

Low-bidding for buried infrastructure can be short-sighted, dangerous, and costly

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Some champions of competitive materials are asking why their products are not used more often in pipelines and culverts. The organizations they represent joined forces to change language in legislation to increase the use of flexible pipe products, especially high density polyethylene (HDPE). Tampering with legislation language through the actions of lobbyists and legislators runs the risk of increasing the liability of design engineers and specifiers. Such myopia can result in funding the construction of sewers and culverts that are not resilient and far from being considered as sustainable development (social, economic, and environmental). Taking the engineer out of the material selection process is dangerous and should not be supported.

The Victorian era of British history was the period from June 1837 until 1901. It was a period of great public works, including massive legacy sewer systems that are still very much in use today. The London sewers were not constructed of materials with a short service life. Engineers had the authority to design and specify the materials for pipelines and other structures that have proved to be resilient to acts of nature and man. Infrastructure was built for generations that would not be weakened by notions such as the short-sightedness of a 21st century society that caters to the low-bid ethos.

Why can we not ensure that engineers in the USA have the ability to design and specify the materials best-suited for their projects? The regulated profession now needs legislative tools like MAP 21/FAST Act to be able to create resilient highway infrastructure. Engineers do not need interference by thermoplastic pipe manufacturers, their sales force and lobbyists to limit their ability to choose pipe materials and products best suited for a particular application.

Such interference targeted Michigan's Section 606 of Senate bill 372 requiring that any manufactured pipe meet the Standards established by the American Society for Testing and

Materials. The language does not stop the Michigan Department of Transportation from using HDPE pipe, and creates a situation where the engineers have choice. They are not legislated to look at low bid only, that often favors the specification of low cost flexible pipe.

Being light, longer, and low capital cost are reasons often cited for the specification of thermoplastics to save taxpayers money, and that “competition on price alone” is considered by many to be good. When it comes to sewers and culverts that impact public maintenance budgets, health and safety – and yes resilience to natural and man-made catastrophes, more has to be considered like installation costs, the quality of the installation, and quality of material arriving onsite. Oxidation does not stop with concrete and metal pipe. Plastic oxidizes and weakens over time, while concrete (a rigid material) strengthens. It can be argued that the rate of failure of thermoplastics is hastened by live and dead loads when the soil structure around a thermoplastic installation is not constructed to Standards and codes. Those that believe that building to code will give ultimate performance are living in a fool’s paradise. Code is the bare minimum that should be met to be safe. Much more has to be considered for a pipeline system that will last through the ages and perform as expected. Design engineers and specifiers need to make choices based on technology, product and materials knowledge, and experience – not a sense of entitlement by some producers of competitive products, their associations and legislator champions.

Measuring the performance and value of competitive products before specifying pipeline and culvert material is critical to building resilient sewer systems and culverts. John Ruskin (1819-1900), renowned English critic, social commentator, and economist of the Victorian Age got it right when considering products and services competing for the same consumer:

“It is unwise to pay too much, but it is worse to pay too little. When you pay too much, you lose a little money. When you pay too little, you sometimes lose everything, because the thing you bought was incapable of doing the thing it was bought to do. The common law of business balance prohibits paying a little and getting a lot - it can’t be done. If you deal with the lowest bidder, it is well to add something for the risk you run. And, if you do that, you will have enough to pay for something better.”

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