PennDOT Absorptive Precast Noise Barrier Wall

INTRODUCTION:

Traffic noise levels are controlled with the use of noise walls, either by absorbing sound energy or by reflecting sound energy. PennDOT allows the use of precast noise barriers that utilize recycled scrap tires as elements of the absorptive noise system.

OVERVIEW OF PROJECT:

PennDOT District 5-0 used a precast sound absorbing noise wall barrier on SR 222 on a problematic noise-sensitive section in Lehigh County. Although the project design called for the use of a reflective noise panel system, PennDOT changed the scope of work to use an absorptive noise wall after initial testing showed positive results.

Approximately two linear miles of noise barrier walls were constructed. The noise walls were composed of prefabricated/prestressed concrete (structural element) with a sound-absorptive face containing inorganic materials (scrap tires) to improve the noise wall panels sound absorption characteristics. Typical dimension ranged in height from 10-16 feet and had a panel width of 20-25 feet. According to the manufacturer specifications, these systems have an 80% noise reduction coefficient and a sound transmission class rating of 42 decibels (db).

District 5-0 performed a cost comparison between the originally proposed reflective noise barriers and the substituted absorptive noise barrier systems. The results indicated that absorptive noise barrier panels were approximately $0.75/square foot more expensive than reflective panels. Transportation projects that use recycled materials are potentially eligible for funding under a Memorandum of Understanding (MOU) between PennDOT and PADEP. Because this project qualified for funding, PennDOT’s Pollution Prevention Section Office provided District 5-0 funding ($120K) to offset the additional costs.

District 5-0 will perform a project evaluation of the noise wall system and results will be released during fiscal year 2006-2007.

Project Information:
Reference PennDOT Strike-Off Letter 431-00-13 or visit the PennDOT Pollution Prevention Section website.

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Go to the PennDOT website at: http://www.dot.state.pa.us

Click on More Links—Strategic Recycle Program for more information.