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PROJECT SPECIAL PROVISIONS**GENERAL****SCOPE OF WORK:**

This work shall consist of the rehabilitation of existing storm water pipes, or culverts by the method or methods specified at the designated locations described in the Contract.

Pipe liner systems used for rehabilitation shall be from the NCDOT Approved Products List and may be subject to limitations for use as specified herein, by site-specific limitations for those locations listed in the Contract, or limitations as shown on the NCDOT Approved Products List for the specific liner system. **The Contractor shall consult the Contract to determine the method or methods that are permitted at each rehabilitation location.**

Liners provided per these special provisions shall be designed per the *NCDOT Manual for Pipe Rehabilitation*.

The Contractor shall provide contract submittals as called for herein to the Engineer a minimum of 10 days prior to start of installation.

DIVISION LET CONTRACT PREQUALIFICATION:

(07-01-14)(12-1-16)

SPD 01-410

Any firm that wishes to bid as a prime contractor shall be prequalified as a Bidder or PO Prime Contractor prior to submitting a bid. Information regarding prequalification can be found at: <https://connect.ncdot.gov/business/Prequal/Pages/default.aspx>.

Prior to performing the work, the prime contractor and/or subcontractor(s) shall be prequalified in the work code(s) which are identified as work items in the prime contractor's construction progress schedule that they will complete themselves. Any contractor identified as working outside their expertise may be considered in default of contract.

MANDATORY PRE-BID CONFERENCE (Prequalifying To Bid):

(7-18-06) (Rev. 12-23-25)

SPI 1-14A

In order for all prospective bidders to have an extensive knowledge of the project, all prospective bidders shall attend a *mandatory* pre-bid conference at **1:30 p.m., Thursday April 9th, 2026.**

**NCDOT Century Center Building B
Temporary Construction Entrance to Building B – Door B-2
Boiling Springs Conference Room
1020 Birch Ridge Drive
Raleigh, NC 27610
(919)707-7160**

- Soft spots
- Blisters or bubbles
- Delaminations
- Gaps in the length of the CIPP
- Gaps or a loose fit between the exterior of the CIPP and the culvert

• Test results indicate one of the following:

- If heat cured, 2 of the 3 flat plate samples do not have any of the following:
 - The specified modulus of elasticity
 - The specified flexural strength
- Either the specified modulus of elasticity or the specified flexural strength
- If UV cured, 2 of the 3 cured samples do not have any of the following:
 - The specified modulus of elasticity
 - The specified flexural strength
- Either the specified modulus of elasticity or the specified flexural strength

The liner thickness is less than the greater of either one of the following:

- Specified thickness
- Calculated minimum thickness shown in your authorized work plan

Materials and installation methods are not those shown in your authorized

- Materials and installation methods are not those shown in your authorized installation plan
- Defects are excessive or unrepairable
- CIPP is not continuous or does not fit tightly for the full length of the culvert.

If UV cured, and post installation inspections reveal signs of incomplete curing (dripping resin,

- etc), contractor will trim liner obscuring uncured liner, re-wet, and re-cure with UV.

Category B - Fold and Form Flexible Liners:

When Category B - Fold and form flexible liners are specified, the liner system shall conform to the following requirements as supported by submitted design calculations:

- Must provide hydraulic calculations comparing existing culvert to proposed culvert liner.
- Must provide structural calculations.
- Standards references:
 - ASTM D1784 defines PVC cell class
 - ASTM F1504 for PVC cell classification 12334 or 13223

- ASTM F1533 for polyethylene
- ASTM F714 for polyethylene min. cell classification 335420 and 2–4% carbon black - ASTM F1606 for deformed polyethylene
- ASTM F1947 for folded PVC
- ASTM F1867 for folded / formed PVC Type A
- ASTM F1871 for PVC Type A
- Polyethylene liner may not be used in applications where liner creep due to thermal expansion and contraction will be a detriment, such as a pipe with direct lateral connections.
- Minimum SDR shall be 32.5 to limit liner thickness and ensure adequate liner material properties.
- Must exactly follow ASTM F1606 Appendix X1.2.2 Fully Deteriorated Design Condition for Polyethylene; or ASTM F1947 Appendix X1.2.2 Fully Deteriorated Design Condition for PVC.
 - Check Fully Deteriorated design thickness against ASTM F1606 Appendix X1.2.1 Partially Deteriorated design thickness for Polyethylene; and ASTM F1947 Appendix X1.2.1 Partially Deteriorated design thickness for PVC. Use the thicker of Partially Deteriorated and Fully Deteriorated design methods.
- Minimum pipe ovality of 2% used for calculations.
 - If actual ovality is greater than 12.5% as described in ASTM F1947, submit calculations based on alternative design methods.
- Soil Enhancement Factor, maximum of 7.
- $326B$ Poisson's Ratio = 0.45 for PE and 0.38 for PVC.
 - Grout is assumed to have no greater load bearing capacity than surrounding soil.
 - Assume groundwater table elevation at greater of: crown of pipe or $\frac{1}{2}$ the distance between lowest invert of pipe and highest ground elevation over pipe.
 - Traffic loading is HS-20. Neglect after 8 ft of cover on single barrel culverts if span length is 8 ft or less. For multiple span culverts, the effects may be neglected where the depth of fill exceeds the distance between inside faces of endwalls. See AASHTO LRFD Bridge Design Specifications for additional information.
 - Total unit weight of soil is 120 pcf.
 - Modulus of soil reaction is 1,000 psi.
 - Factor of safety $N = 2.0$.
 - Long Term Modulus of Elasticity, 50-year sustained loading value shall be used.

22,000 psi shall be used for HDPE, PE, PP; and 140,000 psi shall be used for PVC; per AASHTO LRFD Bridge Design Specifications 8th ed., Table 12.12.3.3- Alternately, NCDOT Type 2 or Type 5 certifications may be submitted by vendors or contractors for proof of value used in calculations.

Warranty :

The Contractor shall provide a one year warranty on all materials and workmanship.

III. MEASUREMENT & PAYMENT

Pre Installation Inspection will be measured and paid for as the actual number of linear feet of pipe inspected, including mobilization of equipment, and production of records. Linear footage is not increased for multiple passes of inspection equipment through a length of pipe.

Pipe Rehabilitation will be measured and paid for as the actual number of linear feet of pipe for the Size, and Method that has been incorporated into the completed and accepted work. Note: At locations shown in the Contract where multiple methods are permitted, the Contractor may select any of the methods specified, however, if only one method is specified, this will be the only method permitted at that location. This price shall include cleaning and preparation of the host pipe, furnishing and installing the liner, lateral reconnection, coupling and expansion devices, annular cement grout, design (if necessary) and shop drawing preparation, furnishing and installing liner and all components of the liner system, capturing any discharges or releases during installation or curing operations, furnishing any documentation or fees required for effluent or condensate disposal, all testing and sampling including furnishing reports and pre and post installation video inspections, waste disposal costs, excavation, sheeting, shoring, disposing of surplus and unsuitable material; backfilling and backfill material; compaction, restoring existing surfaces, and clearing debris and obstructions.

De-Watering will be measured and paid as the actual number of water diversions or bypasses required to complete Pipe Rehabilitation work. Each instance of De-Watering paid includes De-Watering for pre-inspection, installation, post inspections, and remediation (if necessary). All materials, equipment, labor, or other resources required to de-watering a site shall be incidental to the unit cost for De-watering.

Payment will be made under:

Pay Item	Pay Unit
Pre-Installation Inspection	Linear Foot
(Size) Pipe Rehabilitation CIPP	Linear Foot
De-Watering Pump (Size)	Each

GROUTING HOST PIPE BEFORE LINING: