RECO NEWS
VOLUME 6: ISSUE 1
The Reinforced Earth Company

Piano Wall Performs in Atlantic City

The Atlantic City Brigantine Expressway was a high profile project with a tight completion schedule and numerous structures, including over 110,000ft² (10,220m²) of mechanically stabilized earth (MSE). Faced with time restrictions and cost overruns, the contractors requested that The Reinforced Earth Company (RECo) review the designs proposed in the contract plans for the walls that made up the expressway entrance ramps and offer suggestions for cost or time savings.

RECo proposed a unique solution for the project – Piano Wall™. A meeting was arranged with the owner, consultant and contractors to

...continued on page 2

What's inside

The Reinforced Earth Company has purchased certain assets of the L.B. Foster Company

The Reinforced Earth Company (RECo) in February 2006, acquired certain assets from the L.B. Foster Company (NASDAQ:FSTR), a 104 year old American corporation involved in the manufacture, fabrication and distribution of products for the transportation, construction, utility and energy industries. The acquisition of the proprietary, patented Mechanical Stabilized Earth (MSE) system, marketed and sold by L.B. Foster under the trade name Retained Earth®, positions RECo to offer a wider range of products, reinforcement selections, engineering services and new innovative products to the market. For more information visit www.reinforcedearth.com

Project:	**Atlantic City Brigantine Expressway**
Location:	**Atlantic City, NJ**
Owner:	**New Jersey Department of Transportation**
Consultant/Manager:	**Parsons Brinkerhoff**
Contractors:	**Design / Build (Joint Venture) Yonkers Contracting Company & Granite Contracting Company**

Piano Wall Performs in Atlantic City

continued from page 1...

present a feasibility study that included a detailed technical design and cost estimates for the use of Piano Wall on the ramp walls. The savings in time and money using Piano Wall was music to their ears.

Piano Wall is a composite retaining wall and traffic barrier system engineered by RECo. The lower portion of each 10 ft (3m) long Piano Wall module is, in effect, the concrete facing for a 5 to 10 ft (1.5 to 3m) high Reinforced Earth retaining wall. The upper 2ft –8 inches (815mm) of each module is an integral traffic barrier.

The precast Piano Wall system is delivered to the job site ready to install and can be erected at a rate of 17 modules per day. On average, this allows for daily construction of 1,700 ft^2 (158m^2) of retaining wall and 170 LF (51.8m) of barrier at the same time.

For this complex project, RECo designed standard modules up to 10 feet (3m) in height, including special modules that allowed for the retaining walls to reach greater heights. RECo also detailed additional modules necessary for drainage structures as well as those needed to accommodate lighting foundations.

The Contractors were able to erect all eight ramp walls in record time, allowing the access ramps to the expressway to open on time. The Piano Wall system has been used by DOT's on projects around the country including TXDOT, VDOT and MHTA.

The project required:

- **Retaining structures, ranging in height from 5 to 14 ft (1.5 to 4.3m).**
- **Traffic Barriers, a total length of 2,546 LF (776m).**
- **Various drainage structures along the vertical profile of the ramps.**
- **Light pole foundations spaced equally along the ramps**

Wire Wall Applications

For temporary walls, savings may be achieved through the use of a wire facing MSE system. The wire facing takes the place of the precast panels in the MSE wall and typically has a lower design life consideration than the precast panel facing. RECo provides its wire facing system under the product name of Terratrel™. The gage size and wire spacing in Terratrel can be adjusted on the basis of wall height and design life. Special clips are used to attach reinforcing strips to the wire facing and geotextile backing is used to confine the backfill behind the wire mesh.

Temporary MSE wire wall applications are frequently used in phased bridge construction for highways and industrial mine truck dump walls. The flexibility of Terratrel allows the facing to deform and effectively accommodate large settlements. Care does need to be exercised during backfill placement near the facing to prevent excessive bulging during construction.

The Terratrel wire facing may be converted to a permanent facing by using cast-in-place concrete after primary settlement and deflections have occurred. The wire wall may also be designed as a stand

alone permanent structure by galvanizing the wire mesh facing, increasing the number of reinforcing strips and installing cobble sized rocks behind the wire mesh to provide a more durable configuration. Geotextile typically has a limited design life when exposed to sunlight, so replacement with stone directly behind the wire facing is usually provided in permanent stand alone applications. Although less economical than a Reinforced Earth® wall built only using precast panels, the temporary-to-permanent Terratrel wire face system may be justified where significant total and differential settlements are anticipated.

Coxheath Bridge, Sydney Nova Scotia

In August 2004, the Coxheath Road overpass bridge in Sydney, Nova Scotia was demolished to make way for a new structure. Coxheath Road was to remain open with two lanes of traffic flow at all times during demolition and re-construction resulting in the need for a temporary bridge spanning the four-lane Highway #125, which also had to maintain traffic.

J & T Van Zutphen Construction Inc. (VZC) was awarded the contract by Nova Scotia Department of Transportation & Public Works (NSDOT & PW) to replace the overpass structure. Under the contract terms, the temporary crossing was to be designed and supplied by the contractor to maintain traffic flow on Coxheath Road over Highway #125. A temporary modular truss–type panel bridge was supplied by Atlantic Bridge Systems Inc (ABS) and Reinforced Earth Company Ltd. (RECo) was awarded the design and supply of the temporary abutment walls. The bridge seat was design by VZC.

ABS provided the bridge loadings to RECo for design of the abutment walls and bridge seat. Since the bridge structure was a temporary crossing and funded by the contractor, the overall cost was closely monitored by VZC. RECo proposed the use of Terratrel Wire Wall to provide optimum design at a lower cost than conventional construction. The walls were designed to the current NSDOT & PW standards and approved as a viable option.

The construction of the temporary walls began in September 2004 and were completed just two weeks later. The truss-type panel bridge was erected and cantilevered on one side of Highway #125. VZC had permission from NSDOT & PW to shutdown Highway #125 for a short twenty-minute duration in order to allow two cranes to position themselves to hoist the temporary bridge structure into place. The procedure proved to be timely and the structure performed as designed.

With traffic diverted to the temporary bridge, demolition and re-building the Coxheath Road structure could begin. The new structure was supported on two RECo true abutment walls with concrete facing. The project was completed on schedule and opened to traffic in June 2005. Once the permanent structure was completed the temporary bridge and walls were disassembled over a two week period. The granular backfill within the RECo volume of the temporary abutment was recycled and used on another section of the road contract. The temporary abutment walls were dismantled and 90% recovered and will be re-used for other temporary structures.

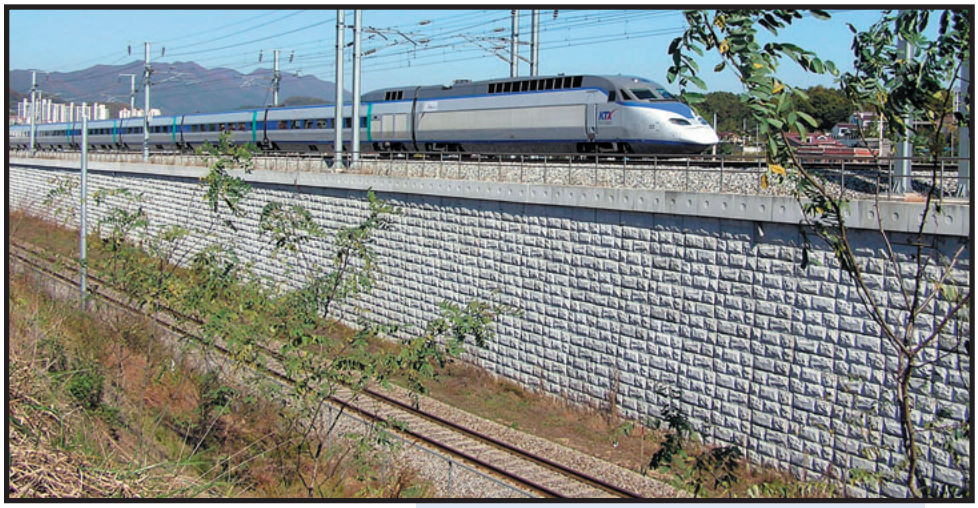
35 Years
Reinforced Earth Company Ltd.

RECo Canada Celebrates 35 Years

Peter Wu, President & CEO of Reinforced Earth Company Ltd. is proud to celebrate 35 years of service to the Canadian construction, energy and mining industries. RECo has completed over 750 projects in Canada with a total wall area in excess of 86,000m^2 (9.7 million ft^2).

International Corner

Reinforced Earth Supports Seoul to Buaan High Speed Train



TerraClass panels with Ashlar Stone finish: 5,600m² (60,278 ft²) x 10.5m (34.5ft) maximum height walls.

Korean engineers were faced with several challenges at a proposed extension of the high speed rail system through a busy rail corridor. In Korea, cast-in-place (CIP) structures have traditionally been used to construct rail ramps and approaches. For this project, CIP methods would not allow the existing local trains to continue service without extensive detours required to accommodate work access, formwork and shoring for the new elevated section. To complicate matters, a compressed construction schedule of only 10 months was available for completion. The difficult project parameters motivated the designers to look past traditional methods for a practical cost effective alternate technology solution.

Reinforced Earth's World Group has a long history of supporting high-speed rail in France and Japan. Germany, Canada and USA have also used MSE to support both high-speed or heavy rail for many years. This was the first application of MSE for high speed trains in Korea.

Without a previous national history supporting rail on MSE, two major concerns to the owner were how the large amount of vibration would affect the MSE design and the effect of corrosion on the steel reinforcing resulting from stray currents. Trains can create significant vibrations as they pass over structures. Other underground utility structures in the high speed train system had experienced accelerated corrosion rates as a result of stray currents from the direct current systems used to power the trains.

RECo's design group had extensive research and real-time test data from the previous high-speed projects in France and Japan. RECo's standard MSE design easily accommodates the effects of the largest vibrations, including vibration from active adjacent rail lines during construction.

The design of RECo structures, reinforced with discrete galvanized steel reinforcement, is inherently suited to counter the effects of stray currents. The specified backfill provides high resistivity and protection against corrosion. Individual reinforcing strips are placed in an isolated fashion that prevents electric connectivity and the forming of electrical cells that result in metal corrosion.

United States
The Reinforced Earth Company

8614 Westwood Center Drive
Suite 1100
Vienna, Virginia
22182-2233
Tel.: 1-800-446-5700
Fax.: 703-821-1815

www.reinforcedearth.com

- Atlanta (770) 242-9415
- Boston (978) 664-2830
- Chicago (630) 898-3334
- Dallas/Ft. Worth (817) 283-5503
- Lake Forest, CA (949) 587-3060
- Melbourne, FL (321) 728-9090
- Orlando (407) 226-2840
- San Diego (619) 688-2400
- Seattle (425) 391-0111
- Vienna, VA (703) 821-1175
- Woodbridge, VA (703) 499-9818

Canada
Reinforced Earth Company Ltd.

1550 Enterprise Road
Suite 229
Mississauga, Ontario
L4W 4P4
Tel.: 1-800-263-7097
Fax.: 905-564-2609

www.reinforcedearth.ca

- Edmonton AB (780) 453-8983
- Montreal QC (450) 646-4266
- Toronto ON (905) 564-0896
- Truro NS (902) 897-0982
- Vancouver BC (604) 714-0766

Please note our Montreal Office has moved:

Reinforced Earth Company Ltd.
370 Nobert Blvd., Suite 230
Longueil, Quebec
J4J 2Z3

T 450 646 4266
F 450 646 6002