

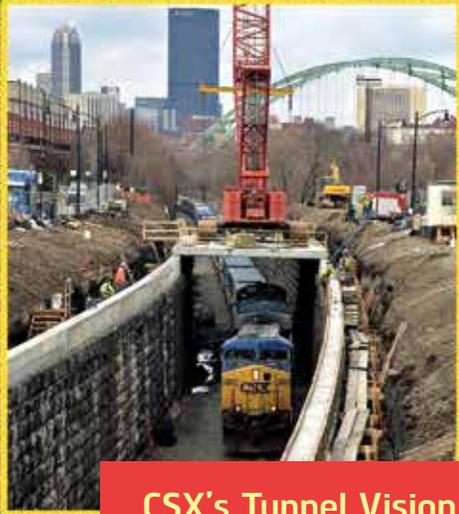


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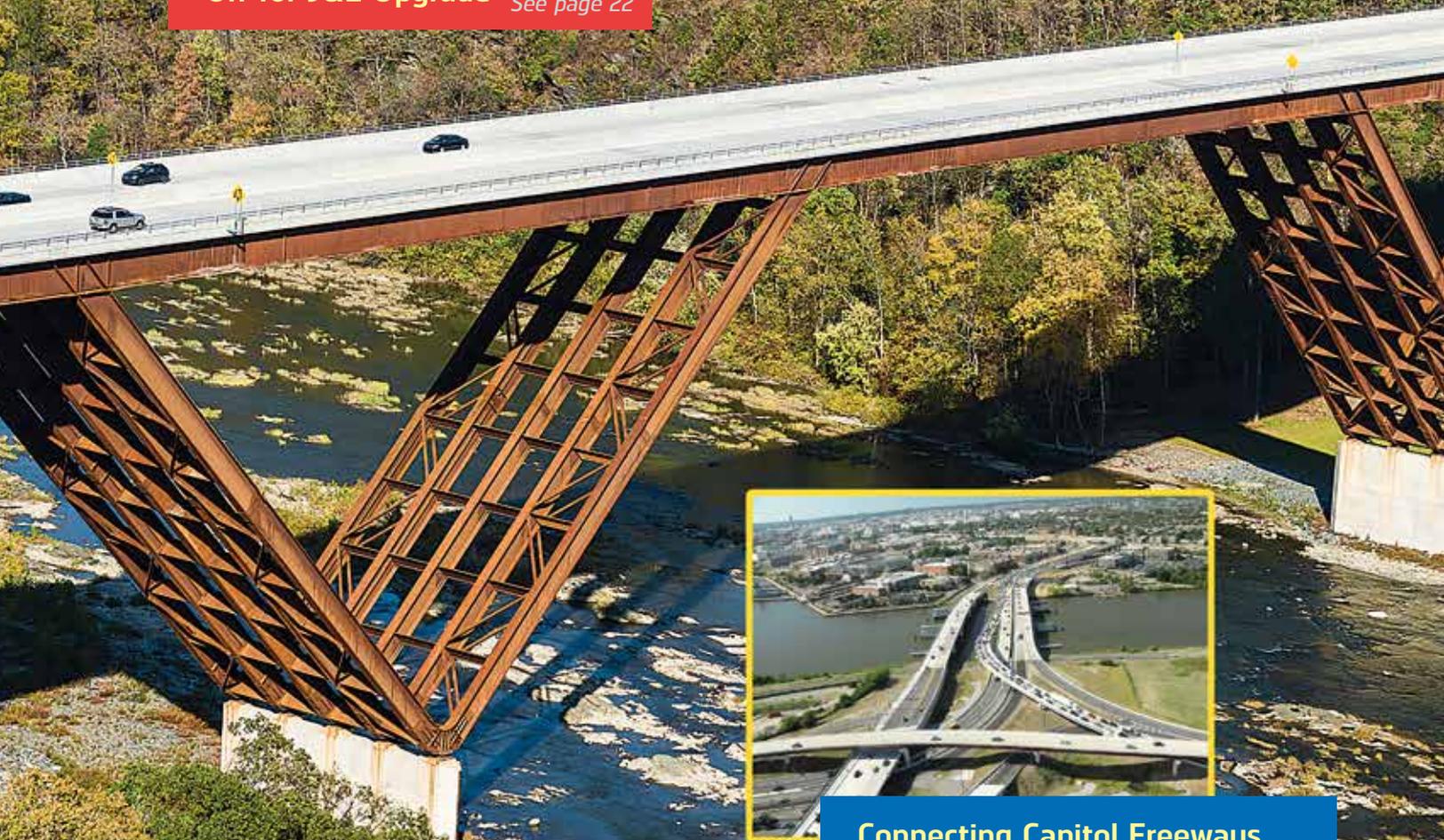
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Summer 2014

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CSX's Tunnel Vision Pays Off for J&L Upgrade *See page 22*



Connecting Capitol Freeways and DC Neighborhoods *See page 10*

Planes, Trains and Geofoam

EPS Geofoam Fills Void for Chicago Metro Airport and Train Station

by Mary A. Burk, ACH Foam Technologies

The light weight of the geofoam blocks made them easy to handle and install, saving time and money.



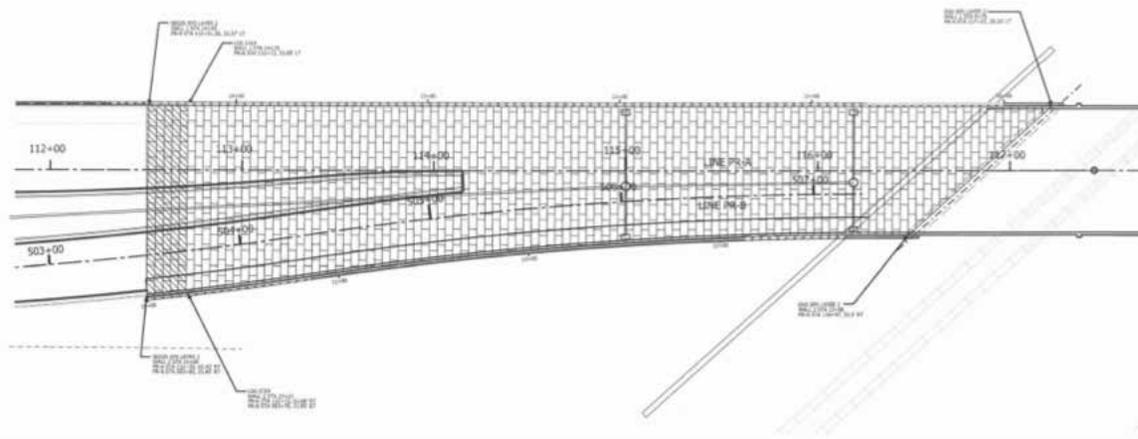
Construction of a two-span steel bridge at Gary-Chicago International Airport. The new bridge spans over the EJ & E railroad tracks that bisect Airport Road near Chicago Avenue.

ACH Foam Technologies, Denver, has provided EPS geofoam for several construction projects in the Windy City—among them, Millennium Park, Soldier’s Field and most recently—the Gary-Chicago International Airport roadway expansion and the Metra 35th Street train station accessing White Sox U.S. Cellular Park.

As part of the airport’s roadway expansion, a two-span steel bridge had to be built over the EJ & E railroad tracks that bisected Airport Road near Chicago Avenue. This was project number six of 18 work segments that comprise the Gary-Chicago International airport expansion—scheduled for completion mid-September of 2014.

Superior Construction won the general contractor position, and Superior’s Pete Keilman acted as Project Superintendent for the roadway expansion bridge. According to Keilman, the bridge had to be built over two existing rails as well as two future rails. There was a potential problem with the quality of soil where the bridge was to be built, as well as an embankment that might require purchase of additional right-of-way.

In the initial investigation, it was discovered that the soil where the bridge would be built was questionable. The preliminary analysis found soil about 12 feet down that contained a large percentage of peat, which would settle over time. Geofoam then became the preferred alternative, because the material would



Installation of a load distribution slab on top of the geofabric secures the blocks by keeping them in place and distributes the traffic loads. The load distribution slab also protects the geofabric from potential chemical spills.

Side view of the Gary-Chicago International Airport Geofabric embankment.

distribute the load and prevent any future settlement of the roadway.

According to Keilman, placement of the geofabric blocks went well. His crew of five to seven men were able to cut a trench through the geofabric, which would carry a storm sewer pipe for 400 feet on each side of the bridge approach.

"We hadn't done this before," he explained. "Engineers provided detailed drawings that we followed on the job site, and ACH Foam provided a hotwire that would easily cut through the foam. We also used a chain saw and a smaller saw in various sections.

"Once we had the foam down and the sewer pipe in, we laid a single mat of rebar, then poured six inches of concrete on top of that. Two feet of stone topped the concrete, and that stone was surfaced with a foot of asphalt. The bulk of the geofabric embankment was installed in the fall of 2012; more geofabric was installed this spring for a total of 43,000 cubic yards of Foam-Control® EPS Type 22 geofabric."

A trucking company to the east had its property line too close to the bridge embankment to allow for the slope that would have been required by conventional soil fill. Ver-

tical geofabric embankments made purchase of additional right-of-way unnecessary.

Oracle Engineering was the Geofabric Design Company for the bridge expansion. Oracle's Marvin Cook, an EPS design engineer for projects all over the world, considers geofabric design and installation the preferable alternative to addressing soil problems for conventional fills. "We place utilities in EPS all the time. For this roadway we installed the sewer pipe directly in the geofabric material. The easy way to cut a trench is to use hotwire on the job site. Using geofabric as an alternative fill reduces, and in many cases eliminates completely, the loading against bridge structures as well as adjacent roadways," Cook added.

With regard to settlement issues on the Gary-Chicago roadway, it was estimated that stage one primary settlement of the soil could take anywhere from six to 12 months. Using geofabric eliminated that settlement time, so the closure lasted only weeks instead of months. Airport Road was reopened in November of 2012.

ACH's Frank Kiesecker said that geofabric is being used in transportation projects with greater frequency. "Once it became common knowledge that geofabric weighs about 1/100th the weight of soil and saves money and



Finished Metra train station platform and ramp embankment on 35th Street in Chicago. White Sox Park is directly accessed from the new Metra train Station platform on 35th Street in Chicago.

to compact the lifts of traditional fill. Compensating for the drains within the ramp cells was a snap, because on-site cutting of the geofoam was so easy." Approximately 31,300 cubic feet of Foam-Control® EPS geofoam with Perform Guard® termite-resistant treatment was installed as stairway and ramp fill for the Metra's 35th Street Station platform at the Chicago White Sox Stadium.

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time for installation as well as road closures," Kiesecker explained, "the Federal Highway Commission began to require DOTs to compare cost and time savings using geofoam versus soil and other alternatives."

During the 2010 design phase for the station platform, architects had safety concerns about the elevation of the Americans with Disabilities (ADA)-compliant concrete. In addition, the aggressive construction schedule wouldn't allow for the settlement time that conventional soil fill would require.

Architects turned to EPS Type 12 geofoam to solve their design challenges and shorten the construction time. According to Dan Orlich, Metra's Construction Manager, "A great amount of time and labor was saved by not having

Meeting tight construction schedules has been a key benefit to using geofoam in many projects. John Grskovich, of General Contractor John Burns Construction, explained, "John Burns Construction continues to use ACH Foam Technologies as our geofoam supplier because they are so responsive to our schedules." 

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