HEADLINES

The department is still working hard to fill three faculty positions and a Tier 1 Canada Research Chair. The Tier 1 Chair will be filled by a senior research person in the general area of water quality. We will then have in place one chair in each of our research focus areas; Water/Water Quality, GeoEngineering (Ian Moore) and Structures and Material (Amir Fam).

Once these hirings are in place there will be a complement of 15 faculty members; a viable number to be competitive given our streamlined undergraduate program with an emphasis on quality not quantity and our highly successful research interests.

Over all the department is doing exceptionally well; it is important to note that from all the indicators with our Faculty our undergraduate teaching and level of research funding has improved significantly, and is now first class.

Further, both undergraduate and graduate programs are seeing increased enrollments. At the undergraduate level we will have approximately 70 students in each of the three years and at the graduate level we are fast approaching a total of 80 students which is the highest level in the history of the department.

This past year our students had some great success in different inter-university competitions. Details of these events follow in the newsletter.

The department continues to build partnerships with industry through our Job Network, Industry Open House, Curriculum Development, Engineering Forum and our very successful fourth year Industry based design course. I can not say enough about the wonderful cooperation and contribution that our friends in industry have made to strengthen our program, - again, thank you very, very much.

As I will be retiring at the end of June 2005, which is not that far away, I will work exceedingly hard, with the rest of the team, (students, staff and faculty) to get all the hires in place and the department positioned to excel over the next decade – right now I am having a lot of fun being part of the new energy and successes in the department.

Remember Homecoming 2003 – There’s No Place Like Homecoming

The Civil Department will be hosting its annual homecoming Open House on Saturday, October 4, 2003 from 10:00 a.m. to noon, second floor Ellis Hall. Faculty and students will be there to welcome alumni and friends. Please join us for coffee and refreshments and renew old acquaintances.
TEAM BUILDING COMPETITION

QUEEN’S CONCRETE TOBOGGAN TEAM

The Great Northern Concrete Toboggan Race took place in February at the University of Alberta in Edmonton, Alberta. This year, Queen’s sent two entries across the country to participate in the competition. The Queen’s Mash team consisted of 22 eager 2nd and 3rd year students, while the Queen’s Canoe team consisted of eight 4th year and graduate level students. These two teams competed against schools from across Canada and the United States in this civil engineering design team event. As the toboggans must hold 5 passengers and consist of a roll bar, braking mechanism, and a concrete running surface, the Mash design involved a full aluminum tube roll bar mounted on a steel and aramid reinforced concrete slab. The Canoe team’s toboggan consisted of last year’s concrete canoe fitted with a roll bar and braking mechanism and reinforced with aramid. The Mash team had one of the most successful performances in recent years with a third place overall finish. They also took home awards for best concrete and reinforcement design, best braking, and best technical report. The team can also claim to have the 2nd fastest speed at 48.5 km/h, as well as a spectacular crash in which the toboggan rolled several times. The Canoe team enjoyed success as well, but in a little different manner. They took home the award for the most spectacular crash as a result of their canoe exploding into dozens of pieces as it collided with the wall in what can be called a memorable event in the history of the competition, marking the first time a concrete canoe has been sent down the icy toboggan hill.

QUEEN’S CONCRETE CANOE TEAM

This May a group of 20 Queen’s Civil Engineering students ranging from 1st year to graduate level studies participated in the Canadian National Concrete Canoe Competition. The race was hosted by École Technologique Supérieure of Montreal, Quebec, and saw 8 universities from across Canada compete. The Queen’s team performed well with a 5th place overall finish. The team was quite happy with the performance, especially their showing in the races where the team placed 3rd in the paddling events. The success in the racing was due to the many weeks of practice with paddling coach Jim Raffan. Next year’s event in Moncton, New Brunswick, is eagerly anticipated and planning is already in progress. The two teams would like to thank all of the support staff in Ellis Hall as well as their sponsors (on left) for continued support.
This past March five Queen's civil engineering teams participated in the annual Concordia Popsicle Stick Bridge Building Competition in Montreal. The 20 students who travelled to the competition, brought with them five very differently designed bridges and the usual Queen’s spirit. Participants must design a bridge that spans 1 m and is entirely made out of Popsicle sticks, dental floss and white glue. Bridges are loaded to failure and teams are judged on loading, design and aesthetics.

Although none of the teams made the top 10, Queen's once again had the highest participation out of all the other competing universities. Teams look forward to improving on their performance in next year’s competition and would like to thank the Department of Civil Engineering and the Faculty of Applied Science for their financial and technical assistance.

Team members were: Scott Bertoli, Susan Trickey, John Cholewa, Steve Vardy, Mike Ranger, Andrew Hoskins, Jen Lavoie, Matt Wilson, Mike Sutherland, Christian Dover, Ian Stevenson, Alex Bonebakker, Brendan Callery, Pat Nolan, Lauren Spudowski, Mike Capaldo, Matt Marjerrison and Dave Reid.

On March 30, 2003, five students, supervised by Dr. Mark Green and Aaron Dent, competed in the undergraduate competition at the American Concrete Institute Conference held in Vancouver. Queen's Civil Engineering students Meagan Garret, Matt Makeranko, Ehab Boutros, Andrew Hoskin and Jen Lavoie placed 3rd in the weight-to-strength division of this international competition. The design challenge was to build a concrete structure reinforced with FRP (fibre reinforced polymer) that was to span 1 m and was to be loaded in the centre of the structure until failure. Their proposed solution to this problem was to build a truss system with concrete in compression and FRP in tension. Teams from Canada, the U.S.A, Mexico and Iran participated in the competition.
HONOURS AND ACHIEVEMENTS

THE ROBERT J. MITCHELL PRIZE

The department is proud to announce that Brea Williams, a Ph.D candidate in the Structures and Materials Research Group, is the recipient of the 2003 R.J. Mitchell Prize. This prize is intended to recognize graduate students who best combine leadership ability and a demonstrated inclination to participate actively in the broader learning environment.

Brea, a first class student, was elected Civil Club President for the graduate students. This position involved assisting graduate students in their initial orientation and bringing students together socially, to encourage a solid sense of community and to support a free exchange of experiences and ideas, making for a memorable experience at Queens. She also worked on a number of committees within the Civil Engineering department including search committees for an Undergraduate Assistant, a Civil Engineering Technologist and an Associate Professor.

As a teaching assistant she excelled, she was awarded the departmental Teaching Assistant award for the fall term of 2000 and the winter term of 2002, as well as the Educational Excellence in Teaching Assistance Award from the Engineering Society for 2002-2003.

Brea is currently an active graduate representative on the Senate Committee for Academic Development. As a result she has been part of the initiation of the newest and most innovative programs at the university. She was Chair of the ISIS (Intelligent Sensing for Innovative Structures) Canada Student Committee for the term of 2001-2002. She lead an executive group of students representing universities across Canada with the ISIS Canada research network and acted as a liaison between the managing researchers at ISIS Canada and the student researchers.

At last year’s ISIS Canada conference she was a member of the winning design team in the first annual ISIS Canada Bridge Design Competition. Their design proposal was selected over four other national entries and has been built at the Université de Sherbrooke campus in Quebec. The bridge incorporated FRP (Fibre Reinforced Polymer) technology that ISIS Canada has been actively researching.

Recently she attended conferences for women in engineering and science and engineering education. In attending these conferences she gained an appreciation for the delicate balance of technical, non-technical and social challenges associated with engineering.

If she wasn’t busy enough, Brea does volunteer work on a weekly basis at the Kingston General Hospital in the Intensive Care Unit (ICU) and volunteered at the 2001 Canada Wide Science fair as a judge of grade-school science projects.

Brea takes time to relax by participating in a number of sports and outdoor activities throughout the year, namely the Civil Engineering Department softball team, the department’s women’s squash ladder, Kingston’s ultimate frisbee league, the Row for Heart Challenge sponsored by the Kingston Rowing Club, curling, hiking and camping.

Congratulations Brea, over the past years the department has been extremely fortunate to have someone as talented, caring and energetic as part of its team.

CANADA RESEARCH CHAIR IN INNOVATIVE AND RETROFITTED STRUCTURES

Dr. Amir Fam, an Assistant Professor, has been awarded a Canada Research Chair in Innovative and Retrofitted Structures in the Department of Civil Engineering at Queen’s University.

Dr. Fam’s research is focused on the development and application sustainable technologies in the area of structural engineering, including the use of advanced materials and innovative concepts for new structures and for retrofit of existing structures. Innovative structural systems such as concrete-filled FRP tubes is a very promising alternative for applications such as piles, columns and monopole hydro and light towers. Structural retrofitting includes strengthening of concrete and steel structures, bridges and pipe lines using various cutting edge technologies and materials. This research will benefit the society through the development of structures with extended service life, which will save the country the heavy costs of replacement.
2002-2003 AWARDS AND SCHOLARSHIPS

The following individuals continue to enhance the reputation of the Civil Engineering department as their work is recognized for its excellence within and outside the University.

UNDERGRADUATE AWARDS

Second Year Awards
Philip Jones
- Isaac Cohen Scholarship
- Alice Pierce Waddington Scholarship

Third Year Awards
Sarah Howard
- Frederick and Christopher Ansley Scholarship
- Fifth Field Company Prize
- Edward Hugh McLellan in Soil Mechanics
- Martin Wolff Memorial
- William Wallace Near Scholarship

Jennifer Lavoie
- Howard Vance Memorial Book Prize

Sarah Foster
- Mike Hamze Memorial Scholarship

Fourth Year and Graduating Awards
Tara Van Weelden
- Frank J. DeWitt Scholarship
- University Medal in Civil Engineering
- C.W. Marshall Memorial Award

Scott Bertoli
- Frank J. DeWitt Scholarship

Christopher van de Water
- D.S. Ellis Memorial Award

Stephen Vardy
- O’Connor Associates Award in Geotechnical Engineering
- Edward Hugh McLellan in Coastal Geotechniques
- C.W. Marshall Memorial Award
- CIVIL ’85 Award

Lauren Mackay
- McMil Award in Environmental Engineering

Jesse Fleming
- S.D. Lash Scholarship

Anthony Hodge
- H.M. Edwards Memorial in Transportation Engineering

Susan Trickey
- CIVIL ’85 Award

Micah Melnyk
- Agnes Benidickson Tricolour Award

Sports Awards
Stephen Vardy
- Male Athlete of the Year

Jennifer Lavoie
- Female Athlete of the Year

GRADUATE AWARDS
Simon Gudina
- Teaching Assistant Award - Fall Term 2002

Aaron Dent
- Teaching Assistant Award - Winter Term 2003

Brea Williams
- Robert J. Mitchell Prize
- Won one of four best poster awards at the 8th annual ISIS Canada conference in Vancouver (May 2003) (in partnership with Luke Bisby)
- The Educational Excellence Teaching Assistance Award from the student Engineering Society

David Walters
- First Place Award 2002 Canadian Geotechnical Society’s Graduate Paper Competition

FACULTY AWARDS
Richard Brachman
- Teaching Award for 2002-2003 presented by the undergraduate student body in the Department of Civil Engineering in recognition of outstanding teaching
Despite the weather, the 6th annual Industry Open House was a great success. It was held on January 23 with 20 companies setting up displays.

Dave Turcke welcomed everyone and outlined how the Civil Engineering Department is working towards building collaborative links between Industry and our undergraduate and graduate programs. He also updated everyone on departmental activities.

Sarah Foster, a third year Civil Engineering student, gave an enthusiastic and informative presentation about our Concrete Toboggan and Concrete Canoe team competitions. She outlined how these projects benefit the students by developing skills such as project management, teamwork and leadership, design challenges and experimentation. She stated that these projects could not be completed without the support of industry through financial support, donations of materials and in-kind support from industry.

Barb Mundell, Coordinator, Queens Undergraduate Internship Program (QUIP) gave a brief overview of the Queens Internship program and how this program could provide solutions to short-term staffing problems and develop potential long term employees. To find out more about this program go to the career services website at www.careers.queensu.ca.

Carole Champion from Materials and Manufacturing Ontario spoke on this Ontario Centre of Excellence, their mandate and their focus. She gave updates on the MMO programs and the Industry of University Relationships. MMO provides $30,000 a year to support our 4th Industry-based design course.

During the afternoon students had a chance to find out more about each company through their displays and talking with company representatives. This year our graduating class prepared a resume booklet that was handed out to all the participants with their interests identified so that employers could easily select all those students with say, an interest in structures. Posters were also on display showing the work that was done at this point on the 4th year design projects. Thanks to MMO for sponsoring our dinner again this year at the University Club, where everyone was able to relax and mingle before enjoying a tasty dinner.
Our CIVL 467, Industry Based Design Course, just completed its fourth year as part of the program and was once again a success with the students and produced excellent results. The course has evolved to the point where recent grads that have taken the course now supervise from the industry side.

We would like to thank the following companies who were involved in this year’s design projects:

- Stantec Consulting Ltd.
- Baird and Associates
- Totten Sims Hubicki
- J.L. Richards and Associates
- Malroz Engineering
- GeoCor Engineering Inc.
- LlynLea Corporation
- J. Douglas Vallee Ltd.
- Mattamy Homes
- O’Brien and Gere Ltd.

We would also like to say a special thank you to Material Manufacturing Ontario who, through its Connections Program, provided $30,000 to offset most of the costs associated with this course such as travel and material expenses.

Again, thank you to all of our industry partners, who gave their time and shared their expertise while providing mentorship to our fourth year students.

2002 – 2003 INDUSTRY PARTNERS

<table>
<thead>
<tr>
<th>Acres International Ltd</th>
<th>Cumming Cockburn Ltd</th>
<th>Marshall Macklin Monaghan</th>
</tr>
</thead>
<tbody>
<tr>
<td>AECL</td>
<td>DuPont Canada</td>
<td>Materials Manufacturing Ontario</td>
</tr>
<tr>
<td>AME Corporation</td>
<td>Ellis Don Construction</td>
<td>Mattamy Homes</td>
</tr>
<tr>
<td>AMKC</td>
<td>Exponent</td>
<td>McCormick Rankin Corporation</td>
</tr>
<tr>
<td>Anchor Concrete</td>
<td>Federal White Cement</td>
<td>Metalcraft Marine</td>
</tr>
<tr>
<td>Axim Concrete</td>
<td>Gartner Lee Ltd</td>
<td>Ministry of Transportation</td>
</tr>
<tr>
<td>Baird &amp; Associates</td>
<td>GeoCor Engineering Inc.</td>
<td>M. Sullivan &amp; Son Ltd</td>
</tr>
<tr>
<td>Canadian Forces</td>
<td>Golder Associates</td>
<td>O’Brien and Gere Ltd</td>
</tr>
<tr>
<td>Recruiting Centre</td>
<td>The Greer Galloway Group Inc.</td>
<td>O’Connor Associates Environmental Inc</td>
</tr>
<tr>
<td>Canadian Wood Council</td>
<td>Halsall Associates Ltd</td>
<td>Peter Kiewit Sons’ Co. Inc</td>
</tr>
<tr>
<td>Cataraqui Region Conservation</td>
<td>J. Douglas Vallee Ltd</td>
<td>R.W. Howard Engineering</td>
</tr>
<tr>
<td>Cement Association of Canada</td>
<td>J.L. Richards &amp; Associates Ltd</td>
<td>The Sernas Group</td>
</tr>
<tr>
<td>City of Kingston</td>
<td>Kitson Engineering</td>
<td>Stantec Consulting Ltd</td>
</tr>
<tr>
<td>Cochrane Engineering</td>
<td>Lafarge Kingston</td>
<td>Totten Sims Hubicki</td>
</tr>
<tr>
<td>County of Lennox</td>
<td>Lehigh Heidelberg Cement Group</td>
<td>Urban Systems Ltd</td>
</tr>
<tr>
<td>&amp; Addington</td>
<td>Llynlea Corporation</td>
<td>York Region</td>
</tr>
<tr>
<td>County of Renfrew</td>
<td>Malroz Engineering</td>
<td></td>
</tr>
<tr>
<td>Cruickshank Construction Ltd</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**GEOENGINEERING CENTRE AT QUEEN’S – RMC**

The new research Centre has been very successful in receiving collaborative research grants from NSERC for equipment and two new Strategic Research Grants. Currently faculty members are attracting more than $2M of research support per annum, and there are over 80 graduate students and postdoctoral research fellows working on GeoEngineering research projects.

A new GeoEngineering Graduate program commenced in September 2002, with 20 Masters and Doctoral research students participating during the Fall and Winter terms. The program is a collaboration between the graduate programs in the four participating departments; Civil Engineering, Geological Sciences and Engineering, and Mining Engineering at Queen’s, and Civil Engineering at RMC. A GeoEngineering seminar this year featured speakers from a variety of institutions in Canada and the US. It also included seminars presented by each graduate student enrolled in the program.

During the Winter term, Dr. Graeme Skinner arranged participation by the GeoEngineering Centre in the Graduate research day run by the Eastern Ontario section of the Canadian Geotechnical Society. The Centre was represented by graduate students Michael Law and Simon Leung in the competition against students from Ottawa and Carleton Universities. Michael Law was selected as the winning presenter for his paper examining the soil-structure interaction of repaired sewer pipes.

**ENGINEERING FORUM**

A free lunch? Yes! Thanks to the generosity of its sponsors, the Robert and Joyce Jones Civil Engineering Forum has been offering exactly that every Thursday of the school year since 1998. Each week, those in attendance are treated to an informative and thought-provoking talk by a dynamic speaker and some pizza and pop. The Forum is a highlight of the week for many undergraduate students, graduate students and faculty and staff alike.

Some of the highlights from last year included talks on coal-fired power generation in Mexico by Joanne Butler of TransAlta, cleanup of the Deloro Mine site near Belleville Ontario by the Ontario Ministry of the Environment’s Jim Ritter, and, of course, the easy life of a teacher on Kiribati, a miniscule island in the south-pacific, by our own Matt Cyr.

This year’s line-up looks excellent. We are looking forward to hearing from some of our newest faculty – Dr. Bisby and Dr. Skinner take note – as well as from speakers on such diverse topics as wind power generation, and the state of engineering in the City of Kingston. Also of note will be the talk given by Dr. Lloyd McGinnis, a holder of the prestigious “Gold Medal Award” presented to Canada’s Outstanding Engineer.

**TRAVELLING MAN**

Professor Bruce Anderson had the opportunity to travel to Shanghai, China in October 2002, under the cooperative agreement between Queen’s and Fudan University, and is a principal investigator in the Queen’s - Fudan Co-Laboratory of Environmental Research on Urbanization. It is expected that a field-based graduate research project in the water quality area will be undertaken in the Shanghai area in the near future; as well, plans are underway to stage a workshop in Shanghai on the impacts of mega-cities on water quality.

As a result of this visit, Zhu Bin, a Ph.D. student from Fudan, was hosted by the Department in the Winter 2003 term. Based on the success of this visit, we are already planning the next exchange, which would see a Queen’s graduate student spend a term in China.

On another front, Professor Anderson has also been invited to participate in teaching activities at the International Study Centre, Herstmonceux Castle, England, in July 2003. He had been informally consulting with Queen’s administration on the wastewater treatment system at the castle and will be using this subject for a 2 week workshop. Who says working with wastewater won’t take you far?

*P.S. We are always looking for speakers. If you are interested in participating in the forum, or would simply like more information, please contact Anna Charbonneau or Anthony West at (613) 533-2130 or forum@civil.queensu.ca.*
Three new environmental chambers have recently been constructed to facilitate the evaluation of polymer structures and geosynthetics for suitability in severe climates such as those found in Canada. Mark Green, Ian Moore, and Kerry Rowe were awarded $150,000 from the Natural Sciences and Engineering Research Council (NSERC) to build these chambers. This new facility has the capacity to test at temperatures ranging from -40°C to +40°C, and to conduct freeze-thaw tests. The research work supported by this facility is focussed on applications of polymers (esp. fibre reinforced polymers (FRPs) and geosynthetics) to bridges, structures, sewers, pipelines, tunnels, and landfills.

STUDENT STUDY SPACE

The Department continues to foster the ‘family feeling’ atmosphere for our students and in this regard, put forward a proposal to renovate the old Civil Engineering Library with an unlikely industry partner (Coca-Cola). This room was used extensively by generations of civil students as a study area and we received a strong message from our present students for this tradition to continue. As a result, this room has now been renewed to provide a comfortable student team/study space and group reception facility.

Our proposal recommendation was to change the existing area into a comfortable, multi-use facility for student team building and for functions such as our Industry Open House and first year orientation and other receptions at a cost of $18,182. We were fortunate to be successful and the funds were spent on new furniture, flooring, blinds, lighting, electrical and data upgrades as well as refinishing the vintage study tables which have been used by hundreds of our students over the years.

The new space is now a focal point of Queen’s Civil Engineering student life and is home to students of the past, present, and future. Thank you Coca Cola and our staff for making it happen.

NEW RESEARCH LABORATORY FOR MEASURING THE PHYSICAL RESPONSE OF LANDFILL BARRIER SYSTEMS

(or Brachman’s Team can now squish ‘stuff real good … )

Renovations are now complete on a new laboratory located in Ellis 009 for conducting physical experiments on composite landfill liners. The laboratory houses three high-pressure test vessels capable of simulating the earth pressures at the base of landfills.

The physical response of geomembrane, compacted clay and geosynthetic clay liners is being studied when subject to vertical pressures as large as 3000 kPa. The objective of this work is to assess the long-term performance of landfill liners with the aim of improving the design on landfill barrier systems.

Development of this new laboratory was funded by the Canadian Foundation for Innovation and the Ontario Innovation Trust through a grant awarded to Dr. Richard Brachman.
Kevin Hall is the principal investigator on a recently awarded $9,000,000 research grant from the Ontario Research and Development Challenge Fund (ORDCF) which included 12 industrial partners, 5 municipalities, and 2 conservation authorities. The project is being carried out under the auspices of the Centre for Water and the Environment (CWE), of which Kevin is the Acting Scientific Director. The award was made for a multi-disciplinary, multi-institutional research project titled “From source to tap – a new paradigm for the application of high technology to ensure the safety of our water supplies”. The research program will take place over a five year period and involve Kent Novakowski (Civil Engineering), Stephen Brown (Chemistry), Moe Hussain (Centre for Water and the Environment) and Peter Aston (Microbiology) from Queens. Additionally, the project will develop partnerships with the Drinking Water Research Group at the University of Toronto and with the Centre for Microbial Studies at the University of Ottawa. The project has three main components, including:

- The development of a regional water shed model including surface and groundwater flow and interaction with real time calibration/verification. The real time data will be provided by a series of remote deployed fibre-optic sensors developed specifically to measure, in-situ, particular contaminants in the watershed, including bacteria, chemicals and other pathogens.
- The development of new drinking water treatment processes which can be programmed to respond to the quality of the incoming water supply. The aim of the new techniques will be to minimize the health risks associated with harmful byproducts generated as a result of both chlorination and ozonation technology.
- The development of distribution system monitoring of bacteria using the fibre-optic probe approach and the development of an understanding of biofilm growth and effect.

Specific details of the project can be found on the CWE website (www.cwe.queensu.ca)

SUSTAINING URBAN PIPELINE INFRASTRUCTURE WITH TRENCHLESS INSTALLATION AND REPLACEMENT

Dr. Ian Moore and Dr. Richard Brachman of the Department, both members of the new GeoEngineering Centre at Queen’s – RMC, were awarded $540,140 by NSERC over the period 2002-2006 to investigate the behaviour of thermoplastic pipes installed by two Trenchless technologies: horizontal directional drilling and pipe bursting. The project is addressing the huge repair and replacement costs associated with the aging storm-water and sanitary sewer infrastructure that is reaching the end of its design life in cities across Canada. The project is being conducted in collaboration with Queens alumnus Dr Erez Allouche at UWO, and features eight different graduate students working to ensure that pipes installed using these techniques have adequate performance life. Laboratory tests are being conducted to measure ground deformations in the vicinity of pipe bursting operations and the earth pressures that develop on the pipe, and laboratory and field tests are being used to measure pulling forces. Computer analysis methods are being developed to provide rational design methods for design of Trenchless projects.

Surface damage to the pipe that results during pulling operations is being evaluated, as is the potential for pipe fracture under the residual tensile stresses that remain in the pipe after construction. The project is seeking to maximize the potential use of Trenchless technologies that minimize or avoid the disruption to surface transport and other infrastructure associated with conventional ‘cut and cover’ pipeline replacement and repair operations.
NSERC STRATEGIC GRANT:
Predicting Aqueous-Phase Transport in Complex Fracture Networks at Various Scales – Improvements in Groundwater Management

Principal Investigator: Kent Novakowski, Dept. of Civil Engineering, Queen's University Co-Investigators: René Therrien and Donna Kirkwood, Geology and Geological Engineering Dept., Laval University

At many locations across Canada where contamination is carried by groundwater migrating through fractured bedrock, the assessment of risk to nearby receptors (i.e. drinking water wells or surface water bodies) and the development of appropriate clean-up measures have proven to be a difficult undertaking. Protecting groundwater from contamination in fractured rock environments is an equally difficult challenge. Thus, in order to protect public health and to assuage public concerns, it is necessary to have a complete and accurate understanding of the processes of contaminant transport at a variety of scales in these environments such that accurate and reliable risk assessment, successful clean-up programs, and appropriate measures for groundwater protection can be undertaken.

The objective of the proposed research is to conduct field tracer experiments and develop a new numerical modelling approach that will expand our understanding of contaminant migration through fracture networks at scales beyond that previously investigated.

The results of this research will significantly improve the ability of hydrogeologists and engineers in the design of groundwater protection zones in fractured rock and in the clean-up of fractured rock sites presently undergoing remediation. Partners from Environment Canada, the Smithville Phase IV Bedrock Remediation Program (Ontario government agency), the Ontario Ministry of the Environment, the Quebec Ministry of the Environment, the Regional Municipality of Waterloo, and the Canadian Nuclear Safety Commission will participate directly in some of the experiments, and will closely follow the project. The results of this research will be transferred to stakeholders via the training of graduate students, and through workshops targeted at groundwater professionals and groundwater managers.

ALUMNI JOBS

Every so often the Job Network receives requests from companies looking for Engineers with a few years of experience. We will start posting these positions on our web site as soon as they come available.

Companies willing to post these jobs with us, please contact:

Jolanda de Groot
Phone: (613) 533 2708
Fax: (613) 533 2128
Email: jobnetwork@civil.queensu.ca
Web site: www.civil.queensu.ca/Building_Partnerships/JobNetwork/Alumni_Jobs.htm

Engineers with four to five years experience in Stormwater management are needed right now by a new and growing company! Contact the Job Network to find out more about this opportunity.
WHERE ARE THEY NOW???

Alma Rotea M. Sc. Candidate has moved back to Calgary, Alberta to author her thesis. She can be reached at:
EBA Engineering Consultants Ltd.
270, 200 Rivercrest Dr S.E.
Calgary, AB T2C 2X5.

Jamie van Gulck Ph.D. Candidate recently moved to Winnipeg with his wife, Michelle. He has taken on a faculty position and can be reached at:
The University of Manitoba,
246A Civil Engineering Bldg
15 Gillson St.
Winnipeg, MB R3T 5V6
vangulck@cc.umanitoba.ca

Heather Anderson, B. Sc.’99, has taken a position with Stantec in Kitchener as an Environmental Engineer. Congratulations Heather!

Dorian Tung obtained both his B.Sc. (Eng.) (2000) and M.Sc.(Eng.) (2002) from our Department. Thanks to the Building Partnerships/Job Network, Dorian had the opportunity of moving to the City of Palms in the Sunshine State of Florida after his graduation. Currently working as a project engineer at Bob Rude Structures, Inc., Dorian is constantly applying the academic training obtained in the Department and continuously learning the practical aspects of engineering.

Being in a company providing various engineering services for a wide range of project types and sizes, Dorian has mainly been involved in the analysis and design of reinforced and prestressed concrete low- and mid-rise structures. Aside from his job, the change from freezing rain and heavy snow fall to excessive sunlight and unbeatable beaches has definitely broadened his life experience. However, some things change and some don’t: the party spirit and style of a proud Queen’s civil engineer!

Kevin Hall and Bernie Kueper will be on sabbatical from July 1, 2003 to June 30, 2004. Dr. Hall plans to produce several journal papers and a textbook and will continue with his research and promotion of the Centre for Water and the Environment. Dr. Kueper will be focusing on working with his graduate students and writing a textbook.