



ASHE

SCANNER

Winter 2008

www.highwayengineers.org



Cover Story

Rare Procedure Aids Twin Tunnel 6 Job in Pittsburgh

Underpinning Pile Foundations 22

Shedding Light on Real Time 8
Rendering



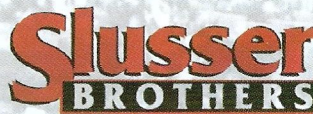
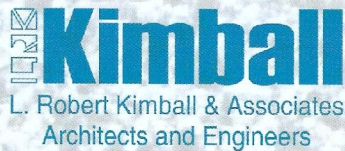
ASHE

Northeast Penn

is proud to present our
2007-2008 SPONSORS



420 SCHOOLEY AVENUE - EXETER, PA 18643



Borton
Lawson
ENGINEERING



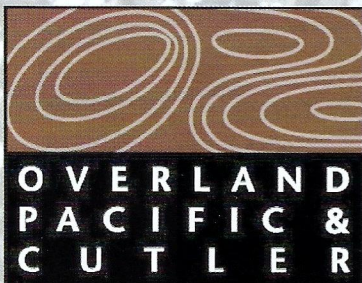
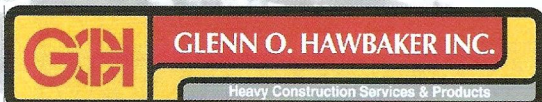
GREENHORNE & O'MARA
CONSULTING ENGINEERS



TECHNOLOGIES



Consulting Engineers
SINCE 1893



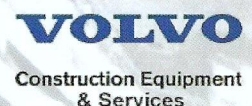
Acker Associates Inc.
Consulting Engineers
P.O. Box 899 - Moscow, PA - 18444
Phone: 570-642-9721 Fax: 570-642-7537



Greenman-Pedersen, Inc.
Engineers, Planners, Construction Engineers and Inspectors

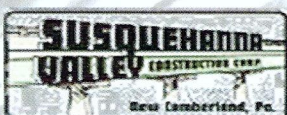


PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS



BARLETTA

MATERIALS & CONSTRUCTION, INC.
PAVING & ASPHALT MATERIALS
SAND & STONE PRODUCTS



www.ashenepenn.org



AMERICAN SOCIETY OF HIGHWAY ENGINEERS

OFFICERS 2007-2008

Perry M. Schweiss, P.E.	President
Richard Clifton, P.E.	First Vice President
Kevin E. Duris, P.E.	Second Vice President
Richard S. Prentice	Past President
Terence D. Conner, P.E.	Secretary
Robert E. Yeager, P.L.S.	Treasurer

DIRECTORS

1 Year

Paul Trapp	Old Dominion
Calvin W. Leggett, P.E.	Carolina Triangle
Nancy D. Buchanan, P.E.	Northeast Florida

2 Years

Frank O'Hare, P.E.	Central Ohio
John L. Hetrick, P.E.	Mid-Allegheny
Gerald J. Pitzer, P.E.	Pittsburgh

3 Years

Thomas S. Morisi	Altoona
Richard N. Cochrane, P.E.	Northeast Penn
Albert Algazi, P.E.	Southern New Jersey

President's Assistant	Shirley A. Stuttler
-----------------------	---------------------

NATIONAL HEADQUARTERS

113 Heritage Hills Road
Uniontown, PA 15401
724.738.1285
www.highwayengineers.org

Send address changes to
ASHE's National Headquarters
as well as your home section.

Departments and Columns

President's Message	5
Rare Procedure Aids Twin Tunnel Job in Pittsburgh	6
Shedding Light on Real Time Rendering and User Interactive Content	9
ASHE National Conference	11
The Bridge	12
ASHE National Board Member Bios	15
As the Wheel Turns	19
Underpinning Pile Foundations	22
Road and Bridge Supports Combined for a Unique Solution	25

Advertiser Index

A.G.E.S.	19
ARCADIS FPS	18
ASHE North East Penn	2
Benatec Associates	14
Buchart-Horn, Inc.	16
CDM	17
CMX	21
Civil Engineering Central	24
Dawood Engineering Inc.	18
DMJM Harris	4
Erdman, Anthony Associates	24
Fulcrum International	17
G.J. Berding Surveying	4
Gibson-Thomas Engineering Co.	24
Greenhorne & O'Mara	8
HDR Engineering, Inc.	16
Herbert, Rowland and Grubic	18
Johnson, Mirmiran & Thompson, Inc.	16
Jones-Stuckey Ltd. Inc.	28
Malick & Scherer, P.C.	8
McCormick Taylor	14
McMahon Associates, Inc.	8
Michael Baker Corporation	16
Oregon Dept of Transportation	10
Pennoni Associates	10
Pickering, Corts & Summerson, Inc.	14
Rummel, Klepper & Kahl, LLP	8
Street Smarts	24
STV Inc.	18
Sucevic, Piccolomini & Kuchar Engineering, Inc.	14
Traffic Planning and Design, Inc.	10
Urban Engineers	28
URS Corp.	19
Whitney, Bailey, Cox & Magnani LLP	10

He'll probably be working for us in about 15 years.

He could head up highway design. Or program development or an environmental practice. For more than 75 years, DMJM Harris has been bringing together the most creative thinkers in every discipline. Our project managers build teams that know how to anticipate and address stakeholder issues, put together creative financial solutions and, of course, deliver sound and original engineering results.

No matter how large the project, we have the experience, the knowledge, the resources of AECOM and – most importantly – the people to get it done.

866-433-9001

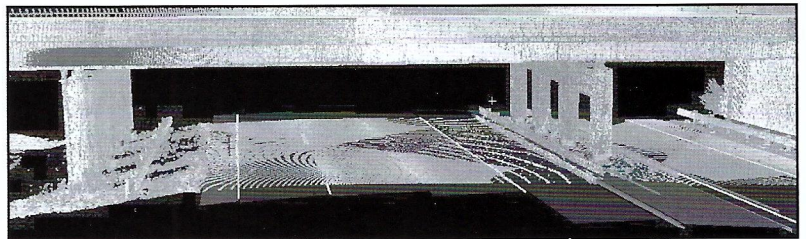


www.dmjmharris.com

Supporting the design professional with detailed 3D scanned data of the built environment...

Consider our scanning service as a supplement to your own in-house survey efforts or count on our expertise as the solution for all your base mapping needs.

- Berding Surveying and B3D Scanning, LLC provide complete as-built data capture for your bridge, structure and roadway projects.
- Data easily integrates with aerial and conventional base survey mapping.
- Little or no interruption to traveling public.
- Accesses hard to reach, remote or unsafe structures.
- Survey grade results.

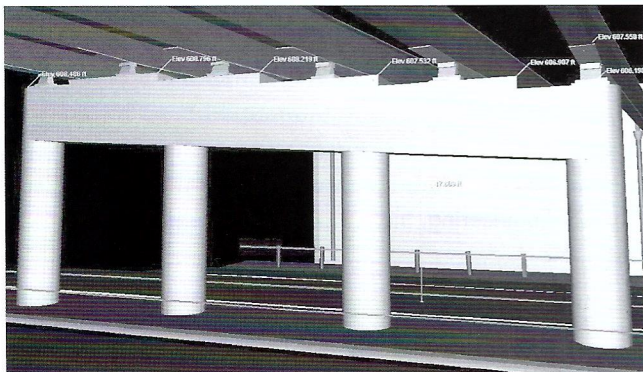


Berding Surveying and B3D Scanning serves the transportation, architectural, energy and plant design professionals with solutions that accurately model and describe the built environment.

Berding Surveying



741 Main St., Milford (Cincinnati), Ohio 45150
www.berdingsurveying.com www.b3dscan.com
 (513) 831-5505 (513) 831-6620
 (888) 254-5755



President's Message

Perry M. Schweiss

Greetings and Happy New Year to all!



2008 is the year we celebrate our highly anticipated Golden Anniversary! This summer, June 17, 2008, marks exactly 50 years since the American Society of Highway Engineers was chartered in Harrisburg, Pennsylvania. Historic records reveal that the first chartering ceremony was only the culmination of two years of organizational meetings that began in 1956.

The first official gathering of the ASHE founding fathers was early 1957, and was attended by seven people, the majority of whom were Pennsylvania Department of Highway employees. The interest and attendance grew and subsequent meetings boasted over seventy people. With the final charter membership count at 105, the American Society of Highway Engineers officially began.

In the past 50 years, ASHE membership has steadily grown. Now the society stands strong with over 6,000 members and geographic boundaries whose roots have spread! From its starting point in Harrisburg, Pennsylvania, ASHE has branched out and where it now encompasses Ohio, New Jersey, Delaware, West Virginia, Maryland, New York, Florida, Tennessee, Virginia, Georgia, Kentucky, North Carolina, and North Dakota.

A detailed history of the Society, including histories of the individual Sections and Regions, is being compiled into a commemorative booklet that will be gifted to all attendees of the upcoming National Conference in Hershey, Pennsylvania.

I have related in previous messages that one of the primary areas of focus this year is encouraging young people in our industry to become involved in ASHE. Specifically, the National Board is exploring the financial support the Society provides for students in collegiate and university transportation programs. Many Sections and Regions offer annual scholarships to students in their areas

and I have asked the Regional Directors to compile a summary of all scholarships that are presented each year. As an example of ASHE's generous financial support, Region 6 (comprised of Southern NJ, North Central NJ, Delaware Valley, First State, and NY Metro Sections,) has awarded over \$225,000 in scholarships since 1995! Region 6 also dedicated the profits from their 2007 National Conference in Atlantic City to education assistance. Region 6 secured tax-exempt status for the conference by creating a non-profit corporation. This effort produced significant savings that, as per stipulations of the non-profit corporation formed for this Conference, have been used to establish a scholarship fund. The National Board is exploring other opportunities in supporting young people in their pursuit of education and training in all areas of the highway industry.

I am very pleased to be a part of an organization which makes membership so affordable and so worthwhile. The support offered to current and future members of our industry through networking and scholarships — all through volunteer time — is invaluable and a true testament to the people that comprise the ASHE organization.

As always, I encourage the membership to share any ideas you may have in improving the services of ASHE by contacting me directly at:

Perry M. Schweiss
c/o SP&K Engineering, Inc.
126 Kaider Road
Uniontown, PA 15401
724-439-1600 Office
724-880-9288 Mobile
724-439-5449 Fax
pschweiss@spkengr.com

Remember...make your reservations early for the 50th Anniversary Celebration at the 2008 National Conference! ■

Rare Procedure Aids Twin Tunnel Job in Pittsburgh

Mary Reed, CEG Correspondent



The usual crowd of interested onlookers won't be watching construction work when Pittsburgh's twin tunnel project gets fully under way.

That's because there will be little to see on the surface once the boring of two 2,400 ft. long tunnels 40 to 60 ft. below the Allegheny River moves full steam ahead.

The tunnels are part of the first phase of the Port Authority of Allegheny County's North Shore Connector project, a \$435 million 1.2 mi. expansion of the city's light rail transit system. This new section of the 25-mi. line will eventually link the central business district in downtown Pittsburgh to the rapidly developing North Shore and preserve the ability for future extensions to the Pittsburgh International Airport.

The project also includes reconstruction of retaining walls on the 10th Street Bypass as well as building a trio of LRT stations. In addition, pilings supporting the Route 65 overpass on the North Shore will be replaced by drilled caissons spaced in such a fashion so as to allow room for a cut and cover tunnel to pass between them.

It is anticipated that the entire light rail expansion project will take 4.5 years to complete and once open will carry more than 14,000 riders on weekdays by 2025. This estimated average ridership includes thousands who attend concerts and sporting events held at the Pittsburgh Steelers Heinz Field and PNC Park, home of the Pittsburgh Pirates.

Funding for the project is being provided by the Federal Transit Administration, which is contributing \$348 million. The remaining \$87 million will come from state and local sources.

The \$156.5 million tunnel will be constructed by North Shore Constructors Obayashi Trumbull JV (NSCOT JV), a joint venture formed by Obayashi Corporation of San Francisco, Calif. (headquartered in Tokyo, Japan) and the Trumbull Corporation, based in West Mifflin, Pa. The consortium was awarded the contract by the Port Authority of Allegheny County in July 2006.

This phase of the overall project includes the building of 1,500 ft. of cut and cover section and 2,400 ft. of bored tunnel, extending the existing light rail line by 3,700 ft. In early 2007, open excavation began on a launch pit from which a huge tunnel boring machine will begin chewing out the first of the two tunnels.

Giant Tunnel Boring Machine

The gigantic Shield Machine, which weighs more than 450 tons, has a diameter of approximately 23 ft., and is approximately 30 ft. in length. It was manufactured by the German company Herrenknecht AG, based in Schwanau, Germany, and shipped in early July.

Shield Machines are frequently used to bore through soft ground, a spokesman of North Shore Constructors Obayashi Trumbull JV said.

"The Shield, a thick cylindrical steel plate, is the ground support that prevents the bored tunnel from caving in on the machine and personnel inside the tunnel.

"Although the Shield completely supports the side wall of the bored tunnel around the TBM, the front face of the TBM cannot be fully supported, since excavated material needs to be transported through an opening just behind the cutting face while enough pressure to withstand the ground pressure ahead, and most of the time hydrostatic water pressure as well, is maintained," he said.

"The critical thing is to take out the same volume of ground as the volume just displaced by the TBM advancement," he continued.

"There are several ways to excavate a controlled amount of soil from the face while maintaining the in-situ face pressure at same time."

A similar type of TBM has been used on Seattle's ongoing Sound Transit Light Rail Project, which remains under construction by Obayashi Corporation. However, the borer to be used for the Pittsburgh job has a different approach to maintaining pressure at the cutting face than the TBM operating in Seattle.

"While the TBM in Seattle uses excavated material to balance the earth

pressure in a process called Earth Pressure Balance [EPB] Shield Tunneling, the TBM for this project will use slurry consisting of bentonite and water, along with controlled compressed air.

"Both type of Shield Machines have pros and cons, and we had chosen to go for the Slurry Shield Machine based on our preliminary study for the project conditions," the spokesman added.

How the Shield Machine Operates

During its excavations the Shield Machine will make an S-shaped bend beneath the middle of the Allegheny River to avoid passing under PNC Park, whose home plate sits approximately 443 ft. from the shoreline.

The first tunnel will take approximately six months to reach the opposite shore, after which the boring machine will execute a U-turn and excavate a tunnel back under the river in the other direction.

When boring begins this fall, 20 to 30 field employees will be working each shift of the 24-hour operation with an additional 30 to 50 carrying out structural work in other areas.

The Shield Machine performs a number of operations. The first major task is to excavate the ground at the face and pump out the excavated material to a separation plant located at the ground level.

The tunnel borer moves forward by means of a thrusting force produced by numerous hydraulic jacks connected to the shield and cutter head. Electric motors drive the cutter head. The crushed/shredded/grinded soil and rock from the cutting face will be mixed with the slurry mentioned above, and pumped through a steel pipe for disposal.

The second major task is to erect circular concrete rings, which consist of several precast concrete segments per ring that are assembled within the rear section of the TBM shield behind the TBM. As the completed rings leave the protection of the shield and are exposed to the ground, other TBM equipment will inject cement grout

behind the rings to fill the annular void space.

The completed rings also serve as a reaction structure for the hydraulic jacks that thrust the TBM forward. These segments will be shipped to the job site on a daily basis as needed. One ring will typically consist of seven pieces, and the gaskets glued at its joints will be compressed when assembled in place to form a watertight joint, the NSCOT JV spokesman stated.

The TBM's digital guidance system indicates a variety of information on a monitor, including the position of the machine and any deviation from its designed alignment, allowing its operator to control and steer the machine based on continually presented information.

The TBM will begin by excavating the southbound tunnel. It can advance 30 to 60 ft. a day, depending on ground condition and will eventually pass through more than 70,000 cu. yds. of various types of soils including sand, gravel, clay, and claystone as it burrows under the river. The overall excavation volume of 200,000 cu. yds. includes both bored tunnels and the cut and cover tunnel.

Challenges to Be Overcome

"There are many challenges in the project," the North Shore Constructors Obayashi Trumbull JV company spokesman stated.

"For the TBM operation, they include boring underneath the Allegheny River as well as under a historical downtown area where a lot of old utilities exist, U-turning the TBM, and a sharp curve radius and inclined/declined grade more than 7.58 percent for the TBM alignment.

"Each of us on the project team has their own expertise and a variety of experience in their field. Gearing these multiple forces into one direction to reach our goal is the most challenging part. Teamwork and partnership will be the key to success in this type of complicated infrastructure project."



Tunnel Drill Head

Shield Machines do not represent a new technology, their use having been pioneered on the Thames Tunnel project in London in 1825 by the French engineer Sir Marc Isambard Brunel, assisted by his son Isambard Brunel, assisted by his son Isambard Kingdom Brunel.

However, the Slurry Shield Machine is relatively new and was introduced in Japan in the 1960s. "A number of Slurry Shield Machines have been used, mostly in Europe and Asia where soft ground tunneling is inevitable due to the geological nature of the motherland," the NSCOT JV spokesman said.

"As for Slurry Shield Machines in the U.S., this project will be a rare case, being only the second — or possibly the third, depending on the time of completion — on which a Slurry Shield Machine with this large a diameter will have been used.

"In addition, several specialized types of equipment rarely seen in the American market will be utilized, such as the slurry mixing and separation plant, the cutter soil mixing wall rig, and the slurry diaphragm wall rig," he concluded. ■

Reprinted with permission from Construction Equipment Guide

Issue: Northeast Edition • Newspaper Publication Date: 7/25/2007

McM McMAHON ASSOCIATES, INC.

RESPONSIVE
TRANSPORTATION
SOLUTIONS

We turn traffic confusion...



...into engineering solutions!

Land Survey	Traffic Data Collection
Highway/Intersection Design	ITS/Traffic Signal Design
Structural Design	Corridor/Traffic Studies
Construction Observation/Management	Transportation Planning

Corporate Headquarters:

Pennsylvania: Fort Washington 215.283.9444

Regional Offices:

Florida: Palm Beach Gardens - Fort Lauderdale - Fort Myers - Miami
Massachusetts: Boston Pennsylvania: Exton - Mechanicsburg
New Jersey: Yardville

www.mcmtrans.com

Rummel, Klepper & Kahl, LLP

Consulting Engineers Since 1923

- ☐ Highways and Bridges
- ☐ Traffic / ITS
- ☐ Transit Systems
- ☐ Water / Wastewater Facilities
- ☐ Natural Gas / Utility Systems
- ☐ Geotechnical Engineering
- ☐ Environmental Assessments
- ☐ Hazardous Waste Remediation
- ☐ Construction Engineering / Inspection
- ☐ Geographic Information Systems

RK&K OFFICES

York, Pennsylvania
Norristown, Pennsylvania
Keyser, West Virginia
Raleigh, North Carolina
Concord, North Carolina
Dover, Delaware

Richmond, Virginia
Virginia Beach, Virginia
Fairfax, Virginia
Newport News, Virginia
Staunton, Virginia
Washington, D.C.

Headquarters: Baltimore, Maryland

www.rkk.com



M&S

"EXPERIENCED & DEDICATED"

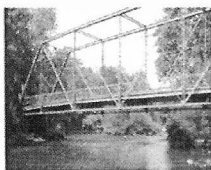
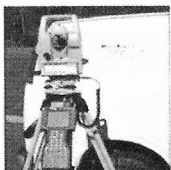
Malick & Scherer, P.C.

Consulting Engineers • Construction Inspectors
Professional Land Surveyors

DBE / MBE / ESBE

Serving NJ • NY • PA

Arif R. Malick, P.E.
Glenn J. Scherer, P.E.
Michael J. McAlpin, P.L.S.



- Highway & Traffic Engineering
- Hydraulics & SWM Design
- Environmental Services
- Land Surveying Services

One Salem Square, 295 Route 22 East
Whitehouse Station, New Jersey 08889
Phone (908) 534-4995 • Fax (908) 534-0507
m&s@malickandscherer.com

Experience and leadership
aimed at fulfilling your
project needs.

- Highway and Bridge Design
- Planning and Traffic Engineering
- Construction Engineering & Inspection
- Right-of-Way Acquisition
- Coating Evaluation, Specification and Inspection Services
- Water & Environment
- Site/Land Development
- Hazards Mitigation and Security

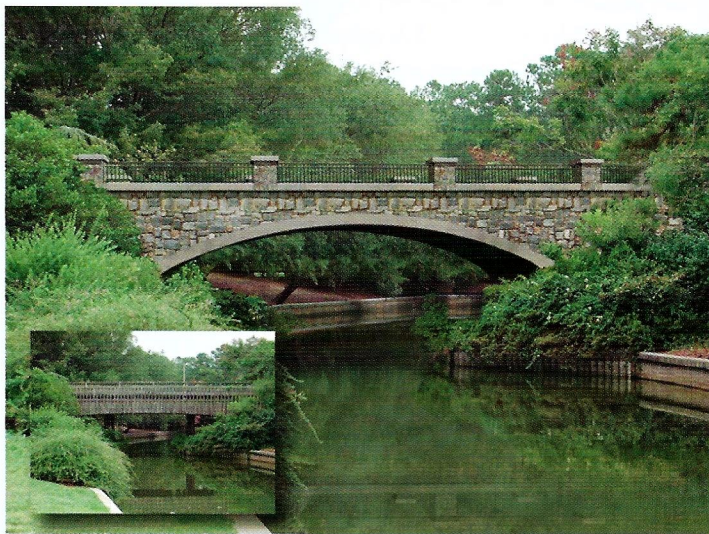


GREENHORNE & O'MARA
CONSULTING ENGINEERS

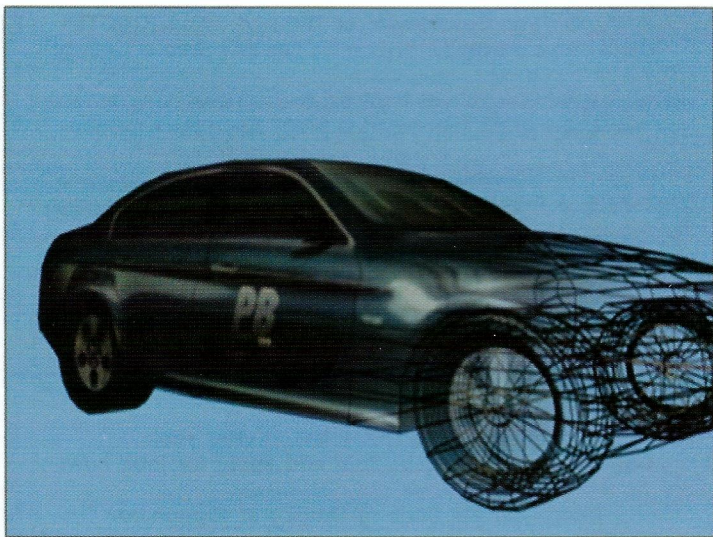
16 offices nationally • Mid-Atlantic offices: Laurel &
Baltimore, MD; Mechanicsburg, PA; Richmond, VA; and
Fairmont, WV • Toll Free 866.322.8905 • G-and-O.com

Shedding Light on Real Time Rendering & User-Interactive Content

Brian Treacy, Senior Designer, PB Americas, Inc.



Traditional before-and-after rendering of the Rose Garden Bridge at the Norfolk Botanical Gardens in Virginia.



BMW 330i Blender & Photoshop



Four rendered frames of animation, Blender and Photoshop

The New Genre

The visualization industry has a simple goal: to help others visualize the final product—to see what they are going to get before building it. The product might be a complex road, a bridge, a house—or even a simple paperclip. Nevertheless, the industry endeavors to display the product in an innovative, thought-provoking way.

Most people reading this article are probably familiar with some of the traditional tools used, such as before-and-after renderings, animations, and simulations.

Recently, however, an exciting new genre exploded within the industry: real-time rendering and user-interactive content. Surprisingly, not many people know anything about this technology. Therefore, the aim of this article is to give a little clarity regarding this topic.

Yesterday

Fully understanding the idea of rendering in real-time first requires a little background knowledge of 3D modeling, rendering, and animation. It helps to see specifically how these processes evolved into real-time rendering and user-interactive content. Once these basics are covered, it will be easier to appreciate the potential of the technology by providing specific examples of how it applies to the construction industry.

Three-Dimensional Modeling: A working definition for this article: three-dimensional modeling is a process of creating computer-generated objects that have height, width, and depth. Graphic artists enhance the realism of these objects using methods of adding light and shadows and by painting them with textures and materials.

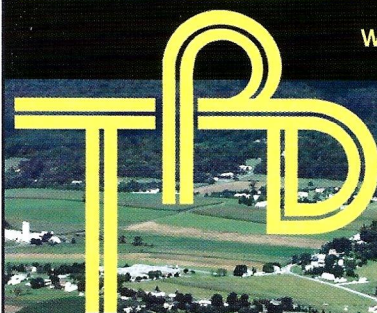
Predefined Rendering: Predefined rendering refers to snapping a picture of a three-dimensional object. This doesn't mean holding a camera to the computer screen and taking a photograph, but rather using a simulated camera actually built in to the software. This simulated camera recognizes the model and its materials, textures, lighting, and other applied effects, and creates a digital picture in a popular image format such as JPG or TIFF. Depending on the level of detail used by the graphic artist, this picture may appear to be as realistic as a photograph, or graphical like a sketch or simulation.

Animation: Once the concept of predefined rendering (rendering, for short) is understood, the

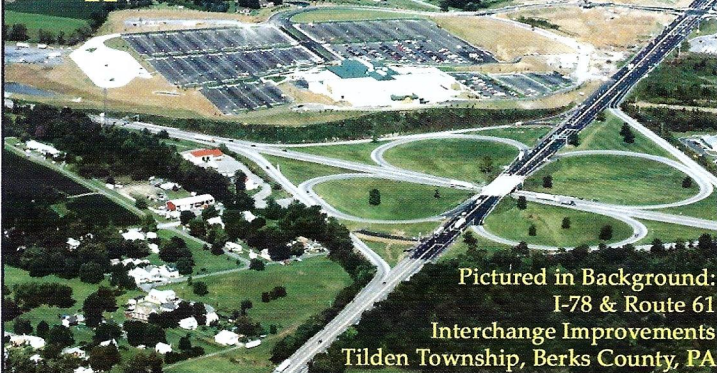
"Shedding Light" continued p. 20

TRAFFIC PLANNING AND DESIGN, INC.

WWW.TRAFFICPD.COM



Bridge & Highway Design
Construction Management
& Inspection Services
Transportation Planning



Pictured in Background:
I-78 & Route 61
Interchange Improvements
Tilden Township, Berks County, PA

Now Hiring Transportation
& Design Engineers:

Pottstown, PA Harrisburg, PA
Lehigh Valley, PA Camden, NJ

BEST PLACES
to work in PA



HELPING
YOU
GET
THERE
SAFELY
SINCE 1966



Pennsylvania
Doylestown
King of Prussia
Lehigh Valley
Mechanicsburg
Philadelphia
Pittsburgh
Scranton
State College
Uniontown
Wilkes-Barre
West Chester

Mid-Atlantic
Baltimore
Wilmington

New Jersey
Cedar Knolls
Cranford
Haddon Heights
Vineland

New England
Andover, MA
Salem, NH

New York
New York City

Tennessee
Knoxville

Pennoni

PENNONI ASSOCIATES INC.
CONSULTING ENGINEERS

One Drexel Plaza, 3001 Market Street
Philadelphia, PA 19104
Tel: 215-222-3000 | Fax: 215-222-0384

www.pennoni.com

WHITNEY, BAILEY, COX & MAGNANI, LLC Consulting Engineers

Transportation Engineering
Traffic Engineering
Bridge Engineering
Building Structural Engineering
Construction Inspection

Surveying
Land Development
Landscape Architecture
Master Planning
Environmental Engineering



PENNSYLVANIA
MARYLAND

600 Bursca Drive, Suite 609
Pittsburgh, PA 15017

355 North 21st Street, Suite 100
Camp Hill, PA 17011

849 Fairmount Avenue, Suite 100
Baltimore, MD 21286

1-800-673-9312
www.wbcm.com

The Oregon Department of Transportation (ODOT)

has a career waiting for YOU in the beautiful State of Oregon!

Join our team! Whether you enjoy big or small town living, the coast, mountains or the high desert ... ODOT has a place for you!

If you love recreation you'll find many opportunities living and working for ODOT in Oregon! Oregon communities offer great schools and family friendly living!

ODOT has a variety of careers and available positions to offer you.

ODOT Engineering careers range from entry level to professionally registered positions. There are also Graduate Engineer and College Engineer internship and trainee programs.

Find out what ODOT has to offer you!
Log onto www.odotjobs.com and apply for jobs now!

Check out the State of Oregon at Oregon.gov

A Career with ODOT Offers:

A comprehensive benefit package including:

- fully paid family medical, dental and vision plans
- generous sick, vacation and personal business leave accruals
- ten paid Holidays a year
- flexible work schedules
- PERS retirement contribution
- flexible tax-free spending accounts; and
- excellent training, development and promotional opportunities!

ODOT is an AA/EEO Employer,
committed to building workforce diversity.



Looking Back...Moving Forward

ASHE
1958-2008

What could be better than to visit the "Sweetest Place on Earth" for a taste of some real summer fun?

ASHE 2008 in Hershey, Pennsylvania will be packed full of events sure to be crowd pleasers as we celebrate 50 years of ASHE. With local attractions like Hersheypark, Hershey Country Club, Hershey Gardens, The Chocolate Spa, Hershey's Chocolate World, ZooAmerica, the whole family can join in on the fun.

The Hershey Lodge and Convention Center, a premier convention resort, will be the location for the event to be held June 11-15, 2008.

ASHE National Conference

June 11 - 15, 2008

"Looking Back...Moving Forward" is the theme for the 2008 event. Thursday evening there will be an Icebreaker Party to celebrate ASHE's 50th Anniversary! ASHE had its humble beginnings in central Pennsylvania, so we'll be celebrating with an old fashioned birthday party, complete with cake, ice cream, friends and a few surprises.

Friday evening will feature a "Cruise Through Time Dinner". Relax while touring the Hershey Antique Auto Museum, getting your picture taken in a vintage car, indulging in special treats (including chocolate, what else?!) and dancing to the sounds of the Fabulous Greaseband who will lead us through the different decades of ASHE with their musical selections.

The conference will feature interesting and educational technical sessions focused on current issues affecting our industry. Continuing Education Units will be awarded for all technical sessions. Once the technical sessions and tours have wrapped up, join us for Saturday night's "Red Carpet Revue Dinner Gala." This event is sure to be the highlight of your trip to Hershey. Joan Rivers will be greeting you on the Red Carpet with an interview of our very own ASHE "stars". Following dinner we will be entertained and mesmerized by Keith Matheny, a mentalist and motivating entertainer. Keith combines audience participation with fun demonstrations of the power and abilities of the mind. He will read your thoughts and predict answers to problems before they're even asked!! To wrap up our conference you'll enjoy some music by a local DJ. You're sure to be entertained as we end the conference with a night to remember.

By now, you should have received a list of available sponsorship and exhibitor information for the occasion. Sponsorships are available from \$300 to \$5,000, suitable for a range of budgets. Exhibit booths will be offered at \$750, including one conference registration. Please respond at your earliest convenience to take advantage of these sponsorship opportunities. Visit our website at www.ashe2008.org for up-to-date conference activity information.

If you are a golfer, you won't want to miss playing on the Hershey Country Club Courses. The Club is ranked in the top 50 resorts in the U.S. by Golf Digest and features two spectacular 18-hole courses. The classic par-73 West Course, with its lush, tree-lined fairways has attracted top professional golfers, such as Ben Hogan and Nancy Lopez. George Fazio designed the spectacular par-71 East Course, featuring breathtaking views of the countryside.

If you are not a golfer, or if you wish to just pamper yourself; then you'll need to sign up early for the Hershey Spa. The Spa is well known for its sweet treat to their guests' needs for making the outer body feel as good as the chocolate does for one's inner self. What ever you do, don't wait to make an appointment for this special treat, space is limited and goes fast!

So what are you waiting for? Mark June 11-15 on your calendar now so you can be part of an educational, fun-filled, chocolate-covered experience in the lush green rolling hills of Central Pennsylvania, in a town where streetlights are shaped like Hershey's Kisses and the air is filled with the aroma of chocolate. Bring the whole family! ■

Something terrible happened last summer. Something terrible happened, but nobody seemed to care, and for my part, I did nothing to stop it. Something terrible happened, and now that it is done, it can't be undone, and for that we should all feel a sense of loss and regret.

The Bridge

*Michael D. Hurtt, P.E., Senior Highway Engineer
ASHE Member, Central New York*

Progress had its way with the world once again, and I must admit I was instrumental in the process. Another piece of our history was sacrificed for the sake of progress, ironically the same progress that originally created this piece of history, vintage 1932.

1932 was a difficult year. It was the third year of an economic depression that had taken the nation and the world by surprise. The magnitude of this economic slump could not even be fathomed early in the spring of 1932, but the pinch was felt by all. President Hoover was generally made the scapegoat for the Nation's trouble, and that perception helped to oust him from the Presidency later that year, when he was replaced by Franklin D. Roosevelt.

Jobs were hard to come by in 1932. Unemployment was approaching 25%. Those that had work were extremely grateful for it. One such person was a young Italian immigrant named Salvatore, or Sal as he was known to his friends. Sal was a stone mason by trade and considered himself very lucky to be doing bridge stone work on one of the few public-works projects in upper Westchester County, New York State, close to where he lived. The project was the construction of the "Bronx Parkway Extension." The Parkway was designed to provide a scenic, rapid route from New York City to the Bear Mountain Bridge and points north. Rapid, being a relative term, meant 40 mph in a Model A Ford or Chevrolet Coupe. In upper Westchester County, the Parkway turned from its northerly route and headed west into the City of Peekskill. A northerly route continued, but it was designated as the "Eastern State Parkway". In later years the north-south route was renamed the "Taconic State Parkway" and east-west route was renamed the "Bear Mountain Parkway." At the interchange where these two routes diverged, a small

barrel-arch bridge structure was built. This was Sal's bridge.

The bridge was relatively simple in its architecture, with one exception. The under-roadway crossed the Parkway at a heavy skew. Rather than designing a large, yet simple symmetric opening to accommodate the skewed road, the bridge designers chose a smaller but vastly more complicated skewed opening. The resulting design produced a tight, "warped" barrel-shape that fit in extremely well with the nature of the Parkway. To further maintain the scenic nature of the route, this bridge, as with all bridges on the Parkway, was to be stone-faced, but otherwise inornate. This in and of itself was unusual, given that most of the other bridges on the Parkway had towers or turrets or ornate wingwalls. The simplicity of this structure, at least in Sal's opinion, lent to its beauty and helped set it apart from the others.

Sal wasn't involved in the concrete work for this bridge. There were more than enough men available to do that type of work. Sal was a tradesman; he worked with stone. Stone was Sal's passion, and there was plenty of stone work on the Parkway Project to keep skilled masons like him busy. Sal arrived early each morning, lugging 50 pounds of his own tools in a worn leather satchel, and worked late into the day, six days a week. The pay wasn't much by today's standards, but in 1932, any paying job was coveted. The work was extremely hard, but that only made it that much more rewarding. To be able to create with one's own hands is satisfaction unto itself for a craftsman. Sal's strong hands were hard and callused from years of labor, but they knew exactly how to caress a piece of stone. With chisel and hammer and the singing of steel on stone, the beauty of the bridge blossomed as the stonework enveloped the cold concrete frame.

The bridge was inherently strong by design, and the strength from its craftsman builders was further embodied into the structure. The Romanesque art of stone arch construction, handed down from father to son for generations, ensured that this bridge would survive the test of time. However, as it was to turn out, time wasn't the bridge's only enemy.

Fast-forward 70 years to the 21st Century. Our defining legacy may be that of the "throw-away" society we've created. Coffee maker on the fritz? Throw it away and buy a new one. Television reception not the greatest? Replace it with a bigger one. No one expects that things can be fixed anymore. It is far easier to demolish and start from scratch than to modify or repair to suit our growing needs.

The same mentality is being applied to our infrastructure. Even bridges being designed and built today using our advanced technology will require refurbishing or replacement in 50 years.

Sal's bridge didn't need replacing. Sal's bridge didn't even need repairing. After 70 years, Sal's bridge was doing fine, and could do another 70 without breaking a sweat. The world, unfortunately, grew up around Sal's bridge. The leisurely-paced two-lane Parkway that was once carried by Sal's bridge had changed into a fast-paced commuter route. Four lanes were squeezed onto the bridge, but even that wasn't enough. Finally, a complete revamping of the corridor was decided upon by the Powers-That-Be. This was to be a signature

project for some engineer, and I was that engineer.

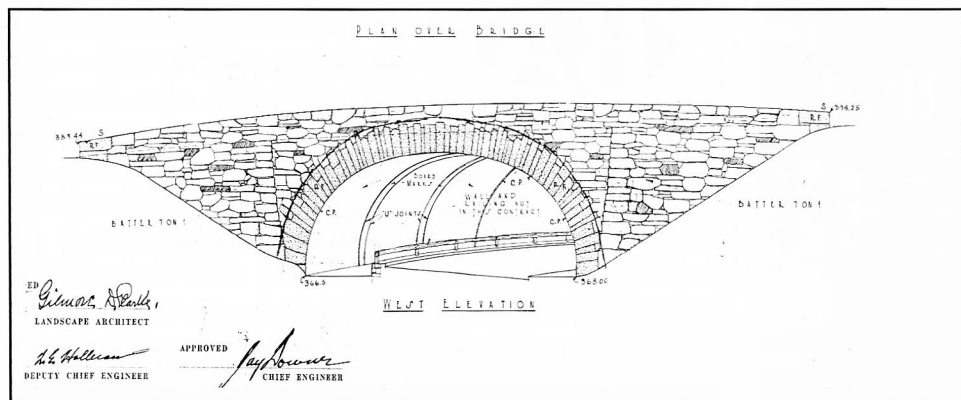
Among the many tasks to be undertaken as part of this new roadway project was the replacement of all the original bridges, including Sal's. I believe that I understood the significance of this particular bridge right from the start. But that didn't matter, because regardless of its significance, regardless of its simple beauty, this bridge stood fast in the path of progress, and there was no saving it. Like so many other things from 1932, it just didn't fit anymore in the world that progress had created. Ultimately and predictably the decision was made to take the bridge down. It was left up to me to decide when and how it was to be done.

I decided upon a glorious end only fitting for such a simple, yet remarkable structure. Unfortunately, even that wasn't to be. Instead of exploding the bridge in one fantastic display of fireworks as I had prescribed in the contract (an end befitting the bridge's years of graceful service), the contractor chose instead to slowly hammer away at its base, undermining the very core of its strength, until predictably man accomplished something that time could not, and the bridge collapsed under its own immense weight. The broken pieces of concrete, stone, and steel were later buried along side the new replacement bridge, with only the memories of those few involved marking its final resting.

A bridge, simply speaking, is something that provides for a separation.

A bridge, simply speaking, is something that provides for a separation. It removes conflicts at life's crossroads. In much the same way, a bridge is also something that provides a connection. Sal's bridge was significant because of the connection it provided.

It removes conflicts at life's crossroads. In much the same way, a bridge is also something that provides a connection. Sal's bridge was significant because of the connection it provided. This significance can be measured in many ways, such as the utility it provided for 70 years between the local community and the metropolis of New York, or the connection its architecture made with the classical European style of its design. For me however, its significance was far more personal. I like to think of Sal's bridge as something that has helped me make a connection with life's biggest separation: time. It has helped me to explore my roots and look back on the past, even if only for a short period of time. Over the years Sal built many things, from roads to bridges to buildings. Because of the skills he possessed, he was able to work in a time when many others could not, and this allowed him the means to create the most important thing a man can: a family. The pride he had in his accomplishments is second only to the pride I have in knowing he was my grandfather. ■





Sucevic, Piccolomini & Kuchar Engineering, Inc.

126 Kaider Road, Uniontown, PA 15401
Tel: 724.439-1600 | Fax: 724-439-5449
spkengr@spkengr.com | www.spkengr.com



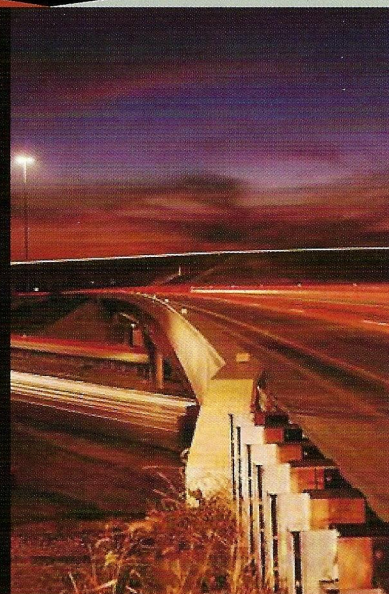
PennDOT District 1-0
S.R. 4034 Section A60



Highway Design
Bridge Design
Traffic Analysis and Design
Hydrologic and Hydraulic Engineering
Right of Way/Property Investigation
Surveying

PICKERING, CORTS & SUMMERSON, INC.

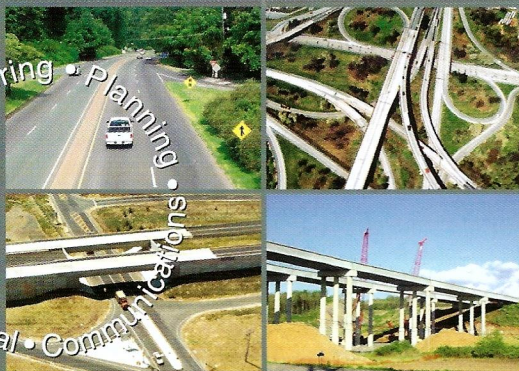
- PROGRAM MANAGEMENT
- CIVIL HIGHWAY ENGINEERING
- STRUCTURAL ENGINEERING
- TRAFFIC ENGINEERING
- GEOTECHNICAL ENGINEERING
- TRANSPORTATION PLANNING
- BRIDGE INSPECTION
- UNDERWATER INSPECTION
- CONTRACTOR SERVICES
- LAND SURVEYING
- LANDSCAPE ARCHITECTURE



www.pcs-inc.biz



Engineering • Planning •
Environmental • Communications



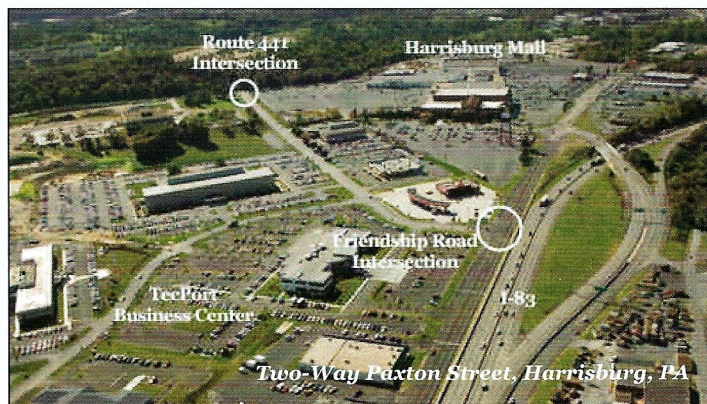
Since 1946, McCormick Taylor has been responding to our clients' questions and concerns with a simple answer, "Yes, we can do that."

Yes, we can do that.

Our integrated team of specialists knows how to solve problems, creatively and resourcefully. It is ingenuity that enables us to support "Yes" with real solutions and help our clients achieve success on the most complex projects.

McCormick Taylor
Engineers & Planners
Since 1946

Two Commerce Square, 2001 Market Street, 10th Floor
Philadelphia, PA 19103
11 offices in PA, NJ, MD, DE, VA & OH
www.mccormicktaylor.com



BENATEC ASSOCIATES
Engineers and Planners

200 Airport Road
Capital City Airport
New Cumberland, PA 17070
717.901.7055 • www.benatec.com

Additional offices:

Uniontown, PA - 724.439.2835 Fairmont, WV - 304.816.4047

Highway Engineering
Environmental Engineering
Municipal Engineering
Public Works Management

Bridge Engineering
Civil Engineering
Sanitary Engineering
Forensic Consulting

ASHE National Board Member Bios

2007-2008

Terence D. Conner, P.E. *National Secretary*

Terry is a member of the Southwest Penn Section in Region 3 where he was a two term President. He has been our National Secretary for approximately (29) years. As a result of his dedicated service to the ASHE Organization, the National Board awarded him an Honorary Membership.

Terry earned his B.S. in Civil Engineering from Pennsylvania State University in 1961. He began his engineering career in the public sector by gaining employment with the Pennsylvania Department of Transportation. Terry is a Professional Engineer and Professional Land Surveyor in the state of Pennsylvania. He worked more than (30) years in PennDOT at various levels of design and management before retiring from the State. Terry then moved to the private sector and began working for McTish, Kunkel & Associates, Incorporated in Rostraver, Pennsylvania. He has been their Vice President – Western PA for the last (14) years. Terry retired from McTish, Kunkel & Associates in May 2005. He's also a member of ASCE, PSPE, and NSPE.

Terry and Diane have been married for (47) years. They reside in Uniontown, Pennsylvania. They have four children and five grandchildren. He and his wife like to attend plays at various theaters and he enjoys playing golf. Terry also sings in the Uniontown Chorale, attends various church functions, and is a Director of AAA East Central.

Kevin E. Duris, P.E. *2nd Vice President*

Kevin is a member of the Pittsburgh Section. He has been active on the ASHE Pittsburgh Board of Directors from 1995 to 2007 and has served as President in 2000. Kevin was chairman of the Sponsorship/Advertising Committee for the 2005 ASHE National Conference hosted by the Pittsburgh Section. He is a current chairman of the National Board Conference Committee, member of the National New Sections and Website Committee. Kevin has been involved on National Committees since 2000 and member of the National Board since 2005.

Kevin earned his B.S. in Mining Engineering from the University of Pittsburgh in 1980. After graduating, he was hired by Trumbull Corporation, a heavy and highway contractor located in Pittsburgh, PA. His first assignment was Project Engineer for a project on I-80, Brookville, PA. He has held field positions as Project Engineer, Superintendent and Project Manager on many projects in

Pennsylvania. During the winter months, Kevin helped estimate bids until permanently settling into Trumbull's main Pittsburgh office in 1988. Here, he estimated bids and is currently the Assistant Chief Estimator. Most recently, lead the estimating team to successful bids for the \$61 million reconstruction of I-79, Neville Island to I-279, in Allegheny County, PA and the reconstruction of Parkway East, Bates Street to Edgewood, for \$39 million in Allegheny County, PA. Kevin is a Professional Engineer in the state of Pennsylvania.

Kevin is single and resides in Oakmont, PA. He enjoys golf, racquetball, swimming, boating, skiing, roller blading, riding the Harley and home improvement projects. Kevin never misses too many golf outings and never misses a Steeler game.

Calvin Leggett, P.E. *Region 8 Director*

Calvin has been a member of the ASHE Carolina Triangle Section for (14) years and served as Section President in 1988. He also is a member and former President of the Raleigh Engineers Club, member and former president of the North Carolina Section of the International Institute of Transportation Engineers, and a Registered Professional Engineer in North Carolina.

Calvin was born in Oxford, Mississippi where he attended grammar and high school. He then attended the University of Mississippi and received a Bachelors of Science degree in 1973. Calvin received a Master of Civil Engineering Degree from North Carolina State University in 1975.

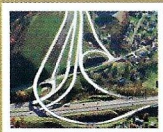
His career began with the North Carolina Department of Transportation where he served as a Planning Engineer in the Planning and Research Branch. He developed long-range transportation plans for various towns and cities in North Carolina and later held the position of Unit Head until 1985.

In 1985 he went to work for the City of Raleigh in the roles of Transportation Services Engineer, MPO Director, and Transit Administrator. While working with the City, some of his major accomplishments were the expansion and update of the Capital Area Long Range Transportation Plan, approval of development plans for the Briar Creek area and the NCSU Centennial Campus, development of the City's first transportation Impact Fee ordinance, and opening of the Moore Square Transit Transfer Facility.

Calvin returned to work for the NCDOT in 1988 as head of the Program Development Branch. This branch has primarily responsibility for the development of the State's multi-year Transportation Improvement Program, scheduling of the

"National Board" continued p. 17

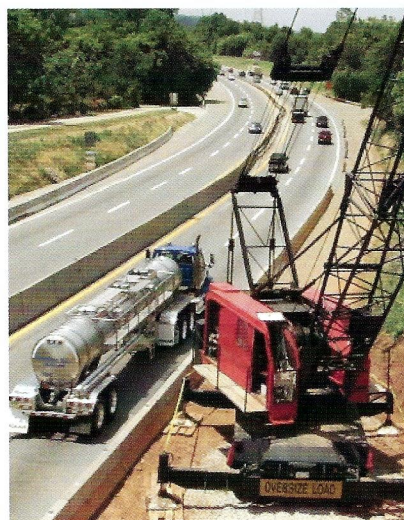
imagination. innovation. involvement. impact.



- transportation
- environmental
- planning
- construction services
- geotechnical
- landscape architecture
- surveying
- utility location
- right-of-way services
- facilities
- architecture
- water/wastewater
- geographic information systems
- information technology

offices in
 pennsylvania • new jersey • delaware • maryland •
 virginia • west virginia • florida

an employee owned company



PA Turnpike's 6-Lane widening between
 M.P.'s 326-333 in Montgomery County, PA.

Construction Management
 Traffic Engineering
 Environmental Assessments
 Intermodal Facilities
 Highway Design
 Bridge Design & Inspection
 Noise/Sound Barriers
 GIS/Mapping

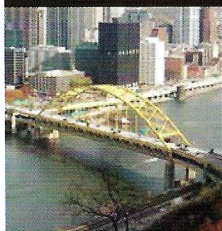
BUCHART HORN, INC. / **BASCO ASSOCIATES**
 Engineers, Architects & Planners

THE INDUSTRIAL PLAZA OF YORK
 445 West Philadelphia Street
 York, PA 17401-3383

800-274-2224

www.bh-ba.com

Engineering Solutions for Your Community



Pittsburgh, PA
 412.497.6000

Philadelphia, PA
 610.768.7737

Allentown, PA
 610.740.1010

Weirton, WV
 304.748.8740

Cincinnati, OH
 513.936.6140

Columbus, OH
 614.418.1761



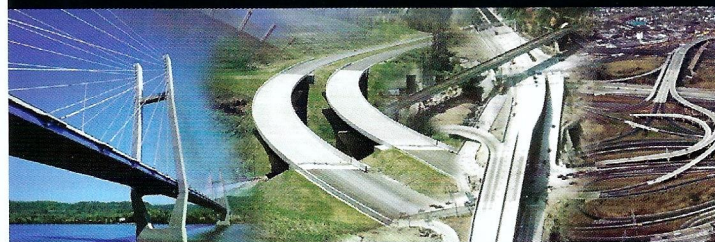
- Highways
- Bridges
- Bridge Inspection
- Geotechnical
- Design/Build
- Transit/Rail

Offices
 Nationwide
www.hdrinc.com

HDR

ONE COMPANY | Many Solutions™

Looking for full-service?



Baker provides a full range of professional services
 that address the complete life cycle of our customers'
 transportation challenges:

- Program and Project Management
- Planning
- Design
- Construction Management and Inspection
- Traffic Studies
- ITS
- NEPA Studies
- Cultural Resources Services
- Public Involvement Services
- Mapping and GIS
- Context Sensitive Solutions and Visualization
- Software Development
- Training
- Asset Inspections and Inventories

Baker

1.800.553.1153 • www.mbakercorp.com

"National Board" continued from p. 15

preconstruction activities leading to the right-of-way acquisition, and award of contracts for major construction projects, financial management of Federal and State Roadway Construction Funds, preliminary project studies, municipal and private agreements, and State aid to local street systems. In 1993 he was promoted to Director of Planning and Programming.

In 1999, Calvin was reassigned as Manager of a new Program Development Branch, which incorporates the previous Program Development Branch's activities with Research and Analysis functions. He provides leadership and guidance to developing NCDOT positions on federal legislative and reauthorization issues. He developed the successful legislation to create a statewide toll road authority, and since 2003 has also worked with the NC Turnpike Authority. In 2005 he served as Chair of the Planning Committee for the first North Carolina Transportation Forum held in Charlotte.

Calvin has a (14) year old daughter, Lydia Elaine. Calvin is a member and Elder in the Hudson Memorial Presbyterian Church in Raleigh.

Thomas S. Morisi Region 4 Director

Tom has been a member of the Altoona Section for nearly (20) years. During that time, he has served various positions on the Altoona Board of Directors, including President in 2002/2003. He is currently serving as the Region 4 Treasurer, as well as, Co-Chair of the Technical Committee for the 2008 ASHE National Conference in Hershey, PA.

Tom is a 1987 graduate of the University of Pittsburgh at Johnstown with a Bachelors Degree in Civil Engineering Technology. He is a Certified Bridge Safety Inspector and a member of ASHE, PHIA and APC. Tom has been employed at Keller Engineers, Incorporated, of Hollidaysburg, PA for the past (14) years where he is Manager of the Transportation Division. He is responsible for

the supervision and management of all transportation projects within the Division including highway and bridge design and bridge inspection. Prior to his employment at Keller Engineers, Incorporated, Tom worked for six years as a designer on various bridge and highway projects while at another firm.

Tom lives in Johnstown, PA with Nancy, his wife of (19) years and their 16 year old son, Jake. He cherishes the time spent with his family and his hobbies include bowling, boating, and working around the house.

Perry M. Schweiss National President

Perry is a member of the Southwest Penn Section and served as Section Secretary of the Southwest Penn Section from 1996 to 2005. He is Immediate-President of the Section. He also served as the Treasurer for Region 3 from 2003 to 2005. Perry served as Region 3 Director from 2003 to 2005 and has chaired the Constitution and By-Laws, Budget and Audit, and Legislative Review Committees.

Perry earned his B.S. in Structural Design & Construction Engineering from Penn State University in 1987. After graduating he was hired by Arora & Associates, Inc. located in West Trenton, New Jersey. In 1992 Perry accepted a position at Sucevic, Piccolomini & Kuchar Engineering, Inc. (SPK) in Uniontown, Pennsylvania. He was promoted to Vice President of Operations in 2001. Perry is a Professional Engineer in the states of Pennsylvania, West Virginia, and Maryland. He is also a Professional Land Surveyor in West Virginia. Perry is proud to be the second ASHE National President from SPK. Domenic Piccolomini, President of SPK, served as 2000-2001 National President.

Perry resides in Morgantown, West Virginia. He has 2 boys, Eddie (14) and Tyler (12). Perry cantors for St. John's Church and both freshwater and saltwater fishing are hobbies of his. Perry says that he also enjoys all types of cooking. ■

Highway & Bridge Design
Bridge Inspections & Load Ratings
Construction & Program Management
Construction Inspection

Environmental Studies
Geographic Information Systems
Pavement Management Systems
Traffic Studies
Recreation Trails

listen. think. deliver.

CDM
www.cdm.com

John Franz Jr., P.E.
Vice President
franzjw@cdm.com

Charles Kincaid, P.E., L.S.
Senior Project Manager
kincaidch@cdm.com

Francis Gerace, P.E.
Senior Transportation Engineer
geracefp@cdm.com

consulting • engineering • construction • operations

The Fulcrum International

View recently posted transportation-related jobs on ASHE's online job bank partner, The Fulcrum International. Visit www.thefulcrumintl.com or call 407.228.1747 to learn more about these positions, or to learn about advertising job openings for your company.

- FDOT District 5 - Roadway Project Manager - DeLand, FL
- RS&H, Inc. - PD&E Sr. and Roadway Designer - Tampa, FL
- RS&H, Inc. - Roadway PM, Planner and Senior Planner - Austin, TX
- HDR Engineering, Inc. - Roadway - Project Manager - Charleston, SC
- HDR Engineering, Inc. - Drainage Engineer and Roadway PM - Norfolk, VA
- RBA Group - Roadway Project Engineer - Morristown, NJ
- Moreland Altobelli - Structural Project Engineer - Atlanta, GA
- Gannett Fleming Inc. - Civil Sr. Engineer - Valley Forge, PA
- Johnson, Mirmiran and Thompson - Civil Project Engineer - Newark, DE
- So-Deep, Inc. - Transportation Project Engineer - Covington, GA
- RS&H, Inc. - Roadway - Traffic Engineer - Atlanta, GA
- VDOT - Civil Engineer - Richmond, VA



WWW.THEFULCRUMINTL.COM
Career Leverage - for the A/E/C Industry

STV. PERFORMANCE MATTERS.

TRANSPORTATION &
INFRASTRUCTURE

BUILDINGS &
FACILITIES

CONSTRUCTION
MANAGEMENT

We deliver rapid solutions.

That's because we look at transportation projects from the customers' point of view. We draw on years of experience—working for and with agencies—to develop fresh ideas and long-term maintainability.

At STV, we see things a little differently. We're 100 percent employee owned, so performance takes on a new perspective. We focus on what matters: personal attention, quality and innovative thinking. When it comes to getting your project delivered right, our differences are what count.



An employee-owned firm
Offices nationwide
Toll-free: 877-395-5459
info@stvinc.com
www.stvinc.com

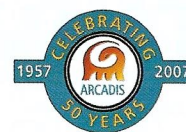
Connecting America

From highways to byways,
we help people get to where they need to go:
safely and efficiently.

Designing, consulting and delivering solutions.
For over 50 years. That's ARCADIS.

www.arcadis-us.com

Imagine the result

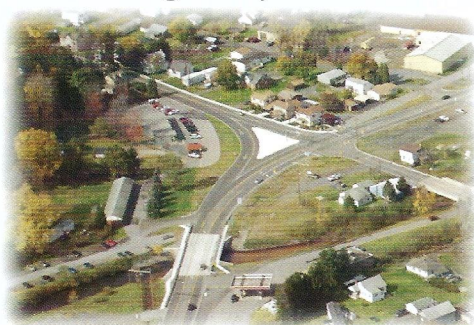


HRG

Herbert, Rowland & Grubic, Inc.
Engineering & Related Services

[BUILDING RELATIONSHIPS.
DESIGNING SOLUTIONS.]

Celebrating 45 years of excellence



© 2007 Herbert, Rowland & Grubic, Inc.

TRANSPORTATION • SURVEYING • GIS
WATER RESOURCES/ENVIRONMENTAL STUDIES & DESIGN
FINANCIAL • WATER & WASTEWATER SYSTEMS
LAND DEVELOPMENT • ELECTRICAL ENGINEERING

Serving the Mid-Atlantic Region
717.564.1121 • www.hrg-inc.com

DAWOOD

PEOPLE ENGINEERING INNOVATION

www.dawoodeng.com

CORPORATE OFFICE

Harrisburg, PA
717-732-8576

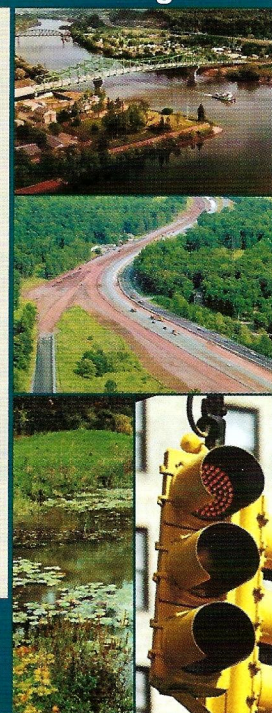
ADDITIONAL OFFICES

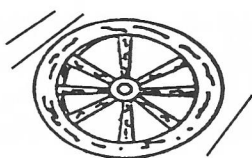
Pittsburgh, PA
Grantville, PA

- + Highway
- + Structural
- + Surveying
- + Environmental
- + Design/Build
- + Traffic Engineering
- + Civil Engineering
- + Bridge Inspection
- + Geotechnical

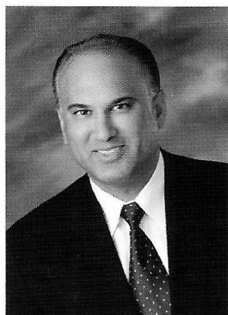
*For career opportunities
please visit:*

www.dawoodeng.com





As the Wheel Turns



URS Corporation is pleased to announce the appointment of **Samir (Sam) D. Mody, P.E.** as Vice President and New Jersey Transportation Group Manager

Mr. Mody will be responsible for providing the Branch Office Managers in Wayne, Newark, and Burlington with leadership to increase the URS presence and rich tradition of service in the New Jersey marketplace. Mr. Mody will spearhead the development of a strategic business model for procuring surface transportation design, CM transportation, and mass transit work in New Jersey as well as providing technical oversight and project management in the delivery of cost effective and constructible transportation solutions to our clientele.

With nearly twenty-five years of experience in the administration, design, and construction supervision of transportation and major civil engineering projects, Mr. Mody is experienced in both the private and public sectors. As a consultant and NJDOT employee, he understands the needs of government for the successful delivery and construction of transportation investments.

Mr. Mody is an active member of the American Council of Engineering Companies of NJ (ACEC-NJ) Transportation Committee since 1999. He is the recipient of the 2006 Member Recognition Award and recently elected to serve as a Director on the Executive Committee. He is also a charter member of both the Southern NJ and NY Metro sections of the American Society of Highway Engineers (ASHE), an association lasting over 20 years. Mr. Mody has served the organization in many capacities at the Local, Regional, and National levels, including a leadership role during

both the 1994 and 2007 ASHE National Conventions, and he is currently serving as the Southern NJ Section President and Region 6 Director.

Mr. Mody is a Licensed Professional Engineer in the states of New Jersey, Pennsylvania, and Delaware. He received his BSCE and MSCE degrees from Drexel University.



Scott W. Sibley, P.E., was recently named a vice president with Gannett Fleming, an international planning, design, and construction management firm. Based in the firm's Valley Forge, Pa., office, Sibley is a project manager of the Transportation Division.

With more than 25 years of experience, Sibley manages the designs of transportation projects, including highway, traffic engineering, transportation enhancements, and rail. He also oversees the preparation of construction plans, estimates, and specifications. Integrating designs from various disciplines, Sibley implements environmental studies and applications for environmental permits which include coordination with communities and other stakeholders.

Sibley holds a bachelor of science in civil engineering and math from Carnegie Mellon University and a master of science in civil engineering from Villanova University. A registered professional engineer in Pennsylvania and New Jersey, Sibley is a member of the American Society of Highway Engineers and the Institute of Transportation Engineers, Mid-Atlantic Section. ■



American Geotechnical & Environmental Services, Inc.

A.G.E.S., Inc. provides award-winning geotechnical and foundation engineering, and design for public and private clients.

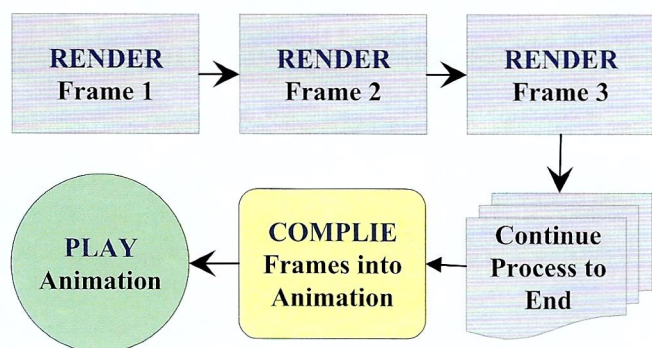
Canonsburg, PA • King of Prussia, PA
Hollidaysburg, PA • Baltimore, MD
www.agesinc.com



Akron	330.836.9111	Toledo	419.246.0839
Cleveland	216.622.2400	Youngstown	330.743.5100
Columbus	614.464.4500	URS	
Cincinnati	513.651.3440		

"Shedding Light" continued from p. 9

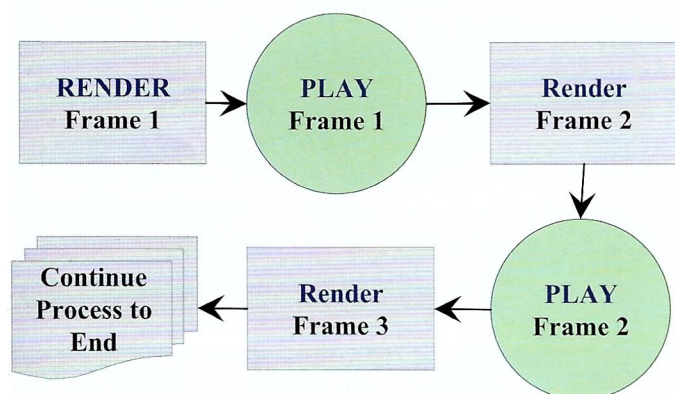
next step is the process of animation. Animation is nothing more than a bunch of pictures changing at a fast speed. Through the rendering process, the camera takes several pictures, called frames. The software then takes each frame and compiles them into a file, where it then assigns each a certain length of time to display (usually about 1/30th of a second, measured in frames-per-second, or fps). Animation results when each frame plays consecutively, as illustrated below. We will refer to this as predefined animation.



Evolving to Real-Time Rendering

Rendering in real time is the next step in progression. To see exactly how it differs from a predefined animation, we look to the order of events below.

Why is this new system significant? Why does the order of



frame-creation and frame-playing matter? Generally speaking, changes now occur on the fly. More specifically, a real-time "animation" has the potential to become a brand new, different animation from the original in every way. We have already determined that a predefined animation is nothing more than a bunch of pictures playing at a certain speed. What would happen if you watched 30 seconds of your animation, and decided you didn't like the angle your camera was pointing? Traditionally, the graphic artist would have to stop playing the animation, adjust the

camera angle, then render the entire animation over again. Rendering in real-time solves this problem because when the graphic artist finds the camera to be at the incorrect angle, they simply change it during the middle of the rendering process!

Shedding Light on Time Saving Improvements

A predefined animation obviously takes some time to render, as seen in the previous example. Lengthy render times are a significant hurdle to overcome for real-time rendering to work. Because of this, programmers developed a way to transfer the workload from the computer's processor to its video card. As time progressed, manufacturers developed superior video cards, and graphic artists developed time-saving techniques. These improvements have allowed real-time rendering to become possible.

This definition of real-time rendering is still a bit vague, but it is supposed to be. This concept is almost impossible to understand without clarification by real examples. Before we get to the examples, though, we need to shed some light on one more facet first, user-interaction.

User-Interaction

We will quickly look at two traditional roles in this field: the graphic artist who creates the animation, and the observer who watches it. The graphic artist is much like the director of a movie. He or she creates the model, assigns materials and lighting, and directs the script and camera. Essentially, the graphic artist predetermines what the observer will see. Here, the only responsibility the observer has is to watch and comment.

We have seen a brief example of how the graphic artist can interact with an animation rendered in real-time. He or she has the ability to change it on the fly and see the changes immediately. What does this added functionality offer the observer? The new function allows the observer the ability to interact. In fact, we will even upgrade their status from an observer to a user. The user can now interact with an animation rendering in real-time within the scope that the graphic artist previously provided.

In fact, real-time rendering and user-interactive content is akin to a video game. Have you ever seen a racing game where you act as a driver, driving a car around a city—navigating through traffic, avoiding pedestrians? The video game industry survives on these two concepts of real-time and user-interactivity (though they also include a third element: that is, a goal...such as to win the race). The construction industry has the same opportunity to leverage this technology for their projects. With the intent of tying all of this together, we turn to some examples, which will bring clarity.

Civil: The graphic artist builds a model of a road, then adds a virtual car with which to drive. The user chooses when to speed up, slow down, and where to turn at an intersection. The user may also interact with simulated traffic added by the graphic artist. Day,

night, and weather conditions may exist, as do roadway lights and timed traffic signals.

Tampa, SR686 Roosevelt Boulevard: As part of the final design plans to reconstruct a portion of Roosevelt Boulevard, PB conducted a study to add a major flyover. PB developed a Real-Time User Interactive presentation to show FDOT the relationship between the proposed flyover and one of the glide paths for small aircraft at St Petersburg Clearwater International Airport.

Structural: The user may pilot a helicopter and fly around and over a new bridge; or steer a boat and drive under; all while watching a simulation of it opening (if a movable bridge) and its effect on traffic.

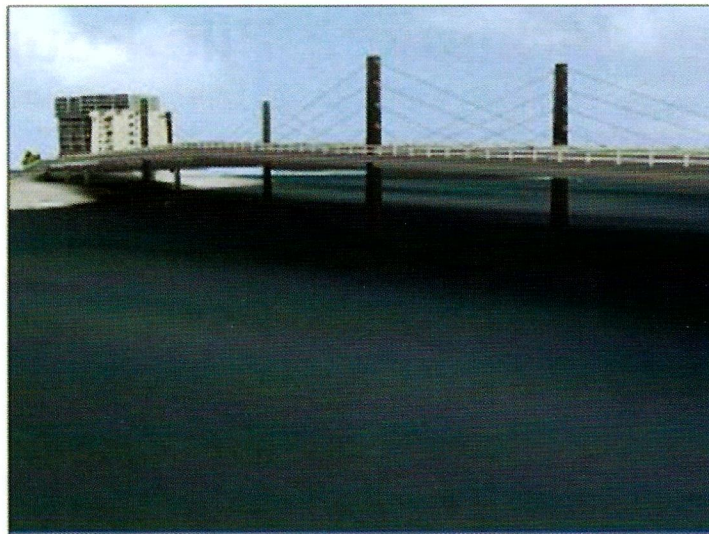
Transit: The user takes a tour of a proposed subway station. The trains arrive and depart on a schedule. The user may explore the station and hear what the virtual passengers have to say.

Construction: The user flies around the job site, watching the building process occur through its different sequences of construction and maintenance of traffic effects on simulated traffic.

As implied by these examples, the goal of mixing real-time rendering with user-interaction and 3D modeling is to display the finished product as realistically as possible, within an equally realistic navigable world, with which the user can interact and manipulate.

More Than a Presentation, an Adventure

Real-time rendering with user-interactive content presents an exciting new dimension to the visualization field akin to taking an afternoon stroll through a painting. As you proceed through the experience, you take in all the delight of looking at a painting, exploring it with your eyes, coming across little details that the artist strategically hid for you to discover and admire, as if hunting for treasure. It brings great delight to stumble across some new ability or accidentally triggering some type of event. With the right tools and a bit of imagination, you can take what is supposed to be a presentation and turn it into an adventure. ■



Example of a structural project, screenshot within Blender



Tampa, SR686 Roosevelt Boulevard, screenshot within Blender



Kulpsville Office
1555 Bustard Rd, Suite 50T
PO Box 304
Kulpsville, PA 19443
215.361.6050
www.cmxengineering.com

TRANSPORTATION /// PUBLIC WORKS
BUILDING SERVICES /// LAND DEVELOPMENT
ENVIRONMENTAL /// TELECOMMUNICATIONS
SPORTS ENGINEERING

Pennsylvania /// Arizona /// Florida /// Maryland
Nevada /// New Jersey /// New York /// Mexico

Underpinning Pile Foundations

Matt Pierce, P.E.; Firooz Panah, P.E.; and Keith Chong, P.E. of DMJM Harris

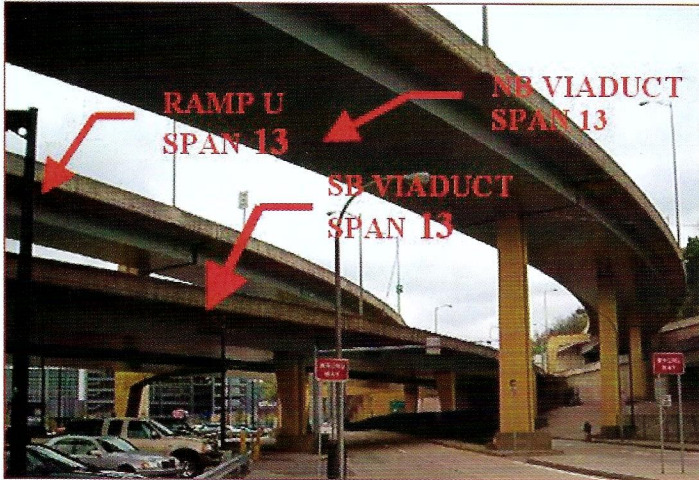


Figure 1: Adjacent SR 0065 NB and SB viaducts

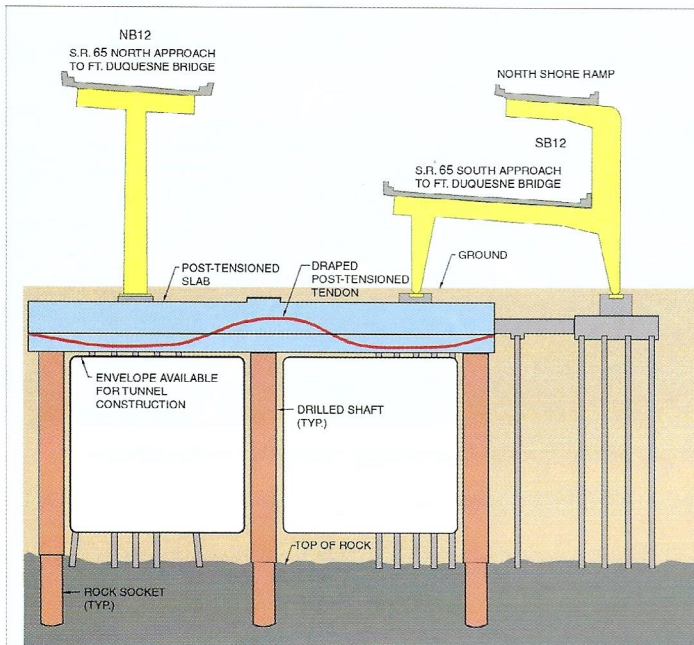


Figure 2: LRT Alignment below Bents

Construction of the North Shore Connector LRT system by the Port Authority of Allegheny County in Pittsburgh, Pennsylvania requires foundation underpinning of two adjacent multi-span continuous steel box girder structures. The unique 40 year old 1,500' long 45' high viaducts, carrying SR0065 northbound and southbound, are a series of curved three-span continuous structures comprised of box girders rigidly framed into steel support bents with end-bearing pile foundations. The northbound viaduct features a single roadway level supported by fixed single-column steel bents while the adjacent southbound viaduct features two stacked roadway levels supported by pinned two-column steel bents (Figure 1). The LRT alignment crosses directly below three separate viaduct foundations requiring removal of steel H-piles and construction of two individual underpinning systems (Figure 2).

Several alternatives were investigated including a monolithic concrete slab system, steel transfer girder system, and post-tensioned concrete beam system. The post-tensioned system was found to satisfy project requirements of constructability, durability, redundancy, and viaduct displacement limitations less than $\frac{1}{4}$ " vertical movement during and after construction to minimize impacts to the fracture critical viaducts. The design and construction approach seeks to control deflections through complex construction sequencing and a detailed instrumentation and monitoring program. A portion of the construction sequencing involves incremental pile cutting and post-tensioning to balance the transfer of load from the pile foundations to the underpinning structures.

Each underpinning system is composed of concrete transfer slab(s) supported by a pair of post-tensioned inverted concrete T-beams founded on drilled shaft caissons. The larger system is a 104'-3" two-span continuous structure with a pair of 5' diameter end support caissons and a single 7' diameter middle support caisson (Figure 3). The smaller system is a 78'-6" single-span structure founded on a pair of 5' diameter caissons at each end support.

Construction of the underpinning systems is underway with completion of the underpinning currently scheduled for December 2007. Figure 4 illustrates this unique construction site with Bents SB12 and NB12 (Bent 12 underpinning) shown in the foreground and Bent SB13 (Bent 13 underpinning) shown in the background. The 5' diameter drilled shafts for the Bent 12 underpinning are visible in the foreground along with the permanent casing for the 7' diameter middle support caisson. Figure 5 shows the construction site looking back station with Bent 13 underpinning location in the foreground. ■

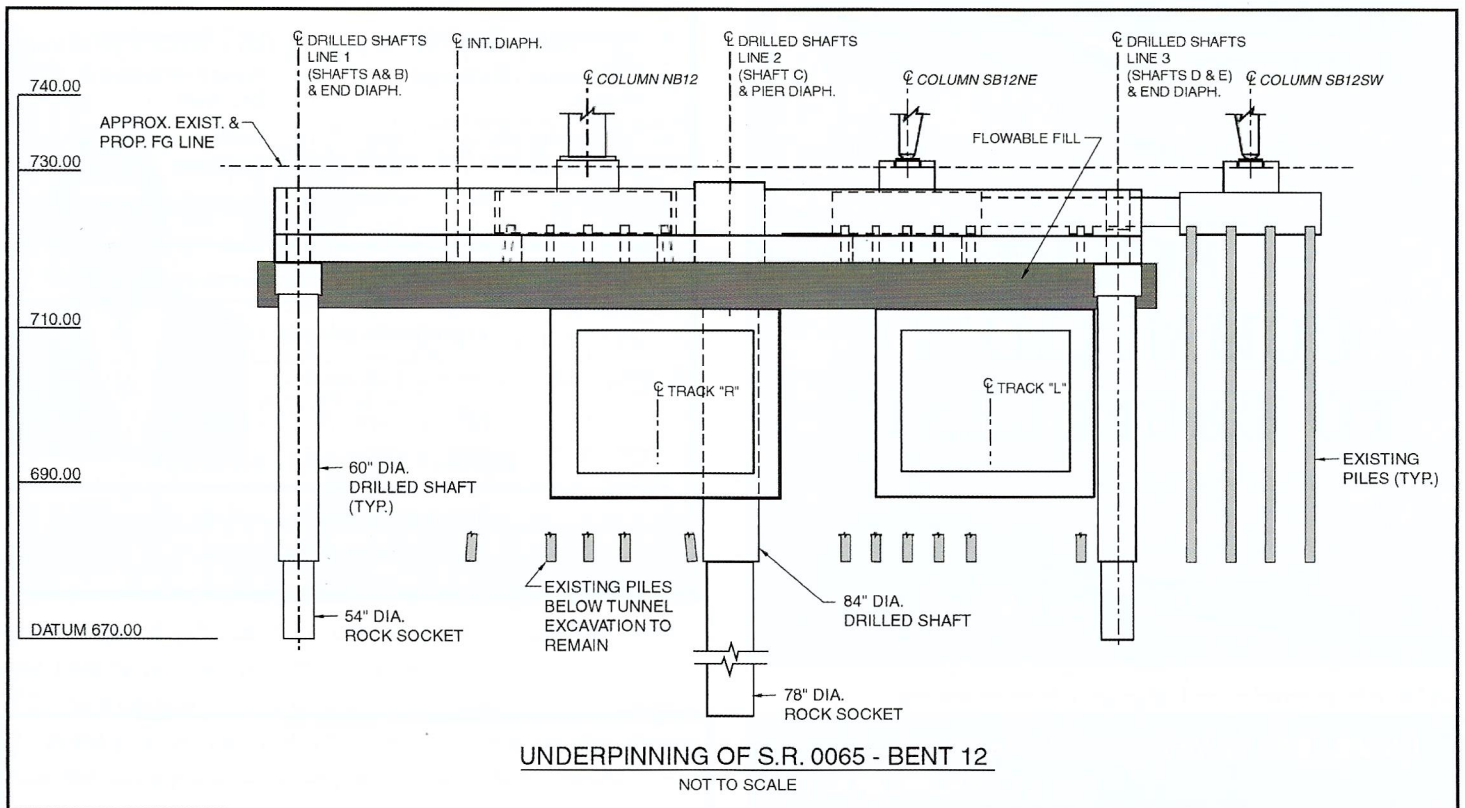


Figure 3: Bent 12 Underpinning

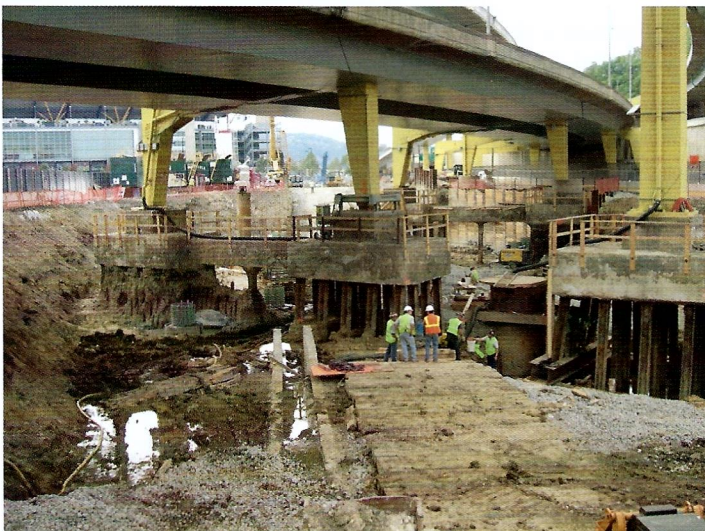



Figure 4: Underpinning construction site looking along LRT alignment – ahead station




Figure 5: Underpinning construction site looking along LRT alignment – back station



STREETSMART
Planning • Transportation Engineering • Surveying

www.streetSMART.us

**SOLID
 COMMITMENT
 TO EXCELLENCE**




Gibson-Thomas Engineering Co., Inc.
 Consulting Engineers

- Highway Engineering
- Environmental Engineering
- Hydraulic and Hydrologic Studies
- Construction Management and Inspection
- Surveying
- Bridge Engineering
- Land Development
- Water Distribution & Treatment
- Wastewater Collection & Treatment
- Stormwater Management

Providing Consulting Engineering Services Since 1916

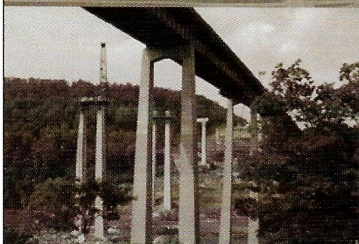
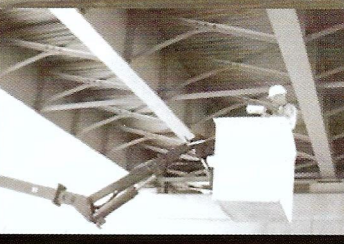

CORPORATE HEADQUARTERS:
 1004 Ligonier Street, Fifth Floor
 PO Box 853
 Latrobe, PA 15650
 Tel: 724-539-8562 Fax: 724-539-3697

Latrobe • Harrisburg • Pittsburgh


ISO 9001:2000 Certified
www.gibson-thomas.com

**ENGINEERING INFRASTRUCTURE SOLUTIONS ...
 FOR A CHANGING WORLD**

Highway & Bridge Design / Bridge & Construction
 Inspection / Site / Civil / Geospacial / Facilities

Transportation Engineering
Geospacial Services
Civil Engineering
Facilities Engineering
Construction Services

**ERDMAN
 ANTHONY** 

Mechanicsburg, PA
 (717) 766-1741
www.erdmananthony.com
 ISO 9001 Certified



civil engineering central.com
building teams . engineering careers

Road and Bridge Supports at Greenbelt Station Combined for a Unique Solution

Eric Hilberath

Most drivers probably never think about it or even realize it's there until their laps are covered in coffee, but the "bump" at the end of a bridge can be as annoying and even as dangerous as a large pothole. For departments of transportation, the bumps represent a maintenance issue as well. They occur because most bridge abutments are supported on piles while most bridge-approach embankments are founded directly on existing soils or fills.

The bridge on North-South Boulevard in Greenbelt, Md. will have none of that. Spanning Branchfield Road and intersecting with the heavily traveled Route 193, the bridge adopts a design-build solution incorporating a combination of soil reinforcement technologies. For the bridge abutment, conventional sleeved H piles are used to support the bridge seat and the Geopier® system supports the mechanically stabilized earth (MSE) wing walls and embankments at the foundation level. This combination of support systems ensures that the differential settlements between the MSE wall and the bridge superstructure are minimized over the bridge's 100-year design life.

North-South Boulevard is the entrance to Greenbelt Station, a 240-acre mixed-use site under development and adjacent to the Metrorail and MARC commuter train stations. With 2,200 planned residential units, more than one million square feet of office space, and 300 hotel rooms, planners expect the 200-foot-long bridge and embankment to carry a lot of traffic. Site investigations identified undocumented/uncontrolled fills on both sides of the bridge, raising the probability of excessive differential settlement between the MSE-supported embankments and the pile-supported bridge superstructure. Geotechnical Engineer Hardin-Kight suggested that either over-excavation and replacement of soil or the installation of the Rammed Aggregate Pier® elements that would provide the additional support necessary to bring differential settlements down to acceptable levels.

The general contractor for the project, Concrete General, asked design-build specialist GeoStructures for a design for the Geopier soil reinforcement system, which is created by drilling 30-inch diameter holes and ramming well-graded aggregate into one-foot layers to reinforce the surrounding fill soils. With

150 of the elements installed 20 feet deep and providing a 4,000 psf allowable bearing capacity, the abutment areas were stiff enough to support the MSE walls.

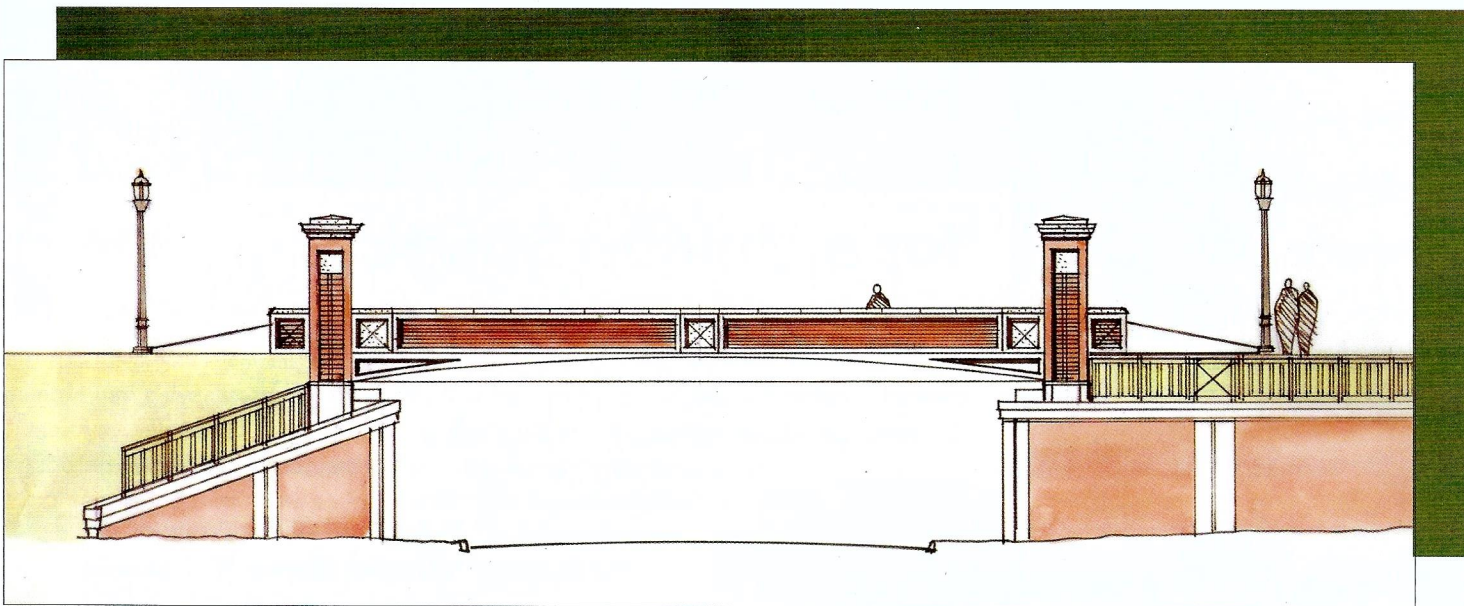
"Supports" continued p. 26



In the foreground is the completed North wall looking across Branchville Road at the piles that will support the bridge on the south side.



Northern wall under construction showing H piles inside the corrugated steel sleeves. Uses of sleeves gives the piles the necessary flexibility during expansion and contraction of the bridge without transferring those forces to the wall.



Rendering Courtesy of Dewberry, Structural and Architectural Designer, www.Dewberry.com

"Supports" continued from p. 25

"The other alternative was to excavate and replace the fill material with engineered fill, but using the Geopier system was easier," confirms Butch Lundgren, general superintendent of Concrete General.

For the walls themselves, GeoStructures subsidiary EarthTec used the company's EarthTrac HA™, an updated MSE wall system using galvanized, ribbed-steel soil reinforcements to which precast concrete facing panels are fastened. EarthTrac HA is an MSE design that works well with bridge abutments because the strips can be slightly skewed around the bridge support piles and sleeves. EarthTrac HA has been used on several other sites in the Mid-Atlantic, and at Greenbelt Station it is used for the abutments headwalls and for the 26' wing walls to the abutments. The architectural plan incorporates pilasters stained white with MSE panels finished in a brick color. EarthTec manufactures the panels in its own precast plant to avoid delays from outside suppliers.

The only approved product on the Maryland State Highway Administration list for walls up to 50 feet high, EarthTrac HA complies with the AASHTO Load and Resistance Factor Design (LRFD) Specifications and the Standard (Allowable Stress) Bridge Design Specifications. Under the Federal Highway aid program all states must adopt LRFD for bridge design.

For design-build projects like this, EarthTec and GeoStructures integrate geotechnical design solutions that deal with issues such as settlement, bearing capacity and global stability. The integration of the MSE wall design elements into a single package with the ground improvement options means highway engineers and general contractors don't have to piece together solutions using techniques that may provide uneconomical solutions.

Of course, the timely delivery of the infrastructure is required before the homes and other buildings can be completed at Greenbelt Station. The first section is scheduled to open in Spring 2008 at which point the developer will transfer ownership and maintenance of the road and bridge to the county. At least the adopting authority won't have to field complaints and make repairs because of the "bumps." ■

Eric Hilberath is Mid-Atlantic Regional Manager of GeoStructures (www.geostructures.com), a design-build contractor with a specialty in ground-improvement. Through its EarthTec subsidiary (www.earthteccorp.com) it designs, supplies, and builds MSE structures. Contact him at ehilberath@geostructures.com or (703) 771-9844. Geopier® and Rammed Aggregate Pier® are registered trademarks of Geopier Foundation Company, Inc.



ASHE SCANNER Newsletter

Advertising Contract

PLACE OUR AD AS MARKED

Select issues	Indicate ad size	SCANNER Issue	Publication Date	Closing Date – Ads & Articles
		Spring 2008	March	January 15, 2008
		Summer 2008	June	April 15, 2008
		Fall 2008	September	July 15, 2008
		Winter 2009	December	October 15, 2008

ADVERTISING RATE SCHEDULE

Position	Fee per one run	Fee per four runs
1 full page	\$ 550	\$ 2,000 (\$ 500 / issue)
1/2 page	\$ 450	\$ 1,600 (\$ 400 / issue)
1/4 page	\$ 350	\$ 1,200 (\$ 300 / issue)
Business card	\$ 250	\$ 800 (\$ 200 / issue)
Classified	E-mail text to editor for quote	
Consultants, contractors & suppliers	\$ 200 annually. Link your company to the ASHE website.	

AD SPECIFICATIONS

- Electronic file formats: PDF or Windows Platform, PageMaker, Photoshop, Illustrator, eps, tif or jpg.
- File must contain layout, all image files and fonts used.
- Ads are printed in color.

Ad size:	Width Depth
Full page	7.5" x 10"
1/2 page	7.5" x 4.75"
1/4 page	3.667" x 4.75"
Business card	3.667" x 2.25"
Screen:	Scanned photos at no less than 300 dpi

Send ad files and contract to:

Jennifer Summers
717.236.2050; FAX: 717.236.2046; jennifer@wannerassoc.com

ADVERTISING CONTRACT

Advertiser Information

Advertising Company:	
Contact:	
Address:	
City, State, Zip:	
Phone:	Fax:
E-mail:	
Invoice will be mailed to advertiser listed above unless otherwise noted. Checks payable to ASHE SCANNER. Contract must be received before ad placement. Terms 30 days.	
Signature:	Date:

ASHE Profile

The SCANNER is published quarterly by the American Society of Highway Engineers and delivered to over 6,000 readers nationwide.

- 164 are State D.O.T. Employees
- 67% are Engineering Consultants
- 7% are Contractors
- 12% are Related Professions
- 49% of the membership has a professional status

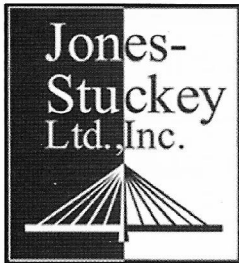
SCANNER Correspondence

John Hetrick, P.E., Managing Editor
c/o Wanner Associates
908 N. Second Street; Harrisburg, PA 17102
717-236-2050; Fax: 717-236-2046
E-mail: jennifer@wannerassoc.com

ASHE SCANNER
John Hetrick, P.E., Managing Editor
c/o Wanner Associates, Inc.
908 N. Second Street
Harrisburg, PA 17102

PRESORTED
STANDARD
U.S. Postage PAID
Harrisburg, PA
Permit No. #741

Jones-Stuckey Ltd., Inc.



Highways • Bridges • Sewers
Waterlines • Recreation • Parks
Environmental Studies
Construction Administration

2323 W. Fifth Avenue • Suite 160
Columbus, OH 43204
TEL 614.486.0401 • FAX 614.486.1194
www.jonesstuckey.com

Civil • Structural Engineers

URBAN ENGINEERS

■ *Formulating Excellence*



- Transportation
- Construction Services
- Planning/GIS
- Facilities and Building Systems
- Environmental Services
- Program Management

Corporate Office

530 Walnut Street, 14th Floor
Philadelphia, PA 19106
Ph (215) 922-8080
Fax (215) 922-8082

*ISO 9001:2000 REGISTERED

FOUNDED 1960

EMPLOYEE-OWNED

Office Locations:

Pennsylvania * Philadelphia
* Mechanicsburg
* Erie
* Warrendale
New Jersey * Pennsauken
Delaware * New Castle
Maryland * Baltimore
Connecticut * Hartford
New York * Buffalo
* New York City

1-(800)-232-4596

www.urbanengineers.com

Membership

Region 1	
Cuyahoga Valley	138
Central Dacotah	100
Central Ohio	163
Derby City	68
Lake Erie	108
Northwest Ohio	55
Triko Valley	154
Western Reserve	6
Region 2	
Clearfield	95
Franklin	208
Mid Allegheny	103
Region 3	
Pittsburgh	584
N. Central West Virginia	54
Potomac Highlands	56
South West Penn	232
Region 4	
Harrisburg	369
Altoona	176
Region 5	
North East Penn	133
East Penn	107
Williamsport	154
Central New York	65
Region 6	
Delaware Valley	387
First State	143
New York Metro	137
North Central New Jersey	113
Southern New Jersey	222
Region 7	
Potomac	128
Chesapeake	118
Blue Ridge	65
Old Dominion	58
Greater Hampton Roads	57
Region 8	
Carolina Piedmont	39
Carolina Triangle	210
Georgia	458
Middle Tennessee	121
Region 9	
Tampa Bay	114
Central Florida	128
Northeast Florida	241
Gold Coast	59
Total	5926
Professional Status	
Professional Status	49%
Government	14%
Consultant	67%
Contractor	7%
Other	12%