



Infrastructure Maintenance Center
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February 28, 2020

Mr. Evan Fischgrund, P.E.
Advanced Drainage Systems, Inc.
6800 Smith Road
Denver, CO 80207

RE: Approval of Advanced Drainage Systems, Inc. HP Storm Polypropylene Pipe for Storm Drainage Applications in the City of Thornton

Dear Mr. Fischgrund:

The city of Thornton is allowing the limited use of polypropylene pipe for storm sewer conveyance within the public right-of-way as an alternative to the currently specified storm sewer pipe materials identified in Section 400 - Storm Drainage Design, Grading, and Water Quality Technical Criteria of the City of Thornton Standards and Specifications (Standards and Specifications). The following conditions apply:

- Polypropylene pipe will be allowed in Thornton's right-of-way per the requirements listed in this approval letter.
- Until the Standards and Specifications are updated, use of polypropylene pipe will be subject to the requirements listed below. Once the Standards and Specifications are updated, they will supersede this approval letter. Polypropylene pipe ranging from 18-inch to 60-inch diameter will be allowed.
- Referenced specifications shall include:
 - ASTM D2321, Underground Installation for Thermoplastic Pipe for Sewers and Other Gravity-Flow Applications
 - ASTM F477, Elastomeric Seals (Gaskets) for Joining Plastic Pipe
 - ASTM F2764, 6 to 60-inch (150 to 1500 mm) Polypropylene (PP) Corrugated Double Wall Pipe and Triple Wall Pipe and Fittings for Non-Pressure Sewer Applications
 - ASTM F2881, Standard Specification for 12 to 60-inch (300 to 1500 mm) Polypropylene (PP) Dual Wall Pipe and Fittings for Non-Pressure Storm Sewer Applications
- Unless otherwise noted, pipe installation shall meet the standards specified in Section 400 - Storm Drainage Design, Grading, And Water Quality Technical Criteria of the Standards and Specifications.
- Backfill materials per ASTM D2321 shall be used for the bedding, haunch, and initial backfill zones per Section 400, Detail 400-2, Storm Drainage Pipe Bedding Details for High Density Polyethylene (HDPE) pipe, or approved alternative.
- At Thornton's request, polypropylene pipe shall meet the minimum joint performance requirements per ASTM D3212: a 10.8-psi gauge, laboratory pressure test for 10 minutes with no visible leaks at the joint. Watertight joints shall be bell-and-spigot and gaskets shall be made of polyisoprene meeting the requirements of ASTM F477.

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- At Thornton's request, deflection testing by use of a mandrel shall be completed by the contractor or independent agency agreed to by Thornton, and paid for by the contractor or owner/developer. Deflection testing shall be done prior to paving not less than thirty days after installation. The maximum allowable deflection shall not exceed five-percent (5%) during this testing. Pipes 36-inches in diameter or larger may be entered and deflection levels measured directly. This allows for specific equipment such as "Go/No Go" sticks, cut to ninety-five percent (95%) of the inside diameter. If using a mandrel, it shall be a nine (or greater odd number) arm mandrel and shall be sized and inspected by the Engineer of Record prior to testing.
- Pipe through which the mandrel does not pass will be considered unacceptable, and shall be re-laid, and also re-tested.
- Minimum pipe cover shall be 1-foot below the full roadway pavement section including base course.
- Maximum pipe cover shall not exceed manufacturer's recommended depth.
- Polypropylene pipe will not be allowed within 50-feet of outfalls/detention ponds/drainageways upstream or downstream, so that the pipe will not be susceptible to brittle transition in lower temperatures.

To our knowledge, the only manufacturer of polypropylene pipe is Advanced Drainage Systems, Inc. If another manufacturer is able to provide polypropylene pipe that meets the above referenced specifications, we will allow that product as well.

Please submit all proposed plans and specifications for projects that intend to use polypropylene pipe to Cassie Free at cassie.free@ThorntonCO.gov and Jason Pierce at jason.pierce@ThorntonCO.gov to assist in verifying whether the proposed pipe installation complies with these conditions and specifications.

Sincerely,



Jason Pierce, P.E.
Infrastructure Engineering Director

jp/kk

cc: Brett Henry, Executive Director of Infrastructure
Jim Kaiser, Engineering Manager/Floodplain Administrator
Todd Rullo, Deputy Infrastructure Director
Cassie Free, Development Engineering Manager
Brian Stockton, Development Inspection Supervisor