MEETING HEIGHTENED SEISMIC STANDARDS

Loma Linda University Medical Center’s new hospital towers, which would make it the world’s first base-isolated hospital, are part of a team including structural engineers, architects, and construction management company and the general contractor creating new ways to protect structures in the event of catastrophic earthquakes. Working collaboratively, the team is developing a three-dimensional earthquake protection, using a base-isolated foundation system for Loma Linda University Medical Center’s (LLUMC) new hospital to use this innovative technology.

The potential for a catastrophic earthquake with design peak ground acceleration (PGA) of 0.3g has been the driving force behind the new Loma Linda Medical Center site in San Bernardino County. The hospital site consists of low and soft soils, including about 30 feet of very loose sandy soil layers. When completed, the new hospital complex will be the second-largest medical center in California. The innovative foundation design of the new hospital is designed to resist an earthquake with a potential magnitude of 7.4 and will not only be the tallest in San Bernardino County but will be among the tallest in the state, according to Medical Construction and Design.

With the base isolators recently installed, construction of the building and shoring walls would allow the building itself to move a maximum of 40 inches horizontally if the design earthquake occurs. By relying on the innovative technology, Terracon is able to meet rigorous design and construction standards. Terracon is part of a team including structural engineers, architects, the construction management company and the general contractor creating new ways to protect structures in the event of catastrophic earthquakes. Working collaboratively, the team is developing a three-dimensional earthquake protection, using a base-isolated foundation system for Loma Linda University Medical Center’s (LLUMC) new hospital to use this innovative technology.

FRED YI, PH.D., P.E., G.E.

FRED is a senior geotechnical engineer in Terracon’s Colton, Calif., office. He has 34 years of experience in geotechnical, environmental, and humanitarian development and administering crisis relief worldwide. For more information, visit terracon.com/foundation.

TERRACON FOUNDATION AWARDS $10,000 IN GRANTS FOR HURRICANE RELIEF

Imagined how you would get to work, to school, or to anywhere without good roads. Without passable paved roads, driveways, and parking lots, our lives would be far more challenging. Heavy traffic, heavy loads, water, and weather extremes lead to rutting and failures, Love’s Travel Stops & Country Stores (Love’s) proactive partners with Terracon to develop solutions to anticipate and correct any of their pavement problems.

HELPING HEAVY-WEAR PAVEMENTS LAST LONGER

To protect pavements and staff from the acceleration and deceleration forces for lateral isolation, with more shock absorbers. Orbital-shaped pedestals—or “isolators”—would allow the building to move independently of the foundation in the event of an earthquake.

The base isolation systems are built on a concrete mat which is about 5 feet below ground surface. To stabilize the building and shoring wall would allow the building to move a maximum of 40 inches horizontally if the design earthquake occurs.

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Severe pavement deterioration occurred prior to Terracon’s solution.

**QUALITY MATERIALS SELECTION**

Materials are an important component of any pavement system, and with Love’s heavy traffic, they are critical. To provide the correct pavement materials are used and that quality specifications are met.

**STEPS TO PREVENT PAVEMENT FAILURE:**

- Characterization of subbase
- Site-specific design
- Site improvement when needed or feasible
- Innovative materials
- Construction observation and testing

Learn more about pavement services at: terracon.com/subsurface-exploration

SEAPORT INDUSTRIAL TERMINAL COMPLEX

- Multi-tenant use focusing on industrial, light, and drayage-oriented tenants
- More than 2,000 linear feet of riverfront usable property
- Finished complex has 315 net acres divided into various size parcels

**SEAPORT INDUSTRIAL TERMINAL COMPLEX**

Featuring the first marine terminal on the Savannah River, the SeaPoint Industrial Terminal Complex offers a full range of industrial services and infrastructure. Designated as one of the most significant industrial developments in the southeast, this South Carolina industrial facility was developed as an innovative deep water multi-tenant site.

The developer of the site worked with Terracon to implement a Georgia Brownfields $30 million corrective action plan (CAP) over a year period. This plan involves the use of soil and water treatment equipment, and is unusual in truck stops. It was selected because it performs better over a wider temperature range than conventional asphalt, and doesn’t get brittle.

**IDENTIFYING ENVIRONMENTAL CHALLENGES**

The unique remediation site encompasses 1.57 acres, with 1.02 acres of water and 586 acres of land. Initial construction of the former titanium dioxide manufacturing facility began in 1943. Portions of the site were used as a municipal solid waste incinerator, a gas separation plant, and a chemical plant. The municipal landfill (1961), and a water treatment diversion channel of the Savannah River (1967) were the predecessors. The site’s contamination concern in soil and groundwater include trichloroethylene, pentachlorophenol, polychlorinated biphenyls, volatile organic compounds, and Resource Conservation and Recovery Act (RCRA) listed.

To meet the Brownfields Program, the developer conducted a complex RCRA Facility Investigation (RFI) and submitted the Corrective Action Plan (CAP) to the Georgia Department of Natural Resources. The construction project served as the primary environmental consultant for the construction activities and Five RemediationASSESSMENT LEADS TO REDEVELOPMENT Cleanup activities include excavation of contaminated drainage ditch, wetlands, and marshland remediation of contaminants and waste material, consolidating

**FLEXIBLE ASSET MANAGEMENT SYSTEMS FOR SCHOOL DISTRICTS**

Basketball hoops, band towers, light poles, and bleachers are some of the physical assets of a school district. A well-designed facility manager should have an effective and comprehensive system in place. Terracon’s Digital Facility Asset Management System (DFAMS) provides an effective system.

**APPLICATIONS CUSTOMIZED FOR FLEXIBILITY**

Terracon’s digital asset management system offers a customizable application for use during the district’s in-field inspections of each facility asset, streamlining the review process. Data obtained during on-field assessments is captured in near-real-time, improving process efficiency. Users can query detailed data such as assessment reports, special field notes, and compliance reports for any item. This regionalizes the ability to retain the previously generated assessment data with ease for each individual asset, and its flexibility to repeat the assessment process for the same asset in the future, provides a consistent and comprehensive history for individual assets. The system’s ability to interact with other databases available online enhances the overall system, making it a useful tool to facilitate task order assignment and asset tracking.

**TERRACON’S DIGITAL FACILITY ASSET MANAGEMENT SYSTEM (DFAMS)**