

SECTION 01025- MEASUREMENT AND PAYMENT**TABLE OF ARTICLES**

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ARTICLE 1: GENERAL

- A. Payment for the work completed under this Contract will be made at the lump sum and unit prices bid, which shall include the furnishing of all labor, tools, equipment and materials, and performance of all work required to complete the project as indicated and specified in accordance with all requirements of the Contract Documents and to the entire satisfaction of the Owner's Engineer.
- B. All incidental and miscellaneous items, work, and materials for which no specific bid item is shown and which are necessary to complete the project in accordance with the contract documents and to maintain and/or repair the work are incidental to the bid items listed below and shall be done and furnished by the Contractor without extra charge.

ARTICLE 2: AUTHORITY

- A. The Contractor shall take measurements and compute quantities for all completed work in place and cooperate with, and provide information to, the Engineer as required for the Engineer's verification of measurements and quantities. All measurements and quantities must be verified by the Engineer prior to Owner's approval of payment to the Contractor.

ARTICLE 3: UNIT QUANTITIES SPECIFIED

- A. Quantities and measurements indicated in the Bid Form are for bidding and contract purposes only. Quantities and measurements supplied or placed in the Work and verified by the Engineer shall determine payment. The State of DE is not liable to the Contractor for any additional compensation based on any variance between the estimated quantities and the actual quantities installed during the course of the Project. The Contractor shall be paid solely for the actual quantities of items installed at the bid price.
- B. If the actual Work requires more or fewer quantities than those quantities indicated, provide the required quantities at the unit sum/prices contracted.
- C. For Bid Items where a Quantity of zero (0) is indicated on the Bid Form, provide a Unit Price on the Bid Form. The extended Total Price for that Bid Item will be zero as indicated on the Bid Form. This Unit Price will be used for contingency purposes to adjust the Contract Amount, should conditions encountered during construction make it applicable.

ARTICLE 4: MEASUREMENT OF QUANTITIES

- A. Lineal Foot

1. Measurement of lineal feet to be paid under this section shall be the actual number of lineal feet of material installed in accordance with these specifications, measured as described further in this section, complete, in place and accepted.
 2. The cost of any connections of couplings shall be included in the price bid per linear foot for this item.
- B. Square Yards
1. Measurement of square yards of material to be paid under this section shall be the actual number of square yards of material installed in accordance with these specifications, measured from end to end, complete, in place and accepted.
- C. Cubic Yards
1. Measurement of cubic yards of material to be paid under this section shall be the actual volume of cubic yards of material installed in accordance with these specifications, measured from end to end, complete, in place and accepted.
 2. The maximum payment width for pipe trenches shall be as shown on the drawings.
- D. Each
1. The number of each item installed shall be measured on the actual number of each unit installed in accordance with the plans and specifications, complete, in place and accepted.
 2. The cost of any incidentals shall be included in the price bid for this item.
- E. Lump Sum
1. This item will not be measured.
- F. Tonnage
1. The quantity of tonnage to be measured will be the actual number of tons provided, as documented by certified weight slips, complete, in place and accepted.

ARTICLE 5: PAYMENT

- A. Payment includes: Full compensation for all required labor, Products, tools, equipment, plant, transportation, services and incidentals, erection, application or installation of an item of the Work; overhead and profit.
- B. Final payment for work governed by unit prices will be made on the basis of the actual measurements and quantities accepted by the engineer multiplied by the unit price for work which is incorporated in or made necessary by the work.
- C. Lineal Foot
1. The number of lineal feet as determined above shall be paid for at the contract unit price per lineal foot bid for this item.
- D. Square Yards

1. The square yards of material as measured above shall be paid at the contract unit price bid for the item.
- E. Cubic Yards
1. The cubic yards of material as measured above shall be paid at the contract unit price bid for the item.
- F. Each
1. The number of each item as determined above shall be paid for at the contract unit price bid for the item.
- G. Lump Sum
1. The contract lump sum price will be made under this item in proportion to the amount of work done as determined by the Engineer.
- H. Tonnage
1. Tonnage will be paid at the contract unit bid price for this item upon receipt of certified weight slips.

ARTICLE 6: BID ITEMS

- A. Bid Item 1- Mobilization
1. Measurement- This item will not be measured. The Lump Sum payment for this item will be full compensation for providing initial services and facilities required to mobilize for and commence the work of this project as shown, specified and required to provide a complete project.
 2. Payment: The payment for mobilization will be made at 50 % on the first payment requested with the remainder paid in even monthly increments spread out over the Contract Time. Costs to be included under this item shall include such items as bonds, insurance, shop drawings, submittals, temporary facilities and controls, permits, progress schedules, notifications along with other costs and incidentals associated with initiating the work. The maximum amount bid for this item shall not exceed 5% of the total of the Base Bid Item No. 2 to Bid Item No. 20 and shall not exceed 5% of the total of the Alternate Bid No. 1 Bid Item No. 2 to Bid Item No. 18.
- B. BidItem2–NOT USED
- C. BidItem3-Bypass Pumping
1. Measurement- This item will not be measured. The lump sum payment for this item will be full compensation for all work related to the bypass pumping of sewage around the work in accordance with the plans and specifications.
 2. Payment - The contract lump sum price will be paid under this item in proportion to the amount of work done as determined by the Engineer. The price bid shall include, but not be limited to: furnishing and setting up all equipment, labor, and materials necessary to control flow and pump sanitary sewage around the work and segments of pipe being rehabilitated including the bypass pumping of sewage from main line pipe and laterals; energy required for power equipment; temporary installation of bypass pipes under the pavement of cross streets as may be required for traffic; re-

paving of cross streets after removal of temporary by-pass pipes; notifications and coordination with affected property owners, construction facilities and temporary controls; traffic control to maintain at least one lane of the roadway to vehicular traffic at all times and all other necessary equipment, work, and materials required to accomplish sewage by-passing until completion of the rehabilitation process in accordance with the Plans and Specifications. Payment will be based upon completion of the work in accordance with the Plans and Specifications.

D. Bid Item 4 - Restoration

1. Measurement – This item will not be measured. The Lump Sum payment for this item will be full compensation for all work related to the temporary and permanent restoration of the project work area in accordance with the contract documents, complete, in place and accepted.
2. Payment - The contract lump sum price will be paid under this item in proportion to the amount of work done as determined by the Engineer. The price bid shall include, but not be limited to: furnishing and setting up all equipment, labor, and materials necessary to restore the project site in accordance with the requirements of the contract documents including notifications, coordination, environmental protection, the restoration of incidental obstructions to original or better conditions including concrete curb and sidewalk, temporary seeding, permanent seeding, temporary paving, permanent paving, removal of E&S Controls, storage facilities, clean up, restoration of staging areas, removal and proper disposal of surplus materials, restoration, construction facilities and temporary controls, traffic control to maintain at least one lane of the roadway to vehicular traffic at all times and all other work necessary to restore areas disturbed by construction.

E. Bid Item 5 – Light Cleaning Sewer Lateral Pipe 4" to 6"

1. Measurement - Measurement of lineal feet to be paid under this section shall be the actual number of lineal feet of lateral pipe cleaned in accordance with these specifications, measured as described further in this section, complete, in place and accepted. Light Cleaning is defined as three or less passes in a lateral pipe segment utilizing High Velocity Jet (Hydrocleaning) Equipment. The light cleaning of sewer laterals will be required to complete the installation of lateral liners. This item will only be paid once per section lateral liner installed and includes all pre and post liner installation cleaning work required. Main line pipe cleaning required to complete the lateral liner installation in pipe will not be measured and paid separately and is considered incidental to the work of this Contract.
2. Payment - The number of lineal feet as determined above shall be paid for at the contract unit price per lineal foot bid for this item measured horizontally from center of main to cleanout or as directed by Engineer for lateral liners. Payment includes full compensation for all required labor, products, tools, equipment, transportation, notifications, services, construction facilities and temporary controls, traffic control to maintain at least one lane of the roadway to vehicular traffic at all times and incidentals required to complete the cleaning of sewers in accordance with the specifications including the disposal of material removed from the pipe as a result of cleaning. The Owner will provide a source of water for cleaning, located within the Park. The Contractor is responsible for transportation of water.

F. Bid Item 6 – Heavy Cleaning of 4" and 6" Sewer Lateral Pipes

1. Measurement - Measurement for this item will be based on the actual number of hours the Contractor is required to work to complete the heavy cleaning of lateral pipes designated in the Contract Documents. The Owner will not be responsible to reimburse the Contractor for time related to equipment failures or inefficiencies and lost time due to poor planning. The Engineer will determine the hours to be paid under this item.
2. Payment - The hours worked as determined above shall be paid for at the contract unit price bid per hour of cleaning. The unit price bid for this item will be full compensation for providing all labor, Products, material, equipment, tools and incidentals necessary to complete the cleaning of the pipe segments in accordance with the specifications including environmental protection, the preparation of a heavy cleaning plan, notifications, root cutting, easement reels, booster pumps, cleaning hose, material removal, material disposal, construction facilities, traffic control to maintain at least one lane of traffic to vehicular traffic at all times and temporary controls and all other incidental items required to complete the work and allow for television inspection and lining of the sewer lateral pipes. The Owner will provide a source of water for cleaning, located within the Park. The Contractor is responsible for transportation of water.

G. Bid Item 7 – Light Cleaning Sewer Pipe 6" to 10"

1. Measurement - Measurement of lineal feet to be paid under this section shall be the actual number of lineal feet of pipe cleaned in accordance with these specifications, measured as described further in this section, complete, in place and accepted. Light Cleaning is defined as three or less passes in a main pipe or lateral pipe segment utilizing High Velocity Jet (Hydrocleaning) Equipment. The light cleaning of sewers will be required to complete the installation of GIPP main line liners. This item will only be paid once per section of main line liner installed and includes all pre and post liner installation cleaning work required.
2. Payment - The number of lineal feet as determined above shall be paid for at the contract unit price per lineal foot bid for this item measured horizontally from center of manhole to center of manhole along the center line of the pipe segment being cleaned for main line liner installation. Payment includes full compensation for all required labor, Products, tools, equipment, transportation, notifications, services, construction facilities and temporary controls, traffic control to maintain at least one lane of the roadway to vehicular traffic at all times and incidentals required to complete the cleaning of sewers in accordance with the specifications including the disposal of material removed from the pipe as a result of cleaning. The Owner will provide a source of water for cleaning, located within the Park. The Contractor is responsible for transportation of water.

H. Bid Item 8 – Heavy Cleaning of 6", 8" and 10" Sewer Pipes

1. Measurement - Measurement for this item will be based on the actual number of hours the Contractor is required to work to complete the cleaning of main line pipe segments designated for the installation of GIPP main line liners in the Contract Documents. The Owner will not be responsible to reimburse the Contractor for time related to equipment failures or inefficiencies and lost time due to poor planning. The Engineer will determine the hours to be paid under this item.
2. Payment - The hours worked as determined above shall be paid for at the contract unit price bid per hour of cleaning. The unit price bid for this item will be full

compensation for providing all labor, Products, material, equipment, tools and incidentals necessary to complete the cleaning of the pipe segments in accordance with the specifications including environmental protection, the preparation of a heavy cleaning plan, notifications, root cutting, easement reels, booster pumps, cleaning hose, material removal, material disposal, construction facilities and temporary controls, traffic control to maintain at least one lane of the roadway to vehicular traffic at all times and all other incidental items required to complete the work and allow for television inspection and liner installation in the pipe. The Owner will provide a source of water for cleaning, located within the Park. The Contractor is responsible for transportation of water.

Bid Item 8A – Heavy Cleaning Sanitary Sewer Pipe (easement reel not required to complete the work)

Bid Item 8B- Heavy Cleaning Sanitary Sewer Pipe in Difficult Areas (easement reel required to complete the work)

I. Bid Item 9 - Television Inspection of 4" to 6" Sanitary Sewer Lateral Pipes

This bid item includes the television inspection of segments of pipe scheduled for the installation of lateral liners.

1. Measurement - Measurement of lineal feet to be paid under this section shall be the actual number of lineal feet of pipe televised in accordance with these specifications measured from center of main pipe to cleanout or as directed by Engineer for lateral pipes to be lined, complete, in place and accepted.
2. Payment - The number of lineal feet as determined above shall be paid for at the contract unit price per lineal foot bid for this item measured from center of main to cleanout or as directed by the Engineer for lateral pipes being televised. Payment includes full compensation for all required labor, Products, tools, equipment, transportation, notifications, services, construction facilities and temporary controls, traffic control to maintain at least one lane of the roadway to vehicular traffic at all times and incidentals required to complete the televising of sewers in accordance with the specifications including the disposal of material removed from the pipe as a result of cleaning.

The lineal feet of CCTV Inspection to be measured and paid on work related to the installation of lateral liners will be paid "One Time" from center of main pipe to cleanout or as directed by the Engineer for lateral liners regardless of the number of times the pipe must be televised to complete the work as required by the Contract Documents.

J. Bid Item 10 - Television Inspection of 6", 8" and 10" Sanitary Sewer Pipes

This bid item includes the television inspection of segments of pipe scheduled for the installation of CIPP main line liners.

1. Measurement - Measurement of lineal feet to be paid under this section shall be the actual number of lineal feet of pipe televised in accordance with these specifications, measured along the pipe line from center of MH to center of MH complete for main line pipe to be lined.
2. Payment - The number of lineal feet as determined above shall be paid for at the contract unit price per lineal foot bid for this item measured from center of manhole to center of manhole horizontally along the center line of the pipe segment for main line pipe being televised. Payment includes full compensation for all required labor,

Products, tools, equipment, transportation, notifications, services, construction facilities and temporary controls, traffic control to maintain at least one lane of the roadway to vehicular traffic at all times and incidentals required to complete the televising of sewers in accordance with the specifications including the disposal of material removed from the pipe as a result of cleaning.

The lineal feet of CCTV Inspection to be measured and paid on work related to the installation of CIPP main line liners will be paid "One Time" from center of MH to center of MH regardless of the number of times the pipe must be televised to complete the work as required by the Contract Documents.

K. Bid Item 11 – Cured in Place Pipe Lateral Lining

1. Measurement – Measurement of the number of each cured in place lateral lining installed shall be based on the actual number of each unit installed in accordance with the plans and specifications in place and accepted. The cost of any incidentals shall be included in the price bid for this item.
2. Payment - The number of each item as determined above shall be paid for at the contract unit price bid for the item. The unit price bid for this item will be full compensation for providing all labor, material, equipment, tools and incidentals for installing the specified CIPP Lateral Liners up to a length of 3'-0" into lateral pipes from the sewer main or a manhole. A separate Bid Item has been included to pay for lateral lining of 4" or 6" lateral pipes beyond the Bid length of 3'-0". The unit prices also includes design of lateral lining system, sending and locating existing lateral pipes and clean outs, painting the location of the existing lateral pipe on the ground surface, notifications and coordination with property owners, final line cleaning, removal of protruding obstructions, removal and disposal of all excess material, transportation, disposal fees, environmental protection, Quality Control testing, reporting, records, physical condition inspection, post construction inspection, recordings and reproductions, clean up, warranties, warranty inspections and all preparation, construction facilities and temporary controls, traffic control to maintain at least one lane of the roadway to vehicular traffic at all times and other items and incidentals required to complete the lining of the lateral sewer pipes in accordance with the contract documents. The Owner will provide a source of water located within the Park. The Contractor is responsible for transportation of water.

Bid Item 11A – Lateral Pipe Liner – 6" Main Interface Seal and 3'-0" of 4" or 6" Lateral Liner

Bid Item 11B – Lateral Pipe Liner - 8" Main Interface Seal and 3'-0" of 4" or 6" Lateral Liner

Bid Item 11C – Lateral Pipe Liner – 10" Main Interface Seal and 3'-0" of 4" or 6" Lateral Liner

Bid Item 11D - Lateral Pipe Liner per LF of Lateral Liner Beyond Bid Length of 3'-0" – 6" Main

Bid Item 11E - Lateral Pipe Liner per LF of Lateral Liner Beyond Bid Length of 3'-0" – 8" Main

Bid Item 11F - Lateral Pipe Liner per LF of Lateral Liner Beyond Bid Length of 3'-0" – 10" Main

L. Bid Item 12 - Cured in Place Pipe Main Line Liner

1. Measurement - Measurement of lineal feet to be paid under this section shall be the actual number of lineal feet of sewer main rehabilitated with a Cured in Place Pipe Liner in accordance with these specifications, measured along the pipe line from center of MH to center of MH complete, in place and accepted.

2. Payment - The lineal feet of GIPP to be paid as determined above shall be paid for at the contract unit price bid for this item. The unit price bid for this item will be full compensation for providing all labor, Products, material equipment, tools and incidentals necessary to install GIPP Liners where directed by the Engineer. The price to install each liner shall be full compensation for all labor, materials, Products and equipment necessary to install the liners in accordance with the requirements of the specifications. The work of this bid item also includes design of the liner system, notifications, reinstatement of active lateral connections, removal of protruding obstructions such as offset joints (a Separate Bid Item has been including for protruding service connections), removal and disposal of all excess material, transportation, disposal fees, environmental protection, Quality Control testing, reporting, records, physical condition inspection, post construction inspection, recordings and reproductions, clean up, warranties, warranty inspections and all preparation, construction facilities and temporary controls, traffic control to maintain at least one lane of the roadway to vehicular traffic at all times and other items and incidentals required to complete the lining of the sewer pipes in accordance with the contract documents.

Bid Item 12A – 6" Cured in Place Pipe Main Line Liner

Bid Item 12B- 8" Cured in Place Pipe Main Line Liner

Bid Item 12C – 10" Cured in Place Pipe Main Line Liner

Bid Item 12D- Reinstatement Active Lateral Connections to Lined Pipe

M. Bid Item 13- Removal of Protruding Service Connections

1. Measurement - Measurement will be based on the actual number of protruding service connections removed per the requirements of the contract documents and accepted.
2. Payment - The number of each item as determined above shall be paid for at the contract unit price bid for this item. The unit price bid for this item will be full compensation for providing all labor, Products, material equipment, tools and incidentals necessary to remove or grind back protruding laterals. The work of this bid item also includes notifications, traffic control to maintain one lane of the roadway to vehicular traffic at all times, bypass pumping, televising, pipe cleaning, testing, warranty inspections, construction facilities and temporary controls and all other incidental work necessary to comply with the Contract Documents.

N. Bid Item 14- Sanitary Sewer Lateral Spot Repairs

The television inspection of lateral pipes to be lined under the work of this Contract may reveal spot repairs in lateral pipes required to facilitate the lining of laterals. The Contractor shall assume that the spot repairs will involve removal of deficient pipe, wye connections, cleanouts and replacement with new PVC pipe and fittings coupled to the existing pipe that remains with rigid couplings. The Contractor shall assume that a maximum of 10'-0" of pipe will be replaced with new SDR 35 PVC pipe. The Contractor shall protect the existing pipe during the excavation and backfill process to assure that otherwise sound piping is not damaged resulting in the replacement of pipe beyond the limits described above.

This bid item includes repair of deficiencies in the existing lateral pipe that are required to facilitate the installation of the GIPP Lateral Liners.

1. Measurement - Measurement will be based on the actual number of spot repairs completed, in place and accepted.

2. Payment – The number of each item as determined above shall be paid for at the contract unit price bid for this item. The unit price bid for these items will be full compensation for providing all labor, material, equipment, tools and incidentals necessary to complete the spot repairs including notifications, test pits to locate utilities, E&S controls, excavation, shoring, removal and disposal of existing pipe, dewatering, new pipe & rigid couplings to existing pipe, bedding, furnishing and placing Type C Borrow backfill full depth of pipe and compaction of backfill, testing of backfill, temporary paving, permanent paving, restoration to the existing surface, CCTV inspection of pipe after placement, construction facilities and temporary controls, traffic control to maintain at least one lane of the roadway to vehicular traffic at all times and all other items of work necessary to complete the spot repairs in accordance with the requirements of the Contract Documents.
1. Bid Item 15- Clean Out Installation in Existing Lateral Pipes
 2. Measurement – Measurement will be based on the number of clean outs actually installed per the requirements of the contract document.
 3. Payment- Payment will be based on the contract unit price bid for each clean out. The price bid to install clean outs on 4" and 6" sanitary sewer lateral pipes includes all work necessary to locate the existing lateral pipe at proposed clean out locations by sanding the lateral pipes from the main using a main line lateral launch camera, survey and layout, notifications, site clearing, excavation, excavation support in accordance with OSHA requirements, dewatering excavations, clean out installation with new wye fittings, protective frame and cover, rigid couplings to existing pipe, AASHTO #7 backfill, Type C Borrow backfill, all restoration including but not limited to paving restoration, concrete restoration, brick restoration, grass restoration, construction facilities and temporary controls, traffic control to maintain at least one lane of the roadway to vehicular traffic at all times and all other items incidental and necessary to complete the work as specified and shown in the contract documents.
- P. Bid Item 16- Dye Testing Service Connections
- It may be necessary for the Contractor to dye test service connections prior to lining the pipe to determine if an existing service connection is live or abandoned.
1. Measurement - Measurement will be based on the actual number of existing service connections dye tested complete, in place and accepted.
 2. Payment – The number of each item as determined above shall be paid for at the contract unit price bid for this item. The unit price bid for these items will be full compensation for providing all labor, material, equipment, tools and incidentals necessary to complete the dye testing including dye, **mainline sewer inspection camera**, notifications, coordination with property owners, construction facilities and temporary controls, traffic control to maintain at least one lane of the roadway to vehicular traffic at all times and all other items of work necessary to complete the dye testing in accordance with the requirements of the Contract Documents.
- Q. Bid Item 17 -3'-0" Sectional Cured in Place Pipe (CIPP) Liner Repair of 6" Pipe
1. Measurement- Measurement will be based on the actual number of CIPP sectional liners completed per the requirements of the contract documents and accepted.
 2. Payment- The number of each item as determined above shall be paid for at the contract unit price bid for this item. The unit price bid for this item will be full compensation for providing all labor, Products, material equipment, tools and incidentals necessary to install

a 3'-0" long sectional GIPP sectional liner where directed by the Engineer. The price to install each liner shall be full compensation for all labor, materials, Products and equipment necessary to install the sectional liners in accordance with the requirements of the specifications. The work of this bid item also includes notifications, warranty inspections, construction facilities and temporary controls, traffic control to maintain at least one lane of the roadway to vehicular traffic at all times and all other incidental work necessary to comply with the Contract Documents.

R. BidItem 18-Grout

1. Measurement – The quantity of grout will be measured by the actual number of gallons of grout used to stop active infiltration into the existing pipe to be lined under this project.
2. Payment – The unit price for this item has been fixed by the Engineer at \$9.00 per gallon of grout which will be full compensation for providing all labor, material, equipment, tools, construction facilities and temporary controls, traffic control to maintain at least one lane of the roadway to vehicular traffic at all times and incidentals necessary to furnish the grout to seal points of suspected or active infiltration into pipe and structures.

S. Bid Item 19-Pre-liner

1. Measurement - Measurement of lineal feet of pre-liner to be paid for under this section shall be the actual number of lineal feet of pre-liner installed in accordance with these specifications, measured along the pipe line from center of MH to center of MH complete, in place and accepted.
2. Payment- The lineal feet of pre-liner to be paid for as determined above shall be paid for at the contract unit price bid for this item. The unit price bid for this item will be full compensation for providing all labor, products, material, equipment, tools, traffic control to maintain at least one lane of the roadway to vehicular traffic at all times and incidentals necessary to install the pre-liner in accordance with the requirements of the specifications.

Bid Item 19A – 6" Pre-Liner
Bid Item 19B – 8" Pre-Liner
Bid Item 19C – 10" Pre-Liner

T. Bid Item 20- Packer Injection Chemical Grouting

1. Measurement - Measurement will be based on the actual number of pipejoints and laterals pressure grouted per the requirements of the contract documents and accepted.
2. Payment - The number of each item as determined above shall be paid for at the contract unit price bid for this item. The unit price bid for this item will be full compensation for providing all labor, products, material (except grout), equipment, tools and incidentals necessary to pressure grout and chemically seal pipejoints and lateral connections to the main. The bid item also includes clean up, removal of excess grout from the mainline sewer, disposal of debris, traffic control to maintain at least one lane of the roadway to vehicular traffic at all times and record keeping. The gallons of grout used will be paid separately under another bid item.

Bid Item 20A- Sewer Pipe Joint Packer Injection Chemical Grouting 8" to 10" pipe
Bid Item 20B – Lateral Connection Packer Injection Grouting 8" to 10" pipe

END OF SECTION AD-1 01025- MEASUREMENT AND PAYMENT

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