

# the news



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PHILADELPHIA SECTION

AMERICAN SOCIETY OF CIVIL ENGINEERS

P. O. Box 58186, Philadelphia, PA 19102-8186

Vol. 65-5

Our 79th Year

February, 1993

## FEBRUARY JOINT DINNER MEETING

Philadelphia Section, American Society of Civil Engineers  
South Jersey Branch, New Jersey Section, American Society of Civil Engineers

### THURSDAY, FEBRUARY 25, 1993

HARBOR LEAGUE CLUB • 800 Hudson Square • Camden, NJ  
(See Location Map Below)

Cocktails – 5:30 pm Dinner – 6:30 pm PROMPTLY Meeting – 7:30 pm

**SUBJECT:** "AN OVERVIEW OF GEOSYNTHETICS USED IN LANDFILL LINERS & CLOSURES"

**SPEAKER:** Robert M. Koerner, Ph.D., P.E., H.L. Bowman Professor of Civil Engineering, and Director GRI, Drexel University

This presentation on liners and covers for waste containment systems touches on selection, design and testing of the various individual components used to make successful waste disposal containment facilities. It will mention the various geosynthetic components such as: geomembranes, geonets, geotextiles, geogrids and geopipe, and related materials like geosynthetic clay liners and geosynthetic erosion control systems. The genesis of liner systems will be given along with the components in a local landfill.

Selected features of geosynthetic design and testing will be given including geomembranes on side slopes and geogrids for reinforcement of new landfills placed over existing ones.

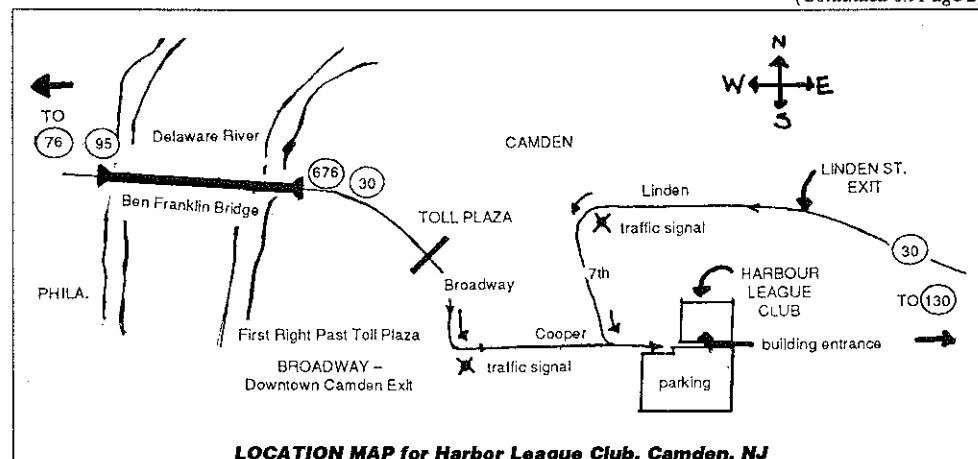
Several case histories where problems have occurred will be offered so as to gain perspective with regard to the integration of design and construction practices. Construction related CQC and CQA issues and trends will be described. The newly established NICET field inspectors program will be discussed.

Future projections for the waste containment industry will be offered and a summary of the current state-of-the-art will conclude the presentation.

**NOTE:** This presentation will be a sneak preview of a one-day seminar Dr. Koerner will give on behalf of the Philadelphia Section on Friday, March 12, 1993. (See article: "Koerner to Conduct Seminar" in the January 1993 issue of THE NEWS).

Professor Robert M. Koerner's involvement in geosynthetics spans fourteen years of teaching, research, writing and consulting. He holds his BSCE degree from Drexel University, his MSCE from Columbia and Drexel, and his PhD in Geotechnical Engineering from Duke. He is a Registered Professional Engineer in Pennsylvania and Delaware.

He is the co-author of the first book on geotextiles entitled "Construction and Geotechnical Engineering" (Continued on Page 2)



LOCATION MAP for Harbor League Club, Camden, NJ

**RESERVATIONS ARE REQUIRED.** Please send your check for the number of plates required (@ \$25 or \$13 Student each) payable to: Philadelphia Section, ASCE • P.O. Box 58186 • Phila., PA 19102-8186. The deadline for reservations is February 20, 1993.

## TECHNICAL GROUP ACTIVITIES

Geotechnical and Environmental/Water Resources Group

(Combined program for 1992-1993)

February Meeting

Date: Tuesday, February 23, 1993 (Note date change from last announcement)

Location: Hill Seminar Room, LeBow Engineering Center, Market & 31st Sts., Drexel University, Philadelphia, PA

**SPEAKER:** Paul S. Greene, Regional Engineer, Zimpro/Passivant Environmental Systems, Inc.

**SUBJECT:** Solving Complex Aqueous Wastewater Problems with the PACT and Wet Air Oxidation Systems

As the complexity and standards of environmental treatment at discharge and in cleanups grows, there is a need for improved and innovative treatment technologies. As an example, the PACT or wet air oxidation system is being implemented more and more frequently to protect our water resources. Though the technology itself is not new, it has been adapted to solve some of the most difficult problems.

The PACT system combines biological treatment and carbon adsorption in a single step. Mr. Greene will discuss the technical aspects of the technology itself, and then describe full scale operations in the Northeast area.

For further information, please contact: Dr. J.P. Martin, Dept. of Civil & Arch. Engrg., Drexel University, Philadelphia, PA 19104, (215) 895-2363; or Mr. Raymond A. Lees, Groundwater Technology, Inc., 223 Wilmington-West Chester Pike, Chadds Ford, PA 19317, (215) 558-1730.

**Upcoming Presentation:**

March 16, 1993: Mr. Amin Ayubcha, Ecology Environment, Inc., "Contaminated Bedrock Characterization."

## Engineering Management Group March Meeting

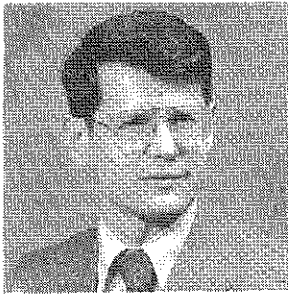
Date: Thursday, March 4, 1993 — 12:00 noon  
Location: Strawbridge & Clothier, 6th Floor, 8th & Market Sts., Philadelphia, PA

**SUBJECT:** Airport Program Management System for Philadelphia International Airport

**SPEAKER:** Alvin Zion, P.E., Chairman, E/M Group, Project Director, Hill International  
Cost: \$15.00 per person

The City of Philadelphia's Division of Aviation is in the midst of a one billion dollar Capital Improvement Program that involves major expansion

(Continued on Page 2)



## THE PRESIDENT'S MESSAGE

The Board of Directors of the Philadelphia Section Meetings are open to all members and all are invited to attend. These meetings usually take place at 4:30 p.m. prior to and at the same location as the Section Meetings.

The following action was taken at January 20th meeting which may be considered a typical Board Meeting:

1.) Appointment of the Nominating Committee to provide a slate of candidates for Board Members and Officers to be presented at the Board of Directors meeting on February 25 at the Harbor League Club. 2.)

**Jonathan Cheng** was appointed to serve the remaining term vacated by

the resignation of Joseph Martin. 3.) **Sue Lior** and **Moustafa Gouda** were appointed to organize the Past Presidents Council. 4.) Continued support of PRIME Inc. (an organization that promotes Engineering and the Sciences amongst minority high school students) by contributing \$100 to the 1993 fund raising effort by that organization. 5.) An update was presented to the Board of the CIVIL ENGINEERING CLASS PROJECTS headed by **Steve Yochum**. 6.) The Membership Survey conducted in 1992 by our Membership Secretary, **George Stanley**, was discussed and how the future Section programs should reflect the comments received in that survey. 7.) **Sandra May**, Reading Branch President, active with the Lambert School in Overbrook in an engineering and technology program presented an update of her activities in that school leading up to and during Engineer's Week. The sharing of costs with the Reading Branch for prizes awarded to students competing in Engineering Projects during Engineer's Week at that school was approved.

The discussion at the Board Meetings generally reflect the energetic, lively and diverse opinions of the Board Members. I encourage you to come out, observe and plan to participate at these meetings and in the business of the Philadelphia Section. The Nominating Committee will be considering candidates for various positions within our Section. Please feel free to contact any of the officers or board members or leave your name on the Electronic Bulletin Board if you would be interested in participating in the organization of the Philadelphia Section.

Your active participation is welcomed. I look forward to hearing from you.

Sincerely, Klaus Fuelleborn, President  
Philadelphia Section ASCE

## February Joint Meeting

(Continued from Page 1)

Using *Synthetic Fabrics* and has published 140 papers on geosynthetic in major engineering periodicals and at National and International Conferences. His latest effort is the second edition of the textbook entitled *Designing with Geosynthetics*.

Professor Koerner is very active in areas of geosynthetic test methods and standards. He is the immediate Past-President of the North American Geosynthetics Society.

Bob Koerner has presented 104 short courses on geosynthetics, ranging from a half day to three days, to engineering and technical audiences throughout North America.

Bob has taught at Drexel for 24 years and is currently the H.L. Bowman Professor of Civil Engineering and Director of the Geosynthetic Research Institute (GRI). GRI is a research and development organization specializing in geosynthetics materials. It is funded by a consortium on organizations including Federal Agencies, design firms, testing laboratories and geosynthetic manufacturers. He is Past President of the Philadelphia Section (1975-1976) and is an Honorary Member of ASCE.

## SPECIAL FEATURE: TEMPLE UNIVERSITY NIGHT

The ASCE Student Chapter, Alumni and Faculty of the Department of Civil Engineering, College of Engineering, Computer Sciences & Architecture of Temple University will be honored at this meeting. All students, alumni and faculty are cordially invited to attend.

## Technical Group Activities

(Continued from Page 1)

and construction at the Philadelphia International Airport, and continued site development at the Northeast Philadelphia Airport. The City has contracted with Hill International to develop, implement and maintain all systems necessary for effective management, planning and control of the program. Hill has developed the computerized Airport Program Management System (APMS), which contains data about all relevant activities, and is used to prepare reports, process invoices, apply for grant reimbursements, and provide information for timely management decisions. Mr. Zion will

present an overview of the Airport's plans and how the APMS is used in implementing the program.

For further information, please contact **Chris Rood** at (215) 580-7586. Reservations will be required for the lunch, and should be made by **Monday, March 1, 1993**.

## Upcoming Activity:

**Wednesday, May 26, 1993** — Site Tour of SEPTA's \$300 million Railroads Project. Further details will appear in later editions of THE NEWS.

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MARCH 1993 ISSUE  
FEBRUARY 25, 1993

## PHILADELPHIA SECTION ASCE ANNUAL CIVIL ENGINEERING AWARDS

# 1993

The Philadelphia Section takes pleasure in announcing the Annual Civil Engineering Awards. These awards are to recognize local members for their contributions to the Civil Engineering field. If you wish to nominate someone, please read the rules and criteria and then fill out the nomination form.

### ALL AWARDS WILL BE PRESENTED AT THE MAY 16, 1993 ANNUAL DINNER DANCE at Officer's Club, U.S. Naval Base, Philadelphia, PA

## R U L E S

Nominations must be received prior to 3 p.m., **February 28, 1992**.  
(If time extension or information are necessary, contact  
**Bob Wright (215) 686-5538**).

Individuals may be nominated for awards by a member in any grade of membership.

Individuals may be awarded only one award in a single year.

Individuals may be nominated for more than one award.

Award recipients must be approved by the Board of Directors.

All awards are presented only in years, where in the judgment of the Selection Committee, or the Board, there is at least one suitable candidate.

The Selection Committee will be required to nominate an alternate for Board consideration for each award.

Each Selection Committee will also recommend to the Board of Directors whether the recipient should be nominated for applicable national or regional awards by the Section.

## A W A R D S

### Philadelphia Civil Engineer of the Year

The section's highest award is presented to an individual who is judged to have contributed substantially to the civil engineering profession.

#### CRITERIA:

- Membership Grade - Member, Fellow, Life or Honorary
- Member in good standing of the Philadelphia Section

#### RECIPIENT ALSO CONSIDERED FOR:

1. Delaware Valley Engineer of the Year
2. Edmund Friedman Professional Recognition Award

### Philadelphia Young Civil Engineer of the Year

This award is presented to a young civil engineer who is judged to have contributed to the civil engineering profession.

#### CRITERIA:

- Membership Grade - Associate or Student
- Member in good standing of the Philadelphia Section or member of a student chapter assigned to the Philadelphia Section.
- Must be 32 years of age or younger on Feb. 1 of the award year

#### RECIPIENT ALSO CONSIDERED FOR:

1. Edmund Friedman Professional Recognition Award

### Philadelphia Government Engineer of the Year

This award is presented to an individual who is employed by the Federal Government, a State Government, a Municipal Government or a public authority that has contributed substantially to the civil engineering profession.

#### CRITERIA:

- Membership Grade - Member, Life, Honorary or eligible for membership
- Assigned to the Philadelphia Section or employed or residing within the Philadelphia Section boundaries.

#### RECIPIENT ALSO CONSIDERED FOR:

1. Zone 1 Government Engineer of the Year
2. Civil Government Award

### Philadelphia Young Government Engineer of the Year

This award is presented to a younger member who is employed by the Federal, a State or a Municipal Government or a public authority that has contributed to the civil engineering profession.

#### CRITERIA:

- Membership Grade - Associate member or eligible for membership.
- Member in good standing of the Philadelphia Section or employed within the Philadelphia Section boundaries.

#### RECIPIENT ALSO CONSIDERED FOR:

1. Zone I Young Government Engineer of the Year

### Government Service Award

Presented to an elected or appointed governmental official who has contributed substantially to the status of the civil engineering profession by their public service.

#### CRITERIA:

- Holds office in a jurisdiction which represents a geographical including an area which corresponds to the boundaries of the Philadelphia Section. This would include the President, a U.S. Senator from Pennsylvania, Congressman, Mayor, Commissioner, etc.

#### RECIPIENT ALSO CONSIDERED FOR:

- Civil Government Award

### Individual Technical Awards

The following awards have the same criteria. Each award is presented to an individual who is judged to have contributed substantially to civil engineering and in the area of the particular award.

- Civil Engineering Manager of the Year
- Geotechnical Engineer of the Year
- Structural Engineer of the Year
- Construction Engineer of the Year
- Transportation Engineer of the Year
- Water Resources Engineer of the Year

(over)

CRITERIA:

- Membership in any grade
- Member of the Philadelphia Section

RECIPIENT ALSO CONSIDERED FOR:

- Technical Groups will be responsible for nominating winners for appropriate national award.

**Educator of the Year**

This award is presented to an outstanding educator in the field of civil engineering, who has contributed substantially to the field.

CRITERIA:

- Membership Grade – Higher than student
- Member of the Philadelphia Section
- Must be a staff member of a college or university with an ASCE student club chapter.

**Philadelphia History and Heritage Award**

Presented to an individual whose efforts have made contributions to better the knowledge of, or appreciation of, the history and heritage of civil engineering.

CRITERIA:

- Must reside within the geographical boundaries of the Philadelphia Section or be a member of the Philadelphia Section.

RECIPIENT ALSO CONSIDERED FOR:

- Civil Engineering History and Heritage Award

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— NOMINATION FORM —

IF YOU DESIRE TO MAKE NOMINATIONS FOR MORE THAN ONE PERSON, PLEASE PHOTOCOPY THIS FORM.

Name of Candidate \_\_\_\_\_

Address \_\_\_\_\_ Phone \_\_\_\_\_

Job Title \_\_\_\_\_

Work Location \_\_\_\_\_

Membership:

- ASCE  Yes  No
- Phila. Section  Yes  No
- Age (if applicable) \_\_\_\_\_

Registration Information:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Award(s) Nominated to: Check one (or more if applicable)

- Philadelphia Civil Engineer of the Year
- Philadelphia Young Civil Engineer of the Year
- Philadelphia Government Engineer of the Year
- Philadelphia Young Government Engineer of the Year
- Government Service Award
- Educator of the Year
- Philadelphia History and Heritage Award

Individual Technical Awards:

- Civil Engineering Manager of the Year
- Geotechnical Engineer of the Year
- Structural Engineer of the Year
- Construction Engineer of the Year
- Transportation Engineer of the Year
- Water Resources Engineer of the Year

Academic Degrees:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Other Professional Societies:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Civic or Charitable Activities:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Continuing Education:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Other Awards or Honors:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Nominated by:

Name \_\_\_\_\_  
Member I.D. (See Newsletter label) \_\_\_\_\_  
Address \_\_\_\_\_  
Telephone Number \_\_\_\_\_

Achievements: In 100 words or less, that supports the candidate's nomination, please use separate sheet.

Submit to: Bob Wright; ASCE; P.O. Box 58186; Philadelphia, PA 19102-8186

## JANUARY JOINT DINNER MEETING

January 20, 1993

Holiday Inn, King of Prussia

### Boston's Central Artery/Tunnel Project

By Bill Richards, Associate Editor

The Philadelphia Section and its Reading Branch of ASCE joined with the Delaware Valley Section of ASHE to welcome in the new year at the January Dinner Meeting. An extremely interesting presentation was enjoyed by an enthusiastic crowd of more than 150 members of the three organizations. The speaker was Robert Albee of the Massachusetts Department of Public Works, who described the Central Artery/Tunnel Project in Boston, one of the nation's largest, and unique, active public works projects.

#### Delaware Valley Engineer of the Year

Prior to the presentation, both organizations honored the new Delaware Valley Engineer of the Year, Steve Lester. Ever humble, Steve went out of his way to express his own thanks to the engineering profession and the highway industry for giving him the opportunity to excel. He also called for all members to participate actively in the upcoming festivities for Engineers' Week. We all wish Steve continued success in his career, while we honor him for his past achievements. Following several short business announcements by Klaus Fuelleborn, ASCE Section President, several of which are highlighted elsewhere in this issue of THE NEWS, the featured presentation began.

#### Bill Thomsen Introduces Mr. Albee

Philadelphia Section Vice President William T. Thomsen introduced our principal speaker, Robert Albee. Mr. Albee is deputy Director of the Boston Artery/Tunnel Project for the Massachusetts Department of Public Works. Mr. Albee is a graduate of Lowell Technological Institute, and worked for 23 years as a Civil Engineer for the City of Boston Public Works Department. In 1986 he left his position as Chief Engineer for that organization and joined the Mass. Dept. of Public Works Central Artery/Tunnel (CA/t) Project Team. For the first three years of the project, Bob held a position as CA/t Project Manager, responsible for all right-of-way and utility relocation. In this capacity he managed all land acquisition and business relocation including some 5000 utility structures within the project corridor. As Deputy Director, he presently is responsible for the entire engineering effort for both the new central artery highway and the third harbor tunnel. Bob also is a member of the Board of Directors and Vice President of the New England Chapter of the APWA.

#### Project Description

Mr. Albee described the objectives of the overall project which is one of the largest urban transportation projects ever undertaken. The primary objectives are the replacement of the 1.7 mile six-lane elevated Central Artery with an eight lane sub-grade highway tunnel and the construction of the third tunnel to exist under the Boston Harbor linking East Boston (and Logan Airport) with South Boston and the Massachusetts Turnpike. It also encompasses the North Area Project replacing the intersections of six highways with two cut-and-cover

tunnels connecting Interstate 93 with U.S. Route 1 and a reconfigured intersection. In mitigating environmental, institutional, and traffic concerns the project also has spawned several other efforts, such as a joint truck/rail roadway, a harbor island park and Logan Airport landscaping.

To date the project has entailed a six year environmental evaluation and approval process, six years of preliminary design, three years of final design and is now in the construction process. The Project is approaching \$8 billion in total cost.

#### Central Artery

The new subsurface Central Artery will replace the present elevated Interstate 93. The existing highway, as well as street level traffic, will be maintained however, until the underground section is available for traffic. This requirement poses some unique engineering problems. These are being solved with slurry wall technology, with the slurry walls actually becoming the outside walls of the highway tunnel. By 1999, northbound traffic will be allowed into the tunnel. By 2002, full traffic will be allowed in the tunnel and the dismantling of the elevated highway will commence. This dismantling will create an additional 25 acres of new valuable center city land, 80% of which will be kept in public "open space" usage.

#### Third Harbor Tunnel

The third tunnel under the harbor has been required as an early stage of the Project to relieve downtown traffic congestion before much of the eventual construction is underway. The tunnel uses steel immersed tube technology, lowering 12 binocular tube units, 350 ft. long and 40 ft. in diameter, to the bottom of the harbor. There will be 40,000 tons of concrete poured within each tube for the eventual highway, ventilation system and inner shell. A "Super Scoop" is being used to dredge the trench for the tube in the harbor floor. The Super Scoop is working 24 hours a day and each scoop of dredge material is stored for drying and each is examined for possible contaminants before the method and place of disposal is determined.

#### Construction Concerns

The Project is paying \$200 million for utility relocation as well as the utility agency's labor involved in redesign, planning and other activities. The effort has resulted in the use of fiber-optic telephone lines and the relocation of all long-distance calling out of the congested downtown area, improvements that would not have occurred without the Project. Fourteen foot diameter sewers are being relocated using trenchless technology, expanding the knowledge and practice of this state-of-the-art technology. More than 12 million cubic yards of soils are being excavated. The project must find beneficial uses for the materials. These have included landfill capping and daily landfill cover across the state; filling in depressions at Logan Airport; and creation of a park on a Harbor Island which was previously little more than a dump.

#### Mitigation Measures

To gain approval and support, the CA/t Project had to carry out several mitigation efforts to relieve traffic congestion, environmental issues and residential concerns. To mitigate traffic flow and local concerns in South Boston, the Project actually built another roadway, coincident with a railroad, to take truck traffic off residential streets. Ventilation buildings were designed to blend into neighborhoods, frequently providing much-needed parking facilities in the same space.

#### Conclusion

Mr. Albee's presentation was witty, interspersed with humorous anecdotes, and generally enjoyed by all. It was capped off by an interesting extended question and answer period, including topics as diverse as partnering, environmental, scheduling and legal issues. The Presidents of both organizations expressed their thanks to Mr. Albee for making the long trip to give us this excellent presentation.



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## IMPORTANT! 1992-1993 MEETING NOTICES

MARK YOUR CALENDAR for the dates of the remaining Philadelphia Section, ASCE monthly meetings and social functions, as follows: (Check each issue of coming editions of THE NEWS for details, possible date and topic changes.)

### ALL DINNER MEETINGS

Cocktails - 5:30 p.m. Dinner - 6:30 p.m. Meeting - 7:30 p.m.

STUDENTS: All dinner and/or luncheon charges one-half price. If you prefer, you are welcome to attend all meetings after dinner or luncheon, at no charge.

**Sunday, March 21, 1993** - Spouse and Family Event - Camden Aquarium Tour

**Wednesday, April 14, 1993** - Dinner Meeting - Officers Club, Naval Base

Joint Meeting with SAME

Subject: Pennsylvania Convention Center Update

Speaker: Harry Perks

Widener University Night

**Sunday Evening, May 16, 1993** - Annual Spring Dinner Dance

**Spring/Summer Picnic** - Phila./Reading Branch & South Jersey Sections Informal Family-Oriented Picnic

Plan now for the special family event **Sunday, March 21, 1993 - Tour of the Camden Aquarium. Details to come in the March, 1993 issue of THE NEWS.**

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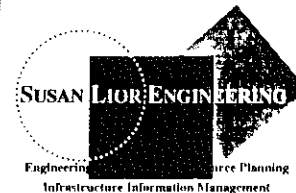
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