

# slag Successes

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## Once again slag proves “less is more” on Michigan’s M-63 in Benton Harbor

The Levy Company helps shore up a foundation weakened because it’s too near the shore



*M-63 project, Benton Harbor, Michigan*

As you can see in the picture above, the water’s edge runs right alongside M-63 in Benton Harbor. It poses a problem unique to the area, namely sand and silt that, without the proper fill, could become fluid and act like quicksand. Without question, a lightweight fill had to be used.

According to Louie Ramos, Resident Engineer, with the Coloma Transportation Service Center of the Michigan Department of Transportation, “We used a geo-technical engineer who verified the need for a lightweight fill.”

He added, “We could have used

Styrofoam® blocks, but the cost would have put us way over budget. Slag was the answer.”

Unlike many construction projects, the unstable environment of sand and silt negated the use of heavier natural aggregate or soil. Other lightweight material might have supplied the weight credit needed, but the cost would have been prohibitive. The solution? Air-cooled blast furnace (ACBF) slag.

“Enter The Levy Company of Portage, IN, which supplied 160,000 tons of an ASTM C33 size 2 (4”x2”) ACBF slag, giving us the stability we

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**slag Successes** *Continued*

needed,” commented Bob Marvin, project manager from Kalin Construction.

ACBF’s cubical texture and light-weight properties made it the resounding choice. The texture also made it superior to rounded natural gravels. ACBF’s particle size, shape and angularity guarantee a high angle of internal friction and the high stability demanded on this portion of M-63.

According to Jeffrey Mellen of The Levy Company, “ACBF slag can be used in most fill applications. It’s cubical texture forms a strong stone-on-stone bridging bond.”

On the M-63 job, the engineering qualities of ACBF slag provided the value and stability of high-grade fill while only exerting 75 lbs./cubic foot pressure on the original marginal soil.

Mellen added, “The size of the material we used made it self-compacting, saving lay-down costs. And its porosity and permeability aid in making it a natural drainage material.”

Though the project is still ongoing, Ramos of M-Dot remarked, “I am not aware of any problems. The soil dictated a lightweight fill and the slag portion is completed.”

This project was not without its stumbling blocks, (see box at right) but The Levy Company assures all that the use of ACBF slag is cost-effective, environmentally safe, and the right answer for this unique highway construction project.

*This is another Slag Success Story brought to you by the National Slag Association.*



*Tons of ACBF slag help provide a cost-effective foundation as Michigan’s M-63 suspended roadway is replaced.*



*The Levy Company of Portage, Indiana, delivers ACBF slag.*

The ground below the suspension section of the roadway, once a Whirlpool factory, was contaminated by heavy metals, which Whirlpool cleaned up over several years. The company was concerned that ACBF slag might recontaminate the area. After numerous meetings with the EPA, Whirlpool, Michigan Department of Transportation, Michigan Department of Natural Resources and The Levy Company, it was determined that ACBF slag did not pose any threat of recontamination.

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