

## What watertight stormwater connectors will do for your business!!

### A COMPETITIVE ADVANTAGE

"There are so many benefits of using flexible connectors that I would be hard pressed to think of them all. First of all, it's hard to accurately estimate the cost of using brick and mortar connections. It's different with every crew, every job, and every structure. But, I know almost exactly what it will cost me to use cast in flexible connectors. And, now I will not have to go back later and stop leaks. Plus, I'll get at least 10% more total production when I use flexible connectors, often 20%. That gives me a competitive advantage"



Steve Bromley, the president of JMHC, Inc. contracting in Longwood, Florida.

### FIXED COSTS

"We cost a structure almost as if it were another piece of pipe. We include the cost of the structure, the connectors, and whatever materials go under it. The materials then, are a fixed cost. You don't have the variables of lost bricks, cement that gets caught in the rain, whether or not water is available, how long you will have to wait to backfill, and the other variable costs that go into brick and mortar connections. We have very identifiable fixed costs. That's important if you have 100 structures on a job. With cast in flexible connectors you are not leaving yourself open to how long it might take to seal up a 48" pipe, how much material might be used or lost, and the quality of the connection."



### NO REPAIR COSTS

"Connectors, whether they are flexible or not, seldom cost more than 3% of the total job, but the greatest expense of not using flexible connections comes later, if those connections start to leak." Neil Boyden, Director of Public Works in Williston, Vermont says many brick and mortar connections fail within a few years of installation, sometimes in as little as two or three years. "Just stopping a leak can be expensive, but repairing a sheared pipe or pavement failure is very expensive. A pavement failure due to subsidence can cost several thousand dollars to repair, plus the danger and disruption. If it's severe it could cost much more."



### LESS DEPENDANT ON FIELD CONDITIONS

"We have found that when we use flexible connectors, we are less dependant on field conditions and construction methods. We have confidence in products that are manufactured in a controlled environment, and we have found that installation quality is more consistent than with brick and mortar construction."

"A flexible connection is an important advantage. Sometimes the soil material around the structure will shift or settle. If you have a tightly grouted connection, you run the risk of cracking the structure or the pipe. At the very least the mortar can crack and the watertight seal will be lost."

Marc Eshelman, Special Projects Group leader. P. B. Booker Associates Inc, St Louis, Missouri

### PUT MORE PIPE IN THE GROUND!

"I know that it looks like flexible connectors cost more up front, BUT we more than make it up in the long run because I'm going to put more pipe in the ground and it won't leak. When you come to a structure, it's almost like setting another joint of pipe. Within half an hour or sooner you are out the other side and already backfilling around the structure. They really let you smoke! I can probably lay an extra 100 feet of pipe a day when I use flexible connectors. And I've been using them for 14 years, so that represents a lot of extra pipe they let me put in the ground"

Phil Diana, Pipe Supervisor, Kearney Development, Tampa, Florida.



### LETS YOU KEEP MOVING

"Flexible connectors can significantly reduce dewatering costs. With brick and mortar you can't backfill until the mortar dries. In Florida, water can get pretty deep in five hours, so you have to keep the pumps running. Even then when you go back you have to lift the mud out before you can start compacting. All that waiting, pumping and lifting costs money. Flexible connectors let you keep moving" said Richard Vander Hook, Chapman Contracting, Tampa, Florida.





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### BECOME A BETTER SUPPLIER

Flexible rubber connectors in storm sewers seem to create a win-win situation for everyone involved. They are a benefit to consultants because they allow consultants to turn over a better product to the owner. Contractors benefit because the connectors are more cost effective than brick and mortar, and the municipalities certainly benefit because they get a watertight system which will result in a longer service life and far fewer maintenance headaches down the road.

### FAMOUS SAYING

Flexible connectors would be used more if it was not for tradition and lack of knowledge. "People have used grouted connections since the days of the Roman Empire, and they don't really give it much thought. If they did, they would realize for an equally long time those connections have leaked and they would be more likely to use flexible connectors."

## WATERTIGHT CONNECTORS KEEP THE CONTAMINANTS OUT—"A REAL JOB STORY"

### New Jersey storm water project proves how "flexible" watertight connectors can be.

Installing new storm sewers in an industrial area where ground contaminants are rampant is major undertaking. Not only do you have to worry about creating watertight seals to keep the water in the pipes, but you also have to focus on keeping those outside contaminants away from the storm water traveling through the pipes. Facing that challenge recently, the New Jersey Department of Transportation (NJDOT) turned to flexible, watertight connectors as a viable solution.

Located on Doremus Avenue in Newark, the road-widening project required new trunk lines, new water lines, and the replacement of about 1,800 feet of deteriorated storm sewer lines. The main trunk line comprised 15 inch through 60 inch ADS HDPE pipe with smooth adapters that fit into the flexible connectors.

Specified by NJDOT, the connectors were used on 90 percent of the joints, for a totally of 450 connectors ranging in size from 15 inches to 60 inches.

Making the project particularly challenging, says Hong Sun, highway design manager for global engineering firm The Louis Berger Group in East Orange, NJ., was a high groundwater level and the surrounding soil, much of which was contaminated with petroleum and lead deposits.

"The majority of drainage was below ground level, and surrounded by contaminated soil," says Sun, whose company designed and engineered the project. "Making it even trickier is the fact that the system discharges into the Passaic River, so we had to make sure that no contaminate whatsoever found its way into the drain."

Sun, who has used flexible connectors on previous projects, says the DOT was particularly concerned about getting the pipe joints and connections "as tight as possible" - a requirement that the watertight connectors were able to fulfill with ease.

Carbro Construction of Hillsborough, NJ, installed the pipe and manholes on the job, which took one year to complete and wrapped up in March 2004. Tom Tamashullo, supervisor for the construction firm says he's been using flexible connectors for the six years that he's worked for Carbro. On the Doremus Ave., project, he says the connectors solved the predicament of keeping water from infiltrating the storm sewer system.

Pino Carlomagno, vice president a Carbro Constructors, says the fact that lead was found in the surrounding soil (which was labeled ID 27, or "dry industrial solid waste"), made the watertight connections that much more critical. "NJDOT was more worried about those contaminants getting into the pipe and eventually into the river, than it was about keeping the system itself watertight.", says Carlomagno. "It was a highly industrial area with a high level of ground contaminants to worry about."

Jerry Donahue, sales manager at Tullytown, PA, based Atlantic Concrete Products, which precast the connectors into the manhole structures, says the fact that storm water ends up in drinking water and inevitably back in the nation's rivers, lakes, and streams, the aquifer can be highly affected by any contaminants that make their way into a system like NJDOT's Doremus Ave., project.

"They don't want any of that getting into the storm drain systems for obvious reasons.", says Donahue. So far, he says, the connectors have performed as expected, with all connections serving their purpose by staying secure and watertight. "If the connections weren't watertight, the pollutants would find their way into the system when it rained.", says Donahue. "There's also no danger of mortar grout cracking from vibrations or human error during installation."

Tamashullo says the connectors also helped Carbro save the labor costs required to brick up and mortar joints in the field. Though some unexpected alterations had to be made while working in the field (due to existing utility lines and other unforeseen challenges), Tamashullo says his crew simply "positioned the pipe, aligned it, backfilled it" and moved on. "Where bricking and cementing up a connection is time consuming and labor intensive, " says Tamashullo, "once you put the pipe into the flexible connector, you don't have to touch it."



PIPE DELIVERY