

Taking ground engineering to a deeper level



TECHNICAL REFERENCE



SELA 26

Southeast Louisiana Project

New Orleans, LA

Elliptical
JG columns



| | |
|-------------|------------------------------|
| Owner: | U.S. ARMY CORPS OF ENGINEERS |
| Contractor: | Renda/JBros. Joint Venture |
| Engineer: | EUSTIS Engineering Co. |

SELA 26 is a part of the Southeast Louisiana (SELA) drainage program, designed to reduce flood damages in the City of New Orleans and surrounding parishes, the project entailed the construction of a concrete covered canal along the six stretches, leading into expanded canal systems at Florida Ave. and Peoples Ave., and the temporary support of rail line relocation.

SELA 26 was located in New Orleans Eighth Ward, St. Roch neighborhood of Orleans Parish, along three south streets Deers, Eads, and Painters between N. Dorgenois and Florida Ave, along three north streets Benefit, Treasure, and Abundance between Eads and Peoples Ave., as well as block portion adjacent to nearby confluence of several active rail lines “Track 7”.

The purpose of the required soil improvement was to replace the soil between, and below, two parallel lines of sheet piles with a soil-cement mass to eliminate under-seepage, thus creating a so-called bottom plug, and provide structural support for the concrete box culvert. The soil improvement at sections next to active rail line was to create a soil-cement mass for structural support of adjacent excavation within canal and as foundation support for temporary relocation of section of track.

Additional purposes of the soil treatment were to reduce engineering challenges and constructability issues. In fact, it allowed the General Contractor to work in a dry and stable environment for all their subsequent operations (*excavation, cast-in-place, etc.*), and minimized the necessary levels of bracing installation, as opposed to the traditional retaining systems commonly used in the past in the New Orleans area, whereas at least two levels of bracing are required for similar excavation depths.

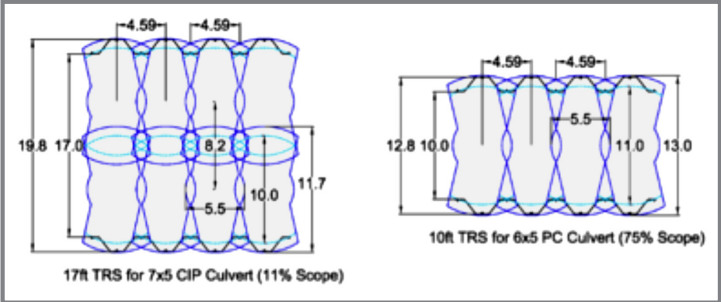
The U.S. Army Corps of Engineers (USACE), New Orleans District, selected the jet grouting technology for the construction of the bottom plug and awarded the contract to a Joint Venture between Oscar Renda and Johnson Brother’s (JV) in September of 2014, which we had established a teaming agreement with.

The project developed over nearly 6,400 L-ft treatment on six stretches of neighborhood roads and railroad block and consisted of approximately 2,180 Jet Grout columns, incorporating both varying diameter elliptical configuration (*between 7.2ft to 13.0ft*) as well as circular columns (*between 3.0ft to 8.0ft*).

Total gross treatment of approximately 148,000cy provided 100% volume coverage on net treatment of approximately 110,000cy, comprised of treatment depth on average to 52ft below ground surface, with maximum treatment depth achieved at 75ft.

Upon previous successful demonstration of elliptical JG technology on SELA 22, in fact referred by client as **“the Cadillac...of ground improvement”**, in early correspondence, TIS’ proposal was accepted by the Owner as a valuable alternative to the more traditional cylindrical geometries.

The columns were installed in a sequence of parallel, overlapping rows laid out perpendicular to two parallel sheet-pile alignments in such a way as to ensure 100% coverage.



| Elliptical jet grouting | |
|-----------------------------|------------------|
| Total distance treated: | 6,353 ft |
| Total JG columns installed: | no. 2,178 |
| Total gross volume treated: | 147,956 CY |
| Total cement used: | 40,232 short ton |



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