



STATE OF DELAWARE
DEPARTMENT OF TRANSPORTATION
800 BAY ROAD
P.O. Box 778
DOVER, DELAWARE 19903

JENNIFER COHAN
SECRETARY

VIA OVERNIGHT DELIVERY

November 17, 2017

Contract No. T201703602.01
Drainage Improvements, Open End, South, FY18-20
Sussex County

Ladies and Gentlemen:

Enclosed is Addendum No. 1 for the referenced contract consisting of the following:

1. The receipt of bids date for this project was previously moved to November 21, 2017. The date for the receipt of bids has moved again to Tuesday, **November 28**, 2017 at 2:00 p.m.
2. The Bid Proposal Cover, revised, to be substituted for the same page in the Proposal.
3. One (1) page, Table of Contents, page iv, revised, to be substituted for the same page in the Proposal.
4. Four (4) pages, Special Provision 601501- Installing Pipe Liner, was improperly titled and contained the wrong information. This has been deleted and replaced with the correct Special Provision, 601501- Spray Applied Structural Liner for Pipes. This corrected Provision is to be substituted for the same pages in the Proposal.
5. Six (6) pages, Bid Proposal Forms, pages 4, 5, 6, 7, 8 and 9, revised, to be substituted for the same pages in the Proposal. Item Number 610000 has been deleted and the title for Item Number 601501 has been corrected.
6. Expedite File Disc, Addendum No. 1.

Please note the revisions listed above and submit your bid based upon this information.

Sincerely,

~signature on file~

Robert A. Kovacs
Competitively Bid Contracts Coordinator
Delaware Department of Transportation

STATE OF DELAWARE



DEPARTMENT OF TRANSPORTATION

BID PROPOSAL

for

CONTRACT T201703602.01

Drainage Improvements, Open End, South, FY18-20

Sussex County

ADVERTISEMENT DATE: October 16, 2017

COMPLETION TIME: 365 Calendar Days

SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION
DELAWARE DEPARTMENT OF TRANSPORTATION
AUGUST 2016

Bids will be received in the Bidder's Room at the Delaware Department of Transportation's Administration Building, 800 Bay Road, Dover, Delaware until 2:00 P.M. local time ~~November 14~~ ~~November 21~~ **November 28, 2017**

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601501 - INSTALLING PIPE LINER

Description:

This work shall consist of installing a resin-impregnated flexible tube, which is tightly formed to the host pipe. The resin is then cured using either hot water under hydrostatic pressure or steam pressure within the tube. The Cured-In-Place Pipe (CIPP) will be continuous and tight fitting and will act as a structural pipe liner.

Materials:

Tube:

The sewn tube shall consist of one or more layers of absorbent non-woven felt fabric and meet the requirements of ASTM F1216, Section 5.1 or ASTM F1743, Section 5.2.1 or ASTM D 5813, Sections 5 and 6. The tube shall be constructed to withstand installation pressures, have sufficient strength to bridge missing pipe, and stretch to fit irregular pipe section. The tube may also contain felt layers reinforced with glass or carbon fibers.

The wet out tube shall have a relatively uniform thickness that when compressed at installation pressures will equal or exceed the calculated minimum design CIPP wall thickness.

The tube shall be manufactured to a size that when installed will tightly fit the internal circumference and length of the host pipe. Allowance should be made for circumferential stretching during installation.

The outside layer of the tube shall be coated with an impermeable, flexible membrane that will contain the resin and allow the resin impregnation (wet out) procedure to be monitored.

The tube shall contain no intermediate or encapsulated elastomeric layers. No material shall be included in the tube that may cause delamination in the cured CIPP. No dry or unsaturated layers shall be evident.

The wall color of the interior pipe surface of CIPP after installation shall be a relatively light reflective color so that a clear detailed examination with closed circuit television inspection equipment may be made.

Seams in the tube shall be stronger than the non-seamed felt material.

The tube shall be marked for distance at regular intervals along its entire length, not to exceed 5 ft. Such markings shall include the Manufacturer's name or identifying symbol. The tubes must be manufactured in the USA.

Resin:

The resin system shall be a corrosion resistant polyester or vinyl ester system including all required catalysts, initiators that when cured within the tube create a composite that satisfies the requirements of ASTM F1216, ASTM D5813 and ASTM F1743, the physical properties herein, and those which are to be utilized in the submitted and approved design of the CIPP for this project. The resin shall produce a CIPP that will comply with the structural and chemical resistance requirements of this specification.

STRUCTURAL REQUIREMENTS

The CIPP shall be designed as per ASTM F1216, Appendix X.1. The CIPP design shall assume no bonding to the original pipe wall.

The Contractor must have performed long-term testing for flexural creep of the CIPP pipe material installed by his Company. Such testing results are to be used to determine the long-term, time dependent flexural modulus to be utilized in the product design. This is a performance test of the materials (Tube and Resin) and general workmanship of the installation and curing as defined within the relevant ASTM standard. A percentage of the instantaneous flexural modulus value (as measured by ASTM D790 testing) will be used in design calculations for external buckling. The percentage, or the long-term creep retention value utilized, will be verified by this testing. Retention values exceeding 50% of the short-term test results shall not be

applied unless substantiated by qualified third party test data to the Owner's satisfaction. The materials utilized for the contracted project shall be of a quality equal to or better than the materials used in the long-term test with respect to the initial flexural modulus used in the CIPP design.

The Enhancement Factor 'K' to be used in 'Partially Deteriorated' Design conditions shall be assigned a value of 7.

The layers of the cured CIPP shall be uniformly bonded. It shall not be possible to separate any two layers with a probe or point of a knife blade so that the layers separate cleanly or the probe or knife blade moves freely between the layers. If the layers separate during field sample testing, new samples will be required to be obtained from the installed pipe. Any reoccurrence may cause rejection of the work.

The cured pipe material (CIPP) shall conform to the structural properties, as listed below.

MINIMUM CIPP PHYSICAL PROPERTIES

<u>Property</u>	<u>Test Method</u>	<u>min. per ASTM F1216</u>	<u>Cured Polyester Composite Enhanced Resin</u>
Modulus of Elasticity	ASTM D790	250,000 psi	400,000 psi
Flexural Stress	ASTM D790	4,500 psi	4,500 psi

The required structural CIPP wall thickness shall be based as a minimum, on the physical properties above or greater values if substantiated by independent lab testing and in accordance with the design equations in the Appendix X1. Design Considerations of ASTM F1216, and the following design parameters:

Design Safety Factor (typically used value)	=	<u>2.0</u>
Retention Factor for Long-Term Flexural Modulus to be used in Design (As determined by long-term tests described above and approved by the Owner)	=	<u>50% - 75%</u>
Ovality* (calculated from (X1.1of ASTM F1216)	=	<u>%</u>
Enhancement Factor, K	=	<u> </u>
Groundwater Depth (above invert of existing pipe)*	=	<u>ft.</u>
Soil Depth (above crown of existing pipe)*	=	<u>ft.</u>
Soil Modulus**	=	<u>psi</u>
Soil Density**	=	<u>pcf</u>
Live Load**	=	<u>HS25 Highway</u>
Design Condition (partially or fully deteriorated)***	=	<u>***</u>

* Denotes information, which can be provided here or in inspection videotapes or project construction plans. Multiple lines segments may require a table of values.

** Denotes information required only for fully deteriorated design conditions.

*** Based on review of video logs, conditions of pipeline can be fully or partially deteriorated. (See ASTM F1216 Appendix) The Owner will be sole judge as to pipe conditions and parameters utilized in design.

Any layers of the tube that are not saturated with resin prior to insertion into the existing pipe shall not be included in the structural CIPP wall thickness computation.

TESTING REQUIREMENTS

Chemical Resistance - The CIPP shall meet the chemical resistance requirements of ASTM F1216, Appendix X2. CIPP samples for testing shall be of tube and resin system similar to that proposed for actual construction. It is required that CIPP samples with and without plastic coating meet these chemical-testing requirements.

Hydraulic Capacity - Overall, the hydraulic cross-section shall be maintained as large as possible. The

CIPP shall have a minimum of the full flow capacity of the original pipe before rehabilitation. Calculated capacities may be derived using a commonly accepted roughness coefficient for the existing pipe material taking into consideration its age and condition.

CIPP Field Samples - When requested by the Owner, the Contractor shall submit test results from field installations of the same resin system and tube materials as proposed for the actual installation. These test results must verify that the CIPP physical properties specified herein have been achieved in previous field applications. Samples for this project shall be made and tested as described in this specification.

Pre-installation Requirements:

Prior to installing the pipe liner, the Contractor must clean and inspect the host pipe and ensure that it is clean, dry and stable. The Contractor must furnish all equipment necessary to inspect, remove stones, silt and other debris, and dewater the host pipe to the satisfaction of the Engineer.

PRODUCT, MANUFACTURER/INSTALLER QUALIFICATION REQUIREMENTS

Products and Installers seeking approval must meet all of the following criteria to be deemed Acceptable:

For a Product to be considered acceptable, a minimum of five successful projects of a similar size and scope of work shall be performed in the U.S. and documented to the satisfaction of the Owner to assure commercial viability

For an Installer to be considered as Commercially Proven, the Installer must have had at least 5 (five) years active experience in the commercial installation. Acceptable documentation of these minimum installations must be submitted to the Owner. **Installer's project managers must have a minimum of 2 years of CIPP installation experience and must be on-site during the installation of the CIPP products.**

Rehabilitation products submitted for approval must provide third party test results supporting the structural performance (short-term and long-term) of the product and such data shall be satisfactory to the Owner. No product will be approved without independent third party testing verification.

The owner authorizes the use of proven materials that serve to enhance the pipe performance specified herein. Proven materials have passed independent laboratory testing, not excluding long-term (10,000 hour) structural behavior testing, and have been successfully installed to repair failing host pipes in the U. S. for at least 4 years. In addition to the aforementioned, the owner may require that the contractor demonstrate that the enhancements proposed exceed the specifications herein, prior to the installation of the enhanced material systems. This section in no way shall be interpreted as authorization to deviate from the minimum standard practices set forth herein.

Construction Methods:

Prior to installation of the liner, an installation plan must be submitted to and approved by the Department. This plan shall be submitted by the Contractor and approved by the Manufacturer prior to approval by the Department. The plan shall include the following; the pipe liner material (tube and resin), tests and certifications of the material, liner design calculations stamped by a professional Engineer licensed in the state of Delaware, measurements of the host pipe, installer documentation, installation procedure, and associated drawings.

The finished pipe liner shall be trimmed neatly to match the ends of the host pipe or to be flush with the headwall, if present.

CIPP installation shall be in accordance with ASTM F1216, Section 7, or ASTM F1743, Section 6, with the following modifications:

Resin Impregnation - The quantity of resin used for tube impregnation shall be sufficient to fill the volume of air voids in the tube with additional allowances for polymerization shrinkage and the potential loss of resin during installation through cracks and irregularities in the original pipe wall, as applicable.

Tube Insertion – The wet out tube shall be positioned in the pipeline using either inversion or a pull-in

method as defined within relevant ASTM standards previously stipulated. If pulled into place, a power winch or its equivalent should be utilized and care should be exercised not to damage the tube as a result of pull-in friction. The tube should be pulled-in or inverted through an existing manhole or approved access point and fully extend to the next designated manhole or termination point.

Temperature gauges shall be placed between the tube and the host pipe's invert position to monitor the temperatures during the cure cycle.

Curing shall be accomplished by utilizing hot water under hydrostatic pressure or steam pressure in accordance with the manufacturer's recommended cure schedule. A cool-down process shall be conducted that complies with the resin manufacturer's specification.

INSPECTION:

CIPP samples shall be prepared for each installation. Pipe physical properties will be tested in accordance with ASTM F1216 or ASTM F1743, Section 8, using either method proposed. The flexural properties must meet or exceed the values in this specification, Table 1 of ASTM F1216 or the values submitted to the Owner/engineer by the contractor for this project's CIPP wall design, whichever is greater.

Wall thickness of samples shall be determined as described in paragraph 8.1.6 of ASTM F1743. The minimum wall thickness at any point shall not be less than 87½% of the submitted minimum design wall thickness.

Visual inspection of the CIPP shall be in accordance with ASTM F1743, Section 8.6.

Method of Measurement:

The quantity of pipe liner will be measured in linear feet along the bottom centerline as installed and accepted.

Basis of Payment:

The payment for installation of pipe liner will be paid for at the contract unit price per foot. Price and payment will constitute the full compensation for cleaning the host pipe, designing, manufacturing, handling, storing and installing the pipe liner inside of the host pipe. All necessary components, along with all incidental work associated with the above, including all necessary coordination with the Manufacturer and Installer.

9/25/17

601501 - SPRAY APPLIED STRUCTURAL LINER FOR PIPES

601501.01 Description.

- A. Furnish and place spray applied structural liner for the rehabilitation of existing pipes using factory blended cementitious material.

601501.02 Materials.

- A. Provide repair mortar materials per Table 601501-1 and pipe liner materials per Table 601501-2. In addition, pipe liner material must have less than 10% fly ash, must include fibers, and must include admixtures to enhance autogenous healing.

Table 601501-1, Repair Mortar Requirements			
Property	Test Method	Duration	Requirements
Set time @ 70°F	ASTM C403	Initial Set Final Set	Approx. 150 min. Approx. 240 min.
Flexural Strength	ASTM C293	28 Days	Min. 1500 psi
Compressive Strength	ASTM C109	1 Day 28 Days	Min. 5000 psi Min. 11,500 psi
Modulus of Elasticity	ASTM C469	28 Days	Min. 3,480,000 psi
Tensile Strength	ASTM C496	---	Min. 700 psi
Shear Bond Strength	ASTM C882	28 Days	Min. 1700 psi
Freeze Thaw	ASTM C666	300 Cycles	Pass (<1% loss)

Table 601501-2, Pipe Liner Mortar Requirements			
Property	Test Method	Duration	Requirement
Set Time @70°F	ASTM C403	Initial Set Final Set	Approx. 150 min. Approx. 240 min.
Flexural Strength	ASTM C293	1 Day 28 Days	Min. 1200 psi Min. 1500 psi
Compressive Strength	ASTM C109	1 Day 28 Days	Min. 4000 psi Min. 10,000 psi
Modulus of Elasticity	ASTM C469	28 Days	Max. 5,260,000 psi
Residual Flexural Strength @ L/300	ASTM C10609	---	Min. 500 psi
Tensile Strength	ASTM C496	---	Min. 850 psi
Shear Bond Strength	ASTM C882	28 Days	Min. 2900 psi
Chloride Ion Penetration	ASTM C1202	---	Max. 50 Coulombs
Freeze Thaw	ASTM C666	300 Cycles	Pass (<1% loss)

601501.03 Construction.

A. Submittals. Submit for approval a written installation plan for the structural liner at least thirty (30) days before beginning work. Include the following information:

1. Contractor qualifications showing at least five (5) years of experience performing the proposed work. Include at least three (3) references with the qualifications
2. All calculations sealed by a Professional Engineer registered in the State of Delaware.
 - a. Design the structural spray liner rehabilitation system in accordance with the edition of the AASHTO LRFD Bridge Design Specifications shown in the plans. The system must be able to support all applicable design loads assuming that the existing corrugated metal pipe carries no load and must provide a minimum 50 year service life for durability. Use the following variables for design of the structural spray applied liners:

Table 601501-3, Structural Liner Design Variables		
Variable	Value	Units
Groundwater Height	Top of pipe unless otherwise noted on the plans	ft.
Poisson's Ratio	0.3	N/A
Lateral Earth Pressure Ratio	0.45	N/A
Soil Density	120 minimum	lb/cf.
Soil Modulus of Reaction	2000 maximum	psi
Long Term Material Modulus	100% of short term material modulus	psi
Factory of Safety	2.0 minimum	N/A
Crack Width	0.01 maximum	inches
Live Load	HL-93	psi
Thickness	1.5 min. measured over peak of corrugation; increase calculated value to nearest 0.5 intervals	inches

3. Methods of cleaning and surface preparation of the existing pipe. This should include repair methods for areas of 100% section loss of the existing pipe.
4. Method to verify applied thickness during installation.
5. Video survey of the existing pipe before installation.
6. Site specific health and safety plan.

Do not begin work until submittals have been approved by the Engineer. Any changes or deviations from the approved submittals must be resubmitted. The Engineer will not grant an extension of time because of incomplete submittals.

Contract No. T201703602.01

During construction, submit the following information to the Engineer:

- i. Test results performed that demonstrate the liner material meets the material requirements. Perform the tests on specimens prepared at the project site.
 - ii. Daily thickness measurements of the spray material.
 - iii. Temperature and humidity readings in the existing pipe.
- B. Shipment and Storage. Follow the manufacturer's recommendations for shipment and storage of all materials. Ensure the material safety data sheets accompany the materials. Do not use material from defective, punctured, or damaged containers. Ensure that each container is labelled with a batch or lot number and with an expiration or use-by date.
- C. Preparation. Dewater the work area as shown in the Plans. Existing pipe must be completely dry before beginning installation. Remove all debris and obstructions from the existing pipe. Clean and prepare the surface of the existing pipe in accordance with the manufacturer's recommendations and the approved installation plan.
- D. Installation. Control the temperature and humidity within the existing pipe according to the manufacturer's recommendation. Measure and record the temperature and humidity.

Patch holes and gaps in the existing pipe with the repair mortar to provide a solid continuous surface on which to spray. Stop water infiltration into the existing pipe by applying dry hydraulic cement, filling holes with polyurethane foam, or other methods approved by the Engineer.

Prepare lateral connections to the existing pipe according to the manufacturer's recommendations.

Protect walls, surfaces, streambed, and plants from overspray at the entrance and exit of the existing pipe. Apply the material to the prepared surface using methods that provide a uniform surface. Use a high speed bi-directional centrifugal spincaster to apply the liner material. Troweling the liner material is prohibited.

Record the batch or lot number from the containers used each day.

Verify the applied thickness at various, random perimeter locations at least once every 10 feet to the satisfaction of the Engineer. Apply additional material to any areas found to be less than the design thickness.

Provide at least two 2-inch cube test specimens of the liner material as required per ASTM C109 for testing. Testing will be the responsibility of the Department.

Ensure the liner is continuous over the length of the existing pipe and free from defects such as foreign inclusions, holes, and cracks larger than 0.01 inches wide. Ensure the sprayed liner is impervious to infiltration and exfiltration.

Apply a curing compound in accordance with ASTM C309.

Contain, collect, characterize, and legally dispose of all waste generated during the work.

- E. Post-Installation. Repair all defects in the liner as directed by the Engineer at no cost to the Department. Perform a post-installation video survey for all pipes with a diameter less than 48 inches and provide a copy of the video to the Engineer. Pipes 48" in diameter and larger will be visually inspected by the Department.

Contract No. T201703602.01

612533.04 Method of Measurement.

- A. The quantity of spray applied structural liner for pipes will be measured as the actual number of linear feet of liner placed and accepted measured from end to end parallel to the flowline of the pipe. Acceptance will be determined after receipt and approval of the pipe video for pipes smaller than 48" in diameter and a visual inspection for pipes 48" in diameter and greater.

612533.05 Basis of Payment.

- A. The Department will pay for accepted quantities at the Contract Unit Price as follows:
- B. The quantity of spray applied structural liner for pipes will be paid for at the Contract Unit Price per linear foot. Price and payment will constitute full compensation for preparing submittals, furnishing Equipment and water, disposing of removed material, installing the liner, and for all labor, Equipment, tools, and incidentals to complete the Work.

11/15/2017

DELAWARE DEPARTMENT OF TRANSPORTATION
SCHEDULE OF ITEMS

PAGE: 4
DATE:

CONTRACT ID: T201703602.01 PROJECT(S): T201703602

All figures must be typewritten.

CONTRACTOR : _____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		BID AMOUNT	
			DOLLARS	CTS	DOLLARS	CTS
0300	601142 REINFORCED CONCRETE FLARED END SECTION, 18"	2.000 EACH				
0310	601144 REINFORCED CONCRETE FLARED END SECTION, 24"	2.000 EACH				
0320	601146 REINFORCED CONCRETE FLARED END SECTION, 30"	2.000 EACH				
0330	601220 CORRUGATED POLYETHYLENE PIPE, TYPE S, 15"	200.000 LF				
0340	601225 CORRUGATED POLYETHYLENE PIPE, TYPE S, 36"	200.000 LF				
0350	601229 CORRUGATED POLYETHYLENE PIPE, TYPE S, 60"	200.000 LF				
0360	601501 SPRAY APPLIED STRUCTURAL LINER FOR PIPES	360.000 LF				
0370	601502 INSTALLATION OF ENTRANCE PIPE	500.000 LF				
0380	602002 DRAINAGE INLET, 34" X 18"	5.000 EACH				
0390	602003 DRAINAGE INLET, 34" X 24"	5.000 EACH				

DELAWARE DEPARTMENT OF TRANSPORTATION
SCHEDULE OF ITEMS

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CONTRACTOR : _____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		BID AMOUNT	
			DOLLARS	CTS	DOLLARS	CTS
0400	602004 DRAINAGE INLET, 48" X 30"	5.000 EACH				
0410	602031 MANHOLE, 48" X 48"	5.000 EACH				
0420	602035 MANHOLE, ROUND	5.000 EACH				
0430	602100 REPLACE DRAINAGE INLET GRATE(S)	5.000 EACH				
0440	602130 ADJUSTING AND REPAIRING EXISTING DRAINAGE INLET	10.000 EACH				
0450	602132 ADJUSTING AND REPAIRING EXISTING MANHOLE	10.000 EACH				
0470	701013 P.C.C. CURB, TYPE 1-8	200.000 LF				
0480	701018 I.P.C.C. CURB AND GUTTER, TYPE 1-8	200.000 LF				
0490	701019 I.P.C.C. CURB AND GUTTER, TYPE 2	200.000 LF				
0500	705001 PCC SIDEWALK, 4"	400.000 SF				
0510	707015 RIPRAP, R-4	500.000 TON				

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CONTRACTOR : _____

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		BID AMOUNT	
			DOLLARS	CTS	DOLLARS	CTS
0520	707016 RIPRAP, R-5	2500.000				
		TON				
0530	707017 RIPRAP, R-6	1500.000				
		TON				
0540	707020 PRESACKED CONCRETE RIPRAP	50.000				
		CY				
0550	707500 CHANNEL BED FILL	750.000				
		CY				
0560	708003 GEOTEXTILES, RIPRAP	6000.000				
		SY				
0570	720021 GALVANIZED STEEL BEAM GUARDRAIL, TYPE 1-31	200.000				
		LF				
0580	720025 GUARDRAIL OVER CULVERTS, TYPE 2-31	4.000				
		EACH				
0590	720026 GUARDRAIL OVER CULVERTS, TYPE 3-31	4.000				
		EACH				
0600	720028 CURVED GUARDRAIL SECTION	100.000				
		LF				
0610	721000 GUARDRAIL END TREATMENT, TYPE 1-31, TEST LEVEL 2	6.000				
		EACH				

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CONTRACTOR :

LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		BID AMOUNT	
			DOLLARS	CTS	DOLLARS	CTS
0620	721001 GUARDRAIL END TREATMENT, TYPE 1-31, TEST LEVEL 3	6.000 EACH				
0630	762000 SAW CUTTING, BITUMINOUS CONCRETE	1200.000 LF				
0640	762001 SAW CUTTING, CONCRETE, FULL DEPTH	200.000 LF				
0650	763000 INITIAL EXPENSE/DE-MOBILIZATION	LUMP	LUMP			
0660	763500 MOBILIZATION	15.000 EACH				
0670	803001 FURNISH AND MAINTAIN PORTABLE CHANGEABLE MESSAGE SIGN	500.000 EADY				
0680	807002 FURNISH AND INSTALL TEMPORARY P.C.C. SAFETY BARRIER, PINNED IN BITUMINOUS PAVEMENT	500.000 LF				
0690	807010 REMOVE TEMPORARY P.C.C. SAFETY BARRIER, PINNED IN BITUMINOUS PAVEMENT	500.000 LF				
0700	808002 FURNISH AND MAINTAIN TRUCK MOUNTED ATTENUATOR, TYPE II	50.000 EADY				
0710	809001 INSTALL TEMPORARY IMPACT ATTENUATOR	2.000 EACH				

DELAWARE DEPARTMENT OF TRANSPORTATION
SCHEDULE OF ITEMS

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		BID AMOUNT	
			DOLLARS	CTS	DOLLARS	CTS
0720	809003 FURNISH TEMPORARY IMPACT ATTENUATOR, GATING, NON- REDIRECTIVE, TEST LEVEL 3	2.000 EACH				
0730	810001 TEMPORARY WARNING SIGNS AND PLAQUES	1000.000 EADY				
0740	811003 FLAGGER, SUSSEX COUNTY, STATE	1000.000 HOUR				
0750	811015 FLAGGER, SUSSEX COUNTY, STATE, OVERTIME	200.000 HOUR				
0760	813001 TEMPORARY BARRICADES, TYPE III	1000.000 LFDY				
0770	817003 TEMPORARY MARKINGS, PAINT, 4"	1000.000 LF				
0780	817009 TEMPORARY MARKINGS, TAPE, 4"	1000.000 LF				
0790	817013 PERMANENT PAVEMENT STRIPING, EPOXY RESIN PAINT, WHITE/YELLOW, 5"	4000.000 LF				
0800	817027 RAISED/RECESSED PAVEMENT MARKER	50.000 EACH				
0810	905001 SILT FENCE	12000.000 LF				

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SCHEDULE OF ITEMS

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LINE NO	ITEM DESCRIPTION	APPROX. QUANTITY AND UNITS	UNIT PRICE		BID AMOUNT	
			DOLLARS	CTS	DOLLARS	CTS
0820	906001 PORTABLE SEDIMENT TANK	15.000 EACH				
0830	906002 DEWATERING BAG	15.000 EACH				
0840	906003 SUMP PIT	15.000 EACH				
0850	908001 TOPSOIL	5000.000 TON				
0860	908014 PERMANENT GRASS SEEDING, DRY GROUND	1200.000 SY				
0870	908019 STREAMBANK SEED MIX, SEEDING	29000.000 SY				
0880	908020 EROSION CONTROL BLANKET MULCH	28000.000 SY				
	SECTION 0001 TOTAL					
	TOTAL BID					