

## Building A Path To Sustainability With Portland Limestone Cement

In October of 2013, Gillespie Construction built the first concrete street in the southeast using new, recently standardized, environmentally friendlier cement known as Portland Limestone Cement (PLC).

Lehigh Cement Company, demonstrating their commitment to sustainability, used PLC for their local construction projects at their Leeds, Alabama, cement plant several years earlier. These projects confirmed the product's excellent performance. The new cement was used in the concrete mixes on the plant's load-out silo, creek relocation structural walls and the site paving. The mix for these projects had 60% Type IL cement and 40% slag. These projects saved or avoided approximately 4800 tons of CO<sub>2</sub>.





## ABOUT THE LEEDS CEMENT PLANT

The Leeds cement plant was built by the Standard Portland Cement Company in 1906. The plant became part of the Lehigh Cement Company in 1980 with the company's acquisition of the Universal Atlas Cement Division of United States Steel.

Lehigh Hanson affiliated companies produce cement, aggregates and ready mixed concrete at sites throughout Alabama. The company's Alabama facilities employ approximately 450 employees including 131 at the Leeds cement plant. A new state-of-the-art and environmentally friendly cement storage silo and load-out facility was commissioned in October 2010. This unique concrete structure has a lower carbon footprint and an expected service life of 100 years. The silo features highly sophisticated environmental controls to produce a virtually dust-free product loading system.

### THE PROJECT

Designed by Spencer Engineering, the 9th Street reconstruction in Leeds, Alabama, called for approximately 1800 square yards of 8" thick jointed reinforced concrete pavement (#6 bars at 18"x18"). The concrete was placed as a hand pour between new curb and gutter sections with approximate 5-6" slump.

The ready mixed concrete producer was Sherman Industries, Inc., and the cement supplier was Leigh Cement Company. Both companies are owned and operated by Lehigh Hanson, Inc., the North American subsidiary of HeidelbergCement Group, one of the largest construction materials manufacturers worldwide.

### THE SOLUTION

Portland Limestone Cement (PLC) is also known as Type IL. It is now approved in the AASHTO M-240 and ASTM C595 standards. The concrete mix for the City of Leeds project started as a typical AL DOT concrete mix design and then evolved to 476# Type IL (in place of Type I) and 119# Class C Fly Ash (20%). The mix performed beautifully, exceeding specifications for the project. The city was able to accelerate the re-opening of the street, leaving the disruption to traffic shorter than anticipated.

### THE RESULTS

In addition to expediting the re-opening of 9th Street, the use of PLC in this project led to an additional 10% reduction of the carbon footprint. By using both Fly Ash and PLC in the concrete, the street materials basically avoided near 50 tons of CO<sub>2</sub>. In addition, the success of this project resulted in the use of this same mix in the 7th Street reconstruction two years later.

## trust earned daily

Lehigh Hanson, Inc. is a leading supplier of construction materials in North America. Our core activities include the production of cement and aggregates and we also produce ready mixed concrete, asphalt and other downstream products. With our innovative approach and extensive network of facilities, our customers trust us to provide the products, service and experience it takes to get the job done. At Lehigh Hanson, that's a trust we earn every day.

Lehigh Hanson, Inc. and our affiliated companies are part of the HeidelbergCement Group, one of the largest building materials manufacturers worldwide. For more information, visit us at [lehighhanson.com](http://lehighhanson.com).