

**MINNESOTA DEPARTMENT OF TRANSPORTATION  
STATE AID FOR LOCAL TRANSPORTATION DIVISION**

**Technical Memorandum No. 03-SA-01**

**March 12, 2003**

**TO:** County Engineers (Dist 618)  
City Engineers (Dist 650)  
Consulting Engineers (Dist 612)  
District State Aid Engineers

**FROM:** Julie Skallman  
State Aid Engineer

**SUBJECT:** Acceptable Culvert and Storm Sewer Pipe Materials

### **IMPLEMENTATION AND EXPIRATION**

This Technical Memorandum supercedes Section 5-892.605 Selection of Materials, of the State Aid Manual regarding choice of materials for storm sewer pipe and adds guidance for selection of culvert pipe materials. This memorandum will take effect immediately, and remain in effect until superseded or placed in the State Aid Manual.

### **PURPOSE**

The purpose of this Technical Memorandum is to clarify policy and provide guidance in the selection of materials for culverts and storm sewer pipes.

### **INTRODUCTION**

Mn/DOT Standard Specifications 2501 and 2503 allow for the use of any of several types of pipe materials, including metal, concrete, and polyethylene. The choice of material to use rests with the contractor, unless the plans or special provisions specify a certain material or materials options. To alert contractors of their options for selecting drainage pipe materials, a note in the plans is suggested.

Implementation of these guidelines will clarify options available to contractors for selection of pipe materials and so will serve to create maximum competition for material bids, maximizing the efficiencies of state-aid funding.

### **GUIDELINES**

Each agency is encouraged to include a note listing acceptable pipe material options on the Statement of Estimated Quantities sheet of the plan documents. This note does not change any specifications, allowable materials, previous Technical Memoranda, or authority to alter standard specifications in the State Aid Rules. It simply clarifies to the contractor which options are

allowable.

The note shall state in essence; “**Concrete, polyethylene, or metal pipe may be an option for drainage pipes. Refer to applicable special provisions, specifications, and/or plans.**” The note should be altered as necessary to reflect allowable options.

Designers may continue to specify a particular product to be used when professional engineering judgment determines that circumstances warrant. For storm sewer installed using state-aid funds, the specified storm sewer pipe materials should have a minimum service life of 75 years.

Guidance on specifying materials can be found in Section 2.4 of the Mn/DOT Drainage Manual (see attachment). Additional guidance on the use of polyethylene pipe for storm sewers can be found in the most current Mn/DOT Technical Memorandum on Use Of Dual-Wall Corrugated Polyethylene Pipe For Storm Sewer On Trunk Highways (see Mn/DOT web site).

#### **QUESTIONS:**

Any questions regarding the usage of appropriate pipe materials may be directed to John Boynton, State Hydraulics Engineer at 651-747-2162. For questions on the application of this technical memorandum, contact Mark Gieseke, State Aid Program Delivery Engineer at (651) 296-7679.

EXPIRED

March 12, 2003

2.4

August 30, 2000

**2.4 MATERIAL TYPES FOR DRAINAGE FACILITIES** Following is the policy for selecting material types for culverts, storm drains and tile.

**2.4.1 Culvert Materials**

Pipe for culverts shall be selected on the basis of the type which best fulfills all of the engineering requirements for a specific installation. Factors to be considered in fulfilling the engineering requirements should be hydraulic performance, structural stability, serviceability, and economy. The culvert design sheet shall provide documentation for each pipe installation indicating the engineering considerations which dictate the selection of the specific type of pipe.

If, for engineering reasons, the use of corrugated metal pipe is necessary in areas that have been detrimental to this type of pipe, the designer must take proper precautions such as increasing the thickness of the base metal or providing a protective coating to assure required serviceability.

Pipes for centerline culverts shall be selected on the basis of engineering analysis which result in the most favorable combination of hydraulic performance, structural stability, serviceability, and economy.

Reinforced concrete pipe, plain galvanized corrugated steel pipe or corrugated polyethylene pipe will normally be considered acceptable for culverts installed under minor side road approaches and private entrances except where engineering considerations dictate otherwise. If site considerations dictate, corrugated metal pipe with a protective coating could be used. The designer may choose to allow alternate material types in bidding proposals.

**2.4.2 Storm Drain Material**

Reinforced concrete pipe will normally be required for all storm drains. Corrugated polyethylene pipe may be allowed as an alternate to reinforced concrete pipe for 12" - 36" diameter pipes.

**2.4.3 Tile Materials**

For agricultural tile line crossings, 12-inch reinforced concrete pipe will generally be required between points five feet outside the toe of embankment slopes for tile lines 12 inches or less in diameter. Equivalent size reinforced concrete pipe will be required for tile lines larger than 12 inches in diameter.