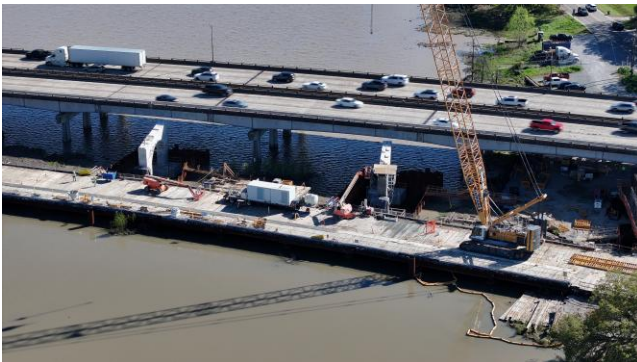




## Lightweight Aggregate Addresses Settlement Challenges on I-10 Widening in Baton Rouge



Expanded shale, clay, and slate (ESCS) lightweight aggregate is playing a key role in mitigating settlement issues on a major interstate widening project in Baton Rouge, Louisiana.

The material is being used as lightweight backfill behind a cast-in-place retaining wall at the westbound Dalrymple Drive bridge abutment as

part of Phase 2 of the Louisiana Department of Transportation and Development (LADOTD) I-10 widening project. The \$195.1 million project will expand a 2.5-mile section of Interstate 10 from six to eight lanes between the I-10/I-110 split and Acadian Thruway and is scheduled for completion in 2028.

Construction is being delivered by the Kiewit/Boh joint venture, with James Construction Group serving as a major subcontractor. In addition to roadway widening and bridge modifications, the project includes the installation of sound-reduction walls. Traffic modeling for the corridor predicts peak-hour travel time reductions of 2 to 18 percent upon completion.

### Addressing Settlement-Prone Soils

The Dalrymple Drive bridge location presented soil conditions commonly encountered in urban highway expansion projects. Settlement-prone soils beneath the widened roadway

required a backfill solution that would limit loads on the subgrade while maintaining the stability necessary for a retaining structure supporting the bridge approach.

Using traditional granular backfill would have increased vertical loads on compressible soils and raised lateral earth pressures on the retaining wall. Instead, designers specified lightweight aggregate to reduce structural demand while maintaining constructability.

‘They were settlement prone soils under the bridge abutment,’ says Jack Moore, P.E., Geotechnical Market Manager for Arcosa Lightweight. ‘That’s why lightweight aggregate was chosen—to reduce the load on poor soils and manage settlement.’



### Reduced Loads, Improved Performance

The project utilizes expanded clay lightweight aggregate produced at Arcosa’s Livingston, Alabama facility. While the material is graded similarly to coarse sand and behaves like conventional quarry backfill, its unit weight is less than half natural fill materials and provides key structural advantages.

The reduced density lowers both vertical stresses on compressible soils and lateral earth pressures acting on the retaining wall. In this application, the cast-in-place wall retains the bridge approach embankment, and the use of lightweight aggregate helped mitigate settlement and allowed engineers to reduce the required wall cross-section.

‘It’s a good example of how the material’s low density and high internal friction angle can reduce the size of structural components,’ Moore says.



### Proven ESCS Solution in Louisiana

Expanded shale, clay, and slate lightweight aggregate is produced by heating select raw materials in a rotary kiln, forming a durable ceramic internal structure. For geotechnical applications, the material offers low unit weight, high internal friction angle, and excellent drainage, making it well-suited for retaining walls and bridge approaches.

This is not the first LADOTD project to benefit from ESCS lightweight aggregate. Previous applications include mechanically stabilized earth (MSE) wall systems, such as the Picardy Avenue interchange project in Baton Rouge, completed in 2006, as well as the LA 531 Overpass project, completed earlier this year.

## Growing Role in Highway Reconstruction

As transportation agencies increasingly face challenging site conditions, ESCS lightweight aggregate continues to provide a proven solution for reducing loads, controlling settlement, and improving long-term performance in highway reconstruction projects.

The I-10 widening in Baton Rouge demonstrates how ESCS lightweight aggregate can be effectively used to address settlement challenges while supporting durable, cost-effective infrastructure solutions.



### Project Snapshot

Project: I-10 Widening – Phase 2

Location: Baton Rouge, Louisiana

Owner: Louisiana Department of Transportation and Development (LADOTD)

Contractor: Kiewit/Boh AJV

Major Subcontractor: James Construction Group

Project Value: \$195.1 million

Length: 2.5 miles

Application: Lightweight aggregate backfill behind bridge abutment retaining wall

Material: Expanded clay lightweight aggregate (Livingston, Alabama)

