ADDENDUM NO. 1

ARCHITECT'S SUPPLEMENTAL INSTRUCTIONS
2 PAGES PLUS ATTACHMENTS

11/22/24

MARNG PN# 28270302 / DD# 2402
Brandon Latrine Modernization
Brandon Readiness Center
300 Highway 468
Brandon, MS 39043-9101

NOTICE TO ALL DOCUMENT HOLDERS:

The following additions, changes, and clarifications to the drawings and specifications are to be included as part of the Contract Documents.

PROJECT CLARIFICATIONS:

A pre-bid conference was held on November 20, 2024. The meeting minutes and sign-in sheet for this conference is attached. All the issues discussed in this conference have been incorporated into the documents via this addendum.

CHANGES TO SPECIFICATIONS:

ITEM NO. 1 00 01 10 – TABLE OF CONTENTS

REPLACE this specification section with the attached revised pages (4 pages).

ITEM NO. 2 01 50 00 – TEMPORARY FACILITIES AND CONTROLS

REPLACE this specification section with the attached revised pages (4 pages).

ITEM NO. 3 09 30 00 – TILING

REPLACE this specification section with the attached revised pages (4 pages).

ITEM NO. 4 31 00 00 – EARTHWORK

ADD this specification section with the attached revised pages (9 pages).

ITEM NO. 5 32 12 17 – ASPHALT CONCRETE PAVING

ADD this specification section with the attached revised pages (10 pages).

ITEM NO. 6 33 30 00 – SANITARY SEWERAGE

ADD this specification section with the attached revised pages (22 pages).

CHANGES TO DRAWINGS:

ITEM NO. 7 0 – PROJECT COVER

REPLACE this Drawing Sheet with the attached sheet revised per **Mark #1**.

ITEM NO. 8 A2.0 – FINISH SCHED + DETAILS

REPLACE this Drawing Sheet with the attached sheet revised per **Mark #1.**

ITEM NO. 9 C1.0 – SITE PLAN

ADD this Drawing Sheet with the attached sheet revised per **Mark #1**.

ITEM NO. 10 C2.0 – TYPICAL DETAILS

ADD this Drawing Sheet with the attached sheet revised per **Mark #1**.

ITEM NO. 11 E1.1 – ENLARGED PLAN

REPLACE this Drawing Sheet with the attached sheet revised per **Mark #1**.

ITEM NO. 12 P0.1 – PLUMBING LEGEND

REPLACE this Drawing Sheet with the attached sheet revised per **Mark #1**.

ITEM NO. 13 P4.0 – PLUMBING DEMO

REPLACE this Drawing Sheet with the attached sheet revised per **Mark #1**.

ITEM NO. 14 P4.1 – PLUMBING RENO

REPLACE this Drawing Sheet with the attached sheet revised per **Mark #1**.

ITEM NO. 15 P5.1 – PLUMBING DEMO

REPLACE this Drawing Sheet with the attached sheet revised per **Mark #1**.

Chris Osterlund, Assoc. AIA

Encs.: see above
c: 2402.9
All document holders
Roy Decker, rtd@duvalldecker.com
Krystal Lamm, kl@duvalldecker.com

Mississippi Military Department Meeting Sign-In

Prebid Meeting

Project Title - Modernization of Brandon Latrines

Project Location – Brandon, MS

Date - November 20, 2024

Name	Company	Email	Phone #
Karen Hathcock Construction Contracting Officer	MS Military Dept - FMP	Karen.hathcock.nfg@army.mil	601-313-6227 office
Gary Allen Project Manager	MS Military Dept - FMP	Gary.w.allen93.nfg@army.mil	601-313-6454 office
Joey Sullivan	Sullivan Enterprises	office@sullivanent.net	601-849-2441
David Diamond	MS Military Dept	David.p.diamond3.nfg@army.mil	601-555-8965
Ray Decker	DUVALL DECKER	RTD@DUVALLDECKER.com	6017131128
Chris Osterlund	"	CO@DUVALLDECKER.com	"

Mississippi Military Department Construction Pre-Bid Conference

Project Title: Modernization of Brandon Latrines

Project Location: Brandon, MS

Project Number: 28270302

RFx Number: 3160006983

If you haven't signed in, please do so at this time.

Introductions:

	Name	Email	Phone
Contracting Officer	Angela Griffin	angela.d.griffin23.nfg@army.mil	601-313-6385
Project Manager	Chris Dolan	christopher.l.dolan.mil@army.mil	601-313-6116
Duvall Decker	Roy Decker	rtd@duvalldecker.com	601-713-1128

BID OPENING DATE 1:30 P.M. December 12, 2024, Joint Force Headquarters, 1410 Riverside Drive, Jackson, MS 39202.

INSTRUCTION TO BIDDERS

1. Don't be late getting to the bid room. Bids cannot be accepted once the Bid Opening is closed at 1:30 P.M.
2. Bring your Driver's License for identification purposes.
3. Bidder assumes all risk of delivery by the required time whether it is hand delivered, mailed, or submitted electronically.
4. Bidders may modify their bid on the outside of the sealed envelope containing the bid PRIOR to the scheduled closing time indicated in the Advertisement of Bids.
5. All prices must be printed in ink or typewritten. Errors may be crossed, and correction made, and the correction must be initialed in ink.
6. All Bid are to be held for a period of 60 days.

METHODS OF BIDDING

1. **Hand Delivery of Bid**: Bidders are encouraged to arrive 30-45 minutes early to preclude any delays due to the heightened security at our facility.

2. **Mailing Bid**: Bidder mailing his or her bid via USPS, FedEx or UPS must ensure that the mailing envelope is marked as described in DMB Section 00 21 13 – 1/1 with

the word "BID" written largely on the outside of the carriers mailing envelope. Make sure the office symbol NGMS-FMP, Attention: Angela Griffin is marked on the envelope. The inside sealed envelope should be filled out according to DMB Section 002 21 13 1/1.

3. **Electronic**: Bidders may bid electronically via the MAGIC Portal. Bidder will ensure that the opening page will be either the Certificate of Responsibility Number (COR) or the bid does not exceed $75,000.00. The site for MS suppliers is http://www.dfa.ms.gov/dfa-offices/mmrs/mississippi-suppliers-vendors/ at the bottom there is a self-service tab. For more information see ITB Section 00 20 00 – 3/7 and 4/7.

BID

1. Bid Form instructions (ITB Section 00 20 00 - 3/7 & 4/7)
2. Bid Form (BF Section 00 0 00 – 1/3)
3. Bid Security (ITB Section 00 20 00 - 1/7)
4. Bid Envelop DMB Section 00 21 13 – 1/1)
5. Certificate of Responsibility Number (ITB Section 00 20 00 -5/7)

FEDERAL CLAUSES

This is a State Contract with Federal Funds, therefore Federal Clauses such as the **Buy American Act** & **The Davis-Bacon Overtime** Clauses will apply. The Military Department does not require a Certified Payroll. For more information read the Conditions of the Contract in the General Conditions Section 00 70 00 – 1/33 – 33/33.

E-VERIFY PROGRAM

The Contractor shall be advised that prior to the Execution of the contract, the MS Military Department will require a certification letter certifying E-Verify has been completed and provide the 6-digit Company ID number issued by the Department of Homeland Security to also include any Subcontractors Company ID numbers.

GENERAL INFORMATION/CONDITIONS

1. Out of State Bidders - ITB Section 00 20 00 – 6/7 Article 14.
2. Insurance & Bonds - AIASC Section 00 73 03 – 12/17 – 14/17.
3. Superintendent – GC Section 00 70 00 – 18/33 Article 20.

ADDENDUM REQUIREMENTS

If clarification is needed, it will be covered in a written addendum and distributed to all plan holders no later than 48 hours prior to the bid opening in accordance with state law.

All questions should be submitted to the A&E no later than, Dec 6th. @ 4th to DD.

Addendums will be issued no later than, December 6, 2024

LIQUIDATED DAMAGES

If the project is not complete with in **280** calendar days, liquidated damages will be assessed. The calendar days will include construction time and time to submit all close-out documents, warranties, and final pay applications. Liquidated damages will be in the amount of **$719.31** for each calendar day of delay without a justifiable time extension requested and approved.

STATE of MISSISSIPPI VENDOR NUMBER

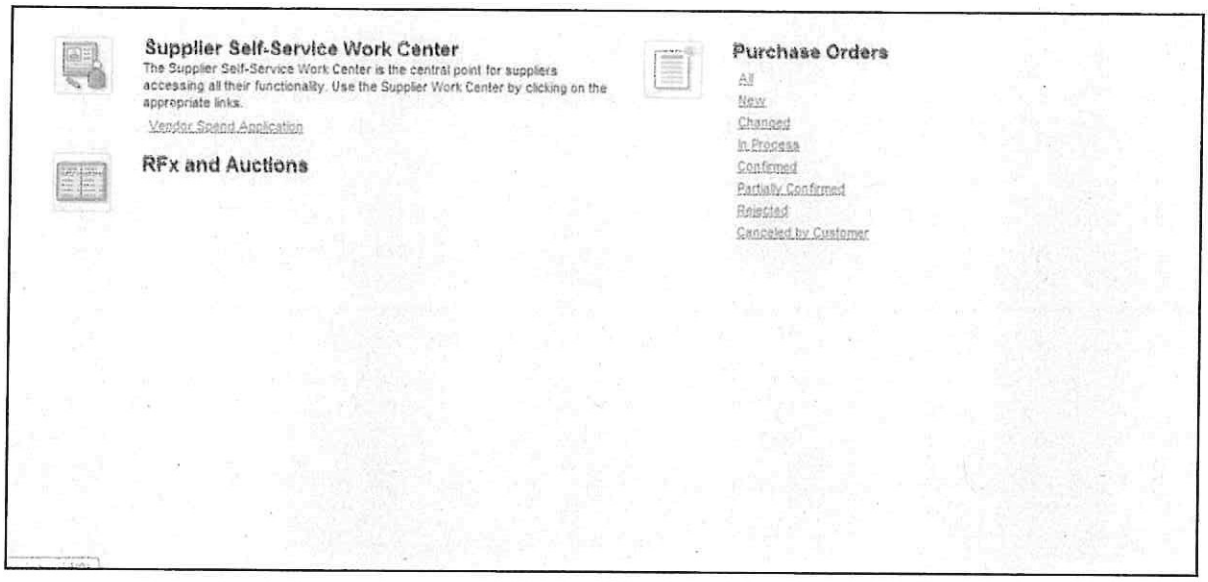
The low bidder will be required to have a State of MS Vendor Number. Follow the attached New Supplier Registration instruction sheet and make sure to notify our office once that is complete. Please be sure to include an email address, phone number and contact name.

At this time, if there are no contractual questions, I will turn this meeting over to the Project Manager and the A&E.

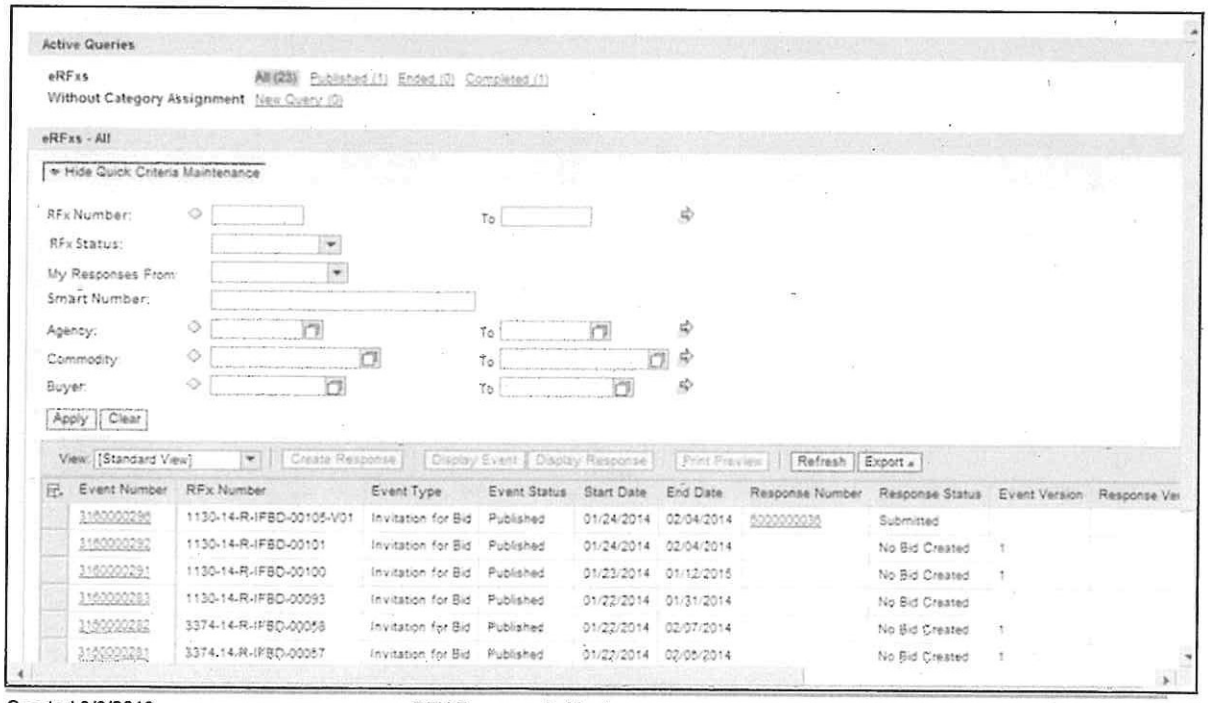
RFX RESPONSE IN MAGIC

Procedure

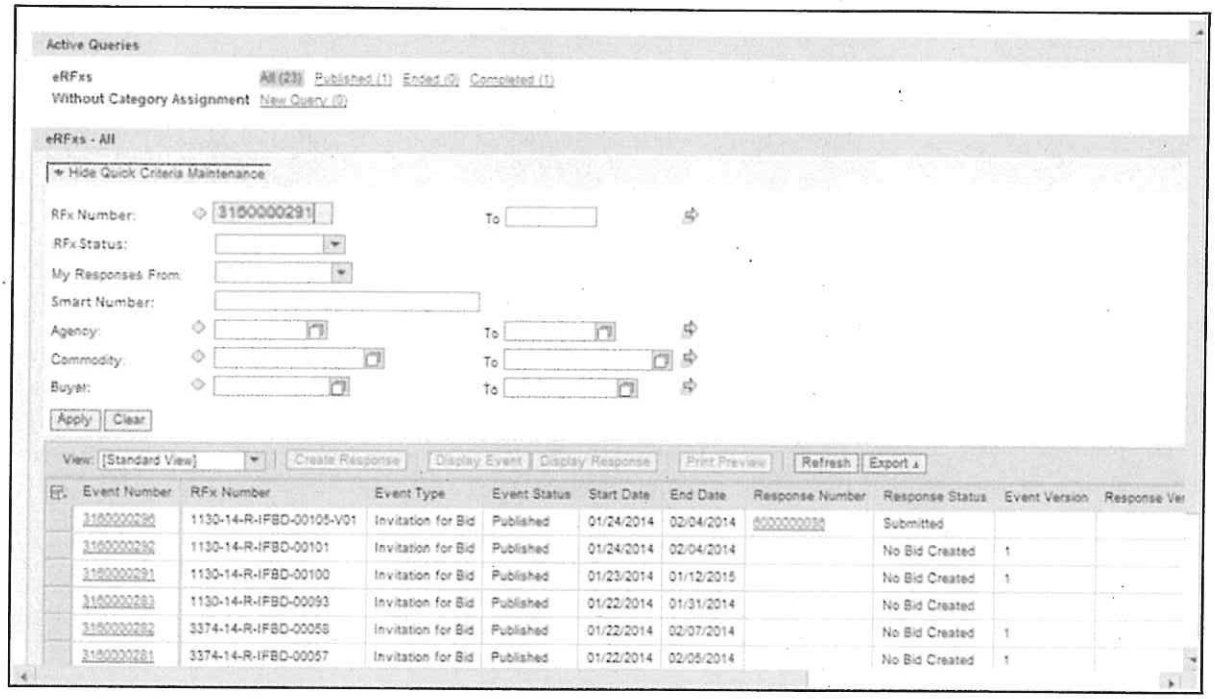
1. Log in Magic



2. Click RFx and Auctions Icon  .

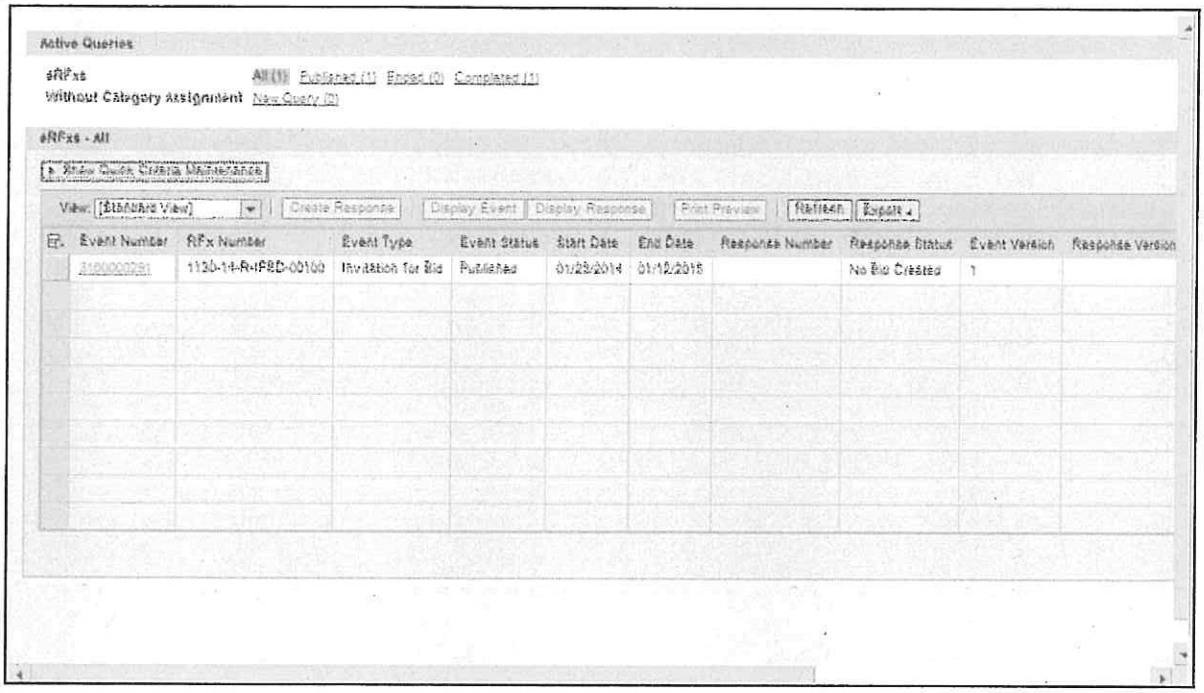


3. Enter RFx in the "RFx Number Field"



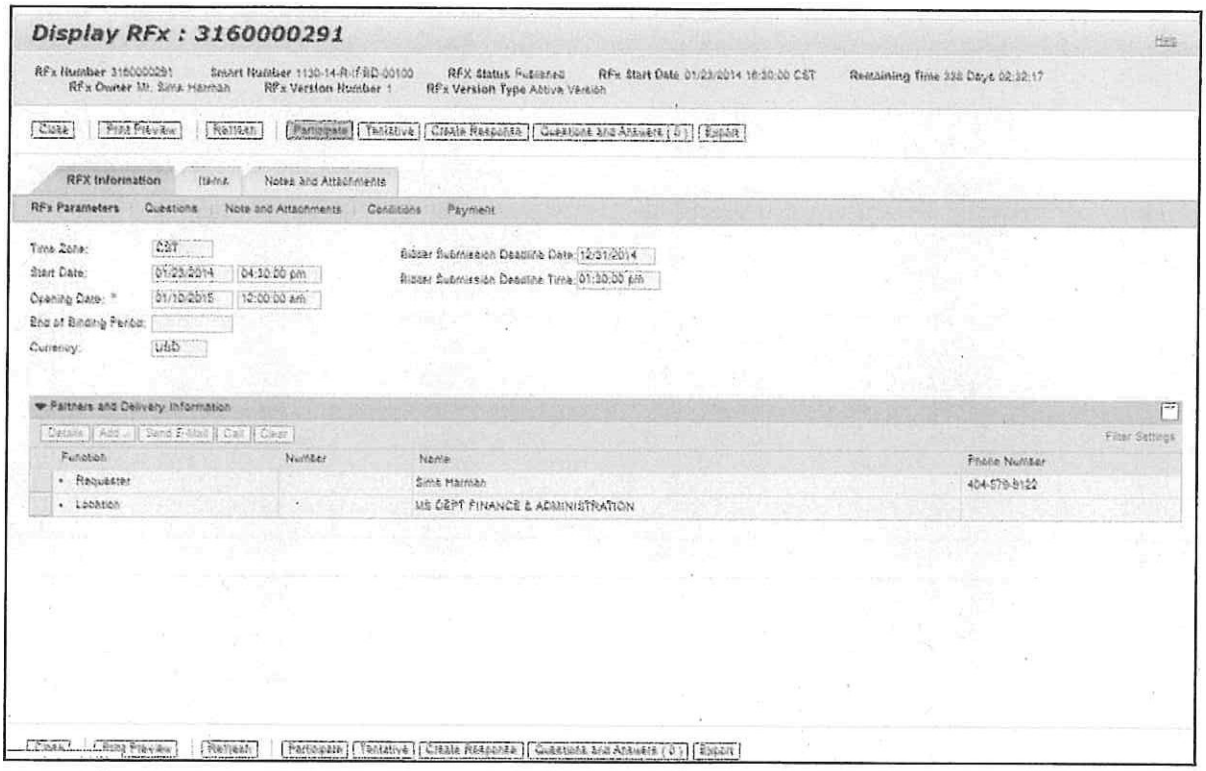
4. Click Apply to apply the search criteria

5. Select RFx Number hyperlink

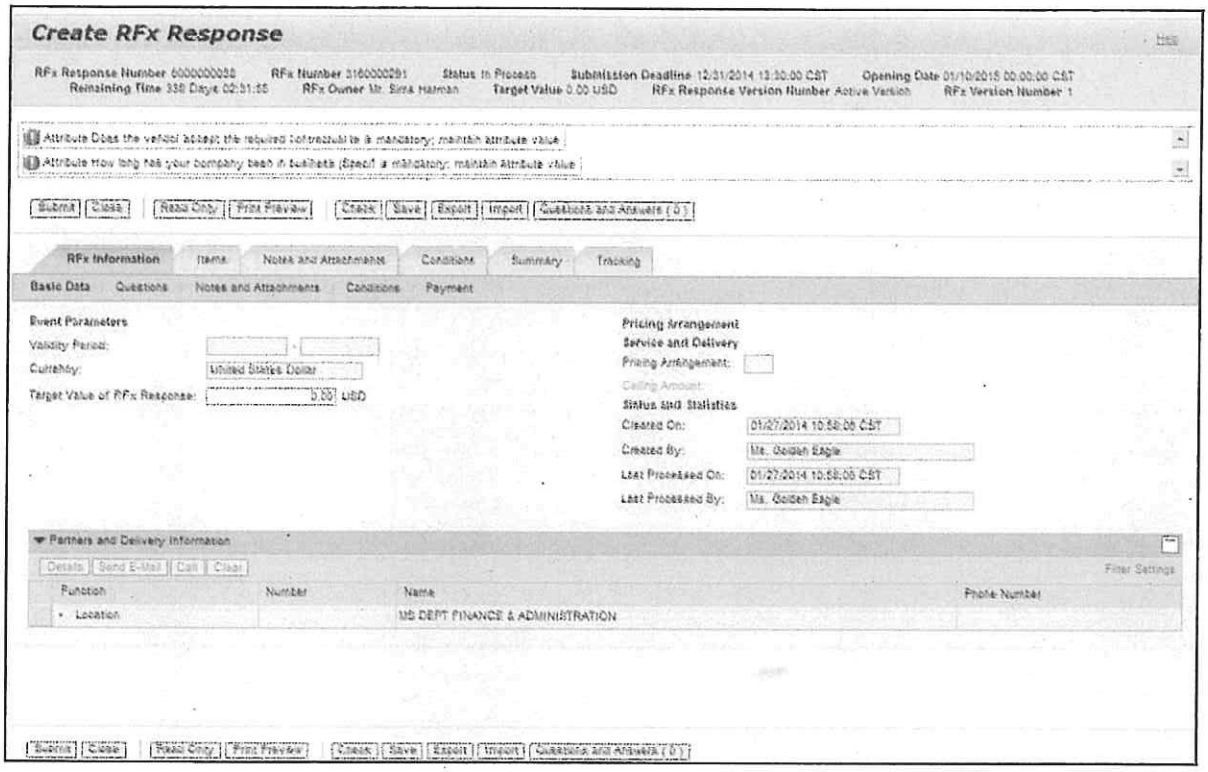


6. Click Participate. This step is required and notifies the SoMs your intent to create a RFx response

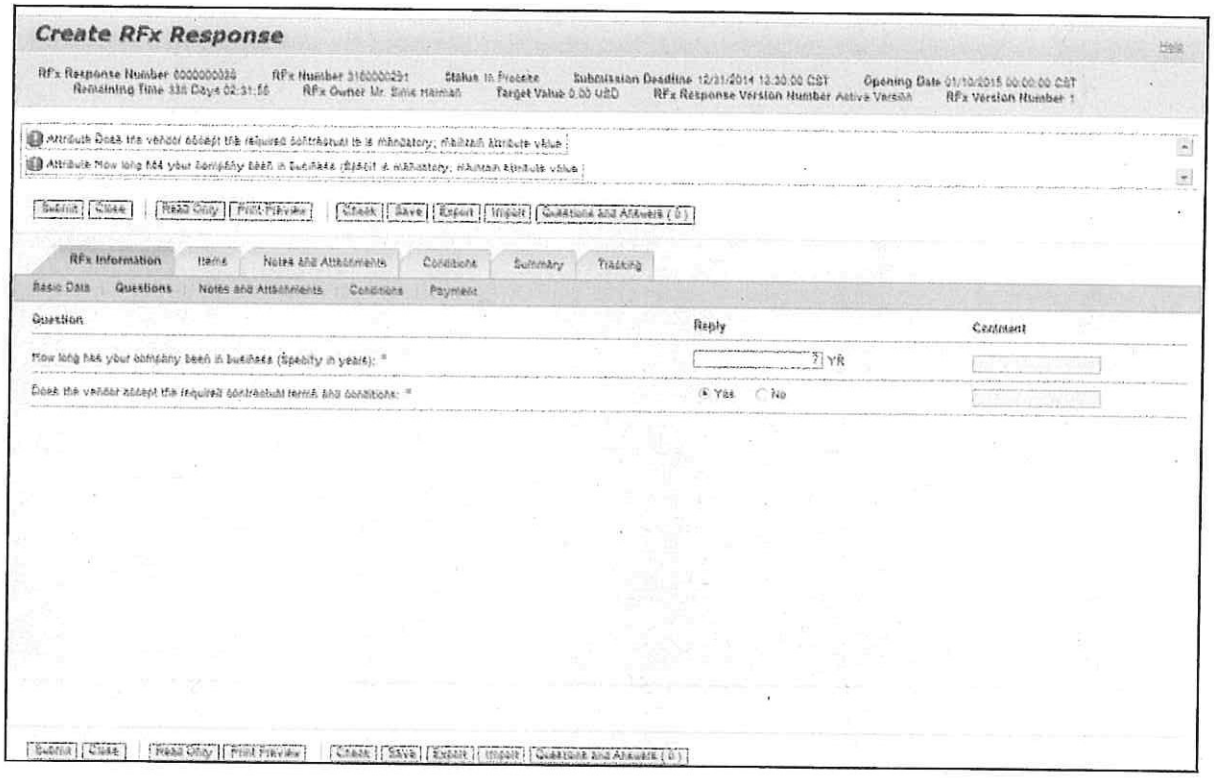
7. Click Create Response



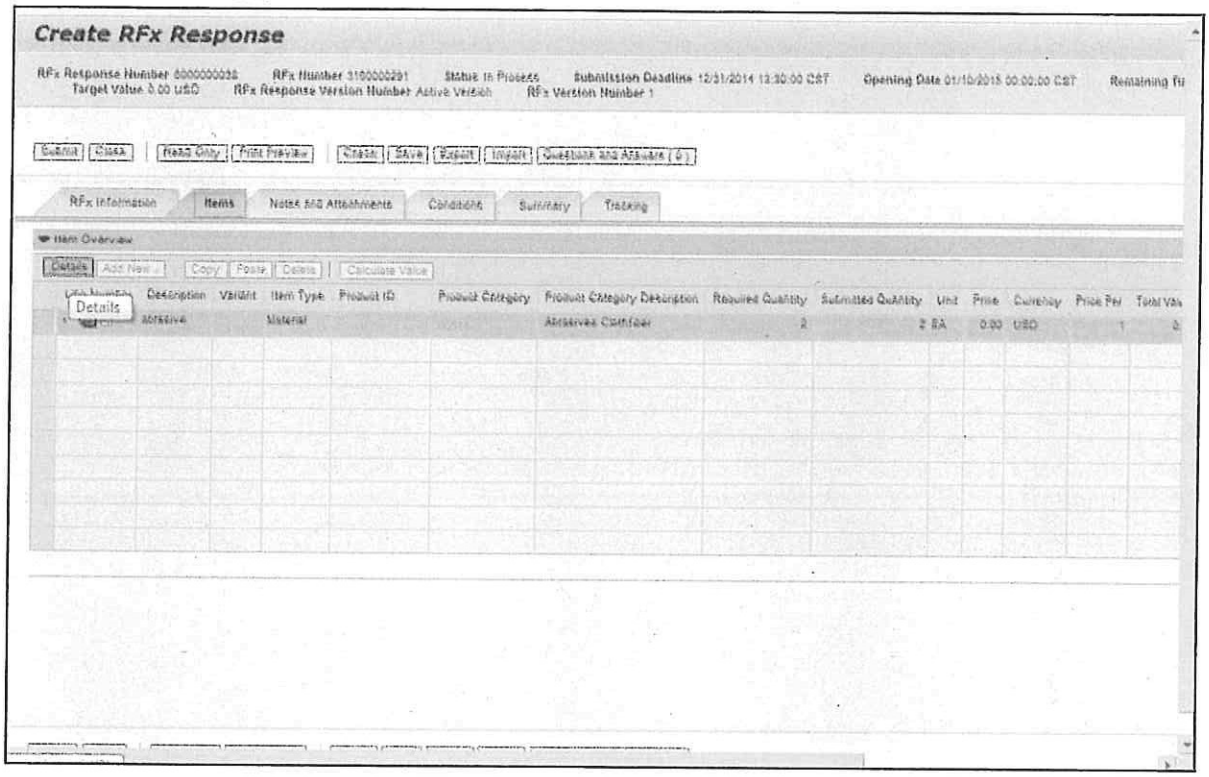
8. **Click Questions tab to view the required buyer questions.**
9. **As required, complete/review the question fields**



10. Click Yes

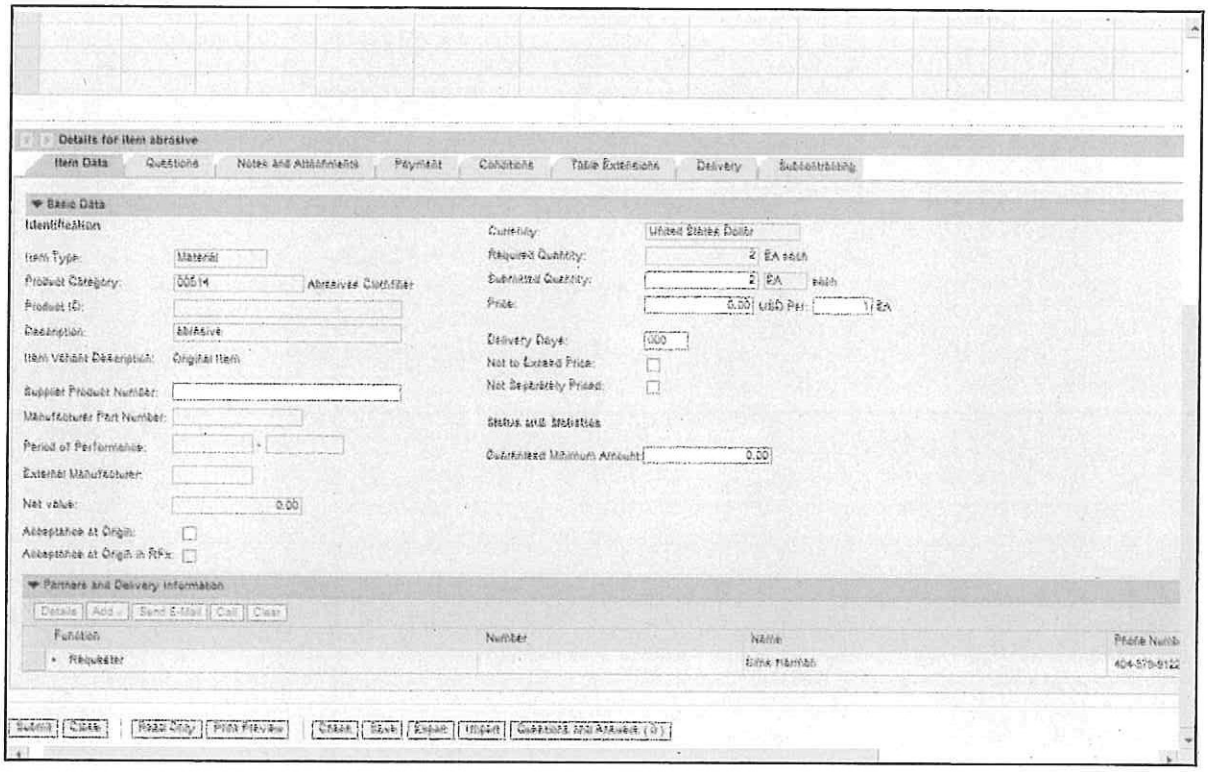

Create RFx Response
Help
RFx Response Number 0000000038 RFx Number 3160000291 Status In Process Submission Deadline 12/31/2014 12:30:00 CST Opening Date 01/10/2015 00:00:00 CST
Remaining Time 338 Days 02:31:56 RFx Owner Mr. Silke Hallman Target Value 0.00 USD RFx Response Version Number Active Version RFx Version Number 1
Attribute Does the vendor accept the required contractual te is mandatory; maintain attribute value
Attribute How long has your company been in business (Specify in years) is mandatory; maintain attribute value
Submit Close Read Only Print Preview Check Save Export Import Questions and Answers (0)
RFx Information Items Notes and Attachments Conditions Summary Tracking
Basic Data Questions Notes and Attachments Conditions Payment
Question
Reply
Comment
How long has your company been in business (Specify in years): *
YR
Does the vendor accept the required contractual terms and conditions: *
Yes
No
Submit Close Read Only Print Preview Check Save Export Import Questions and Answers (0)

11. Click Items tab

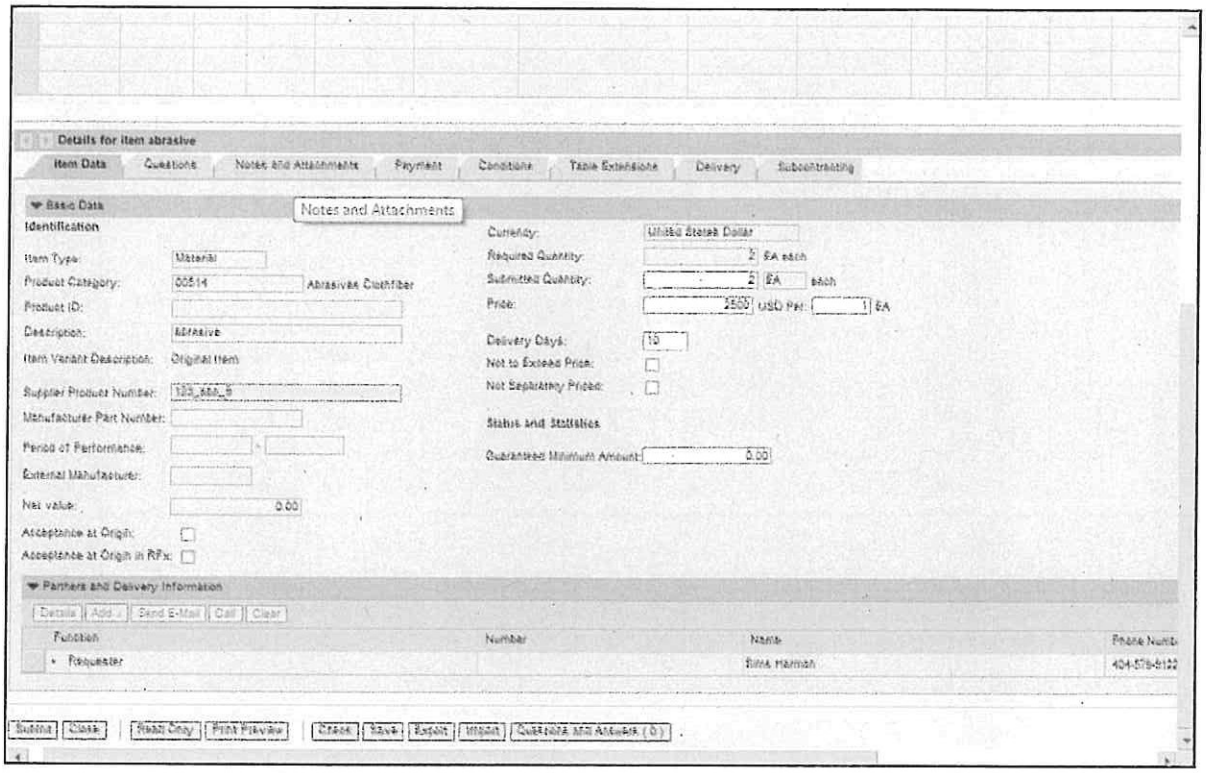


12. Click Details button

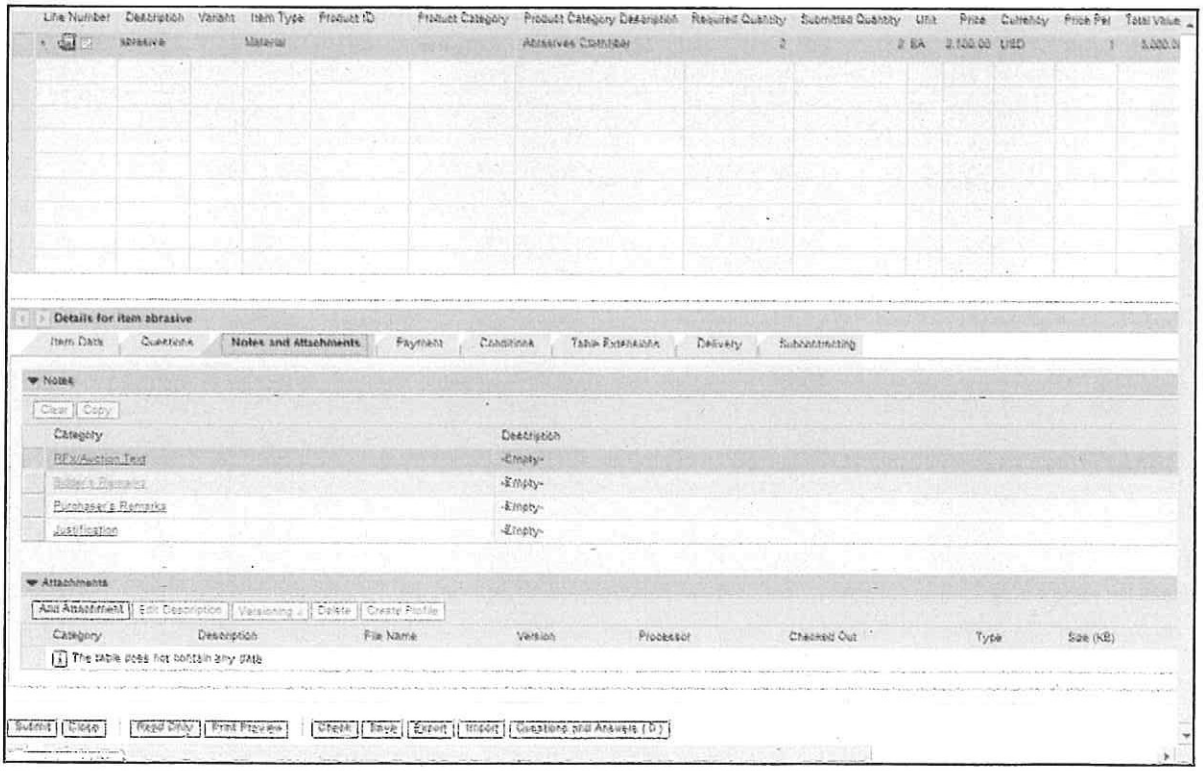
13. Items Data tab: As required, complete/review the following fields: Price, Quantity, Delivery Days, Supplier Product Number



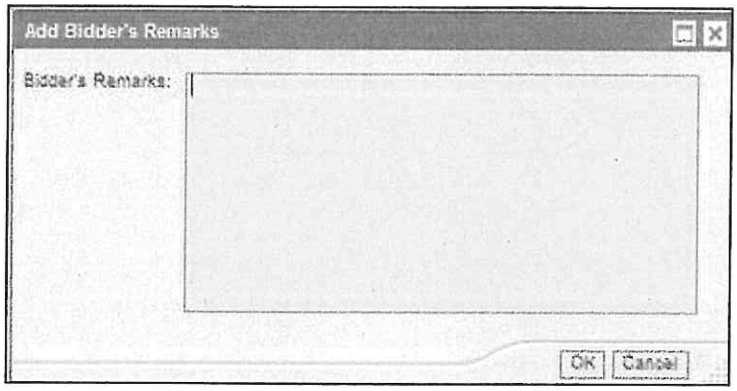
14. Click Notes and Attachments tab



15. Click Bidder's Remarks, if applicable

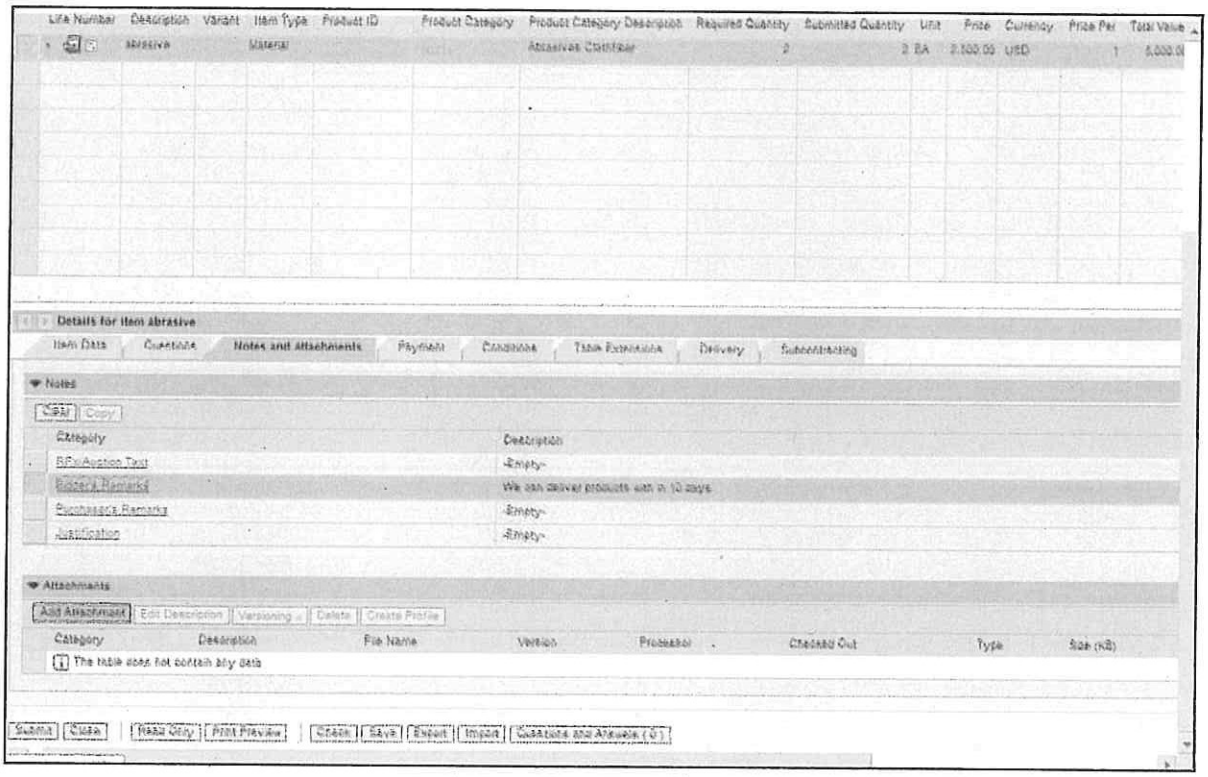


16. If applicable, enter bidder's remarks

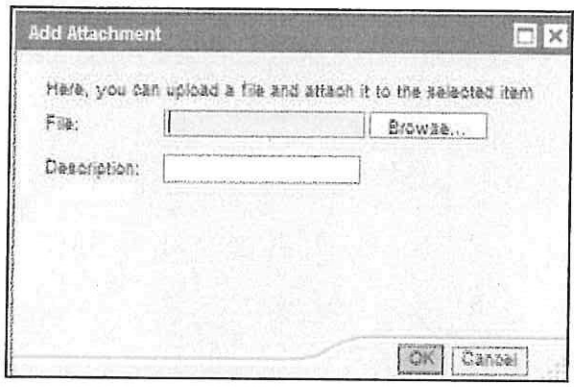


17. Click OK

18. Click Add Attachment



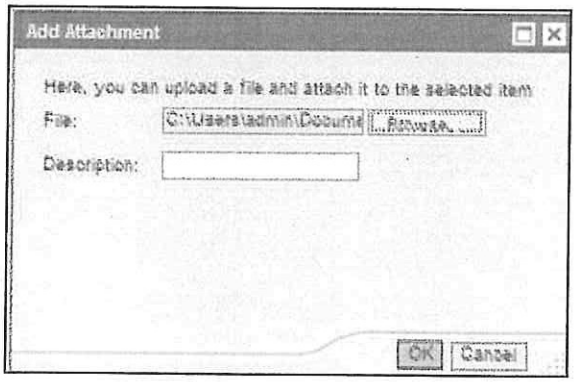
Add Attachment, if applicable



19. Click Browse

20. Choose File to Upload

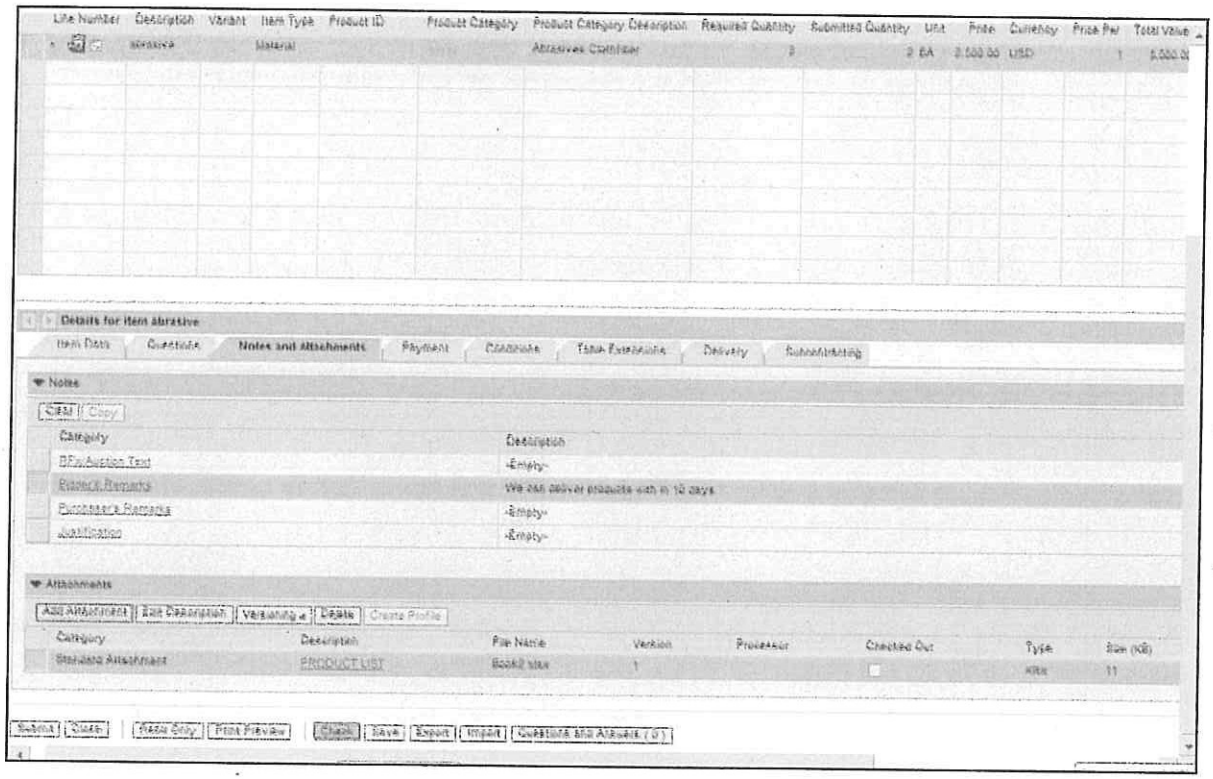
21. Click Open



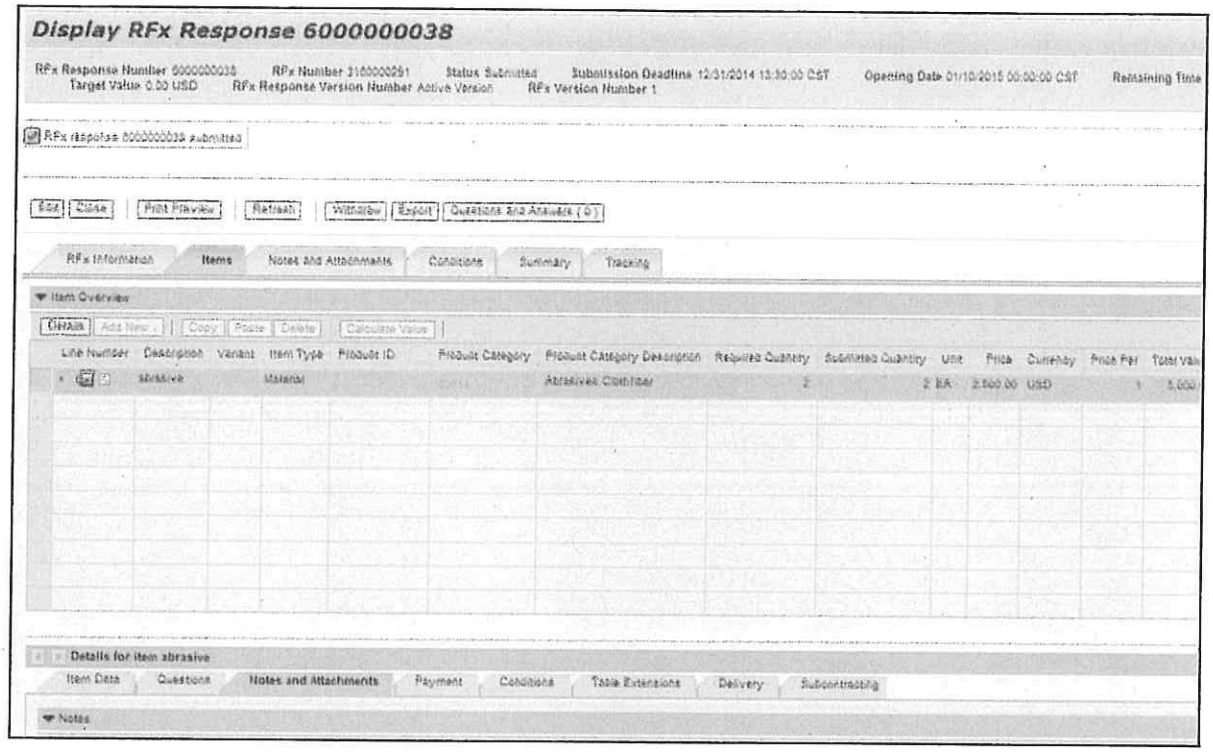
22. **Add description**

23. **Click OK**

24. **Click Check**
25. **Click Submit**



26. Select Close



You have successfully submitted an RFx response to the State of Mississippi.

New Supplier Registration

All suppliers must be registered to do business with the State of Mississippi. As a supplier, you may register at any point in time. You will need to setup a Paymode-X account before you register for a vendor number.

Go to the State of MS Paymode Website:

www.paymode.com/mississippi

Setup your **Paymode-X** account for Electronic Fund Transfer by clicking on "Join Now" (takes 10 minutes):

You will need:
1) Company's legal name, main telephone number and all physical and remittance addresses used by you company
2) Your Company's U.S. Federal Employer Identification Number (EIN) or Social Security Number
3) Your company's bank account information, including ACH routing and account numbers

To Register as a Supplier/Vendor in the State of MS MAGIC system, go to the DFA website:

www.dfa.ms.gov

Scroll to the quick links at the bottom of the page and click "Supplier Self-Service"

Click the Link: State of Mississippi Supplier Registration, (to begin the registration process)

NOTE: Make certain that you add your contact information, to include name and phone no.

Supplier W-9 Submission:

Suppliers who have completed the registration process and have received a User ID and Password must attach a W-9 to their supplier account in MAGIC using the User ID and Password.

After Supplier's W-9 has been uploaded to MAGIC, it must be submitted to the Department of Finance & Administration. This may be done one of three ways listed below:

email to ofmmagic@dfa.ms.gov (best option for submission) or fax to 601-359-5525 or

mail via USPS to

Department of Finance & Administration
Post Office Box 1060
Jackson, MS 39215-1060

Once this is completed, Vendor should send an email to their Point of Contact at the Military Department to confirm registration has taken place.

Vendors needing help with this process should call MMRS Help Desk at **601-359-1343**.

REVISED 30Sep22

November 20, 2024
Brandon Readiness Center
300 MS 468, Brandon, MS 39043
Brandon, MS 39043

A. PROJECT INTRODUCTION:
BID: Brandon Readiness Center
Mississippi Military Department
Project No.: MARNG PN#: 28270302 / DD#: 2402

Pass around Sign-in sheet for registering attendees.

B. PERSONAL INTRODUCTIONS:
Karen Hathcock, Contracting Officer
Richard "Buddy" Gray, Owner's Representative
Roy Decker, Principal, Duvall Decker
Chris Osterlund, Project Manager, Duvall Decker

C. PROJECT DESCRIPTION:
This project includes all work described in the Contract Document Drawings and Project Manual Specifications and consists of, but is not limited to, the following building types of work: selective demolition, new fixtures, wall, and floor finishes as well as new shower stalls and toilet partitions, plumbing, electrical power and lighting, and all other items as shown and described in the Contract Documents.

The work for the BASE BID consists of all work required to complete the construction of building construction described herein.

D. BIDDING/CONTRACT REQUIREMENTS:
The Contractor shall submit their bid in the manner specified in the Project Manual. See Section 00 20 00 – Instructions to Bidders.

Bids will be received by the means described in Instructions to Bidders, no later than 1:30pm (local prevailing time) on December 6, 2024. Clarifications requested by bidders must be in writing not less than four (2) business days before the date set for receipt of bids, December 4, 2024. The reply will be in the form of an Addendum, a copy of which will be forwarded to known recipients.

E. INSTRUCTIONS TO BIDDERS:

- **Subcontracts:** Provide a list of subcontractors regardless of cost. Refer to project manual for further information.
- **100% Performance-Payment Bond:** A Performance-Payment Bond is required when the contract is executed. The bond must be submitted on the form provided in the project manual.

- **Contractor's Insurance:** (A) Contractor's General Liability Insurance and (B) Property Insurance – See Section 00 73 03 Supplementary Conditions for all requirements.
- **A Certificate of Insurance:** A Certificate of Insurance is required to be on file in the office of the Owner ten (10) working days from the date of receipt of the notice of acceptance. See Section 00 73 03 Supplementary Conditions for all requirements.
- **Keys**
- **Parking**
- **Contract Form / Method of Payment and Invoicing**
- **RFIs**: Direct all RFIs during the bid process to Chris Osterlund (co@duvalldecker.com)

F. RULES:

- **Use of the Premises:** The site shall be maintained in a neat, clean, and organized manner. Corridors, stairs, restrooms, elevators, and public areas shall remain unobstructed from construction materials, equipment, or debris. **The building will be in use during the work. Safe egress and patron safety must be maintained at all times.**
- Use of explosives is not permitted.
- Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.
- **Dust Control:** Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.
    - Provide dust-proof enclosures to prevent entry of dust generated outdoors.
    - Provide dust-proof barriers between construction areas and areas continuing to be occupied by Owner.
- **Noise Control:** Provide methods, means, and facilities to minimize noise produced by construction operations.
    - At All Times: Excessively noisy tools and operations will not be tolerated inside the building at any time of day; excessively noisy includes jackhammers.
    - Pest and Rodent Control: Provide methods, means, and facilities to prevent pests and insects from damaging the work.
- **Pollution Control:** Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

G. SUMMARY OF WORK/DRAWINGS:

- Review project plans and specifications
- Question and answer session
- Visit project site

H. QUESTIONS AND ANSWERS

- Duvall Decker to issue an addendum including the minutes from this meeting.

INVITATION TO BID AND
TECHNICAL SPECIFICATIONS
FOR
BRANDON LATRINE MODERNIZATION
MS ARNG PN# 28270302
100% CD SUBMITTAL
INDEX TO SPECIFICATIONS

DIVISION 0 – PROCUREMENT AND CONTRACTING REQUIREMENTS

DIVISION 01 – PROCUREMENT, CONTRACTING AND GENERAL REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary utilities.
B. Drinking Water
C. Temporary telecommunications services.
D. Temporary sanitary facilities.
E. Temporary Controls: Barriers, enclosures, and fencing.
F. Vehicular access and parking.
G. Waste removal facilities and services.
H. Project identification sign.
I. Field offices.
J. Storage Sheds and Containers
K. Furnishing and Maintenance of Equipment
L. Removal of Utilities, Facilities, and Controls

1.02 RELATED REQUIREMENTS

A. Section 00 95 00 - Additional Supplementary Conditions
B. Section 01 51 00 - Temporary Utilities.

1.03 TEMPORARY UTILITIES

A. Owner will provide the following:
   1. Electrical power and metering, consisting of connection to existing facilities.
   2. Water supply, consisting of connection to existing facilities.
B. Provide and pay for all electrical power, lighting, water, heating and cooling, and ventilation required for construction purposes.

1.04 DRINKING WATER

A. The General Contractor shall furnish and provide drinking water facilities for all workmen on the job. This shall include icing when required, paper cups, etc., all maintained in a sanitary condition.

1.05 TELECOMMUNICATIONS SERVICES

A. Provide, maintain, and pay for telecommunications services to field office at time of project mobilization.
B. Telecommunications services shall include:
   1. Windows-based personal computer dedicated to project telecommunications, with necessary software and laser printer.
   2. Internet Connections: Minimum of one; DSL modem or faster.
   3. Email: Account/address reserved for project use.
   4. Facsimile Service: Minimum of one dedicated fax machine/printer, with dedicated phone line.

1.06 TEMPORARY SANITARY FACILITIES

A. On all projects, the General Contractor shall provide and maintain required facilities and enclosures. Toilets are to be installed in strict accordance with the regulations of the State Board of Health. The toilets are to be located on the site as directed by the Architect or his authorized representative. Provide at time of project mobilization.

B. General Contractor shall furnish eight (8) temporary toilets for use by facility occupants exclusively (not for contractor or sub-contractor use). Temporary toilets should have the following characteristics:
   1. Standard size. (approx. 90" tall, 45" wide, 45" deep)
   2. Made of polyurethane plastic or similar material.
   3. A minimum of one (1) temporary toilet room meeting Wheelchair Accessibility requirements for toilet rooms according to 604.8.1 of the ABA.
   4. A minimum of one (1) temporary toilet meeting Ambulatory Accessibility requirements for toilet rooms according to 604.8.2 of the ABA.
   5. Built-in sinks or hand sanitizer stations for handwashing should be included in each temporary toilet room. Built-in sinks or sanitizer stations must meet ABA accessibility standards in Accessible toilet rooms.

C. Maintain daily in clean and sanitary condition.

1.07 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.

C. Provide protection for plants designated to remain. Replace damaged plants.

D. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

E. Provide all necessary warning and danger lights from twilight to sunrise.

F. All such barriers shall be in strict accordance with all legal requirements and laws.

1.08 INTERIOR ENCLOSURES

A. Provide temporary partitions and ceilings as indicated to separate work areas from Owner-occupied areas, to prevent penetration of dust and moisture into Owner-occupied areas, and to prevent damage to existing materials and equipment.

B. Construction: Framing and reinforced polyethylene sheet materials with closed joints and sealed edges at intersections with existing surfaces:

1.09 VEHICULAR ACCESS AND PARKING

A. Comply with regulations relating to use of streets and sidewalks, access to emergency facilities, and access for emergency vehicles.

B. Coordinate access and haul routes with governing authorities and Owner.

C. Provide and maintain access to fire hydrants, free of obstructions.

D. Provide means of removing mud from vehicle wheels before entering streets.

E. Designated existing on-site roads may be used for construction traffic.

F. Provide temporary parking areas to accommodate construction personnel. When site space is not adequate, provide additional off-site parking.

1.10 WASTE REMOVAL

A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.

B. Provide containers with lids. Remove trash from site periodically.

C. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.

D. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

E. No burning of trash or debris shall be done on Owner's property. All such materials shall be removed from the site and disposed of in accordance with local laws and ordinances.

1.11 PROJECT IDENTIFICATION SIGN

A. Erect on site at location established by Architect.

B. No other signs are allowed to be displayed on the job site without Owner and Architect permission except those required by law.

1.12 FIELD OFFICES

A. Each Contractor shall be responsible for supplying, maintaining, and removing his own Field Office when directed: Weathertight, with lighting, electrical outlets, heating, cooling equipment, and equipped with sturdy furniture, drawing rack, and drawing display table in locations on the site as directed by the Architect, or his authorized representative and best suited for their respective uses, as follows.

B. The Field Office is for the use of the Contractor, Architect's representative, and Owner's representative.

C. Provide space for Project meetings, with table and chairs____. Provide office with a desk with drawers for filing correspondence for each user, and a blueprint rack, all with suitable hardware; a door and window; and a minimum of 100 square feet.

D. Provide a telephone, fax machine, answering machine, a digital camera and a computer with a scanner and printer and an internet connection and email address. The Contractor and computer system shall be capable of taking digital photographs or scanning drawings, downloading them to the computer and emailing them to the Architect.

E. Maintain office in a sanitary and usable condition.

F. Locate offices a minimum distance of 30 feet from existing structures.

1.13 STORAGE SHEDS AND CONTAINERS

A. The Contractor and subcontractor shall be responsible for supplying storage sheds and or containers with the appropriate environment for the materials stored.

1.14 FURNISHING AND MAINTENANCE OF EQUIPMENT

A. Contractor shall furnish and maintain all equipment such as temporary stairs, ladders, ramps, scaffolds, hoists, runways, derricks, chutes, elevators, etc. as required for proper execution of the work of all trades. All such apparatus, equipment and construction shall meet all the requirements of the Labor Law and other state or local laws applicable thereto.

1.15 DEMOLITION

A. The Contractor shall demolish all existing work required to complete the new work specified herein and as indicated on the drawings. Contractor shall assume ownership of said demolished materials and remove from site, except items chosen by the Owner to remain in his possession.

1.16 FIRE PROTECTION DURING CONSTRUCTION

A. The Contractor shall provide and maintain in working order U. L. fire extinguishers having a 2A-20BC or equivalent rating in all temporary offices, storage sheds, and one such extinguisher per 3,000 square feet of building floor area under construction during the period of construction. Dry chemical type extinguishers shall not be used. Exit ways leading to building exits shall be maintained and kept free of all debris, materials, and equipment.

B. Special precautions shall be taken to minimize the fire hazards when it becomes necessary to use stoves, salamanders, tar pots, or other temporary heating devices. Such devices shall conform to the requirements of the National Fire Code of the National Fire Protection Association and shall be used only when job is attended. Such devices shall be located so that there is a clearance of not less than six feet above or less than two and one half feet on all sides between devices and unprotected combustible materials nor shall they be placed within ten feet (10') of tarpaulin or canvas covers. Legs of temporary heating devices shall be properly insulated when it is necessary to place such equipment on combustible platforms.

C. Combustible materials shall not be stored near structural steel members until fireproofing has been installed. Forms of combustible material shall be stripped from reinforced concrete construction as soon as setting of the concrete will permit and shall be promptly removed from the building. The use of wood scaffolding shall be kept to a minimum and entirely eliminated when possible in order to eliminate fire hazards from this source. No part of the building where forms are in place shall be used for the storage of flammable materials of any kind.

D. Special precautions shall be taken to reduce fire hazards where electrical or gas welding or cutting work is done and suitable fire extinguishing equipment shall be maintained near such operations.

E. Paints, varnishes, volatile oils, etc., shall be stored in a room having good ventilation and containing no other material, or in U. L. listed metal lockers or metal boxes with self-closing covers. These cabinets shall be limited to a 60 gallon storage capacity with not more than three storage cabinets per area. Provide a 2A:20B:C rated fire extinguisher for protection in each of these areas. Gasoline and other volatile and flammable liquids shall be stored in a metal barrel well away from structures or other combustible materials.

1.17 MAINTENANCE AND REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Maintain all temporary facilities and controls as long as needed for the safe and proper completion of the Work.

B. Remove all such temporary facilities and controls as rapidly as progress of the Work will permit, or as directed by the Architect.

C. Remove underground installations to a minimum depth of 2 feet.

D. Clean and repair damage caused by installation or use of temporary work.

E. Restore existing facilities used during construction to original condition.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Tile for floor applications.

B. Tile for wall applications.

1.02 RELATED REQUIREMENTS

A. Section 06 10 00 - Rough Carpentry.

B. Section 07 92 00 - Joint Sealants: Sealing joints between tile work and adjacent construction and fixtures.

1.03 REFERENCE STANDARDS

A. ANSI A108.1a - American National Standard Specifications for Installation of Ceramic Tile in the Wet-Set Method, with Portland Cement Mortar; 2023.

B. ANSI A108.1b - Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set, Modified Dry-Set, or Improved Modified Dry-Set Cement Mortar; 2023.

C. ANSI A108.1c - Contractor's Option: Installation of Ceramic Tile in the Wet-Set Method with Portland Cement Mortar or Installation of Ceramic Tile on a Cured Portland Cement Mortar Setting Bed with Dry-Set, Modified Dry-Set, or Improved Modified Dry-Set Cement Mortar; 2023.

D. ANSI A108.4 - American National Standard Specifications for Installation of Ceramic Tile with Organic Adhesive or Water Cleanable Tile-Setting Epoxy Adhesive; 2023.

E. ANSI A108.5 - Setting of Ceramic Tile with Dry-Set Cement Mortar, Modified Dry-Set Cement Mortar, EGP (Exterior Glue Plywood) Modified Dry-Set Cement Mortar, or Improved Modified Dry-Set Cement Mortar; 2023.

F. ANSI A108.6 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant, Water Cleanable Tile-Setting and -Grout Epoxy; 2023.

G. ANSI A108.8 - American National Standard Specifications for Installation of Ceramic Tile with Chemical Resistant Furan Resin Mortar and Grout; 1999 (Reaffirmed 2019).

H. ANSI A108.9 - American National Standard Specifications for Installation of Ceramic Tile with Modified Epoxy Emulsion Mortar/Grout; 2023.

I. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework; 2017 (Reaffirmed 2022).

J. ANSI A108.11 - American National Standard Specifications for Interior Installation of Cementitious Backer Units; 2023.

K. ANSI A108.12 - Installation of Ceramic Tile with EGP (Exterior Glue Plywood) Modified Dry-Set Mortar; 2023.

L. ANSI A108.13 - American National Standard for Installation of Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone; 2005 (Reaffirmed 2021).

M. ANSI A108.19 - American National Standard Specifications for Interior Installation of Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs by the Thin-Bed Method Bonded with Modified Dry-Set Cement Mortar or Improved Modified Dry-Set Cement Mortar; 2020.

N. ANSI A108.20 - American National Standard Specifications for Exterior Installation of Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs; 2020.

O. ANSI A118.1 - American National Standard Specifications for Dry-Set Cement Mortar; 2023.

P. ANSI A118.3 - American National Standard Specifications for Chemical Resistant, Water Cleanable Tile-Setting and -Grouting Epoxy and Water Cleanable Tile-Setting Epoxy Adhesive; 2021.

Q. ANSI A118.4 - American National Standard Specifications for Modified Dry-Set Cement Mortar; 2023.

R. ANSI A118.9 - American National Standard Specifications for Test Methods and Specifications for Cementitious Backer Units; 2023.

S. ANSI A118.10 - American National Standard Specifications for Load Bearing, Bonded, Waterproof Membranes for Thin-Set Ceramic Tile and Dimension Stone Installation; 2023.

T. ANSI A118.12 - American National Standard Specifications for Crack Isolation Membranes for Thin-Set Ceramic Tile and Dimension Stone Installation; 2014 (Reaffirmed 2019).

U. ANSI A118.15 - American National Standard Specifications for Improved Modified Dry-Set Cement Mortar; 2023.

V. ANSI A136.1 - American National Standard Specifications for Organic Adhesives for Installation of Ceramic Tile; 2020.

W. ANSI A137.1 - American National Standard Specifications for Ceramic Tile; 2022.

X. ANSI A137.3 - American National Standard Specifications for Gauged Porcelain Tile and Gauged Porcelain Tile Panels/Slabs; 2021.

Y. ASTM C373 - Standard Test Methods for Determination of Water Absorption and Associated Properties by Vacuum Method for Pressed Ceramic Tiles and Glass Tiles and Boil Method for Extruded Ceramic Tiles and Non-tile Fired Ceramic Whiteware Products; 2018 (Reapproved 2023).

Z. ASTM D4068 - Standard Specification for Chlorinated Polyethylene (CPE) Sheeting for Concealed Water-Containment Membrane; 2017 (Reapproved 2022).

AA. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring; 2022.

BB. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride; 2023.

CC. ASTM F2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes; 2019a.

DD. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation; 2024.

EE. TCNA (HB-GP) - Handbook for Gauged Porcelain Tiles and Gauged Porcelain Tile Panels/Slabs Installation; 2023.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene a preinstallation meeting one week before starting work of this section; require attendance by affected installers.

1.05 SUBMITTALS

A. See Section 01 30 00 - Administrative Requirements for submittal procedures.

B. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. Include instructions for using grouts and adhesives.

C. Samples: Provide Samples for each selected tile type. Provide Samples of complete color range for Color Selection.

D. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
   1. See Section 01 60 00 - Product Requirements, for additional provisions.
   2. Extra Tile: 10 square feet of each size, color, and surface finish combination.

1.06 QUALITY ASSURANCE

1.07 MOCK-UP

A. See Section 01 40 00 - Quality Requirements for general requirements for mock-up.

B. Construct tile mock-up where indicated on drawings, incorporating all components specified for the location.
   1. Minimum 4 ft x 4 ft.
   2. Approved mock-up may remain as part of work.

PART 2 PRODUCTS

2.01 TILE

A. Manufacturers: All products of each type by the same manufacturer.
   1. American Olean Corporation; _____: www.americanolean.com/#sle.
   2. Crossville, Inc., www.crossvilleinc.com.

B. Wall Tile, Type 1: ANSI A137.1 standard grade.
   1. Moisture Absorption: 0 to 0.5 percent as tested in accordance with ASTM C373.
   2. Size: 12 x 24 inch, nominal.
   3. Thickness: 5/16 inch.
   4. Edges: Square.
   5. Surface Finish: Polished.
   6. Color(s): RET05 Snow Blind.
   7. Pattern: Running bond.
   8. Trim Units: Matching bullnose base shapes in 3 X12 inches. To be installed at the non-wet / gypsum board walls.
   9. Products: Basis of Design
      a. Crossville; Native Metal Porcelain Stone: www.crossvilleinc.com.
      b. Substitutions: See Section 01 60 00 - Product Requirements.

C. Floor Tile, Type 2: ANSI A137.1 standard grade.
   1. Moisture Absorption: 0 to 0.5 percent as tested in accordance with ASTM C373.
   2. Size: 24 x 24 inch, nominal.
   3. Thickness: 5/16 inch.
   4. Edges: Square.
   5. Surface Finish: Non-slip.
   6. Surface Finish: Matte.
   7. Color(s): Black Nickel UNO5.
   8. Pattern: Modern Weave.
   9. Products: Basis of Design

a. American Olean; Union: www.americanolean.com
b. Substitutions: See Section 01 60 00 - Product Requirements.

2.02 TRIM AND ACCESSORIES

A. Non-Ceramic Trim: brushed stainless steel (satin nickel if stainless not available), style and dimensions as indicated on drawings, for setting using tile mortar or adhesive.
   1. Applications/Products:
      a. Door Threshold at Tile - See Drawings
      b. Outside Corner and Edge Trim: Schluter Jolly-P (height to acommodate tile thickness).
   2. Manufacturers: Basis of Design
      a. Schluter-Systems; Schiene: www.schluter.com/#sle.
   3. Expansion Joint Sealant: Equal to Summitville #S-48. Mix sand from grout mixture into surface of sealant.
   4. Tile Cleaner as acceptable to manufacturers of Tile and Grout.

2.03 SETTING MATERIALS

A. Provide setting and grout materials from same manufacturer.

B. Manufacturers:
   1. LATICRETE International, Inc; _____: www.laticrete.com/#sle.
   2. Substitutions: See Section 01 60 00 - Product Requirements.

C. Latex-Portland Cement Mortar Bond Coat: ANSI A118.4.
   1. Applications: Use this type of bond coat where indicated, and where no other type of bond coat is indicated.

D. Epoxy Adhesive and Mortar Bond Coat: ANSI A118.3.
   1. Products:
      a. LATICRETE International, Inc; LATICRETE LATAPOXY 300 Adhesive: www.laticrete.com/#sle.
      b. or approved equal.
      c. Substitutions: See Section 01 60 00 - Product Requirements.

2.04 GROUTS

A. Provide setting and grout materials from same manufacturer.

B. Manufacturers:
   1. Basis of Design: LATICRETE International, Inc; LATICRETE SPECTRALOCK PRO Premium Grout: www.laticrete.com/#sle.
   2. Or approved equal.
   3. Colors to be selected for each Tile Type from Manufacturer's full range of colors.

2.05 ACCESSORY MATERIALS

A. Concrete Floor Slab Crack Isolation Membrane: Material complying with ANSI A118.12; not intended as waterproofing.
   1. Crack Resistance: No failure at 1/8 inch gap, minimum.
   2. Fluid or Trowel Applied Type:
      a. Material: Synthetic rubber or Acrylic.
      b. Thickness: 20 mils, maximum.
      c. Products:

1) LATICRETE International, Inc; LATICRETE FRACTURE BAN SC: www.laticrete.com/#sle.
2) Substitutions: See Section 01 60 00 - Product Requirements.

B. Waterproofing Membrane at Floors: Specifically designed for bonding to cementitious substrate under thick mortar bed or thin-set tile; complying with ANSI A118.10.
1. Crack Resistance: No failure at 1/16 inch gap, minimum; comply with ANSI A118.12.
2. Fluid or Trowel Applied Type:
a. Material: Synthetic rubber or Acrylic.
b. Thickness: 25 mils, minimum, dry film thickness.
c. Products:
1) LATICRETE International, Inc; LATICRETE HYDRO BAN: www.laticrete.com/#sle.
2) Substitutions: See Section 01 60 00 - Product Requirements.

C. Waterproofing Membrane at Showers: Specifically designed for bonding to cementitious substrate under thick mortar bed or thin-set tile; complying with ANSI A118.10.
1. Fluid or Trowel Applied Type:
a. Material: Synthetic rubber.
b. Thickness: 25 mils, minimum, dry film thickness.
c. Products:
1) LATICRETE International, Inc; LATICRETE HYDRO BAN: www.laticrete.com/#sle.
2) Substitutions: See Section 01 60 00 - Product Requirements.
2. Mortar Bonded Sheet Type:
a. Material: Chlorinated polyethylene sheet membrane with polyester fabric laminated to both sides, 30 mils, thick, minimum, complying with ASTM D4068.
b. Products shall be provided by one manufacturer in warranted system:
1) KERDI waterproofing membrane as manufactured by Schluter Systems, 194 Pleasant Ridge Road, Plattsburg, NY 12901.
2) KERDI-BAND Seams and Corners.
3) KERDI-SEAL Mixing Valve Seals.
4) KERDI-SEAL Pipe Seals.
5) Other system components to make warranted membrane system.

D. Reinforcing Underlayment: Specifically designed for bonding to thin-set setting mortar; not primarily waterproofing material and having the following characteristics:
1. Uncoupling Function: Allow for separation between membrane and the mortar adhering tile to the membrane when subjected to excessive substrate movement.
a. Basis of Design: DITRA as manufactured by Schluter Systems, www.schluter.com.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that subfloor surfaces are smooth and flat within the tolerances specified for that type of work and are ready to receive tile.

B. Verify that wall surfaces are smooth and flat within the tolerances specified for that type of work, are dust-free, and are ready to receive tile.

C. Verify that subfloor surfaces are dust free and free of substances that could impair bonding of setting materials to subfloor surfaces.

D. Cementitious Subfloor Surfaces: Verify that substrates are ready for tiling installation by testing for moisture and alkalinity (pH).
   1. Test as Follows:
      a. Alkalinity (pH): ASTM F710.
      b. Internal Relative Humidity: ASTM F2170.
      c. Moisture Vapor Emission: ASTM F1869.
   2. Obtain instructions if test results are not within limits recommended by tiling material manufacturer and setting material manufacturer.

E. Verify that concrete sub-floor surfaces are ready for tile installation by testing for moisture emission rate and alkalinity; obtain instructions if test results are not within limits recommended by tile manufacturer and setting materials manufacturer.

F. Verify that required floor-mounted utilities are in correct location.

3.02 PREPARATION

A. Protect surrounding work from damage.

B. Vacuum clean surfaces and damp clean.

C. Seal substrate surface cracks with filler. Level existing substrate surfaces to acceptable flatness tolerances.

D. Install backer board in accordance with ANSI A108.11 and board manufacturer's instructions. Tape joints and corners, cover with skim coat of setting material to a feather edge.

E. Prepare substrate surfaces for adhesive installation in accordance with adhesive manufacturer's instructions.

3.03 INSTALLATION - GENERAL

A. Install tile, thresholds, and stair treads and grout in accordance with applicable requirements of ANSI A108.1a through ANSI A108.20, manufacturer's instructions, and TCNA (HB) or TCNA (HB-GP) recommendations, as applicable.

B. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.

C. Cut and fit tile to penetrations through tile, leaving sealant joint space. Form corners and bases neatly. Align floor joints.

D. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make grout joints without voids, cracks, excess mortar or excess grout, or too little grout.

E. Form internal angles square and external angles bullnosed.

F. Install ceramic accessories rigidly in prepared openings.

G. Install non-ceramic trim in accordance with manufacturer's instructions.

H. Install thresholds where indicated.

I. Sound tile after setting. Replace hollow sounding units.

J. Keep control and expansion joints free of mortar, grout, and adhesive.

K. Prior to grouting, allow installation to completely cure; minimum of 48 hours.

L. Grout tile joints unless otherwise indicated. Use standard grout unless otherwise indicated.

M. At changes in plane and tile-to-tile control joints, use tile sealant instead of grout, with either bond breaker tape or backer rod as appropriate to prevent three-sided bonding.

3.04 INSTALLATION - FLOORS - THIN-SET METHODS

A. Over interior concrete substrates, install in accordance with TCNA (HB) Method F113, dry-set or latex-Portland cement bond coat, with standard grout.
   1. Use uncoupling membrane under all tile unless other underlayment is indicated.
   2. Where waterproofing membrane is indicated, install in accordance with TCNA (HB) Method F122, with latex-Portland cement grout.
   3. Where epoxy bond coat and grout are indicated, install in accordance with TCNA (HB) Method F131.

B. Install tile-to-tile floor movement joints in accordance with TCNA (HB) Method EJ171F.

3.05 INSTALLATION - SHOWERS AND BATHTUB WALLS & CEILINGS

A. At tiled shower receptors install in accordance with TCNA (HB) Method B415, mortar bed floor, and W244, thin-set over cementitious backer unit walls.

B. At shower walls install in accordance with TCNA (HB) Method B412, over cementitious backer units with waterproofing membrane.

C. At shower and bath ceilings, install in accordance with TCNA (HB) Method C315, over cementitious backer units.

D. At shower walls over interior concrete and masonry, install in accordance with TCNA Method W202 for thin-set applications.

E. Grout with standard grout.

3.06 INSTALLATION - WALL TILE

A. Over interior concrete and masonry install in accordance with TCNA (HB) Method W202, thin-set with dry-set or latex-Portland cement bond coat.

3.07 CLEANING

A. Clean tile and grout surfaces.

3.08 PROTECTION

A. Do not permit traffic over finished floor surface for 4 days after installation.

END OF SECTION

Requirements of AIA Documents A201, General Conditions of the Contract for Construction; Supplementary General Conditions; and Addenda, if issued, shall apply to work under
Division 31.

Separation of these specifications into divisions and sections is for convenience only and is not intended to establish limits of work.

Consult index to be certain that set of documents is complete.

PART 1 GENERAL
1-01 DESCRIPTION

A. This work shall consist of general grading, excavating, site preparation, hauling, placing, processing, filling, spreading, compacting, and protecting areas to be filled in accordance with these Specifications and the MISSISSIPPI STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2004 EDITION and in conformity with the lines, grades, slopes, and typical cross sections depicted by the CONTRACT DRAWINGS.

B. This item shall also consist of satisfactorily stockpiling materials or disposing of all unsatisfactory materials encountered within the construction limits of the project site. The work includes grading and subgrade construction on streets, roadways, and parking areas, drainage ditch and channel construction, water and sewer main construction and site work for wells, tanks, pumping stations, etc.

1-02 EXAMINATION OF SITE

A. The Contractor shall visit the site and inform himself fully of the amount of excavation, filling and grading required under the Contract.

The Contractor shall fully familiarize himself with the surrounding area and the conditions of access under which the project is to be completed.

1-03 CLASSIFICATION OF EXCAVATION

A. Authorized excavation shall be identified as either Unclassified Excavation, Undercut Subgrade, Channel Excavation, Borrow Excavation (Owner furnished, or Contractor furnished), Structure Excavation, or Rock Excavation as indicated by item description on the Bid Form.

B. Unclassified Excavation: Unclassified excavation will consist of all excavation materials of whatever character encountered in the work except for those classes of excavation for which separate pay items are provided.

C. Undercut Excavation: Undercut excavation shall consist of the removal and disposal of deposits of soils and organic matter not suitable for foundation or subgrade material as determined by the Engineer and satisfactorily disposing of materials at a Contractor provided off-site location.

Undercut excavation shall include materials which will decay or produce unsatisfactory subsidence in the embankment, pipe or structural bedding. Undercut excavation may be made up of decaying stumps, roots, logs, humus, highly plastic clay (CH), or other unsatisfactory material.

D. Channel and Ditch Excavation: Excavation of drainage ways shall consist of excavating all earthen materials and shaping the channel to the neat lines, grades and typical sections required for the various type sections of channel improvements proposed. Channel and ditch excavation shall include the hauling, spreading, placing, processing, compacting, or disposal of all excavated material.

Channel excavation shall be that required to improve or relocate existing channels.

Ditch excavation shall be that required to construct upstream and downstream channels for pipe culverts or for the excavation of drainage swales.

E. Borrow Excavation: Borrow excavation shall consist of the removal, hauling, placing, processing, shaping, and compacting of approved select Contractor provided off-site material at the location directed by the Engineer.

F. Structure Excavation: Structure excavation shall consist of the removal of all material to the dimensions and depths shown on the Plans, or as directed by the Engineer, necessary for the construction of structures and the installation of other items. It shall also include, as necessary, all pumping, bailing, drainage, cribbing, sheeting and other foundation work; and should include backfilling and the proper disposal of all excavated material as directed.

G. Rock Excavation: When shown as a pay item, rock excavation will consist of material which cannot be excavated without blasting and shall also include large boulders and detached stones having volumes of one-half cubic yard or more. The use of the words "rock", "boulders", "stone", or synonyms of these words appearing elsewhere on the plans, soil profile or these specifications does not imply that these materials may be included under this classification unless so indicated in the contract proposal.

The Contractor shall immediately notify the Engineer when rock excavation is encountered during the progress of the work so the necessary measurements may be made for determining the volume removed.

PART 2 MATERIALS
2-01 EQUIPMENT

A. CONTRACTOR may use the type of earth moving, compaction, processing, and watering equipment that he desires or has at his disposal, provided the equipment is in satisfactory condition, of adequate design to perform the work efficiently, and is of such capacity and quantity that the construction schedule can be maintained as planned by the CONTRACTOR and approved by the ENGINEER in accordance with the CONTRACT time contained in the AGREEMENT. The CONTRACTOR shall furnish, operate and maintain such equipment as is necessary to control uniform density, layers of fill and cross sections.

2-02 MATERIALS

A. Roadway Construction and Backfill Behind Curb: Material for fills shall consist of material obtained from the excavation of on-site banks, borrow pits or approved off-site sources. The material used shall be free from vegetable matter and other deleterious substances and shall not contain large rocks or lumps. Borrow materials shall consist of select, non-organic and debris free silty clays (CL) or sandy clays (CL) having a plasticity index (PI) within the range of 10 to 24 and a liquid limit less than 45, or clayey sands (SC) with a PI in the range of 7 to 15 and a liquid limit less than 35. Slightly clayey silty sands (SM-SC) with a minimum PI of 3 can also be utilized as select fill.

PART 3 EXECUTION
3-01 GENERAL REQUIREMENTS

A. Suitable materials excavated in project site construction shall be used insofar as practicable in the formation of fills, subgrades and shoulders as shown on the DRAWINGS. When suitable material is not needed for fills on the site, it shall be placed

on other areas designated by the ENGINEER and in accordance with subparagraph "I" hereof.

B. Sequence of Operations: No site construction shall be started until sufficient clearing, grubbing, stripping adequate pipe and drainage work to allow proper drainage within construction limits has been satisfactorily completed to allow earthwork to proceed without interruption.

C. Foundation Preparation:

1. When clearing and grubbing has been completed, stump holes remaining in areas to receive fill shall be filled with suitable material and compacted to the specified density.

2. Prior to placing material on areas to receive fill, the existing ground shall be thoroughly proof rolled with a roller to prove that the area is of a satisfactory density with stability to begin placement of fill material. Stability shall be determined by proof-rolling with loaded dump trucks or other suitable equipment by the Contractor. At least two (2) full coverage passes over the site should be performed. Any areas that are soft or yielding during proof-rolling should be processed (spread, scarify, water, or dry) to compact with stability or undercut, filled, and compacted with suitable material as directed by the Engineer.

D. Excavation:

Excavation shall be performed at locations indicated on the DRAWINGS, to lines, grades and cross sections shown, and shall be made in such manner that fills can be formed in accordance with the requirements herein. Suitable material encountered within the limits indicated shall be used in the formation of fills. Material not approved for use in fills shall be disposed of off-site if so directed by the Engineer. During the process of excavation, the grade shall be maintained to assure that it will be well drained at all times.

1. The non-organic, non-high plasticity clay debris-free soils removed from the excavated areas should be suitable for use in the embankment. All suitable materials removed from the required excavations shall be utilized in construction of embankments, fills, and backfill for undercut areas as designated on the Construction Drawings. No separate payment will be considered for the disposal of excess materials (suitable or unsuitable). Grading of excess materials shall be such to prevent ponding of water and to slopes that will prevent erosion. Vegetative cover shall be established on all spoil areas at no additional cost to the Owner.

   The Contractor shall control the excavation work so that the ground surface is properly pitched to prevent water from running into the excavated areas. Water that has accumulated in the excavated areas shall be promptly removed by the Contractor at his expense.

2. Undercutting: When objectionable material not suitable for foundation or subgrade material as determined by the Engineer remains after clearing, grubbing, stripping, and earthwork operations, in areas for subgrade or foundation construction, the CONTRACTOR will undercut such material to such depth and extent as directed and backfill with suitable material. This shall not relieve the Contractor of his obligation to process suitable but wet soils for use in embankment as directed by the Engineer. Fill material shall be placed in

uniform layers and compacted as specified for fills. Undercut materials shall be disposed of and fill material obtained as directed by the ENGINEER.

3. Tolerances: Excavation and grading shall be completed to conform to the lines and grades shown on the Drawings. The surface shall conform to the specified grades within 0.5 inches, unless a different tolerance is indicated by the drawings or elsewhere in these Specification. Deviations shall be corrected by further grading, filling, reshaping and compacting until conformance is obtained.

E. Formation of Fills:

1. Fills for project site shall be constructed to lines, grades, cross sections and dimensions shown on the DRAWINGS.

2. Earthfills shall be formed by distributing the materials in successive uniform horizontal layers not to exceed nine inches (9") in thickness, loose depth, for the full width of the cross sections. Each layer of fill shall be compacted to a density of at least ninety-five percent (95%) of standard Proctor maximum dry density at moisture contents within 3 percentage points of the optimum water content. The Contractor shall spread, scarify, water, or dry the material to achieve the required moisture content. Stability shall be determined by proof-rolling performed by the Contractor.

3. The upper surface of the fill shall be shaped to provide complete drainage of surface water at all times. The forming of ruts will not be permitted. The Contractor shall protect the work from erosion and adverse weather conditions.

4. Each layer of earthfill shall be compacted as required, with appropriate equipment. Fill material shall be compacted within three percent (3%) of optimum moisture content by processing to dry or watered and properly mixed as needed before being rolled. The furnishing and application of water for construction of fills or processing to dry soils will not be paid for separately; such operations shall be considered as incidental to the formation of fills.

5. Construction operations shall be performed in such manner that the simultaneous rolling and placing of material in the same lane or section will not occur. To avoid uneven compaction, the hauling equipment shall traverse, as much as possible, the full width of the cross section. Each layer shall be compacted as required before material for the next layer is deposited.

6. Fills and embankments will not be paid for as a separate item. The cost of making fills shall be made at the CONTRACT unit price specified on the Bid Form for unclassified excavation unless otherwise noted.

F. Subgrade Preparation: Subgrade preparation as specified in this section shall ordinarily apply to the graded section prior to the placing of a course of selected material such as base material.

Materials shall not be deposited on the prepared subgrade until it has been checked and approved by the Engineer. When practicable, such prepared subgrade shall be maintained free from ruts and depressions, adequately drained and in a smooth and compacted condition. Damaged subgrade shall be reshaped, recompacted and approved by the Engineer prior to use.

1. As required by the Plans and established in the Proposal, all silty and clayey soils in the finished subgrade shall be treated with lime in accordance with the Specifications. These soils are defined as silty or sandy clays (CL and CL-ML) and silts (ML). Delineation of the areas requiring lime will require close

inspection by the Contractor and Engineer. Exposed silty and clayey soils shall be treated to a minimum depth of six inches (6") in the final subgrade level. The Contractor shall treat to the depth required to provide a 6" treated subgrade.

2. When the subgrade material is thoroughly and completely mixed and at the proper moisture content for compaction (as specified by the Engineer), the roadbed or foundation shall be machined and the subgrade material shaped in such a manner that after full compaction, the finished subgrade course shall be the width indicated and closely conform to the lines, grades, and typical section shown on the plans or as specified.

   The Contractor shall guard against all irregularities in shape or section and loss of crown or segregation of materials. Proper drainage shall be maintained at all times.

3. After shaping has been completed and the material is at plus or minus three percent (3%) of the optimum moisture content, the subgrade shall be compacted in accordance with the provisions and requirements specified hereinafter.

   Compaction shall be accomplished by rolling with the sheepsfoot rollers and pneumatic-tired traffic rollers of the type heretofore specified. Compaction shall begin at the bottom and continue until the entire area is thoroughly compacted to at least 95 percent (95%) of Standard Proctor maximum dry density with stability present (ASTM D 698). Stability shall be determined by proof-rolling performed by the Contractor. During the compacting, the subgrade shall be maintained at the proper section by light machining or dragging and at the proper moisture content. Final rolling shall be accomplished with pneumatic tired rollers.

4. Lack of uniformity in the mixture, inequalities in the surface or other irregularities shall be corrected by adding or replacing materials and remixing, reshaping, and recompacting as necessary and required.

   The Contractor shall be responsible for producing a subgrade, the surface of which shall present a uniform appearance and a smooth riding surface, without sharp breaks or depressions which will collect or hold water. The finished grade and typical section shall be as close to that shown on the Plans as can be constructed with proper and expert manipulation of a motor grader. In no case shall be maximum variation (when tested with a ten foot (10') straight-edge parallel to the centerline) be more than one-fourth inch (1/4").

5. The compacted subgrade will be tested for specified compaction and thickness before acceptance. No minus tolerance in base thickness will be allowed. No density below that specified above will be accepted.

   Any areas which do not meet the above requirements shall be corrected by means satisfactory to the Engineer, including rebuilding where necessary.

G. Channel and Ditch Excavation and Grading: Channel and Ditch excavation shall be performed in proper sequence with other construction. Satisfactory materials shall be placed in fills as needed. Unsatisfactory material shall be wasted in disposal areas. Ditches shall be graded to drain and shall not contain low spots which would hold water. Ditches and slopes shall be dressed to a tolerance of plus or minus 0.1 foot from indicated grade.

H. Foundations: Excavation for structural foundations shall be made at slopes which will provide safe working conditions, or adequate SHORING shall be installed. Where the

recommendations of a geotechnical evaluation are included in the Contract Documents, Contractor shall follow said recommendations. Backfill material shall not contain any expansive materials and shall be compacted in lifts to ninety-five percent (95%) maximum density with stability present.

I. Disposal of Excess Material: All excess material and material unsuitable for use in fills shall be disposed of in a Contractor provided off-site location. Material disposed of on-site shall be placed and graded to field established contours and elevations. After placement of excess material, such fills shall be consolidated by complete coverages with construction equipment. Fills shall be dressed to present a neat appearance before project acceptance. Slopes shall be such that water does not pond but erosion control shall be maintained. Vegetative cover shall be established on all spoil areas at no additional cost to the Owner.

Any fill material classified as hazardous waste shall be handled of in accordance with Mississippi Department of Environmental Quality standards and placed in a certified hazardous waste disposal area.

3-02 SEASONAL AND WEATHER LIMITS

A. No fill material shall be placed, spread or rolled while the ground or fill is frozen or thawing or during unfavorable weather conditions. When the work is interrupted by heavy rain, fill operations shall not be resumed until the moisture content and density of the fill are as previously specified.

3-03 TESTING

A. Contractor shall be responsible for determining that material utilized in fills meet project requirements and shall provide Atterberg Units, Gradation, Standard Proctor density tests, field density tests, etc. for on-site and off-site materials utilized in fills, foundations, or bases. Proctors shall be run as frequently as necessary to assure consistency of material and wherever changes in material are encountered.

B. Density tests shall be performed at not less than the following interval:

1. Foundation Backfill - at least in every second lift of vertical fill, or every 100 CY, whichever is more frequent.
2. Subgrade Fills - at least in every second lift of vertical fill in a maximum of 500 linear feet, or every 2000 cubic yards, whichever is more frequent.
3. Road and Street Bases - in every lift of each day's production, with spacing in each lift not to exceed 300 feet, and with total yardage per test not to exceed 2000 cubic yards.

C. Testing shall be performed by an independent testing laboratory, which shall submit test results to the Engineer for review.

PART 4 COMPENSATION

4-01 MEASUREMENT

A. Measurement of excavation shall be per cubic yard of CUT ONLY, of the various kinds called for and at the designation required by the Bid Form, whether (FM), (PM) or (LVM).

Final Measurement: This method shall consist of cross-sectioning by survey or other measurement approved by the Engineer of the original terrain features and the "as-excavated" features to determine the total excavation performed for each class.

Plan Measurement: The method shall consist of cross-sectioning by survey, the original terrain features, and applications of typical sections as shown in the Contract Document to determine the total excavation performed for each class.

Loose Vehicular Measure: This method shall consist of a physical count and verification by trip tickets of the Contractor's hauling equipment to determine the total volume of each class of excavation moved. Each item of the Contractor's equipment shall first be tested to determine the average haul capacity prior to commencement of the Work. The Contractor shall keep a record of tickets and shall provide the Engineer with a copy of the same.

The Proposal shall specify the method of measurement for each class of excavation. If the proposal contains bid items for a class of excavation, the method of measurement shall be identified for the class by the abbreviations "FM" (Final Measurement); "PM" (Plan Measurement); and "LVM" (Loose Vehicular Measurement).

The term earthwork shall include excavation, grading, fill and compaction for the purpose of this Contract. Testing shall not be measured but shall be considered an absorbed cost item.

B. All costs incidental to placing fill in layers, discing, adjusting moisture content, compacting, shaping and other necessary operations for construction of site improvements shall be included in the Contract Unit Price bid per cubic yard for excavation of the kinds indicated on the Bid Form.

C. If "Earthwork" is required by the Contract Documents but is not identified separately on the Bid Form, no measurement of earthwork shall be made and Contractor shall supply and install same as an absorbed cost item.

4-02 PAYMENT

A. Payment of "Unclassified Excavation" will be included in the lump sum price for the project.

B. Payment for “Undercut Excavation” (Unit Price No. 31 00 00 -01) shall be made at the Contract Unit Price bid per cubic yard (FM). Such price shall constitute full compensation for furnishing all labor, tools, equipment and incidentals, and performing all work necessary for completion this item. Price shall also include the disposal of excess material at an off-site location according to all federal, state, and local laws and regulations.

B. Payment for “Borrow Excavation” (Unit Price No. 31 00 00 -02) shall be made at the Contract Unit Price bid per cubic yard (FM). Such price shall constitute full compensation for furnishing all labor, tools, equipment and incidentals, and performing all work necessary for completion of this item.

C. Payment for “Channel and Ditch Excavation” will be included in the lump sum price for the project.

E. Payment for “Backfill Behind Curb” shall be will be included in the lump sum price for the project

F. Separate payment shall not be made for grading, compaction, testing or other incidentals. Such items shall be considered as subsidiary work and as absorbed cost items with no extra payment.

G. If "Earthwork" is required by the Contract Documents but is not identified separately on the Bid Form, no payments of earthwork shall be made and Contractor shall supply and install same as an absorbed cost item with no extra payment.

END OF SECTION

Requirements of AIA Documents A201, General Conditions of the Contract for Construction; Supplementary General Conditions; and Addenda, if issued, shall apply to work under
Division 32.

Separation of these specifications into divisions and sections is for convenience only and is not intended to establish limits of work.

Consult index to be certain that set of documents is complete

PART 1 - GENERAL
1-01 DESCRIPTION

A. This item shall include the furnishing of all labor, materials, equipment and incidentals required for paving of roads and parking areas in accordance with the Contract Drawings and these Specifications.

B. Paving shall be performed with machinery equipped with a 40-foot ski attachment for grade control.

C. Any required adjustments of existing utilities will be performed by Owner.

D. Dimensions shall be as indicated on the Drawings.

E. Where reference is made to Mississippi Department of Transportation Specifications (MDOT), it is intended to be in accordance with Mississippi Standard Specifications for Road and Bridge Construction, 1990 Edition or 2017 Edition.

PART 2 - MATERIALS
2-01 GENERAL

A. All materials for asphalt paving and related work shall comply with Mississippi Standard Specifications for Road and Bridge Construction, MDOT, 1990 Edition or 2017 Edition as follows:

1. Plant mix pavements General Section 401
2. Base course Section 403
3. Tack coat Section 407
4. Binder course Section 403
5. Surface course Section 403

B. As used in this specification, the following abbreviations shall apply:

1. BB Black Base
2. TC Tack Coat
3. BC Binder Course
4. SC Surface Course

C. The term "course" used in this Section shall be understood to mean a layer of specified thickness shown on the plans and for which quantities are estimated on the plans and in the proposal as the basis for bidding. A course may, in some cases consist of a single layer, and, in other cases, may consist of two or more layers depending on the finished thickness specified.

PART 3 - EXECUTION

3-01 BASE COURSE (BLACK BASE): Number BB-1

A. General: Where indicated on the Drawings this work shall consist of the construction of a base course in one or more courses composed of mineral aggregates mixed in a central mixing plant with bituminous materials in the proportions specified and placed hot. The base course shall be constructed on a prepared subgrade foundation in accordance with these specifications and in close conformity with the thickness, lines, grades and sections as shown on the plans.

B. The base course shall comply with Section 403, Plant Mix Bituminous Base Course, of the Mississippi State Highway Department Specifications for Road and Bridge Construction.

C. The Contractor will have the testing lab furnish to the Engineer, for approval, prior to placing any base material, a job mix formula for the project.

D. The job mix formula shall be set within the master range as indicated below. The job mix formula shall be maintained within the job mix tolerance and shall not exceed the limits of the ranges.

1. The job mix temperatures shall be between 250 degrees Fahrenheit minimum and 350 degrees Fahrenheit maximum unless otherwise specified.

2. The job mix formula as approved shall be considered as tentative until a sufficient amount of the mixture has been processed through the plant, spread and compacted.

3. Extractions shall be made on samples of each mixture, produced by the plant, before any mixture is placed on the project.

4. After the job mix formula is approved, the mixture furnished to the project shall remain unchanged, within the tolerances specified for the mixture, throughout the duration of the job. No change in properties or proportions of any ingredient of the mix shall be made without written permission of the Engineer.

E. The gradation of the mixture shall meet the following Design Master range requirements.

Sieve Size	**Percentage Passing Sieve (by Weight)**	**Tolerances For Job Mix Formula**
1 - 1/2 inch	100	±6%
1 inch	83 - 100	±6%
3/4 inch	-------	------
1/2 inch	56 - 95	±6%
3/8 inch	------	------
No. 4	29 - 70	±5%
No. 8	19 - 54	±5%
No. 30	8 - 30	±4%
No. 50	4 - 20	±4%
No. 200	2 - 10	±1.5%
Min. %A.C. by wt of Mix	4	±0.4%

F. Bituminous Materials shall be petroleum asphalt cement grade PG 67-22, unless otherwise specified.

G. Mineral Filler shall meet requirements of Section 703.16 of the Mississippi State Highway Specifications. Mineral filler may be used as necessary to obtain desired properties; however, excessive use shall not be permitted in the mix.

H. Weather Limitations: The mixture shall not be placed when weather conditions prevent the proper handling and finishing or the surface on which it is to be placed is wet or frozen. At the time of placement, the air and pavement surface temperature limitations shall be equal to or exceed that specified in the following table:

TEMPERATURE LIMITATIONS			
COMPACTED THICKNESS	SURFACE COURSES	BINDER AND LEVELING COURSES	BASE COURSES
Less than 1-1/2 in.	55°F	55°F	-
1-1/2 in. to 2-1/2 in.	50°F	45°F	45°F
More than 2-1/2 in.	45°F	45°F	45°F

When paving operations are discontinued because of rain, the mixture in transit shall be protected until the rain ceases. The surface on which the mixture is to be placed shall be swept to remove as much moisture as possible and the mixture may then be placed subject to removal and replacement at the Contractor's expense if contract requirements are not met.

I. Density: The average lot density of all bituminous base courses shall not be less than 93.0 percent nor more than 96.0 percent of the maximum density based on AASHTO T-209. When borderline results are obtained on density tests, it shall be the Contractor's responsibility to furnish and use the appropriate number, type, and size of rollers as necessary to consistently obtain the required density. When the furnished compactive effort does not produce the required density, the Contractor shall make such approved adjustments as necessary to obtain the required density. Pavement samples obtained for determining density and/or correlation of the nuclear density gauge which have a thickness less than three-eights inch greater than the maximum size aggregate permitted by the job-mix formula will not be used as a representative sample.

J. Lower layers of base course shall not exceed four inches in compacted thickness (plus the allowable tolerance). The top layer shall have a maximum compacted thickness of three inches (plus the allowable tolerance).

K. Surface tolerance shall conform to the designated grade and cross section within the tolerances set forth in Section 403.03.2 of MDOT Specifications.

3-02 TACK COAT (Required Full Width)

A. General: This work shall consist of preparing and treating an existing bituminous or concrete surface with bituminous material in accordance with these specifications and in close conformity with the lines shown on the plans or established by the Engineer. A tack coat shall be applied, for the full width of the course to be superimposed on a previously prepared, bonded, and bituminized road surface or base or concrete surface or base. The tack coat may be omitted from a previously primed road when deemed by the Engineer to be unnecessary.

B. Tack coat is to be applied between each lift or course of asphalt pavement unless otherwise specified by the Engineer.

C. A tack coat shall be applied over the base course and shall consist of 0.05 to 0.10 gallons per square yard of bituminous material of the same A.C. grade as specified for the base course mix designs specified in Section 407 of MDOT Specifications.

D. Tack coat shall not be applied during wet or cold weather, after sunset or to a wet surface and only on as much pavement as can be covered with additional courses in the same day. The surface to receive tack coat shall be prepared in accordance with Section 401.03.6 of MDOT Specifications.

E. Separate Payment for tack coat shall not be made. The tack coat shall be an absorbed item.

3-03 BINDER COURSE, NUMBER BC-1

A. This work shall consist of the construction of a binder course, thickness indicated on the drawings, in accordance with Contract Drawings, and MDOT Specifications Section 403, Hot Bituminous Pavement.

B. A job mix formula shall be submitted to the Engineer, for approval, prior to placing any binder course. See paragraph C of this Section.

C. The gradation of the aggregates for the mixture shall meet the following Design Master Range requirements.

D. At least 20% of the total combined aggregate by weight shall be limestone or slag.

Sieve Size	**Percentage Passing Sieve (by Weight)**	**Tolerances For Job Mix Formula**
3/4 inch	100	±6%
1/2 inch	82 - 100	±6%
3/8 inch	71 -91	±6%
4 inch	40 - 73	±5%
No. 8	26 - 58	±5%
No. 30	9 - 30	±4%
No. 50	6 - 20	±4%
No. 200	2 - 10	±1.5%
Min. %A.C. by wt of Mix	4.0	±0.4%

D. Bituminous materials shall be petroleum asphalt cement grade PG 67-22, unless otherwise specified.

E. Density: The average lot density of all bituminous binder courses shall not be less than 93.0 percent nor more than 96.0 percent of the maximum density based on AASHTO T-209. When borderline results are obtained on density tests, it shall be the Contractor's responsibility to furnish and use the appropriate number, type, and size of rollers as necessary to consistently obtain the required density. When the furnished compactive effort does not produce the required density, the Contractor shall make such approved adjustments as necessary to obtain the required density. Pavement samples obtained for determining density and/or correlation of the nuclear density gauge which have a thickness less than three-eights inch greater than the maximum size aggregate permitted by the job-mix formula will not be used as a representative sample.

F. Mineral filler shall meet requirements of Section 703.16 of MDOT Specifications. Mineral filler may be used as necessary to obtain desired properties; however, excessive use shall not be permitted in the mix.

G. Weather Limitations: The mixture shall not be placed when weather conditions prevent the proper handling and finishing or the surface on which it is to be placed is wet or frozen. At the time of placement, the air and pavement surface temperature limitations shall be equal to or exceed that specified in the following table:

TEMPERATURE LIMITATIONS			
COMPACTED THICKNESS	SURFACE COURSES	BINDER AND LEVELING COURSES	BASE COURSES
Less than 1-1/2 in.	55°F	55°F	-
1-1/2 in. to 2-1/2 in.	50°F	45°F	45°F
More than 2-1/2 in.	45°F	45°F	45°F

When paving operations are discontinued because of rain, the mixture in transit shall be protected until the rain ceases. The surface on which the mixture is to be placed shall be swept to remove as much moisture as possible and the mixture may then be placed subject to removal and replacement at the Contractor's expense if contract requirements are not met.

I. Surface Tolerances: Surface tolerances shall conform to the designated grades and cross-section, within the tolerances set forth in Section 403.03.2. Surface Tolerances of MDOT Specifications.

3-04 SURFACE COURSE, NUMBER SC-1

A. This work shall consist of the construction of a surface course, thickness indicated on the drawings, in accordance with Contract Drawings, MDOT Specifications, Section S-403, Hot Bituminous Pavement.

B. A job formula shall be submitted to the Engineer, for approval, prior to placing any surface course. See Paragraph C of this Section.

C. The gradation of the aggregates for the mixture shall meet the following Design Master Range requirements.

D. At least 20% and no more than 30% of the total combined aggregate by weight shall be limestone or slag.

Sieve Size	Percentage Passing Sieve (by Weight)	Tolerances For Job Mix Formula
1/2 inch	100	±6%
3/8 inch	87 - 100	±6%
No. 4	54 - 80	±5%
No. 8	32 - 63	±5%
No. 30	12 - 33	±4%
No. 50	6 - 20	±4%
No. 200	2 - 10	±1.5%
Min. %A.C. by wt of Mix	4.0	±0.4%

E. Bituminous materials shall be petroleum asphalt cement grade PG 67-22, unless otherwise specified.

F. Density: The average lot density of all bituminous surface courses shall not be less than 93.0 percent nor more than 96.0 percent of the maximum density based on AASHTO T-209. When borderline results are obtained on density tests, it shall be the Contractor's responsibility to furnish and use the appropriate number, type, and size of rollers as necessary to consistently obtain the required density. When the furnished compactive effort does not product the required density, the Contractor shall make such approved adjustments as necessary to obtain the required density. Pavement samples obtained for determining density and/or correlation of the nuclear density gauge which have a thickness less than three-eights inch greater than the maximum size aggregate permitted by the job-mix formula will not be used as a representative sample.

G. Mineral filler shall meet requirements of Section 703.16 of MDOT Specifications. Mineral filler may be used as necessary to obtain desired properties; however, no more than 3% of mineral filler by wt. of the total aggregate blend shall be permitted in the mix.

H. Weather Limitations: The mixture shall not be placed when weather conditions prevent the proper handling and finishing or the surface on which it is to be placed is wet or frozen. At the time of placement, the air and pavement surface temperature limitations shall be equal to or exceed that specified in the following table:

TEMPERATURE LIMITATIONS			
COMPACTED THICKNESS	SURFACE COURSES	BINDER AND LEVELING COURSES	BASE COURSES
Less than 1-1/2 in.	55°F	55°F	-
1-1/2 in. to 2-1/2 in.	50°F	45°F	45°F
More than 2-1/2 in.	45°F	45°F	45°F

When paving operations are discontinued because of rain, the mixture in transit shall be protected until the rain ceases. The surface on which the mixture is to be placed shall be swept to remove as much moisture as possible and the mixture may then be placed subject to removal and replacement at the Contractor's expense if contract requirements are not met.

I. Surface Tolerances: Surface tolerances shall conform to the designated grades and cross-section, within the tolerances set forth in Section 403.03.2, Surface Tolerances of MDOT Specifications.

3-05 PRE-ROLLING

A. Prior to application of base course, the sub-base shall be pre-rolled as may be required to determine possible presence of underlying soil failures.

3-06 TESTING

A. The Contractor shall have the Testing Laboratory furnish certified gradation analysis of aggregates for base, binder and surface courses. These results shall be approved by the Engineer in writing prior to the use of the material tested. Testing for mat density shall be taken a minimum of one (1) each for each 5,000 square feet of pavement installed, or fraction thereof.

B. Results of all testing shall be submitted to the Engineer in triplicate.

C. Any prior use testing or certification costs shall be borne by the Contractor. Testing of the plant mix in the laboratory shall be conducted for every 500 tons of mix produced and shall be paid for by the Contractor.

PART 4 – CONSTRUCTION

A. Construction of asphalt pavements shall be in accordance with Paragraphs 403.03 through 403.03.5.7 of the MDOT Specifications for Road and Bridge Construction, 2004 Edition.

B. The job mix temperatures shall be between 250 degrees Fahrenheit minimum and 350 degrees Fahrenheit maximum unless otherwise specified.

C. JOINTS. The formation of all joints shall be made in such a manner as to ensure a continuous bond between the courses and obtain the required density. All joints shall have the same texture as other sections of the course and meet the requirements for smoothness and grade.

The roller shall not pass over the unprotected end of the freshly laid mixture except when necessary to form a transverse joint. When necessary to form a transverse joint, it shall be made by means of placing a bulkhead or by tapering the course. The tapered edge shall be cut back to its full depth and width on a straight line to expose a vertical face prior to placing the adjacent lane. In both methods all contact surfaces shall be given a tack coat of bituminous material before placing any fresh mixture against the joint.

Longitudinal joints which are irregular, damaged, uncompacted, or otherwise defective shall be cut back to expose a clean, sound surface for the full depth of the course. All contact surfaces shall be given a tack coat of bituminous material prior to placing any fresh mixture against the joint.

PART 5 - COMPENSATION

5-01 MEASUREMENT

A. Measurement of complete asphalt pavement installation shall be Lump Sum.

5-02 PAYMENT

A. Payment for asphalt pavement shall be absorbed in the overall Lump Sum price for the entire project.

B. Each lot of work found not to meet the density requirement of not less than 93 percent of maximum density may remain in place with a reduction in payment as set out in the following table:

PAYMENT SCHEDULE FOR COMPACTION	
Pay Factor	* Lot Density % of Maximum Density
1.00	93.0 and above
0.90	92.0 – 92.9
0.70	91.0 – 91.9

*Any lot, or sublot or portion thereof with a density of less than 91.0 percent of maximum density shall be removed and replaced at the Contractor's expense.

B. Separate payment for testing shall not be made. Testing shall be an absorbed item.

END OF SECTION

Requirements of AIA Documents A201, General Conditions of the Contract for Construction; Supplementary General Conditions; and Addenda, if issued, shall apply to work under
Division 33.

Separation of these specifications into divisions and sections is for convenience only and is not intended to establish limits of work.

Consult index to be certain that set of documents is complete.

PART 1 - GENERAL

1-01 DESCRIPTION

A. In accordance with the requirements of these Specifications, the Contractor shall furnish and install materials and perform work necessary for or incidental to constructing a gravity flow sanitary sewer system complete and ready for use by the Owner.

B. The work shall include excavation, trenching and backfilling; furnishing and installing trench sheeting, shoring and bracing; furnishing and installing pipe, specials, services, manholes and related appurtenances; storage and protection of materials; testing, cleanup and other operations necessary to complete the work in accordance with the Specifications and Drawings.

C. Inspection, when used in this specification, means visual observation of materials, equipment, or construction work, on an intermittent basis, to determine that the work is in conformance with the contract documents and the design intent. **Such inspection does not constitute acceptance of the work, nor shall it be construed to relieve the Contractor in any way from his responsibility for the means and methods of construction or for SAFETY on the construction site.**

1-02 CONTRACTOR'S EQUIPMENT

A. The Contractor shall provide and maintain the equipment necessary to prosecute the work in an orderly and safe manner. The equipment shall consist of suitable units designed or selected to perform and expedite the work and incidental items of construction.

1-03 CONFLICTS WITH OTHER UTILITIES

A. Where the location of the sewer is not clearly defined by dimensions on the Drawings or unless otherwise directed by the Engineer, the sewer shall not be laid closer horizontally than ten feet (10') to a water supply main except that where the bottom of the water pipe will be at least eighteen inches (18") above the top of the sewer pipe, horizontal spacing may be a minimum of six feet (6'). **Water and sewer pipe shall NOT be laid in the same trench.** Where gravity flow sewers cross above water lines, the sewer pipe, for a distance of ten feet (10') each side of the crossing, shall be either ductile iron pressure pipe without any joint closer horizontally than eight feet (8') to the crossing or shall be fully encased in concrete.

B. Where sewer construction conflicts with underground utilities which are indicated to remain in place, the Contractor shall be fully responsible for protecting these facilities and for restoring the portions of those lines which are damaged or severed as a result of his operations. Where existing lines in conflict are indicated to be removed by others, the Contractor shall cooperate with the Owner of these utilities to the end that these conflicts may be removed prior to excavation for the sewers.

1-04 PROTECTION OF PROPERTY

A. General: Existing power lines, telephone lines, trees, property corners or monuments, shrubbery, fences, water mains, gas mains, sewers, cables, conduits, ditches, embankments and other structures in the vicinity of the work not authorized to be removed shall be supported and protected from injury by the Contractor during the construction and until completion of the work affecting them. The Contractor shall be liable for damages done to such existing facilities and structures, as herein provided, and he shall save the Owner harmless from liability or expense for injuries, damages or repairs to such facilities. No additional compensation will be allowed for any operations of the Contractor in completing the work near, over, under or around existing utilities unless otherwise specified.

B. Underground Utilities: The type, size, location and number of known underground utilities have been shown on the Drawings; however, no guarantee is made as to the true type, size, location or number of such utilities. It shall be the responsibility of the Contractor to verify the existence and location of underground utilities along the route of the work. The omission from, or the inclusion of utility locations on the Drawings is not to be considered **as the nonexistence of** or **a definite location of** existing underground utilities. The Contract unit prices bid shall provide full and complete compensation for operations necessary to complete the work in accordance with the Drawings and Specifications in working near, over, under or around existing utilities unless specified otherwise.

C. Relocation of Existing Utilities

1. The Contractor shall notify the Owner or Owners of the existing utilities, whether above the ground or underground; prior to proceeding with trench excavation whenever such trenching operations are within ten feet (10') of any existing utility.

2. In the event that during construction it is determined that underground utilities, including sanitary sewers, water mains, gas mains, telephone cables, storm sewers, etc., and above ground utility facilities require relocation, the Contractor shall notify the utility Owner well in advance of his approach to such utility so that arrangements for such relocation by the Owner or the Owners of the affected utility can be completed without delay to the Contractor's work.

3. Should a utility be damaged in the trenching operations, the Contractor shall immediately notify the Owner of the utility, the project Owner and Engineer. If the damaged utility transports hazardous material, electricity, or type material carried is not known, the Contractor shall also notify appropriate Emergency Operations Agency and Law Enforcement Agency. **The Contractor shall not attempt to make repairs unless so authorized, in writing, by the affected utility owner. Duplicate copies of written authorization given to the Contractor to make repairs shall be filed with the Engineer and shall be so worded as to save harmless the Owner and Engineer of responsibility relative to the sufficiency of the repairs.**

D. Landscape Vegetation: Reasonable care shall be taken during construction to avoid damage to landscape vegetation. Ornamental shrubbery and tree branches shall be

temporarily tied back, where appropriate, to minimize damage. Trees which receive damage to branches shall be trimmed of those branches to improve the appearance of the tree. Tree trunks receiving damage from equipment shall be treated with a tree dressing.

1-05 RAILROAD AND HIGHWAY CROSSING

A. Work incidental to the construction of sewer lines under streets, railroads, highways, driveways or parking areas shall be done in strict compliance with the regulations prescribed by the Owners of these properties and shall be done with extreme care to safeguard life and property. After the necessary permits and agreements for these crossings have been approved and executed, the Contractor shall confer with the representatives of the Railroad Company, the Mississippi Department of Transportation, the City or County, or the Owner of these properties and arrange schedules and the manner for constructing the work in accordance therewith. In general, the sewer pipe will be installed in steel casing or steel lined tunnels at all railroad, street and highway crossings unless otherwise specified.

B. Utility crossings shall be constructed in accordance with Section 02225 "Roadway Crossings for Utility Lines" herein, where applicable.

1-06 APPLICABLE DOCUMENTS

A. The following publications form a part of this Specification and where referred to by basic designation only, are applicable to the extent indicated. Reference is to the latest edition of each unless specified otherwise.

1. **American Society for Testing and Materials (ASTM):**

    a. C-76 Reinforced Concrete Culvert, Storm Drain and Sewer Pipe.
    b. C-443 Joints for Circular Concrete Sewer and Culvert Pipe.
    c. C-478 Precast Reinforced Concrete Manhole Sections.
    e. D-3034 Type PSM - PVC Sewer Pipe and Fittings.
    f. D-3212 Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
    g. D-2321 Underground Installation of Flexible Thermoplastic Sewer Pipe.
    h. F-477 Elastomeric Seals for Joining Plastic Pipe.

2. **American Water Works Association (AWWA):**

    a. C-151 Standard for Ductile Iron Pipe, Centrifugally Cast in Metal Molds.
    b. C-111 Joints for Ductile Iron Pipe, Rubber Gasket.
    c. C-110 Gray Iron and Ductile Iron Fittings.
    d. C-301 Prestressed Concrete Pressure Pipe, Steel-Cylinder Type, for Water and Other Liquids
    e. C-304 Design of Prestressed Concrete Cylinder Pipe

B. Local Building Codes: City, County, States or Federal Codes applying to the work.

C. Miss. Standard Specifications for Road and Bridge Construction, 2004 edition (MDOT): Sections as referenced herein.

1-07 SUBMITTALS: The Contractor shall submit testing reports, manufacturer's certifications, shop drawings, manufacturer's catalogs, specification sheets and other incidentals, to the Engineer, prior to ordering material.

PART 2 - MATERIALS

2-01 GENERAL

A. The Contractor shall furnish materials necessary for or incidental to constructing a gravity flow wastewater system. Materials shall be new and of first quality with certified tests for pipe and pipe fittings made at the manufacturer's plant to assure conformance with these technical provisions. Three (3) certified copies of each test result shall be furnished to the Engineer prior to installation. **In some instances, the Contractor may be required to INSTALL material supplied by the Owner or others.** In such cases the Contractor is responsible for installation according to specification requirements and for various pressure and proving tests that may be required but not for material certification tests.

B. The kinds and classes of materials incorporated into the work shall be designated by the Engineer. The Contractor shall not construe or interpret the several kinds of materials described herein as being equal in their application for the project.

2-02 WATER FOR CONSTRUCTION AND TESTING

A. The Contractor shall be responsible for water needed in constructing the work, flushing the completed system, testing and other incidental needs. Water used shall be from an approved source relatively free of pollution and shall be of a satisfactory bacteriological quality.

B. Water used in mixing concrete and mortar shall be fresh, clean and potable, suitable for drinking.

2-03 SEWER PIPES AND FITTINGS

A. PVC Plastic Pipe and Fittings: PVC sewer pipe and fittings shall be solid wall in accordance with ASTM D-3034, SDR 26 minimum for sizes 4" through 18" and DR 35 minimum for 21" through 27". Joints shall conform with ASTM D-3212 and be elastomeric gasket conforming to ASTM F-477. Depth of bury for PVC pipe shall not exceed limits acceptable to the Engineer. Jointing shall be completed in accordance with manufacturer's specifications.

PVC pipe shall be designed to provide a minimum pipe stiffness value of 115 psi and 46 psi for SDR 26 and for DR 35 respectively for all sizes when tested in accordance with ASTM Standard Specification D-2412 at a deflection of five percent (5%).

PVC pipe shall be limited to the maximum trench depths shown in the following table.

MAXIMUM TRENCH DEPTHS FOR PVC PIPE
MAXIMUM DEPTH TO INVERT OF PIPE

PIPE TYPE	PIPE DIAMETER	BEDDING DESIGNATION CLASS "B"	CLASS "C'
SDR 26	6"	20'	14'
SDR 26	8"	20'	14'
SDR 26	10"	20'	14'
SDR 26	12"	20'	14'
SDR 26	15"	20'	14'
SDR 26	18"	20'	14'
DR 35	21"	18'	N/A
DR 35	24"	18'	N/A
DR 35	27"	18'	N/A

B. Prestressed Concrete Cylinder Pipe: (PCCP) Prestressed concrete cylinder pipe for the different diameters, installed in the various trench depths, shall meet or exceed the requirements of AWWA-C301 for lined cylinder pipe. Joints shall be sealed with a continuous solid-ring rubber gasket conforming to requirements of AWWA C301 and to all applicable ASTM standards referenced therein and shall be the sole element depended upon to make the joint watertight. Rubber gaskets shall be installed in accordance with manufacturer's recommendations.
Pipe shall be lined inside in accordance with requirements of Technical Specification Section 02561.

Prestress Concrete Cylinder Pipe shall be designed in accordance with AWWA C301 and C304, latest edition as applicable. Trench widths and depths shall not exceed the design parameters. Earth loads for all pipe sizes are based on earth cover plus H-20 truck loads; a unit weight of the backfill soil of one hundred twenty (120) pounds per cubic foot; and Class "C" trench bedding/backfill condition, as detailed on the Contract Plans. Where "DIP" is called for on the Proposal Form or on the Plans, PCCP may be substituted at the Contractor's option.

C. Ductile Iron Pipe: (DIP) Ductile iron pipe shall be water pipe with push on rubber gasket joints manufactured in accordance with AWWA C-151. Ductile iron pipe and fittings shall be coated outside with a standard bituminous coating. **Pipe shall be lined inside in accordance with requirements of Technical Specification Section 02561**. Rubber gasket joints for slip joint ductile iron pipe shall conform to the requirements of AWWA C-111. Fittings shall conform to AWWA C-110. Jointing shall be completed in accordance with the manufacturer's specifications.

Ductile iron pipe installed pursuant to these specifications shall be encased with a minimum 8 mil thick loose polyethylene encasement, in accordance with the latest edition of ANSI/AWWA C-105.

The AWWA Class Designation of ductile iron pipe installed by the open-cut method of construction shall conform with the following table for the various diameters at the maximum trench depths encountered:

MAXIMUM TRENCH DEPTHS FOR DUCTILE IRON PIPE

DIAMETER OF PIPE	MAXIMUM TRENCH DEPTH (AT PIPE INVERT) AWWA SPECIAL THICKNESS CLASS DESIGNATION				
	52	53	54	55	56
8"	20'	28'	---	---	---
10"	16'	24'	---	---	---
12"	16'	20'	28'	---	---
16"	31'	37'	42'	48'	56'
18"	28'	32'	37'	42'	48'
20"	25'	28'	32'	37'	41'
24"	23'	26'	29'	32'	36'
30"	21'	23'	26'	29'	33'
36"	22'	24'	28'	31'	34'
42"	22'	25'	28'	31'	34'
48"	22'	25'	28'	32'	35'
54"	22'	25'	29'	32'	36'

DIAMETER OF PIPE	MAXIMUM TRENCH DEPTH (AT PIPE INVERT) AWWA PRESSURE CLASS DESIGNATION				
	150	200	250	300	350
8"	---	---	---	---	25'
10"	---	---	---	---	19'
12"	---	---	---	---	20'
14"	---	---	16'	18'	20'
16"	---	---	16'	18'	21'
18"	---	---	15'	18'	20'
20"	---	---	15'	18'	20'
24"	---	14'	17'	19'	21'
30"	11'	14'	17'	18'	21'
36"	12'	15'	17'	20'	22'
42"	12'	15'	17'	20'	22'
48"	13'	16'	18'	21'	23'
54"	13'	16'	18'	21'	23'

The pipe shall be based on the design conditions that: (1) earth loads for all pipe sizes are based on the prism load condition H-20, truck loads shall be included for all depths of cover; (2) the unit weight of the soil shall be one hundred twenty (120) pounds per cubic foot; and (3) the pipe shall be installed using Type 3 or Class "C" Bedding.

Where Contract Plans and Bid Form call for 15", 21", or 27" sanitary sewer pipe, Contractor may use 14", 20" or 30" ductile iron pipe, respectively.

2-04 MARKING SEWER PIPE: Each pipe or fitting shall have plainly and permanently marked thereon: (1) pipe class; (2) date of manufacture; and (3) manufacturer's name or trademark. Marking shall be neatly stamped in the pipe or painted thereon with waterproof paint.

2-05 LINING FOR PIPE AND MANHOLES

A. General: Interior and joint surfaces of each precast concrete manhole section and ductile iron and concrete pipe sections, fittings and specials shall be lined inside in accordance with requirements of Technical Specification Section 02561. Before lining/coating work is commenced, the Contractor shall submit to the Engineer the proposed lining/coating supplier's complete materials data sheets and application specifications prepared for the particular application.

B. Surface preparation, materials used, application of materials, curing and all other procedures shall be in full compliance with the lining/coating suppliers' specifications and Section 02561. The Contractor shall furnish an affidavit from the lining/coating supplier that each pipe length, fitting or special has been lined/coated in accordance with Specification Section 02561 prior to installation.

2-06 CONTRACTOR'S RESPONSIBILITY

A. The Contractor shall be responsible for the condition of excavations made by him. Slides and cave ins shall be removed without extra compensation, at whatever time and under whatever circumstances that may occur. **The Contractor is solely responsible for maintaining safe working conditions.**

B. Installation of sheeting, shoring and bracing shall be the responsibility of the Contractor. Shoring left in place shall not entitle the Contractor to claims for extra compensation unless so indicated on the Bid Form as a separate pay item.

2-07 INCIDENTAL MATERIALS

A. Masonry brick: Shall conform to the standard specifications for sewer brick, made from clay or shale, ASTM C-32, Grade MS.

B. Mortar: Portland Cement Mortar shall consist of one (1) part Portland Cement complying with ASTM C-150, Type 1, and three (3) parts mortar sand and sufficient water to mix mortar to proper consistency.

C. Gray Iron Castings: Shall conform to the standard specifications for gray iron castings ASTM A-48, Class 25.

D. Manhole Steps: Steps for manholes shall be cast aluminum alloy meeting (Alloy AA-514) and Federal Specification G4A, or corrosion resistant plastic encased steel.

E. Foundations: Shall be either precast units or poured in place reinforced concrete as detailed, set on undisturbed earth or select bedding, where required by the Engineer or detailed on the Drawings. Concrete shall be Class "B" 3,000 PSI as specified in Section 03300 "Concrete".

F. Precast Manhole Sections: Manholes constructed with precast units shall comply with ASTM C-478 and joints shall be preformed plastic joints. Preformed plastic joint compound shall be "Butyl-Tite" as manufactured by Blue Ridge Rubber Company, Fletcher, North Carolina; "Kent-Seal" as manufactured by Hamilton Kent Manufacturing Company of Kent, Ohio; or equal. Preformed plastic joint compound shall meet Federal Specification SS-S-00219.

G. Bituminous Waterproofing: Shall be applied to the exterior of all pipe and to concrete structures up to the ground line.

H. Marking Tape: Shall be detectable underground marker tape, 2" wide, with "CAUTION SEWER" printed continuously along its length. Shall be green with silver-colored trim and lettering, or other color combination acceptable to the Owner.

I. Sealed Manhole Lids: Shall be watertight manhole frames with bolted lids, round neoprene gaskets.

J. Manhole Connections: Manhole connections shall be made using a neoprene boot meeting ASTM Specification C-443. Internal and external band shall be stainless steel meeting ASTM Specification A-167. Boots shall be KOR-N-SEAL or equal.

2-08 MATERIALS FOR SUPPLEMENTARY WORK: Materials for supplementary work consisting of repairs and replacement of street paving, sidewalks, driveways, parking areas, clay gravel areas, curbs, lawns, grass plots and other related items shall conform to the respective Sections of these Specifications, or as specified on the Drawings.

2-09 BEDDING AND BACKFILL

A. The pipe shall be installed in accordance with the requirements specified in Part 3, hereafter. Native material excavated from the trench may be used for backfill, where allowed by the Engineer from one foot above the top of pipe to the top of the trench. Such native material shall be non-organic, debris-free soil. Material required for select bedding and backfill is specified in paragraphs B and C hereafter.

B. Select Bedding and Backfill: Select bedding and backfill material shall be considered as material hauled in from off site. Material used in meeting this specification shall not be measured or paid for separately but shall be considered an absorbed cost item relative to the cost of pipe installation. Testing costs incurred for tests required to verify that material meets this Specification shall be borne by the Contractor.

1. Select Bedding: Select granular material for bedding all pipe shall be a mixture of coarse concrete aggregate and coarse river-run sand. The mixture shall consist of two (2) parts coarse concrete aggregate conforming with ASTM Standard Specification C-33 to one (1) part coarse sand. The bedding material shall be thoroughly blended by the Contractor to produce a well-graded uniform mixture prior to placement in the trench. Prior to blending, the coarse concrete

aggregate shall conform with the gradation sizing Number 467 specified in Table 2 of ASTM Standard Specification C-33 as follows:

GRADING REQUIREMENTS FOR COARSE AGGREGATE
(ASTM C-33. TABLE 2, SIZE 467)

SIEVE SIZE	PERCENT PASSING BY WEIGHT
2 Inch	- - 100
1-1/2 Inch	95/100
3/4 Inch	35/70
3/8 Inch	10/30
Number 4	0/5

The grading limits for fine aggregate shall be as follows:

SIEVE SIZE	PERCENT PASSING BY WEIGHT
3/8 Inch	- - 100
Number 4	95/100
Number 8	80/100
Number 16	50/90
Number 30	30/70
Number 50	3/30
Number 100	0/5

2. Select Backfill: Select material for backfilling pipe trenches shall be select sand-clay material meeting the following gradation limits.

SIEVE SIZE	PERCENTAGE (BY WEIGHT) PASSING SQUARE MESH SIEVES
No. 10	30/100

The material passing the No. 10 sieve shall meet the following:

No. 10	100
No. 40	20/85
No. 60	15/70
No. 200	8/40

The material passing the No. 40 sieve shall meet the following:

Liquid Limit	25 Max.
Plasticity Index (P.I.)	NP to 6 Max.

PART 3 - EXECUTION

3-01 SITE PREPARATION

A. The Contractor shall prepare, on a timely basis, rights-of-way, easements and sites indicated on the Drawings for construction of the wastewater improvements. The work shall include clearing and grubbing, removal of structures and obstructions, and the removal of permanent surfaces and landscaping items designated to be restored upon completion of the installation.

B. Clearing and grubbing shall conform to the requirements specified elsewhere herein and shall include the removal of trees, roots, vegetation, structures and obstructions unless separate pay items are specifically provided for on the Bid Form. The completion of clearing and grubbing shall leave the site clear and free from undesirable obstructions, ready for trench excavation.

C. The removal of permanent surfaces and the subsequent restoration of the surfaces shall be as set forth below and in other sections herein where applicable.

3-02 REMOVAL OF PAVEMENT, SIDEWALKS, DRIVEWAYS AND CURBS

A. Whenever the wastewater improvements are to be located along or across an improved surface, the width of the trench shall be held as nearly as possible to the maximum width specified below. Where brick or concrete pavement, sidewalk, driveway or curbing is cut, the width of the cut shall exceed the actual width of the top of the trench by twelve inches (12") on each side or a total of two feet (2'). Exposed surfaces of Portland cement or asphaltic concrete shall be cut with a pavement saw before breaking. Care shall be taken in cutting to insure that a straight joint is sawed.

NOMINAL SEWER PIPE DIAMETER (INCHES)	MAXIMUM TRENCH WIDTH (FEET)	MAXIMUM WIDTH OF PREMANENT SURFACE AND CURB & GUTTER REMOVAL (FEET)
12 or less	5.00	7.00
15	5.00	7.00
18	5.00	7.00
21	6.00	8.00
24	6.00	8.00
27	7.00	9.00
30	7.00	9.00
36	7.50	9.50

3-03 REMOVAL OF LANDSCAPE VEGETATION: Developed areas, yards, lawns, shrubbery and other decorative plantings that must be removed shall be stored and growth maintained by watering and fertilizing. The work shall be accomplished in accordance with prevailing local nursery practices with consideration given to seasonal limitations.

3-04 SELECTED STRIPPING: In landscaped, agricultural or cultivatable areas, the top twelve inches (12") of the ground shall be stripped and stockpiled for subsequent replacement after backfilling the pipe trench. The Contractor shall strip an area that will include the open limits of the trench plus the area that will be used to stockpile all suitable backfill material from the

trench excavation. The stripped material shall be stockpiled in an area that will not hinder or endanger the construction process. The location and manner of stockpiling shall be reviewed by the Engineer.

3-05 EXCAVATION AND TRENCHING

A. Excavation of every description and of whatever substances encountered shall be performed to the depths indicated on the Drawings or as otherwise specified. Excavation shall be done by open cut from the surface except when tunneling or boring is specified or directed in writing by the Engineer. Trench width shall be kept as narrow as practical to provide a safe working area and to minimize excavation and shall be maintained in strict compliance with OSHA regulations.

B. During excavation, material suitable for backfilling shall be piled in an orderly manner a sufficient distance from the banks of the trench to avoid overloading and to prevent slides or cave ins. Excavated materials not required or not suitable for backfill shall be removed and wasted as directed by the Engineer. Grading shall be done, as necessary, to prevent surface water from flowing into trenches or other excavations. Water accumulating therein shall be removed by pumping or by other approved methods. Temporary sheeting and shoring shall be used where necessary for the protection of the work and for the **safety of the personnel.**

C. During excavation, materials meeting select bedding and/or backfill requirements shall be either separately or selectively stockpiled for use as pipe bedding and pipe backfill material. Sand material shall be handled and stockpiled in such a matter to prevent mixing with clay material when rehandled for backfilling.

D. Excavation for manholes shall be sufficient to permit the carrying out of the construction as required.

E. Trenches for sewer pipe and other appurtenances shall be of only such width as necessary for proper laying of the pipe. The net width of the trench at and below the top of the pipe shall be at least the pipe O.D. plus twelve inches but not more than the pipe O.D. plus twenty four inches. The width of the trench above this level may be as wide as necessary for sheeting, bracing, shoring or **for proper safe performance of the work.**

F. The sides of the trench shall be maintained in strict compliance with OSHA regulations.

G. The bottom of the trench shall be carefully graded, formed and aligned according to these Specifications and reviewed by the Engineer's observer before sewers are laid thereon. The bottom of the trench shall be hollowed under each pipe joint to conform to the shape of the pipe, and holes shall be cut for the bells, allowing the body of the pipe a uniform contact and support throughout its entire length.

H. The Contractor shall leave a minimum 2 foot berm width on each side of the trench between the trench and the excavated earth, to allow the free passage of workmen, the Engineer's representative and to permit work in a safe, expeditious and satisfactory manner.

I. No more than three hundred (300) feet of trench shall be opened in advance of the completed sewer, nor shall more than one hundred (100) feet be left unfilled except by permission from the Engineer. In special cases, the Engineer, when so requested by the Contractor, may waive the distance restriction to which the trench may be opened by notifying the Contractor in writing.

3-06 TUNNELING OR BORING: Tunneling will be permitted only where indicated on the Drawings or by special permission of the Engineer.

3-07 SHEETING, SHORING AND BRACING

A. Sheeting, shoring, and bracing shall be furnished, placed and maintained by the Contractor as may be required to support the sides of the excavation. The Contractor shall be fully responsible for the sufficiency of such supports to prevent movement which can injure or delay the work or endanger or cause damage to adjacent pavements, buildings or other structures, channels and drainage structures, **or create undue hazards to workmen.** Where in the opinion of the Engineer, damage is likely to result from withdrawing sheeting, the sheeting shall be left in place. **The material and installation requirements for sheeting, shoring and bracing shall be in accordance with applicable sections of the Mississippi Standard Specifications for Road and Bridge Construction, 1990 Edition.**

B. Sheeting, shoring and bracing which are not ordered by the Engineer to be left in place shall be removed in such manner as not to endanger the constructed sewer or other structures, utilities or property. Voids left or caused by the withdrawal of sheeting shall be immediately refilled with sand by tamping with tools specifically adapted to the purpose, by watering, or otherwise as may be directed.

3-08 EXCAVATED MATERIAL

A. Excavated material from trench and structure excavation suitable for backfill shall be placed compactly on the sides of the excavation and kept up so as not to endanger the work and be of as little inconvenience as possible to the public travel and abutting property, and so that free access is maintained to fire hydrants and water valves in the vicinity of the work. Material encountered in the excavation which, in the opinion of the Engineer, is not suitable for use in the work, shall be removed and wasted as directed and shall not be stockpiled along the side of the excavation.

B. The disposal of surplus and unsuitable excavation shall be the responsibility of the Contractor at his own expense. Surplus and unsuitable material not to be used in the construction of the project shall not be left on the right-of-way or easement of the project, nor adjacent thereto, except by written permission of the affected property owner.

3-09 DEWATERING: The Contractor shall be solely responsible for implementation of adequate dewatering provisions, as described hereafter. A copy of the geotechnical investigation report associated with this project is included as the last section of these specifications.

A. The Contractor shall provide and maintain adequate dewatering equipment to remove and dispose of surface and ground water entering excavations, trenches or other parts of the work. Each excavation shall be kept dry during subgrade preparation and continually thereafter until the structure to be built or the pipe to be installed therein is complete to the extent that no damage from hydrostatic pressure, flotation or other cause will result. The normal water table shall be restored to its natural level in such a manner as not to disturb the pipe and its foundation.

B. Excavations for concrete structures or trenches which extend down to or below static ground water shall be dewatered by lowering and keeping the ground water level beneath such excavations eighteen inches (18") or more below the bottom of the excavation; except where the pipe is laid in an impervious strata, the lower trench section shall be maintained in a dry condition for bedding. The dewatering operation, however accomplished, shall be carried out so that it does not destroy or weaken the strength of the soil under or alongside the trench.

C. Surface water shall be diverted or otherwise prevented from entering excavated areas or trenches to the greatest extent practicable without causing damage to adjacent property.

D. The Contractor will be held responsible for the carrying capacity of pipe or conduit which he may use for drainage purposes. Pipes or conduits shall be kept clean and free of sediment or other restrictions.

E. **No separate payment will be made for this item.**

3-10 STEEL SHEET PILING

A. Unless required by the drawings, steel sheet piling shall be driven at locations to be determined by the Contractor as necessary for protection of buildings, structures, utilities, channels or to prevent hazards to workmen. Piling may be new or used and shall be in such condition that it can be interlocked and driven satisfactorily.

B. The Contractor shall be responsible for adequately bracing the units against lateral forces. Piling shall be driven before final adjacent excavations are made.

C. Pile driving equipment used shall be maintained in first class condition and shall operate efficiently in the space provided. Equipment shall be subject to the review of the Engineer.

D. **The material and installation requirements for sheet piling shall be in accordance with applicable sections of the Mississippi Standard Specifications for Road and Bridge Construction, 1990 Edition.**

E. **No separate payment will be made for this item unless so indicated on the Bid Form as a separate pay item.**

3-11 PIPE PLACEMENT

A. General: Unless otherwise noted on the Drawings or directed by the Engineer, the bed for the pipe shall be so shaped that at least the lower quarter of the pipe shall be in continuous contact with the bottom of the trench.

1. When bell and spigot pipes or pipe couplings are used, spaces shall be cut to accommodate the bells or couplings. These spaces shall be deep enough to ensure that the bells or couplings do not bear the load of the pipes. When the pipes are laid, the barrel of each section of pipe shall be in contact with the quadrant shaped bedding throughout its full length, exclusive of the bell or coupling, to support the entire load of the pipe. Adjustments to line and grade shall be made by scraping away or filling in and compacting the earth under the body of the pipe and not by wedging or blocking up the pipe. Pipe shall not be laid on frozen ground.

2. Before pipe is laid in the trench, the section in which pipe is to be placed must be dry and must be kept dry while joints are completed. Pipes, prior to being lowered into the trench, shall be thoroughly inspected by the Contractor's forces so that when jointed in the trench, there shall not be shoulders or unevenness along the lower half of the pipe. The faces of spigot ends and shoulders in the hubs or sockets shall be true. Abnormal enlargements on these faces shall be cut away before the pipe is lowered into the trench.

3. The pipe shall be laid upstream, without breaks and with the bell end upgrade. Whenever the work ceases for any reason, the unfinished end of the pipe line shall be securely closed with a tight-fitted plug or cover. Pipe shall be so placed and maintained, that at the time of final acceptance of the project, the completed lines will be true to the established alignment and flow line grades.

4. Construction shall begin at the lowest point, or elevation, and the pipe shall be laid continuously upstream without omitting sections or reaches.

B. The installation and joining of pipe shall be in strict accordance with the applicable ASTM or AWWA Standards and the pipe manufacturer's recommendations.

C. The trench subgrade shall consist of firm, stable, non-organic, debris-free soil. In locations where trench excavation exposes unsuitable material, as classified by these specifications, or in the judgement of the Engineer, the subgrade shall be undercut as directed by Engineer for the full design width of the trench and backfilled with select bedding material meeting the requirements of Part 2-09, herein, and installed in accordance with the requirements of Part 3-12 hereafter. Such undercutting and select bedding material will be compensated in accordance with the requirement of Part 4, hereafter. **Select bedding material in the pipe envelope will not be considered for payment.**

3-12 PIPE BEDDING: The pipe shall be placed on compacted select bedding material shaped and placed on the trench bottom. The bedding material shall meet the requirements of Part 2-09 herein. Bedding shall be applied in loose lifts and compacted to a minimum of 95% standard Proctor maximum dry density, in accordance with ASTM D 698, to the level indicated on the detail shown in the construction drawings.

3-13 JOINTING DISSIMILAR PIPES: Suitable water-tight adaptor couplings, acceptable to the Engineer, shall be used for connecting dissimilar pipes, and the completed jointing covered with a concrete encasement. Straps shall be stainless steel. No separate payment for adaptor couplings or concrete encasement will be made.

3-14 ALIGNMENT

A. The Contractor shall utilize a commercial grade laser beam specifically manufactured to aid in maintaining grade and alignment of pipelines during installation. The primary unit shall be mounted on a heavy duty base and firmly anchored in the downstream manhole of the reach under construction. The maximum distance shall not exceed four hundred feet (400') per set up unless otherwise approved by the Engineer.

B. Each joint of pipe will be installed using an approved target to align the pipe with the projected laser beam. The methods and procedures shall be in strict accord with the manufacturer's recommendations and instructions. Proper ventilation shall be maintained at all times. Care shall be exercised in order to prevent bumping or misalignment of the projected beam.

3-15 MANHOLE CONSTRUCTION

A. General: Manholes shall be constructed of precast concrete sections, unless otherwise specified.

B. The construction shall also include the necessary frames, covers, castings, fittings, steps, inverts, plugs and connections; installed or constructed in accordance with these Specifications and conforming to all requirements, details, lines, grades and dimensions shown on the Drawings or established by the Engineer.

C. Manholes and other structures shall receive two (2) coats bituminous water proofing on the exterior surface to the ground line, and interior lining in accordance with the requirements of Technical Specification Section 02561 contained elsewhere herein.

3-16 PIPE CONNECTIONS TO MANHOLES

A. General: When the Plans indicate connections to existing manholes, these connections shall be watertight and all work performed in an acceptable manner.

B. The size of the opening cut in the existing manhole wall shall be restricted to a nominal diameter sufficient only to insert the sewer pipe. **The pipe shall be inserted into the manhole with a sealed watertight flexible rubber-boot type of connection to prevent water or waste leakage.** Straps and connectors shall be stainless steel.

3-17 BACKFILLING: Backfill shall consist of the material placed as indicated on the detail shown in the construction drawings. As pipe is laid and suitably bedded in accordance with Part 3-12 herein, trenches and excavation shall be promptly backfilled to a level one-foot above the top of the pipe in relatively thin lifts with select backfill material defined in Part 2-09 and compacted to a minimum 90% standard Proctor maximum dry density (ASTM D 698). Backfill shall be placed and tamped equally and thoroughly along each side of the pipe in a manner to avoid displacement of or damage to the pipe.

A. Tamping: The backfill shall be placed in equal thickness lifts, each lift being thoroughly compacted to the density specified. Each lift of the backfill material shall have proper moisture content to permit compaction to this density.

1. In areas where street paving, sidewalks, driveways and other restoration work is required, the backfill above the one (1) foot cover level shall be compacted to the subgrade level or as directed and maintained to eliminate voids and future settlement. Special compaction procedures involving 95% density on 6" lifts are required at such locations and at other locations shown on the Drawings.

2. In open fields or undeveloped areas, the backfill above the one (1) foot cover level may be placed in twelve inch (12") layers and compacted to a density of not less than that of the surrounding earth. The top of the filled trench shall be mounded slightly above the natural ground to allow for settlement.

3. Landscape and cultivatable areas shall be restored by the replacement of the stockpiled topsoil stripping to a depth of at least twelve inches (12").

B. Jetting: This method of backfill shall not be used.

C. Marking: Marking tape shall be provided and installed above the sewer pipe within 12 to 18 inches from the final grade.

3-18 TEMPORARY SURFACES OVER TRENCHES

A. Whenever the wastewater improvements are constructed under traveled roadways, driveways, sidewalks or other traveled surfaces, a temporary surface shall be placed over the top of the trench as soon as possible after placement and compaction of the backfill has been satisfactorily completed. The temporary surface shall consist of a minimum of twelve inches (12") of clay gravel conforming to the requirements of Section 02602 "Clay Gravel Base Course".

B. The top of the temporary surface shall be smooth and meet the grade of the adjacent undisturbed surface. The temporary surface shall be maintained at the Contractor's expense until final restoration of the street surface is completed as specified. No permanent restoration of street surface shall be initiated until authorized by the Engineer. The temporary surfacing shall be required over the entire width of the trench. Any width in excess of the specified width shall not be used in computing payment quantities.

3-19 REPLACEMENT OF PERMANENT SURFACES, STRUCTURES AND PROPERTY

A. General: The Contractor shall restore all permanent type pavements, sidewalks, driveways, curbs, gutters, shrubbery, fences, poles and other property and surface structures removed or disturbed during or as a result of construction operations to a condition which is equal in appearance and quality to the condition that existed before the work began. The surface of improvements shall be constructed of the same material and match in appearance the surface of the improvement which was removed. Where select granular trench backfill is used, the restoration shall be made as soon as possible after compaction of the backfill has been completed.

B. Concrete Pavement Surface: Where the existing pavement surface is Portland Cement concrete, the pavement replacement shall consist of a minimum of six (6) inches of reinforced concrete placed over six (6) inches of compacted clay gravel or sub-base. Concrete shall conform to Section 03300 "Cast in Place Concrete". The concrete surface shall be finished equal to the existing finish (ie., trowel, broom, exposed aggregate, etc.). Pavement joints in the replacement surface shall conform to and match the joints in the adjacent pavement area.

C. Asphalt Pavement Surface: Where the existing pavement surface is bituminous concrete and 12" of clay gravel has been placed in the trench the, top 6" of gravel shall be removed and replaced with 4" of black base and 2" of surface course.

3-20 CONCRETE SIDEWALKS, DRIVEWAYS, CURB, CURB AND GUTTER

A. General: Where necessary to remove and replace concrete sidewalks, driveways, curbs and curb and gutters, replacements shall be made as follows:

B. Concrete sidewalks, driveways, curbs and curb and gutters shall be replaced with concrete meeting the applicable provisions of Section 03300 "Concrete" of these Specifications. Minimum thickness shall be four inches (4") for sidewalks and six inches (6") for driveways. Materials and construction requirements shall conform to the various Sections of these Specifications. Curb and gutter shall be formed as detailed on the Drawings or as directed by the Engineer. Sidewalks and driveways shall be finished to match existing adjacent surfaces, unless otherwise specified or directed by the Engineer.

3-21 RESTORATION OF LANDSCAPED AREAS

A. Sod, shrubbery, decorative planting and other landscape items shall be replanted, replaced or restored in the manner removed.

B. Should new construction be required to replace damaged or unsalvageable items, then the Contractor shall furnish all labor, materials, equipment, tools, and incidentals set forth in the applicable Sections of these Specifications.

3-22 MAINTENANCE OF SITE: The Contractor shall prevent, control and correct dust nuisance or muddy conditions developing on roadways as a result of his operation. No payment for maintenance of the site shall be made but shall be considered as a subsidiary obligation of the Contractor.

3-23 TESTS

A. General: Before any backfill is placed, the sewer line shall be checked by the Engineer for line, grade and workmanship. Before acceptance, each section of the line between manholes or such other length as determined by the Engineer to be suitable, shall be thoroughly inspected and any defects in workmanship identified shall be immediately corrected.

B. Deflection Tests: After installation, the entire length of PVC pipe shall be checked for deflection by use of a "go-no-go" mandrel.

The mandrel shall be constructed on one-half inch (1/2") thick angle iron or Number 4 steel bars (ASTM A-15) welded to steel pipe to measure a five percent (5%) deflection. The mandrel design must be approved by the Engineer.

The average inside diameter of the pipe shall be used in calculating the five percent (5%) deflection.

The line shall be flushed to clean any mud or debris which would hinder the mandrel passage.

The mandrel shall be pulled by hand through the pipe after backfill and trench settlement has occurred.

The system will be subject to a mandrel check at the eleven (11) month warranty inspection.

If any irregularities or obstructions are encountered, they shall be corrected by the Contractor at no expense to the Owner and the repaired section of the line again checked for excessive deflection.

C. Requirements: The Contractor shall conduct either an exfiltration or infiltration test of each reach of sewer between manholes. An infiltration test will be required where the crown of the entire reach of sewer being tested lies three feet (3') or more under the existing water table. An exfiltration test shall be required for other conditions.

D. Exfiltration:

1. Exfiltration tests will be required on sewer lines which are above the present ground water level in reaches selected by the Engineer. Exfiltration tests shall be conducted by blocking off manhole openings except those connecting with the reach being tested, filling the line and measuring the water required to maintain a constant level in the manholes.

2. During the exfiltration test, the average water depth above the pipe invert shall be ten feet (10'), unless manhole depths are such that this is not possible. The maximum depth at the lower end shall not exceed twenty-five feet (25'). The minimum depth at the upper end shall be at least five feet (5') above the crown of the pipe.

3. The total exfiltration shall not exceed fifty (50) gallons per inch of nominal diameter per mile of pipe per day for each reach tested. For purposes of determining maximum allowable leakage, exfiltration tests shall be maintained on each reach for at least two (2) hours and as much longer as necessary, in the opinion of the Engineer to locate all leaks.

4. The Contractor shall provide, at his own expense, necessary piping between the reach to be tested and the source of water supply together with equipment and materials required for the tests. The methods used and the time of conducting exfiltration tests shall be acceptable to the Engineer.

5. If the leakage in any reach exceeds that allowable maximum, the reach shall be retested after the leaks are repaired. All visible leaks shall be repaired.

E. Infiltration:

1. The allowable infiltration rate shall not exceed fifty (50) gallons per inch of nominal diameter per mile of sewer per day. For purposes of determining maximum allowable infiltration, manholes shall be considered sections of equivalent diameter pipe.

2. If the infiltration rate in any reach exceeds the allowable maximum, the reach shall be retested after the leaks are repaired. A reach is defined as the distance between two (2) manholes.

3. The Contractor shall be required to repair visible leaks although both the infiltration and exfiltration requirements are met.

4. The Contractor shall provide, at his own expense, necessary equipment, materials and personnel required for the tests. The methods used and the time of conducting infiltration tests shall be reviewed in advance by the Engineer.

F. AIR TESTING

1. In lieu of the exfiltration test specified above, the Contractor may at his option, complete an air test in accordance with the following specifications. The air test shall in no case replace the infiltration test where ground water is present.

2. Procedure: The sewer line to be tested shall be tested between manholes. The line shall be sealed at both ends. The seal at one end shall have an orifice through which to pass air into the pipe. An air supply shall be connected to the orifice at one end of the line. The air supply line will contain an on off gas valve and a pressure gauge having a range of 0 to 15 psi. The gauge shall have minimum divisions of .10 psi and shall have an accuracy of $\pm$.04 psi. Pressuring equipment should include a regulator or relief valve to avoid overpressuring and damaging an otherwise acceptable line.

3. The pipe line under test shall be pressurized to 4 PSIG. The line will be allowed to stabilize between 4 PSIG and 3.5 PSIG for a period of no less than 5 minutes. If necessary, air should be added to the line to maintain the pressure above 3.5 PSIG. After stabilization period, the gas valve shall be closed. When the line pressure drops to 3.5 PSIG, commence timing with a stop watch. The stop watch should be allowed to run until such time as line pressure drops to 2.5 PSIG. Then the watch should be stopped and time lapse compared with the allowable time lapse in **Table 1** at the end of this Section, and for pipe size and leakage allowance specified by the Engineer. If the time lapse is greater than

that specified, the section undergoing testing shall have passed, and the test may be discontinued at that time. If the time is less than that specified, the line has not passed the test and the Contractor will be required to find the leaks, repair them and retest until the section passes, at his own expense.

4. When air testing is used, manholes must be tested by exfiltration/infiltration.

3-24 FLUSHING

A. The completed gravity flow system shall be free of mud, siltation and other foreign matter deposited or collected during construction. Flushing shall commence at the upstream end of the completed system and continue downstream manhole to manhole. Only water from an approved source will be permitted.

B. Water used in flushing will not be permitted to enter into the existing system but shall be disposed of in a manner acceptable to the Engineer.

C. Flushing shall be accomplished prior to testing should the collected matter be sufficient in quantity to obstruct or affect the testing. Flushing will not be required in those sectors of the installed pipes and manholes where the exfiltration test has adequately cleaned the mains.

3-25 CLEAN-UP

A. After the backfill is completed, the Contractor shall dispose of surplus material, dirt and rubbish from the site. Surplus dirt shall be disposed of in Contractor furnished and approved disposal areas or in on site areas as directed by the Engineer.

B. After work is completed, the Contractor shall remove tools and other equipment used by him, leaving the entire site free, clear and in clean condition.

PART 4 - **COMPENSATION**

4-01 GENERAL: The compensation as herein provided shall constitute full payment for performance of the work. The compensation shall further constitute full payment for materials, labor, equipment, and incidental items of construction furnished by the Contractor. No measurement will be made of subsidiary items of work and accessories, excavation, trenching, bedding, backfill, dewatering and disposal of surplus excavation and other incidentals included in the related Pay Items or called for in the Contract.

4.02 MEASUREMENT AND PAYMENT

A. No separate measurement and payment will be made for this item. Compensation for this item will be included in the bid form item for which it is a part.

Table 1

TIME IN SECONDS REQUIRED FOR PRESSURE TO DROP TO 2.5 LAMENTS
(Based on 0.003 cfm per sq. ft. and 2.0 cfm)

Length of Test Sect. L in Ft.	Pipe Diameter D in Inches												
	4	6	8	10	12	15	18	21	24	27	30	33	36
25	4	16	22	28	93	62	89	121	158	200	248	299	356
50	10	33	43	55	158	124	178	243	317	401	495	599	713
75	19	49	66	83	240	186	267	364	475	601	743	898	1020
100	30	66	87	95	305	248	375	525	639	765	851	935	
125	41	82	109	110	349	372	510	650	680				
150	60	98	131	132	381	455	610						
175	79	115	153	154	413	575							
200	86	131	174	176	436								
225	95	147	196	294	459								
250	109	164	218	338									
275	113	189	240	382									
300	122	197	262										
350	131	213	306										
400	139	230	306										
450	147	246	306										
500	156	246	306										
550	165	246	306										
600	174	246	306										
650	183	246	306	382	459	575	610	650	680	765	851	935	1020

END OF SECTION

MODERNIZATION OF BRANDON LATRINES

MSARNG#28270302 | DD#2402
MISSISSIPPI ARMY NATIONAL GUARD
BRANDON, MS

100% CONSTRUCTION DOCUMENTS

OCTOBER 15, 2024

OCTOBER 15, 2024

OCTOBER 15, 2024

ARCHITECT

Duvall Decker Architects P.A.
Architecture . Planning . Interiors (design)

MECHANICAL, PLUMBING, FIRE PROTECTION

ENGINEERING RESOURCE GROUP, INC.

ELECTRICAL ENGINEER

JON D. RICE & ASSOCIATES, LLC

INDEX TO DRAWINGS

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DUVALL DECKER (an expanded practice)

PROJECT: 2402

COVER
0

OCTOBER 15, 2024

FINISH SCHEDULE

2402

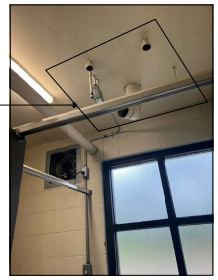
ROOM		FLOOR		WALLS		CEILING			REMARKS
NO.	NAME	MAT'L	FINISH	MAT'L	FINISH	MAT'L	FINISH	DROPPED HGTS.	
113	WOMEN'S LATRINE	TILE 2		TILE 1		GYP BD	PTD	-	
114	MEN'S LATRINE	TILE 2		TILE 1		GYP BD	PTD	-	
NO.	NAME	MAT'L	FINISH	MAT'L	FINISH	MAT'L	FINISH	DROPPED HGTS.	REMARKS
ROOM		FLOOR		WALLS		CEILING			

NOTES:

GENERAL FINISH NOTES

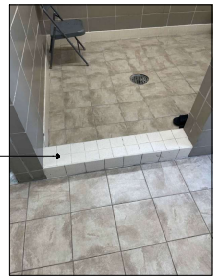
NO.	NOTE
1	INST ALL SOUND BATT INSULATION ABOVE ALL PUBLIC RES'ROOM CEILINGS.

AREA OF CONDUIT REMOVAL. SEE DEMO PLAN AND SPEC.



1 PHOTO @ WOMEN'S LATRINE
NTS

EXISTING CURB TO BE REMOVED. SEE DEMO PLAN.



2 PHOTO @ MEN'S LATRINE
NTS

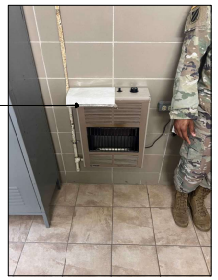
TYP FLOOR CONDITION. REMOVE BOTH LAYERS OF FLOORING MATERIAL. SEE DEMO PLAN.

3 PHOTO @ MEN'S LATRINE TYP.
NTS

REPAIR CMU AS REQUIRED TO PREP FOR FINISH SURFACE.

4 PHOTO @ MEN'S LATRINE TYP.
NTS

REMOVE EQUIPMENT FROM WORK AREA. VERIFY WITH OWNER PRIOR TO DISPOSAL.



5 PHOTO @ WOMEN'S LATRINE
NTS

STONE CURB @ ENTRANCE. DEMO TRANSITION AND GRIND SUB SURFACE FLUSH WITH DRILL HALL FLOOR. SEE PLAN AND SPEC.

6 PHOTO @ WOMEN'S LATRINE TYP.
NTS

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MISSISSIPPI
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ANNE MARIE DECKER
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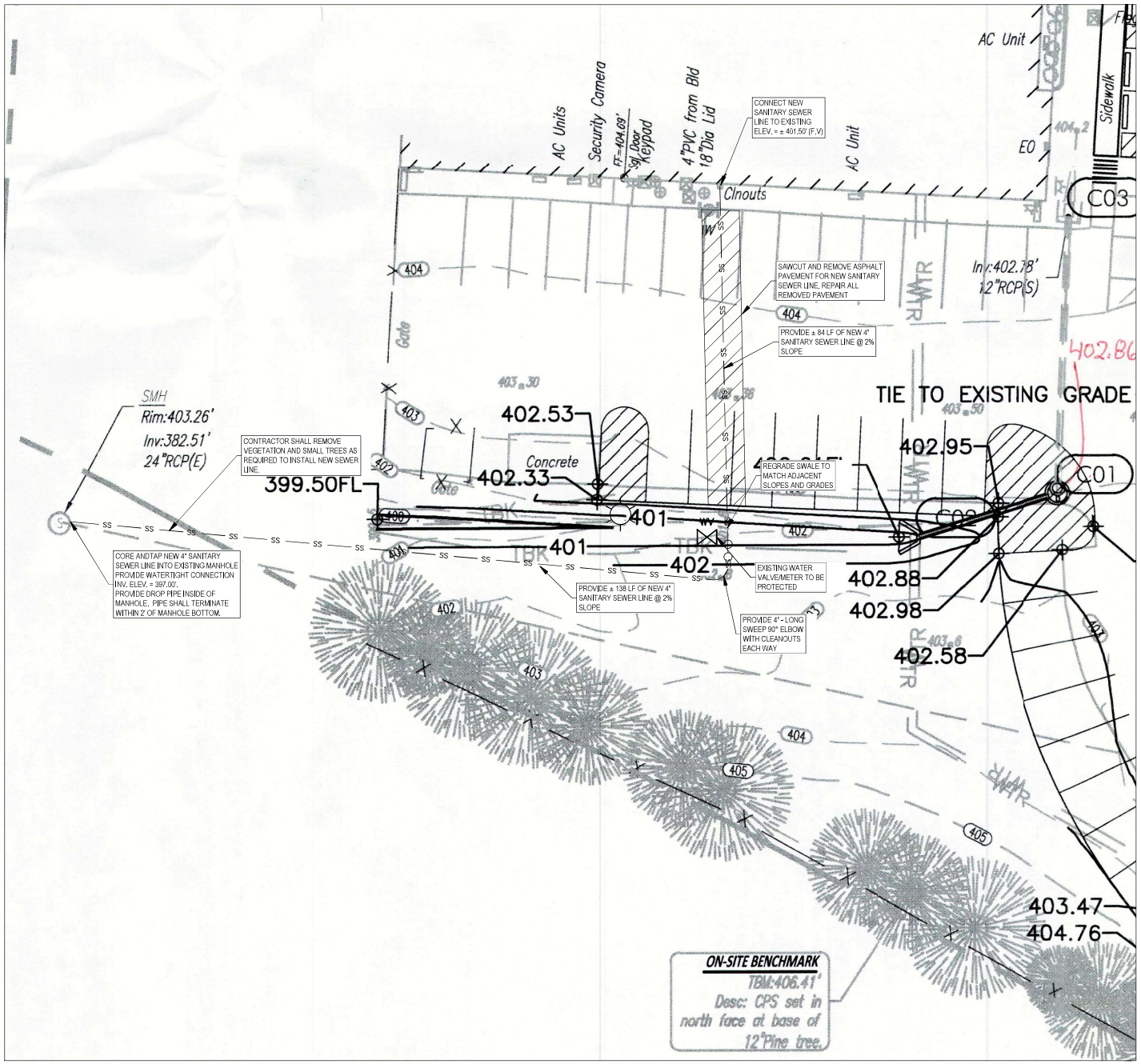
2044
JACKSON, MS
STATE OF MISSISSIPPI
OCT 15, 2024

DUVALL DECKER ARCHITECTS, P.A.

PROJECT: 2402
DRAWN: CO
SCALE: AS INDICATED

FINISH SCHED + DETAILS
A2.0

OCTOBER 15, 2024



GENERAL NOTES:

1. LOCATIONS OF EXISTING UNDERGROUND UTILITIES AND STRUCTURES INDICATED ARE APPROXIMATE ONLY, AND THOSE INDICATED ARE NOT NECESSARILY ALL OF THE EXISTING UNDERGROUND UTILITIES AND STRUCTURES ON THE PROJECT SITE. THE CONTRACTOR SHALL COORDINATE WITH THE APPROPRIATE UTILITY COMPANY AND WITH THE OWNER PRIOR TO COMMENCING WORK.
2. UTILITY LINES OR SERVICE LINES ENCOUNTERED DURING CONSTRUCTION, AND NOT NOTED FOR DEMOLITION, WHETHER SHOWN ON THE DRAWINGS OR NOT, SHALL BE PROTECTED BY THE CONTRACTOR AND REPAIRS NECESSARY DUE TO DAMAGE TO SAME BY THE CONTRACTOR SHALL BE AT NO ADDITIONAL COST TO OWNER. ANY UTILITY OR SERVICE LINES NOT SHOWN ON THE DRAWINGS SHALL BE REPORTED TO THE ENGINEER BEFORE CONTINUING WITH WORK AND SHALL BE INDICATED ON THE AS – BUILT DRAWINGS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING HORIZONTAL AND VERTICAL CLEARANCES ON ANY UTILITY SERVICE CROSSINGS REQUIRED BEFORE INSTALLATION.
4. THE CONTRACTOR SHALL MAINTAIN AS – BUILT DRAWINGS AND PROVIDE SUCH DRAWINGS TO THE ENGINEER WITHIN THREE (3) WEEKS AFTER COMPLETION OF THE PROJECT.
5. CONSTRUCTION STAKING WILL BE BY THE CONTRACTOR AND SHALL BE AN ABSORBED COST ITEM.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETING ALL SAMPLING AND TESTING OF MATERIALS INCORPORATED INTO THE PROJECT AND FOR SUBMISSION OF SAME TO THE ENGINEER FOR REVIEW. ALL TESTING SHALL BE AN ABSORBED COST ITEM. PRIOR–USE TEST RESULTS, MANUFACTURER'S CERTIFICATES OR DATA SHEETS, AND PROPOSED MIX DESIGNS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL BEFORE INCORPORATION INTO THE PROJECT. THIS SHALL INCLUDE FILL, ASPHALT, CONCRETE, FENCING, AGGREGATES, PAINT, SEALANTS, SEED, PIPE, GRATES, COVERS AND OTHER ITEMS AS SPECIFIED BY THE ENGINEER.
7. TESTING CERTIFICATIONS SHALL STATE THAT THE SUBJECT MATERIAL MEETS THE SPECIFIED QUALITY, GRADE, PURITY, CLASS OR WEIGHT OF THE APPLICABLE ASTM, AASHTO, MDOT OR OTHER SPECIFIED STANDARDS. CERTIFICATIONS SHALL BE SUBMITTED TO THE ENGINEER PRIOR TO INCORPORATION OF THE SUBJECT MATERIAL INTO THE PROJECT.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL STATE AND LOCAL PERMITS RELATED TO THIS PROJECT AT NO ADDITIONAL COST TO THE OWNER, INCLUDING MDEQ SMALL CONSTRUCTION NOTICE OF INTENT. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETING ALL DOCUMENTS AND APPLICATIONS REQUIRED TO OBTAIN PERMIT.
9. ALL DEMOLISHED AND/OR REMOVED ITEMS, AND EXCESS AND/OR UNSUITABLE EXCAVATION SHALL BE DISPOSED OF AT A CONTRACTOR– PROVIDED OFFSITE LOCATION ON A DAILY BASIS. OFFSITE DISPOSAL SHALL BE AN ABSORBED COST ITEM.
10. THE CONTRACTOR SHALL ENSURE THAT ALL–NATURAL DRAINAGE COURSES ARE MAINTAINED THROUGHOUT THE PROJECT UNLESS SPECIFIED OTHERWISE.
11. THE CONTRACTOR SHALL USE ONLY THAT AREA SPECIFICALLY APPROVED BY THE OWNER FOR SITE ACCESS OR STAGING.
12. THE CONTRACTOR SHALL MAINTAIN ALL ASPECTS OF THE PROJECT, INCLUDING PAVING, IN A GOOD AND CLEAN CONDITION, ACCEPTABLE TO THE OWNER AND IN ACCORDANCE WITH THE GENERAL PROVISIONS, UNTIL FINAL ACCEPTANCE OF THE PROJECT. DUST CONTROL SHALL BE PERFORMED BY THE CONTRACTOR AS REQUIRED TO NOT IMPACT OWNER OPERATIONS. ANY DAMAGES TO THE EXISTING ROADS, STRUCTURES OR LANDSCAPING AS A RESULT OF CONSTRUCTION ACTIVITIES SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE OWNER.
13. THE CONTRACTOR SHALL ESTABLISH APPROPRIATE VEGETATIVE COVER ON ALL DISTURBED AREAS NOT RECEIVING A PAVED OR GRAVEL SURFACE OR OTHERWISE SPECIFIED, IN ADDITION, THE CONTRACTOR MUST COMPLY WITH ALL TEMPORARY EROSION CONTROL MEASURES, WHICH MAY REQUIRE TEMPORARY VEGETATIVE COVER.
14. UNSUITABLE BEDDING BACKFILL OR SITE SUBGRADE MATERIAL THAT MAY BE ENCOUNTERED SHALL BE UNDERCUT AND BACKFILLED WITH ACCEPTABLE MATERIAL TO THE LIMITS AND GRADES SHOWN ON THE DRAWINGS.
15. EXISTING MANHOLE TOPS, STORM SEWER TOPS, WATER VALVES, VALVE BOXES, METERS, AND OTHER SIMILAR APPURTENANCES SHALL BE ADJUSTED TO FINISH GRADE, UNLESS OTHERWISE NOTED. ALL SUCH ADJUSTMENTS SHALL BE AN ABSORBED COST ITEM.
16. THE CONTRACTOR SHOULD CAREFULLY PRESERVE EXISTING TREES NOT INDICATED FOR REMOVAL AS MUCH AS POSSIBLE. THIS SHALL INCLUDE THE PLACEMENT OF TEMPORARY STAKING AND FLAGGING AROUND THE DRIP LINE OF EACH TREE TO BE PROTECTED.
17. AT THE CLOSE OF EACH WORK DAY THE CONTRACTOR SHALL REMOVE ALL DEBRIS, LOOSE MATERIALS, OR OTHER WASTE FROM THE WORK SITE, AND LEAVE THE WORK SITE IN A CLEAN AND SAFE CONDITION.
18. ALL QUANTITIES SHOWN ON THE CIVIL PLANS ARE APPROXIMATE AND FOR ESTIMATING PURPOSES ONLY.
19. CONTRACTOR MAY PROCESS AND UTILIZE ON–SITE FILL MATERIAL THAT MEETS THE SPECIFICATION FOR BORROW MATERIAL.
20. ALL EXCAVATION SHALL BE PERFORMED ACCORDING TO OSHA 29 CFR 1926.650, 29 CFR 1926.651, AND 29 CFR 1926.652 AND ANY OTHER APPLICABLE REGULATORY REQUIREMENT.
21. IT IS THE CONTRACTOR'S RESPONSIBILITY TO BECOME FAMILIAR WITH THE PERMIT AND INSPECTION REQUIREMENTS OF THE VARIOUS GOVERNMENTAL AGENCIES. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS PRIOR TO CONSTRUCTION, AND SCHEDULE INSPECTION ACCORDING TO AGENCY INSTRUCTION.
22. ALL WORK PERFORMED SHALL COMPLY WITH THE REGULATIONS AND ORDINANCES OF THE VARIOUS GOVERNMENTAL AGENCIES HAVING JURISDICTION OVER THE WORK, INCLUDING LANDSCAPING.
23. WORK PERFORMED UNDER THIS CONTRACT SHALL INTERFACE SMOOTHLY WITH OTHER WORK BEING PERFORMED ON SITE BY OTHER CONTRACTORS AND UTILITY COMPANIES. IT IS NECESSARY FOR THE CONTRACTOR TO COORDINATE AND SCHEDULE HIS ACTIVITIES, WHERE NECESSARY, WITH OTHER CONTRACTOR'S AND UTILITY COMPANIES.
24. REFER TO ARCHITECTURAL DRAWINGS FOR BUILDING MODIFICATIONS.

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DUVALL DECKER
(An Associated Practice)

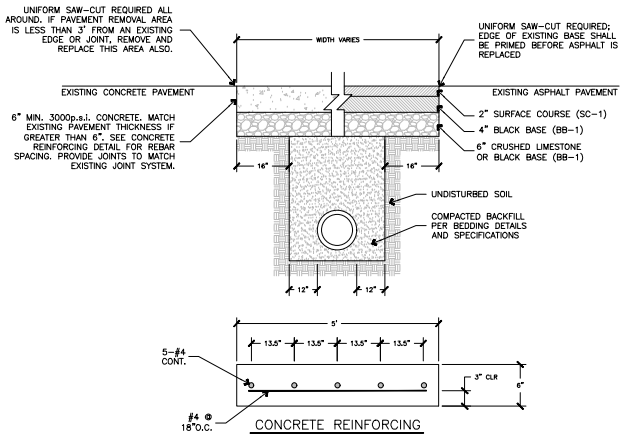
PROJECT: 2402
DRAWN: NF
SCALE: VARIES

SITE PLAN
C1.0

OCTOBER 15, 2024

Tree North
Plan North

0 15' 10' 20' 30' 40'



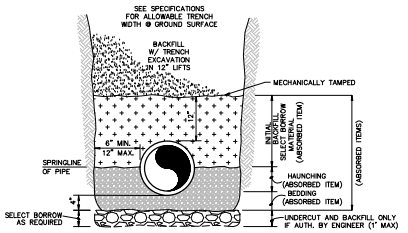
STREET REPAIR OF OPEN CUT

SCALE: N.T.S.

1 TYPICAL STREET REPAIR DETAIL

N.T.S.

NOTE: STREET REPAIR DETAIL SHALL BE UTILIZED IN AREAS WHERE EXISTING PAVEMENTS ARE REMOVED FOR UNDERGROUND UTILITY INSTALLATION OR IN AREAS WHERE EXISTING PAVEMENTS ARE CALLED TO BE DEMOLISHED.



FOR WATER MAINS, FORCE MAINS, GRAVITY SEWERS & STORM DRAIN PIPE

PIPE EMBEDMENT AND BACKFILL

SHOULD ENGINEER DETERMINE THAT THE NATIVE MATERIAL AT THE BOTTOM OF THE TRENCH IS NOT A SUITABLE FOUNDATION FOR THE PIPE, HE MAY AUTHORIZE OVERDIGGING THE TRENCH AND REPLACE WITH SELECT BORROW MATERIAL FOR BACKFILL.

SELECT BACKFILL BORROW MATERIAL SHALL BE PLACED TO A COMPACTED DEPTH OF FOUR INCHES FOR BEDDING THE PIPE SO THAT IT IS FULLY SUPPORTED (COST ABSORBED ITEM).

THE HAUNCHING MATERIAL SHALL BE SELECT BORROW MATERIAL THOROUGHLY COMPACTED TO THE SPRING LINE OF THE PIPE AND EXTENDING TO THE SIDE WALLS OF THE TRENCH (COST ABSORBED ITEM).

THE INITIAL BACKFILL (SELECT BORROW MATERIAL) MAY THEN PROCEED TO A HEIGHT OF 12 INCHES ABOVE THE TOP OF THE PIPE AND MECHANICALLY TAMPED. FURTHER BACKFILL SHALL NOT PROCEED UNTIL INITIAL BACKFILL HAS BEEN OBSERVED BY ENGINEER (COST ABSORBED ITEM).

FURTHER BACKFILL MAY THEN PROCEED TO THE ORIGINAL GROUND SURFACE IN COMPACTED 12 INCH LIFTS.

IN THE EVENT THAT SUFFICIENT MATERIAL IS NOT AVAILABLE FROM THE TRENCH EXCAVATION, ADDITIONAL MATERIAL WILL BE IMPORTED TO BRING THE TRENCH TO PLAN GRADE.

SHOULD ENGINEER DETERMINE THAT THE SELECT MATERIAL SECURED FROM THE TRENCH EXCAVATION IS NOT SUITABLE FOR BACKFILL, HE MAY AUTHORIZE THE USE OF A SUITABLE BACKFILL MATERIAL.

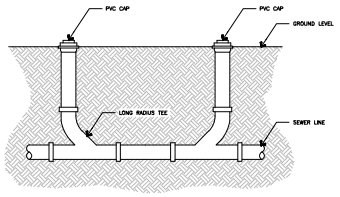
CONTRACTOR SHALL MAINTAIN TRENCH BACKFILL AT ORIGINAL GROUND SURFACE UNTIL FINAL ACCEPTANCE OF THE WORK.

ALL SURPLUS MATERIALS NOT USED IN BACKFILLING SHALL BE REMOVED AND DISPOSED OF BY CONTRACTOR AT HIS OWN EXPENSE.

BEDDING MATERIAL SHALL BE IMPORTED SELECT BEDDING, SPECIFIED AS "BORROW EXCAVATION" MATERIAL.

2 STANDARD PIPE EMEDMENT & BACKFILL DETAIL

N.T.S.



3 TWO-WAY SEWER LINE CLEANOUT

N.T.S.

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DUVALL DECKER
(an Associated Practice)

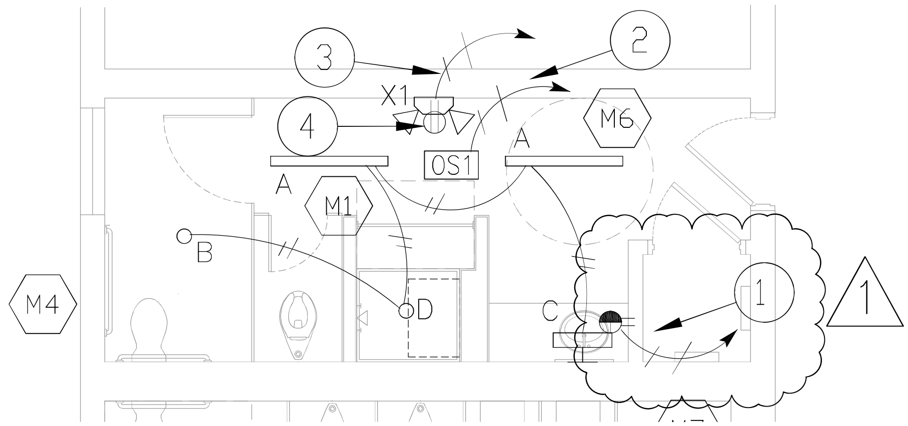
True North
Plan North

0 5' 10' 20' 30' 40'

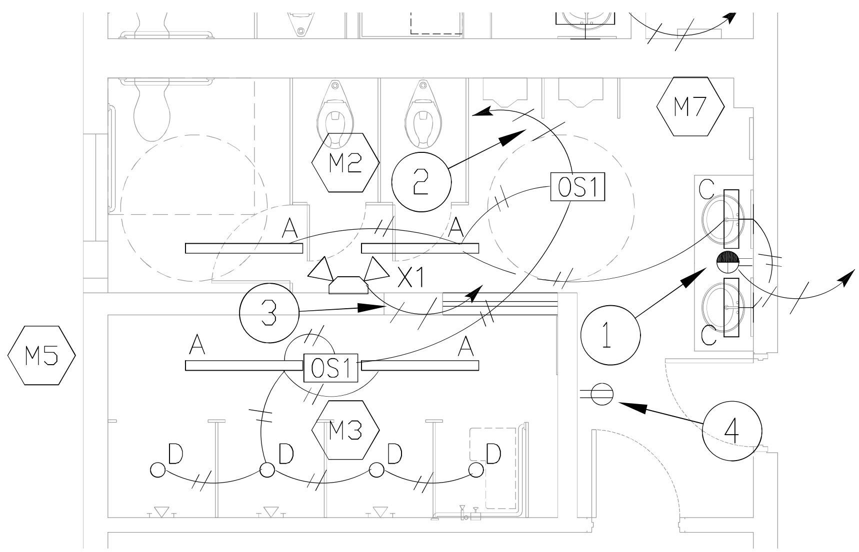
PROJECT: 2402
DRAWN: NF
SCALE: VARIES

TYPICAL DETAILS
C2.0

OCTOBER 15, 2024



1 ENLARGED ELECTRICAL PLAN - WOMEN'S LATRINE
1/2" = 1'



2 ENLARGED ELECTRICAL PLAN - MEN'S LATRINE
1/2" = 1'

ELECTRICAL PLAN KEYNOTES

1. CONNECT NEW RECEPTACLE TO EXISTING UNSWITCHED RECEPTACLE CIRCUIT SERVING AREA.
2. CONNECT TO EXISTING LIGHTING CIRCUIT SERVING AREA.
3. CONNECT TO NEAREST UNSWITCHED 120V CIRCUIT.
4. REPLACE EXISTING RECEPTACLE AT THIS LOCATION WITH NEW RECEPTACLE AND PLATE.

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1	Addendum 1	11.22.24

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True North
Plan North

PROJECT: 2402
DRAWN: MW
SCALE: 1/2" = 1'

ENLARGED PLAN
E1.1

OCTOBER 15, 2024

PLUMBING SHEET INDEX

PLUMBING LEGEND

PIPING

— EG —	EXISTING GAS PIPING
— ED —	EXISTING DRAIN PIPING
— EW —	EXISTING WATER PIPING
—EHW—	EXISTING HOT WATER PIPING
	PIPE / FIXTURE DEMOLITION
— – —	DOMESTIC COLD WATER PIPING
— – –	DOMESTIC HOT WATER PIPING
—G—	GAS PIPING
	SANITARY WASTE PIPING

PIPING / ACCESSORIES

	PLUMBING VENT PIPING
—PD—	PUMPED CONDENSATE
	ELBOW TURNED UP
	ELBOW TURNED DOWN
	BOTTOM PIPE CONNECTION
	TOP PIPE CONNECTION
	BALL VALVE
	PIPE CAP

MISCELLANEOUS

	FLOOR DRAIN
WCO	WALL CLEANOUT
CO	CLEANOUT
FGCO	FLUSH GRADE CLEANOUT
	NEW CONNECTION TO EXISTING PIPING, AND/OR EQUIPMENT
P 5	RISER DESIGNATION

ABBREVIATIONS

AFF	ABOVE FINISH FLOOR
ASME	AMERICAN SOCIETY OF MECH ENGINEERS
BTU	BRITISH THERMAL UNIT
CFM	CUBIC FEET PER MINUTE
CO	CLEAN OUT
COND.	CONDENSATE
CW	DOMESTIC COLD WATER
DIA	DIAMETER
DN	DOWN
ELECT	ELECTRICAL
ET	EXPANSION TANK
EWH	ELECTRIC WATER HEATER
FD	FLOOR DRAIN
FFCO	FINISH FLOOR CLEANOUT
FFE	FINISH FLOOR ELEVATION
FGCO	FLUSH GRADE CLEANOUT
FHB	FREEZE PROOF HOSE BIBB
FLR	FLOOR
FT	FEET
GF	GAS FURNACE
GPM	GALLONS PER MINUTE
HP	HORSE POWER HP
HR	HOUR
HW	HOT WATER
ID	INSIDE DIMENSION
IMB	ICE MAKER BOX
KW	KILOWATT
L	LAVATORY
LBS	POUNDS
MAX	MAXIMUM
MBH	THOUSAND BTU PER HOUR
MECH	MECHANICAL
MFG	MANUFACTURER
MIN	MINIMUM
MUA	MAKE UP AIR UNIT
MV	MIXING VALVE
NC	NORMALLY CLOSED
NIC	NOT IN THIS CONTRACT
NO	NORMALLY OPEN
NO.	NUMBER
NTS	NOT TO SCALE
OD	OUTSIDE DIMENSION
P	PUMP
PLBG	PLUMBING
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH (GAUGE)
RC	REMOTE CHILLER
RPM	REVOLUTIONS PER MINUTE
RP	RECIRC PUMP
S	SINK
SS	SANITARY SINK (MOP SINK)
SAN	SANITARY
SP	STATIC PRESSURE
SF	SQUARE FEET
TP	TRAP PRIMER
TYP	TYPICAL
V	VENT
VTR	VENT THRU ROOF
W	SANITARY WASTE
W/	WITH
WC	WATER CLOSET
WCVB	WATER CLOSET VALVE BOX
WCO	WALL CLEANOUT
EG	EXISTING GAS (NATURAL)
EW	EXISTING COLD WATER
EHW	EXISTING HOT WATER

PLUMBING GENERAL NOTES

1. EACH CONTRACTOR, SUPPLIER AND/OR MANUFACTURER SHALL REFER TO ALL DOCUMENTS PERTAINING TO THIS PROJECT AND COORDINATE ACCORDINGLY SO AS TO ENSURE ADEQUACY OF FIT, COMPLIANCE WITH SPECIFICATIONS, PROPER ELECTRICAL SERVICE, AND AVOID CONFLICT WITH ANY OTHER BUILDING SYSTEMS. VERIFY SAME WITH SHOP DRAWINGS.
2. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL PLUMBING PIPING, FIXTURES, TRIM, AND ACCESSORIES AS REQUIRED FOR A COMPLETE AND FUNCTIONAL PLUMBING SYSTEM.
3. CONTRACTOR SHALL VERIFY WITH ARCHITECT AND DRAWINGS, WHICH PLUMBING INSTALLATIONS ARE DESIGNATED FOR ADA ACCESSIBILITY. ALL SUCH FIXTURE INSTALLATIONS SHALL INCLUDE ALL INSTALLATION ACCESSORIES, MOUNTING HEIGHT, CONTROL OFFSET, SIZE AND ACCESSIBILITY AS REQUIRED BY LATEST EDITION OF AMERICANS WITH DISABILITIES ACIAD AND LOCAL GOVERNING AUTHORITIES.
4. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND ELEVATIONS OF ALL PLUMBING FIXTURES.
5. ALL PLUMBING VENTS, WHERE NOTED VENT UP (VTR), SHALL BE COMBINED WITHIN WALL OR ABOVE CEILING CONCEALED AREAS, WHERE FEASIBLE, SO AS TO MINIMIZE ROOF PENETRATIONS. CONTRACTOR SHALL COORDINATE LOCATION OF ROOF PLUMBING AND FLUE VENTS SUCH THAT ALL VENTS ARE MINIMUM 10 FEET FROM ANY OUTDOOR AIR INTAKE LOCATIONS. ALL ROOF PENETRATIONS, VENTS, FLUES, ETC., SHALL BE MADE ON BACK SIDE OF ROOF AS CAN BE COORDINATED WITH ARCHITECT. ALL FLUES AND VENTS EXPOSED ABOVE ROOF SHALL BE FIELD PAINTED COLOR BY ARCHITECT.
6. ALL DRAINAGE, VENT AND WATER PIPING SHALL BE CONCEALED INSIDE WALLS AND PIPE CHASES OR ABOVE CEILINGS, EXCEPT AS OTHERWISE NOTED AND AT APPROPRIATE EQUIPMENT FINAL CONNECTIONS. HOLD ALL PIPING ABOVE CEILINGS AS HIGH AS POSSIBLE AND COORDINATE WITH OTHER TRADES.
7. COORDINATE ALL WORK WITH ARCHITECTURAL, STRUCTURAL, MECHANICAL, AND ELECTRICAL TRADES. PIPE ROUTING SHOWN IS DIAGRAMMATIC. PROVIDE ALL OFFSETS, ETC., TO AVOID INTERFERENCES WITH STRUCTURAL MEMBERS, EQUIPMENT, PIPING, DUCTWORK, LIGHTS, CONDUIT, ETC.
8. SLOPES AND INVERT ELEVATIONS SHALL BE ESTABLISHED BEFORE ANY PIPE IS INSTALLED IN ORDER TO MAINTAIN PROPER SLOPES. ANY DISCREPANCIES SHALL BE REPORTED TO THE ARCHITECT. ALL PIPING SHALL BE LOCATED & DETERMINED WHEN TO BE INSTALLED TO AVOID CONFLICT WITH OTHER TRADES.
9. WATER PIPING ROUTED ABOVE CEILINGS AND IN EXTERIOR WALLS SHALL BE ROUTED ON HEATED SIDE (UNDERSIDE) OF CEILING INSULATION AND HEATED SIDE (INSIDE) OF WALL INSULATION.
10. CONTRACTOR SHALL VERIFY/COORDINATE PIPE SIZES AND CONNECTIONS WITH SUBMITTED AND APPROVED 'KITCHEN' AND/OR 'PLUMBING FIXTURE ROUGH-IN SCHEDULE' FOR WASTE, VENT AND WATER PIPING ROUGH-IN SIZES. CONTACT ARCHITECT SHOULD QUESTIONS OR CONFLICTS ARISE. PLUMBING CONTRACTOR SHALL PROVIDE AND INSTALL ROUGH-IN, FINAL CONNECTIONS AND INSTALLATION APPURTENANCES AS RECOMMENDED BY APPLIANCE AND/OR EQUIPMENT MANUFACTURER FOR DISHWASHERS, ICE MAKERS, AND MACHINES, WASHERS, DRYERS, ETC., VERIFY LOCATION ON ARCHITECTURAL DRAWINGS AND CONNECTION REQUIREMENTS FROM APPROVED BROCHURES OF THE EQUIPMENT AND/OR APPLIANCES MANUFACTURER.
11. KEEP ALL BURIED PIPING CLEAR OF FOOTINGS AND GRADE BEAMS, COORDINATE WITH STRUCTURAL.
12. ALL VERTICAL RISERS TO FLOOR DRAINS AND FLOOR MOUNTED SINKS SHALL BE MAXIMUM 18" LONG.
13. ALL ABOVE GRADE HORIZONTAL DRAINAGE AND VENT PIPING ROUTING SHALL BE COORDINATED WITH OTHER TRADES AND STRUCTURAL/ARCHITECTURAL DRAWINGS. CONSISTENTLY SLOPE ALL PIPING, NOT INDICATED WITH ELEVATIONS, AS REQUIRED BY PLUMBING CODE APPLICABLE TO THIS PROJECT BUT IN NO CASE LESS THAN 1%.
14. WHEN SLEEVES, PIPES, CONDUITS, ETC, PENETRATE GRADE BEAMS OR TIE BEAMS THE CONTRACTOR SHALL INCREASE THE DEPTH OF THE PENETRATED BEAM BY NO LESS THAN TYWICE THE DIAMETER OF THE PENETRATION FOR A DISTANCE OF 4'-0" CENTERED ON THE PENETRATION. WHERE THE PENETRATION INTERRUPTS REINFORCING STEEL, AN EQUAL NUMBER OF LIKE SIZE REINFORCING BARS SHALL BE BENT UNDER THE PENETRATION AND LAP SPLICED 30 BAR DIAMETERS ON EACH SIDE. CONCRETE COVER REQUIREMENTS ON ALL SIDES SHALL BE THE SAME AS SHOWN FOR THE UN-MODIFIED GRADE BEAM OR TIE BEAM. SEE STRUCTURAL DRAWINGS FOR FURTHER SPECIFICS, ETC. PROVIDE NEW SCHEDULE 40 PVC PIPE SLEEVE A MIN. TWO SIZES LARGER THAN CARRIER PIPE AT ALL SUCH CROSSINGS, TO EXTEND MIN. 6" PAST FOUNDATION ON BOTH ENDS. PROVIDE OAKUM AND SEALANT IN ANNULAR SPACE OF SLEEVES AND WATER PROOF ON ALL BUILDING PERIMETER AND INTERIOR FOOTING AND GRADE BEAM APPLICATIONS.
15. ALL CLEANOUTS IN SANITARY, STORM AND CONDENSATE DRAIN PIPING SHALL BE FULL PIPE SIZE UP TO 4" AND SHALL BE 4" SIZE ON 6" AND LARGER PIPING. ALL WALL CLEANOUTS SHALL BE PROVIDED WITH WALL COVERS, MOUNT IN UNOBTRUSIVE LOCATION WHILE MAINTAINING ACCESSIBILITY. ALL FLOOR CLEANOUTS SHOWN SHALL BE SET FLUSH WITH FLOOR AREAS OR FINISHED GRADE.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING REQUIRED FOR THEIR WORK. ALL CUTTING AND PATCHING SHALL MATCH ADJACENT SURFACES.
17. WHERE POSSIBLE, INSTALL SHUT-OFF VALVES, SHOCK ABSORBERS, EQUIPMENT, ETC. REQUIRING MAINTENANCE, CLEANING, & ADJUSTING ABOVE ACCESSIBLE CEILINGS OR IN SERVICE AREAS, IN OTHER LOCATIONS, PROVIDE ACCESS PANELS ADJACENT TO THE ACCESS AREA, FINISH TO MATCH ARCHITECTURAL. LOCATE ALL VALVES AND SHOCK ABSORBERS WITHIN 1'-0" FROM ACCESS PANELS, CEILING TILES, OR OTHER POINT OF ACCESS.
18. WHERE CONNECTING TO A UTILITY OR SERVICE, VERIFY LOCATION, SIZES, MATERIALS, FLUID BEING HANDLED, & INVERTS OF EXISTING UTILITY & CONFIRM THAT NEW PIPES ROUTED TO EXISTING UTILITIES CAN BE INSTALLED CONFORMING TO APPLICABLE CODES AS INDICATED. NOTIFY ARCHITECT OF ANY CONFLICTS OR DISCREPANCIES PRIOR TO PURCHASING MATERIALS OR PERFORMING WORK OR EXTENSION OF CONNECTION, WITH THE EXCEPTION OF EXCAVATION OR OTHER WORK TO PROVIDE ACCESS TO THE CONCEALED UTILITY.
19. WATER CLOSET FLUSH VALVE LEAVERS SHALL BE LOCATED ON THE APPROACH SIDE OF THE WATER CLOSET.
20. GAS REGULATORS REQUIRING VENTS SHALL BE VENTED TO THE BUILDING EXTERIOR. TERMINATE VENTS A MINIMUM OF 15'-0" FROM ANY AIR INTAKE OR SOURCE OF IGNITION.
21. DURING FINAL OBSERVATION WALK-THRU, CLEANOUT COVERS AND AND ACCESS PANELS SHALL BE OPENED AND ITEMS EXPOSED FOR VERIFICATION OF INSTALLATION AND POSITION.
22. DOMESTIC WATER, GAS, SANITARY SEWER, AND STORM SEWER TO REMAIN IN OPERATION IN EXISTING BUILDING DURING DEMOTION AND CONSTRUCTION OF NEW WORK. CONTRACTOR TO DETERMINE TEMPORARY SERVICES IF NEEDED AND ARRANGE OUTAGES OF SERVICES WITH OWNER AND ARCHITECT.
23. INSTALL CONDENSATE DRAINS FROM ALL A/C EQUIPMENT. PROVIDE TRAPPED DRAINAGE PIPING WITH VENT RISERS 6" HIGH NEAR EQUIPMENT CONNECTIONS. PROVIDE NEW INSULATED CONDENSATE DRAINS FOR ALL HVAC COOLING COILS AND OVERFLOW PANS AND ROUTE ON SLOPE TO CONNECTION WITH NEARBY PLUMBING VENT STACK OR FLOOR DRAIN. PROVIDE CLEANOUTS ON DRAINS, 1" OR LARGER, EVERY 20' O.C., AND AT ENDS AND OFFSETS OF RUNS.
24. COORDINATE UNDERGROUND PIPING WITH GRADE BEAMS AND WALL FOOTINGS. SLEEVE ALL GRADE BEAMS UTILIZING SLEEVES A MINIMUM 2 SIZES LARGER THAN DRAINAGE PIPING SIZE. SOME SLEEVES MAY NOT BE SHOWN, BUT SLEEVES AT ALL GRADE BEAM HORIZONTAL AND VERTICAL PIPING PENETRATIONS ARE REQUIRED
25. PROVIDE NEAT PIPE SLEEVES AT ALL GAS, WATER, STORM, SANITARY, AND REFRIGERANT PIPING EXTERIOR WALL PENETRATIONS. FILL VOID IN ANNULAR SPACE WITH NEAT ELASTOMERIC SEALANT. BELOW GRADE SLEEVES INTO HABITABLE SPACES SHALL INCLUDE WATER-TIGHT SLEEVES AS "LINK SEAL".
26. FIRESTOP ALL PIPING AND CONDUIT PENETRATIONS OF FLOORS AND FIRE, SMOKE, OR COMBINATION WALLS/PARTITIONS TO MEET THE LATEST INTERNATIONAL BUILDING CODE REQUIREMENTS. CONTRACTOR SHALL PROVIDE APPROVED SOUND ABSORBENT SEALANT AT ALL SIMILAR PENETRATIONS AT "SOUND" AND FULL HEIGHT WALLS (SEALED TO UNDERSIDE OF ROOF DECK) INDICATED ON ARCHITECTURAL AND/OR MECHANICAL DRAWINGS.
27. PROVIDE AND INSTALL DI-ELECTRIC BUSHINGS IN ALL PIPE SYSTEMS WHERE UNLIKE METALS ARE CONNECTED, I.E., COPPER TO STEEL. PROVIDE AND INSTALL STEEL SLEEVES IN ALL FLOORS, WALLS, ROOF DECK, ETC., FOR PIPE PENETRATIONS. SLEEVES SHALL BE OF SUFFICIENT DIAMETER TO ACCOMMODATE PIPE AND INSULATION, WHERE APPROPRIATE, COORDINATE ALL FLOOR PENETRATIONS WITH STRUCTURAL DRAWINGS. SET SLEEVES IN FLOORS AND WALL AND ATTACHMENTS FOR HANGERS AS CONSTRUCTION PROGRESSES. ALL PENETRATIONS MUST BE SEALED AND HELD AS TIGHT TO WALLS AS POSSIBLE.
28. PROVIDE 12" X 12" LOCKING PIANO HINGED ACCESS PANELS FOR SHOCK ABSORBERS, TRAP PRIMERS, AND ALL VALVES LOCATED ABOVE NON-ACCESSIBLE CEILINGS AND INSIDE PIPE CHASES. EXACT LOCATION MUST BE COORDINATED WITH ARCHITECTURAL DRAWINGS AND APPROVED BY ARCHITECT PRIOR TO INSTALLATION.
29. PIPE ALL DRIPS, DRAINS, RELIEFS, ETC. TO THE NEAREST FLOOR DRAIN UNLESS OTHERWISE INDICATED.
30. NEATLY INSULATE ALL WATER AND DRAIN PIPING UNDER LAVATORIES AND SINKS ON HANDICAPPED FIXTURES PER SPECIFICATIONS.
31. DO NOT RUN PLUMBING PIPING THROUGH OR OVER ELECTRICAL CLOSETS OR WITHIN 3-0" OF ELECTRICAL PANEL FRONTS.

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CHRISTOPHER DUVALL REGISTERED PROFESSIONAL ENGINEER 17087 STATE OF MISSISSIPPI

DUVALL DECKER P.A.

PROJECT: 2402
DRAWN: DBG/KAH
SCALE: NTS

PLUMBING LEGEND
P0.1

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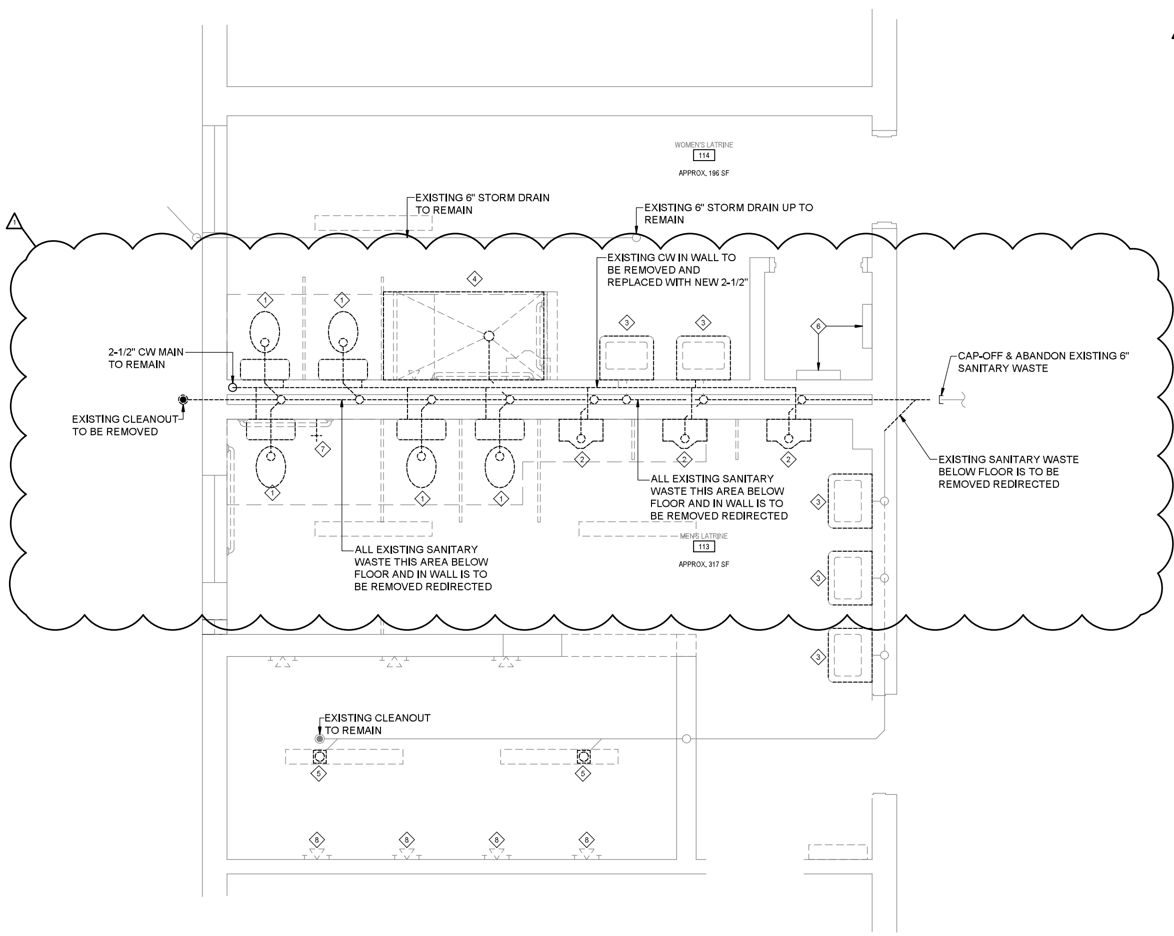

1 ENLARGED DEMOLITION PLAN - MEN'S AND WOMEN'S LATRINE - PLUMBING
1/2" = 1'

GENERAL NOTES:

A. WHERE PLUMBING FIXTURES ARE TO BE REMOVED AND NOT REPLACED, CAP-OFF PIPING ABOVE CEILING, FLUSH WITH WALL AND FLOOR.

PLAN NOTES:

1. REMOVE EXISTING WATER CLOSET & SANITARY WASTE. THIS CONTRACTOR IS TO MAKE NECESSARY MODIFICATIONS/ADJUSTMENTS TO THE WATER SUPPLY FOR INSTALLATION OF NEW WATER CLOSET.
2. REMOVE EXISTING URINAL & SANITARY WASTE. THIS CONTRACTOR IS TO MAKE NECESSARY MODIFICATIONS/ADJUSTMENTS TO THE WATER SUPPLY FOR INSTALLATION OF NEW URINAL.
3. REMOVE EXISTING LAVATORY & SANITARY WASTE. THIS CONTRACTOR IS TO MAKE NECESSARY MODIFICATIONS/ADJUSTMENTS TO THE WATER SUPPLIES FOR INSTALLATION OF NEW LAVATORY.
4. REMOVE EXISTING SHOWER, ACCESSORIES, & SANITARY WASTE.
5. EXISTING FLOOR DRAIN TO BE REMOVED AND REPLACED.
6. EXISTING WATER HEATERS AND ASSOCIATED PIPING TO REMAIN.
7. REMOVE EXISTING HOSE BIBB.
8. REMOVE AND REPLACE EXISTING SHOWER HEAD AND CONTROLS. THIS CONTRACTOR IS TO MAKE NECESSARY MODIFICATIONS/ADJUSTMENTS IN WALL FOR INSTALLATION OF NEW SHOWER HEAD AND CONTROLS.
9. REMOVE EXISTING SHOWER HEAD AND CONTROLS. CAP-OFF WATER PIPING IN WALL.

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17087
STATE OF MISSISSIPPI

DUVALL DECKER
(an expanded practice)

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SCALE: 1/2" = 1'

PLUMBING DEMO
P4.0

0 6" 1' 2' 4' 8'

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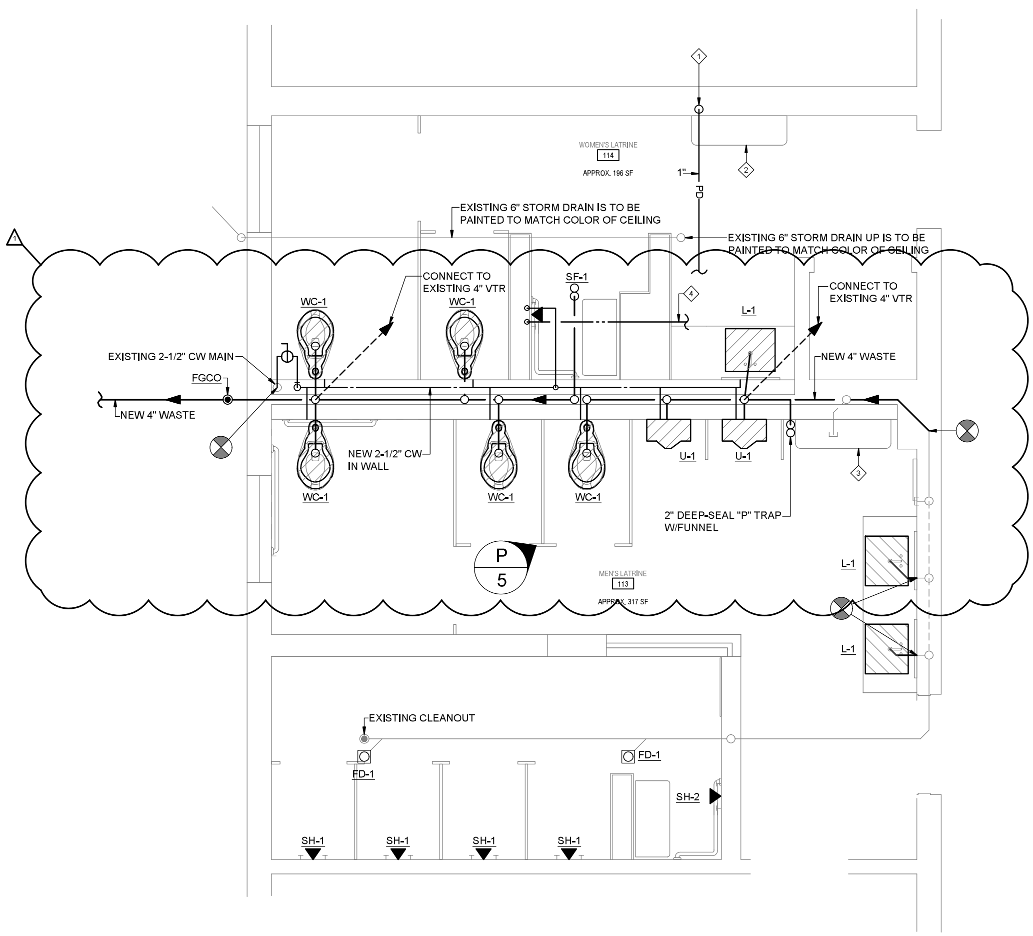

1 ENLARGED RENOVATION PLAN - MEN'S AND WOMEN'S LATRINE - PLUMBING

1/2" = 1'

GENERAL NOTES:

A. SEE PLUMBING FIXTURE SCHEDULE FOR PIPE SIZES.

PLAN NOTES:

1. 1" CONDENSATE FROM CONDENSATE PUMP. RUN HIGH AS POSSIBLE TO NEAREST WASTE/VENT STACK (FIELD-VERIFY). INSTALL DEEP-SEAL "P" TRAP WITH FUNNEL AT VENT PIPE.
2. TRAP AND VENT CONDENSATE DRAIN AT INDOOR UNIT. PIPE FULL-SIZE TO CONDENSATE PUMP.
3. TRAP AND VENT CONDENSATE DRAIN AT INDOOR UNIT. INSTALL 2" DEEP-SEAL "P" TRAP WITH FUNNEL NEAR DRAIN OUTLET. RUN 2" DRAIN FROM DEEP-SEAL "P" TRAP IN CHASE TO NEAREST WASTE/VENT STACK (FIELD-VERIFY).
4. NEW 1/2" HW. CONNECT TO EXISTING WITH SHUT-OFF VALVE THIS APPROXIMATE LOCATION (FIELD-VERIFY).

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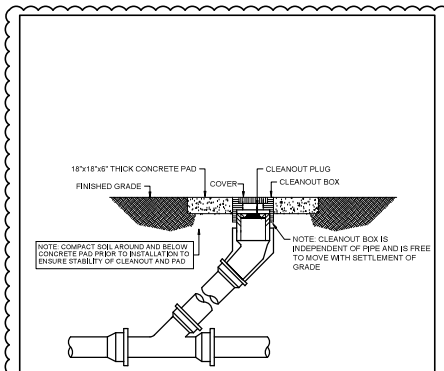
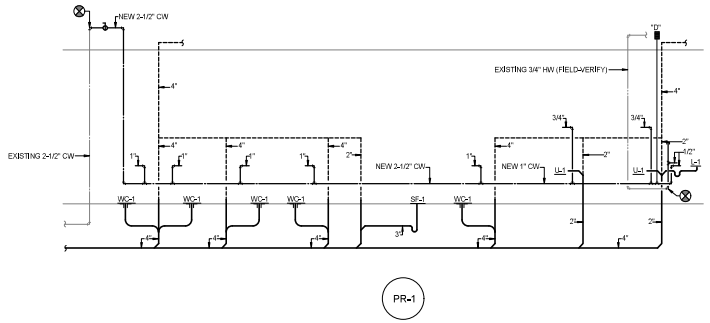
PLUMBING RENO
P4.1

PLUMBING FIXTURE SCHEDULE

MARK	DESCRIPTION	MAKE AND MODEL	ROUGH-IN SIZES C.W.	H.W.	WASTE	VENT	MIXING VALVE	ELECTRICAL V/PH	REMARKS
WC-1	WATER CLOSET (FLOOR MOUNTED, FLUSH VALVE, A.D.A.)	SLOAN ST-2029, AMERICAN STANDARD 3043.001, KOHLER K-96057	–	–	4"	2-4"	—	—	1.28 GPF, MODIFY HEIGHT OF FLUSH VALVE AS REQUIRED FOR HANDRAIL, TRAP PRIMER AS REQUIRED, OPEN FRONT WHITE SEAT, SELF-SUSTAINING HINGES W/S.S. POST AND PINTLES
	FLUSH VALVE (MANUAL)	SLOAN REGAL 111, ZURN Z6000PL-HET	1"	–	–	–	—	—	
	SEAT	BEMIS 1055SSC, AMERICAN STANDARD 5901.100SS					—	—	
U-1	URINAL	SLOAN SU-1009, AMERICAN STANDARD 6590.001, KOHLER K-4991-ET-0	–	–	2"	2"	—	—	0.5 GPF, SEE ARCHITECTURAL PLANS FOR A.D.A. URINALS, FLOOR MOUNTED CARRIERS
	FLUSH VALVE (MANUAL)	SLOAN REGAL 186-0.5, ZURN Z6003PL-EWS	3/4"	–	–	–	—	—	
	CARRIER	J.R. SMITH, WADE, ZURN	–	–	–	–	—	—	
L-1	LAVATORY (DROP-IN, RECTANGLE)	AMERICAN STANDARD 0643.008	–	–	2"	2"	—	—	0.5 GPM, A.D.A. COMPLIANT, CERAMIC STRUCTURES
	FAUCET (MANUAL, BLADE HANDLES, SPOUT)	DELTA 23C354, ZURN Z831R4-XL	1/2"	1/2"	–	–	MV-1	—	
SF-1	ONE-PIECE ACRYLIC SHOWER	CLARION BATHWARE "ASURA" CBT3838TR COL (36"W x 36"D x 78-3/4"H)	–	–	2"	2"	—	—	HEAD (1.75 GPM/80 PSI), WAND (1.75 GPM/80 PSI), U4993-PK ARM/ FLANGE, A.D.A. COMPLIANT, R10709-UNWS VALVE, 2" SUREFIT SHOWER DRAIN, INSTALL GROUT SUPPORT UNDER SHOWER, SEAT.
	TRIM (SINGLE HANDLE, A.D.A.)	DELTA T13H303-20 WITH RP70175PR HEAD AND 59462-B18-PK WAND	1/2"	1/2"	–	–	YES	—	
SH-1	TRIM (SINGLE HANDLE)	DELTA T13H103 WITH RP70175PR HEAD	1/2"	1/2"	–	–	YES	—	1.75 GPM AT 80 PSI, R10000-UNWS VALVE, U4993-PK ARM AND FLANGE
SH-2	TRIM (SINGLE HANDLE, A.D.A.)	DELTA T13H303-20 WITH RP70175PR HEAD AND 59462-B18-PK WAND	1/2"	1/2"	–	–	YES	—	HEAD (1.75 GPM/80 PSI), WAND (1.75 GPM/80 PSI), U4993-PK ARM/ FLANGE, A.D.A. COMPLIANT, R10709-UNWS VALVE, SEAT.
FD-1	ROUND FLOOR DRAIN	ZURN ZN415B(-P)	–	–	EXISTING	–	—	—	6" DIAMETER WITH SURE SEAL TRAP GUARD



EXTERIOR FLUSH GRADE CLEANOUT DETAIL — NO SCALE



PR-1

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PLUMBING SCHEDULES
P5.1

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