Aggregate & Ready Mix Association of Minnesota

Pervious pavers used for Minneapolis animal shelter

ARM Member Loucks Associates designed the first eco-paver system in the City of Minneapolis for the Minneapolis Animal Shelter. The paver system was used for the parking lot and garage entrance areas. The design included a three-foot rock subgrade to maximize infiltration of stormwater runoff. This was supplemented by an underground drain tile system wrapped with geotextile sock to allow infiltration to the storm sewer system when the rainfall exceeds the capacity of the infiltration system. For more information, contact Rory Synstellen at 763-496-6723.

Pervious concrete holding its own In Mahtomedi winters

When the time came in 2009 to build a new public works building, the City of Mahtomedi (Minn.) sought a permit from the Valley Branch Watershed District. The District suggested the idea of using pervious concrete for the facility's upper parking lot and even offered a $100,000 construction grant to help pay for it.

"We have a best management practices program, and we offer grants to the public sector, individuals, agencies and churches to do things to improve stormwater runoff," said David Bucheck, president of Valley Branch Watershed District, which covers about 64 square miles east of St. Paul. "We encouraged the city to do it, and it improved the quality and reduced the quantity of stormwater runoff."

The choice to use pervious concrete made sense because the facility is located near a sensitive wetlands area. Pervious concrete filters heavy metals, suspended solids and even petroleum products so they don't run off into wetlands, lakes and streams. Also, pervious fit well with the natural elements that were already put into the design of the new building.

Engineers from WSB & Associates, Inc., who have stormwater management knowledge, worked closely with the contractors and the city to design the parking lot. ARM Member Cemstone supplied the pervious concrete.

"We poured 100 cubic yards over a four-inch deep aggregate base," said Rachel Kanz, inside sales manager at Cemstone. "After pouring and finishing the concrete, cure blankets were placed over it for seven days to facilitate curing and eliminate water runoff."

Despite Mahtomedi's willingness to construct the environmentally-friendly parking lot, there were doubts among city officials about the maintenance of pervious concrete.

"Up front, we were concerned about how the winters would work," said Bruce Thielen, public works director for the City of Mahtomedi. "The first year, we were leery of using any chemicals for ice control. The last couple of years, we put down regular chemicals. We've had no issues."

Thielen, whose office looks out onto the parking lot, said the project was a good place to test pervious concrete and that it has received a lot of public interest.

"Having been in public works for 33 years, this was the first time I'd actually seen it," he said. "Most folks don't know what they're looking at until we explain what it is and what it does."

Now that it has experience with pervious concrete, Thielen said, the city is looking at using it for upcoming street projects.

For project images, turn to page 4.

From the Executive Director

Advocacy efforts in full gear at ARM

In considering an aggregate tax, the Minnesota legislature specifically chose to delegate to county commissioners the decision to impose an aggregate tax; the legislature recognized that county government was the most appropriate level of government to oversee the collection and management of aggregate tax revenues. Based on this intent, ARM is opposing a bill introduced in the 2012 legislative session to allow the City of Vergas in Ottertail County to impose an aggregate tax. ARM worked with the Aggregate Legislative Task Force in 1998-99 and agreed on language that would allow counties to opt-in to the aggregate tax. Legislation passed in 2008 adopted many of the Task Force recommendations, but also included an exemption for ten townships in St. Louis County to impose the tax which became the basis for the exemption being requested by the City of Vergas. ARM actively opposes any bill that allows any local government other than counties to impose the tax. Currently, approximately thirty counties impose the tax in Minnesota.

On another note, the ARM Technical Committee has been updating ARM brochures, and we are adding the new brochures and design guides to the ARM library. *Concrete Maintenance for Home Owners* and *Exterior Concrete Recommendations for Commercial Construction* emphasize the proper placement, curing, and sealing of exterior concrete flatwork in Minnesota and offer guidance for the proper use of de-icing chemicals.

ARM members will continue to develop tools and resource materials for our partners in the aggregate and ready mix concrete industries. We encourage suggestions for the development of additional resource materials.

MnDOT releases pervious concrete pavement report

MnDOT's long-awaited report, *Pervious Concrete Test Cells on MnROAD Low-Volume Road*, is now available. The primary author of the report is Bernard Izevbekhai of MnDOT. Among the findings in the report:

- The better performance of the pervious concrete built on engineered pervious base and a granular subgrade as compared to that built on existing clay suggests the need to follow standard practice for pervious base construction. The pervious concrete cell built on clay subgrade is not performing very well due to freeze-thaw movements resulting in widespread cracking.

- Pervious concrete provides very high sound absorption properties and very low noise characteristics which make them adequate for noise reduction in shoulders, parking areas and pavements.

- Good maintenance practices, including frequent vacuuming, can extend the life of pervious pavements. Poor maintenance practices result in clogging and very bad cases of prolonged absence of vacuuming impose the risk of the pores being irrecoverable when such clogging occurs and the pavement is consequently susceptible to freeze-thaw damage. Cohesive soils such as clay and silt constitute the worst clogging agents.

- Skid resistance properties of pervious pavements compare favorably in performance to those of most non-pervious pavements in the network. The ride quality, however , is an area needing improvement but can possibly be addressed by progressing to slip-form paving.

You can download the report from the MnDOT website: http://www.dot.state.mn.us/materials/researchdocs/201123.pdf

Q&A

Headwaters Resources

This company is America's largest manager and marketer of coal combustion products, including fly ash. Fly ash improves concrete performance, making it stronger, more durable, and more resistant to chemical attack. Fly ash use also creates significant benefits for our environment: it reduces landfill use and offsets greenhouse gas emissions.

What happened to fly ash availability in 2011?

We have been bringing Coal Creek Fly Ash originating in central North Dakota into Minneapolis by Canadian Pacific Rail since 2001 without much problem. The record flooding on the Missouri and Mississippi Rivers brought our traffic to a standstill. By midsummer when the waters receded, the railroad had another out of control event taking place: the North Dakota oil rush had ramped up. Headwaters traffic was shunned for the railroads highly profitable oil trains. The CP has shown they do not have the resources to handle all of the rail traffic on their line.

What is 2012 looking like?

With more oil wells coming on line every day, and the only way to move oil is by two railroads in North Dakota, the prospects for regular service is not good. Supply and demand has taken over and the railroads are charging accordingly for their in-demand services. Headwaters is bringing in a new tMinnesota fly ash source from a large producer from a more reliable area in a more reliable way. We are offering a fly ash that is very similar to Coal Creek called Martin Lake at our Lakeville Terminal. We will continue to offer Coal Creek at our Buffalo Terminal.

What's happening with the EPA's stance on fly ash?

The Subtitle "C" proposal would designate fly ash as a hazardous waste. The EPA received more than 450,000 comments by their November 2011 deadline that they continue to review. There still is no legislative or judicial deadline on this issue. Lisa Jackson, th head of the EPA, is hinting that there will be no final ruling until after a Beneficial Use Risk Assessment is completed late in 2012. Then an additional inter-agency review is possible with another public comment period and a likely judicial review.

For more information, contact Bill Brown at 651-289-1274, bbrown@headwaters.com.

Q&A

Plaisted Companies, Inc.

Plaisted Companies, Inc. Is a specialty soils provider producing engineered soils like CU-Structural Soil® that is being extensively used on the new Central Light Rail Corridor project. It works in rain gardens, rooftop gardens, MnDOT mixes, and much more.

What is CU-Structural Soil®?

It's a patented urban tree planting mix developed by Cornell University. It is a two-part system comprised of a rigid stone lattice to meet engineering requirements for a load-bearing soil, and a quantity of soil to meet tree requirements for root growth. CU-Structural Soil® is licensed to qualified producers across the US and Canada to ensure quality control. These licensed producers use tested and approved local materials, and blend the material to meet research-based specifications.

What are the benefits of using CU-Structural Soil®?

They include prevention of sidewalk heaving, increased rooting volume under pavement, and increased tree longevity. Even when compacted to 95% proctor density, this soil still has approximately 26% void space which provides increased aeration, drainage, and access to the clay loam soil within the void space of the crushed stones.

Are there other uses for CU-Structural Soil®?

When used in conjunction with porous pavements or permeable pavers, CU-Structural Soil® can be an effective method of reducing stormwater runoff, as well as recharging groundwater levels.

Mahtomedi public works pervious project images

In this photo, the Cemstone team works with the contractor to place five inches of pervious concrete over a four-inch aggregate base. In addition to being a stormwater best management practice, pervious concrete reduces the heat island effect, recharges aquifers, and eliminates the need for retention ponds.

Here is a segment of the completed pervious concrete parking lot. The general contractor was Rochon Corporation. The project contractor was Artistic Concrete Design. The engineer was WSB & Associates, Inc. Consultation also was provided by the Valley Branch and Washington Conservation Districts.

Photos courtesy of Rusty Schmidt, Washington Conservation District.

AGGREGATE & READY MIX
ASSOCIATION OF MINNESOTA