

# GOLDEN GATE BRIDGE SAN FRANCISCO, CALIFORNIA

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Over the duration of the South Approach \$122 million seismic retrofit project, 13,838 cubic yards of concrete will be poured, 316,444 square feet of concrete formwork will be constructed, 9,314,427 pounds of steel will be erected, 15,180 cubic yards of native soil will be excavated, and 78,164 linear feet of concrete will be cored. When finished, the bridge will be able to withstand a nearby earthquake that has a magnitude of up to 8.3. The North Approach was constructed of eight temporary and four permanent roadway support towers.

The Golden Gate Bridge District (GGBD) requires that full time inspection staff be on site during 100% of construction activity. Consolidated Engineering Laboratories is providing GGBD pre-approved, multi-disciplined inspection personnel to cover multiple shifts both on the project site and in off-site fabrication facilities. Quality Control inspection and materials testing activities include ultrasonic, magnetic particle, soils compaction, flowable grout, high strength bolt torque, high strength bolt rotational capacity, shock dampers installation, and aggregate testing as well as concrete sampling (to Caltrans test methods).

## **OF SPECIAL INTEREST**

The South Approach required welding and bolting inspection for the retrofit of the South Tower, with the majority of the work being conducted on the full height of the interior of the tower. The North Approach required the inspection of field fabrication and structural welding of temporary towers holding the roadway in place while new permanent towers were built in place. Safety issues were of utmost importance for these very dangerous projects

### **South Approach**

Client: Shimmick/Obayashi JV  
1700 Lincoln Boulevard  
San Francisco, CA 94129  
Paul Cocotis - (415) 561-3311

Owner Contact: Golden Gate Bridge District  
Dennis Mulligan - (415) 923-2200

Duration: November 2001 to Present

Construction Costs: \$122 Million

CEL Fees: \$1.2 Million

### **North Approach**

Balfour Beatty Construction, Inc.  
450 Jibboom Street  
Sacramento CA 95814  
Sean Tarp - (916) 498-9030

Golden Gate Bridge District Structural Engineer:  
Ewa Bauer - (415) 921-5858

March 1999 through January 2000

\$25 Million

\$95 Thousand

