LEADER - NOVEMBER 2018

FORMER LAGOON REMEDIATION

Location: NJ
Client: Confidential

OVERVIEW

A former lagoon used for dumping, this site is riddled with contamination, as well as an extremely complex glacial lithology. Langan designed and implemented a unique air sparing remedial strategy to realize concentration reductions in the main contaminant of concern (COC), benzene, as high as four orders of magnitude in only the first year of operation. Extensive pre-design pilot testing activities, in-situ air stripping mass-transfer modeling, and two-dimensional (2D) subsurface pneumatic modeling were essential in the design of the required air sparging system and resulted in a number of site-specific innovations to the well-known air sparging technology. One of these innovations includes a high permeability 3-foot cap, which provided a media for effective vapor collection and artificially lowered the site water table to reduce the potential for water entrainment within the system. The use of a vapor barrier overtop this high permeability cap also ensured the effective capture of contaminated vapors generated from the air sparging activities and not ambient air.

DUBAI CREEK HARBOUR - CREEK GATE TOWERS

Location: Dubai, UAE
Client: Emaar Properties
Architect: NORR
Services: Geotechnical

OVERVIEW

The goal of the new Dubai Creek Harbour development is to integrate a smart, green city, while building on cultural heritage. The 113-million-SF project will contain 9 different districts and is expected to take 30 years to build. The mixed-use development will include waterfront eco-resorts, a marina and yacht club, commercial and retail spaces, luxury residences, and educational amenities. Creek Gate Towers, two of the project's most anticipated residential buildings, will each rise 30-stories, house over 400 luxury apartments, and offer spectacular views of Dubai Creek Tower, a magnificent gravity-defying structure unparalleled in weight and strength. Langan reviewed previous geotechnical reports and developed a 3D geotechnical Finite Element Method (FEM) model of the towers' foundations, podiums and the surrounding soil and rock. Langan prepared a final report to summarize findings and results, which included interpretation of subsurface conditions, derivation of soil, rock and interface properties, description and assumptions of the FEM model, analysis results and calculated pile springs, recommendations for transient load analysis, and lateral load analysis results.


Credit: Extell Development Company

BROOKLYN POINT

Location:	Brooklyn, NY
Client:	Extell Development Company
Architect:	Kohn Pedersen Fox, SLCE Architects
Partner:	Mathews Nielsen Landscape Architects, Katherine Newman Design
Services:	Environmental, Geotechnical

OVERVIEW

Brooklyn Point is the final phase of the City Point mega-development in Downtown Brooklyn. The 68-story, 686,000-SF residential tower features 458 luxury condominiums, a fitness center, and over 40,000 SF of indoor and outdoor amenities. Langan's environmental group conducted a Phase I ESA, performed direct push drilling and soil sample collection, provided oversight during site-wide excavation activities, and submitted a Remedial Investigation Report to the NYC Office of Environmental Remediation. Our geotechnical scope of work included a supplemental subsurface investigation, preparation of a geotechnical investigation report, and coordination with the New York City Transit Authority due to the close proximity of the site to subway tunnel structures.

NASHVILLE AIRPORT CONCOURSE D AND TERMINAL WINGS

Location:	Nashville, TN
Client:	Metropolitan Nashville Airport Authority
Partner:	Hensel Phelps Construction Company, Magnusson Klemencic Associates, Logan-Patri
Services:	Geotechnical

OVERVIEW

Langan is assisting the Hensel Phelps design-build team with geotechnical design and construction aspects of the Nashville Airport Concourse D and Terminal Wings expansion project. The project includes construction of a new 43,000-SF Concourse D and South Terminal, the 36,500 SF North Terminal, and new central utility plant. Because the site is located in a karst limestone region, Langan completed a supplemental geotechnical investigation to further explore the depth to rock, the pinnacling nature of the rock surface, and to assess possible voids and sinkholes in the area. Langan provided geotechnical recommendations for design of new shallow and deep foundations at the site including footings, drilled piers, micropiles, and tie-down anchors. Our engineering team is coordinating with the structural engineers to optimize foundations and assist with updating the project specifications for the work. Langan also provided recommendations for geotechnical-related aspects of the project such as earthwork, temporary shoring, and karst mitigation.

RUTGERS UNIVERSITY - RICHARD WEEKS HALL OF ENGINEERING

Location: Piscataway, NJ
Client: The S/L/A/M Collaborative
Services: Site/Civil, Geotechnical, Traffic & Transportation, Surveying/Geospatial, Environmental

OVERVIEW

Langan provided multiple engineering services for a new school of engineering building on Rutgers University's Busch Campus. The building serves as a gateway building for the engineering community, industry partners, and the public. The innovative building will include features such as collaborative work spaces, smart and flexible classrooms, living laboratories, technology integration, and a dedicated student space. Langan's scope of services included civil engineering, utility design, soil erosion and sediment control permitting, geotechnical engineering, environmental engineering, and surveying services. Langan designed a regional stormwater management system for the development, which will address stormwater management requirements for Weeks Hall and future projects.

ELLISON CONSERVATION CENTER FOR WILDLIFE CARE

Location: Saratoga, CA
Client: Peninsula Humane Society
Partner: Griffin & Sons Construction, Inc.
Services: Geotechnical

OVERVIEW

The Conservation Center for Wildlife Care, operated by the Peninsula Humane Society and the Society for the Prevention of Cruelty to Animals (SPCA), is located on an approximately 170-acre site on the northeast side of Congress Springs Road (Highway 9). This property is within a geologically complex area, with landsliding and multiple traces of the San Andreas fault extending through the site. It is within the mapped Alquist-Priolo Earthquake Fault Zone. Unique geotechnical challenges are an extensive quarrying history and significant amounts of undocumented fill and presence of the San Andreas fault. Langan performed a geologic and geotechnical investigation, which included geologic mapping, laboratory testing, and slope stability analyses. Langan also provided geotechnical and geologic observation services during construction to repair portions of the main access road throughout the property.