



CITY HALL SANITARY SEWER & ROOF DRAIN LINE REPLACEMENT PRELIMINARY REPORT - MB-1654

City of Oklahoma City | December 2023



PREPARED FOR:

THE CITY OF OKLAHOMA CITY
3738 SW 15th Street, Building No. 19
Oklahoma City, OK 73108



PREPARED BY:

GSB, INC.
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Oklahoma City, OK 73112

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THE CITY OF OKLAHOMA CITY

APPROVAL SHEET

Project MB-1654
City Hall Sanitary Sewer & Roof Drain Line Replacement

Prepared by:

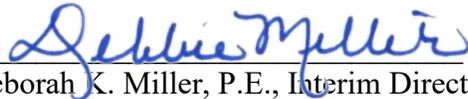
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Ronald G. Smith, President



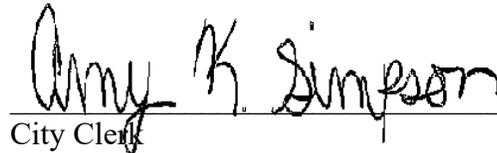
Recommended for Approval



Deborah K. Miller, P.E., Interim Director
Public Works/Interim City Engineer

APPROVED by The City of Oklahoma City this 13TH day of FEBRUARY, 20 24.

ATTEST:


City Clerk

The City of Oklahoma City


Mayor



PROJECT OVERVIEW

GSB, along with Olsson Engineers, was engaged by the City of Oklahoma City to provide architectural and engineering services associated with the replacement of sanitary sewer and roof drain lines in City Hall. The building was constructed in the 1930's, and the vast majority of its plumbing is original. In recent years, numerous leaks have occurred and sewer gas odors have become a recurring issue. In order to evaluate the condition of the sanitary sewer and roof drain systems, the General Services Department did video surveying of those lines and provided our team with that video for review and assessment.

It was our finding that the cast iron roof drain lines remain in good condition throughout the building and there was no need to incur the expense and complications associated with replacing these lines. There was standing water in horizontal lines outside of the building, but it was determined that this was due to the City storm main being obstructed, which is preventing the connecting lateral lines from draining. The General Services Department is working with Public Works to clear that storm main, so that the building system can properly and fully drain. This work on the City main is outside of the scope of this project.

Regarding the existing cast iron sanitary sewer system, it was our finding that the condition of the vertical and horizontal soil lines in the building merits replacement. The video survey indicated that several of the sanitary vents through the roof are in good condition and do not need to be replaced. It also revealed that some of the existing sanitary vents through the roof have been disconnected from the building plumbing and abandoned. These unused roof penetrations will be capped in place to prevent access by moisture or pests. The base bid specification will provide new PVC sanitary lines with sound-insulating wrap, while an add alternate will upgrade from insulated PVC lines to cast iron. A detailed cost estimate reflecting the scope of work described above was prepared and included within this report. It projects a base bid construction cost of approximately \$2,800,000, with the option to upgrade to cast iron sanitary piping for an additional \$450,000.

The replacement of the sanitary sewer lines within the building will require the selective demolition and repair of architectural finishes to access those lines. Our plans take every option available to avoid damage to existing, original construction and finishes and limit that work to areas previously renovated and with easily repairable finishes, such as acoustical lay-in ceilings and drywall partitions. Because of the difficulty in accessing the existing sanitary lines and the challenges of handling large sections of heavy pipe in confined spaces, this work will be difficult and time-consuming.

It will be further complicated by the fact that the building will remain fully occupied throughout the construction process. Access to functional restrooms within the building will have to be maintained at all times, so appropriate phasing of the work will be required. Methane testing will be required during construction to ensure that indoor air quality is not compromised. Particularly noisy or disruptive work may be restricted during important events, such as City Council meetings. Due to the project location downtown, there are significant limitations regarding parking and construction staging/storage for the selected general contractor. The complicated nature of this renovation work, along with the limitations described, may limit the number of bidders who elect to pursue this project.

Upon approval of this Preliminary Report, our team will prepare construction drawings and specifications for this project. When completed, these construction documents will be issued for permit and subsequently released for public bidding. It is anticipated that phased construction is likely to extend throughout 2024.

OVERVIEW

Olsson conducted a field investigation and evaluation of the existing site on January 23, 2023, with a second field investigation occurring on February 7, 2023. This report discusses existing conditions of the sanitary sewer system and storm drainage and options to replace the aging systems. Olsson has reviewed the existing building drawings, including the 1995 renovation plans. The systems appear to be in generally good working order, although a good amount of the piping is over 80 years old.

In an effort to provide the best value to the City, Olsson proposes to fully replace the sanitary sewer and vent piping with solid wall, schedule 40 PVC, with the exception of three vertical vent stacks referenced in the plumbing drawings on sheet P1.6. This option will allow for unforeseen modifications during construction and to remain within budget.

PLUMBING OBSERVATIONS

City Hall was built in 1937 with cast iron piping for the sanitary sewer lines and storm drains. Renovations took place between 1995 and 1998 which modified the building's drainage system, mostly adding breakroom sinks. At some point, an undocumented renovation took place, removing a large portion of drinking fountains located throughout the floors of the building. Throughout the extents of the renovations, the majority of the original piping appears to have been retained. This shows the longevity of the materials used during construction in 1937.

Overall, the existing cast iron piping appears to be in good working condition. However, we understand that building occupants and visitors have smelled a strong sewer gas odor at the south end of the ground floor for quite some time. During our team's investigative visits to the building, a sewer gas odor was observed in a 15-20' diameter area at the south end of the basement (as shown in Figure 3), just below the ground floor.

It appears that over the years, repairs have taken place to keep the sanitary sewer system operational. Some of the observable repairs made were with PVC pipe (as seen in Figure 4). PVC is a quality material, but does not share the life expectancy of cast iron. PVC is also more susceptible to higher noise, unless wrapped with sound-insulating material.



Figure 1. Typical Light Rust on Cast Iron Pipe



Figure 2. Possible Leak Allowing Sewer Gas to Enter Building

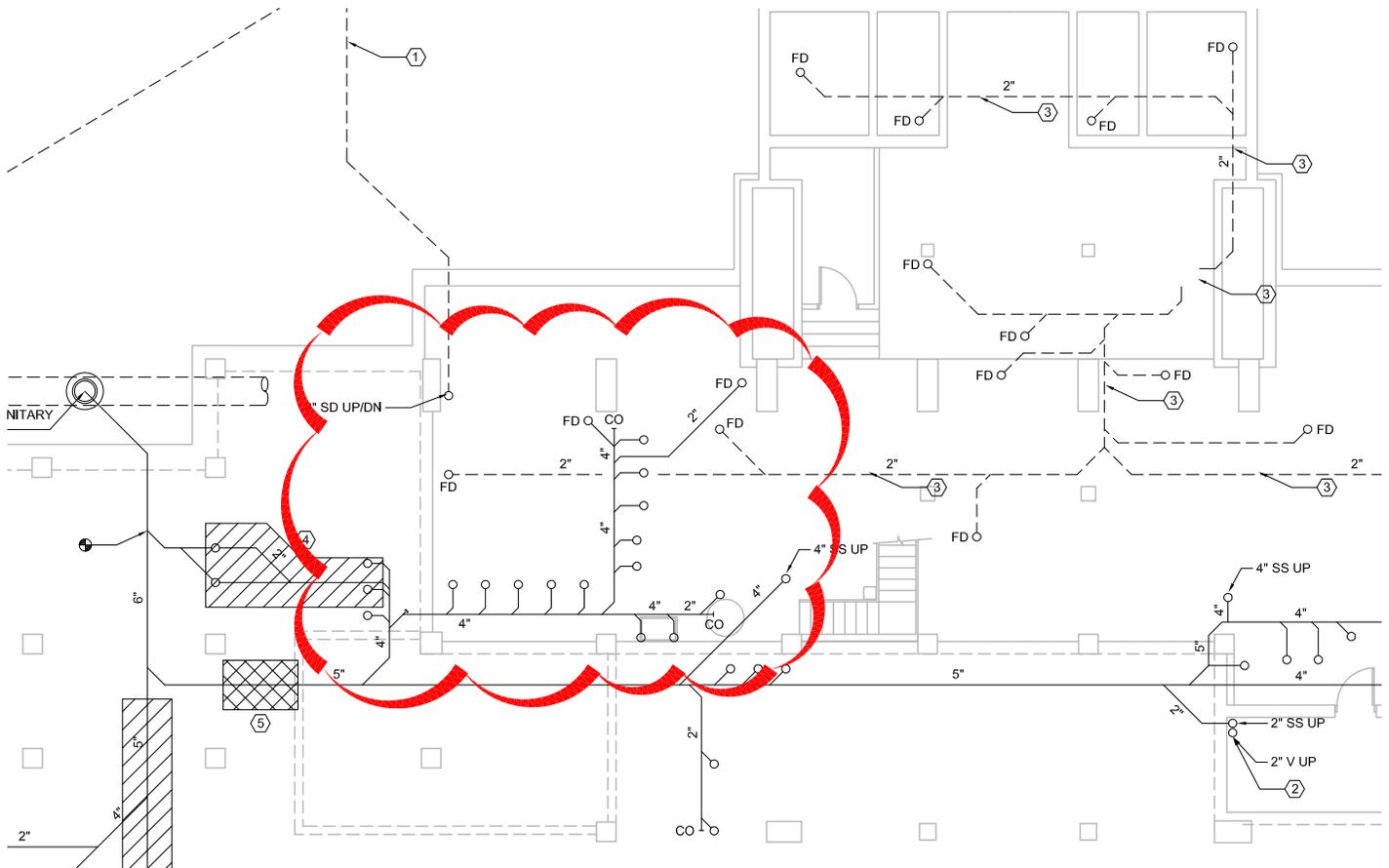


Figure 3. Lower Level (Basement) - Location of Sewer Gas Odor Observed During Investigation



Figure 4. Sanitary Replacement Showing Use of PVC Pipe

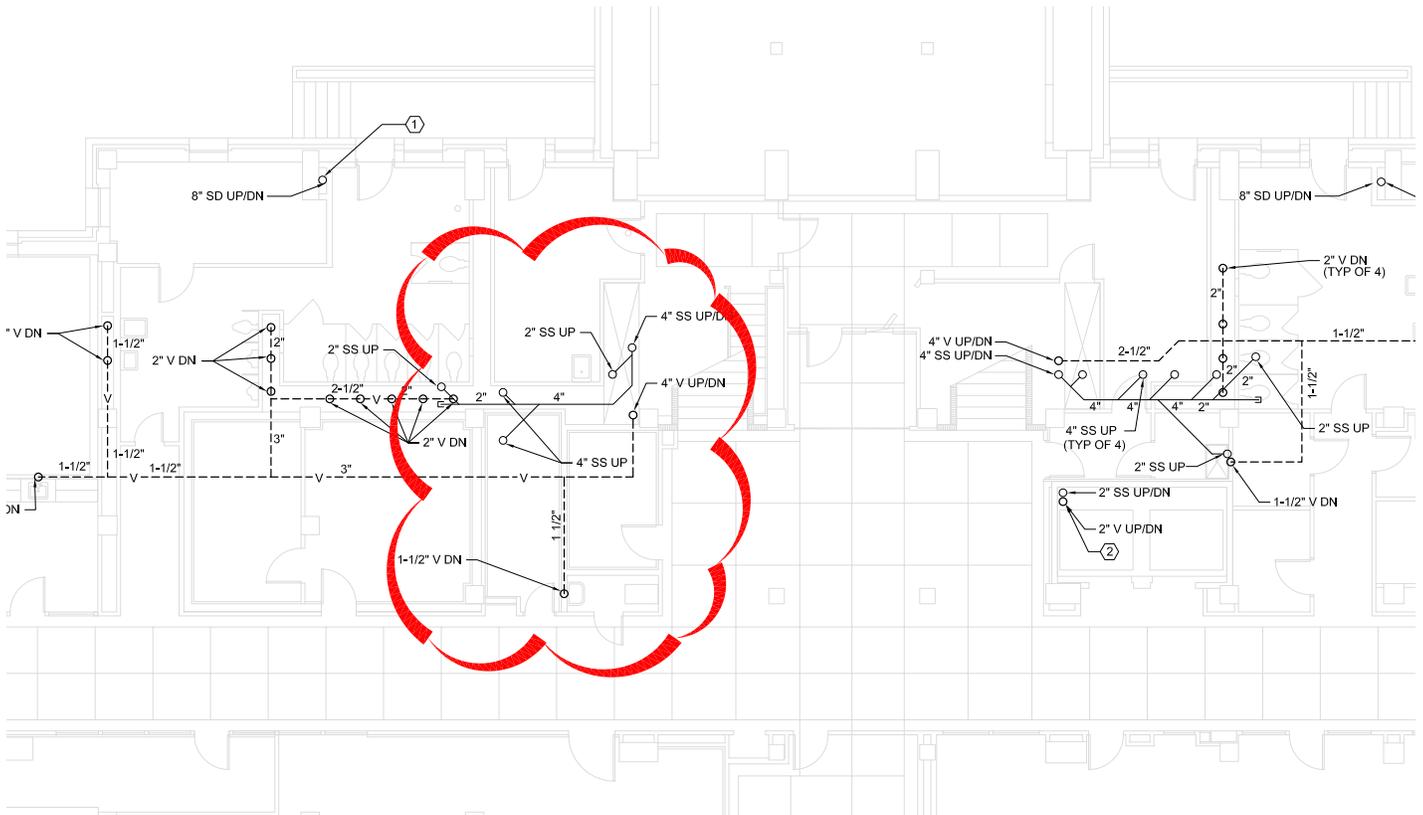


Figure 5. First (Ground) Floor - Location of Previous PVC Sewer Line Repairs

VIDEO SCOPING

Video scoping took place on June 7, 2023 and included several sanitary piping locations within the building and at the manhole for the storm system. Results of the sanitary pipe scoping show that throughout the building, there is a buildup of calcification and organic material, effectively reducing the internal pipe size significantly, sometimes by even a pipe diameter. Additionally, it was noted in the basement (shown in Figure 6) that piping often changes slope percentage, often to a point where it was holding water. In the basement, leaking has been observed, likely due in large part to the sagging piping.

It was determined prior to June 7th that water was building in the storm sewer system, even outside of significant weather events. The City of Oklahoma City provided a pump truck to remove the standing water in the manhole outside of the building to allow for a scoping drone to be placed inside the manhole. During the investigation, it appears to show that the storm sewer main downstream of the manhole has been capped, or at the very least, partially capped. This is creating a situation where storm runoff is unable to adequately drain completely away from the building. It was discussed during the scoping visit that this is likely outside of the scope of the project, as it is significantly beyond the boundaries of the building.

The horizontal lines forming a loop around the building were not available to be scoped as the scoping drone was too large to enter the pipes.

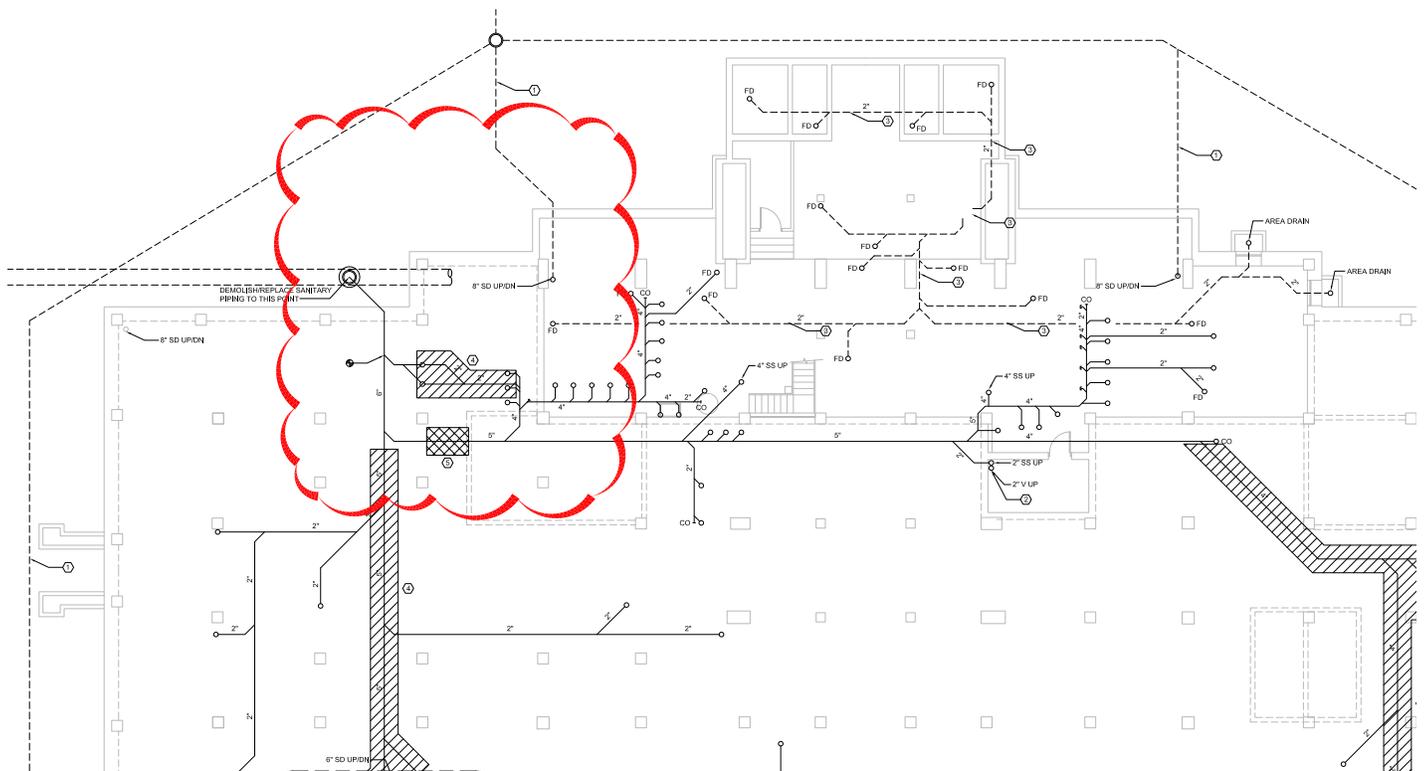


Figure 6. Lower Level (Basement) - Area of Concern Identified During Scoping of Existing Sanitary Lines



CONSTRUCTION CHALLENGES

Sewer Gas Odors

Sewer gas is a mixture of both inert and dangerous gases, which build up in a common sanitary sewer system. During a renovation project in which sanitary piping is replaced, it is possible that sewer gases will be able to migrate into spaces outside of the area to be renovated. Because the building will be required to be occupied during the renovation, special care will be required to ensure the safety of all occupants.

Hydrogen sulfide (H₂S) and methane (CH₄) gas are common byproducts as bacteria breaks down waste in the sanitary sewer system. These two gases present several concerns if allowed to build indoors. Hydrogen sulfide is poisonous, and in high enough concentrations, can cause respiratory issues and death. Both gases can replace oxygen, creating an asphyxiation hazard. Both gases are flammable/explosive.

Because of these dangers, and the fact that the building will remain in use during construction, places a responsibility on the contractor to monitor for these conditions. A hydrogen sulfide monitor will be required and will alarm if the concentration in the space exceeds 10 ppm (parts per million). A methane monitor will be required and will alarm if the concentration in the space exceeds 25,000 ppm (parts per million), which is half of the LEL (Lower Explosive Limit) of 5% volume.

Contractor will be responsible for hiring (through their contract) a 3rd party testing agency to oversee the monitoring and testing of air quality. This testing agency will be required to issue daily reports directly to the City.

Phasing

The building is required to remain in operation throughout the construction. Because of this, both men's and women's restrooms will need to be accessible. By separating the renovation into two phases, it allows half of the building's restrooms to remain functional. The restrooms will be required to temporarily shift operations from men's to women's and vice versa, alternating by floor.

Inaccessible Piping

The first floor main hallway flooring is terrazzo, which is poured in place and consists of chips of marble, quartz, granite, or glass. As this flooring is so customized, cutting into the flooring to access piping is not ideal. Because of this issue, piping from the second floor will be rerouted, and a new sanitary sewer entrance is proposed for the southeast corner of the building. This new sanitary line will tap into the existing sewer main in Colcord Dr. Any piping located below the terrazzo flooring will be abandoned in place. To prevent buildup of gases from decaying organic material, the pipes will need to be filled with a lightweight expanding material and be capped at both ends.



OPTIONS

In an effort to provide maximum value, and with video scoping confirming, it is recommended that all storm piping remain. Options to upgrade the sanitary sewer and vent piping are discussed below.

Base Bid – Replace all of the sanitary sewer and vent piping, except the three selected vertical stacks, throughout the building with solid wall, schedule 40 PVC pipe. This option will be more cost effective than cast iron, but will require sound attenuation pipe wrap be installed at locations where occupants are sensitive to noise.

Alternate 1 – Replace all of the sanitary sewer and vent piping, including the three selected vertical stacks, throughout the building with solid wall, schedule 40 PVC pipe. This option will be more cost effective than cast iron, but will require sound attenuation pipe wrap be installed at locations where occupants are sensitive to noise.

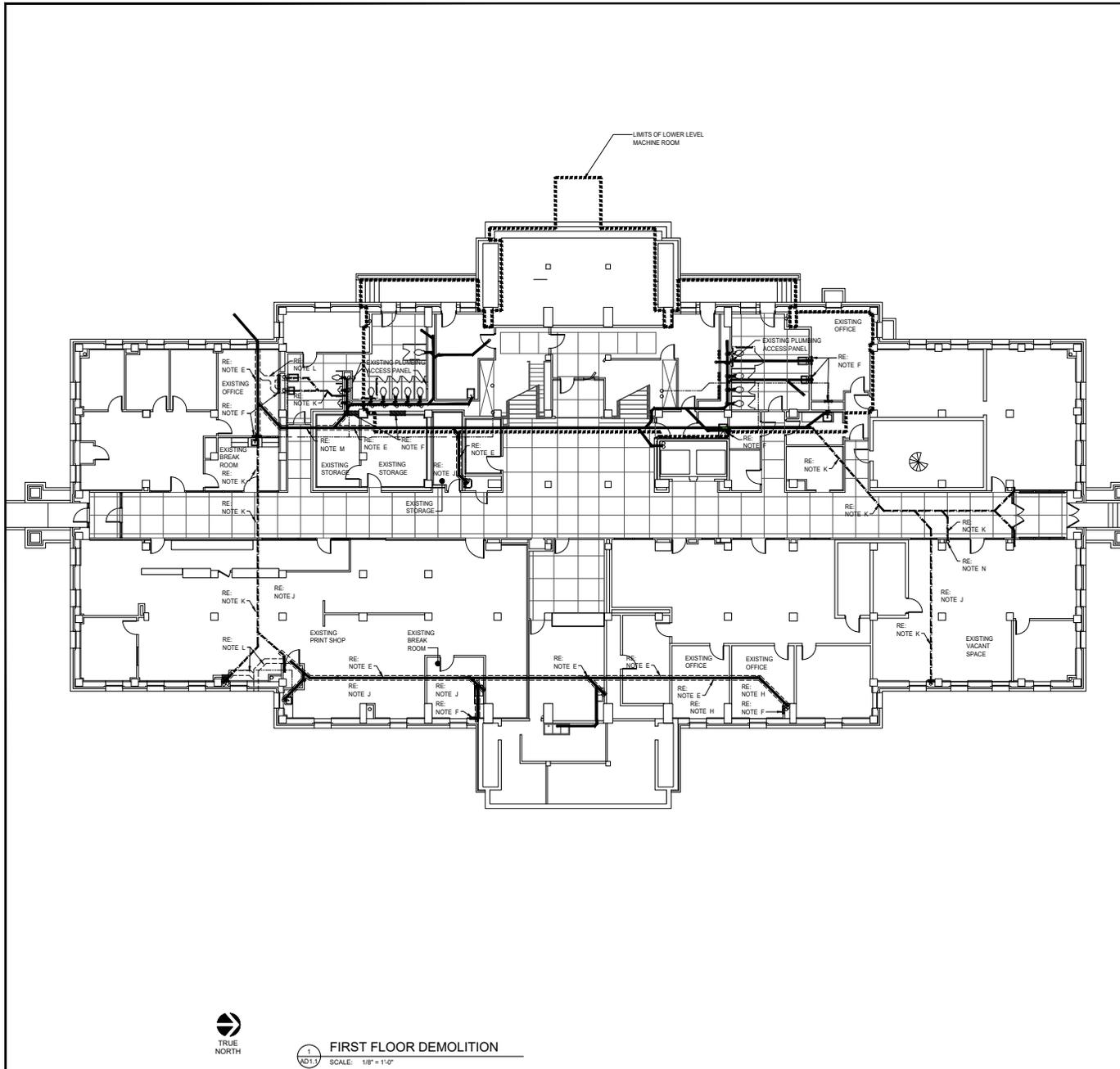
Alternate 2 – Replace all of the sanitary sewer and vent piping, except the three selected vertical stacks, throughout the building with cast iron pipe. This option will provide the greatest amount of sound attenuation and longevity, but at the highest first cost. It is likely that the cast iron pipe systems could see another 60 years of life.

Alternate 2A – Replace all of the sanitary sewer and vent piping, including the three selected vertical stacks, throughout the building with cast iron pipe. This option will provide the greatest amount of sound attenuation and longevity, but at the highest first cost. It is likely that the cast iron pipe systems could see another 60 years of life.

RECOMMENDATIONS

Olsson's recommendation is to utilize the base bid option. The base bid option is the most cost effective, and the ability to have adequate contingency allows for unknowns discovered during the construction process to be captured.

DRAWINGS - ARCHITECTURE



GENERAL DEMOLITION NOTES

- A. CONTRACTOR SHALL VERIFY PIPE LOCATIONS PRIOR TO DEMOLITION.
- B. WALL DEMOLITION SHALL NOT OCCUR THROUGH ANY EXISTING WALLS HAVING ORIGINAL HISTORIC FINISHES.
- C. SAWCUT AND REMOVE GYPSUM SHEATHING AS REQUIRED TO GAIN ACCESS TO EXISTING SANITARY WASTE AND VENT PIPING. COORDINATE WITH PLUMBING DOCUMENTS FOR LOCATION OF EXISTING PLUMBING PIPING.
- D. WASTE PIPING FOR THIS LEVEL WITHIN THE "LIMITS OF THE LOWER LEVEL MACHINE ROOM" TO BE ACCESSED FROM THE FLOOR BELOW.
- E. FIELD VERIFY EXACT LOCATION OF EXISTING WASTE PIPING AND SAWCUT THE CONCRETE SLAB AS GRAPHICALLY DEPICTED ON THIS SHEET TO REMOVE AND REPLACE THE EXISTING SANITARY WASTE LINES. ADJUST SAWCUT AS REQUIRED TO ALIGN WITH EXACT PIPE LOCATIONS.
- F. TO ACCESS THE VERTICAL SANITARY WASTE AND VENT PIPING CONNECTIONS, CONTRACTOR SHALL REMOVE EXISTING WALL FINISHES AT LOCATIONS WITH THE DOUBLE DIAGONAL HATCH PATTERN TO MAKE THE DISCONNECTS.
- G. IN THE EVENT THAT BURNT CLAY TILE IS DISCOVERED AS A WALL MATERIAL, AT DEMOLITION POINTS, THE CONTRACTOR SHALL BE PREPARED TO REMOVE BURNT CLAY TILE AS REQUIRED TO GAIN ACCESS TO VERTICAL PLUMBING WASTE AND VENT LINES.
- H. REMOVE EXISTING CARPET FLOORING.
- I. REMOVE EXISTING LVT FLOORING.
- J. REMOVE EXISTING VINYL TILE FLOORING.
- K. ABANDON EXISTING PIPE IN PLACE AND FILL WITH EXPANSIVE MATERIAL. PERMANENTLY CAP EACH END OF PIPE.
- L. SAWCUT CONCRETE SLAB FOR INSTALLATION OF NEW WASTE PIPING.
- M. BORE UNDER THE CONCRETE SLAB TO REMOVE THE WASTE PIPING. DO NOT CUT SLAB.
- N. DEMO EXISTING 4" SEWER WASTE PIPE UP TO FLOOR PENETRATION FOR REROUTING TO A NEW PIPE CONNECTION. SEE SHEET AE1.2 AND P1.2.



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DATE
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DRAWING TITLE
 FIRST FLOOR PLAN
 DEMOLITION

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 AD1.1



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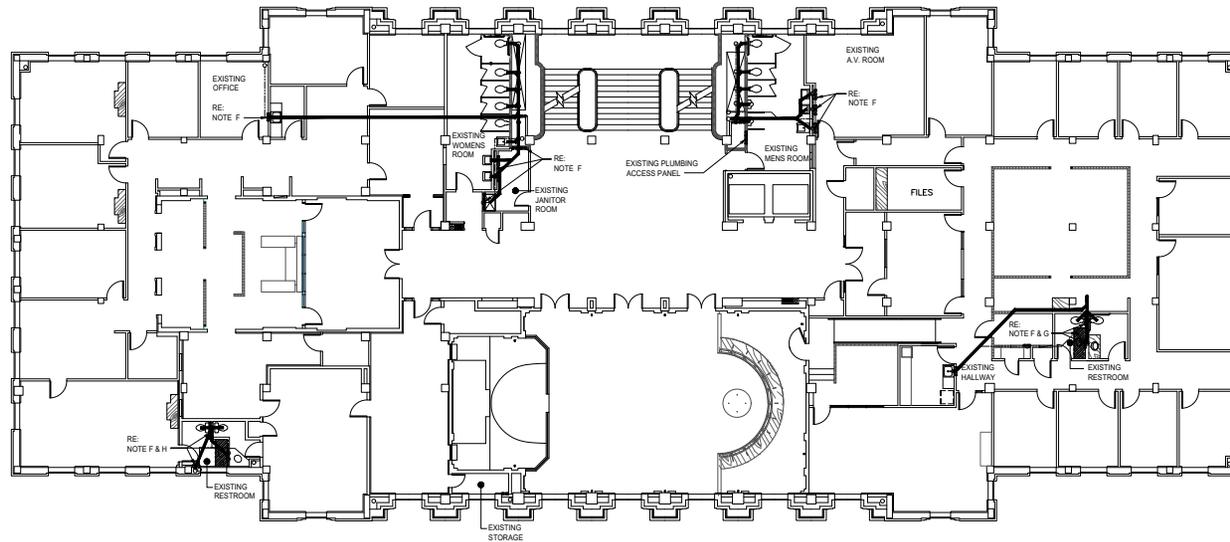
1
 XD13 FIRST FLOOR DEMOLITION
 SCALE: 1/8" = 1'-0"

DRAWINGS - ARCHITECTURE



GENERAL DEMOLITION NOTES

- A. CONTRACTOR SHALL VERIFY PIPE LOCATIONS PRIOR TO DEMOLITION.
- B. WALL DEMOLITION SHALL NOT OCCUR THROUGH ANY EXISTING WALLS HAVING ORIGINAL HISTORIC FINISHES.
- C. SAWCUT AND REMOVE GYPSUM SHEATHING AS REQUIRED TO GAIN ACCESS TO EXISTING SANITARY WASTE AND VENT PIPING. COORDINATE WITH PLUMBING DOCUMENTS FOR LOCATION OF EXISTING PLUMBING PIPING.
- D. WASTE PIPING FOR THIS LEVEL TO BE ACCESSED FROM THE FLOOR BELOW.
- E. NOT USED.
- F. TO ACCESS THE VERTICAL SANITARY WASTE AND VENT PIPING CONNECTIONS, CONTRACTOR SHALL REMOVE EXISTING WALL FINISHES AT LOCATIONS WITH THE DOUBLE DIAGONAL HATCH PATTERN TO MAKE THE DISCONNECTS.
- G. IN THE EVENT THAT BURNT CLAY TILE IS DISCOVERED AS A WALL MATERIAL AT DEMOLITION POINTS, THE CONTRACTOR SHALL BE PREPARED TO REMOVE BURNT CLAY TILE AS REQUIRED TO GAIN ACCESS TO VERTICAL PLUMBING WASTE AND VENT LINES.
- H. REMOVE MILLWORK TEMPORARILY FOR REINSTALLATION ONCE PIPE WORK HAS BEEN COMPLETED.



1
KD13 THIRD FLOOR DEMOLITION
SCALE: 1/8" = 1'-0"



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DEMOLITION

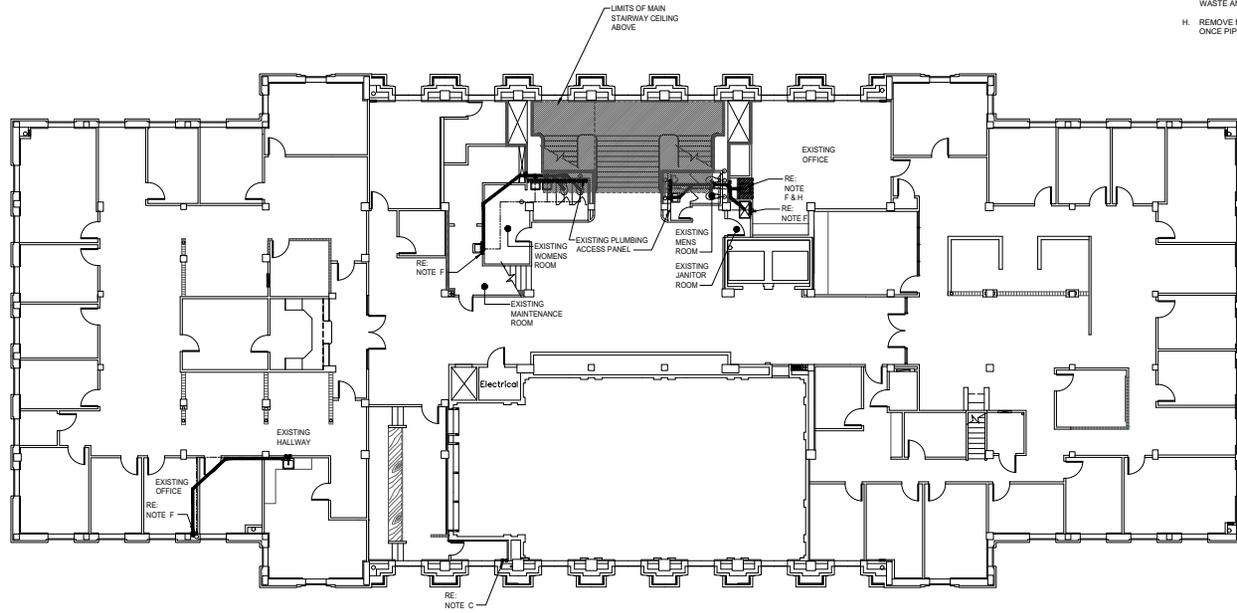
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DRAWINGS - ARCHITECTURE



GENERAL DEMOLITION NOTES

- A. CONTRACTOR SHALL VERIFY PIPE LOCATIONS PRIOR TO DEMOLITION.
- B. WALL DEMOLITION SHALL NOT OCCUR THROUGH ANY EXISTING WALLS HAVING ORIGINAL HISTORIC FINISHES.
- C. SAWCUT AND REMOVE GYPSUM SHEATHING AS REQUIRED TO GAIN ACCESS TO EXISTING SANITARY WASTE AND VENT PIPING. COORDINATE WITH PLUMBING DOCUMENTS FOR LOCATION OF EXISTING PLUMBING PIPING.
- D. WASTE PIPING FOR THIS LEVEL TO BE ACCESSED FROM THE FLOOR BELOW.
- E. CARE SHALL BE TAKEN BY THE CONTRACTOR TO PREVENT DAMAGE TO THE EXISTING STAIRWAY CEILING WHEN REMOVING THE SANITARY WASTE PIPING FOR THE PLUMBING FIXTURES ABOVE THIS LEVEL.
- F. TO ACCESS THE VERTICAL SANITARY WASTE AND VENT PIPING CONNECTIONS, CONTRACTOR SHALL REMOVE EXISTING WALL FINISHES AT LOCATIONS WITH THE DOUBLE DIAGONAL HATCH PATTERN TO MAKE THE DISCONNECTS.
- G. IN THE EVENT THAT BURNT CLAY TILE IS DISCOVERED AS A WALL MATERIAL AT DEMOLITION POINTS, THE CONTRACTOR SHALL BE PREPARED TO REMOVE BURNT CLAY TILE AS REQUIRED TO GAIN ACCESS TO VERTICAL PLUMBING WASTE AND VENT LINES.
- H. REMOVE MILLWORK TEMPORARILY FOR REINSTALLATION ONCE PIPE WORK HAS BEEN COMPLETED.



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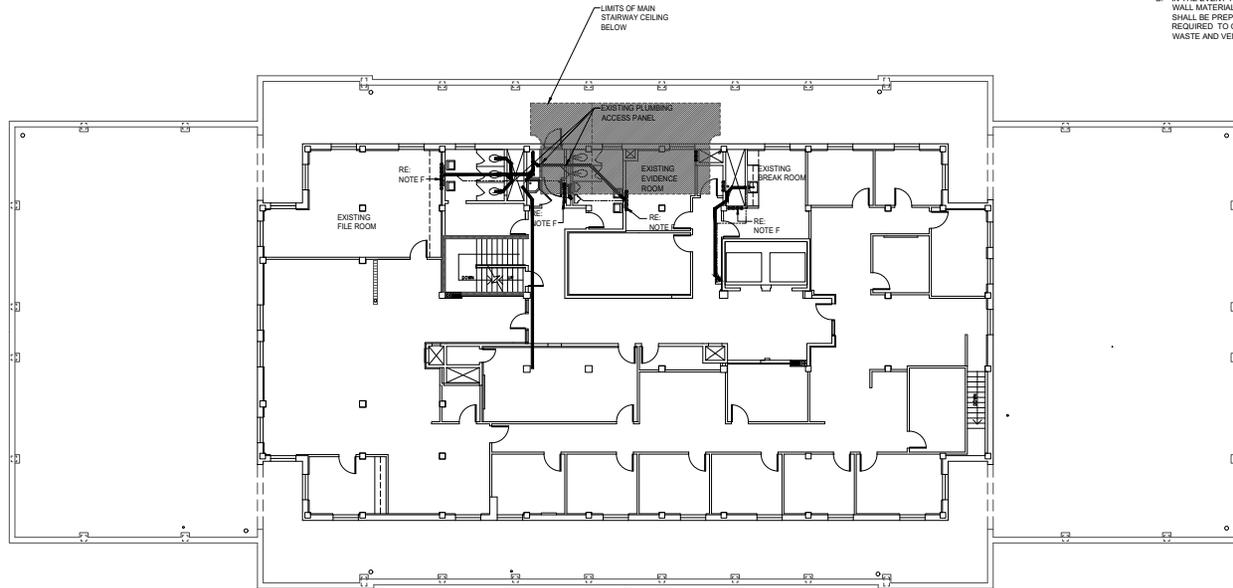
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 FOURTH FLOOR PLAN
 DEMOLITION

DRAWING NO.
 AD1.4



1
 4D14 FOURTH FLOOR DEMOLITION
 SCALE: 1/8" = 1'-0"

DRAWINGS - ARCHITECTURE



GENERAL DEMOLITION NOTES

- A. CONTRACTOR SHALL VERIFY PIPE LOCATIONS PRIOR TO DEMOLITION.
- B. WALL DEMOLITION SHALL NOT AFFECT ANY EXISTING WALLS HAVING ORIGINAL HISTORIC FINISHES.
- C. SAWCUT AND REMOVE GYPSUM SHEATHING AS REQUIRED TO GAIN ACCESS TO EXISTING SANITARY WASTE AND VENT PIPING. COORDINATE WITH PLUMBING DOCUMENTS FOR LOCATION OF EXISTING PLUMBING PIPING.
- D. WASTE PIPING FOR THIS LEVEL TO BE ACCESSED FROM THE FLOOR BELOW.
- E. CARE SHALL BE TAKEN BY THE CONTRACTOR TO PREVENT DAMAGE TO THE EXISTING STAIRWAY CEILING BELOW WHEN REMOVING THE SANITARY WASTE PIPING FOR THE PLUMBING FIXTURES AT THIS LEVEL.
- F. TO ACCESS THE SANITARY WASTE AND VENT PIPING CONNECTIONS, CONTRACTOR SHALL REMOVE EXISTING WALL FINISHES AT LOCATIONS WITH THE DOUBLE DIAGONAL HATCH PATTERN TO MAKE THE DISCONNECTS.
- G. IN THE EVENT THAT BURNT CLAY TILE IS DISCOVERED AS A WALL MATERIAL AT DEMOLITION POINTS, THE CONTRACTOR SHALL BE PREPARED TO REMOVE BURNT CLAY TILE AS REQUIRED TO GAIN ACCESS TO VERTICAL PLUMBING WASTE AND VENT LINES.



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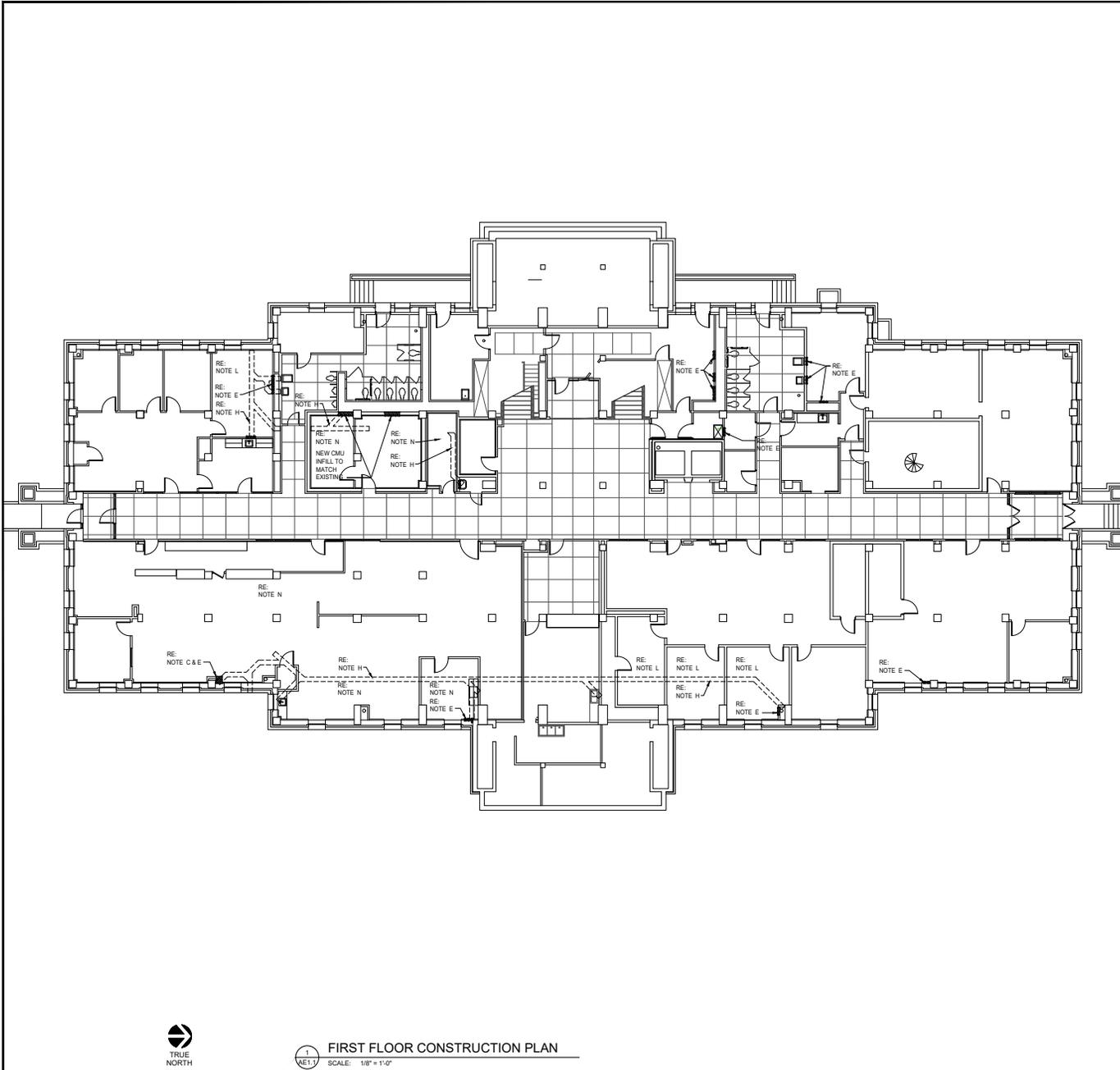
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 FIFTH FLOOR PLAN
 DEMOLITION

DRAWING NO.
 AD1.5



1
 AD1.5 FIFTH FLOOR DEMOLITION
 SCALE: 1/8" = 1'-0"

DRAWINGS - ARCHITECTURE



GENERAL CONSTRUCTION NOTES

- A. ALL VERTICAL AND HORIZONTAL LENGTHS OF SCHEDULE 40 PVC ABOVE GRADE SHALL BE WRAPPED IN SOUND ATTENUATION INSULATION.
- B. CONTRACTOR SHALL INSTALL NEW GYPSUM BOARD AT ALL LOCATIONS WHERE ORIGINAL GYPSUM BOARD HAS BEEN REMOVED. TAPE, FINISH AND PAINT THE ENTIRE WALL TO MATCH EXISTING PAINT COLOR IN THE ROOM.
- C. IN THE EVENT FRAMING IS REQUIRED TO BE REMOVED, CONTRACTOR SHALL INSTALL METAL STUD FRAMING IN ITS PLACE.
- D. IN THE EVENT THAT THE EXISTING WALL FINISH IS TILE, CONTRACTOR SHALL REPLACE THE WALL TILE MATCHING THE EXISTING WALL TILE IN THE ROOM.
- E. AREAS MARKED WITH THE DOUBLE DIAGONAL HATCH PATTERN IDENTIFY THE WALLS THAT ARE INTENDED TO HAVE GYPSUM BOARD REMOVAL FOR THIS CONSTRUCTION PROJECT. IN THE EVENT ADDITIONAL AREAS ARE AFFECTED, CONTRACTOR SHALL REFER TO NOTES A, B AND C TO MAKE REPAIRS.
- F. MILLWORK REMOVED DURING DEMOLITION SHALL BE REINSTALLED TO THE EXACT POSITION IN THE SAME QUALITY IT WAS PRIOR TO THE REMOVAL.
- G. PLUMBING FIXTURES REMOVED DURING DEMOLITION SHALL BE REINSTALLED IN WORKING OPERATION.
- H. AREAS WHERE CONCRETE WAS REMOVED, CONTRACTOR SHALL POUR NEW CONCRETE IN PLACE FLUSH WITH THE EXISTING ADJACENT CONCRETE SLAB.
- I. IN AREAS WHERE BURNT CLAY TILE WAS DISCOVERED AS A WALL MATERIAL, THE CONTRACTOR SHALL REPAIR THE WALL TO THE SATISFACTION OF THE OWNER.
- J. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF DAMAGED ACOUSTIC CEILING TILES.
- K. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OR REPLACEMENT OF CEILING GRID AFFECTED BY REMOVAL AND INSTALLATION OF WASTE AND VENT PIPING.
- L. INSTALL NEW CARPET FINISH.
- M. INSTALL NEW LVT FLOORING OR EQUAL.
- N. INSTALL NEW FLOOR TILE APPROVED BY OWNER.



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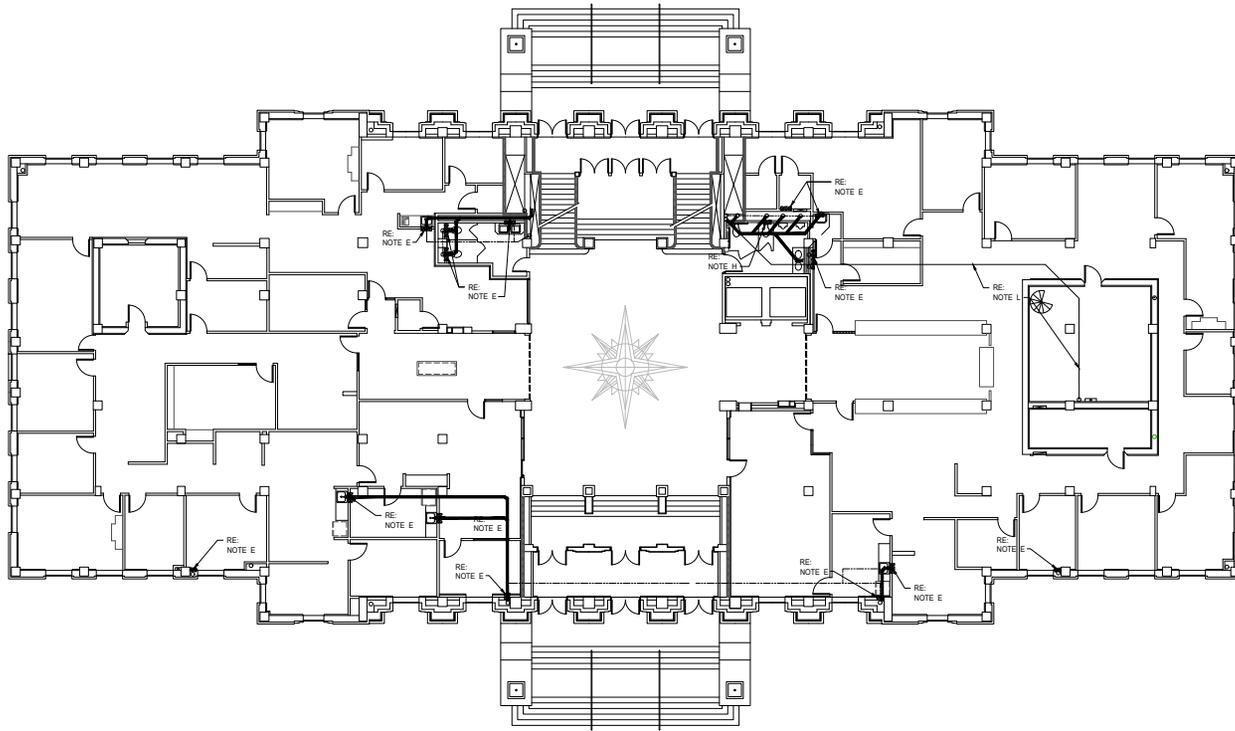
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 EXISTING FIRST FLOOR

DRAWING NO.
 AE1.1



1 FIRST FLOOR CONSTRUCTION PLAN
 SCALE: 1/8" = 1'-0"

DRAWINGS - ARCHITECTURE



GENERAL CONSTRUCTION NOTES

- A. ALL VERTICAL AND HORIZONTAL LENGTHS OF SCHEDULE 40 PVC ABOVE GRADE SHALL BE WRAPPED IN SOUND ATTENUATION INSULATION.
- B. CONTRACTOR SHALL INSTALL NEW GYPSUM BOARD AT ALL LOCATIONS WHERE ORIGINAL GYPSUM BOARD HAS BEEN REMOVED. TAPE, FINISH AND PAINT THE ENTIRE WALL TO MATCH EXISTING PAINT COLOR IN THE ROOM.
- C. IN THE EVENT FRAMING IS REQUIRED TO BE REMOVED, CONTRACTOR SHALL INSTALL METAL STUD FRAMING IN ITS PLACE.
- D. IN THE EVENT THAT THE EXISTING WALL FINISH IS TILE, CONTRACTOR SHALL REPLACE THE WALL TILE MATCHING THE EXISTING WALL TILE IN THE ROOM.
- E. AREAS MARKED WITH THE DOUBLE DIAGONAL HATCH PATTERN IDENTIFY THE WALLS THAT ARE INTENDED TO HAVE GYPSUM BOARD REMOVAL FOR THIS CONSTRUCTION PROJECT. IN THE EVENT ADDITIONAL AREAS ARE AFFECTED, CONTRACTOR SHALL REFER TO NOTES A, B AND C TO MAKE REPAIRS.
- F. MILLWORK REMOVED DURING DEMOLITION SHALL BE REINSTALLED TO THE EXACT POSITION IN THE SAME QUALITY WAS PRIOR TO THE REMOVAL.
- G. PLUMBING FIXTURES REMOVED DURING DEMOLITION SHALL BE REINSTALLED IN WORKING OPERATION.
- H. REPLACE PLUMBING ACCESS PANELS DAMAGED DURING DEMOLITION.
- I. IN AREAS WHERE BURNT CLAY TILE WAS DISCOVERED AS A WALL MATERIAL, THE CONTRACTOR SHALL REPAIR THE WALL TO THE SATISFACTION OF THE OWNER.
- J. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF DAMAGED ACOUSTIC CEILING TILES.
- K. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OR REPLACEMENT OF CEILING GRID AFFECTED BY THE REMOVAL AND INSTALLATION OF WASTE AND VENT PIPING.
- L. ROUTE NEW WASTE LINE TO CONNECT TO WASTE PIPING CONNECTION AS DEPICTED.



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 P: 405.542.9301

CITY HALL MUNICIPAL BUILDING
 PLUMBING WASTE LINE REPLACEMENT
 200 NORTH WALKER
 OKLAHOMA CITY, OK

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 FOR CONSTRUCTION

GSB PROJECT NO.
 221863

DATE
 September, 2023

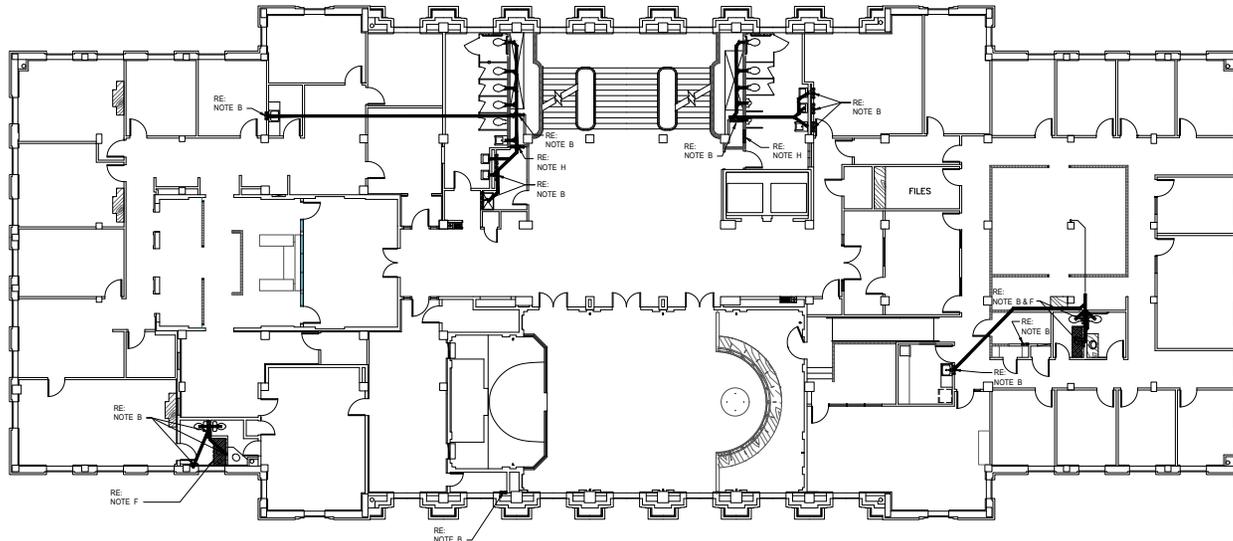
DRAWING TITLE
 EXISTING SECOND
 FLOOR

DRAWING NO.
 AE1.2



1 SECOND FLOOR CONSTRUCTION PLAN
 AE1.2 SCALE: 1/8" = 1'-0"

DRAWINGS - ARCHITECTURE



GENERAL CONSTRUCTION NOTES

- A. ALL VERTICAL AND HORIZONTAL LENGTHS OF SCHEDULE 40 PVC ABOVE GRADE SHALL BE WRAPPED IN SOUND ATTENUATION INSULATION.
- B. CONTRACTOR SHALL INSTALL NEW GYPSUM BOARD AT ALL LOCATIONS WHERE ORIGINAL GYPSUM BOARD HAS BEEN REMOVED. TAPE, FINISH AND PAINT THE ENTIRE WALL TO MATCH EXISTING PAINT COLOR IN THE ROOM.
- C. IN THE EVENT FRAMING IS REQUIRED TO BE REMOVED, CONTRACTOR SHALL INSTALL METAL STUD FRAMING IN ITS PLACE.
- D. IN THE EVENT THAT THE EXISTING WALL FINISH IS TILE, CONTRACTOR SHALL REPLACE THE WALL TILE MATCHING THE EXISTING WALL TILE IN THE ROOM.
- E. AREAS MARKED WITH THE DOUBLE DIAGONAL HATCH PATTERN IDENTIFY THE WALLS THAT ARE INTENDED TO HAVE GYPSUM BOARD REMOVAL FOR THIS CONSTRUCTION PROJECT. IN THE EVENT ADDITIONAL AREAS ARE AFFECTED, CONTRACTOR SHALL REFER TO NOTES A, B AND C TO MAKE REPAIRS.
- F. MILLWORK REMOVED DURING DEMOLITION SHALL BE REINSTALLED TO THE EXACT POSITION IN THE SAME QUALITY WAS PRIOR TO THE REMOVAL.
- G. PLUMBING FIXTURES REMOVED DURING DEMOLITION SHALL BE REINSTALLED IN WORKING OPERATION.
- H. REPLACE PLUMBING ACCESS PANELS DAMAGED DURING DEMOLITION.
- I. IN AREAS WHERE BURNT CLAY TILE WAS DISCOVERED AS A WALL MATERIAL, THE CONTRACTOR SHALL REPAIR THE WALL TO THE SATISFACTION OF THE OWNER.
- J. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF DAMAGED ACOUSTIC CEILING TILES.
- K. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OR REPLACEMENT OF CEILING GRID AFFECTED BY REMOVAL AND INSTALLATION OF WASTE AND VENT PIPING.



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Owner
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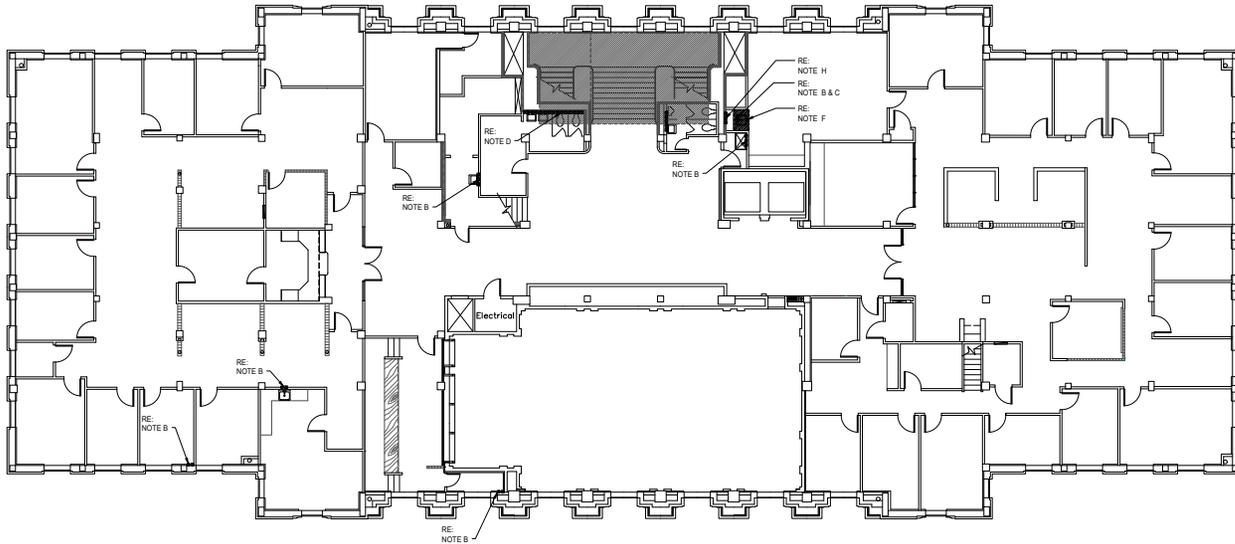
DRAWING TITLE
EXISTING THIRD FLOOR

DRAWING NO.
AE1.3



THIRD FLOOR CONSTRUCTION PLAN
 SCALE: 1/8" = 1'-0"

DRAWINGS - ARCHITECTURE



GENERAL CONSTRUCTION NOTES

- A. ALL VERTICAL AND HORIZONTAL LENGTHS OF SCHEDULE 40 PVC ABOVE GRADE SHALL BE WRAPPED IN SOUND ATTENUATION INSULATION.
- B. CONTRACTOR SHALL INSTALL NEW GYPSUM BOARD AT ALL LOCATIONS WHERE ORIGINAL GYPSUM BOARD HAS BEEN REMOVED. TAPE, FINISH AND PAINT THE ENTIRE WALL TO MATCH EXISTING PAINT COLOR IN THE ROOM.
- C. IN THE EVENT FRAMING IS REQUIRED TO BE REMOVED, CONTRACTOR SHALL INSTALL METAL STUD FRAMING IN ITS PLACE.
- D. IN THE EVENT THAT THE EXISTING WALL FINISH IS TILE, CONTRACTOR SHALL REPLACE THE WALL TILE MATCHING THE EXISTING WALL TILE IN THE ROOM.
- E. AREAS MARKED WITH THE DOUBLE DIAGONAL HATCH PATTERN IDENTIFY THE WALLS THAT ARE INTENDED TO HAVE GYPSUM BOARD REMOVAL. FOR THIS CONSTRUCTION PROJECT, IN THE EVENT ADDITIONAL AREAS ARE AFFECTED, CONTRACTOR SHALL REFER TO NOTES A, B AND C TO MAKE REPAIRS.
- F. MILLWORK REMOVED DURING DEMOLITION SHALL BE REINSTALLED TO THE EXACT POSITION IN THE SAME QUALITY WAS PRIOR TO THE REMOVAL.
- G. PLUMBING FIXTURES REMOVED DURING DEMOLITION SHALL BE REINSTALLED IN WORKING OPERATION.
- H. IN AREAS WHERE BURNT CLAY TILE WAS DISCOVERED AS A WALL MATERIAL, THE CONTRACTOR SHALL REPAIR THE WALL TO THE SATISFACTION OF THE OWNER.
- I. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF DAMAGED ACOUSTIC CEILING TILES.
- J. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OR REPLACEMENT OF CEILING GRID AFFECTED BY REMOVAL AND INSTALLATION OF WASTE AND VENT PIPING.



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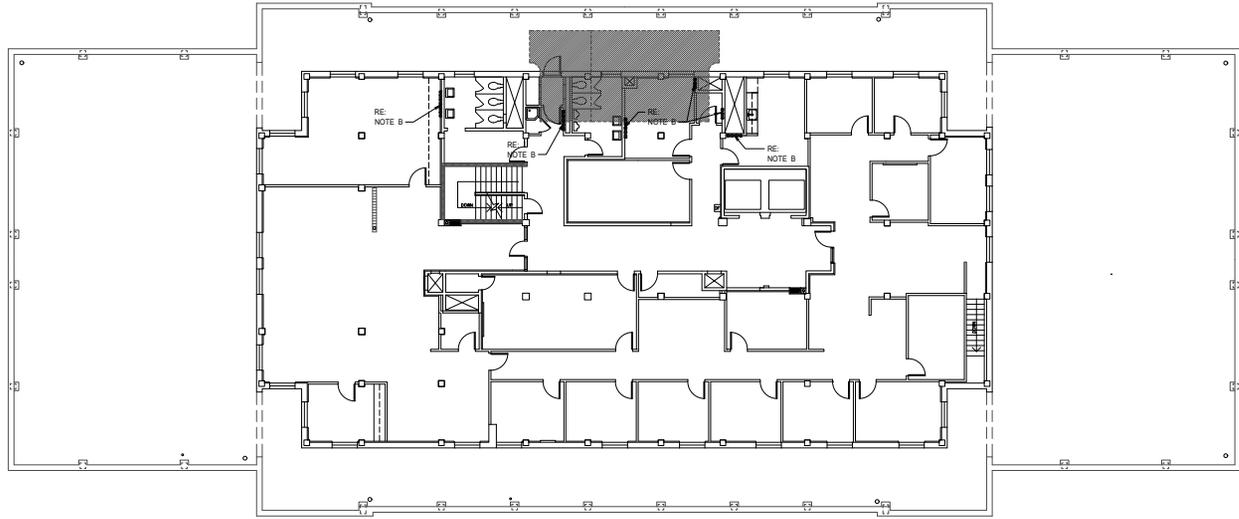
DRAWING TITLE
 EXISTING FOURTH
 FLOOR

DRAWING NO.
 AE1.4



1
 AE1.4 FOURTH FLOOR CONSTRUCTION PLAN
 SCALE: 1/8" = 1'-0"

DRAWINGS - ARCHITECTURE



GENERAL CONSTRUCTION NOTES

- A. ALL VERTICAL AND HORIZONTAL LENGTHS OF SCHEDULE 40 PVC ABOVE GRADE SHALL BE WRAPPED IN SOUND ATTENUATION INSULATION.
- B. CONTRACTOR SHALL INSTALL NEW GYPSUM BOARD AT ALL LOCATIONS WHERE ORIGINAL GYPSUM BOARD HAS BEEN REMOVED. TAPE, FINISH AND PAINT THE ENTIRE WALL TO MATCH EXISTING PAINT COLOR IN THE ROOM.
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- F. PLUMBING FIXTURES REMOVED DURING DEMOLITION SHALL BE REINSTALLED IN WORKING OPERATION.
- G. IN AREAS WHERE BURNT CLAY TILE WAS DISCOVERED AS A WALL MATERIAL, THE CONTRACTOR SHALL REPAIR THE WALL TO THE SATISFACTION OF THE OWNER.
- H. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPLACEMENT OF DAMAGED ACOUSTIC CEILING TILES.
- I. CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OR REPLACEMENT OF CEILING GRID AFFECTED BY REPAIR OR REPLACEMENT OF WASTE AND VENT PIPING.



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 F: 405.548.5932

Owner
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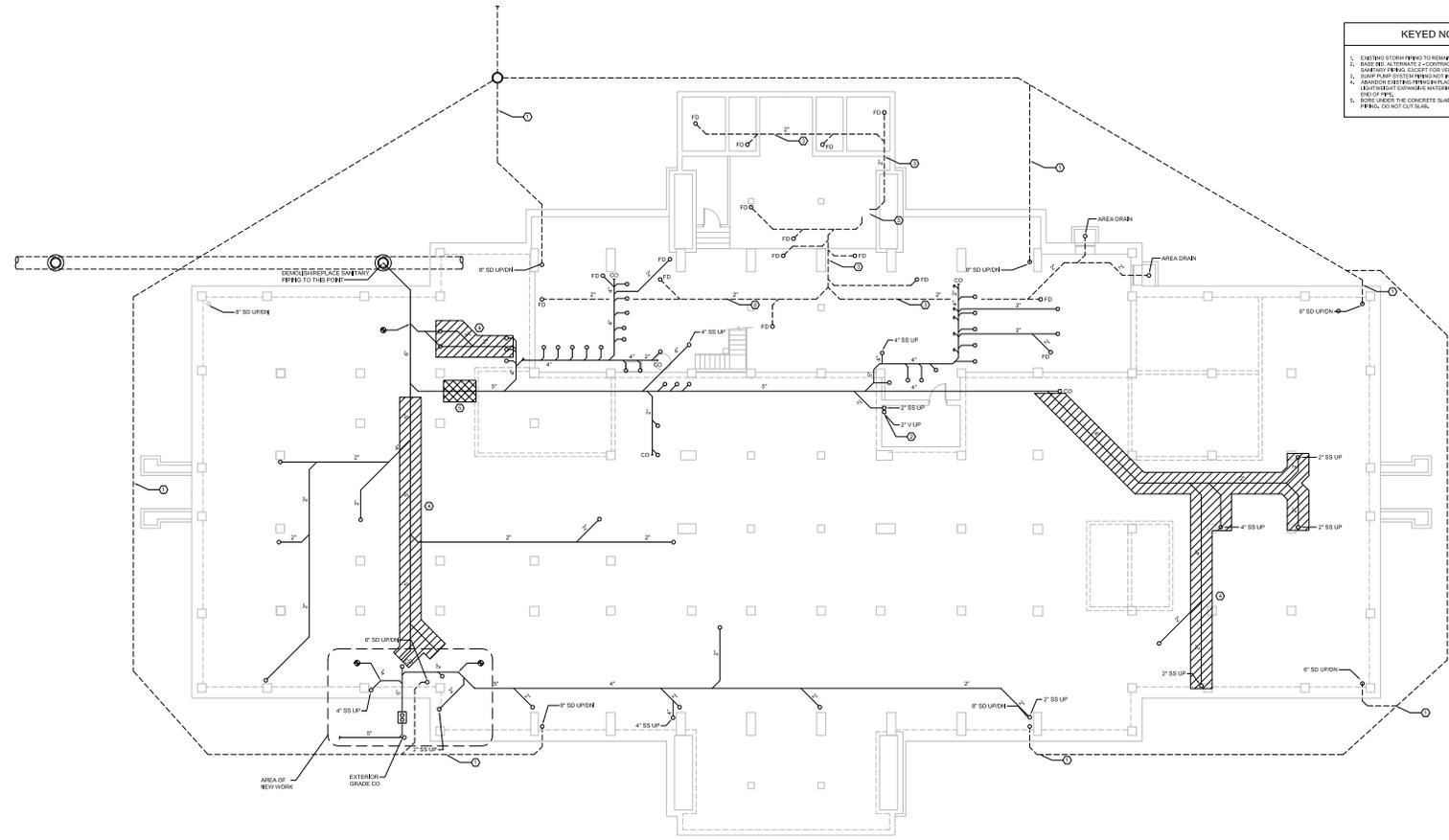
DRAWING TITLE
 EXISTING FIFTH
 FLOOR

DRAWING NO.
 AE1.5



1
 AE1.5 FIFTH FLOOR CONSTRUCTION PLAN
 SCALE: 1/8" = 1'-0"

DRAWINGS - PLUMBING



GENERAL NOTES

- A. REFER TO PLS FOR GENERAL NOTES APPLICABLE TO THIS SHEET.
- B. CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLITION AND REINSTALLATION PERMITS AS DESCRIBED BY THE PERMITS.
- C. CONTRACTOR SHALL VERIFY FIRE LOCATIONS PRIOR TO DEMOLITION.
- D. ALTERNATE 1.2A - CONTRACTOR SHALL REPLACE ALL SANITARY PIPING INCLUDING VERTICAL VENT STACKS.

KEYED NOTES

1. EXISTING SINKS PERMITS TO REMAIN.
2. SANITARY: ALL EXISTING SANITARY PIPING SHALL BE REPLACED WITH 4" SCHEDULE 40 CONDUIT OR SHALL REPLACE ALL SANITARY PIPING WITH 4" SCHEDULE 40 CONDUIT.
3. SANITARY PIPING SHALL BE REPLACED WITH 4" SCHEDULE 40 CONDUIT.
4. SANITARY PIPING SHALL BE REPLACED WITH 4" SCHEDULE 40 CONDUIT.
5. SANITARY PIPING SHALL BE REPLACED WITH 4" SCHEDULE 40 CONDUIT.
6. SANITARY PIPING SHALL BE REPLACED WITH 4" SCHEDULE 40 CONDUIT.
7. SANITARY PIPING SHALL BE REPLACED WITH 4" SCHEDULE 40 CONDUIT.
8. SANITARY PIPING SHALL BE REPLACED WITH 4" SCHEDULE 40 CONDUIT.
9. SANITARY PIPING SHALL BE REPLACED WITH 4" SCHEDULE 40 CONDUIT.
10. SANITARY PIPING SHALL BE REPLACED WITH 4" SCHEDULE 40 CONDUIT.

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



GSB, Inc. Architects - Planners
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Suite 1000
Oklahoma City, OK 73102
Tel: (405) 241-1111
Fax: (405) 241-1112

DESIGNED BY: GSB
CHECKED BY: GSB
DATE: 09/20/23
PROJECT: MB-1654

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PLUMBING WASTE LINE REPLACEMENT
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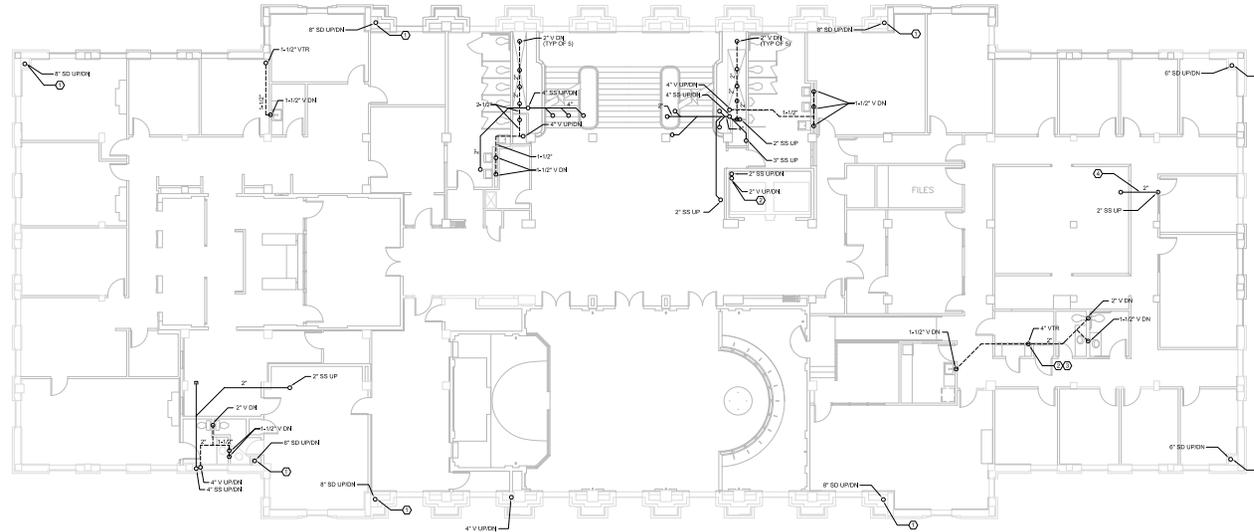
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DRAWING TITLE
EXISTING LOWER LEVEL
PLUMBING PLAN

DRAWING NO.
P1.0

DRAWINGS - PLUMBING



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

GENERAL NOTES

- A. REFER TO PLS FOR GENERAL NOTES APPLICABLE TO THIS SHEET.
- B. CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLISHING AND REINSTALLING PERMITS AS DESCRIBED BY THE PERMIT.
- C. CONTRACTOR SHALL VERIFY FIRE LOCATIONS PRIOR TO DEMOLITION.
- D. ALTERNATE 1. ONLY CONTRACTOR SHALL REPLACE ALL SANITARY IF NOT INCLUDING VERTICAL VENT STACKS.

KEYED NOTES

1. EXISTING CONDITIONS TO REMAIN.
2. EXISTING CONDITIONS TO BE REPLACED OR MODIFIED. CONTRACTOR SHALL REPLACE ALL SANITARY AND VERTICAL VENT STACKS WITH STAINLESS STEEL.
3. VENT RISERS TO REMAIN TO THE POINT FOR BASE BEG AND ALTERNATE 1.
4. CONTRACTOR SHALL DEMONSTRATE AS SHOWN.



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DRAWING TITLE
 EXISTING THIRD FLOOR
 PLUMBING PLAN

DRAWING NO.

P1.3

DRAWINGS - PLUMBING



GENERAL NOTES

- REFER TO PLS FOR GENERAL NOTES APPLICABLE TO THIS SHEET.
- CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLITION AND REINSTALLATION PERMITS AS DESCRIBED IN PERMITS.
- CONTRACTOR SHALL VERIFY FIRE LOCATIONS PRIOR TO DEMOLITION.
- ALTERNATE 1: (A) CONTRACTOR SHALL REPLACE ALL SANITARY IF NOT INCLUDING VERTICAL VENT STACKS.

KEYED NOTES

- EXISTING SYSTEMS PERMITTED TO REMAIN.
- REPLACE: (A) CONTRACTOR SHALL REPLACE ALL SANITARY PERMITS EXCEPT FOR VERTICAL VENT STACKS SHOWN.



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DESIGNED BY: [Signature]
 CHECKED BY: [Signature]
 DATE: 09/20/23
 PROJECT NO.: 221863

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 OKLAHOMA CITY, OK**

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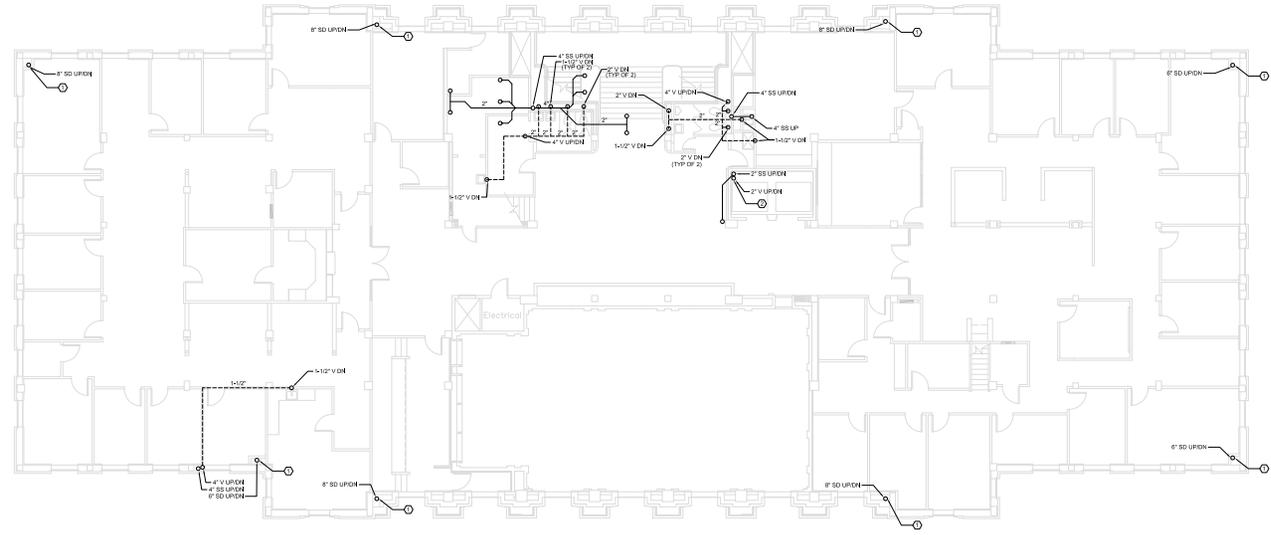
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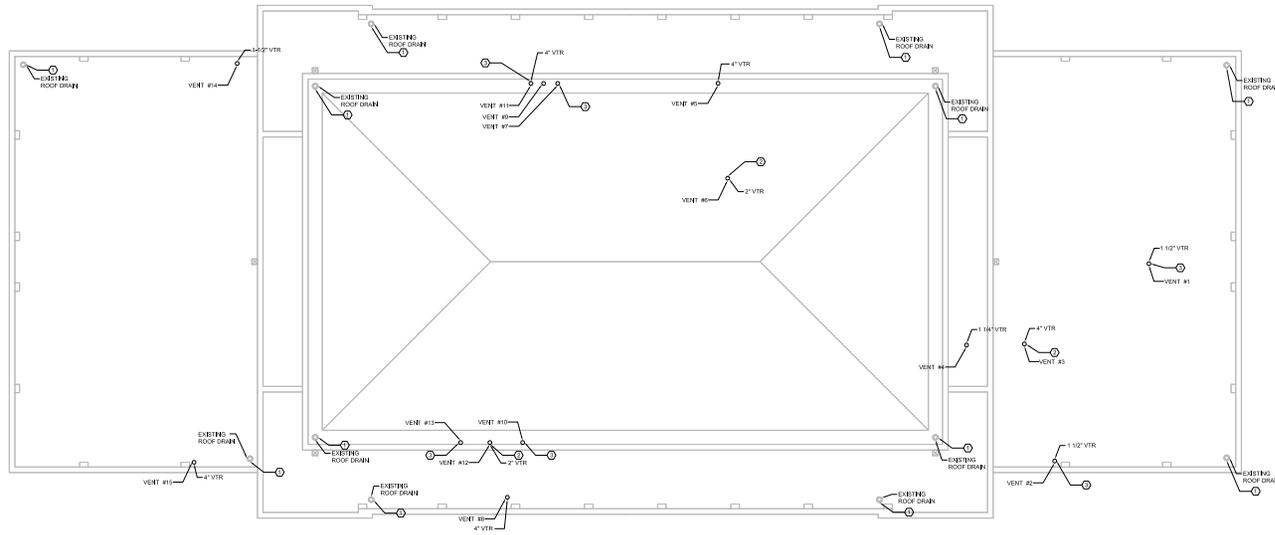
DRAWING TITLE
 EXISTING FOURTH
 FLOOR PLUMBING PLAN

DRAWING NO.
P1.4



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

DRAWINGS - PLUMBING



GENERAL NOTES

- REFER TO PLS FOR GENERAL NOTES APPLICABLE TO THIS SHEET.
- CONTRACTOR SHALL BE RESPONSIBLE FOR DEMOLITION AND REINSTALLATION PERMITS AS REQUIRED BY THE PERMITS.
- CONTRACTOR SHALL VERIFY FIRE LOCATIONS PRIOR TO DEMOLITION.
- ALTERNATE 1.2A - CONTRACTOR SHALL REPLACE ALL SANITARY IF NEEDED INCLUDING VERTICAL VENT STACKS.

KEYED NOTES

- EXISTING ROOF DRAINS AND STOPPINGS TO REMAIN.
- EXISTING ROOF DRAIN TO BE REPLACED WITH CONSTRUCTION WASTE LINE.
- CONTRACTOR SHALL SEAL VENT PIPE AS REQUIRED TO PREVENT DRAINAGE UNDER ROOFING.



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DRAWING TITLE
 EXISTING ROOF
 PLUMBING PLAN

DRAWING NO.

P1.6

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

COST ESTIMATE



City Hall Municipal Building
Plumbing Waste Line Replacement only
Estimate
William White and Associates, LLC
17-Dec-23
180 day project with 30 material lag
Project start after materials are on site

Site Management

Site requirements / Temporary requirements	6	mo	\$ 9,500.00	\$ 57,000.00	\$	407,200.00
Superintendents	6	mo	\$ 15,500.00	\$ 93,000.00		
Field engineer	6	mo	\$ 13,500.00	\$ 81,000.00		
Project Manager	6	mo	\$ 3,500.00	\$ 21,000.00		
Parking	6	mo	\$ 2,000.00	\$ 12,000.00		
Lost time for eight hours per week	26	weeks	\$ 3,200.00	\$ 83,200.00		
Dumpster, pathway, and patron protection	6	mo	\$ 8,500.00	\$ 51,000.00		
Way finding	6	mo	\$ 1,500.00	\$ 9,000.00		

Demolition and Utility demolition

Sanitary Lower Level	742.00	lf	\$ 35.00	\$ 25,970.00	\$	545,231.00
Excavation	1,206.00	cy	\$ 55.00	\$ 66,330.00		
Bedding	410.00	cy	\$ 86.00	\$ 35,260.00		
Concrete cutting	2,204.00	lf	\$ 12.25	\$ 26,999.00		
Concrete removal	54.00	cy	\$ 138.00	\$ 7,452.00		
Existing wall cuts	320.00	hrs	\$ 55.00	\$ 17,600.00		
Electrical lock out tag out	240.00	hrs	\$ 95.00	\$ 22,800.00		
Sanitary pipe levels 1-5	2,644.00	hrs	\$ 105.00	\$ 277,620.00		
Temporary fall protection	1.00	allow	\$ 5,000.00	\$ 5,000.00		
Temporary protection sewer diversion	1.00	allow	\$ 35,000.00	\$ 35,000.00		
Temporary protection Mechanical - dust	240.00	hrs	\$ 105.00	\$ 25,200.00		

Selective demolition work

Cabinets and millwork	1.00	allow	\$ 35,000.00	\$ 35,000.00	\$	186,790.00
Toilet partitions	490.00	hrs	\$ 55.00	\$ 26,950.00		
Toilet accessories	160.00	hrs	\$ 55.00	\$ 8,800.00		
Plumbing fixtures - 104 ea	448.00	hrs	\$ 105.00	\$ 47,040.00		
Flooring and base - 1,820 lf	240.00	hrs	\$ 55.00	\$ 13,200.00		
Storage area each floor - 6 ea	6.00	ea	\$ 2,500.00	\$ 15,000.00		
Tile cuts	480.00	hrs	\$ 85.00	\$ 40,800.00		

Sewer installation

2" sewer	3,286.00	lf	\$ 126.00	\$ 414,036.00	\$	747,172.00
4" sewer	1,196.00	lf	\$ 148.00	\$ 177,008.00		
6" sewer	408.00	lf	\$ 166.00	\$ 67,728.00		
Footing penetration	1.00	allow	\$ 16,500.00	\$ 16,500.00		
Water valves	64.00	ea	\$ 340.00	\$ 21,760.00		
Toilet fixtures seating	1.00	allow	\$ 6,500.00	\$ 6,500.00		
Fixture installation	104.00	ea	\$ 210.00	\$ 21,840.00		
Seismic bracing	1.00	allow	\$ 16,800.00	\$ 16,800.00		
Wall bracing	1.00	allow	\$ 5,000.00	\$ 5,000.00		

COST ESTIMATE



Selective installation

Cabinets and millwork	320.00	hrs	\$ 55.00	\$ 17,600.00	\$	347,725.00
Toilet partitions	600.00	hrs	\$ 55.00	\$ 33,000.00		
Toilet accessories	280.00	hrs	\$ 55.00	\$ 15,400.00		
Plumbing fixtures	720.00	hrs	\$ 105.00	\$ 75,600.00		
Concrete flooring - 1,582 sf	20.00	cy	\$ 750.00	\$ 15,000.00		
Flooring and base	1.00	allow	\$ 15,000.00	\$ 15,000.00		
Wall coverings and wall cuts	420.00	hrs	\$ 55.00	\$ 23,100.00		
Covering allowance - 2,230 sf	2,230.00	sf	\$ 22.00	\$ 49,060.00		
Insulation allowance	1.00	allow	\$ 22,000.00	\$ 22,000.00		
Ceiling replacement	3,620.00	sf	\$ 5.25	\$ 19,005.00		
Paint tape bed plaster	7,024.00	sf	\$ 8.75	\$ 61,460.00		
Masonry allowance	1.00	allow	\$ 1,500.00	\$ 1,500.00		

Miscellaneous

Premium time	600.00	hrs	\$ 24.00	\$ 14,400.00	\$	66,220.00
Off hour work	26.00	weeks	\$ 210.00	\$ 5,460.00		
Temporary toilets	6.00	mon	\$ 2,400.00	\$ 14,400.00		
Dust partitions - walls	288.00	lf	\$ 45.00	\$ 12,960.00		
Electrical repair	1.00	allow	\$ 15,000.00	\$ 15,000.00		
Low voltage repairs	-	allow	\$ -	\$ -		
Fire caulking	-	allow	\$ -	\$ -		
Epoxy and sealant repairs	1.00	allow	\$ 4,000.00	\$ 4,000.00		

Subtotal \$ 2,300,338.00 \$ 2,300,338.00

Insurances	1.00%	\$ 23,003.38
Bonds	1.00%	\$ 23,003.38
Builders Risk	0.25%	\$ 5,750.85

Subtotal \$ 2,352,095.61

Contractor Overhead & Profit 14% \$ 322,047.32

Sub-Total \$ 2,674,142.93

Contingency 15% \$ 401,121.44

Total **\$ 3,075,264.36**

Alternate #1 - Vertical stacks ADD \$ 186,240.00

Alternate #2 - Change to cast iron ADD \$ 436,840.00

Alternate #2a - Change alternate 1 to cast iron ADD \$ 58,840.00

1. The contractor will need a dedicated elevator capable of carrying 10 foot sections of cast iron pipe and required loads
2. All alternates would be awarded with the base bid or rejected.

PROJECT TEAM



OWNER

City of Oklahoma City

3738 SW 15th Street, Building No. 19
Oklahoma City, Oklahoma 73108
405.297.3605

Primary Contact

Samuel R. Slaydon
Senior Project Manager
samuel.slaydon@okc.gov

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Olsson

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Technical Leader
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COST ESTIMATOR

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405.602.1212

Primary Contact

Bill White
Owner
bill@whitesolutionsok.com



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