

# PERVIOUS PROTECTS SENSITIVE SITE

PHOTOGRAPHY PROVIDED BY JEFF TESNEY

Beautiful Mobile Bay is an Alabama treasure, and nobody understands this better than the people who live near it. The citizens of Mobile and the surrounding areas have long loved to play on and around the bay, and now there is a new park that will help them do that. Arlington Park in Mobile opened in June 2010 and is allowing the public increased access to the waterfront while also protecting this natural resource.

The new, public, green space on the western shore of Mobile Bay was a former industrial site that was transformed into a park by the Alabama State Port Authority.

“The idea came about when we were building a new container terminal, and we were doing our environmental impact statement for our building permit,” Bob Harris, the Port Authority’s director of environmental and program management, said. “During that process, we got feedback from the public that let us know they



would like more access to the bay. So we decided to create the park as part of a wetland mitigation project.”

The Port Authority acquired the land and constructed the park for approximately \$7 million; construction began in 2009. The park’s ownership was transferred to the city of Mobile upon its opening.

As soon as the decision was made to build Arlington Park, another important decision was made—the decision to use pervious concrete as one of the site’s main building materials.

The park has an approximately 1100-foot-long entrance road leading to a 700 foot fishing pier; there is also loop road that leads to the Visitors’ Center. Approximately 8,200 square

yards of pervious concrete were used for both roadways, and another 4,300 square yards were used for a one-mile-long hiking and biking trail that rings the perimeter of the park.

Since pervious concrete is an effective way to capture storm water and allow it to seep into the ground, this material is instrumental in recharging groundwater, reducing runoff and meeting U.S. Environmental Protection Agency (EPA) storm-water regulations.

“Using pervious concrete for this project was in keeping with our director’s commitment to make this an environmentally friendly park,” Harris said. “He wanted minimizing storm-water runoff incorporated into the plan from the beginning.”

Bill Phillips with Moffatt & Nichol, an engineering firm, was project manager for Arlington Park, and he echoed Harris’ statement. “Pervious concrete was chosen for its obvious environmental benefits,” he said “The intent is to capture the first flush of water, which has the highest percentage of pollution. Pervious concrete does that.”

Paul Nevenglosky, also with Moffatt & Nichol, was the project engineer. “Pervious made sense for this project,” he said. “Its passive infiltration means less impact on the site.”

The park’s upland area is approximately 16 acres and features gazebos, picnic areas with grills, a boardwalk over the wetlands and bay, a kayak/canoe launch and the hike/bike trail. The park also contains 25 acres of wetlands created to provide wildlife feeding and nesting habitats, fish and macro invertebrate nursery and feeding habitats, as well as water treatment and sediment retention.

According to Harris, the pervious concrete has done its job. “It has functioned very well and done just what it should,” he said. “And it looks great with the rest of the site.”

“The park was completed in early 2010 and was open to the public briefly, even before the formal dedication and opening,” Phillips agreed. “The pervious concrete has held up very well so far; there have been no signs of deterioration or chipping.”

The long-term maintenance requirements for pervious concrete are pretty simple and straightforward, but you do have to keep an eye on it. “You have to keep that upper layer’s pores as clear as possible to





allow the water to infiltrate,” Phillips said. According to Nevenglosky, that means once or twice yearly inspections and then vacuuming, sweeping or power washing if needed.

While keeping it clean and its voids free of debris are important to pervious concrete’s performance, Phillips explained that proper installation is absolutely crucial. “The top layer is where failure can start with pervious concrete; you need a lot of cohesion and bonding in that layer,” he said. “The contractor has to get the mix and the installation procedures right in the beginning. To do this, you need to test the concrete both in its fresh and cured state. There is more coordination required than with just pouring regular concrete, and it requires more from the contractor.” Nevenglosky added, “The void ratio is very important too, and that is based on the installation.”

Mike Pitts, owner of Pitts Construction, sub-contractor to Ladas Construction, LLC the general contractor for the park, knows first-hand how installation is key. His company put down the pervious concrete at the park. “Pervious is definitely more complex than standard concrete,” he said. “Both products are cement-based, but that’s where similarity ends. The installation is vastly different.”

While Pitts Construction had worked with pervious in the past, Arlington was its largest installation by far, and Pitts is proud to have it under his belt. “We did test panels and just kept tweaking until we got it right,” Pitts said. “It was a combined effort between our supplier and Moffatt & Nichol; and my field crew went above and beyond on this one. For the complexity of it, it went very smoothly, and I’m happy to now have the experience with this product. I think we’re going to





see a huge swing toward using pervious concrete more often.”

Both Phillips and Nevenglosky were also very pleased with the job done by Pitts. “Once we got the mix and procedure right, the contractors did the rest of the job very well, following the proven procedure to the letter,” Phillips said. “They did a great job.”

Arlington Park was the first project in which Moffatt & Nichol had used pervious concrete in a major way. “Material choice is very specific to each design and dependant on existing site conditions, but we’ll use pervious concrete again,” Nevenglosky said.

Pervious concrete is a product that is still “new” to many. It has been used in the Unites States since the 1970s, and while it’s still not considered mainstream, the market is growing every year, due to its eco-friendly status. “The U.S. Green Building Council is pushing pervious concrete,” said Matt Offenber, Southeastern U.S. Technical Services Manager for WR Grace and a pervious concrete expert. “Things are trending toward low-impact development, and pervious concrete fits into that.”

“Green” building is great, but cost is still a consideration. Compared to regular concrete, pervious is more expensive. “But if you look at an entire site with pervious versus regular, the cost is similar,” Offenber said. “The overall cost will be similar because you don’t have to pay to dig a retention pond and lay pipes, etc.”

Pervious concrete also fits into concrete’s proven reputation for strength—when it’s used in the right places. “Arlington Park will have two or three buses a day come through it; pervious will take that,” Offenber said, “and some residential streets use pervious concrete, and it can handle the garbage truck three times a week. But it can’t take highway traffic.”

But maybe one day, it will. “As an industry, we are currently trying to figure out how to make pervious concrete even more durable where it can take a lot of heavy traffic,” Offenber said. “We’re just not there yet.” ■ Jennifer Kornegay