHALL CONFORM TO LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) RULES AND REGULATIONS.

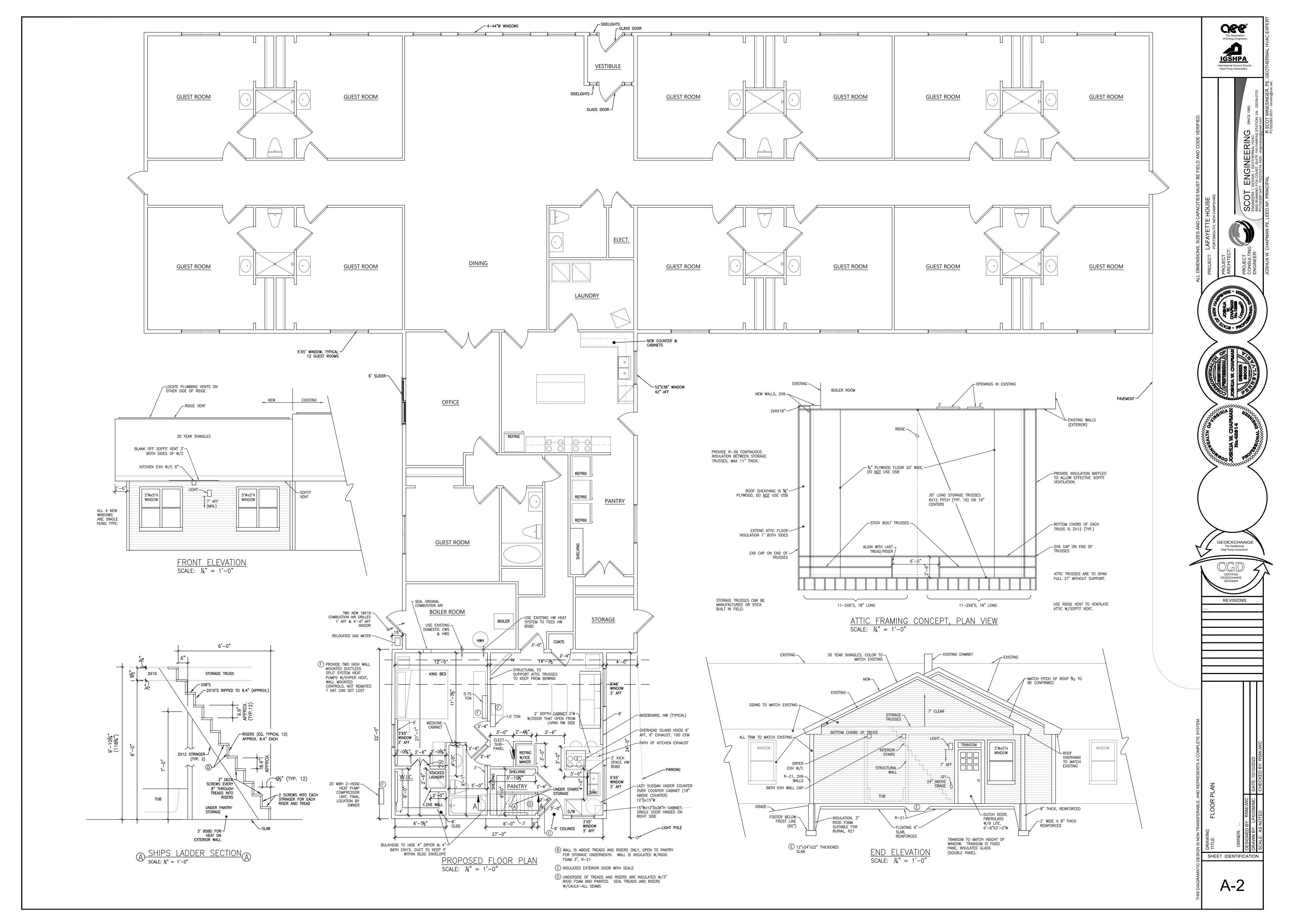
SUANT TO THIS THOSE OF PUBLIC AT NO NEW WAYS SUPERVISION, THAT S AN UNADJUSTED			
OF 1:10,000 AS ADMINISTRATIVE 4.2 OF THE Y AS DEFINED IN	APPROVED - PORTSMOUTH, NH PLANNING BOARD		
		FRIEND 400 LITTLE	PLICANT/OWNER DS OF LAFAYETTE HOUSE HARBOR ROAD, SUITE 1104 RTSMOUTH, NH 03801 BK 6065 PG 669
<u>4/2/29</u> DATE:	DATE:	T	OTAL LOT AREA 33,096 SQ. FT. 0.760 ACRES
	SITE PLAN MAP 230, LOT 23A		DRAWING No.
413 LAF#	BUILDING ADDITION AYETTE ROAD, PORTSMOUTH, NH		C2
^{ord:} 400 LITTLE HAR	FRIENDS OF LAFAYETTE HOUSE BOR ROAD, SUITE 1104, PORTSMOUTH, NH 0380	01	SHEET 2 OF 2 JBE PROJECT NO. 23036





- 11. THIS DESIGN IS NON TRANSFERABLE. IT IS INTELLECTUAL PROPERTY WITH TRADE SECRETS TO BE UTILIZED ON THIS PROJECT ONLY. 12. THE PLANS INDICATE QUANTITIES ON THE PLANS TO ENHANCE THE UNDERSTANDING OF THE DESIGN CONCEPT. THE QUANTITIES ARE RELIABLE, BUT NOT GUARANTEED. THE CONTRACTOR IS RESPONSIBLE TO INSTALL THE CORRECT QUANTITIES OF ITEMS REQUIRED TO REMOVE
- AND DELIVER A COMPLETE FUNCTIONING BUILDING. 13. THIS PROJECT MAY HAVE AREAS OF AN UNUSUAL INTENSE MEP COORDINATION REQUIREMENT, AND IT IS THE RESPONSIBILITY OF THE MEP
- TRADES TO INSURE THAT ALL ASPECTS OF THE WORK ARE PROPERLY REMOVED AND PROVIDED TO DELIVER A COMPLETE AND FUNCTIONING MEP SYSTEM.
- 14. WHERE THERE EXISTS A DISCREPANCY BETWEEN THE PLANS, DOCUMENTS, OR CODE THE CONTRACTOR SHALL PROVIDE FOR THE MOST EXPENSIVE METHOD AND ADVISE THE ARCHITECT IN WRITING PRIOR TO PERFORMING ANY WORK.





THE PLUMBING PLANS.

CONSTRUCTION ADMINISTRATION REQUIREMENTS:

Construction administration must be organized to be successful and this plan sheet is devoted to provide instruction for the contractor to properly apply this process with the engineer of record and design team. Please abide by the submittal format exactly and submit the products grouped as requested. Please issue requests for information (RFI) in accordance with the instructions on this plan sheet. RFI's and submittals out of compliance with this plan sheet may be returned requiring a corrected format. Please do not take this construction document requirement lightly.

It is in our best interest that the trade contractors are successful (profitable), after of course the primary goal of providing a code compliant design that guards the best interests of the public and the owner. It is difficult if there is an adversarial relationship between trade contractors and design team members. Please consider this specification an attempt to prevent wasted resources, which in addition to the protecting the public is a pleage engineers are expected to honor. This is a positive proactive specification intended to avoid mistakes, which will make the entire project more successful.

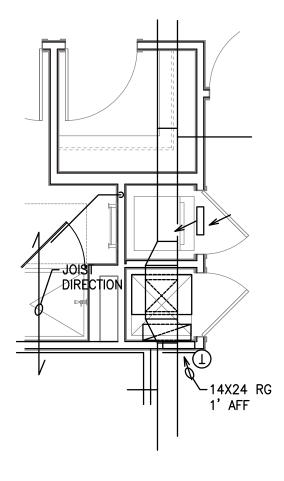
Please be reminded that the plans function as a complete design. It is not acceptable to accept only portions of the plans. All components of the construction documents must be executed and accepted to provide for a complete installation. It is completely unacceptable to consider the plans as containing optional scope items, where contractors, owners, and the like decide to omit aspects of our plan requirements. Please be reminded that the mechanical, electrical and plumbing plans are not shop drawings. The mechanical, electrical, and plumbing plans were produced primarily to earn a building permit. If building permit requirements did not require mechanical, electrical, and plumbing plans signed and sealed by a state licensed professional engineer, the project most likely would have become a mechanical, electrical and plumbing contractor design and build project (and these plans would not exist). Please be reminded from extensive notes listed on the leading plans sheets for mechanical, electrical, and plumbing trades clearly indicate that this is a difficult project for the architectural, structural, mechanical, plumbing and electrical trades to coordinate and interface properly. To state the difficultly even more plainly and understandably, please consider that the plans require that:

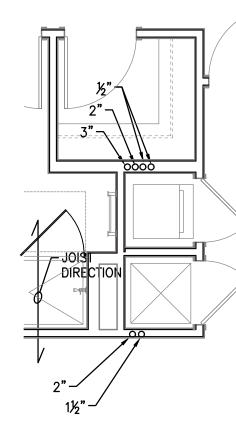
- are inappropriate and unsuitable; returned unanswered.
- be returned not answered and may require additional time to resolve. The answer to the RFI in this example will likely be to relocate the pipe.
- electrical and plumbing work.
- failure to research and plan ahead will be considered an additional service.

REQUESTS FOR INFORMATION HEREINAFTER REFERRED TO AS AN RFI REQUIREMENTS:

- an answer.
- 2. An RFI that changes the plans design slightly to reduce the cost of the project, but not compromise it, will be reviewed. 3. The RFI shall always contain a thoroughly thought through recommendation/proposed solution for the design team to review. For example, a correctly phrased RFI may read: The ductwork shown on the plans interferes with a interruptions.
- as-built plan maintenance requirement which is an obligation of the construction team, not the design team.
- 5. When a duct size is changed in accordance with the "Duct-u-lator", for example a 14x10 to 18x8 with smooth transitions, this does not require an RFI. 6. The answer to some common HVAC RFI's we receive is "no" for these questions: 6.1. The return grille is shown as low, can it be installed high above the door of the mechanical closet? 6.2. The return grille is shown ducted to the return air plenum and air handler, can this be deleted and make the mechanical closet a return plenum? 6.3. The outside air duct which brings in fresh air to each dwelling air handler may be unnecessary, can it be deleted?

ALL REI'S MUST BE WRITTEN BY THE MECHANICAL, ELECTRICAL AND PLUMBING TRADESMAN, OR WRITTEN BY OTHERS AND SIGNED BY THE MECHANICAL. ELECTRICAL, AND PLUMBING TRADESMAN. TRADESMAN MUST ACCEPT THIS RESPONSIBILITY SERIOUSLY. RFI'S THAT APPEAR SIGNED BY TRADESMAN THAT WERE QUESTIONS THE TRADESMAN WOULD NORMALLY KNOW, AND NOT SERIOUSLY REVIEWED WILL BE RETURNED. ALL RFI'S MUST INCLUDE A PROPOSED NO COST RESOLUTION OR THEY WILL BE REJECTED





PLANS ABBREVIATED SCALE: NO SCALE

, ABBREVIATE <u>PLANS,</u> SCALE: NO SCALE

The incorrect plumbing work installed blocks the HVAC work from being installed. When this happens our offices may receive an RFI. Our answer is to relocate the pipes as per plan. This example is crystal clear, but often there is 3' of wall space to install half a dozen vertical pipes (which can easily be installed on one stud bay), and a vertical HVAC duct 12" wide in the other stud bay. If the plans are overlaid the plumbing and mechanical work may clash, but it is possible to install the work without violating the design concept, as the plans are conceptual. This construction document sheet is an attempt to graphically portray how important it is to plan ahead when working with conceptual plans. Otherwise contractor shop drawings, which are expensive may become a requirement.

EXAMPLES OF WHAT WE ARE TRYING TO AVOID, PLAN AHEAD PLANS SHOWN ON THIS SHEET ARE EXAMPLES OF MEP PLANS AND ARE NOT TO BE USED AS FLOOR PLANS, BUT TO ENCOURAGE COORDINATION AND PLANNING. THIS SAME PLAN SHEET IS USED ON EVERY JOB.

EVERY TRADE IS OBLIGATED TO COMPLY WITH ALL ASPECTS OF ALL PLAN SHEETS. THAT IS FOR EXAMPLE, WHERE A REQUIREMENT ON THE PLUMBING PLANS IS SHOWN ON THE ARCHITECTURAL PLANS, THE PLUMBER MUST COMPLY WITH THAT REQUIREMENT, EVEN IF IT IS NOT SHOWN ON

This section applies to the construction documents. This section concerns execution of the work more so than code compliance and accordingly is not completely applicable to jurisdictional plan review.

1. If the mechanical, electrical, and plumbing trades bid this project they are representing that the equipment is thoroughly researched, priced, taken-off examined, otherwise and proposed in their bid fits. That is the equipment is spatially compatible with all other trades, inclusive of codes required, service required, otherwise, and required clearances for service and safety are all provided and accommodated.

2. If a lack of extensive pre-bid research or post bid proper advance planning and coordination (that is a requirement of the construction documents without exception) seems to be prevalent as judged by the mechanical, electrical, or plumbing engineer of record than the trade contractors shall be required to provide shop drawings at no additional cost to the owner. Further, the questions and issues that may arise during the shop drawing production process that are directed to the mechanical, electrical, or plumbing engineer judged to be counter- productive, a nuisance, "fishing for change orders", and the like then answers by the design team shall be issued as the RFI's

3. There are often chases, wall cavities, and the like that are large enough to accommodate multiple trades and are shown on each trade plan in the same chase, wall cavity and the like. However, if the trades do not plan ahead (coordinate), the first trade field personnel on the project may install their work in a chase, wall cavity, and the like inefficiently such that the other trade(s) cannot install their work. A frequent example might be a wall cavity with both a vertical pipe and a vertical 3.25 inch deep HVAC duct specifically designed to be installed in between wall studs, and the plumber arrived first and installed the pipe such that the HVAC duct cannot be installed without relocating the pipe. This pipe must be relocated without exception. Substantial portions of the HVAC and electrical work cannot be installed until the shingles are on the roof of a building and it is protected from rain entering the building while under construction. The plumbing trade is not restricted in this way. Accordingly we often see pipes that could have been installed on the edge of a chase or wall cavity installed right in the middle as if there did not have to accommodate any other trades which of course is not often true. Often this important planning ahead and coordination is omitted against the very strong objection of the design team, and then an RFI is submitted claiming the plumbing pipe is in the way of the HVAC duct and the plans require more attention. This is not acceptable, and RFI's of this nature shall be considered counter-productive. A counter-productive RFI will

4. The mechanical and plumbing plans are frequently reviewed by licensed master HVACR mechanics and master plumbers to ensure that the wall cavities, chases, and the like include the required space to install both trades with some extensive coordination that is required by the construction team. Please consider this before submitting RFI's and other inquires when the answer is likely indicative of a failure to coordinate prior to installing mechanical,

5. Attention electricians: Research the sizes of the switchgear, panels, fire pump controllers and the like so that the spaces allotted on the plans are adequate to install the equipment your bid includes. Switchgear sizes vary widely in size, and we generally utilize the smaller more compact equipment which may cost more. The design team is often under pressure to minimize space devoted to non-revenue producing floor space such as but not limited to switchgear rooms, panel enclosures, and the like. Coordinate with the plumber and the mechanical contractor to ensure that they do not install their work in a position that interferes with your work. The mechanical, electrical, and plumbing design team of record sometimes experiences claims by the contractors that the switchgear does not fit. If the project is bid, we consider this representation by the contractor that the electrical equipment is spatially compatible with all trades. If the switchgear is submitted, again it is considered representation by the contractor that the representation by the contractor that the switchgear does not fit.

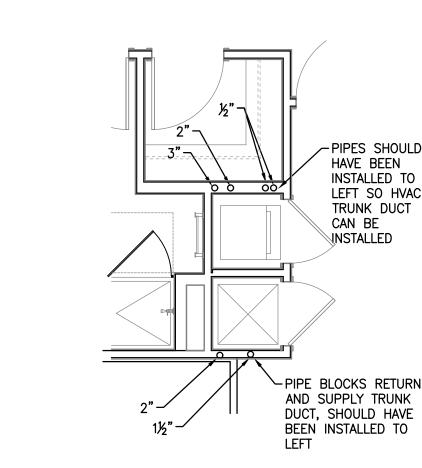
6. In general the plans require a complete and functional system. The trade contractors are expected to install a complete and functioning system without exception.

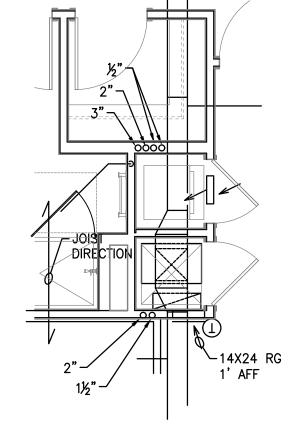
1. The RFI applicable to the trade shall be signed by the trade contractor. Often questions that most trade contractors would know are submitted as an RFI from a non-trade entity. The trade contractor is judged sometimes by the RFI. If the design team receives questions that the trade contractor should know and did not answer for the non-trade entity, it reflects poorly on the trade contractor. If the non-trade entity wishes to ask a trade question and receive a design team answer, it should be submitted with the trade contractor answer so that the design team may confirm or deny the trade contractor response. An example might be "why do we need an electric heater in a utility space below a dwelling", and the trade answer may be "to keep plumbing trap from freezing". Then the design team would confirm the RFI quickly. An RFI not reviewed by a trade contractor may be returned without

structural beam, by two inches. Is it acceptable to increase the width of the HVAC duct and reduce the depth to accommodate the beam with smooth transitions"? An RFI that the design team may return for a proposed contractor solution to be reviewed may read: the ductwork shown on the plans interferes with a structural beam, please provide a new design. This process will expedite construction administration and reduce schedule

4.RFI answers that result in a plan change shall be acceptable if conveyed as a sketch, narrative, or as otherwise requires the least documentation while allowing the contractors to continue construction. Drafting RFI answers is an

6.4. Is ductboard acceptable when it is concealed and not able to be accessed completely for cleaning and thorough inspection?





<u>WHICH RESULTS IN RF</u> SCALE: NO SCALE

& PLUMBIN PLANS, ABBREVIATE scale: no scale

WHAT SHOULD BE INSTALLED

CONTRACTORS, PLEASE DO <u>NOT</u> IGNORE THIS PLAN SHEET. IT IS PINACLE TO THE SUCCESS OF THIS PROJECT.

Submission of product data proposed by the contractor for use on the project (Submittals) REQUIREMENTS:

Quantities and finishes will generally not be reviewed.

heat pump and air handler, include them both in one submittal.

- b. Refrigeration pipes, including pipe sizes that are determined by installed length, not equipment connection sizes.
- e. Ductless split systems
- application
- internal to the ductwork. h. Ductwork that includes metal rigid duct and construction methods
- i. Flexible air duct and flexible duct connector
- screws for mounting, include concealed fasteners. not use a hammer).
- I. Miscellaneous, which can include supports, identification and etc.
- 2. Submit the electrical equipment in groups (a through h) as outlined herein below: be split into multiple submittal data if convenient for the electrical contractor.
- c. Conduits, supports, junction boxes, pull boxes and conductor encasing/protective equipment, etc. d. Switches and receptacles, lighting control panel etc.
- e. Conductors (wires) with International Energy Conservation Code.
- g.Fire stopping h. Miscellaneous

j. Miscellaneous

- 3. Submit the plumbing equipment in groups (a through j) as outlined herein below: a. Pumps: domestic booster, sump type, including controls.
- b. Pumps: sump type, sewage ejector, sewage grinder, including controls. c. Plumbing fixtures, not reviewed for appearance or finishes.
- d. Plumbing piping (differentiate what is to be used above vs below grade)
- f. Backflow preventers, Check valves, ball valves, backwater valves, etc
- g. Separators: Oil, Sand, or Grease, including traffic rated cover if applicable h. Drains: including roof, floor, interior, exterior, trench at garage entrances, emergency and etc. i. Fire stopping
- 1. Fireplaces, gas or electric. All gas fired fireplaces shall be direct vent without exception.
- 2. Appliances, especially dryers to confirm vent lengths and gas fired ranges with gas input rating.
- must be insulated where walls or roof separate the cab travel from the exterior (not an inside wall). 4. Fire Pumps, Jockey Pumps, Fire Pump/Jockey Controllers for electrical coordination.

5. Commercial Kitchen Equipment & appliances if applicable.

Product data submitted for use on this project which is out of compliance with the above written requirements shall likely be returned for further work before it is reviewed. This especially includes the format. If the electric heaters are submitted with the louvers, for example, it may be returned as not reviewed. Then the louvers would need to be included with duct accessories.

PROJECT COMMISSIONING

Mechanical, HVAC:

All HVAC systems with moving parts shall be installed and started up in strict accordance with the published installation and start up instructions published by the manufacturer and documented in writing accordinaly. Split system and package HVAC systems capacity five tons and less, provide a single start-up and installation page that includes but may not be limited to the information listed below:

System information:

1. System designation on the plans

- 4. Date of installation, date of start-up, and person(s) starting up the equipment 5. Size and approximate installed length of refrigeration pipes 6. Confirm that return air conveyance system is ducted from grille to air handler
- System operation:
- 3. Confirm that all wall caps serving the dwelling seal tightly, and operate correctly 4. Confirm that the refrigeration pipes have been leak tested
- 5. Record weight and type of refrigerant used to charge the system. 6. Record the ambient conditions and record the interior conditions prior to start 7. Record the inlet return air temperature and relative humidity
- 8. Record the supply air discharge temperature at the refrigeration coil discharge. 9. Record the supply air temperature out of the supply outlets in the occupied space 10. Record the amps of the blower fan and compressor.

(measurements) that are outside of the parameters published by the equipment manufacturer shall be corrected by adjustment or system modifications as may be required without cost to the owner, prime contractor or the like. Submit all the system information and start-up operation on a single sheet of paper or pdf for all dwellings. These will be checked for repeatability by the building management/ownership or the engineer by

selecting a few dwellings or common area systems at random and checking them for the same information specified above. Should a significant discrepancy exist, then all equipment will be re-commissioned as directed by the engineer without additional charge to the owner, prime contractor or the like. Then the process shall begin again. Any deviation from this specification for commissioning shall be considered a violation of the construction documents.

General: All submittals must identify the Project name and trade contractor that is submitting the equipment for review. Equipment submitted must be compatible, functional and a proper application. Equipment submitted shall be spatially compatible, do not submit the equipment if it will not fit in the space allotted. The construction team is usually more experienced than the design team in the area of spatial compatibility of various mechanical, electrical, and plumbing equipment. Any deviations from the plans must be noted in the submittal. Any type of approval by the design team relies on the contractor submitting a code compliant and construction document compliant item. Plan deviations submitted shall be clearly identified and only approved if specifically referred and addressed in the engineering submittal review.

The engineering submittal review is a double check to hopefully discover a contractor misinterpretation of the construction documents. While this process is reliable, it is not guaranteed. The obligation of providing a correct product is always the responsibility of the contractor, regardless of whether an engineer submittal review approval was issued.

The outline below may include additional product specifications in addition to submittal format and minimum information requirements:

1. Submit the mechanical items in groups (a through I) as outlined exactly herein below:

Each HVAC equipment submitted including, but not limited to, compressor bearing equipment, air handling units, furnaces, electric heaters, fans and ductless split systems shall be submitted separately and at the beginning include a schedule sheet that includes the equipment designation on plan, the nominal capacity, and the equipment model. Do not submit HVAC equipment data sheets that can be hundreds of pages long with installation instructions and etc with each equipment model not designated or designated for example on page 44 of 241, 61 of 241, 128 of 241 and etc. For HVAC ARI matched equipment such as a

a. Primary HVAC equipment for dwellings and common areas, which is comprised primarily of the compressor bearing equipment complete with central fan system and all accessories associated with the primary equipment. All equipment shall be identified, such as for example lobby, dwelling A2, and etc.

c. Thermostats for all equipment, including adequate stages for heat with dual stage compressor heat pump applications, auto-change-over from heat to cool as specified and required programming. d. Electric heaters, with each heater thoroughly identified. All heaters submitted are considered as represented by the contractor to be a proper application, such as ceiling cavity heaters rated for confined space, unit heaters with adequate space beneath them, and etc. All heaters are required to be suitable as primary sources of heat.

f. Fire protection dampers including the radiation dampers, curtain fire dampers and fire smoke dampers if applicable. Note that the radiation dampers shall be compatible with the UL floor/ceiling assembly such as for example UL 521, 586 and etc. Note UL555 is not a recognized UL floor/ceiling assembly rating, but rather a standard rating applied to fire protection dampers irrespective of the installation

g. Ductwork accessories that include at a minimum; louvers, insulation, dampers, flex duct equipment connections, insulation, tape, duct sealing products and etc. Ductwork insulation shall not be permitted to be

j. Registers, grilles and diffusers for both dwellings and common areas. Commercial areas always must receive non-residential/commercial products which include mitered, not stamped frames, adjustable supply air blades, individually made return/exhaust blades in register or grille, not an integral stamping of frame, and screw driver operated volume control devices. Linear diffusers shall never utilize face mounted

k. Fire stopping, note it is not acceptable to install multiple conduits, ducts, and especially round items through a single penetration. Provide neatly cut, drilled or otherwise holes through rated assemblies (do

a. Switchgear that includes a shop drawing with a floor plan layout, demonstrating that all equipment is spatially compatible, accounting for required clearances especially. If a shop drawing is not submitted the design team will interpret this as the contractor representing that equipment submitted will fit (spatially compatible with all trades and all coordination is completed). The submittal must include AIC ratings and the electrical contractor is responsible for providing the minimum AIC rated equipment as specified on the plans or as required by the utility company, generally whichever is greater unless approved in writing from the engineer of record. This includes meter centers, main distribution panels, large disconnects, and fuse, circuit breaker panels, Automatic Transfer Switches. However, certain aspects of this may

b. Circuit breakers, which must be coordinated with the equipment electrical ratings served. The capacity and quantity of branch circuit breakers, fuse and the like will not be reviewed.

f. Lighting: The submittal must clearly identify the light fixture and correlate to the light fixture schedule in the construction documents. All light fixtures for a particular building must be submitted together (clubhouse, apartment building, or townhouse). Separate submittals for different building types is acceptable. Submittal MUST indicate the following for each fixture or it may be rejected: socket/lamp type, wattage, voltage, IC rated, Airtight, if LED - is the driver integral or remote, if low voltage - is the transformer integral or remote, wet/damp rating, fire rated if applicable. Submittal package to comply

e. Hot water heaters (DO NOT USE GRAVITY DIRECT VENT, only power direct vent {tank or tankless}, electric or electric heat pump are acceptable)

Other non-MEP product submissions that should be issued to the MEP engineer of record for review include but are not limited to:

3. Elevators if applicable, inclusive of especially the electrical requirements and environmental conditions to be maintained in the shaft and elevator machine room. If the elevator shaft is to be conditioned, it

2. Dwelling (each, so if 200 dwellings, here are 200 of these reports minimum, list unit number with level it is on) served, or common area served (such as leasing, club or etc.). 3. Equipment model numbers, air handler, furnace, compressor section, furnace coil, auxiliary heat as applicable minimum. Also, list thermostat model.

7. Confirm that outside air intake duct (where natural ventilation is not used) includes a volume damper and motorized damper interlocked with the air handler and if applicable carbon dioxide sensor. 8. Confirm that all rated assemblies inside the mechanical closet are protected.

1. Confirm that the air handler is set to 400 cfm per ton, do not leave the factory 3 ton air handler setting for a 1.5 ton system. 2.Confirm that the outside air (that is ducted to return plenum) is balanced to 30 cfm for one bedroom, 45 cfm for two bedroom and 60 cfm for a three bedroom dwelling.

11. Record the refrigeration pressures and temperatures with the return air and supply air temperatures, plus outdoor temperatures.

12. Record the space temperature, relative humidity and thermostat setting after a week of operation. Record any room temperatures that are more than 4'F different than the thermostat setting. Note the system information and start up documentation prescribed herein above is by no means limiting. The equipment manufacturer may require further work and this shall all be recorded. Any system results

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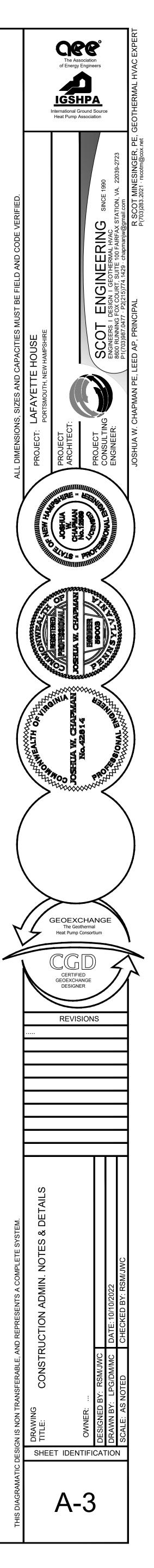
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GENERAL DEMOLITION NOTES

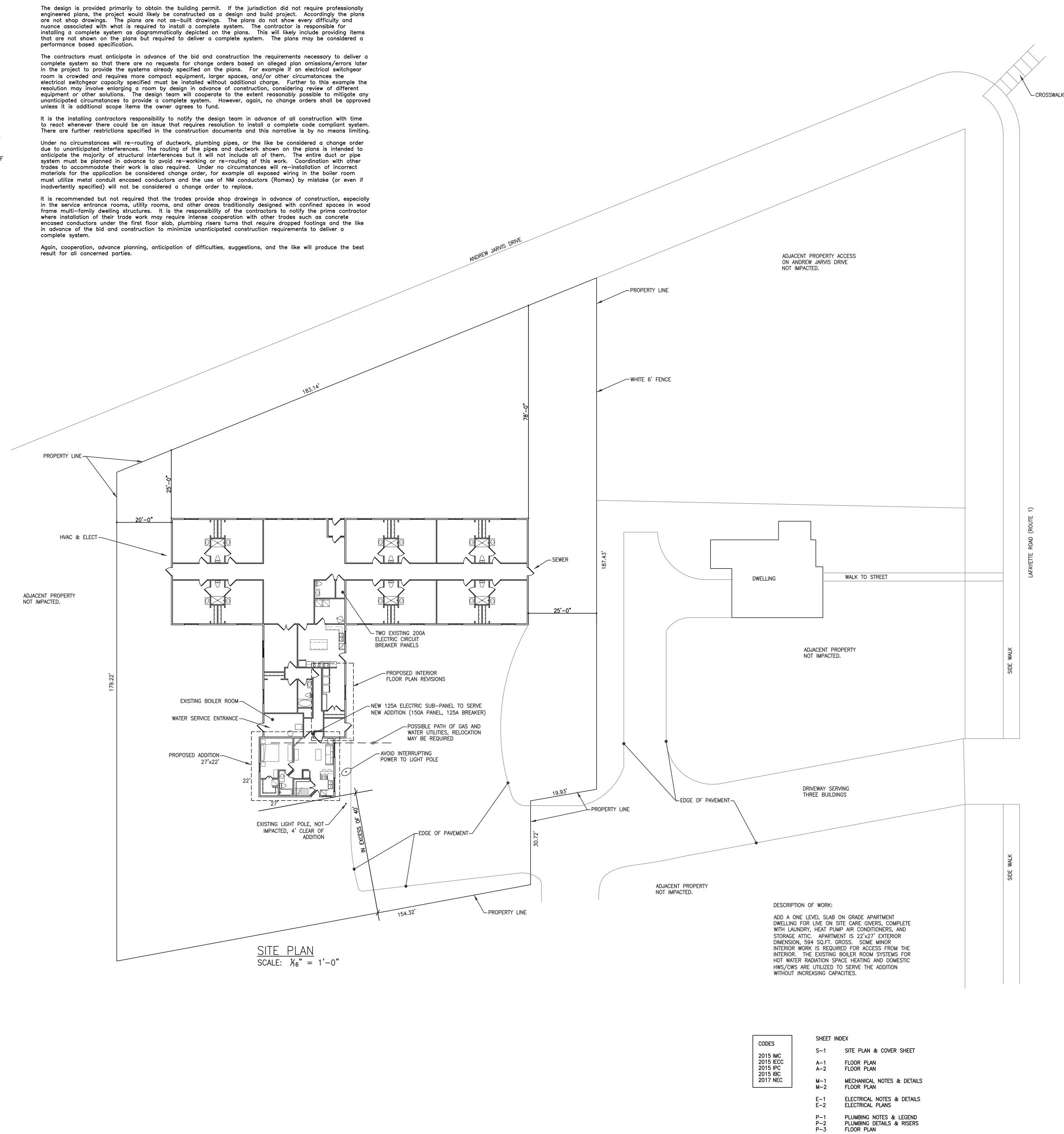
MEP SYSTEM.

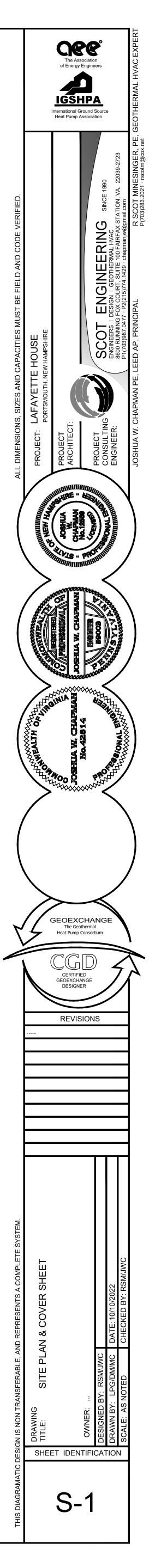
- 1. THE PLANS REPRESENT A COMPLETE OPERATIONAL SYSTEM, WHEREIN ALL WIRING, EQUIPMENT, FIXTURES, FITTINGS, CONTROLS, AND ALL REQUIRED ACCESSORIES ARE FURNISHED, INSTALLED, STARTED, AND TESTED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE ALL LABOR, RENTAL EQUIPMENT, AND WORK NECESSARY TO REMOVE ALL ITEMS AT A MINIMUM THAT PERMIT THE INSTALLATION OF A NEW COMPLETE SYSTEM. THE FIRE PROTECTION ALARM/SPRINKLER SYSTEM, IF REQUIRED, IS NOT A COMPONENT OF THIS DESIGN (UNLESS SPECIFICALLY DEPICTED) AND IT IS REMOVED AND/OR PROVIDED BY A DESIGN AND BUILD FIRE PROTECTION CONTRACTOR.
- 2. ALL CONDUITS, CONDUCTORS, PIPES, JUNCTION BOXES, VALVES, FIXTURES, HANGERS, HARDWARE, FASTENERS, ANCHORS, DUCT WORK, REGISTERS, GRILLES, HVAC EQUIPMENT AND THE LIKE SHALL BE REMOVED IN AREAS WHERE NEW WORK REPLACES EXISTING SO THAT THE PREVIOUS MATERIALS ARE NEVER CONFUSED WITH OR CONSIDERED A COMPONENT OF THE NEW WORK.
- 3. IN AREAS WHERE NEW WORK AND EXISTING WORK INTERFACE, ALL EXISTING WORK SHALL BE REMOVED TO THE EXTENT POSSIBLE AS DESCRIBED IN ITEM TWO ABOVE, AND AT THE POINT OF INTERFACE, ALL EXISTING WORK SHALL BE CAPPED AND MADE SAFE.
- 4. ALL REMOVED MATERIALS SHALL BE DEPOSED OF IN ACCORDANCE WITH ALL APPLICABLE ORDINANCES INCLUDING BUT NOT LIMITED TO THE EPA, SUCH AS HVAC REFRIGERANT RECOVERED, OILS DELIVERED TO RECLAIM FACILITY, AND ETC.
- 5. ALL MATERIALS THAT CAN BE RECYCLED SHALL BE RECYCLED, INCLUDING BUT NOT LIMITED TO COPPER, ALUMINUM, STEEL, HVAC DUCTWORK, METAL HANGERS AND FASTENERS, CARD BOARD, AND THE LIKE. DO NOT DISPOSE OF THESE MATERIALS IN A DUMPSTER.
- 6. THE PLANS ARE DIAGRAMMATICAL IN NATURE. THE WORK REQUIRED TO REMOVE AND PROPERLY INTERFACE WITH OTHER TRADES, WHICH MAY REPRESENT CHANGES TO THE DRAWINGS TO ACCOMMODATE THE INSTALLATION OF NEW WORK, IS PERFORMED WITHOUT ADDITIONAL COST TO THE OWNER. THIS INCLUDES BUT IS NOT LIMITED TO ARCHITECTURAL, STRUCTURAL, ELECTRICAL, PLUMBING, MECHANICAL, GRADING, FIRE PROTECTION, AND OTHER CONSIDERATIONS.
- 7. ALL WORK MUST BE EXECUTED IN STRICT ACCORDANCE WITH ALL APPLICABLE NATIONAL, STATE AND LOCAL CODES AND ORDINANCES. ALL WORK MUST BE EXECUTED IN A NEAT AND WORKMANLIKE MANNER. THE SUBCONTRACTORS AND GENERAL CONTRACTOR MUST COORDINATE WITH ALL TRADES DURING THE DEMOLITION AND CONSTRUCTION PLANNING PROCESS. THIS CONTRACTOR MUST REVIEW ALL ASPECTS OF THEIR WORK PRIOR TO BEGINNING TO INSURE PROPER CLEARANCES AND CAPACITIES EXIST.
- 8. THE CONTRACTOR MUST BE LICENSED AND INSURED IN THE COUNTY AND STATE AS APPLICABLE. SUBMIT TO THE OWNER AS DIRECTED PROOF OF INSURANCE INCLUSIVE OF LIMITS OF LIABILITY AND DEDUCTIBLE INFORMATION. ALL SUBCONTRACTORS OF SUBCONTRACTORS MUST BE LICENSED AND INSURED TOO.
- 9. SINCE THE PLANS ARE DIAGRAMMATICAL IN NATURE FOR CLARITY PURPOSES, THE CONTRACTOR MUST SUBMIT A SHOP DRAWING WHERE DEMOLITION IN COMPLEX OR COULD AFFECT OTHER ASPECTS OF THE WORK OR THAT MAY INCLUDE SUBSTANTIAL DIFFERENCES FROM THE PLANS, INCLUSIVE OF CALCULATIONS AND OTHER ITEMS TO THE OWNER PRIOR TO COMMENCING WORK. THE SHOP DRAWINGS MUST INCLUDE EXACT LOCATIONS, SPECIAL FITTINGS, AND VERIFICATION THAT THIS INFORMATION IS ACCURATE.
- 10. THE CONTRACTOR AND ALL SUBCONTRACTORS WARRANT THAT THEY HAVE VISITED THE PROJECT SITE. REVIEWED ALL OF THE CONTRACT DOCUMENTS, AND ARE OTHERWISE FAMILIAR WITH THE REQUIREMENTS NECESSARY TO COMPLETELY EXECUTE THE WORK REQUIRED TO COMPLY WITH THE DIAGRAMMATICAL WORK DEPICTED HEREIN. FURTHER, THE CONTRACTOR WARRANTS THAT, IN POSSESSING A THOROUGH KNOWLEDGE OF THE CODE AND INDUSTRY STANDARD CONSTRUCTION PRACTICES, THE BID FOR PERFORMING THE WORK WILL CONTAIN ALLOWANCES FOR NORMAL DIFFICULTIES EXPERIENCED DURING THE CONSTRUCTION OF A BUILDING OF THIS TYPE. MODIFICATIONS TO THE CONTRACT, WHICH DO NOT ADD VALUE TO THE PROJECT, WILL NOT BE CONSIDERED VALID.
- 11. THIS DESIGN IS NON TRANSFERABLE. IT IS INTELLECTUAL PROPERTY WITH TRADE SECRETS TO BE UTILIZED ON THIS PROJECT ONLY. 12. THE PLANS INDICATE QUANTITIES ON THE PLANS TO ENHANCE THE UNDERSTANDING OF THE DESIGN CONCEPT. THE QUANTITIES ARE RELIABLE, BUT NOT GUARANTEED. THE CONTRACTOR IS RESPONSIBLE TO INSTALL THE CORRECT QUANTITIES OF ITEMS REQUIRED TO REMOVE
- AND DELIVER A COMPLETE FUNCTIONING BUILDING. 13. THIS PROJECT MAY HAVE AREAS OF AN UNUSUAL INTENSE MEP COORDINATION REQUIREMENT, AND IT IS THE RESPONSIBILITY OF THE MEP TRADES TO INSURE THAT ALL ASPECTS OF THE WORK ARE PROPERLY REMOVED AND PROVIDED TO DELIVER A COMPLETE AND FUNCTIONING
- 14. WHERE THERE EXISTS A DISCREPANCY BETWEEN THE PLANS, DOCUMENTS, OR CODE THE CONTRACTOR SHALL PROVIDE FOR THE MOST EXPENSIVE METHOD AND ADVISE THE ARCHITECT IN WRITING PRIOR TO PERFORMING ANY WORK.

RESPONSIBILITY OF DESIGN AND CONSTRUCTION TEAMS:

Amicable cooperation of the design and construction teams generally produces the best results for the owner. Investment in the design by the installing contractors is also usually beneficial for the project. Any reasonable contractor suggestions in advance of construction will be considered and/or reviewed. Any resulting necessary (for permit or code official inspection purposes, not for as-built purposes) construction plan changes that the owner and architect approve suggested by the installing contractor shall be executed by the design team without additional charge provided they are not extensive.

complete system so that there are no requests for change orders based on alleged plan omissions/errors later room is crowded and requires more compact equipment, larger spaces, and/or other circumstances the electrical switchgear capacity specified must be installed without additional charge. Further to this example the resolution may involve enlarging a room by design in advance of construction, considering review of different unless it is additional scope items the owner agrees to fund.





	ELECTRICAL SYMBOL LEGEND	
PER ADA TO WITH HEIGHTS	MS SHOWN MAY NOT APPEAR ON DRAWINGS. A REQUIREMENTS, ALL CONTROL DE∨ICES MUST BE A MINIMUM I HIN 48″ A.F.F. FOR REACHING ACCESSIBILITY. ARE GIVEN FROM THE FINISHED FLOOR. VERIFY THICKNESS D	
	Y WITH ARCHITECTURAL PLANS PRIOR TO ROUGH-IN JUNCTION BOX, +15″ A.F.F. TO THE BOTTOM OF BOX JUNCTION BOX, ABO∨E IN CEILING	
	JUNCTION BOX, FLUSH IN FLOOR DUPLEX CONVENIENCE DUTLET, +15" A.F.F. TO THE CENTER OF	THE
-	BOTTOM OUTLET. DUPLEX CONVENIENCE OUTLET, MOUNT 8" ABOVE TOP OF COU +46" A.F.F. TO THE CENTER OF THE TOP OUTLET. WHERE SHOW COUNTER TOP OVERHANG OF LESS THAN 6", OUTLET NOT TO THAN 12" BELOW COUNTER TO CENTER OF OUTLET. FOR A COU OVERHANG OF GREATER THAN 6", MOUNT RECEPTACLE AT 15" CENTER OF THE BOTTOM OUTLET.	WN UNDER A BE MORE INTER TOP
azu B	LEVITON T5832 TAMPER-PROOF COMBINATION USB/DUPLEX REG MOUNTED 8" ABOVE TOP OF COUNTER OR +46" A.F.F. TO THE THE TOP OUTLET.	CENTER OF
	LEVITON T5832 TAMPER-PROOF COMBINATION USB/DUPLEX REG MOUNTED +15" A.F.F. TO THE CENTER OF BOTTOM OUTLET. OR DUPLEX CONVENIENCE OUTLET, HALF HOT, HALF SWITCHED, +1	AS NOTED
-0	A.F.F. TO THE CENTER OF BOTTOM OUTLET. OR AS NOTED SINGLE OUTLET WITH PLUG CONFIGURATION AS INDICATED ON	PLANS,
=	+15" A.F.F. TO THE CENTER OF DUTLET OR AS NOTED QUADPLEX CONVENIENCE DUTLET, +15" A.F.F. TO THE CENTER BOTTOM DUTLET OR AS NOTED	
GFI 💽	DUPLEX FLUSH MOUNTED POP-UP, SPILL-PROOF COUNTERTOP AS MANUFACTURED BY LEW ELECTRIC #PUR20. FINISH TO BE S BY OWNER/ARCHITECT. DEVICE REQUIRES AN UNDER COUNTER RECEPTACLE FOR A PLUG-IN CONNECTION.	
Ø Ø	DUPLEX DUTLET FLOOR BOX, PEDESTAL MOUNTED DUPLEX DUTLET CEILING MOUNTED	
	DUPLEX FLUSH FLOOR BOX WITH 3/4" CONDUIT TO NEARES	T WALL
ਮਾ⊽ ਮਾ⊽◄	CABLE TV DUTLET, +15" A.F.F. TD MIDDLE DF BDX DR AS N COMBINATION VDICE/DATA/CABLE TV DUTLET UNDER DNE CDV	
	AND SINGLE GANG BOX, +15" A.F.F. TO MIDDLE OF BOX OR AS	
	CONTROL DEVICE AS INDICATED CM = CARBON MONDXIDE DETECTOR WITH INTEGRAL ALARM CR = ENTRY SYSTEM CARD READER IC = TENANT INTERCOM SYSTEM DISCONNECT SWITCH- 30/3 INDICATES 30 AMP RATED 3-PE	ILE
100/3/70	DISCONNECT SWITCH- 100/3/70 INDICATES 100 AMP RATED 3-	-POLE
6	SWITCH WITH 70 AMP FUSES MOTOR, H.P. AS INDICATED	
	DATA DUTLET WITH 1"C. TO NEAREST ACCESSIBLE CEILING, +1 TO MIDDLE OF BOX OR AS NOTED FOR COMPUTER WIRING BY I	THERS
	VDICE/DATA DUTLET WITH 1"C. TD NEAREST ACCESSIBLE CEIL A.F.F. TD MIDDLE DF BOX DR AS NOTED	
	VDICE/DATA DUTLET WITH 1"C. TO NEAREST ACCESSIBLE CEIL A.F.F. TO TOP OF BOX OR AS NOTED. VDICE/DATA FLUSH FLOOR DUTLET WITH 1" EMPTY CONDUIT T WALL	
A A A	PANEL BOARD SURFACE MOUNTED (RECESS WHENEVER POSSIBLE) PANEL BOARD RECESSED MOUNTED PANEL BOARD RECESSED MOUNTED	
⊦∙	PUSH-BUTTON STATION-SINGLE BUTTON, +46" A.F.F. TO THE C THE BUTTON OR AS NOTED START/STOP PUSH-BUTTON, +46" A.F.F. TO THE CENTER OF TH BUTTON OR AS NOTED	
H⊡/	BUZZER DUTLET, +84" OR AS NOTED	
	2'X4' LIGHTING FIXTURE RECESSED WHEN POSSIBLE	
T	LIGHTING FIXTURE SURFACE STRIP (1) TUBE	RED TO COUIPPED BACK-UP
	LIGHTING FIXTURE SURFACE STRIP (2) TUBE	> ~ ∏ RI ⊟ ≻
0	LIGHT FIXTURE RECESSED MOUNTED WHEN POSSIBLE 2'X2' SHOWN	ATES JIT BAT
Ф	SURFACE MOUNTED CEILING LIGHT WALL MOUNTED LIGHT, IF FIXTURE MOUNTING PROTRUDES	INDICA CIRCU ENCY I
	MORE THAN 4" IN DEPTH FROM WALL, MOUNT AT 80" A.F.F. TO BOTTOM OF FIXTURE.	SHADING INDICA EMERGENCY CIRCI WITH EMERGENCY
	DECORATIVE CHANDELIER/PENDANT RECESSED MOUNTED LIGHT W/FRAME-IN KIT TO MATCH CEILING RATINGS	SH EMER VITH
⊢⊗↓	EXIT LIGHT FIXTURE, SHADED PORTION INDICATES FACE WITH DIRECTIONAL ARROWS AS INDICATED EMERGENCY LIGHTING UNIT	,
	EMERGENCY LIGHTING UNIT	
\$	SINGLE POLE TOGGLE SWITCH +46" A.F.F. TO THE CENTER OF CONTROL OR AS NOTED. SUBSCRIPTS INDICATE THE FOLLOWING	
	2 - DOUBLE POLE P - PILOT LIGHT, RED 3 - THREE WAY R - REMOTE CONTROL SWITCH 4 - FOR WAY M - MOTOR SWITCH K - KEY OPERATED I - ILLUMINATED T - ROTARY TIMER 0-2 HR	
\$₽		TROL
 	CONDUIT & WIRE CONCEALED UNDERGROUND OR IN CONCRETE S UNDER FLOOR - 3/4"C. 2 # 12 OR AS NOTED CONDUIT & WIRE CONCEALED IN WALL PARTITIONS OR CEILING ABOVE - 3/4"C. 2 # 12 OR AS NOTED	
 +	STRIKES INDICATE QUANTITY DF #12 A.W.G.	
1	LINE VOLTAGE THERMOSTAT SUPPLIED AND INSTALLED BY HV CONTRACTOR, WIRED BY ELECTRICIAN. THERMOSTAT TO BE ME A MAXIMUM OF 48"A.F.F. TO TOP OF CONTROLS.	
	SUBSCRIPTS AT SIDE OF OUTLETWP - WEATHER PROOFRT - RAIN TIGHTGF - GROUND FAULT PROTECTIONDE - DUAL ELEMENIG - ISOLATED GROUNDTD - TIME DELAYHACR - HVAC & REFRIGERATIONH - MOUNT HORIZOEQUIP'T RATED CKT BRKRRKR	IT NTAL
	THE NUMBER 12 INDICATES THE CIRCUIT NUMBER THAT POWE ELECTRICAL DEVICE, IT MAY NOT REQUIRE A HOME RUN	RS THE
P,12	THE "P" IS THE PANEL DESIGNATION AND THE NUMBER "12" IS CIRCUIT ON PANEL "P" - IF THE PANEL DESIGNATION IS ABSE WIRED TO THE LOCAL PANEL IN THE DWELLING	
₽	DWELLING UNIT SMOKE DETECTOR 120V WITH BATTERY BACK- STATTION UNIT- ALL IN EACH SEPARATE DWELLING TO BE WI TOGETHER TO SOUND ONE ALARM. DO NOT WIRE TO BUILDING ADDRESSABLE FIRE ALARM SYSTEM.	
СМ	DWELLING UNIT COMBINATION SMOKE/CARBON MONOXIDE DETEC WITH BATTERY BACK-UP, SINGLE STATION UNIT, ALL IN EACH DWELLING TO BE WIRED TOGETHER TO SOUND ONE ALARM. DO NOT WIRE TO BUILDING ADDRESSABLE FIRE ALARM SYSTEM	SEPARATE
L		

ELECTRICAL NOTES:

- 1. ALL ELECTRICAL WORK TO BE INSTALLED IN ACCORDANCE WITH THE GOVERNING EDITION OF THE NATIONAL ELECTRICAL CODE AND ANY OTHER LOCAL AUTHORITIES HA∨ING JURISDICTION.
- 2. ALL ELECTRICAL MATERIALS AND EQUIPMENT FOR THE PROJECT SHALL BE NEW AND U.L. DR EQUALLY APPROVED.
- 3. PROCURE ALL NECESSARY PERMITS, INSPECTIONS AND LICENSES AND PAY ALL REQUIRED FEES.
- 4. SUBMIT TO THE OWNER CERTIFICATES OF INSPECTION IN DUPLICATE FROM APPROVED INSPECTION AGENCY UPON COMPLETION.
- 5. ON COMPLETION OF THE WORK, THE ENTIRE WIRING SYSTEM SHALL BE ENTIRELY FREE FROM GROUNDS, SHORT CIRCUITS, OPENS, OVERLOADS, AND IMPROPER VOLTAGES AND THOROUGH TESTS SHALL BE MADE. FURNISH ALL LABOR, MATERIAL AND INSTRUMENTS.
- PRIOR TO FINAL ACCEPTANCE OF THE WORK, SUBMIT A WRITTEN STATEMENT TO THE DWNER GUARANTEEING ALL EQUIPMENT AND SYSTEMS AGAINST DEFECTIVE MATERIALS AND WORKMANSHIP FOR ONE (1) YEAR FROM THE DATE OF ACCEPTANCE. UPON WRITTEN NOTICE AND AT NO EXPENSE TO THE DWNER, PROMPTLY REPAIR ALL DEFECTIVE MATERIAL.
- 7. PROVIDE NEATLY TYPED SCHEDULES OUTLINING CIRCUIT CONTROL FOR ALL PANEL BOARDS.
- 8. CONTRACT DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC, THEREFORE, THE CONTRACTOR SHALL APPLY FOR DETAILED INFORMATION REGARDING THE LOCATION OF ALL EQUIPMENT BEFORE ROUGH-IN AS THE FINAL LOCATION MAY DIFFER FROM THAT SHOWN ON THE DRAWINGS, OUTLETS, ETC., IMPROPERLY PLACED BECAUSE OF FAILURE TO OBTAIN THIS INFORMATION SHALL BE RELOCATED AND REINSTALLED WITHOUT ADDITIONAL EXPENSE.
- 9. WIRE ALL FIXTURES, DEVICES, ETC., TO RESPECTIVE PANELS AND CONTROLS AS SHOWN ON THE PLANS IN SYMBOL FORM, BRANCH CIRCUIT WIRING IS NOT COMPLETELY SHOWN ON DRAWINGS. CONTRACTOR IS RESPONSIBLE TO WIRE ALL DE∨ICES AS CIRCUITED SYMBOLICALLY.
- 10. ALL WIRE AND CABLE SHALL BE COPPER 75° RATED, 600 VOLT INSULATION, TYPE THW, THHN DR THWN. WIRE SIZE #10 AND SMALLER SHALL BE SDLID, #8 AND LARGER SHALL BE STRANDED, MINIMUM SIZE WIRE FOR 20A LIGHTING AND POWER CIRCUITS SHALL BE #12 AWG ON CIRCUIT LENGTHS OF UP TO 100 FEET. ON CIRCUIT LENGTHS 100 TO 200 FEET, #10 AWG SHALL BE INSTALLED TO THE CENTER CIRCUIT LOAD AND #12 TO THE OTHER OUTLETS ON THE CIRCUIT IF REQUIRED DUE TO VOLTAGE DROP. FOR 15A LIGHTING AND POWER CIRCUITS, #14 AWG WIRE MAY BE INSTALLED. CONTRACTOR MAY USE ALUMINUM WIRE AND CABLE ON THE SECONDARY SIDE OF THE UTILITY COMPANY TRANSFORMER(S) AND ON THE PRIMARY SIDE OF PANEL BOARDS IF 75° LUGS ARE USED, AMPACITY IS 60A DR GREATER, AND INSTALLED IN COMPLIANCE WITH THE N.E.C., ALUMINUM WIRE SIZES ARE INDICATED ON PLANS WHERE ALLOWABLE.
- 11. IN REFERENCE TO NOTE #10, ELECTRICAL CONTRACTOR MAY USE ARMORED CLAD CABLE TYPE "AC" AND METAL CLAD CABLE TYPE "MC" WITH BUILDING CONSTRUCTION TYPE I AND TYPE II WHERE ALLOWABLE BY NOTE #1. NONMETALLIC SHEATHED CABLE TYPE "NMC" MAY BE USED WITH BUILDING CONSTRUCTION TYPE ∨ WHERE ALLOWABLE BY NDTE #1.
- 12. VERIFY ALL DOOR SWINGS PRIOR TO SWITCH ROUGH-IN. 13. VERIFY ALL CEILING CONSTRUCTION INCLUDING METHOD AND TYPE OF BUILDING INSULATION BEFORE ORDERING FIXTURES AND PROVIDE FIXTURES COMPATIBLE TO CEILING CONSTRUCTION, INCLUDING BUILDING INSULATION METHODS (I/C OR NON I/C
- 14. PROVIDE ALL LIGHTING FIXTURES RECESSED IN A CEILING WHICH HAVE A FIRE RESISTIVE RATING OF ONE HOUR OR MORE WITH A BOX ENCLOSURE WHICH HAS A FIRE RATING EQUAL TO THAT OF THE CEILING. THE SPACE FROM THE FIXTURE TO THE ENCLOSURE SHALL BE A MINIMUM OF 1" FOR FLUORESCENT AND 3" FOR INCANDESCENT FIXTURES.
- 15. ELECTRICAL CONTRACTOR TO SECURE SHOP DRAWINGS FROM OTHER SUBCONTRACTORS AND VERIFY EXACT ELECTRICAL CHARACTERISTICS OF EQUIPMENT TO BE WIRED. THIS IS TO BE DONE BEFORE ELECTRICAL CONTRACTOR ROUGH-IN FOR SUBJECT EQUIPMENT. F DISCREPANCIES ARE NOTED BETWEEN THE ELECTRICAL CONTRACT DRAWINGS AND DTHER CONTRACTOR SHOP DRAWINGS, ELECTRICAL CONTRACTOR IS TO NOTIFY ENGINEER AT DNCE, FAILURE BY THE ELECTRICAL CONTRACTOR TO PERFORM THIS DUTY WILL NOT RELIEVE HIM OF THE RESPONSIBILITY TO CORRECT WIRING DEFICIENCIES AT HIS EXPENSE.
- 16. PROVIDE ALL WIRING, CONNECTIONS AND DEVICES, ETC., NECESSARY TO COMPLY WITH THE GROUNDING REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE AND AS SHOWN ON THE DRAWINGS, ALL EXPOSED NON-CURRENT CARRYING METALLIC PARTS OF THE ELECTRICAL EQUIPMENT, RACEWAY SYSTEMS, GROUNDING CONDUCTORS OF NONMETALLIC COVERED CABLE AND NEUTRAL CONDUCTOR OF THE WIRING SYSTEM SHALL BE GROUNDED.
- 17. ALL WIRING, UNLESS SPECIFICALLY SPECIFIED DTHERWISE, IS TO BE INSTALLED IN THE CONSTRUCTION IN A CONCEALED MANNER.
- 18. CUNTRACTOR TO PROPERLY SEAL ALL FIRE RATED WALL/CEILING PENETRATIONS. GENERAL CONSTRUCTION NOTES

RATED) AS REQUIRED.

- 1. THE PLANS REPRESENT A COMPLETE OPERATIONAL SYSTEM, WHEREIN ALL WIRING, EQUIPMENT FIXTURES, FITTINGS, CONTROLS, AND ALL REQUIRED ACCESSORIES ARE FURNISHED, INSTALLED, STARTED, AND TESTED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, EQUIPMENT, LABOR, AND SUPERVISION TO DELIVER A COMPLETE SYSTEM. THE FIRE PROTECTION ALARM/SPRINKLER SYSTEM, IF REQUIRED, IS NOT A COMPONENT OF THIS DESIGN (UNLESS SPECIFICALLY DEPICTED) AND IT IS PROVIDED BY A DESIGN AND BUILD FIRE PROTECTION CONTRACTOR.
- 2. THE PLANS ARE DIAGRAMMATICAL IN NATURE. THE WORK REQUIRED TO PROPERLY INTERFACE WITH DTHER TRADES, WHICH MAY REPRESENT CHANGES TD THE DRAWINGS TD ACCOMMODATE THE INSTALLATION OF THIS WORK, IS PERFORMED WITHOUT ADDITIONAL COST TO THE OWNER. THIS INCLUDES BUT IS NOT LIMITED TO ARCHITECTURAL, STRUCTURAL, ELECTRICAL, PLUMBING, MECHANICAL, GRADING, FIRE PROTECTION, AND OTHER CONSIDERATIONS.
- 3. ALL WORK MUST BE EXECUTED IN STRICT ACCORDANCE WITH ALL APPLICABLE NATIONAL, STATE AND LOCAL CODES AND ORDINANCES. ALL WORK MUST BE EXECUTED IN A NEAT AND WORKMANLIKE MANNER. THE SUBCONTRACTORS AND GENERAL CONTRACTOR MUST COORDINATE WITH ALL TRADES DURING THE CONSTRUCTION PROCESS. THIS CONTRACTOR MUST REVIEW ALL ASPECTS OF THEIR WORK PRIOR TO INSTALLATION TO ENSURE PROPER CLEARANCES AND CAPACITIES EXIST.
- 4. THE CONTRACTOR MUST BE LICENSED AND ENSURED IN THE COUNTY AND STATE AS APPLICABLE. SUBMIT TO THE DWNER AS DIRECTED PROOF OF INSURANCE INCLUSIVE OF LIMITS OF LIABILITY AND DEDUCTIBLE INFORMATION. ALL SUBCONTRACTORS OF SUBCONTRACTORS MUST BE LICENSED AND ENSURED TOO.
- 5. SINCE THE PLANS ARE DIAGRAMMATICAL IN NATURE FOR CLARITY PURPOSES, THE CONTRACTOR MUST SUBMIT A SHOP DRAWING WHERE THE CONTRACTOR INTENDS TO INSTALL WORK THAT INCLUDES SUBSTANTIAL DIFFERENCES FROM THE PLANS, INCLUSIVE OF CALCULATIONS AND OTHER ITEMS TO THE OWNER PRIOR TO COMMENCING WORK. THE SHOP DRAWINGS MUST INCLUDE EXACT LOCATIONS, SPECIAL FITTINGS, AND VERIFICATION THAT THIS INFORMATION IS ACCURATE.
- 6. THE CONTRACTOR AND ALL SUBCONTRACTORS WARRANT THAT THEY HAVE VISITED THE PROJECT SITE, REVIEWED ALL OF THE CONTRACT DOCUMENTS, AND ARE OTHERWISE FAMILIAR WITH THE REQUIREMENTS NECESSARY TO COMPLETELY EXECUTE THE WORK REQUIRED TO COMPLY WITH THE DIAGRAMMATICAL WORK DEPICTED HEREIN. FURTHER, THE CONTRACTOR WARRANTS THAT, IN POSSESSING A THOROUGH KNOWLEDGE OF THE CODE AND INDUSTRY STANDARD CONSTRUCTION PRACTICES, THE BID FOR PERFORMING THE WORK WILL CONTAIN ALLOWANCES FOR NORMAL DIFFICULTIES EXPERIENCED DURING THE CONSTRUCTION OF A BUILDING OF THIS TYPE. MODIFICATIONS TO THE CONTRACT, WHICH DO NOT ADD VALUE TO THE PROJECT, WILL NOT BE CONSIDERED VALID.
- 7. THIS DESIGN IS NON TRANSFERABLE. IT IS INTELLECTUAL PROPERTY WITH TRADE SECRETS TO NE BE UTILIZED ON THIS PROJECT ONLY. 8. WHERE THE CONTRACTOR FURNISHES CERTAIN MODELS OR PROTOTYPES OF DESIGN SPECIFIED IN THE DRAWINGS, SUBMITTAL DATA IS NOT NECESSARY, SIMPLY NOTIEY THE OWNER IN
- WRITING THAT THE SPECIFIED ITEM WILL BE USED AND PROCEED WITH THE WORK. IF EQUAL DEVIATIONS FROM THE SPECIFIED PRODUCT ARE UTILIZED, THE PRODUCT DATA MUST BE SUBMITTED TO THE DWNER FOR APPROVAL. IT IS THE INTENT OF THE DESIGN TO MAKE A COMPETITIVE BID. EQUAL PRODUCTS WILL BE CONSIDERED AS SUBMITTED.
- 9. ALL SYSTEMS SHALL BE BALANCED IN ACCORDANCE WITH INDUSTRY ACCEPTED STANDARDS AND CDDE REQUIREMENTS. ALL ELECTRICAL PHASES FOR THREE PHASE SERVICE SHALL BE BALANCED, AIR DISTRIBUTION SYSTEMS SHALL BE BALANCED, AND ALL OTHER APPLICABLE MEP SYSTEMS SHALL BE PROPERLY COMMISSIONED AND BALANCED.
- 10. ALL MEP SYSTEMS SHALL PROVIDE FOR NO POOLING OF WATER TO THE EXTENT POSSIBLE. THE SAFE PANS, DRAIN PANS, AND CONDENSER PADS SHALL ALL SLOPE TO AVOID POOLS OF WATER. IT IS ACCEPTABLE TO HAVE A 1/8" DEPTH POOL OF WATER IN CONDENSATE PANS DURING COOLING OPERATION.
- 11. ALL ACCESS PANELS SHALL BE LABELED BY THE TRADE THAT RECEIVES THE BENEFIT OF THE ACCESS PANEL. THE BUILDER PROVIDES MANY ACCESS DOORS FOR PLUMBING CLEANOUTS OR FIRE DAMPERS, BUT THE PLUMBER OR HVAC CONTRACTOR SHALL PROVIDE THE LABEL. THE LABEL SHALL BE WITH 3/8" HEIGHT LETTERS ON NON CARDBOARD OR PAPER TYPE MATERIAL, PERMANENTLY AFFIXED TO THE ACCESS DOOR. DUCT ACCESS DOORS INSTALLED IN DUCTWORK SHALL BE MADE AND LABELED BY THE H∨AC CONTRACTOR.
- 12. THE FIRE DAMPERS THAT PENETRATE THE CEILING ON THE DISCHARGE OF THE AIR HANDLER SHALL BE INSTALLED IN STRICT ACCORDANCE WITH THE INSTALLATION INSTRUCTIONS PUBLISHED BY THE MANUFACTURER. SUBMIT THE ILLUSTRATION OF THE INSTALLATION IN THE INSTRUCTIONS PRIOR TO CONSTRUCTION AND THAT WILL SUFFICE AS THE DETAIL. THE DAMPER SHALL BE INSTALLED IN A SLEEVE WITHIN SIX INCHES OF THE PLANE OF THE CEILING AT A MINIMUM, COMPLETE WITH A DUCT ACCESS DOOR.
- 13. THE PLANS INDICATE QUANTITIES ON THE PLANS TO ENHANCE THE UNDERSTANDING OF THE DESIGN CONCEPT. THE QUANTITIES ARE RELIABLE, BUT NOT GUARANTEED. THE CONTRACTOR IS RESPONSIBLE TO INSTALL THE CORRECT QUANTITIES OF ITEMS REQUIRED TO DELIVER A COMPLETE FUNCTIONING BUILDING.
- 14. THIS PROJECT HAS AN UNUSUAL INTENSE MEP COORDINATION REQUIREMENT, AND IT IS THE RESPONSIBILITY OF THE MEP TRADES TO ENSURE THAT ALL ASPECTS OF THE WORK ARE PROVIDED TO DELIVER A COMPLETE AND FUNCTIONING MEP SYSTEM.
- 15. WHERE THERE EXISTS A DISCREPANCY BETWEEN THE PLANS, DOCUMENTS, OR CODE THE CONTRACTOR SHALL PROVIDE FOR THE MOST EXPENSIVE METHOD AND ADVISE THE ARCHITECT IN WRITING PRIOR TO PERFORMING ANY WORK.

NEC LOAD CALCULATIONS

Lafayette House Renovations

Existing Service: 400A, 120/240V 1-phase 3-wire

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RESPONSIBILITY OF DESIGN AND CONSTRUCTION TEAMS FOR MEP:

- AMICABLE COOPERATION OF THE DESIGN AND CONSTRUCTION TEAMS GENERALLY PRODUCES THE BEST RESULTS FOR THE OWNER. INVESTMENT IN THE DESIGN BY THE INSTALLING CONTRACTORS IS ALSO USUALLY BENEFICIAL FOR THE PROJECT. ANY REASONABLE CONTRACTOR SUGGESTIONS IN ADVANCE OF CONSTRUCTION WILL BE CONSIDERED AND/OR REVIEWED. ANY RESULTING NECESSARY (FOR PERMIT OR CODE OFFICIAL INSPECTION PURPOSES, NOT FOR AS-BUILT PURPOSES) CONSTRUCTION PLAN CHANGES THAT THE DWNER AND ARCHITECT APPRDVE SUGGESTED BY THE INSTALLING CONTRACTOR SHALL BE EXECUTED BY THE MEP DESIGN TEAM WITHOUT OUT ADDITIONAL CHARGE PROVIDED THEY ARE NOT EXTENSIVE.
- THE MEP DESIGN IS PROVIDED PRIMARILY TO OBTAIN THE BUILDING PERMIT. IF THE JURISDICTION DID NOT REQUIRE PROFESSIONALLY ENGINEERED MEP PLANS, THE PROJECT WOULD LIKELY BE CONSTRUCTED AS A DESIGN AND BUILD PROJECT. ACCORDINGLY THE PLANS ARE NOT SHOP DRAWINGS. THE PLANS ARE NOT AS-BUILT DRAWINGS. THE PLANS DO NOT SHOW EVERY DIFFICULTY AND NUANCE ASSOCIATED WITH WHAT IS REQUIRED TO INSTALL A COMPLETE SYSTEM. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING A COMPLETE SYSTEM AS DIAGRAMMATICALLY DEPICTED ON THE PLANS. THIS WILL LIKELY INCLUDE PROVIDING ITEMS THAT ARE NOT SHOWN ON THE PLANS BUT REQUIRED TO DELIVER A COMPLETE SYSTEM. THE PLANS MAY BE CONSIDERED A PERFORMANCE BASED SPECIFICATION.
- THE MEP CONTRACTORS MUST ANTICIPATE IN ADVANCE OF THE BID AND CONSTRUCTION THE REQUIREMENTS NECESSARY TO DELIVER A COMPLETE SYSTEM SO THAT THERE ARE NO REQUESTS FOR CHANGE ORDERS BASED ON ALLEGED PLAN OMISSIONS/ERRORS LATER IN THE PROJECT TO PROVIDE THE SYSTEMS ALREADY SPECIFIED ON THE PLANS. FOR EXAMPLE IF AN ELECTRICAL SWITCHGEAR ROOM IS CROWDED AND REQUIRES MORE COMPACT EQUIPMENT, LARGER SPACES, AND/OR OTHER CIRCUMSTANCES THE ELECTRICAL SWITCHGEAR CAPACITY SPECIFIED MUST BE INSTALLED WITHDUT ADDITIONAL CHARGE. FURTHER TO THIS EXAMPLE THE RESOLUTION MAY INVOLVE ENLARGING A ROOM BY DESIGN IN ADVANCE OF CONSTRUCTION, CONSIDERING REVIEW OF DIFFERENT EQUIPMENT OR OTHER SOLUTIONS. THE DESIGN TEAM WILL COOPERATE TO THE EXTENT REASONABLY POSSIBLE TO MITIGATE ANY UNANTICIPATED CIRCUMSTANCES TO PROVIDE A COMPLETE MEP SYSTEM. HOWEVER, AGAIN, NO CHANGE ORDERS SHALL BE APPROVED UNLESS IT IS ADDITIONAL SCOPE ITEMS THE DWNER AGREES TO FUND.
- IT IS THE INSTALLING CONTRACTOR RESPONSIBILITY TO NOTIFY THE DESIGN TEAM IN ADVANCE OF ALL CONSTRUCTION WITH TIME TO REACT WHENEVER THERE COULD BE AN ISSUE THAT REQUIRES RESOLUTION TO INSTALL A COMPLETE CODE COMPLIANT MEP SYSTEM. THERE ARE FURTHER RESTRICTIONS SPECIFIED IN THE CONSTRUCTION DOCUMENTS AND THIS NARRATIVE IS BY NO MEANS LIMITING.
- UNDER NO CIRCUMSTANCES WILL RE-ROUTING OF DUCTWORK OR PLUMBING PIPES BE CONSIDERED A CHANGE DRDER DUE TO UNANTICIPATED STRUCTURAL INTERFERENCES. THE ROUTING OF THE PIPES AND DUCTWORK SHOWN ON THE PLANS IS INTENDED TO ANTICIPATE THE MAJORITY OF STRUCTURAL INTERFERENCES BUT IT WILL NOT INCLUDE ALL OF THEM. THE ENTIRE DUCT OR PIPE SYSTEM MUST BE PLANNED IN ADVANCE TO AVOID RE-WORKING OR RE-ROUTING OF THIS WORK. COORDINATION WITH DTHER TRADES TO ACCOMMODATE THEIR WORK IS ALSO REQUIRED. UNDER NO CIRCUMSTANCES WILL RE-INSTALLATION OF INCORRECT MATERIALS FOR THE APPLICATION BE CONSIDERED CHANGE DRDER, FOR EXAMPLE ALL EXPOSED WIRING IN THE GARAGE MUST UTILIZED METAL CONDUIT ENCASED CONDUCTORS AND THE USE OF NM CONDUCTORS (ROMEX) BY MISTAKE (OR EVEN IF INADVERTENTLY SPECIFIED) WILL NOT BE CONSIDERED A CHANGE ORDER TO REPLACE.
- IT IS RECOMMENDED BUT NOT REQUIRED THAT THE MEP TRADES PROVIDE SHOP DRAWINGS IN ADVANCE OF CONSTRUCTION, ESPECIALLY IN THE SERVICE ENTRANCE ROOMS, UTILITY ROOMS, DWELLING HVAC CLOSETS AND OTHER AREAS TRADITIONALLY DESIGNED WITH CONFINED SPACES IN WOOD FRAME MULTI-FAMILY DWELLING STRUCTURES. IT IS THE RESPONSIBILITY OF THE MEP CONTRACTORS TO NOTIFY THE PRIME CONTRACTOR WHERE INSTALLATION OF THEIR TRADE WORK MAY REQUIRE INTENSE COOPERATION WITH OTHER TRADES SUCH AS CONCRETE ENCASED CONDUCTORS UNDER THE FIRST FLOOR SLAB, PLUMBING RISERS TURNS THAT REQUIRE DROPPED FOOTINGS AND THE LIKE IN ADVANCE OF THE BID AND CONSTRUCTION TO MINIMIZE UNANTICIPATED CONSTRUCTION REQUIREMENTS TO DELIVER A COMPLETE SYSTEM.
- AGAIN, COOPERATION, ADVANCE PLANNING, ANTICIPATION OF DIFFICULTIES, SUGGESTIONS, AND THE LIKE WILL PRODUCE THE BEST RESULT FOR ALL CONCERNED PARTIES.
- ELECTRICAL DEMOLITION AND ALTERATIONS
- 1. THE ELECTRICAL CONTRACTOR SHALL DISCONNECT AND REMOVE ALL ELECTRICAL EQUIPMENT AND WIRING NO LONGER REQUIRED, HE SHALL CUT ALL EXISTING CONDUIT WHICH WILL NOT BE COVERED OR HIDDEN BY THE NEW CONSTRUCTION BACK TO THE CONCRETE CEILING AND FLOOR SLABS. THIS CONTRACTOR, IF FEASIBLE MAY UTILIZE ANY EXISTING CONDUIT, DUTLET BOXES OR JUCTION BOXES THAT DO NOT INTERFERE WITH THE NEW CONSTRUCTION, ALL EXISTING WIRING ON NOT BEING UTILIZED SHALL BE REMOVED BACK TO THE POINTS OF CONNECTION.
- 2.ANY WIRING THAT IS TO REMAIN, WHICH RUNS THROUGH AREAS OF WORK SHALL REMAIN DPERATIONAL. IF ANY WORK INTERFERES WITH THE NEW CONSTRUCTION, IT SHALL BE REROUTED AND REWORKED AS REQUIRED TO SATISFY THE NEW CONDITIONS.
- 3.IF ANY EXISTING ELECTRICAL EQUIPMENT IS TO REMAIN FOR THE OPERATION OF SYSTEMS IN DTHER AREAS OF THE BUILDING, IT SHALL BE RELOCATED AS REQUIRED TO THE SATISFACTION OF THE ARCHITECT.
- 4.ANY INTERRUPTION OF BUILDING SERVICES TO ANY SECTION OF THE BUILDING SUCH AS ELECTRIC LIGHT AND POWER, FIRE ALARM SYSTEM, TELEPHONE SYSTEM AND THE LIKE SHALL BE SCHEDULED, THE ARCHITECT SHALL APPROVE ALL SCHEDULES BEFORE ANY INTERRUPTIONS ARE PERMITTED, THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OVERTIME WORK NECESSARY TO MEET THIS REQUIREMENT. IF INTERRUPTIONS MUST OCCUR DURING NORMAL HOURS AT THE BUILDING, THE ELECTRICAL CONTRACTOR SHALL, AT HIS EXPENSE, PROVIDE TEMPORARY SERVICES AS REQUIRED TO PERMIT THE NORMAL FUNCTIONING OF ALL FACILITIES DURING INTERRUPTION.
- 5. THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE OF WORK AND BECOME THOROUGHLY FAMILIAR WITH ALL CONDITIONS BEFORE SUBMITTING BID. NO EXTRA COMPENSATION WILL BE PAID FOR EXTRA WORK, WHICH MAY ARISE BECAUSE OF FAILURE TO DO SO.
- 6.IT SHOULD BE NOTED THAT THE NEW CONSTRUCTION IS TO BE CONNECTED TO AND INSTALLED IN EXISTING FACILITIES AND THE DRAWINGS GENERALLY SHOW ONLY THE NEW WORK THAT I REQUIRED. DRAWINGS DO NOT SHOW IN DETAIL HOW NEW WORK IS TO BE INSTALLED BECAUSE OF UNKNOWN OBSTRUCTIONS TO ITS INSTALLATION WHICH MAY BE DISCLOSED AS WORK PROGRESSES. THE WORK SHALL BE PROVIDED IN SUCH A MANNER, AND WITH SUCH ADDITIONAL WORK NOT SPECIFICALLY INDICATED, AS TO OVERCOME ALL OBSTRUCTIONS AND DIFFICULTIES AT THE SITE, ALL SUCH WORK SHALL BE DONE IN FULL COOPERATION WITH THE ARCHITECT, WHO SHALL DECIDE AT THE SITE HOW SUCH WORK SHALL BE DONE.
- 7. CONTRACTOR SHALL CHECK THE CONDITION OF ALL PANELBOARDS, CIRCUIT BREAKERS, AND WIRING TO REMAIN AND INFORM ARCHITECT OF ANY FAULTY EQUIPMENT. CONTRACTOR TO PROVIDE NEATLY TYPED PANEL SCHEDULE LISTING ALL NEW AND USED CIRCUITS.

PANEL DEMAND LOAD CALCULATIONS Lafayette House Renovations

Existing Panel "PP1" - 200A, 120/240V 1-phase with new dwelling sub-panel "A"

XISTING LOADS:		EXISTING PA
GENERAL LOADS		5.0 TON A
LIGHTING & RECEPTS (6200ft2 @ 3W/ft2)	18,600 VA	5.0 TON A
EXISTING GENERAL LOADS SUBTOTAL	18,600 VA	AIR HAND
SPECIAL LOADS		
ELECTRIC RANGES/OVENS (2@8000W)	16,000 VA	NEW DWELLI
ELECTRIC CLOTHES DRYER	5,000 VA	GENERAL
SMALL APPLIANCE (2@1500W)	3,000 VA	LIGHTING
REFRIGERATOR (3@1100W)	3,300 VA	
CLOTHES WASHER	1,500 VA	
DISHWASHER	1,200 VA	SPECIAL
EXISTING SPECIAL LOADS SUBTOTAL	30,000 VA	
HVAC LOADS		SMALL AF
5.0 TON AC COMPRESSOR (1.9kW/ton)	9,500 VA	CLOTHES
5.0 TON AC COMPRESSOR (1.9kW/ton)	9,500 VA	DISHWAS
AIR HANDLERS (2@1100W)	2,200 VA	REFRIGE
EXISTING HVAC LOADS SUBTOTAL	21,200 VA	DISPOSA
EW LOADS:		
GENERAL LOADS		
LIGHTING & RECEPTS (570ft2 @ 3W/ft2)	1,710 VA	2.0 TON D
NEW GENERAL LOADS SUBTOTAL	1,710 VA	
SPECIAL LOADS		NEW DWE
ELECTRIC RANGE/OVEN	8,000 VA	First 10KV
ELECTRIC CLOTHES DRYER	5,000 VA	
SMALL APPLIANCE (2@1500W)	3,000 VA	
CLOTHES WASHER	1,500 VA	
DISHWASHER	1,200 VA	
REFRIGERATOR	1,100 VA	T
DISPOSAL	1,000 VA	
NEW SPECIAL LOADS SUBTOTAL	20,800 VA	Thoroforo
HVAC LOADS		Therefore s
2.0 TON DUCTLESS MINI SPLIT (1.9kW/ton)	3,800	COMBINED P
NEW HVAC LOADS SUBTOTAL	3,800 VA	
OMBINED DWELLING LOAD PER NEC TABLE 220-30(4)		
rst 10KW@100% + Remaining @40% + HVAC @100% + Ba	ckup Heat @65%	
EXISTING + NEW GENERAL LOADS	20,310 VA	Therefore t
EXISTING + NEW SPECIAL LOADS	50,800 VA	
EXISTING + NEW HVAC LOADS	25,000 VA	
FIRST 10KW	10,000 VA	
REMAINING @40%	24,444 VA	
HVAC @100%	25,000 VA	

COMBINED TOTAL LOAD 59,444 VA

CURRENT @240V/1 247.7 A

ting Panel "PP1" - 200A, 120/240V 1-phase with new dwel	ing sup-panel "A"
TING PANEL "PP1" LOADS:	
5.0 TON AC COMPRESSOR (1.9kW/ton)	9,500 VA
5.0 TON AC COMPRESSOR (1.9kW/ton)	9,500 VA
AIR HANDLERS (2@1100W)	2,200 VA
TOTAL EXISTING PANEL LOAD	
DWELLING SUB-PANEL "A" LOADS:	
GENERAL LOADS	
LIGHTING & RECEPTS (570ft2 @ 3W/ft2)	1,710 VA
NEW GENERAL LOADS SUBTOTAL	1,710 VA
SPECIAL LOADS	
ELECTRIC RANGE/OVEN	8,000 VA
ELECTRIC CLOTHES DRYER	5,000 VA
SMALL APPLIANCE (2@1500W)	3,000 VA
CLOTHES WASHER	1,500 VA
DISHWASHER	1,200 VA
REFRIGERATOR	1,100 VA
DISPOSAL	1,000 VA
NEW SPECIAL LOADS SUBTOTAL	
HVAC LOADS	
2.0 TON DUCTLESS MINI SPLIT (1.9kW/ton)	3,800 VA
NEW HVAC LOADS SUBTOTAL	3,800 VA
NEW DWELLING LOAD PER NEC TABLE 220-30(4)	+ Bookup Hoot @65%
First 10KW@100% + Remaining @40% + HVAC @100%	+ Backup Heat @65%
FIRST 10KW	10,000 VA
REMAINING @40%	12,510 VA
HVAC @100%	3,800 VA
TOTAL NEW DWELLING SUB-PANEL LOAD	26,310 VA
CURRENT AT 240V/1	109.6 A
Therefore sub-panel "A" shall be rated for 125A.	
BINED PANEL LOAD	
EXISTING PANEL "PP1" LOAD	21,200 VA
NEW DWELLING SUB-PANEL "A" LOAD	26,310 VA
TOTAL NEW PANEL "PP1" LOAD	47,510 VA
CURRENT AT 240V/1 =	198.0 A

e the existing 200A panel "PP1" can be used.

Therefore the existing 400A service is sufficient.

2004	A MLO						24	0/120	/ 1-pha	se 3-w	ire					SE	RIES RA	TED 22,000
LOCATION	А	В	LTG	REC	MIS	WIRE	CKT	BRKR	PHASE	BRKR	CKT	WIRE	MIS	REC	LTG	Α	В	LOCATION
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AHU			<u> </u>		──	<u> </u>	5 7	15/2	A B	50/2	6 8							AC COMPR
					<u> </u>		9		A	20/1	10							EXISTING E
SUB-PANEL "A"		14,670	<u>†</u>	<u> </u>	1	#1	11	125/2	В	15/1	12							EXISTING E
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CONN LOAD : FDR AMPS: 240/1 Existing circuits & equi		117.7	amps anel D		d Load	d Calcu	lation	S.										
FDR AMPS: 240/1		117.7	anel D	eman					GHTI	NG &	RE	CEPT	rs f	PAN	EL			
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FDR AMPS: 240/1 Existing circuits & equi	A MLO	117.7 nain. See Pa	PA		L PF	P2 - ⊦	10U 24	SE LI	/ 1-pha	ise 3-w	vire	1 1					1	
FDR AMPS: 240/1 Existing circuits & equi 200A LOCATION	pment to rem	117.7	PA		L PF	P2 - ⊦	-ЮU 24 СКТ	SE LI 0/120 BRKR	/ 1-pha PHASE	ise 3-w BRKR	vire CKT	1 1				SE	RIES RA	LOCATION
FDR AMPS: 240/1 Existing circuits & equi 200A LOCATION EXISTING EQUIP'T	A MLO	117.7 nain. See Pa	PA		L PF	P2 - ⊦	-ЮU 24 СКТ 1	O/120 BRKR 20/1	/ 1-pha PHASE A	se 3-w BRKR 60/2	vire CKT 2	1 1					1	LOCATION
FDR AMPS: 240/1 Existing circuits & equi 200A LOCATION EXISTING EQUIP'T EXISTING EQUIP'T	A MLO	117.7 nain. See Pa	PA		L PF	P2 - ⊦	HOU 24 СКТ 1 3	SE LI 0/120 BRKR 20/1 20/1	/ 1-pha PHASE A B	se 3-w BRKR 60/2 	vire CKT 2 4	1 1					1	LOCATION ELEC RAN
FDR AMPS: 240/1 Existing circuits & equi 200A LOCATION EXISTING EQUIPT EXISTING EQUIPT EXISTING EQUIPT	A MLO	117.7 nain. See Pa	PA		L PF	P2 - ⊦	-ЮU 24 СКТ 1	SE LI 0/120 BRKR 20/1 20/1 20/1	/ 1-pha PHASE A B	se 3-w BRKR 60/2	vire CKT 2	1 1					1	LOCATION ELEC RAN
FDR AMPS: 240/1 Existing circuits & equi 200A LOCATION EXISTING EQUIP'T EXISTING EQUIP'T	A MLO	117.7 nain. See Pa	PA		L PF	P2 - ⊦	НОU 24 СкТ 1 3 5	SE LI 0/120 BRKR 20/1 20/1 20/1 30/2	/ 1-pha PHASE A B	BRKR 60/2 60/2	rire CKT 2 4 6	1 1					1	LOCATION ELEC RAN ELEC RAN
FDR AMPS: 240/1 Existing circuits & equi 200A LOCATION EXISTING EQUIP'T EXISTING EQUIP'T EXISTING EQUIP'T CLOTHES DRYER	A MLO	117.7 nain. See Pa	PA		L PF	P2 - ⊦	HOU 24 CKT 1 3 5 7	SE LI 0/120 BRKR 20/1 20/1 20/1 30/2	/ 1-pha PHASE A B A B	BRKR 60/2 60/2 	rire CKT 2 4 6 8	1 1					1	LOCATION ELEC RAN ELEC RAN ELEC RAN EXISTING E
FDR AMPS: 240/1 Existing circuits & equi 200A LOCATION EXISTING EQUIP'T EXISTING EQUIP'T EXISTING EQUIP'T CLOTHES DRYER 	A MLO	117.7 nain. See Pa	PA		L PF	P2 - ⊦	HOU 24 CKT 1 3 5 7 9	SE LI 0/120 BRKR 20/1 20/1 20/1 30/2 	/ 1-pha A A A A B A	BRKR 60/2 60/2 20/1	rire CKT 2 4 6 8 10	1 1					1	LOCATION ELEC RAN ELEC RAN ELEC RAN EXISTING E
FDR AMPS: 240/1 Existing circuits & equi 200A LOCATION EXISTING EQUIP'T EXISTING EQUIP'T EXISTING EQUIP'T CLOTHES DRYER EXISTING EQUIP'T	A MLO	117.7 nain. See Pa	PA		L PF	P2 - ⊦	HOU 24 CKT 1 3 5 7 9 11	SE LI 0/120V BRKR 20/1 20/1 20/1 30/2 20/1	/ 1-pha A A A A B A	BRKR 60/2 60/2 20/1 20/1	rire CKT 2 4 6 8 10 12	1 1					1	LOCATION ELEC RAN ELEC RAN ELEC RAN EXISTING E EXISTING E EXISTING E
FDR AMPS: 240/1 Existing circuits & equi 200A LOCATION EXISTING EQUIP'T EXISTING EQUIP'T EXISTING EQUIP'T CLOTHES DRYER EXISTING EQUIP'T EXISTING EQUIP'T	A MLO	117.7 nain. See Pa	PA		L PF	P2 - ⊦	HOU 24 CKT 1 3 5 7 9 11 13	SE LI 0/120 BRKR 20/1 20/1 20/1 30/2 20/1 15/1	/ 1-pha A A A A A A B A	BRKR 60/2 60/2 20/1 20/1 20/1	rire CKT 2 4 6 8 10 12 14	1 1					1	LOCATION ELEC RAN ELEC RAN ELEC RAN EXISTING E EXISTING E EXISTING E
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FDR AMPS: 240/1 Existing circuits & equi 200A LOCATION EXISTING EQUIPT EXISTING EQUIPT EXISTING EQUIPT CLOTHES DRYER EXISTING EQUIPT EXISTING EQUIPT	A MLO	117.7 nain. See Pa	PA		L PF	P2 - ⊦	HOU 24 CKT 1 3 5 7 9 11 13 15 17 19 21 23 25 27	SE LI 0/120 BRKR 20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	/ 1-pha A A A A A A A A A A A B A A B A A B A B A B A B A B A B A B A B B A B B B B B B B B B B B B B B B B B B B B	se 3-w BRKR 60/2 20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	rire CKT 2 4 6 8 10 12 14 16 18 20 22 24 26 28	1 1					1	LOCATION ELEC RAN ELEC RAN ELEC RAN EXISTING E EXISTING E EXISTING E EXISTING E EXISTING E EXISTING E EXISTING E EXISTING E
FDR AMPS: 240/1 Existing circuits & equi 200A LOCATION EXISTING EQUIP'T EXISTING EQUIP'T EXISTING EQUIP'T CLOTHES DRYER EXISTING EQUIP'T EXISTING EQUIP'T	A MLO	117.7 nain. See Pa	PA		L PF	P2 - ⊦	HOU 24 CKT 1 3 5 7 9 11 13 15 17 19 21 23 25 27 29	SE LI 0/120 BRKR 20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	/ 1-pha PHASE A B A A B A A B A A B A A B A B A B A	BRKR 60/2 60/2 20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	rire CKT 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30	1 1					1	LOCATION ELEC RAN ELEC RAN ELEC RAN EXISTING E EXISTING E EXISTING E EXISTING E EXISTING E EXISTING E EXISTING E EXISTING E EXISTING E
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FDR AMPS: 240/1 Existing circuits & equi 200A LOCATION EXISTING EQUIPT EXISTING EQUIPT EXISTING EQUIPT CLOTHES DRYER EXISTING EQUIPT EXISTING EQUIPT	A MLO	117.7 nain. See Pa	PA		L PF	P2 - ⊦	HOU 24 CKT 1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35	SE LI 0/120 BRKR 20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	/ 1-pha PHASE A B A A B A A B A A B A A B A B A B A	se 3-w BRKR 60/2 20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	rire CKT 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36	1 1					1	LOCATION ELEC RAN ELEC RAN ELEC RAN EXISTING E EXISTING E EXISTING E EXISTING E EXISTING E EXISTING E EXISTING E EXISTING E EXISTING E EXISTING E
FDR AMPS: 240/1 Existing circuits & equi 200A LOCATION EXISTING EQUIP'T EXISTING EQUIP'T EXISTING EQUIP'T CLOTHES DRYER EXISTING EQUIP'T EXISTING EQUIP'T	A MLO	117.7 nain. See Pa	PA		L PF	P2 - ⊦	HOU 24 CKT 1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33	SE LI 0/120 BRKR 20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	/ 1-pha PHASE A B A A B A A B A A B A A B A B A B A	se 3-w BRKR 60/2 20/1 20/1 20/1 20/1 20/1 20/1 20/1 20/1	rire CKT 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34	1 1					1	LOCATION ELEC RAN ELEC RAN ELEC RAN ELEC RAN EXISTING E EXISTING E EXISTING E EXISTING E EXISTING E EXISTING E EXISTING E EXISTING E EXISTING E

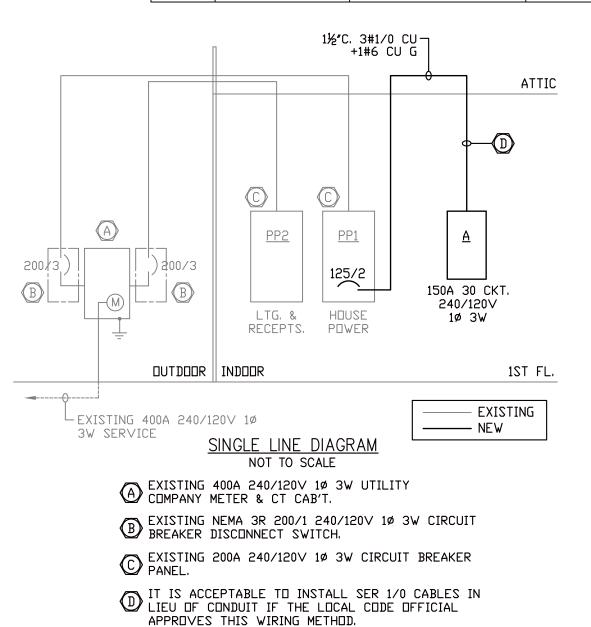
FDR AMPS: 240/1 0.0 amps All existing circuits & equipment to remain or be reused. See floor plan sheet notes.

					PA	NEL	. <mark>A</mark> -	APA	RTN	ENT S	SUB	PAN	EL					
125A	MLO						24	0/120\	/ 1-pl	nase 3-	wire					SE	RIES RA	TED 22,000 AIC
LOCATION	А	В	LTG	REC	MIS	WIRE	СКТ	BRKR	PHAS			WIRE	MIS	REC	LTG	А	В	LOCATION
DS-2.0	2040				1	#10	1	30/2	A	15/1*	2	#14	1		16	290		LIGHTING
		2040					3			B 15/1*	4	#14		6			1080	BEDROOM RECEPT
CLOTHES DRYER	2500				1	#10	5	30/2	A	15/1*	6	#14		7		1260		LIVING RECEPTS
		2500					7			B 20/1*	* 8	#12		2			1500	SMALL APPLIANCE
RANGE/OVEN	4000				1	#6	9	50/2	A	20/1*	* 10	#12		1		1500		SMALL APPLIANCE
		4000					11			B 20/1	12	#12	1				200	RANGE HOOD
CLOTHES WASHER	1500			1		#12	13	20/1	A	20/1*	* 14	#12		2	2	380		EXT/ATTIC LTG/REC
REFRIGERATOR		1100		1		#12	15	20/1		B 20/1*	* 16	#12		1			180	BATH GFI
DISHWASHER	1200			1		#12	17	20/1**	A	20/1	18							SPARE
DISPOSAL		980		1		#12	19	20/1**		B 20/1	20							SPARE
							21		A		22							
							23		A		24							
	11,240	10,620														3,430	2,960	
CONN LOAD :		28,250																
FDR AMPS: 240/1		117.7	x125	%	147	amps												
*AFCI breaker, **GFCI b	reaker																	

NEW SUB-PANEL

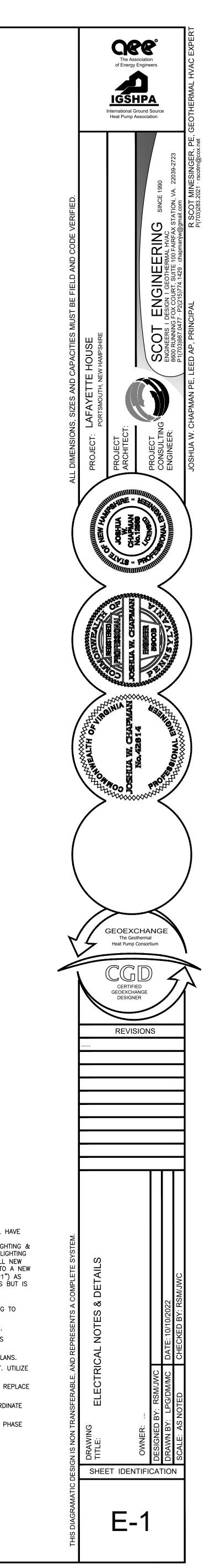
IT IS ACCEPTABLE TO UTILIZE NM CONDUCTORS (ROMEX) IF APPROVED BY THE LOCAL CODE OFFICIAL.

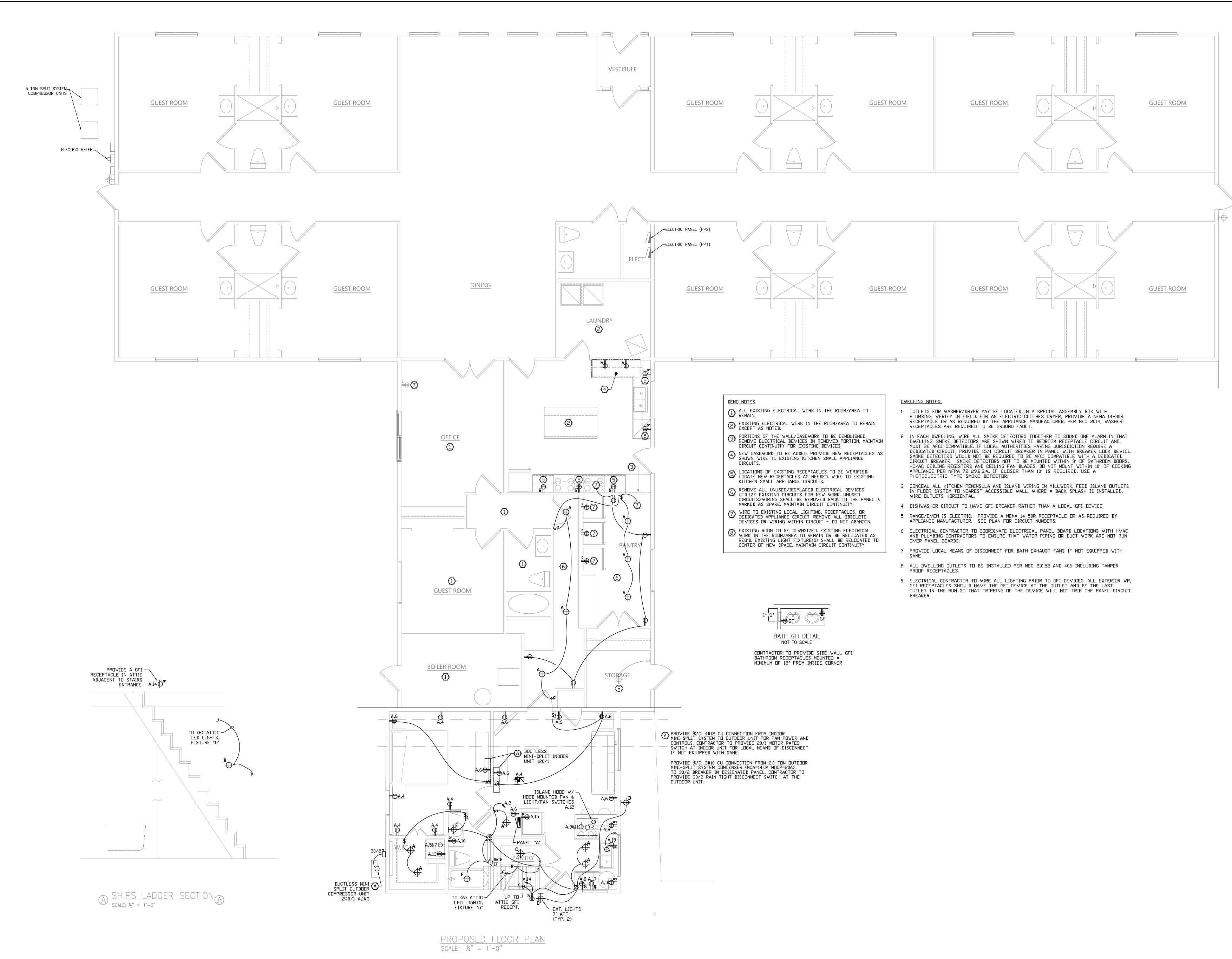
	MEP LIGHT FIXTURE SCHEDULE													
TYPE	MFR.	CATALOG NO.	LAMPS	REMARKS										
А	HALO	SLD612835-WH-JB	15W LED	DOWN LIGHT MOUNTED ON A DEEP J-BOX 1200 LUMENS										
В	WAC LIGHTING	WL-LED101-30-WT	3.5W LED	ATTIC STAIR LOW-PROFILE WALL MOUNTED										
С	SEAGULL	5328EN3-962	(2) 10W LED	SMALL HALL/CLOSET SURFACE MTD 800 LUMENS PER LAMP										
D	SEAGULL	84048EN3-12	(1) 10W LED	EXTERIOR WALL SCONCE, 800 LUMENS										
Е	SEAGULL	4424603EN-05	(3) 10W LED	BATH VANITY SCONCE										
F	HALO	SLD6-06835-WH-JB	(1) 12.2W LED	WET LOCATION MOUNTED ON DEEP J-BOX										
G	LEVITON	9850-LED	(1) 10W GU24	PORCELAIN SOCKET W/ WALL SWITCH										

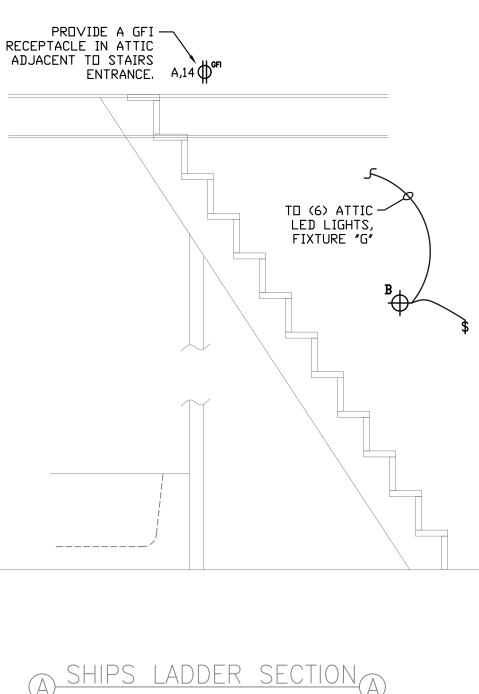


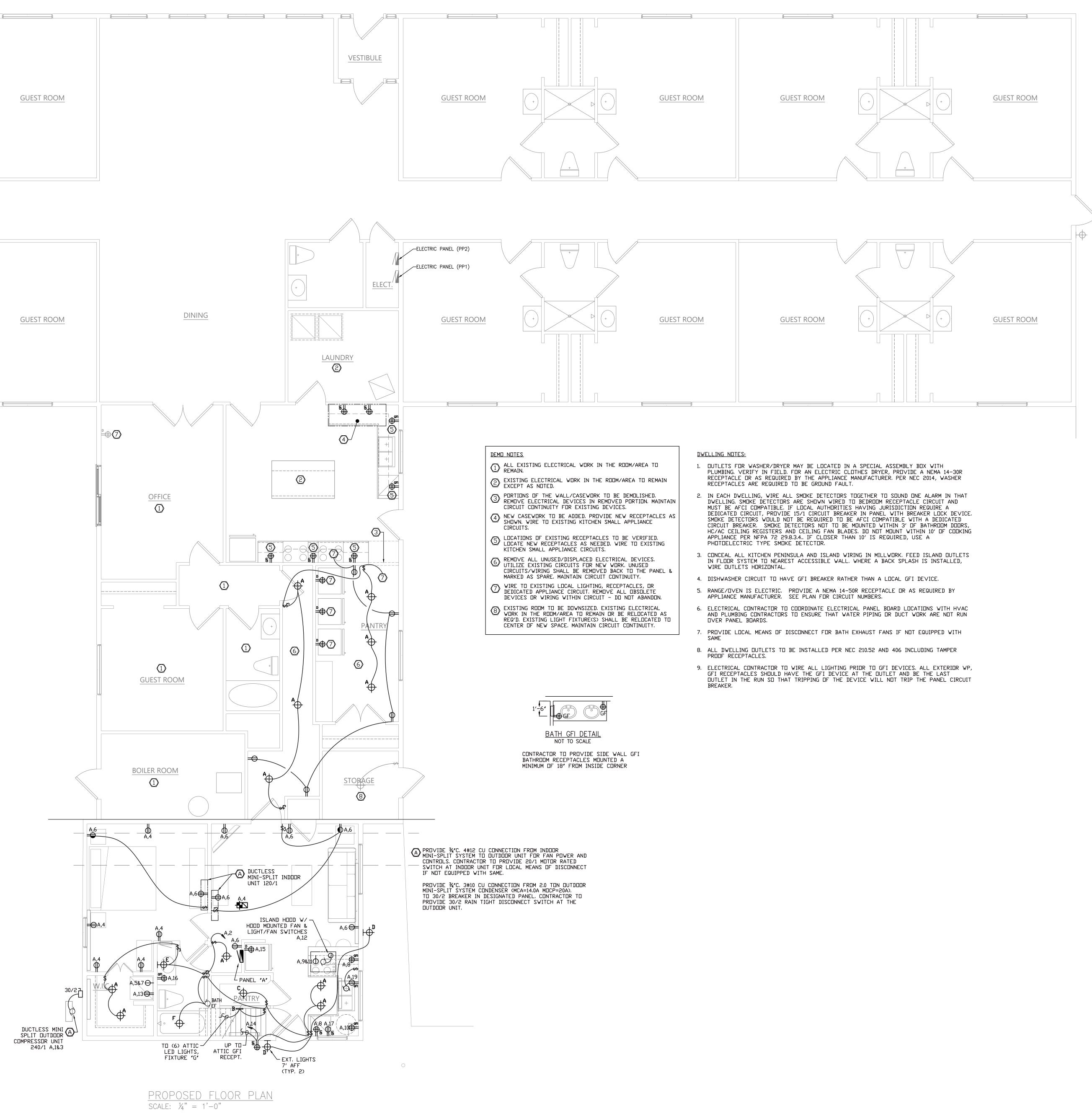
ELECTRICAL SCOPE OF WORK

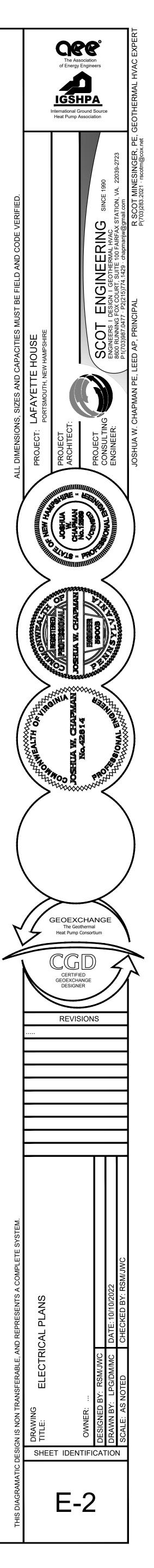
- THE PROJECT CONSISTS OF AN EXISTING RESIDENTIAL BUILDING THAT WILL HAVE INTERIOR RENOVATIONS AND AN ADDITION. INCOMING ELECTRICAL SERVICE COMPONENTS AND CIRCUIT BREAKER PANELS ARE EXISTING TO REMAIN. LIGHTING & RECEPTACLE CIRCUITS IN THESE EXISTING SPACES ARE BEING REUSED FOR LIGHTING AND RECEPTACLES WITHIN THE ORIGINAL BUILDING SPACE (PANEL "PP2"). ALL NEW ELECTRICAL WORK WITHIN THE ADDITION DWELLING SPACE SHALL BE WIRED TO A NEW SUB-PANEL "A" POWERED OFF OF EXISTING HOUSE A/C PANEL (PANEL "PP1") AS INDICATED WITHIN THESE PLANS. THE ELECTRICAL SCOPE OF WORK INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING:
- 1. ALL EXISTING PANELS, TRANSFORMERS, AND DISCONNECTS ARE EXISTING TO
- 2. REMOVE AND/OR REPLACE EXISTING ELECTRICAL DEVICES AS REQUIRED. 3. INSTALL NEW LED LIGHTING & RECEPTACLES WITHIN ORIGINAL SPACE AS INDICATED, UTILIZING EXISTING CIRCUITS.
- 4. INSTALL ALL ELECTRICAL DEVICES IN ADDITION ACCORDING TO THESE PLANS. 5. INSTALL NEW TAMPER-PROOF RECEPTACLES AND DEVICES THROUGHOUT. UTILIZE EXISTING CIRCUITS.
- 6. ALL 120V, 15A & 20A RECEPTACLES SHALL BE TAMPER-PROOF TYPE. REPLACE EXISTING AS REQUIRED.
- 9. SECURITY (IF NECESSARY) AND FIRE ALARM ARE DESIGN/BUILD. COORDINATE WITH TENANT & LANDLORD ACCORDINGLY.
- 10. SPRINKLER AND FIRE ALARM TO BE RESOLVED AT THE SHOP DRAWING PHASE AND SUBMITTED TO THE FIRE MARSHAL FOR REVIEW.

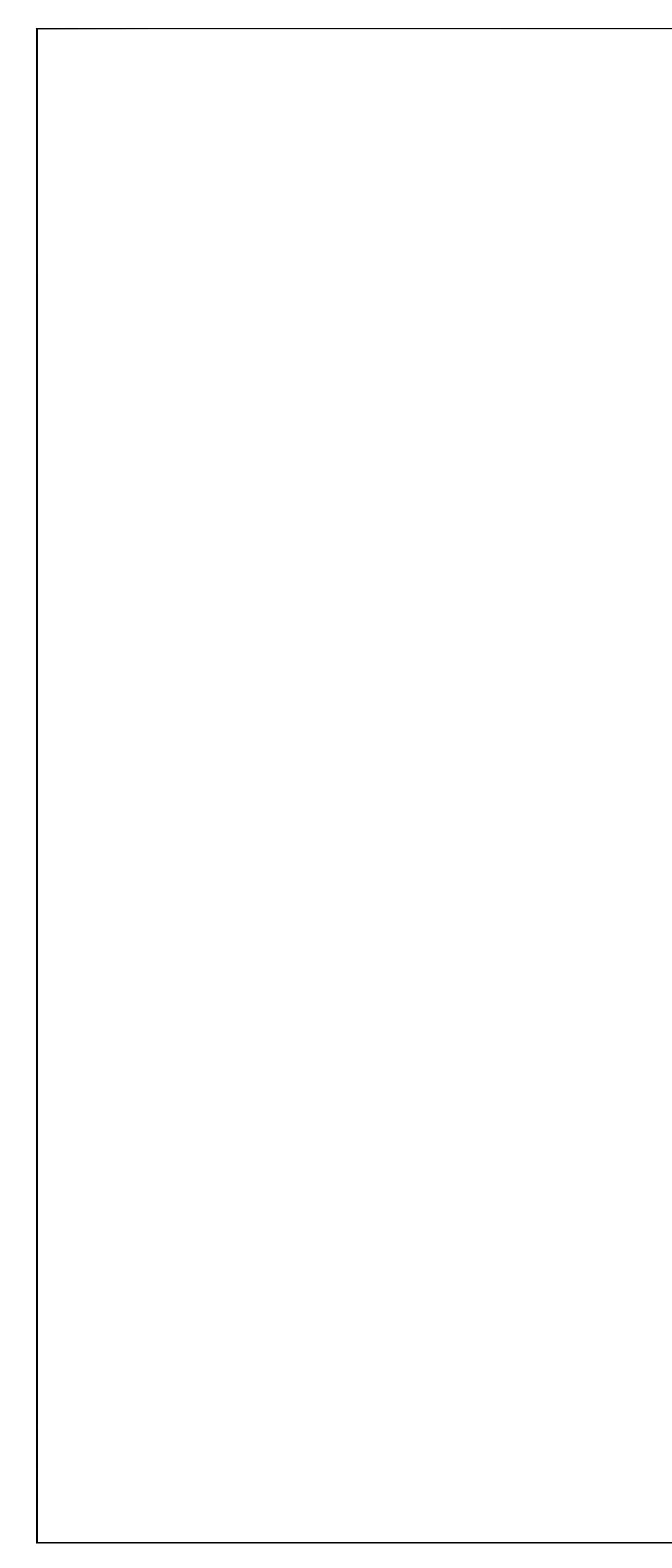




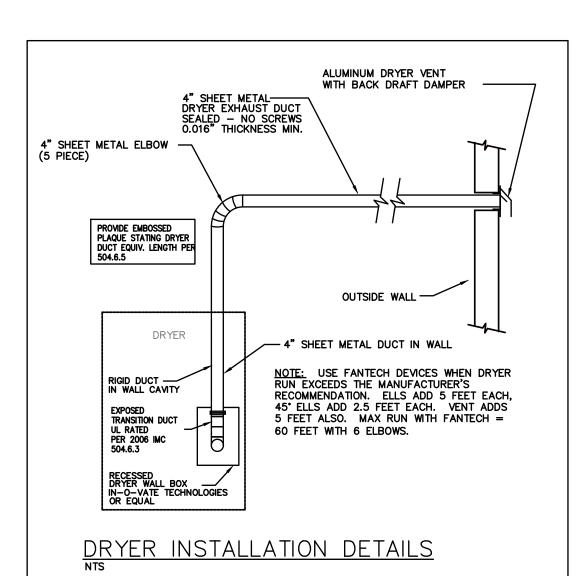


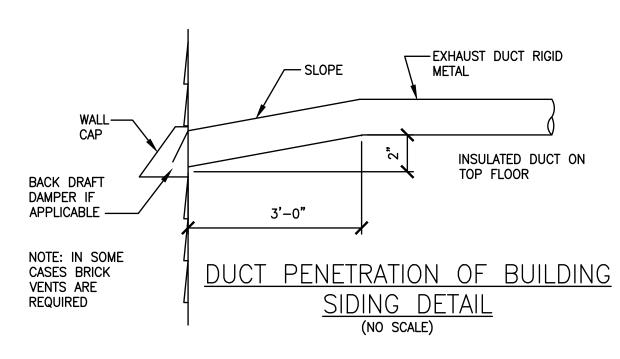






LEGENDS			ABBREVIATION
IN RETURN DUCT CARBON SENSOR, SHOW IN GARAGE CARBON CARBON CARBON CARBON CARBON CARBON SENSOR THERMOS INSTALL CEILING F WITH RAD DAMPER SUPPLY ADD CEILING F WITH RAD DAMPER SUPPLY ADD CEILING F WITH RAD DAMPER SUPPLY ADD CEILING F WITH RAD DAMPER SUPPLY ADD CEILING F WITH RAD DAMPER AIR HAND AIR HAND CR W/RD RETURN O WITH FIRE DAMPER 2KW WALL HEA 2.0 KW SUPPLY ADD COR RETURN O WITH FIRE DAMPER 2KW WALL HEA 2.0 KW MOTORIZE DAMPER COR 115V FD FIRE DAM VOLUME CISZE IN	W/ RELAY MONOXIDE W/ RELAY TAT AF REGISTER IATION AR REGISTER IATION AR REGISTER FLOOR FAN SEVEN VE FLOOR ACE LER LER GRILLE IATION EGISTER CISTER AR OR EXHAUST AR OR EXHAUST AR OR EXHAUST AR OR DUCT LAS I CIRCLE IS), R-8-NO IMIT AL DOR DUCT LAS I CIRCLE IS), R-8-NO IMIT AL OR DUCT LAS I CIRCLE IS), R-8-NO IMIT AL OR DUCT AS AR AR AR AR AR AR AR AR AR AR	AD AFF AHU ALU BD BBD BE BS CA CD CG CR DSW EA ER FD FOT FR HBJ INS IS LSW MUA OAI OBD OCO OHO R-8 R/A RG RSR ET G VD/C W/C W/RD	ACCESS DOOR ABOVE FINISHED FLOOR AIR HANDLING UNIT ALUMINUM BALANCE DAMPER BACK DRAFT DAMPER BACK DRAFT DAMPER BOTTOM ELEVATION BIRD SCREEN COMBUSTION AIR CEILING OFFUSER, LOUVERED FACE CEILING REGISTER DISCONNECT SWITCH EXHAUST AIR ENERGY RECOVERY EXHAUST AIR ENERGY RECOVERY EXHAUST AIR ENERGY RECOVERY EXHAUST AIR ENERGY RECOVERY EXHAUST AIR FLAT ON TOP FLOOR REGISTER HEAT PUMP INSTALL BETWEEN JOIST INSULATION INSECT SCREEN LOW SIDE WALL RETURN GRILLE OR SUPPLY REGISTER MAKE UP AIR OUTSIDE AIR INTAKE OPPOSED BLADE DAMPE 0 COOLING 0 CFMs 0 HEATING 0 CFMs INSULATION R-6 INSULATION R-6 INSULATION R-8 RETURN AIR RETURN AIR RETURN GRILLE RETURN REGISTER TOP ELEVATION TRANSFER GRILLE VOLUME DAMPER WALL CAP WIRE MESH SCREEN WITH RADIATION DAMPEN
THIS PROJECT			





- provided by a design and build fire protection contractor.
- grading, fire protection, and other considerations.
- equipment must be ARI matched and rated.

- requirement.
- supported.
- the builder in advance of installation.
- 16. The plumber shall provide a PVC condensate drain within five feet of the mechanical equipment to drain the

only.

- operation.
- specifies max exhaust duct length and dryer exhaust capacity minimum.

- the hvac contractor.

RESPONSIBILITY OF DESIGN AND CONSTRUCTION TEAMS FOR MEP: Amicable cooperation of the design and construction teams generally produces the best results for the owner. Investment in the design by the installing contractors is also usually beneficial for the project. Any reasonable contractor suggestions in advance of construction will be considered and/or reviewed. Any resulting necessary (for permit or code official inspection purposes, not for as-built purposes) construction plan changes that the owner and architect approve suggested by the installing contractor shall be executed by the MEP design team without additional charge provided they are not extensive.

The MEP design is provided primarily to obtain the building permit. If the jurisdiction did not require professionally engineered MEP plans, the project would likely be constructed as a design and build project. Accordingly the plans are not shop drawings. The plans are not as—built drawings. The plans do not show every difficulty and nuance associated with what is required to install a complete system. The contractor is responsible for installing a complete system as diagrammatically depicted on the plans. This will likely include providing items that are not shown on the plans but required to deliver a complete system. The plans may be considered a performance based specification.

The MEP contractors must anticipate in advance of the bid and construction the requirements necessary to deliver a complete system so that there are no requests for change orders based on alleged plan omissions/errors later in the project to provide the systems already specified on the plans. For example if an electrical switchgear room is crowded and requires more compact equipment, larger spaces, and/or other circumstances the electrical switchgear capacity specified must be installed without additional charae. Further to this example the resolution may involve enlarging a room by design in advance of construction, considering review of different equipment or other solutions. The design team will cooperate to the extent reasonably possible to mitigate any unanticipated circumstances to provide a complete MEP system. However, again, no change orders shall be approved unless it is additional scope items the owner agrees to fund.

means limiting.

inadvertently specified) will not be considered a change order to replace.

unanticipated construction requirements to deliver a complete system.

result for all concerned parties.

GENERAL HVAC CONSTRUCTION NOTES, NOT ALL APPLY

1. The plans represent a complete operational system, wherein all wiring, equipment, fixtures, fittings, controls, and required accessories are furnished, installed, started, and tested by the sub-contractor. The sub-contractor shall provide all materials, equipment, labor, and supervision to deliver a complete system. The fire protection alarm/sprinkler system is not a component of this design (unless specifically depicted) and it is

2. The plans are diagrammatical in nature. The work required to properly interface with other trades, which may represent changes to the drawings to accommodate the installation of this work, is performed without additional cost to the builder. This includes but is not limited to architectural, structural, electrical, plumbing, mechanical,

3. All work must be executed in strict accordance with all applicable national, state and local codes and ordinances. All work must be executed in a neat and workmanlike manner. The subcontractors and builder must coordinate with all trades during the construction process. This sub-contractor must review all aspects of their work prior to installation to Ensure proper clearances and capacities exist.

4. All air conditioning equipment installed shall be minimum 15 SEER efficiency minimum. All air conditioning

5. The sub-contractor must be licensed and insured in the Township, County and State as applicable. Submit to the owner as directed proof of insurance.

6. Since the plans are diagrammatical in nature for clarity purposes, the sub-contractor must submit a shop drawing where the contractor intends to install work that includes substantial differences from the plans, inclusive of calculations and other items to the owner prior to commencing work. The shop drawings must include exact locations, special fittings, and verification that this information is accurate.

7. The sub-contractor warrants that they have visited the project site, reviewed all of the contract documents, and are otherwise familiar with the requirements necessary to completely execute the work required to comply with the diagrammatical work depicted herein. Further, the sub-contractor warrants that, in possessing a thorough knowledge of the code and industry standard construction practices, the bid for performing the work will contain allowances for normal difficulties experienced during the construction of a building of this type.

8. The design conditions for this project are heating and cooling per ASHRAE 1% and 99% design temperature extremes minimum of 17°F and 91°F outdoor and 70°F indoor heating and 75°Fdb/50°RH indoor cooling. The cooling and heating requirements were calculated according to ACCA Manual J with average construction, East/West Front/Back exposure, and blinds on some windows.

Modifications to the contract, which do not add value to the project, will not be considered valid.

9. Provide fire protection dampers whenever a rated assembly is penetrated by ductwork. It is the intent of this plan set to show all fire protection dampers. Inadvertently, a fire protection damper may be shown in a non-rated wall and not be required. Also a fire damper may not be shown in a rated wall but remain a

10. All supply air, return air, and exhaust air duct work installed in an unconditioned space must be insulated with R-8 insulation wrap minimum, or per code if it is stricter. R-8 duct board with a tough guard interior water proof coating installed in strict accordance with the installation instructions published by the manufacturer is acceptable as insulated duct work for top floor dwellings only, in lieu of metal rectangular duct with an insulation wrap. Round ductwork installed in an unconditioned space shall be R-8 insulated class I flexible air duct, UL rated 181 or rigid metal duct wrapped with insulation. Flexible air duct shall be provided with a reflective outer casing, black colored flex duct outer casing is strictly prohibited. The HVAC contractor shall be responsible for installing air conveyance systems in unconditioned spaces which comply with this requirement, to the extent that higher than specified insulation values may be required. All ductwork shall be properly

11. All ductwork shall be G60 galvanized metal 26-gauge minimum for rectangular, and 28 gauge minimum for smaller round ductwork. Duct board is not acceptable, except for the top floor dwelling discharge plenums, air distribution manifolds and register boots. Where duct board is utilized it shall be "Toughguard" or equal with the moisture/erosion resistant black coating without exception. Duct board cannot be used for other purposes. 12. Seal all duct building penetrations, especially floor register and ceiling register boots.

13. All dryer exhaust duct shall be rigid round duct without protrusions (such as screws) into the air stream. The developed length shall not exceed twenty-five feet total, where 90' elbows count as five feet of length. Where the dryer proposed is capable of performing with dryer exhaust developed lengths in excess of 25', longer lengths are permitted where they are within the manufacturer's published requirements. Coordinate with

14. Kitchen exhaust shall be ducted. Coordinate with the builder for installation requirements. Comply with the written installation instructions published by the kitchen hood manufacturer.

15. All ductwork shall be leak tested by a third independent party (duct blaster test) for leakage. Leakage shall not exceed five percent @ 0.20" without exception. Seal the ductwork to prevent leaks with metal tape (no tape on round branch to rectangular trunk duct connections) or mastic. Duct sealing shall include the snap lock longitudinal seams, and the end boots, elbow boots and other riveted type manufactured fittings. All ductwork operates at less than 3.0" w.g.

a/c condensate (not to the sewer system) to the storm water management system or to the irrigation system. The HVAC contractor shall furnish a clean out tee and approximately five feet or less of PVC condensate drainpipe from the HVAC equipment to the plumber furnished drains within the closet. All furnaces and air handlers shall receive an emergency drain pan with a float switch wired to stop the equipment if moisture is detected. Coordinate equipment location with the builder.

17. The plans indicate quantities of items to enhance the understanding of the design concept. The quantities are reliable, but not quaranteed. The contractor is responsible to install the correct quantities of items required to deliver a complete functioning building.

18. This design is non-transferable. It is intellectual property with trade secrets to be utilized on this project

19. The sub-contractor shall provide an air balance as a component of the HVAC system start-up for the residential systems. The HVAC sub-contractor shall provide adjustments as required to meet temperature uniformity throughout the dwellings, should a temperature disparity exist without additional cost to the builder. 20. The thermostat shall comply with 503.2.4.1 where a humidity control is included with programmable

21. Provide a plaque adjacent to each clothes dryer, within site of dryer not farther than 6' away, that

22. Provide fire smoke dampers 115v-1 whenever a duct penetrates a shaft.

23. Provide a water detection device for <u>every</u> AHU in the drain pan to stop equipment to prevent a pan overflow. HVAC systems shall utilize in-line sensors to detect moisture in drain pans, such as Goodman model AG 3175 or similar. Do not use "hockey puck" style drain pan switches.

24. All MEP systems shall provide for no pooling of water to the extent possible. The safe pans, drain pans, and condenser pads shall all slope to avoid pools of water. It is acceptable to have a 1/8" depth pool of water in condensate pans during cooling operation.

25. All access panels shall be labeled by the trade that receives the benefit of the access panel. The builder provides many access doors for plumbing cleanouts or fire dampers, but the plumber or hvac contractor shall provide the label. The label shall be with 3/8" height letters on non-cardboard or paper type material, permanently affixed to the access door. Duct access doors installed in ductwork shall be made and labeled by

26. The fire dampers that penetrate the ceiling on the discharge of the air handler shall be installed in strict accordance with the installation instructions published by the manufacturer. submit the illustration of the installation in the instructions prior to construction and that will suffice as the detail. the damper shall be installed in a sleeve within six inches of the plane of the ceiling at a minimum, complete with a duct access

27. The registers and grilles shall be residential stamped steel type for dwellings and commercial as shown on the plans for public spaces. The supply devices shall include a manually operated volume damper. The size of the registers and grilles refers to duct connection size internal dimension, equipment of similar size and adequate performance are acceptable (for example if the contractor utilizes 12x6 or 12x4 supply registers as their standard they are acceptable if their performance is similar to the 10x6 size specified) The return air conveyance system shall not include any adjustable devices to restrict air volume. The return air grilles shall be installed such that the blades are positioned to minimize viewing into the return air duct.

28. Where there exists a discrepancy between the plans, documents, or code the sub-contractor shall provide for the most expensive method and advise the builder in writing prior to performing any work.

It is the installing contractors responsibility to notify the design team in advance of all construction with time to react whenever there could be an issue that requires resolution to install a complete code compliant MEP system. There are further restrictions specified in the construction documents and this narrative is by no

Under no circumstances will re-routing of ductwork or plumbing pipes be considered a change order due to unanticipated structural interferences. The routing of the pipes and ductwork shown on the plans is intended to anticipate the majority of structural interferences but it will not include all of them. The entire duct or pipe system must be planned in advance to avoid re—working or re—routing of this work. Coordination with other trades to accommodate their work is also required. Under no circumstances will re-installation of incorrect materials for the application be considered change order, for example all exposed wiring in the garage must utilize metal conduit encased conductors and the use of NM conductors (Romex) by mistake (or even if

It is recommended but not required that the MEP trades provide shop drawings in advance of construction, especially in the service entrance rooms, utility rooms, dwelling HVAC closets and other areas traditionally designed with confined spaces in wood frame multi-family dwelling structures. It is the responsibility of the MEP contractors to notify the prime contractor where installation of their trade work may require intense cooperation with other trades such as concrete encased conductors under the first floor slab, plumbing risers turns that require dropped footings and the like in advance of the bid and construction to minimize

Again, cooperation, advance planning, anticipation of difficulties, suggestions, and the like will produce the best

EQUIPMENT NOTES, NOT ALL APPLY All equipment includes ECM motors. All equipment is minimum 15 SEER ARI rated without utilizing oversized air handlers (poor humidity removal).

Return air conditions are 75'Fdb/64'Fwb for cooling, and 70'Fdb for heating. EER ratings are based upon 95'Fdb/78'Fwb outside and return air conditions. For common areas and amenity areas, return air conditions are 80'Fdb/67'Fwb to account for outside air conditions mixing with return air.

All air distribution registers and grilles for common areas shall be commercial type, not stamped steel with manual exposed operating levers suitable for the dwellings. For all bathrooms, lockers, and mech. closets, provide 100% aluminum construction for the registers and grilles. The sizes and locations shown on plans accommodate occupant comfort, performance and trusses - do not vary sizes or locations based upon interior designer suggestions without EOR approval.

1. All equipment includes high and low refrigerant compressor protection switches.

- 2. All commercial equipment serving common areas includes auto change over thermostats with remote sensors, where the main control is locked in the mechanical closet to be set by management. The location of the thermostat shown on the plans is the sensor location; main controller is in mechanical closet and not shown on the plans.
- 3. The thermostats shall be the type that when the heating load can be accomplished without operating the resistance heat (except during defrost) and just running the compressor, the thermostat shall control the heat pump accordingly. When the temperature set point is above the room temperature sensed, the compressor shall operate alone unless the sensed temperature falls 5°F below the set point. The thermostat shall gradually ramp up temperature using just the compressor during the end of a night set back temperature period. This is specified to meet code section 6.4.3.5. The thermostat also includes an outdoor temperature sensor to lock out the resistance heat at a point which above it the compressor is
- 4. Provide MERV 8 filters on AHU systems. Provide MERV 6 on all outdoor air inlets.
- 5. All refrigeration pipe insulation shall be $\frac{1}{2}$ " thick minimum, with protection from both physical and UV damaae.
- 6. Provide a moisture detection (water level) switch that will shut off the equipment if the primary drain pan (or pan underneath the air handler) drain becomes blocked to prevent property damage. The device that senses water level rise shall conform to UL508.

Prototype of Design Models manufactured by Goodman and Carrier (OTHER MANUFACTURERS WILL BE REVIEWED): Air handlers, variable speed with ECM motors capable AS NOTED PER THE HVAC SCHEDULE. Dwellings: ALL SYSTEMS SHALL BE AHRI OF DOE MATCHED OF EQUAL OR BETTER SEER AND HSPF rating AS LISTED. Corridors and Common Areas: AVPTC series air handlers matched with DSZC16 two stage series heat pumps for

corridors. Sequence of operation: General: The fan is always energized and the compressor is cycled to maintain humidity and

temperature settings. On a call for heating the compressor cycles in concert with the back-up heat (defrost and extreme conditions) for heat pump applications.

1. All dwelling heat pump split systems:

Programmable thermostat with humidity control cycles the HVAC equipment to maintain the thermostat settina. The fan should remain in the on position during occupancy to insure maximum comfort and ventilation.

The outside air intake receives a gravity actuated automatic damper at the exterior wall in every case.

Common area split system heat pumps:

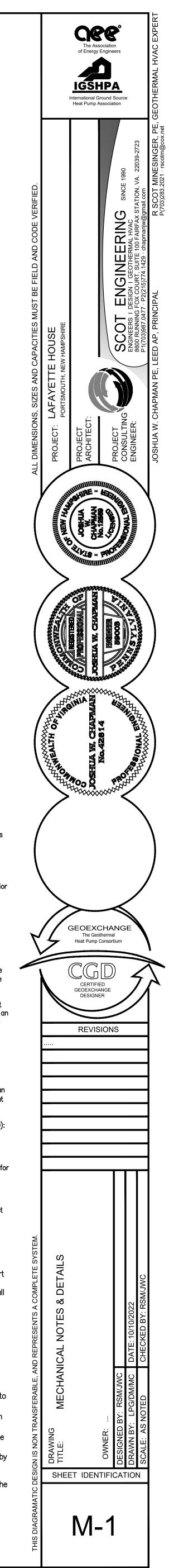
The thermostat is a 7 day programmable unit (for AHREA 90.1, 6.4.3.3.2 set back controls and off hours controls ASHREA 90.1, 6.4.3.3), rather than daily for the dwellings. The programming shall include off hours scheduling as per ASHREA 90.1, 6.4.3.3. The programming shall include a battery back up in each thermostat that powers the thermostat for a period of not less than ten hours during a power interruption to prevent each thermostat from having to be reprogrammed as per ASHREA 90.1, 6.4.3.3.1. The thermostat is an auto change over type that switches automatically from heating to

cooling as determined by the measured return air temperature (wall sensor adjacent to thermostat) and the heating and cooling set points for both <u>occupied and unoccupied</u>, (optimum start controls). The thermostats shall include a 5'F dead-band between heating and cooling as per ASHRAE 90.1, 6.4.3.1.2. Further, the heating and cooling set point can never overlap (hence the dead-band) as per ASHREA 90.1, 6.4.3.2).

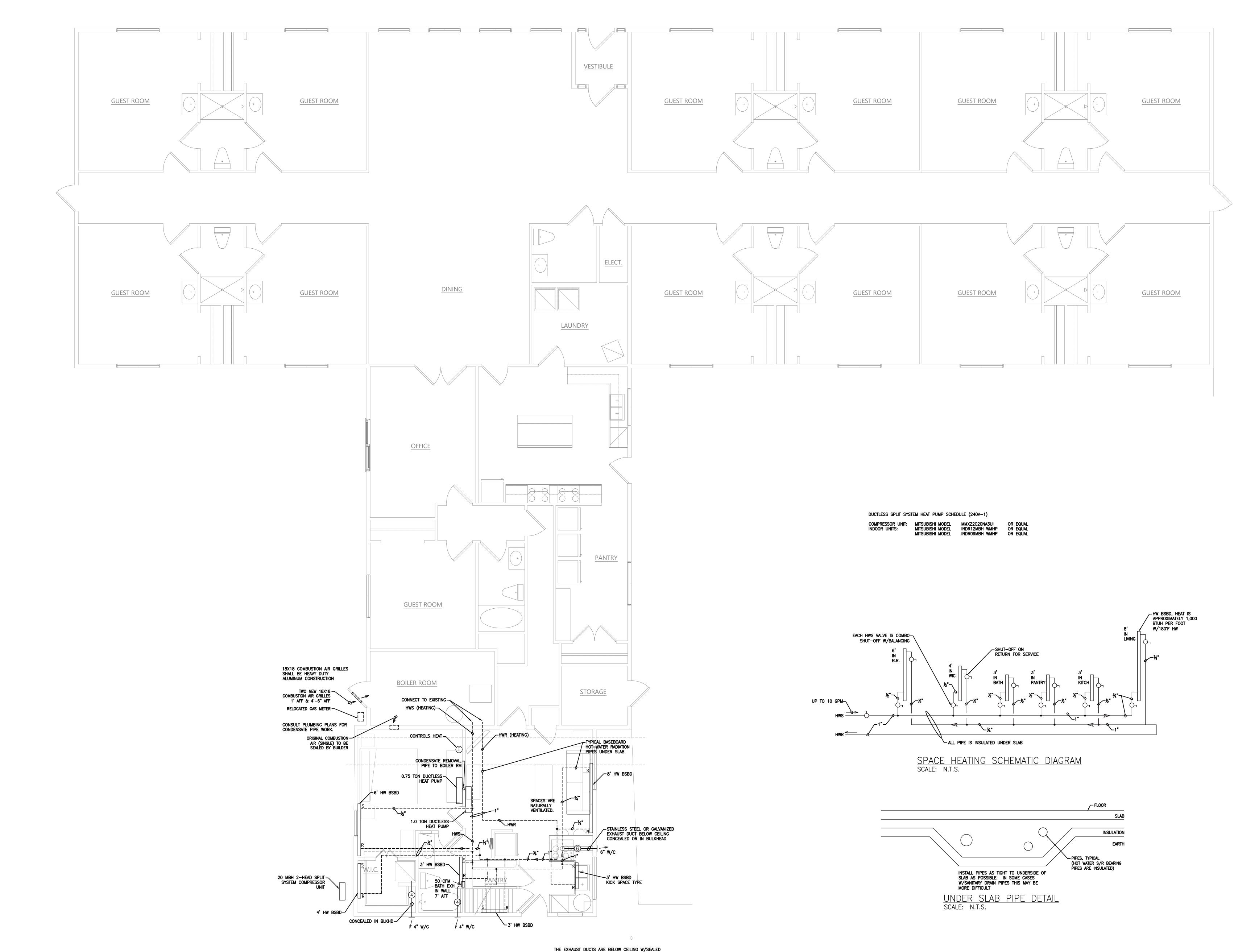
The thermostat is installed inside the mechanical closet for the control and operation by management. The remote sensor is installed where shown on the plans adjacent to the return air grille. In some instances with large volumes of outside air as identified on the floor plans, the

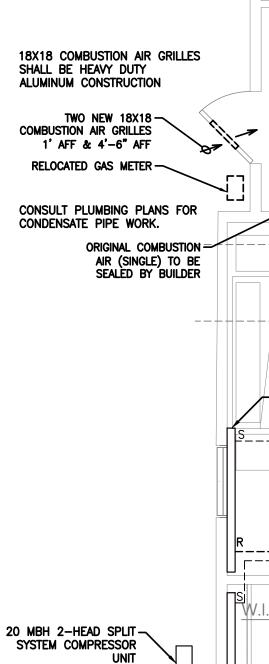
outside air is restricted partially by a motorized outside air damper that allows 25% of outside air through an opposed blade damper during unoccupied and full 100% outside air during full occupancy. Full occupancy is determined by a carbon dioxide sensor with an adjustable setting of 1,100ppm set point mounted in the return air duct with a relay option.

3. All refrigeration pipe insulation shall be 1" thick minimum.



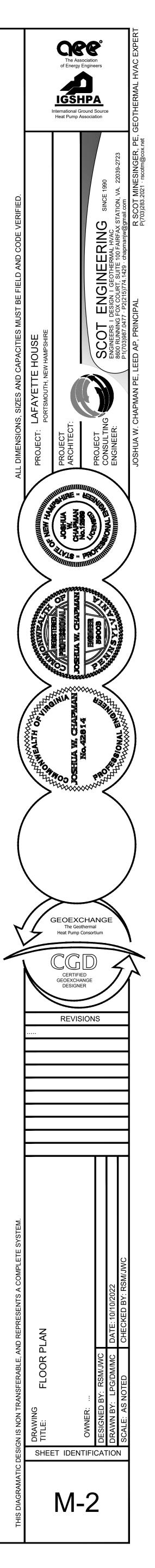
able to manage the heat load. Each dwelling will need to program the lockout temperature.





 $\frac{PROPOSED FLOOR PLAN}{SCALE: \frac{1}{4}" = 1'-0"}$

THE EXHAUST DUCTS ARE BELOW CEILING W/SEALED DRYWALL <u>ABOVE</u> IT. DO <u>NOT</u> FAIL TO SEPARATE HORIZONTAL EXH DUCTS FROM ATTIC W/SEALED DRYWALL, VAPOR BARRIER AND INSULATION.



SECTION 15010 - BASIC MECHANICAL REQUIREMENTS

A. THE WORK OF EACH OF THE MECHANICAL SECTIONS INCLUDES FURNISHING AND INSTALLING THE MATERIAL, EQUIPMENT, AND SYSTEMS COMPLETE AS SPECIFIED AND/OR INDICATED ON THE DRAWINGS. THE MECHANICAL INSTALLATIONS, WHEN FINISHED, SHALL BE COMPLETE AND COORDINATED, READY FOR SATISFACTORY SERVICE.

ALL WORK UNDER THIS CONTRACT SHALL BE DONE IN STRICT ACCORDANCE WITH ALL APPLICABLE MUNICIPAL, STATE, COUNTY, NFPA AND 2009 ICC CODES THAT GOVERN EACH PARTICULAR TRADE.

B. THE CONTRACTOR SHALL MAKE APPLICATIONS AND PAY ALL CHARGES FOR ALL NECESSARY PERMITS, LICENSES AND INSPECTIONS AS REQUIRED UNDER THE ABOVE CODES. FURNISHED.

C. The dwelling water heaters shall be manufactured by BRADFORD WHITE, GAS UPON COMPLETION OF THE WORK, THE CUSTOMARY CERTIFICATIONS OF APPROVAL SHALL BE FIRED, 40 MBH INPUT, 40 GALLON, MODEL RG2PDV40S6N, ASHRAE 90.1 Compliant. Heater shall be rated as indicated on drawings and be listed by Underwriters' Laboratories. Heater shall have integral heat traps. Tank shall be factory fired with glass lining C. NO MATERIALS OR EQUIPMENT SHALL BE USED IN THE WORK UNTIL APPROVED. with 150 psi working pressure and equipped with extruded high density magnesium BEFORE SUBMISSION OF THE SHOP DRAWINGS, AND NOT MORE THAN THIRTY (30) DAYS AFTER anode at t & p relief valve. The controls shall include a thermostat and a high temperature cutoff. The jacket shall provide full size control compartments for AWARD OF THE CONTRACT, THE CONTRACTOR SHALL SUBMIT FOR APPROVAL A COMPLETE LIST OF MATERIALS AND EQUIPMENT WHICH HE INTENDS TO FURNISH, GIVING MANUFACTURER performance of service and maintenance thru front panel openings and enclose the AND CATALOG NUMBERS. A COMPLETE LIST OF PROPOSED SUBCONTRACTORS SHALL ALSO BE tank with insulation. The drain valve shall be baked enamel finish. Heater shall have SUBMITTED. a three (3) year limited warranty for commercial installation, as outlined in the written warranty. Fully illustrated instruction manual shall be included. Refer to drawings for size, capacity and voltage.

D. THE CONTRACTOR SHALL EXAMINE ALL DRAWINGS AND SPECIFICATIONS AND SHALL INSPECT THE EXISTING CONDITIONS OF THE SITE. FAILURE TO COMPLY WITH THIS REQUIREMENT WILL NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY FOR COMPLYING WITH THE INTENT OF THE CONTRACT DOCUMENTS. THE DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF THE PLUMBING

INSTALLATIONS, DETAILS OF PROPOSED DEPARTURES DUE TO ACTUAL FIELD CONDITIONS OR OTHER CAUSES SHALL BE SUBMITTED FOR APPROVAL PRIOR TO INSTALLATION. REWORKING OF COMPLETED ITEMS DUE TO IMPROPER FIELD COORDINATION SHALL BE AT THE CONTRACTOR'S EXPENSE. F. PROVIDE SUFFICIENT ACCESS AND CLEARANCE FOR ALL ITEMS OF EQUIPMENT

REQUIRING SERVICING AND MAINTENANCE, SUCH AS VALVES, CUNTROLS, DRAINS, VENTS, SWITCHES, FILTERS, TRAPS, AND MAJOR ITEMS OF EQUIPMENT. G. THE CONTRACTOR SHALL PREPARE THREE (3) COPIES OF A RECORD AND INFORMATION BOOKLET. THE BOOKLET SHALL BE BOUND IN A THREE-RING LODSE-LEAF BINDER. PROVIDE THE FOLLOWING DATA IN THE BOOKLET:

CATALOG DATA ON EACH PIECE OF EQUIPMENT FURNISHED. APPROVED SHOP DRAWINGS ON EACH PIECE OF EQUIPMENT FURNISHED. MAINTENANCE, DPERATION AND LUBRICATION INSTRUCTION ON EACH PIECE OF EQUIPMENT FURNISHED. 4) MANUFACTURER'S AND CONTRACTOR'S GUARANTEES. COMMISSIONING REPORTS.

BY PARAGRAPHS D,P AND Q DF THIS SECTION. THE ENTIRE NEW PLUMBING SYSTEM SHALL BE TESTED HYDROSTATICALLY BEFORE INSULATION CO∨ERING IS APPLIED AND PRO∨ED TIGHT UNDER THE FOLLOWING GAUGE PRESSURES

SANITARY AND STORM WATER PIPING......AS SPECIFIED BELOWPER NFPA FIRE PROTECTION.....

ALL SOIL, WASTE AND VENT PIPING SHALL BE TESTED BY THE CONTRACTOR. THE ENTIRE NEW DRAINAGE SYSTEM AND VENTING SYSTEM SHALL HAVE ALL NECESSARY DPENINGS PLUGGED AND FILLED WITH WATER TO THE LEVEL OF TEN (10) FEET ABOVE THE MAIN OR BRANCH BEING TESTED. THE SYSTEM SHALL HOLD THIS WATER FOR THIRTY (30) MINUTES WITHOUT SHOWING A DROP GREATER THAN FOUR (4) INCHES. NOTE: IF ANY CODE OR AUTHORITY REQUIRES TESTING WHICH IS DIFFERENT THAN THE TEST LISTED ABOVE, THE MORE STRINGENT TEST SHALL BE PREFORMED.

K. UPON COMPLETION OF THE PLUMBING INSTALLATIONS, THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF PRINTS OF THE PLUMBING CONTRACT DRAWINGS WHICH SHALL BE LEGIBLY MARKED IN RED PENCIL TO SHOW ALL CHANGES AND DEPARTURES OF THE INSTALLATION AS COMPARED WITH THE ORIGINAL DESIGN. THEY SHALL BE SUITABLE FOR USE IN PREPARATION OF RECORD DRAWINGS.

L. ALL PIPING AND VALVE SYSTEMS SHALL BE IDENTIFIED WITH LABELS AND TAGS. MATERIALS SHALL BE MANUFACTURED BY SETUN NAME PLATE CORPORATION.

M. ALL NEW PLUMBING INSTALLATIONS, INCLUDING ALL MATERIALS AND LABOR SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM DATE OF OWNER ACCEPTANCE. THE ABOVE SHALL NOT IN ANY WAY VOID OR ABROGATE EQUIPMENT MANUFACTURER'S GUARANTEE DR WARRANTY. CERTIFICATES DF GUARANTEE SHALL BE DELIVERED TO THE DWNER,

CONTRACTOR SHALL ALSO PROVIDE ONE (1) YEAR FREE SERVICE TO KEEP THE EQUIPMENT IN OPERATING CONDITION. THIS SERVICE SHALL BE PROVIDED PER THE FOLLOWING SCHEDULE AND RENDERED UPON REQUEST WHEN NOTIFIED OF ANY EQUIPMENT MALFUNCTION.

D. IN ADDITION TO THE FIRST YEAR WARRANTY PERIOD, THE CONTRACTOR SHALL PROVIDE, AT NO ADDITIONAL COST TO THE OWNER, A MINIMUM OF FOUR (4) SERVICE CALLS AND MAINTENANCE INSPECTIONS PER BUILDING. A COMPLETE DUTLINE OF THE REQUIRED MAINTENANCE AND THE PROPOSED SCHEDULE SHALL BE INCLUDED IN THE 'RECORD AND INFORMATION BOOKLET: DETAILED IN SECTION 15010- BASIC MECHANICAL REQUIREMENTS, PARAGRAPH 1, FOR REVIEW AND ACCEPTANCE BY THE OWNER/REPRESENTATIVE AND ENGINEER. THE INSPECTIONS ARE TO BE PERFORMED AT THREE (3) MONTH INTERVALS FOR A TOTAL OF FOUR (4) SERVICE CALLS AND INSPECTIONS DURING THE FIRST YEAR WARRANTY PERIOD (THREE (3) TIMES DURING THE YEAR PLUS THE ORIGINAL SYSTEM STARTUP COMMISSIONING). THE SERVICE WORK AND INSPECTIONS SHALL INCLUDE, BUT NOT BE LIMITED TO THE

FOLLOWING

CLEAN DRAIN PANS AND DRAIN LINES; CHECK AND TIGHTEN ALL ELECTRICAL CONNECTIONS; _ INSPECT AND CLEAN ALL WATER STRAINERS;

CHECK OPERATING PRESSURES: INSPECT ALL CONTROLS FOR CORRECT OPERATION AND CALIBRATE AS REQUIRED; PERFORM ALL MAINTENANCE AS OUTLINED IN THE EQUIPMENT MANUFACTURERS OPERATION AND MAINTENANCE MANUALS.

UPON COMPLETION OF EACH SCHEDULED INSPECTION, THE CONTRACTOR SHALL DELIVER TO THE BUILDING DWNER/DWNER'S REPRESENTATIVE WITHIN FORTY-EIGHT (48) HOURS OF COMPLETION, TWO (2) COPIES OF THE COMPLETED INSPECTION REPORT FOR RECORD PURPOSES.

P. THE PLUMBING DR SERVICE CONTRACTOR SHALL, AT THE NINTH MONTH, ADVISE THE DWNER OF THE TERMINATION DATE OF THE ABOVE SERVICE. THIS CONTRACTOR SHALL ALSO PROVIDE THE OWNER WITH A DETAILED PROPOSAL, REFLECTING ANNUAL ESCALATION, FOR THE CONTINUATION OF THE SERVICE AND INSPECTIONS DESCRIBED ABOVE.

2. <u>SECTION 15050 - BASIC MECHANICAL PIPING MATERIAL & METHODS</u> PROVIDE ALL LABOR AND MATERIALS NECESSARY TO FURNISH AND INSTALL ALL PIPING SYSTEMS ON THE PROJECT, INCLUDING INTERIOR STORM, SANITARY, SANITARY VENT, DOMESTIC WATER, CONDENSATE DRAINAGE, HEATING WATER AND NATURAL GAS PIPING SYSTEMS

B. PRD∨IDE DIELECTRIC COUPLINGS WHERE NON-FERROUS METAL PIPING IS JOINED TO FERROUS METAL PIPING. THE GASKET MATERIAL SHALL BE CAPABLE OF WITHSTANDING THE TEMPERATURES AND PRESSURES WITHIN THE PIPING SYSTEM IN WHICH INSTALLED, SUBMIT DIELECTRIC COUPLING AND GASKET MATERIAL FOR APPROVAL. SECTION 15250 - MECHANICAL INSULATION

A. ALL DOMESTIC WATER PIPING SYSTEMS SHALL BE INSULATED WITH CLOSED CELL FOAM INSULATION FOR HOT WATER HEATING APPLICATIONS PER IECC AND AS REQUIRED TO PREVENT CONDENSATION. B. ALL HYDRONIC/MECHICAL PIPING WITH FLUID TEMPS ABOVE 105F OR BELOW 55F MUST BE INSULATED WITH R-4 MINIMUM.

3. <u>SECTION 15300 - FIRE PROTECTION</u>

PROVIDE INTUMESCENT FITTINGS WHERE PVC PIPING PENETRATES FIRE RATED PARTITIONS. FIRE PROTECTION SYSTEM BY DESIGN AND BUILD SPRINKLER CONTRACTOR. 4. <u>SECTION 15400 - PLUMBING</u>

C. All hangers for copper piping shall be copper clad, split ring swivel type, having rods with machine threads and threaded copper clad ceiling flange. Cast iron and steel piping supports shall be similar without copper clad and prime paint finish. Hangars for plastic piping shall be plastic.

D. Provide dielectric couplings where non-ferrous metal piping is joined to ferrous metal piping. The gasket material shall be capable of withstanding the temperatures and pressures within the piping system in which installed. Submit dielectric coupling and gasket material for approval.

SCHEDULE/DESCRIPTION OF ALL SERVICE WORK/MAINTENANCE INSPECTIONS REQUIRED

PLUMBING SPECIFICATIONS Section 15400 - Plumbing

A. The work covered by this section of the specifications consists of furnishing all labor, equipment and materials in connection with the rough-in, final setting and connections to all plumbing fixtures. The contractor shall carefully review the conditions at the site and all of the contract drawings to determine the extent of the plumbing work required.

B. All plumbing fixtures shall be complete in every detail with all trimmings and connections. All fixtures shall be designed to prevent the back flow of polluted water or waste into the water supply system.

Potable water systems shall be disinfected prior to use. The method to be followed shall be that prescribed by the Health Authority and code requirements. GENERAL CONSTRUCTION NOTES

THE PLANS REPRESENT A COMPLETE OPERATIONAL SYSTEM, WHEREIN ALL WIRING, EQUIPMENT, FIXTURES, FITTINGS, CONTROLS, AND ALL REQUIRED ACCESSORIES ARE FURNISHED, INSTALLED, STARTED, AND TESTED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE ALL MATERIALS, EQUIPMENT, LABOR, AND SUPERVISION TO DELIVER A COMPLETE SYSTEM. THE FIRE PROTECTION ALARM/SPRINKLER SYSTEM, IF REQUIRED, IS NOT A COMPONENT OF THIS DESIGN (UNLESS SPECIFICALLY DEPICTED) AND IT IS PROVIDED BY A DESIGN AND BUILD FIRE PROTECTION CONTRACTOR.

THE PLANS ARE DIAGRAMMATICAL IN NATURE. THE WORK REQUIRED TO PROPERLY INTERFACE WITH DTHER TRADES, WHICH MAY REPRESENT CHANGES TO THE DRAWINGS TO ACCOMMODATE THE INSTALLATION OF THIS WORK, IS PERFORMED WITHOUT ADDITIONAL COST TO THE OWNER. THIS INCLUDES BUT IS NOT LIMITED TO ARCHITECTURAL, STRUCTURAL, ELECTRICAL, PLUMBING, MECHANICAL, GRADING, FIRE PROTECTION, AND OTHER CONSIDERATIONS.

ALL WORK MUST BE EXECUTED IN STRICT ACCORDANCE WITH ALL APPLICABLE NATIONAL, STATE AND LOCAL CODES AND ORDINANCES. ALL WORK MUST BE EXECUTED IN A NEAT AND WORKMANLIKE MANNER. THE SUBCONTRACTORS AND GENERAL CONTRACTOR MUST COORDINATE WITH ALL TRADES DURING THE CONSTRUCTION PROCESS. THIS CONTRACTOR MUST REVIEW ALL ASPECTS OF THEIR WORK PRIOR TO INSTALLATION TO INSURE PROPER CLEARANCES AND CAPACITIES EXIST. THE CONTRACTOR MUST BE LICENSED AND INSURED IN THE COUNTY AND STATE AS

APPLICABLE. SUBMIT TO THE OWNER AS DIRECTED PROOF OF INSURANCE INCLUSIVE OF LIMITS OF LIABILITY AND DEDUCTIBLE INFORMATION. ALL SUBCONTRACTORS OF SUBCONTRACTORS MUST BE LICENSED AND INSURED TOD.

SINCE THE PLANS ARE DIAGRAMMATICAL IN NATURE FOR CLARITY PURPOSES, THE CONTRACTOR MUST SUBMIT A SHOP DRAWING WHERE THE CONTRACTOR INTENDS TO INSTALL WORK THAT INCLUDES SUBSTANTIAL DIFFERENCES FROM THE PLANS, INCLUSIVE OF CALCULATIONS AND OTHER ITEMS TO THE OWNER PRIOR TO COMMENCING WORK. THE SHOP DRAWINGS MUST INCLUDE EXACT LOCATIONS, SPECIAL FITTINGS, AND VERIFICATION THAT THIS INFORMATION IS ACCURATE THE CONTRACTOR AND ALL SUBCONTRACTORS WARRANT THAT THEY HAVE VISITED THE

PROJECT SITE, REVIEWED ALL OF THE CONTRACT DOCUMENTS, AND ARE OTHERWISE FAMILIAR WITH THE REQUIREMENTS NECESSARY TO COMPLETELY EXECUTE THE WORK REQUIRED TO COMPLY WITH THE DIAGRAMMATICAL WORK DEPICTED HEREIN. FURTHER, THE CONTRACTOR WARRANTS THAT, IN POSSESSING A THOROUGH KNOWLEDGE OF THE CODE AND INDUSTRY STANDARD CONSTRUCTION PRACTICES, THE BID FOR PERFORMING THE WORK WILL CONTAIN ALLOWANCES FOR NORMAL DIFFICULTIES EXPERIENCED DURING THE CONSTRUCTION OF A BUILDING OF THIS TYPE. MODIFICATIONS TO THE CONTRACT, WHICH DO NOT ADD VALUE TO THE PROJECT, WILL NOT BE CONSIDERED VALID.

7. THIS DESIGN IS NON TRANSFERABLE. IT IS INTELLECTUAL PROPERTY WITH TRADE SECRETS TO BE UTILIZED ON THIS PROJECT ONLY.

WHERE THE CONTRACTOR FURNISHES CERTAIN MODELS OR PROTOTYPES OF DESIGN SPECIFIED ON THE DRAWINGS, SUBMITTAL DATA IS NOT NECESSARY. SIMPLY NOTIFY THE OWNER IN WRITING THAT THE SPECIFIED ITEM WILL BE USED AND PROCEED WITH THE WORK, IF EQUAL DEVIATIONS FROM THE SPECIFIED PRODUCT ARE UTILIZED, THE PRODUCT DATA MUST BE SUBMITTED TO THE OWNER FOR APPROVAL. IT IS THE INTENT OF THE DESIGN TO MAKE A COMPETITIVE BID. EQUAL PRODUCTS WILL BE CONSIDERED AS SUBMITTED.

9. WHERE THERE EXISTS A DISCREPANCY BETWEEN THE PLANS, DOCUMENTS, OR CODE THE CONTRACTOR SHALL PROVIDE FOR THE MOST EXPENSIVE METHOD AND ADVISE THE ARCHITECT IN WRITING PRIOR TO PERFORMING ANY WORK.

RESPONSIBILITY OF DESIGN AND COSNTRUCTION TEAMS FOR MEP: AMICABLE COOPERATION OF THE DESIGN AND CONSTRUCTION TEAMS GENERALLY PRODUCES THE

BEST RESULTS FOR THE OWNER, INVESTMENT IN THE DESIGN BY THE INSTALLING CONTRACTORS IS ALSO USUALLY BENEFICIAL FOR THE PROJECT. ANY REASONABLE CONTRACTOR SUGGESTIONS IN ADVANCE OF CONSTRUCTION WILL BE CONSIDERED AND/OR REVIEWED. ANY RESULTING NECESSARY (FOR PERMIT OR CODE OFFICIAL INSPECTION PURPOSES, NOT FOR AS-BUILT PURPOSES) CONSTRUCTION PLAN CHANGES THAT THE OWNER AND ARCHITECT APPROVE SUGGESTED BY THE INSTALLING CONTRACTOR SHALL BE EXECUTED BY THE MEP DESIGN TEAM AS NECESSARY.

THE MEP DESIGN IS PROVIDED PRIMARILY TO DBTAIN THE BUILDING PERMIT. THE PLANS ARE NOT SHOP DRAWINGS. THE PLANS ARE NOT AS-BUILT DRAWINGS. THE PLANS DO NOT SHOW EVERY DIFFICULTY AND NUANCE ASSOCIATED WITH WHAT IS REQUIRED TO INSTALL A COMPLETE SYSTEM. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLING A COMPLETE SYSTEM AS DIAGRAMMATICALLY DEPICTED ON THE PLANS. THIS WILL LIKELY INCLUDE PROVIDING ITEMS THAT ARE NOT SHOWN ON THE PLANS BUT REQUIRED TO DELIVER A COMPLETE SYSTEM. THE PLANS MAY BE CONSIDERED A PERFORMANCE BASED SPECIFICATION.

THIS PROJECT IS DESIGN BUILD. THE MEP CONTRACTORS MUST ANTICIPATE IN ADVANCE OF THE BID AND CONSTRUCTION THE REQUIREMENTS NECESSARY TO DELIVER A COMPLETE SYSTEM. THE DESIGN TEAM WILL COOPERATE TO THE EXTENT REASONABLY POSSIBLE TO MITIGATE ANY UNANTICIPATED CIRCUMSTANCES TO PROVIDE A COMPLETE MEP SYSTEM. HOWEVER, NO CHANGE DRDERS SHALL BE APPROVED UNLESS IT IS ADDITIONAL SCOPE ITEMS THE DWNER AGREES TO FUND.

T IS THE INSTALLING CONTRACTOR RESPONSIBILITY TO NOTIFY THE DESIGN TEAM IN ADVANCE OF ALL CONSTRUCTION WITH TIME TO REACT WHENEVER THERE COULD BE AN ISSUE THAT REQUIRES RESOLUTION TO INSTALL A COMPLETE CODE COMPLIANT MEP SYSTEM. THERE ARE FURTHER RESTRICTIONS SPECIFIED IN THE CONSTRUCTION DOCUMENTS AND THIS NARRATIVE IS BY N□ MEANS LIMITING.

UNDER NO CIRCUMSTANCES WILL RE-ROUTING OF DUCTWORK OR PLUMBING PIPES BE CONSIDERED A CHANGE ORDER DUE TO UNANTICIPATED STRUCTURAL INTERFERENCES. ROUTING OF THE PIPES AND DUCTWORK SHOWN ON THE PLANS IS INTENDED TO ANTICIPATE THE MAJORITY OF STRUCTURAL INTERFERENCES BUT IT WILL NOT INCLUDE ALL OF THEM. THE ENTIRE DUCT OR PIPE SYSTEM MUST BE PLANNED IN ADVANCE TO AVOID RE-WORKING OR RE-ROUTING OF THIS WORK. COORDINATION WITH OTHER TRADES TO ACCOMMODATE THEIR WORK IS ALSO REQUIRED. UNDER NO CIRCUMSTANCES WILL RE-INSTALLATION OF INCORRECT MATERIALS FOR THE APPLICATION BE CONSIDERED CHANGE ORDER, FOR EXAMPLE ALL EXPOSED WIRING IN THE GARAGE MUST UTILIZED METAL CONDUIT ENCASED CONDUCTORS AND THE USE OF NM CONDUCTORS (ROMEX) BY MISTAKE (OR EVEN IF INADVERTENTLY SPECIFIED) WILL NOT BE CONSIDERED A CHANGE ORDER TO REPLACE.

IT IS RECOMMENDED BUT NOT REQUIRED THAT THE MEP TRADES PROVIDE SHOP DRAWINGS IN ADVANCE OF CONSTRUCTION, ESPECIALLY IN THE SERVICE ENTRANCE ROOMS, UTILITY ROOMS, DWELLING HVAC CLOSETS AND OTHER AREAS TRADITIONALLY DESIGNED WITH CONFINED SPACES IN WOOD FRAME MULTI-FAMILY DWELLING STRUCTURES. IT IS THE RESPONSIBILITY OF THE MEP CONTRACTORS TO NOTIFY THE PRIME CONTRACTOR WHERE INSTALLATION OF THEIR TRADE WORK MAY REQUIRE INTENSE COOPERATION WITH OTHER TRADES SUCH AS CONCRETE ENCASED CONDUCTORS UNDER THE FIRST FLOOR SLAB, PLUMBING RISERS TURNS THAT REQUIRE DROPPED FOOTINGS AND THE LIKE IN ADVANCE OF THE BID AND CONSTRUCTION TO MINIMIZE UNANTICIPATED CONSTRUCTION REQUIREMENTS TO DELIVER A COMPLETE SYSTEM. AGAIN, COOPERATION, ADVANCE PLANNING, ANTICIPATION OF DIFFICULTIES, SUGGESTIONS, AND THE LIKE WILL PRODUCE THE BEST RESULT FOR ALL CONCERNED PARTIES.

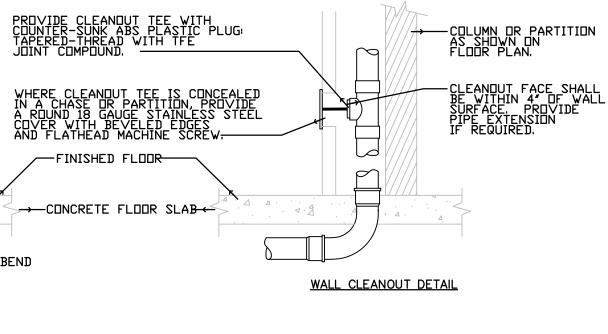
			PLUME			SCHEDULE	:			
									_	
ITEM	FIXTU	JRE	C.W.		SAN.	VENT	TRAP TYPE	REMARKS		
WC	WATER CLOSET		1/2″	-	3"	1 1/2"	INTEGRAL	FLOOR MOUNTED, TANK TYPE		
LAV	COUNTERTOP LA	AVATORY	1/2″	1/2″	1 1/4″	1 1/4"	"P"			
TUB	TUB/SHDWER		1/2″	1/2″	1 1/2″	1 1/4"	" P"			
SHWR	SHOWER		1/2″	1/2″	1 1/2″	1 1/4"	"P"			
KS	SINGLE COMPAR	TMENT SINK	1/2″	1/2″	1 1/2″	1 1/4"	" P"	WITH GARBAGE DISPOSAL		
KS	DOUBLE COMPAR	RTMENT SINK	1/2″	1/2″	1 1/2"	1 1/4"	"P"	WITH GARBAGE DISPOSAL		
WA	WASHING MACHI	NE	1/2″	1/2″	2″	2″	" P"	WITH DOU-CLOZ VALVE		
LT	LAUNDRY TUB		1/2″	1/2″	1 1/2″	1 1/4"	"P"			
TUB	SPA TUB		1/2″	1/2″	2″	1 1/2"	"P"			
MR	JANITOR'S MOP	SINK	3/4″	3/4″	3″	2″	" P"			
ACD ADR AP BPS BT CB CI CMP CO CS CW DF DL DN CR EL FAI FD FHC FHR FX GI HB HW HWR JC LAV	ACCESS DOOR AUTO DAMPER ACCESS PANEL BED PAN SANITIZER BATH TUB CATCH BASIN CAST IRON CORRUGATED METAL CLEANOUT CUP SINK COLD WATER DRINKING FOUNTAIN DOOR LOUVER DOWN DRYER ELECTRICAL CONTRAC FRESH AIR INTAKE FLOOR DRAIN FIRE HOSE CABINET FIRE HOSE CABINET FIRE HOSE CABINET FIRE HOSE RACK FIRE EXTINGUISHER GREASE INTERCEPTO HOSE BIB HOT WATER HOT WATER RECIRC. JANITORS CLOSET LAVATORY	SS STK TMTR UR V VB VTR WA WC WMS	SPRINKLER SERVICE SINK STACK	(AL INTRACTOR GE JCING VALVE IDUCTOR ER ER ER EN			AR ON DRAWING AIR PIPING COLD WATER DOMESTIC HOT DOMESTIC WAT FIRE PROTECTIO GAS NITROUS OXIDE OXYGEN SANITARY SEWE STORM SEWER VACUUM VENT ANGLE VALVE AUTOMATIC AIR AUTO THREE-WALVE BALANCING VAL CHECK VALVE GATE VALVE GATE VALVE GATE VALVE PLUG OR BALL V PRESSURE RED	WATER ER RECIRC. N R R VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VALVE VA	ELIEF VALVE LEAN OUT ONTROL T - TEMPERATURE P - PRESSURE LEXIBLE PIPE CONNECTOR AS COCK TRAINER HERMOMETER RESSURE GAUGE W/GUAGE COCK IAMESE CONNECTION NION /ALL HYDRANT	
SYS	TEM	SYMBOL	PIPE		FITTIN	IG		IOINT	REMARKS	
SANITARY STORM D (UNDERGF		SAN SW	PVC FOAM COF ASTM D 2665, 1488, ASTM F	ASTM F	PVC, AST F 1866	M D 2665, ASTM		T SEALER, PURPLE PRIMER ASTM F 656, M D 2564, CSA B137.3 CSA B181.2 OR		D ASTM
SANITARY STORM D (ABOVE-C		SAN SW	PVC FOAM COF ASTM D 2665, 1488, ASTM F	ASTM F	PVC, AST F 1866	'M D 2665, ASTM		T SEALER, PURPLE PRIMER ASTM F 656, M D 2564, CSA B137.3 CSA B181.2 OR		D ASTM
	COLD WATER, HOT JPPLY & RETURN GROUND)	CW HW HWR	CPVC, ASTM D F 441, ASTM F B137.6		D2846, A	SE 1061, ASTM ASTM F 437, ASTM ASTM F 439, CSA		NT SEALER: ASTM F493	CPVC PIPING SYSTEM: ASTM D2846 PIPE AND SOCKET FITTINGS, ALLOWE INSIDE DWELLING UNITS.	
NATURAL (IF APPLI		G	BLACK STEEL I A53 GRADE B, SEAMLESS SCH	TYPE S		ALLEABLE IRON D FITTINGS	THREADS, AI TEFLON TAP COMPATIBLE	SING AMERICAN STANDARD FOR PIPE ISI B2.1 WITH THREAD SEALANT OR E MATERIAL ESPECIALLY LISTED WITH SYSTEM CONTENTS, PIPE AND OPERATING CONDITIONS.	SCHEDULE 40 BACK STEEL PIPING:	
NOTES:										
1.	SEE SPECIFICATIO									
2.								ES. CONTACT BETWEEN FERROUS AND BE PNEUMATICALLY OPERATED EQUIPMENT.	OLTS AND BRONZE OR COPPER FLANG	€S
3.	INSTALLATION, IN	CLUDING SUPPO	RT SPACING, CO	MPENSATION F	OR EXPANSI	ION AND CONTRAC	TION, AND JOIN	NG SHALL BE IN COMPLIANCE WITH MANU	IFACTURER'S RECOMMENDATIONS.	
4.	REQUIREMENTS C	OF MANUFACTURI	ER'S BEST RECO	MMENDED PRA	ACTICE. ALL		WEEN DIFFEREN	SPECIFIED FOR SERVICE INDICATED. JOI PIPING MATERIALS SHALL BE USING APP D.		
					AL DRAINAGE					

			PLUMB	ING FIX	TURE S	SCHEDULE			7
			R	DUGH-IN	PIPE SIZ	ZES	TRAP		-
ITEM	FIXTL	JRE	C.W.	H.W.	SAN.	VENT	TYPE	REMARKS	
wc	WATER CLOSET		1/2″	-	3″	1 1/2"	INTEGRAL	FLOOR MOUNTED, TANK TYPE	
LAV	COUNTERTOP LA	AVAT⊡RY	1/2″	1/2″	1 1/4"	1 1/4"	"P"		
TUB	TUB/SHOWER		1/2″	1/2″	1 1/2"	1 1/4"	" P"		
SHWR	SHOWER		1/2″	1/2″	1 1/2"	1 1/4"	"P"		
KS	SINGLE COMPAR	TMENT SINK	1/2″	1/2″	1 1/2″	1 1/4"	" P"	WITH GARBAGE DISPOSAL	
кs	DOUBLE COMPAR	RTMENT SINK	1/2″	1/2″	1 1/2"	1 1/4"	" P"	WITH GARBAGE DISPOSAL	
WA	WASHING MACHI	INE	1/2″	1/2″	2″	2″	"P"	WITH DOU-CLOZ VALVE	
LT	LAUNDRY TUB		1/2″	1/2″	1 1/2″	1 1/4"	" P"		
TUB	SPA TUB		1/2″	1/2″	2″	1 1/2"	" P"		
MR	JANITOR'S MOP	SINK	3/4″	3/4″	3″	2″	"P"		
ACD ADR AP BPS BT CB CI CMP CO CS CW DF DL DN DR EL FAI FD FHC FHR FX GI HB HW HWR JC LAV	ACCESS DOOR AUTO DAMPER ACCESS PANEL BED PAN SANITIZER BATH TUB CATCH BASIN CAST IRON CORUGATED METAL CLEANOUT CUP SINK COLD WATER DRINKING FOUNTAIN DOOR LOUVER DOWN DRYER ELECTRICAL CONTRAC FRESH AIR INTAKE FLOOR DRAIN FIRE HOSE CABINET FIRE HOSE RACK FIRE EXTINGUISHER GREASE INTERCEPTO HOSE BIB HOT WATER HOT WATER RECIRC. JANITORS CLOSET LAVATORY	PIPE SP SS STK TMTR UR V VB VTR WA WC WMS R R R R	LAUNDRY TUB MECHANICAL CO MANHOLE MOP RECEPTOR PRESSURE GAUG PRESSURE REDU RAINWATER CON SHOWER SPRINKLER SERVICE SINK STACK THERMOMETER URINAL VENT VACUUM BREAKI VENT THRU ROO CLOTHES WASHE WATER CLOSET WIRE MES SCREI SPRINKLER HEAI DRAIN COCK FLOOR DRAIN CONNECT TO EX	(AL NTRACTOR GE JCING VALVE IDUCTOR ER F ER EN	L ITEMS SHO		AR ON DRAWING AIR PIPING COLD WATER DOMESTIC HOT Y DOMESTIC WATE FIRE PROTECTIC GAS NITROUS OXIDE OXYGEN SANITARY SEWE STORM SEWER VACUUM VENT ANGLE VALVE AUTO MATIC AIR AUTO THREE-WA AUTO THREE-WA BALANCING VALY CHECK VALVE GATE VALVE GLOBE VALVE PLUG OR BALL V PRESSURE REDU	ALVE JOING VALVE	RELIEF VALVE CLEAN OUT CONTROL T - TEMPERATURE P - PRESSURE LEXIBLE PIPE CONNECTOR GAS COCK TRAINER HERMOMETER PRESSURE GAUGE W/GUAGE COCK GAMESE CONNECTION INION VALL HYDRANT
SYST SANITARY STORM DR UNDERGR	WASTE & VENT, RAINAGE	SYMBOL SAN SW	PIPE PVC FOAM COR ASTM D 2665, 1488, ASTM F	ASTM F	FITTIN PVC, ASTI F 1866	G M D 2665, ASTM	PVC SOLVEN	IOINT T SEALER, PURPLE PRIMER ASTM F 656, M D 2564, CSA B137.3 CSA B181.2 OR	D3311 DRAIN, WASTE & VENT PATTERNS VERTICAL STACK ALLOWED INSIDE
Sanitary Storm Dr (Above-G		SAN SW	PVC FOAM COR ASTM D 2665, 1488, ASTM F	ASTM F	PVC, ASTI F 1866	M D 2665, ASTM		T SEALER, PURPLE PRIMER ASTM F 656, M D 2564, CSA B137.3 CSA B181.2 OR	
Domestic Water Su (Above—G	COLD WATER, HOT IPPLY & RETURN ROUND)	CW HW HWR	CPVC, ASTM D F 441, ASTM F B137.6		D2846, A	SE 1061, ASTM STM F 437, ASTM STM F 439, CSA		NT SEALER: ASTM F493	CPVC PIPING SYSTEM: ASTM D2846 SDR PIPE AND SOCKET FITTINGS, ALLOWED INSIDE DWELLING UNITS.
(IF APPLIC	JRAL GAS APPLICABLE) G BLACK STEEL PIPE, ASTM A53 GRADE B, TYPE S SEAMLESS SCHEDULE 40					ALLEABLE IRON) FITTINGS	THREADS, AN TEFLON TAPE COMPATIBLE	SING AMERICAN STANDARD FOR PIPE ISI B2.1 WITH THREAD SEALANT OR E MATERIAL ESPECIALLY LISTED WITH SYSTEM CONTENTS, PIPE AND OPERATING CONDITIONS.	SCHEDULE 40 BACK STEEL PIPING:
NOTES:									
1.	SEE SPECIFICATIO								
2.								ES. CONTACT BETWEEN FERROUS AND B PNEUMATICALLY OPERATED EQUIPMENT.	OLTS AND BRONZE OR COPPER FLANGES
3.	INSTALLATION, IN	CLUDING SUPPOR	RT SPACING, COI	MPENSATION F	OR EXPANSI	ON AND CONTRACT	ION, AND JOINI	NG SHALL BE IN COMPLIANCE WITH MANU	JFACTURER'S RECOMMENDATIONS.
4.	REQUIREMENTS C	OF MANUFACTURE	R'S BEST RECO	MMENDED PRA	CTICE. ALL		VEEN DIFFERENT	SPECIFIED FOR SERVICE INDICATED. JOI F PIPING MATERIALS SHALL BE USING API D.	
5.	ALL FLOOR DRAI ORDERING ANY M		DUCTS CONNECT	red to speci	AL DRAINAGE	SYSTEM MUST BE	E COORDINATED	FOR CORROSION RESISTANCE, SIZE AND	CONNECTION COMPATIBILITY PRIOR TO

			PLUMB	ING FIX	TURE	SCHEDULE			
			R	DUGH-IN	PIPE SI	7FS	TRAP		_
ITEM	FIXTU	JRE	C.W.	H.W.	SAN.	VENT	TYPE	REMARKS	
WC	WATER CLOSET		1/2″	-	3″	1 1/2"	INTEGRAL	FLOOR MOUNTED, TANK TYPE	
LAV	COUNTERTOP LA	VATORY	1/2″	1/2″	1 1/4"	1 1/4"	" P"		
TUB	TUB/SHOWER		1/2″	1/2″	1 1/2"	1 1/4"	" P"		
SHWR	SHOWER		1/2″	1/2″	1 1/2"	1 1/4"	"P"		
KS	SINGLE COMPAR	TMENT SINK	1/2″	1/2″	1 1/2"	1 1/4"	" P"	WITH GARBAGE DISPOSAL	
KS	DOUBLE COMPAR	RTMENT SINK	× 1/2 ″	1/2″	1 1/2"	1 1/4"	" P"	WITH GARBAGE DISPOSAL	
WA	WASHING MACHI	NE	1/2″	1/2″	2″	2″	"P"	WITH DOU-CLOZ VALVE	
LT	LAUNDRY TUB		1/2″	1/2″	1 1/2"	1 1/4"	"P"		_
TUB	SPA TUB		1/2″	1/2″	2″	1 1/2"	"P"		_
MR	JANITOR'S MOP	SINK	3/4"	3/4″	3″	2″	"P"		
ACD ADR BPS BT BC CC CC SC BD DC DC DC DC DC DC DC DC DC DC DC DC DC	ACCESS DOOR AUTO DAMPER ACCESS PANEL BED PAN SANITIZER BATH TUB CATCH BASIN CAST IRON CORRUGATED METAL CLEANOUT CUP SINK COLD WATER DRINKING FOUNTAIN DOOR LOUVER DOWN DRYER ELECTRICAL CONTRAC FRESH AIR INTAKE FLOOR DRAIN FIRE HOSE CABINET FIRE HOSE CABINET FIRE HOSE RACK FIRE EXTINGUISHER GREASE INTERCEPTOI HOSE BIB	SS STK TMT UR V VB VTR WA WC WM	C RAINWATER CON VR SHOWER SPRINKLER SERVICE SINK STACK THERMOMETER URINAL VENT VACUUM BREAKE VENT THRU ROO CLOTHES WASHE WATER CLOSET S WIRE MES SCREE	(A NTRACTOR SE ICING VALVE DUCTOR F F F R				WATER ER RECIRC. DN ER ER VALVE VALVE VALVE	RELIEF VALVE CLEAN OUT CONTROL T - TEMPERATURE P - PRESSURE FLEXIBLE PIPE CONNECTOR GAS COCK STRAINER THERMOMETER PRESSURE GAUGE W/GUAGE COCK SIAMESE CONNECTION JNION WALL HYDRANT
HW HWR JC LAV	HOT WATER HOT WATER RECIRC. JANITORS CLOSET LAVATORY	•	FLOOR DRAIN CONNECT TO EX	ISTING		& & IG MATER	GLOBE VALVE PLUG OR BALL V PRESSURE REDU	UCING VALVE	
SYS ⁻	ſEM	SYMBOL	PIPE		FITTIN		1	JOINT	REMARKS
Sanitary Storm DF (Undergr		SAN SW	PVC FOAM COR ASTM D 2665, 1488, ASTM F	ASTM F	PVC, AST F 1866	TM D 2665, ASTM		T SEALER, PURPLE PRIMER ASTM F 656, M D 2564, CSA B137.3 CSA B181.2 OR	PVC PIPING SYSTEM: SOLID-WALL PVC ASTM D 2665, & FITTINGS MADE TO AS D3311 DRAIN, WASTE & VENT PATTERN VERTICAL STACK ALLOWED INSIDE DWELLING UNITS.
Sanitary Storm df (Above—G		SAN SW	PVC FOAM COR ASTM D 2665, 1488, ASTM F	ASTM F	PVC, AST F 1866	TM D 2665, ASTM		T SEALER, PURPLE PRIMER ASTM F 656, M D 2564, CSA B137.3 CSA B181.2 OR	
	COLD WATER, HOT IPPLY & RETURN ROUND)	CW HW HWR	CPVC, ASTM D F 441, ASTM F B137.6		D2846, A	SE 1061, ASTM ASTM F 437, ASTM ASTM F 439, CSA		NT SEALER: ASTM F493	CPVC PIPING SYSTEM: ASTM D2846 SDI PIPE AND SOCKET FITTINGS, ALLOWED INSIDE DWELLING UNITS.
	RAL GAS PPLICABLE) G BLACK STEEL PIPE, ASTM A53 GRADE B, TYPE S SEAMLESS SCHEDULE 40		TYPE S		ALLEABLE IRON D FITTINGS	THREADS, AN TEFLON TAPI COMPATIBLE	ISING AMERICAN STANDARD FOR PIPE NSI B2.1 WITH THREAD SEALANT OR E MATERIAL ESPECIALLY LISTED WITH SYSTEM CONTENTS, PIPE AND OPERATING CONDITIONS.	SCHEDULE 40 BACK STEEL PIPING:	
NOTES:			TIONAL INFORMATIO	N					1
2.	CONTACT BETWEE	N DISSIMILAR	METALS SHALL BE	MADE WITH				ES. CONTACT BETWEEN FERROUS AND E PNEUMATICALLY OPERATED EQUIPMENT.	BOLTS AND BRONZE OR COPPER FLANGES
3.	INSTALLATION, IN	CLUDING SUPF	PORT SPACING, CON	PENSATION	FOR EXPANS	ION AND CONTRAC	TION, AND JOINI	NG SHALL BE IN COMPLIANCE WITH MAN	UFACTURER'S RECOMMENDATIONS.
4.	JOINTS AND CON REQUIREMENTS O	INECTIONS SHA	ALL BE PERMANENT	AND GAS A	ND WATER T	IGHT. JOINTING S TRANSITIONS BET	HALL BE TYPES WEEN DIFFEREN	SPECIFIED FOR SERVICE INDICATED. JO T PIPING MATERIALS SHALL BE USING AP	INTS AND CONNECTIONS SHALL MEET
5.	ALL FLOOR DRAII ORDERING ANY M		RODUCTS CONNECT	ED TO SPEC	ial drainage	E SYSTEM MUST E	E COORDINATED	FOR CORROSION RESISTANCE, SIZE AND	CONNECTION COMPATIBILITY PRIOR TO

FLOOR CLEANOUT BRASS CLEANDUT PLUG CDUNTERSUNK HEAD $\rightarrow 1/8$ C.I. BEND

C.I. WASTE LINE LENGTH TO SUIT 5 SANITARY LINE -1/8 BEND IF CLEANDUT DCCURS AT END DF LINE

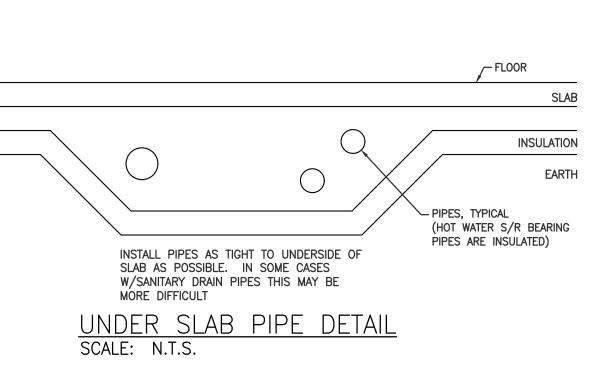


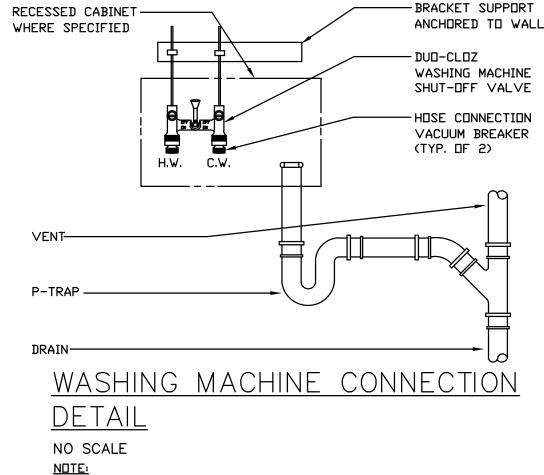
NO SCAL

NOTES:

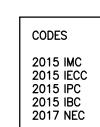
FLOOR CLEANOUTS NOT TO BE LOCATED IN CARPETED AREA. PROVIDE WALL CLEANDUTS (WCD) WHERE SHOWN ON PLANS ON SANITARY BRANCHES NOT SERVED BY A FLOOR CLEANDUT LOCATED ABOVE FIXTURE FLOOD RIM WITHIN 4" OF FLOOR. CONSULT LOCAL CODES FOR OTHER WCD REQUIREMENTS.

TARY CLEANOUT DETAILS

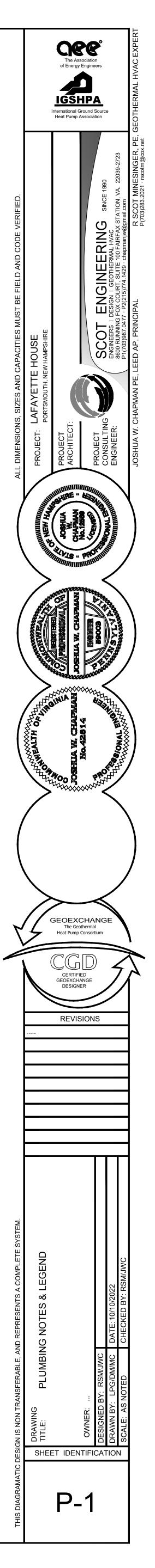


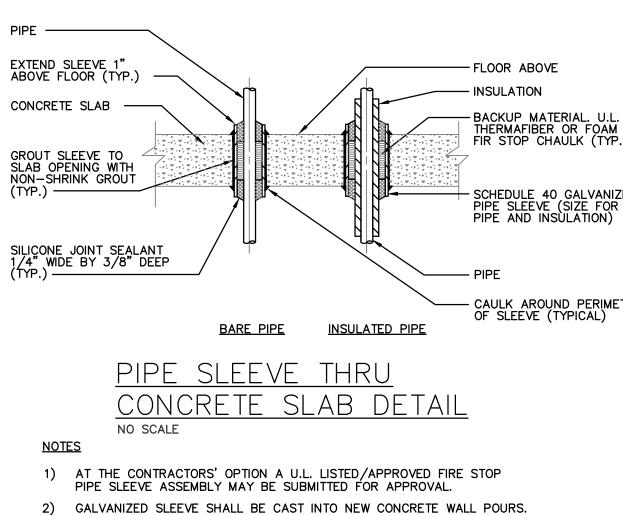


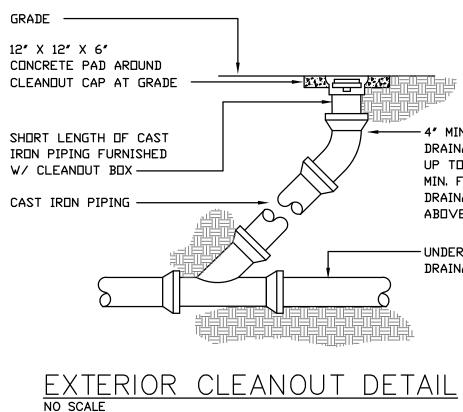
REFER TO FLOOR PLANS FOR PIPE SIZES

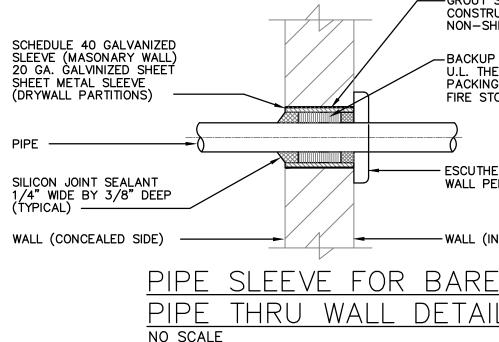


PLUMBING SHEET INDEX P-1 PLUMBING NOTES & LEGEND P-2 PLUMBING DETAILS & RISERS P-3 FLOOR PLAN



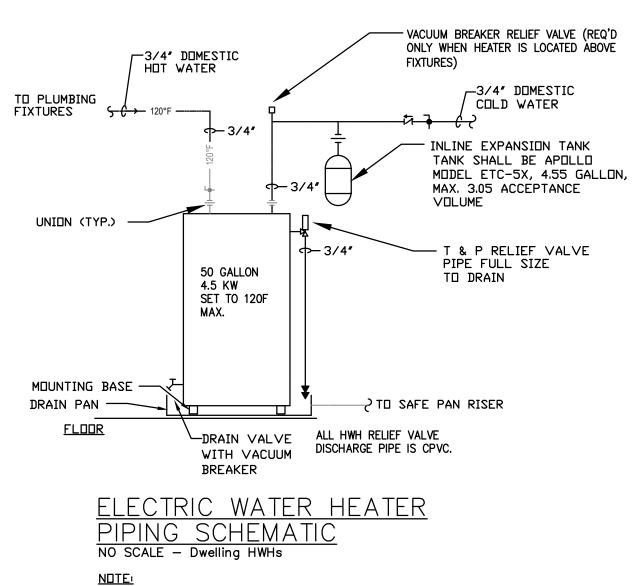






<u>NOTES</u>

1) AT THE CONTRACTORS' OPTION A U.L. LISTED/APPROVED FIRE STOP PIPE SLEEVE ASSEMBLY MAY BE SUBMITTED FOR APPROVAL. 2) GALVANIZED SLEEVE SHALL BE CAST INTO NEW CONCRETE WALL POURS.



1) DRAIN PAN BELOW ELEC WATER HEATER SHALL BE 26"\$, WATERTITE #HP2628.

- FLOOR ABOVE

CHEDULE 40 GALVANIZED

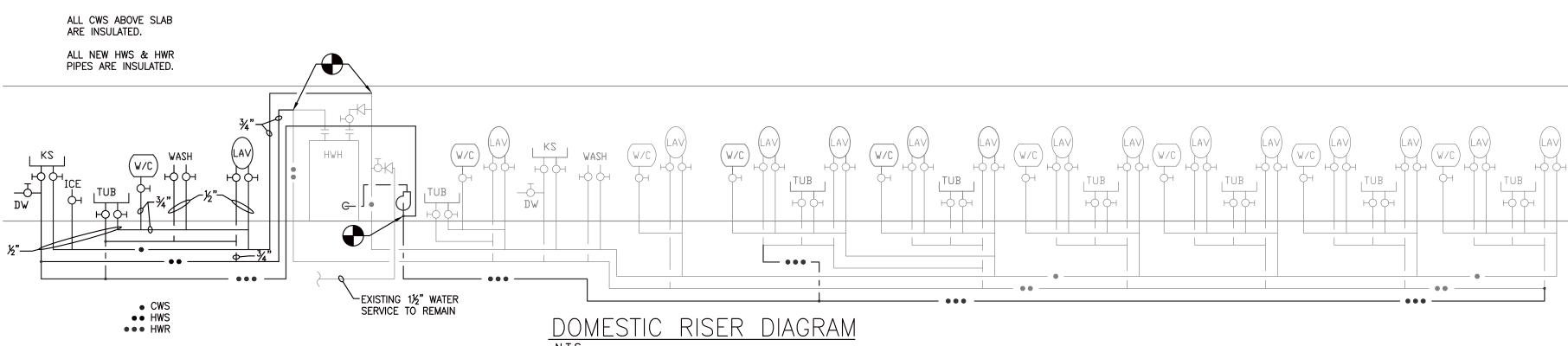
PIPE SLEEVE (SIZE FOR PIPE AND INSULATION)

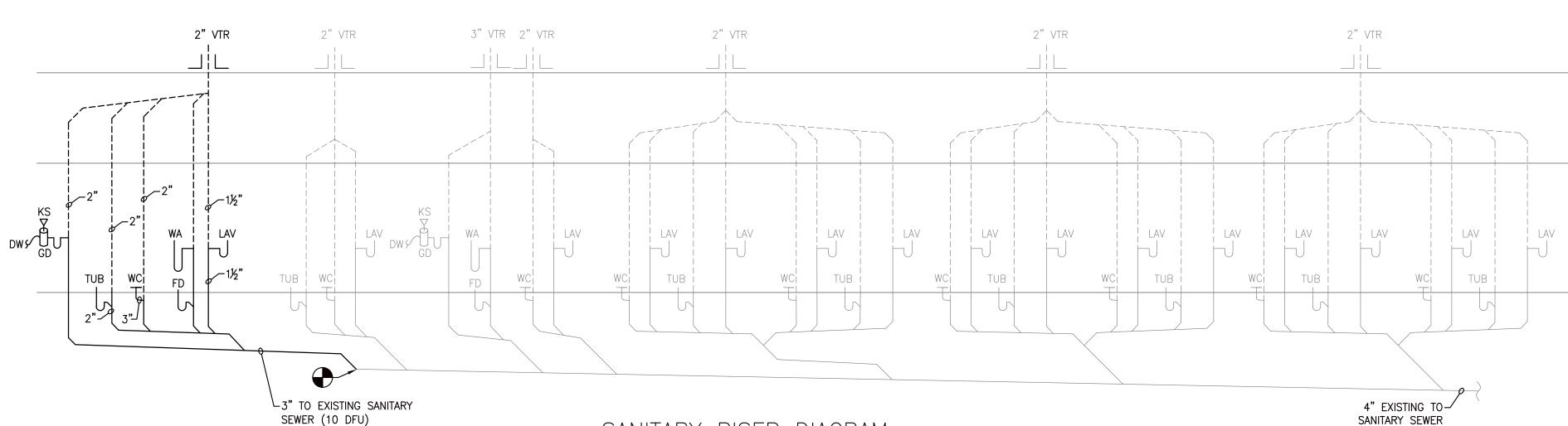
- CAULK AROUND PERIMETER OF SLEEVE (TYPICAL)

- 4" MIN. FOR MAIN DRAINAGE PIPING UP TO 6", & 6" MIN. FOR MAIN DRAINAGE PIPING AB⊡∨E 6″.

> UNDERGROUND DRAINAGE PIPING.

----GROUT SLEEVE TO WALL CONSTRUCTION WITH NON--SHRINK GROUT -BACKUP MATERIAL U.L. THERMAFIBER PACKING OR FOAM FIRE STOP CAULK - ESCUTHEON FOR EXPOSED WALL PENETRATION ONLY WALL (INTERIOR SIDE)





-GROUT SLEE∨E TO WALL CONSTRUCTION WITH SCHEDULE 40 NDN-SHRINK GROUT GALVANIZED SLEEVE (MASONRY WALL) BACKUP MATERIAL. 20 GA. GALVANIZED U.L. THERMAFIBER SHEET METAL SLEE∨E PACKING DR FDAM FIRE STOP CAULK (DRYWALL PARTITIONS) SIZE FOR PIPE AND INSULATION ------PIPE —— SILICONE JOINT SEALANT - ESCUTCHEON FOR 1/4" WIDE BY 3/8" EXPOSED WALL DEEP (TYP.) ------PENETRATION ONLY WALL (CONCEALED SIDE) -----WALL (INTERIOR SIDE) PIPE SLEEVE FOR INSULATED THRU WALL DETAIL PIPF 1) AT THE CONTRACTORS' OPTION A U.L. LISTED/APPROVED FIRE STOP PIPE SLEEVE ASSEMBLY MAY BE SUBMITTED FOR APPROVAL. 2) GALVANIZED SLEEVE SHALL BE CAST INTO NEW CONCRETE WALL POURS.

WORK SHOWN IN BOLD IS NEW CONSTRUCTION. WORK SHOWN IN LIGHT GRAY IS EXISTING TO REMAIN.

SANITARY RISER DIAGRAM

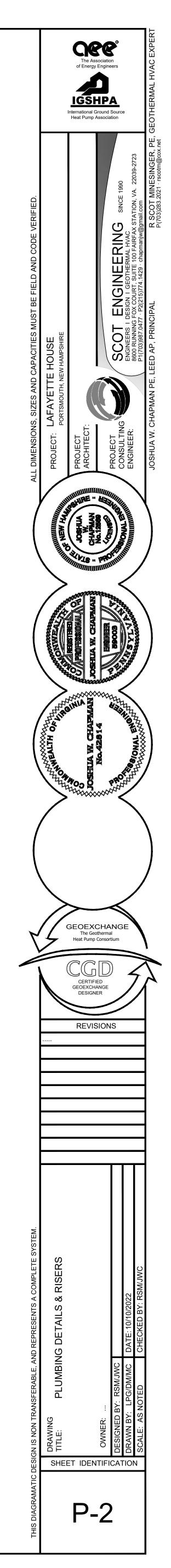
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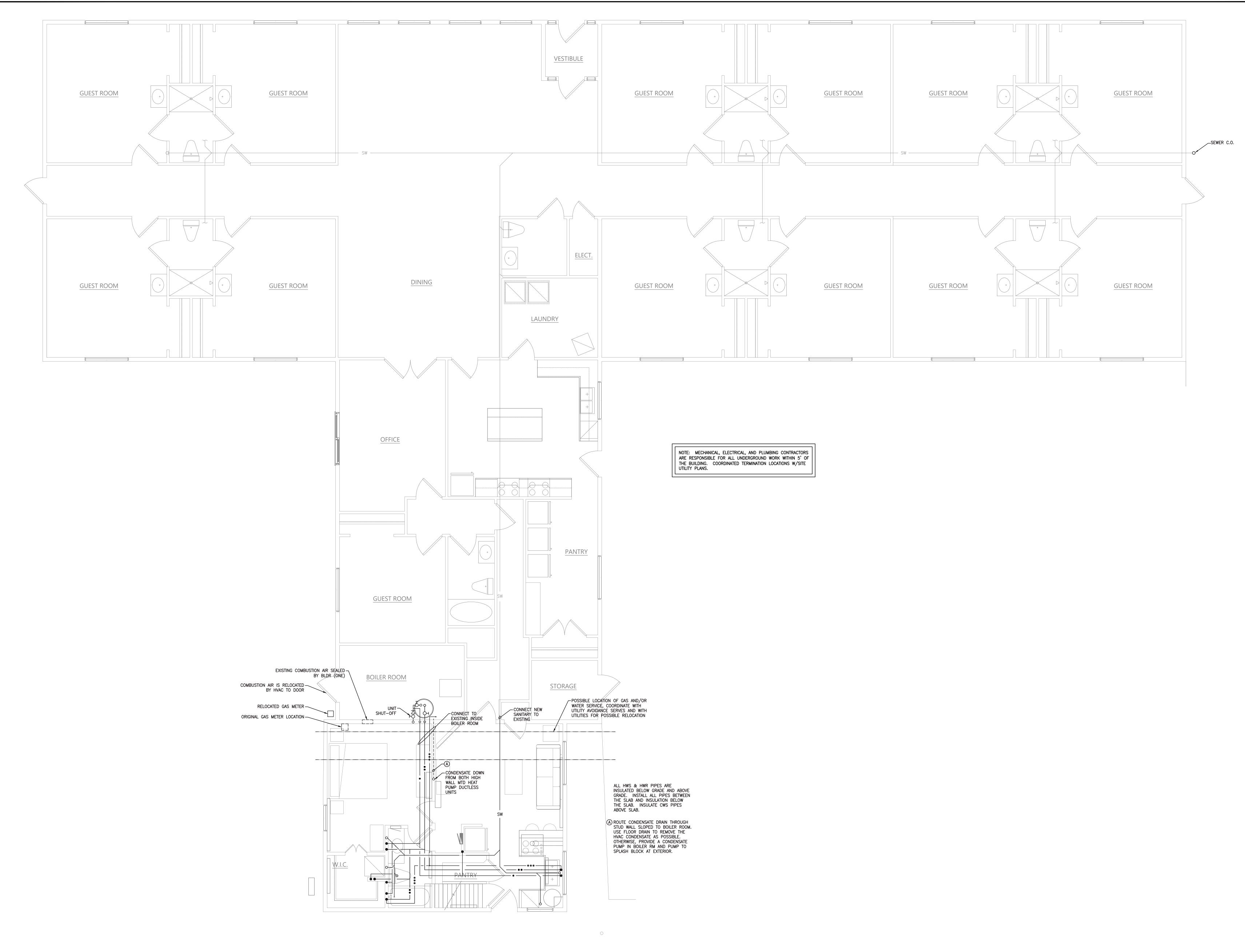
GENERAL DEMOLITION NOTES

- 1. THE PLANS REPRESENT A COMPLETE OPERATIONAL SYSTEM, WHEREIN ALL WIRING, EQUIPMENT, FIXTURES, FITTINGS, CONTROLS, AND ALL REQUIRED ACCESSORIES ARE FURNISHED, INSTALLED, STARTED, AND TESTED BY THE CONTRACTOR. THE CONTRACTOR SHALL PROVIDE ALL LABOR, RENTAL EQUIPMENT, AND WORK NECESSARY TO REMOVE ALL ITEMS AT A MINIMUM THAT PERMIT THE INSTALLATION OF A NEW COMPLETE SYSTEM. THE FIRE PROTECTION ALARM/SPRINKLER SYSTEM, IF REQUIRED, IS NOT A COMPONENT OF THIS DESIGN (UNLESS SPECIFICALLY DEPICTED) AND IT IS REMOVED AND/OR PROVIDED BY A DESIGN AND BUILD FIRE PROTECTION CONTRACTOR.
- 2. ALL CONDUITS, CONDUCTORS, PIPES, JUNCTION BOXES, VALVES, FIXTURES, HANGERS, HARDWARE, FASTENERS, ANCHORS, DUCT WORK, REGISTERS, GRILLES, HVAC EQUIPMENT AND THE LIKE SHALL BE REMOVED IN AREAS WHERE NEW WORK REPLACES EXISTING SO THAT THE PREVIOUS MATERIALS ARE NEVER CONFUSED WITH OR CONSIDERED A COMPONENT OF THE NEW WORK. 3. IN AREAS WHERE NEW WORK AND EXISTING WORK INTERFACE, ALL EXISTING WORK SHALL BE REMOVED TO THE EXTENT POSSIBLE AS DESCRIBED IN ITEM TWO ABOVE, AND AT THE POINT OF INTERFACE, ALL EXISTING WORK SHALL BE CAPPED AND MADE SAFE.
- 4. ALL REMOVED MATERIALS SHALL BE DEPOSED OF IN ACCORDANCE WITH ALL APPLICABLE ORDINANCES INCLUDING BUT NOT LIMITED TO THE

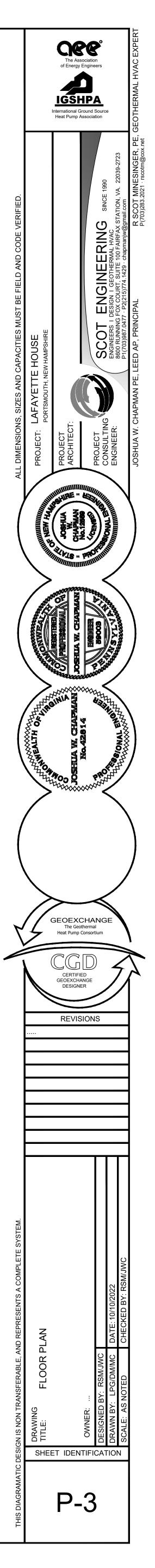
EPA, SUCH AS HVAC REFRIGERANT RECOVERED, OILS DELIVERED TO RECLAIM FACILITY, AND ETC.

- 5. ALL MATERIALS THAT CAN BE RECYCLED SHALL BE RECYCLED, INCLUDING BUT NOT LIMITED TO COPPER, ALUMINUM, STEEL, HVAC DUCTWORK, METAL HANGERS AND FASTENERS, CARD BOARD, AND THE LIKE. DO NOT DISPOSE OF THESE MATERIALS IN A DUMPSTER.
- 6. THE PLANS ARE DIAGRAMMATICAL IN NATURE. THE WORK REQUIRED TO REMOVE AND PROPERLY INTERFACE WITH OTHER TRADES, WHICH MAY REPRESENT CHANGES TO THE DRAWINGS TO ACCOMMODATE THE INSTALLATION OF NEW WORK, IS PERFORMED WITHOUT ADDITIONAL COST TO THE OWNER. THIS INCLUDES BUT IS NOT LIMITED TO ARCHITECTURAL, STRUCTURAL, ELECTRICAL, PLUMBING, MECHANICAL, GRADING, FIRE PROTECTION, AND OTHER CONSIDERATIONS.
- 7. ALL WORK MUST BE EXECUTED IN STRICT ACCORDANCE WITH ALL APPLICABLE NATIONAL, STATE AND LOCAL CODES AND ORDINANCES. ALL WORK MUST BE EXECUTED IN A NEAT AND WORKMANLIKE MANNER. THE SUBCONTRACTORS AND GENERAL CONTRACTOR MUST COORDINATE WITH ALL TRADES DURING THE DEMOLITION AND CONSTRUCTION PLANNING PROCESS. THIS CONTRACTOR MUST REVIEW ALL ASPECTS OF THEIR WORK PRIOR TO BEGINNING TO INSURE PROPER CLEARANCES AND CAPACITIES EXIST.
- 8. THE CONTRACTOR MUST BE LICENSED AND INSURED IN THE COUNTY AND STATE AS APPLICABLE. SUBMIT TO THE OWNER AS DIRECTED PROOF OF INSURANCE INCLUSIVE OF LIMITS OF LIABILITY AND DEDUCTIBLE INFORMATION. ALL SUBCONTRACTORS OF SUBCONTRACTORS MUST BE LICENSED AND INSURED TOO.
- 9. SINCE THE PLANS ARE DIAGRAMMATICAL IN NATURE FOR CLARITY PURPOSES, THE CONTRACTOR MUST SUBMIT A SHOP DRAWING WHERE DEMOLITION IN COMPLEX OR COULD AFFECT OTHER ASPECTS OF THE WORK OR THAT MAY INCLUDE SUBSTANTIAL DIFFERENCES FROM THE PLANS, INCLUSIVE OF CALCULATIONS AND OTHER ITEMS TO THE OWNER PRIOR TO COMMENCING WORK. THE SHOP DRAWINGS MUST INCLUDE EXACT LOCATIONS, SPECIAL FITTINGS, AND VERIFICATION THAT THIS INFORMATION IS ACCURATE.
- 10. THE CONTRACTOR AND ALL SUBCONTRACTORS WARRANT THAT THEY HAVE VISITED THE PROJECT SITE, REVIEWED ALL OF THE CONTRACT DOCUMENTS, AND ARE OTHERWISE FAMILIAR WITH THE REQUIREMENTS NECESSARY TO COMPLETELY EXECUTE THE WORK REQUIRED TO COMPLY WITH THE DIAGRAMMATICAL WORK DEPICTED HEREIN. FURTHER, THE CONTRACTOR WARRANTS THAT, IN POSSESSING A THOROUGH KNOWLEDGE OF THE CODE AND INDUSTRY STANDARD CONSTRUCTION PRACTICES, THE BID FOR PERFORMING THE WORK WILL CONTAIN ALLOWANCES FOR NORMAL DIFFICULTIES EXPERIENCED DURING THE CONSTRUCTION OF A BUILDING OF THIS TYPE. MODIFICATIONS TO THE CONTRACT, WHICH DO NOT ADD VALUE TO THE PROJECT, WILL NOT BE CONSIDERED VALID.
- 11. THIS DESIGN IS NON TRANSFERABLE. IT IS INTELLECTUAL PROPERTY WITH TRADE SECRETS TO BE UTILIZED ON THIS PROJECT ONLY. 12. THE PLANS INDICATE QUANTITIES ON THE PLANS TO ENHANCE THE UNDERSTANDING OF THE DESIGN CONCEPT. THE QUANTITIES ARE RELIABLE, BUT NOT GUARANTEED. THE CONTRACTOR IS RESPONSIBLE TO INSTALL THE CORRECT QUANTITIES OF ITEMS REQUIRED TO REMOVE AND DELIVER A COMPLETE FUNCTIONING BUILDING.
- 13. THIS PROJECT MAY HAVE AREAS OF AN UNUSUAL INTENSE MEP COORDINATION REQUIREMENT, AND IT IS THE RESPONSIBILITY OF THE MEP TRADES TO INSURE THAT ALL ASPECTS OF THE WORK ARE PROPERLY REMOVED AND PROVIDED TO DELIVER A COMPLETE AND FUNCTIONING MEP SYSTEM.
- 14. WHERE THERE EXISTS A DISCREPANCY BETWEEN THE PLANS, DOCUMENTS, OR CODE THE CONTRACTOR SHALL PROVIDE FOR THE MOST EXPENSIVE METHOD AND ADVISE THE ARCHITECT IN WRITING PRIOR TO PERFORMING ANY WORK.





PROPOSED FLOOR PLAN scale: ¼" = 1'-0"



Daniel Brechko

316 3rd St W, PO Box 23 Carver, MN 55315 (603) 502-3542 Iola.hldgs@gmail.com

1 April 2024

Peter Stith, Chair, City of Portsmouth TAC

1 Junkins Avenue Portsmouth, NH 03801

Re: 921 Islington St

Dear Mr Stith and TAC Members,

As a prospective buyer of the subject property I am submitting preliminary plans for TAC Review at your April, 9 2024 Work Session. The property is under contract and I would like to complete the site planning process to obtain the necessary special exceptions, variances, permits, etc from the City of Portsmouth prior to completing the purchase to ensure I can proceed with development plans.

Included in this submission:

- (1) Existing conditions from site survey
- (2) Proposed building expansion and parking plan
- (3) Open Area Calculation Drawing

My plans for the property include building renovation and addition to convert existing structure to multi-occupancy building:

- (1) service station (existing)
- (2) fuel dispensing (existing)
- (3) retail baker/deli w/small eat-in area (new)
- (4) four residential dwellings (new)

Scope of work includes:

- (1) Regrade lot to create parking along NE lot line
- (2) Add on to existing service station to create:
 - (a) entrance vestibule to side of garage bays
 - (b) utility and storage to rear of garage bays
- (3) Construct stairwell between service station and new deli
- (4) Add on to existing building for increased deli sqft
- (5) Install natural gas service to building, multi-tenant

- (6) Reconfigure plumbing for new use
- (7) Update electrical service to building, multi-tenant
- (8) Construct 2nd and 3rd floor residential units

My understanding from preliminary review with city staff is that the following items require attention for this project to proceed:

SPECIAL EXCEPTION the current service station operates under a special exception. Would the special exception require an extension to enable expansion of the building?

VARIANCE per 10.1113.20 Location of Parking Facilities on a Lot, parking is not permitted in the front yard. As shown on the site plan, the placement of the structure toward the rear of the lot to allow access to the pumps limits space available for parking.

VARIANCE open area would include includes walkways and a patio for outdoor dining. Is this acceptable or would a variance be required? Also the lot is currently 100% impervious. I am checking with an environmental firm about whether previous surfaces will impact the contaminated soil underground.

CONDITIONAL USE PERMIT per 10.1112.30 Off-Street Parking requirements the total spaces required per the table below is 15 however the site plan allows for 12.

Use	Sq Ft	Requirement	No. Spaces
Service Station	1083	2 + 1:400	5
Convenience Goods	900	1:300	3
Dining	200	1:100	2
Dwelling Unit	4x >750 sqft	1.3	6

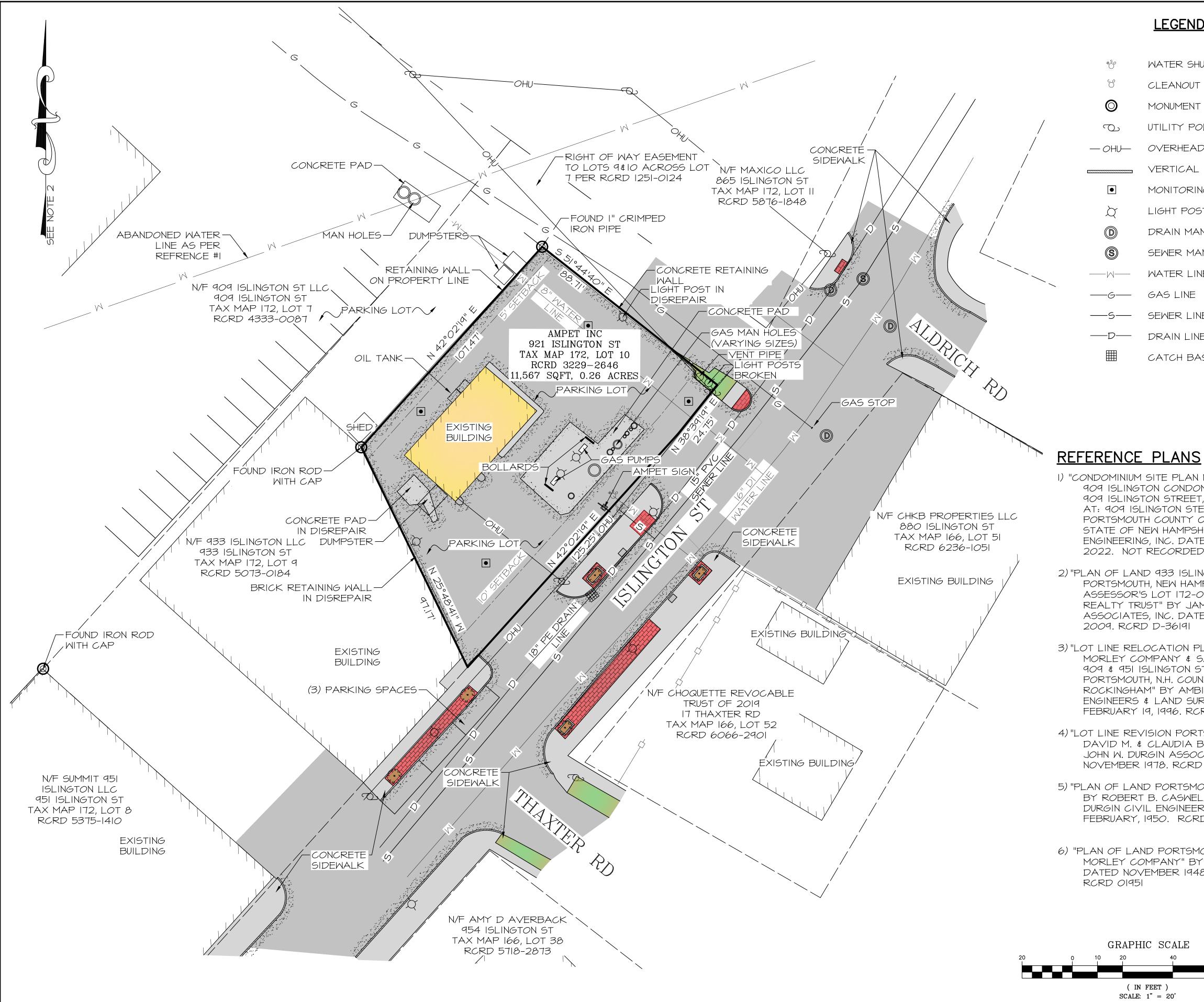
In reality, customers will likely park their cars at the pump when they shop at the bakery/deli, with adjacencies to businesses and residences much of the customer base is expected to be foot traffic, and finally the service station is small with only one mechanic and is not likely to require 5 parking spaces.

I look forward to working with the Technical Advisory Committee to review the aforementioned items as well as any new points that come up.

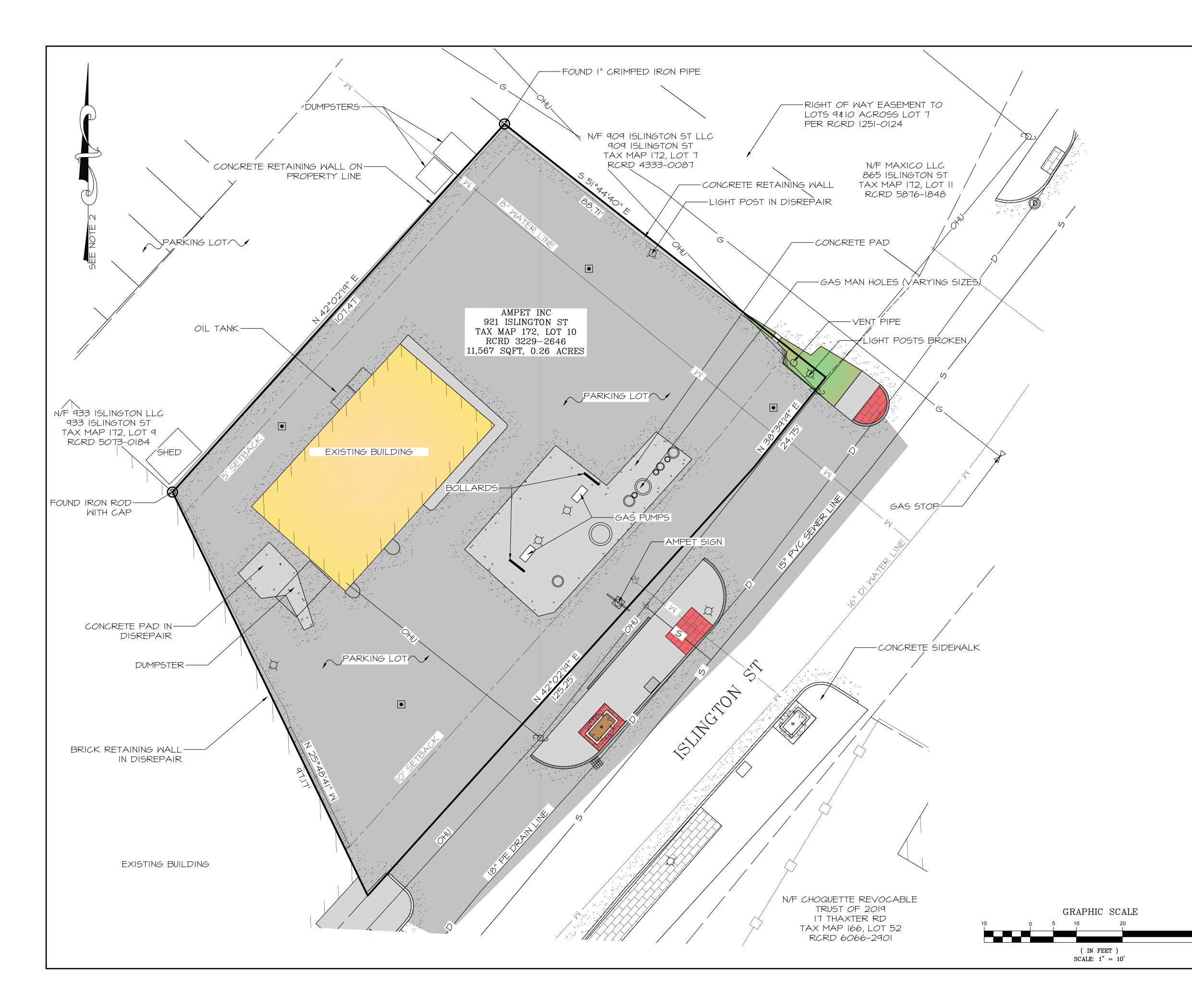
Sincerely,

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Daniel Brechko



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	2) BASIS OF BE	ARING HELD	FROM PLAN RE	FERENCE #1.
	3) PARCEL IS IN	CHARACTER	R DISTRICT 4 M	EST END
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<u>LEGEND</u>

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CATCH BASIN

NOTES
I) OWNER OF RECORD: AMPET INC TAX MAP 127, LOT 10 921 ISLINGTON ST PORTSMOUTH, NH 03801 RCRD: 3229-2646 AREA: 11,567 SF, 0.26 ACRES
2) BASIS OF BEARING HELD FROM PLAN REFERENCE #5.
3) PARCEL IS IN CHARACTER DISTRICT 4 WEST END (CD4-W): MINIMUM LOT AREA
4) THE PARCEL IS NOT WITHIN A FEMA FLOOD ZONE, AS PER FLOOD INSURANCE RATE MAP #33015C0259F, PANEL 259 OF 681, DATED JANUARY 29, 2021. VERTICAL DATUM IS NAVD 1988.
5) A RIGHT OF WAY EASEMENT ACROSS LOT 7 EXISTS AT THE ENTRANCE OF ISLINGTON STREET "FOR EGRESS AND INGRESS" SEE PLAN REF #6 & RCRD 1251-124
1 12/21/2023 PRELIMINARY
ISS. DATE DESCRIPTION OF ISSUE
DRAWN S.R.O.
ROSS ENGINEERING, LLC Civil/Structural Engineering & Surveying 000 Islington St

909 Islington St. Portsmouth, NH 03801 (603) 433-7560

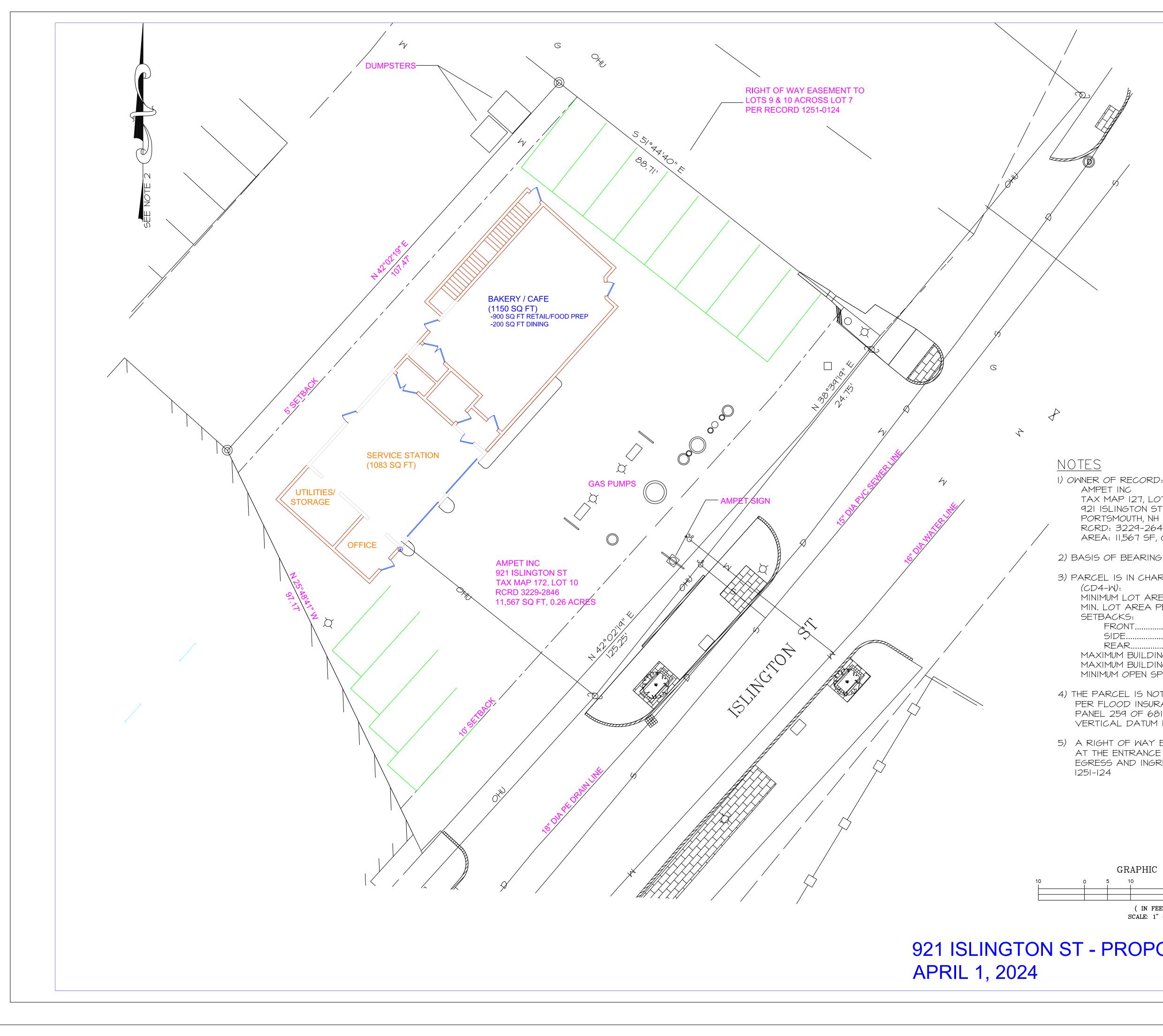
CLIENT DANIEL BRECHKO

TITLE

EXISTING CONDITIONS PLAN

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921 ISLINGTON ST	
PORTSMOUTH, NH 03801 RCRD: 3229-2646	
AREA: 11,567 SF, 0.26 ACRES	
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PARCEL IS IN CHARACTER DISTRICT 4 WEST END	
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MINIMUM LOT AREA5,000 SF MIN. LOT AREA PER DWELLING UNIT2,500 SF	
SETBACKS:	
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MAXIMUM BUILDING HEIGHT	
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A RIGHT OF WAY EASEMENT ACROSS LOT 7 EXISTS	
AT THE ENTRANCE OF ISLINGTON STREET "FOR EGRESS AND INGRESS" SEE PLAN REF #6 & RCRD	
1251-124	
	Project Name and Address
GRAPHIC SCALE	
(IN FEET) SCALE: $1'' = 10'$	Project Sheet
	Project Sheet
	Date
T - PROPOSED SITE PLAN	
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