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SAI Teams with CETCO for Solid Waste Project in Nigeria

With over 12 million residents, the City of Lagos, Nigeria is located partly on a barrier island and partly on the African mainland, with its population divided relatively evenly between both locations. Solid waste from the island, which is separated from the mainland by a bay and rivers, is taken to open dumps on the mainland for disposal. The State of Lagos, through the newly formed Lagos Solid Waste Management Authority, wants to establish, for the first time, controlled landfills to serve this vast population.

The project team of CETCO Contracting Services company in Treose, Pennsylvania, and SAI was recently awarded a design/build contract to complete a new landfill for the City's mainland population of almost seven million. This one landfill is being designed to serve approximately the same number of people as the population of New Jersey. CETCO Services, a subsidiary of CETCO, Inc., builds landfill and lagoon liners. CETCO is the world's largest supplier of bentonite clay products. With an office in Nigeria to serve the oil industry by providing bentonite for drilling fluids, CETCO was the only American firm to respond to an international Invitation to Bid. As CETCO realized that SAI had international landfill design experience and could help the Team

Continued on Page 2

Update to Clients

Update

SAI Joins Brownfield Redevelopment Team for the Borough of Palmyra

Sadat Associates, Inc., has recently joined the team assigned to investigate and remediate the Route 73 South Redevelopment Area, a 186-acre site located in the Borough of Palmyra, Burlington County. This site is located along both the Delaware River to the west and Pennsauken Creek to the east. This team is being led by iPark Palmyra, LLC (iPark), a joint venture entity between National RE/Sources Advisors, LLC, of Greenwich, CT, and The Chicago Group, LLC, of Edgewater, NJ. The iPark Team will have the responsibility for the remediation under NJDEP oversight. SAI will serve as the primary consultant for the Borough and for iPark. Funding for the project has been secured through an NJDEP grant to the Borough from the Hazardous Discharge Site Remediation Fund.



In this aerial photograph of the site, taken in 2006, the drive-in movie theater is clearly visible.

From 1943 to 1946, this location was used as a World War II artillery range for weapons testing by the US Army's Frankford Arsenal in Philadelphia. Over five hundred pieces of ammunition, some still loaded with high explosives, were recently removed from a portion of the property by NJDEP's contractors. Another portion of the site was used as the municipal landfill and now serves as a composting facility. Still another portion of the site was used as one of the first drive-in movie theaters in the state, and is currently used as a flea market. Currently there are four operating gasoline service stations, six former gasoline service stations, and several other businesses in the Route 73 South Redevelopment Area.

The proposed development plans for this area include an expo center, two hotels, a multi-level parking structure, a multiplex cinema, four restaurants, several retail stores, and an office complex. According to Mr. Erik Rucker, principal at iPark Palmyra, LLC, SAI's appointment to the project team "...has been a real effort of collaboration by the entire staff at Sadat...." Joseph Wiley, Senior Vice President, and Rodger Ferguson, CHMM, Senior Project Manager, will be heading up the effort for SAI.

Continued on Page 4

INSIDE

10th Anniversary of the Jersey Gardens Mall project. *see page 2*
Acid Soil Investigations for NJ Turnpike. *see page 3*
Highlights of SAI's Annual Summer Picnic. *see page 4*



Glimcher Realty Trust Celebrates the 10th Anniversary of the Jersey Gardens Mall

The Jersey Gardens Mall in Elizabeth, NJ, is celebrating its 10th anniversary this year, and SAI is joining in the celebration. SAI was the environmental engineer that obtained the permits needed to develop the Jersey Gardens Mall site, a project the USEPA recognized by awarding it the 2001 Phoenix Award for Region II. In addition, SAI designed and provided construction oversight for all the environmental remediation needs for the project. The following is a brief overview of the project's requirements and some of SAI's many contributions to its completion and success.



The parking lot of the Jersey Gardens Mall, the largest and most successful brownfields redevelopment project in New Jersey.

Environmental Investigations

SAI developed and implemented innovative waste sampling plans to comply with the technical requirements of the site remediation. Field activities included the installation of soil borings, a tidal study, chemical sampling for solid waste classification, and testing the leachate for biotreatability. A Remedial Investigation Report (RIR) and Remedial Action Workplan (RAW) were developed, submitted to the NJDEP, and later approved.

To limit the cost of the landfill closure, SAI incorporated the use of recyclable materials into the landfill closure design and site preparation.

Engineering Design

The proposed closure involved the installation of a pipe culvert to replace an open ditch that extended 5,800 feet to Newark Bay and divided the property

nearly in half. By conducting innovative hydraulic and hydrologic engineering calculations, SAI engineers projected the output of a 100-year flood to be an order of magnitude lower than previously thought. This allowed the designed pipe culvert to be smaller and more economical.

A final Closure Plan for the site included the installation of a gravity leachate collection system and force main, a cap in the form of buildings and parking to prevent infiltration of rainwater, and a passive methane gas collection system under each building. The site received an NFA for soils in 1999.

Gas Control

The design of the gas management system was coordinated with the Client, the architect and structural engineer to determine the optimal location for the gas collection and venting system, the location of the blowers and detection system, and value engineering of the proposed system.

Beneficial Use of Dredge Materials and Other Recyclables

In the spring of 1995, SAI first proposed the concept of using contaminated dredge spoil as structural fill. With the encouragement of NJDEP, SAI submitted a proposal that would allow stabilized dredge material from a Port Authority dredge project to be reused beneficially at this site.

While SAI is understandably proud of its role in the development and success of the Jersey Gardens Mall, we take particular pride in the fact that, as we celebrate this important milestone with the Mall, the remedial work has stood the test of time. There has been no unpredicted or differential settlement of the landfill; the stormwater management systems are still in top condition; there has been no erosion; and the leachate collection system is operating at peak performance. Ongoing groundwater monitoring shows no impact from the leachate, despite the installation of thousands of piles to bear the weight of the development.

Nigeria

Continued from Page 1

select appropriate technologies for the design process.

The site selected for the landfill is in a remote area 40 kilometers from the City of Lagos and will be accessed by a new highway. Transfer stations are being established to facilitate efficient transportation of waste materials to the new location.

The 99-acre site that was acquired by the City is large enough to provide 10 years of disposal capacity at the rate of 4200 tons/day. SAI prepared the conceptual landfill design used to establish the basis of the contract. The design included a 40-mil synthetic membrane liner, a leachate collection system, leachate treatment facilities, and stormwater management. Ancillary facilities include an administration building, repair shop, scale, roads and utilities.

Prior to completion of the design, the Team will reconfirm the project's feasibility (including budget estimates and projected tipping fees). The feasibility study will include an environmental assessment to address sensitive resources such as groundwater and ecosystem protection. The contract calls for design and construction of the first cell, which will utilize seven hectares.

The design efforts include survey, borings, monitoring

Continued on Page 3

Continued on Page 4

SAI Performs Acidic Soils Investigations Relating to NJ Turnpike Expansion

SAI is assisting the Louis Berger Group (LBG) with the implementation of acidic soils investigations relating to the New Jersey Turnpike Interchange 6 through 9 Widening Program. The purpose of these investigations is to evaluate the potential presence of acidic soils within areas that will undergo excavation and/or regrading during the Turnpike expansion.

Acidic soils are associated with specific geologic formations in the coastal plain physiogeographic province located within central New Jersey. Acidic soils are typically present within black, dark brown, gray, or greenish geologic units that have a clay plus silt content greater than 30% on a dry weight basis. Exposure of acidic soils that contain iron sulfide minerals (such as pyrite and marcasite) to the atmosphere can result in the production of sulfuric acid. Sulfuric acid increases the solubility of some metals which, when released to the environment, may have negative impacts on local fauna and flora.

The NJDEP's "Draft Flood Hazard Area Technical Manual", dated December 2008, supports the Flood Hazard Area Control Rules implemented by the NJDEP's Division of Land Use Regulation. This manual describes the field methods and laboratory procedures for the determination of acidic producing soils. NJDEP recommends that pH (using calcium chloride solution) and qualitative tests for sulfate ion be performed on potential acidic soils.

SAI is utilizing push probe technology to install soil borings at specified locations and collecting soil samples at designated depths based on Turnpike design documents. Prior to installing the soil borings, SAI personnel locate the proposed locations with global positioning system technology and confirm site accessibility for the drilling equipment. During sample collection, SAI logs the soil borings and collects soil samples from targeted zones, as well as strata consisting of dark brown, or black soils having a clay plus silt content exceeding 30%. Soil samples are transported to a certified laboratory and analyzed for pH and qualitative sulfate ion in accordance with NJDEP's rules and guidance. SAI prepares a report for LBG detailing



SAI staffer Melissa Lindsay, shown above, has been describing the soil logs and collecting the soil samples.

the findings of the acidic soils investigation including boring logs, sampling locations, and a summary of the analytical results.

Nigeria

Continued from Page 2

wells and acquisition of environmental data needed for the design. The entire design process will be completed in less than six months. Construction of the initial cell and other improvements will be completed in another six months.

Dr. Lahbib Chibani, SAI's Vice President of Engineering, attended the interview of the international firms. The Team's proposal was presented by Archie Filshill, President of CETCO Contracting Services. "The Team of CETCO and SAI is well suited for this job because we have both completed new landfill projects overseas and offer state of the art approaches to countries without experience in modern solid waste disposal practices," said Mr. Filshill.

Congratulations!

SAI has experienced a spate of weddings this spring! Maybe one of your favorite staffers has recently tied the knot.



Rodger Ferguson & Suzanne Macaoay-Ferguson

Two of SAI's favorite project managers, Suzanne Macaoay and Rodger Ferguson, were married on June 27 in Alpha, NJ. Suzanne is Vice President of the Science Division here at SAI. She is a Professional Geologist and deals primarily with projects involving soil and groundwater contamination. She is also one of our team of expert witnesses, and has testified on behalf of many of our clients. Rodger is a Senior Project Manager who specializes in clean-ups of contaminated soils, site remediation, and industrial hygiene.



Khaled and Alia Benslimane

Khaled Benslimane, Project Manager in SAI's Engineering Division, and Alia Ktari were married on September 13, 2008 in the city of Carthage,

Continued on Page 4

Congratulations!

Continued from Page 3

Tunisia. The reception was held on July 18, 2009, after which the couple returned to the United States together. Khaled manages projects for many of SAI's clients.

Jiturvi Chokshi, of SAI's Engineering Division, and Ravi Ranpura were married on June 3rd of this year in Levittown, PA. Jiturvi performs environmental compliance audits and site inspections, as well as prepares reports for several of our clients.



Jiturvi Chokshi and Ravi Ranpura

Welcome!

Jack Taylor is the newest member of SAI's Engineering Group. Jack is a recent graduate of Monash University in Clayton, Australia, with a BS in Geology. Jack's main assignment will be to assist in field assessments.



Jack Taylor

SAI's Annual Summer Picnic

On July 23, SAI staffers once again celebrated the season with our annual picnic. Unfortunately, the weather wasn't in the mood to celebrate with us, so the festivities took place inside the office. However, the bad weather could not dampen the enthusiasm for the party. Senior Project Manager Randy Kertes got the party started with a rousing game of indoor Putt-Putt. As always, the game of golf presented us with surprises and upsets, with our best golfers losing during the first round. Competition was fierce, but in the end it was Design Engineer Johnson George who earned this year's bragging rights.

Later in the evening, we were treated to some native dance performances by Project Engineer Jiturvi Chokshi and our summer intern, Nicole Chamon. Our intrepid receptionist, Larissa Sawicki, demonstrated her skills with hula hoops, and the evening's entertainment was topped off with a magic show by Johnson. We always knew he was good, but it turns out he really can pull a rabbit out of a hat!



Some of our SAI staff, from left to right: Back row, Brian Allenby, intern, Samriti Sharma, Il Kim, Suna Cinar, Lahlbib Chibani, Nicole Chamoun, intern, Larissa Sawicki, Randy Kertes, Emery Coppola, Jr., Suzanne Macaoay-Ferguson, Rodger Ferguson. Front row, Cathy Farro, Jiturvi Chokshi, Janine Lipski, Johnson George, Lisa Thompson.

10th Anniversary of Jersey Gardens Mall

Continued from Page 2

Once all the remedial activities were completed and the new infrastructure was installed, the mall could be built. Jersey Gardens Mall brings shoppers from as far away as Manhattan. The grand finale to this entire redevelopment project, envisioned so many years ago, will be the opening of Celadon, New Jersey's first environmentally friendly residential and mixed-use development. Celadon will feature a marina, a ferry terminal, a school, retail areas, residential and office space, and hotels.

The Jersey Gardens Mall project will be featured in the Fall 2009 edition of DDC Journal. SAI is pleased and honored to be a part of this landmark project that changed the face of Elizabeth, NJ.

Borough of Palmyra Brownfields Redevelopment Project

Continued from Page 1

SAI is proud to be providing our expertise to serve the Borough of Palmyra in their efforts to remediate these contaminated sites and redevelop them to meet the needs of their community. To date, SAI has successfully closed and assisted clients in the redevelopment of seven landfills, and has construction efforts underway at two additional landfill sites, including the only USEPA Region II Superfund site approved for redevelopment, in Jersey City, Hudson County.

This year's New Jersey League of Municipalities Conference will take place November 17-19 at the Atlantic City Convention Center. Sadat Associates, Inc., will be displaying in booth #746. As you are making the rounds of the conference, please stop by and say hello!

From the Editor -

If you would like to receive a full-color electronic version of our newsletter in Adobe PDF format via email, or if you want additional information about SAI and its services, please email me at: lthompson@sadat.com.

Thanks — we look forward to hearing from you.