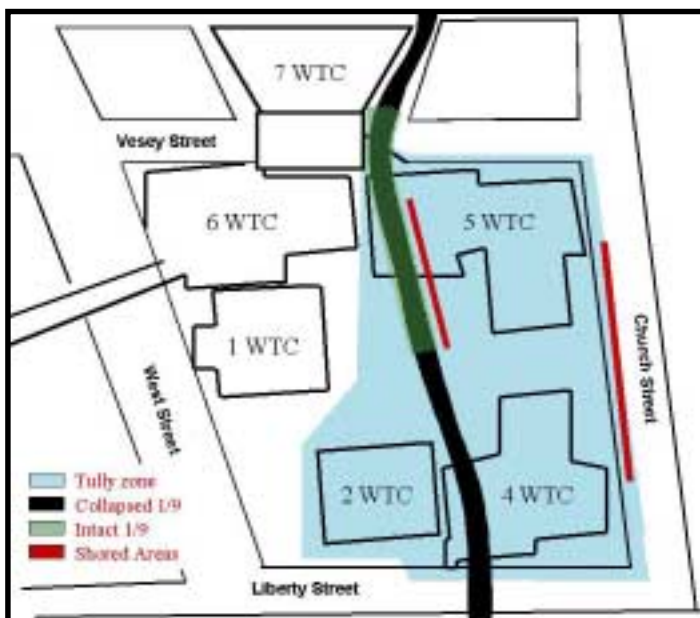




Work at the World Trade Center Involves the Firm's Top Personnel

New York's engineering and construction communities have been put to the test as a multitude of firms pour their resources into the recovery effort at ground zero. Nowhere has this been truer than at LiRo, where the firm's personnel have been involved since the week after the tragedy.



The New York City Department of Design and Construction (DDC) has divided the site into four quadrants for recovery operations and debris removal. Tully Construction, a heavy construction contractor experienced in emergency contracts, has the largest quadrant, encompassing nearly half the site. Included in Tully's zone are the South Tower and World Trade Center Buildings Four and Five.

Having worked closely with LiRo on other City projects, Tully called upon the firm to provide demolition support, structural engineering, scheduling, accounting, and interface with the City's primary engineering consultants, LZA/Thornton & Thomasetti, and Mueser Rutledge. In response, LiRo is supplying Tully with a broad range of personnel: structural engineers, architects, construction managers,

accountants, and safety inspectors. Over a dozen of LiRo's top personnel – including the firm's president, John Lekstutis – now spend most of their time at ground zero. The tasks have been difficult and varied.

Red Hot Debris. The removal of debris from the collapsed areas requires the safe lifting and maneuvering of very heavy steel beams, often twisted and tangled from the force of the collapse. Some beams pulled from the wreckage are still red hot more than 7 weeks after the attack, and it is suspected that temperatures beneath the debris pile are well in excess of 1,000°F. One group of beams fell end-first, embedding themselves deeply into the subway system below. The removal of these beams – one of which struck an electrical equipment room – is a delicate operation requiring close coordination with New York City Transit. Although the 1/9 station below the Trade Center is heavily damaged, 1,200ft. are intact. LiRo is working with New York City Transit to shore up the station so that there will be no further damage.

Key among LiRo's on-site engineering staff are structural engineers Dick Posthauer and Chuck Guardia, Jr., and civil engineer Mike Marsico, formerly with the Port Authority. Frank Franco, an architect with LiRo's construction management group, serves as LiRo's project manager, with Joe Pinto, a CPA, as financial manager.



Ramps and Bridges. In addition to the construction engineering required for the debris removal, LiRo's on-site engineers have been faced with many structural design assignments. The firm worked with Mueser Rutledge to develop a means to support Church Street, which must be kept open for emergency vehicles. Accessing some of the collapsed areas has also proven to be a challenge, requiring the design of ramps to support heavy equipment. Then there were the two pedestrian bridges crossing West Street; with these now destroyed, residents of Battery Park City have no easy means to reach their homes. LiRo is collaborating with NYSDOT, NYCDOT, and Tully to provide a temporary pedestrian bridge over West Street at Rector Street. The bridge will include stairs, lifts for ADA access, and weather protection.



LiRo at GROUND ZERO



Protecting the slurry wall, which keeps out ground water and the Hudson River, is a major engineering task requiring the combined efforts of many firms. Mueser Rutledge is leading the effort, with contractor Nicholson drilling holes and placing the tie-back system that will keep the wall in place. Bovis is providing construction management. Tully is responsible for the work platforms. LiRo is helping to monitor the movement of the wall and safety of the platforms.

The Recovery Effort. Contractor D. H. Griffin Wrecking Company of North Carolina is providing general demolition coordination for the entire site. LiRo is helping them develop sequencing plans for the

demolition and removal. The work is both heavy and delicate, as ongoing recovery activities slow the process of debris removal. All work stops when human remains are uncovered; the area is cordoned off, and Fire Department teams set about their grim task. There are also known sites within the wreckage that require careful and secure operations to recover property. Beneath WTC Four was a vault containing over \$300 million in gold and silver. On October 31, work at WTC Four halted while hundreds of armored cars and special security forces were brought in to remove the contents of the vault. Work at WTC Five will be also be scheduled around a recovery effort. The wreckage of WTC Five contains safe deposit boxes whose owners desperately await the return of the valuables inside.

Security, Safety, and Sobering Thoughts. The site is not an easy place to work. Personnel must pass through many layers of security each day. Moreover, passing a checkpoint safely one day is no guarantee of easy passage the next. The site is guarded and controlled by a large complement of agencies and personnel: NYC Police, Port Authority Police, New York State Police, National Guard, FBI, ATF, CIA, U.S. Army Corps of Engineers, FEMA, and many others.

It's also crowded. At any given time, up to 2,000 people are on the site: contractors, engineers, security, recovery personnel, administrators, emergency relief personnel, and visiting dignitaries. The rumble and whine of heavy equipment fills the air 24 hours per day, 7 days per week, interrupted only for the occasional memorial service. Safety, a secondary concern during the rescue phase, has become a top priority during the recovery effort. And as OSHA directs the enforcement of safety protocols, the contractors work even harder to ensure compliance. LiRo is providing inspectors and other safety personnel to Tully.

Adding to the noise, the treacherous footing, and other distractions are the woeful sights of rubble and destroyed buildings, a lingering odor which reminds everyone of the devastation, and the sobering knowledge of the thousands of victims still undiscovered beneath the debris. "Sometimes you just have take a moment and walk away," said Dick Posthauer, one of LiRo's most experienced engineers. "It gets to be too much." Another engineer echoed the sentiments of many: "I forget that I'm working at a cemetery."

And then there's the wind. Even before September 11, the World Trade Center site, located adjacent to the river, was one of the windiest locales in the City. Now with few buildings to shield against the wind, the 15-acre site is cold and barren. When winter sets in, the frigid environment will make the site even less bearable.

Staggering Numbers. The sheer volume of demolition and construction activity is difficult to fathom. In the Tully zone alone, approximately 200 truckloads of debris per 12-hour shift are removed from the site. Construction costs are running nearly \$15 million per month. To track and account for such staggering numbers, Joe Pinto has been there almost from the beginning. Knowing the City's requirements well, Joe's job is to keep Tully's paperwork and payroll moving, so that work can proceed.

Despite the torrid pace of the work, progress at ground zero seems painfully slow. The goal of the recovery operation is to remove all debris above grade by year end – a daunting task. Removal of debris below grade level is expected to take many months.