

ROADS & BRIDGES

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2016 TOP 10 ROADS

Forward motion

Big and small, this year's picks are some of the best in the U.S.

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TOP 10 ROADS

#2 Digging your way out

Massive excavation keys California project

By Bill Wilson
Editorial Director

Resident resistance made it seem like the La Pata Avenue Gap Connector was never going to happen. When it was finally approved, there was another problem that could have filled a large school auditorium . . . make that thousands of them.

The La Pata Avenue Gap Connector project, snuggled in the hilly landscape of San Clemente, Calif., had been talked about since the early 1960s, but public concern held it back for decades. However, once everything got the green light, what lied beneath the surface had prime contractor Sukut Construction LLC wondering if it could be stopped. The roadway, located near a landfill, traverses poor soil conditions including old refuse, shallow, deep and ancient landslides, faults and adverse bedding conditions. The underlying soils also are highly expansive and high in sulfate content, which also had to be mitigated. Then you had the fossils of turtles and other animals that had been around since the beginning of time. In total, approximately 15 million cu yd of earthwork was moved.

"Just the logistics of this much movement of earthwork volume is staggering," Hugo Pineda, civil engineer for Orange County Public Works, told *ROADS & BRIDGES*. "Unfortunately, the boring logs and investigations could only capture so much information. We literally had to keep peeling the onion to hopefully reveal favorable conditions."

To deal with the highly expansive soil and landslides, a series of deep earth buttresses/

keyways coupled with substantial over-excavation efforts ensured proper engineered compacted fills. Over-excavation came into play in areas where the proposed road grade was near a cut/fill transition. The cut portions of the road and parkways were over-excavated to reduce differential settlement across the cut/full transition. All fills were placed on top of competent soils after approval from the geotechnical engineer and geologist on-site.

Full-time monitors also were roaming the project redirecting and sometimes stopping work when positive finds were unearthed. Seven to 10 million years ago, the region was 3,000 ft underwater and full of aquatic life, so fossils were prevalent.

Old refuse dating back to the 1970s also had to be excavated, transported, placed and covered in accordance with strict rules and regulations.

Project completion finally eliminated a gap in the Orange County arterial highway system and established a connection between Ortega Highway (S.R. 74) to the north and Avenida Vista Hermosa to the south. The new corridor also provides arterial access to existing and proposed developments.

Four major bridges and tunnels also were constructed to serve as grade-separation structures. The primary purpose of the crossings is to provide a circulation plan that facilitates the safe, convenient and efficient movement of various types of vehicles without having to cross La Pata Avenue at grade and interrupt traffic flow. **R&B**

PROJECT: La Pata Avenue Gap Connector

LOCATION: San Clemente, Calif.

OWNER:
County of Orange/OC Public Works

DESIGNERS: Huitt-Zollars Inc., GeoSyntec Consultants, GMU Geotechnical Inc.

CONTRACTOR: Sukut Construction LLC

COST: \$60 million

LENGTH: 2.3 miles

COMPLETION DATE: Aug. 13, 2016