

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS AND TESTING DIVISION
MATERIALS PROCEDURE

SEWER AND WATERLINE MATERIALS PROCEDURE

1. PURPOSE

- 1.1. Define the Specifications, standards, and requirements for materials used in sewer and waterline construction Projects.
 - 1.2. Establish procedures for reviewing and approving Producer/Suppliers of sewer and waterline materials acceptable for use on Projects.
 - 1.3. Ensure materials meet industry standards to guarantee durability, performance, and safety in the construction and operation of sewer and waterline systems.
 - 1.4. Maintain a record of approved suppliers and their compliance with established standards.
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2. SCOPE

- 2.1. This procedure applies to the acceptance, approval, and use of materials for sewer and waterline construction, including, but not limited to, pipe materials, valves, hydrants, service lines, meters, and other related materials.
 - 2.2. This procedure applies to all sewer and waterline products used on Projects unless otherwise specified in the project plans.
 - 2.3. It applies to all producers/suppliers who provide sewer and waterline materials for use on WVDOH projects, ensuring compliance with specifications outlined in referenced standards.
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3. REFERENCED DOCUMENTS

- 3.1. MP 106.00.02 - Procedure for Evaluation of New Products for Use in Highway Construction
- 3.2. AWWA C151 - Ductile Iron Pipe
- 3.3. AWWA C104 - Cement Lining for Ductile Iron Pipe
- 3.4. AWWA C110 - Ductile Iron and Gray Iron Fittings
- 3.5. AWWA C153 - Ductile Iron Compact Fittings
- 3.6. AWWA C111 - Rubber Gasket Joints for Ductile Iron and Gray Iron Pressure Pipe and Fittings
- 3.7. AWWA C115 - Flanged Ductile Iron Pipe with Rubber Gasket Joints

- 3.8. AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe
 - 3.9. AWWA C905 - Polyvinyl Chloride (PVC) Pressure Pipe for Water Distribution
 - 3.10. ASTM D2241 - Polyvinyl Chloride (PVC) Pipe for Pressure Systems
 - 3.11. ASTM D3034 - Polyvinyl Chloride (PVC) Sewer Pipe
 - 3.12. ASTM D2239 - Polyethylene (PE) Pipe
 - 3.13. AWWA C800 - Copper Service Line Fittings
 - 3.14. AWWA C502 - Fire Hydrants
 - 3.15. ASTM A53 - Steel Pipe
 - 3.16. ASTM A139 - Electric-Fusion (Arc) Welded Steel Pipe
 - 3.17. ASTM A252 - Steel Pipe Piles
 - 3.18. ASTM B88 - Seamless Copper Water Tubing
 - 3.19. AWWA C700 - Water Meters
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4. MATERIAL REQUIREMENTS

- 4.1. Ductile Iron Pipe
 - 4.1.1. Ductile iron pipe used for waterline applications shall conform to AWWA C151.
 - 4.1.2. Cement lining for ductile iron pipe shall conform to AWWA C104.
 - 4.1.3. Fittings for ductile iron pipe shall conform to AWWA C110 or AWWA C153.
 - 4.1.4. Joints for ductile iron pipe shall conform to AWWA C111; flanged joints shall conform to AWWA C115.
- 4.2. PVC Pipe
 - 4.2.1. PVC pipe used in water and sewer applications must meet the following requirements unless specified otherwise by the utility:
 - 4.2.2. Pipe Size:
 - 1. Less than 4 inches:
 - A. Pressure applications: ASTM D2241, SDR 21
 - B. Non-pressure applications: ASTM D3034
 - 2. 4 inches to 12 inches :
 - A. Pressure applications: AWWA C900, DR 14
 - B. Non-pressure applications: ASTM D3034
 - 3. 14 inches to 16 inches:
 - A. Pressure applications: AWWA C905, DR 14
 - B. Non-pressure applications: ASTM D3034

4.2.3. Joint Requirements:

1. Pressure Applications: ASTM D3139
2. Non-Pressure Applications: ASTM D3212

4.3. Polyethylene Pipe

4.3.1. Polyethylene pipe shall conform to ASTM D2239 “PE3408.”

4.3.2. For potable water use, polyethylene pipe must be approved by the National Sanitation Foundation (NSF) for transmitting liquids intended for human consumption.

4.4. Copper Service Line

4.4.1. Copper service lines shall conform to ASTM B88.

4.4.2. Fittings used in copper service lines shall conform to AWWA C800.

4.5. Gate Valves

4.5.1. Gate valves shall conform to AWWA C500 or AWWA C509.

4.6. Valve Boxes

4.6.1. Valve boxes shall be specified on the construction plans.

4.7. Steel Casing Pipe

4.7.1. Steel casing pipe shall conform to one of the following:

1. ASTM A53, Grade B
2. ASTM A139, Grade B
3. ASTM A252, Grade 2
4. Hydrostatic test requirements for waterline and sewer line applications are waived for these steel casing pipes.

4.8. Fire Hydrants

4.8.1. Fire hydrants shall conform to AWWA C502. Specific details for fire hydrants should be referenced in the construction plans.

4.9. Water Meters

4.9.1. Meters shall conform to AWWA C700, with the type specified in the construction plans.

5. ACCEPTANCE PROCEDURE

5.1. With each shipment of sewer and waterline materials to the Project, the Producer/Supplier shall provide shipping documents that include an APL approval number confirming that the materials meet the Specifications.

6. ACCEPTANCE PROCEDURE (APPROVED SOURCE)

- 6.1. To become an approved source, producers/suppliers must perform the following actions:
 - 6.1.1. Submit completed [Form HL-468](#), as outlined in [MP 106.00.02](#), indicating intent to be listed on the WVDOT APL.
 - 6.1.2. Undergo an on-site evaluation conducted by MCS&T or approved consultants to verify compliance with material standards and storage practices.
- 6.2. Initial and annual evaluations are guided by criteria in Section 9 where applicable, including compliance with shipping policies and technical specifications.
- 6.3. MCS&T personnel will document evaluation findings in an inspection report. Approved suppliers will be assigned a laboratory approval number, which becomes the APL number.
- 6.4. Suppliers removed from the approved source list for non-compliance may reapply after one year, provided corrective measures are implemented.

7. ACCEPTANCE PROCEDURES (NON-APPROVED SOURCE)

- 7.1. Any sewer or waterline materials not supplied by an approved source are to be accepted or rejected by the direct coverage process.
- 7.2. If direct coverage inspection is required, the inspection or evaluation will conclude with a 7-digit Laboratory reference number indicating approval or rejection.

8. DOCUMENTATION

- 8.1. The approved source list for sewer and waterline materials will be updated as new producers/suppliers are added or removed.

9. PROCESS FOR THE EVALUATION CRITERIA OF SEWER AND WATERLINE MATERIAL SUPPLIERS

- 9.1. Establish whether the supply location is a business or a storage facility. Is the location primarily a storage yard, or does it include an office building with personnel capable of sales inquiries?
- 9.2. Determine if the location supplies industrial-quality sewer and waterline materials or residential-grade products. Does the supplier primarily cater to industrial and municipal applications?
- 9.3. Determine whether the supplier operates as a wholesaler, retailer, or both. Assess whether the location primarily provides materials for business-to-business transactions or serves retail customers.
- 9.4. Inform sales personnel that materials supplied, such as ductile iron pipe, valve boxes, and plastic pipe (poly), etc. must come from established APL sources and where to find these lists online.

- 9.5. Inform sales personnel of shipping procedures. Documents must include laboratory approval numbers, CID numbers for direct coverage, and tracking numbers. For approved sources, APL numbers must be included for District personnel.
- 9.6. Inform sales personnel on materials subject to "Buy American" requirements.
- 9.7. An outside and inside inventory evaluation of materials to identify those covered by their own APL versus those not covered. Ensure that sales personnel are aware of which materials require additional certifications or approvals.
- 9.8. Inform sales personnel how to manage backordered, partial, or drop-shipped materials and the proper procedures for sourcing from other approved producers/suppliers.
- 9.9. Ensure that all sewer and waterline systems meet the requirements of applicable Specifications, such as those outlined in Section 718.
- 9.10. Ensure that all valves, hydrants, and related hardware comply with AWWA standards (e.g., C500, C502).
- 9.11. Confirm that polyethylene pipes, copper service lines, and other specialty items meet ASTM and AWWA standards
- 9.12. Confirm that all steel casing pipes, valves, and water meters comply with applicable AWWA and ASTM standards (e.g., ASTM A53, AWWA C700), ensuring suitability for the project's requirements.

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Director

Materials Control, Soils & Testing Division

MP 718.00.00 Steward – Metals Section
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