



**The Durham Engineers Club Cordially Invites You  
to our March 20, 2014 Meeting**

**Water System Hydraulic Modeling - Elevated  
Tanks, Pressure Zones, and Water Quality**

featuring our guest speakers

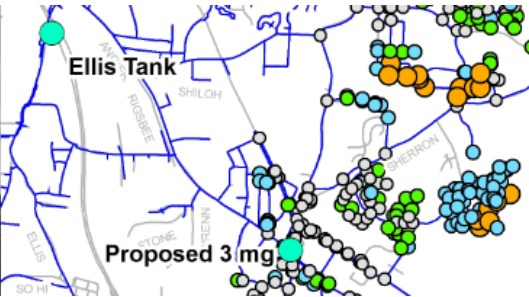
**Jeff Cruickshank, PE**

**Meg Roberts, PE**

from

**Hazen and Sawyer, PC**

**Environmental Engineers and Scientists**



**Legend**

- Pipes
- Roads

**Available Fire Flows**

- ≤ 1,000 gpm
- ≤ 1,500 gpm
- ≤ 2,500 gpm
- ≤ 3,500 gpm
- > 3,500 gpm

[Register Now!](#)

You can now prepay with a credit card or PayPal account as you register!

**Meeting time is at 6:00 pm.**

**When**

Thursday March 20, 2014 from  
6:00 PM to 8:00 PM EDT

[Add to Calendar](#)

**Where**

**Croasdaile Country Club  
3800 Farm Gate Avenue  
Durham, NC 27705**

**2013 Corporate Golf  
Tournament Sponsors**

**Dear Fellow Professional :**

**Please consider this special invitation to attend our  
regular monthly meeting on Thursday, March 20,  
2014 from 6:00 to 8:00 PM.**

Jeff and Meg will cover general information about hydraulic modeling for water distribution systems, including calibration. The modeling to plan Durham's new Angier Tank will be presented as an example application. Water quality modeling also will be covered, using an example involving the proposed Southeast Pressure Zone near the Research Triangle Park. Other water quality modeling examples will include animation of disinfectant mixing and tank influence zones .

**HAZEN AND SAWYER**  
Environmental Engineers & Scientists



STEWART



HORVATH  
ASSOCIATES



MCADAMS



Jeff Cruickshank is a life member of the American Water Works Association (AWWA) with nearly 40 years of experience modeling more than 75 municipal distributions systems. He manages Hazen and Sawyer's Greensboro office which specializes in hydraulic modeling. Jeff received a Bachelor of Science degree in Civil Engineering from Michigan Tech and is a registered professional engineer in North Carolina and several other states.

Meg Roberts has a BS in Public Health from the University of North Carolina at Chapel Hill, a Master's in Environmental Engineering from the University of Massachusetts at Amherst, and over a decade of experience in water distribution system design, operations, water quality, and master planning. Her area of expertise is developing and calibrating hydraulic and water quality models for water distribution systems. She is currently the chair of AWWA's national Distribution System Water Quality Committee.

**Please click on the link below to register; the cost to attend is \$25 for members and \$35 for non-members. You can now pre-pay as you register with a credit card or PayPal account, mail a check, or pay at the door with cash or check. We cannot accept credit cards at the event.**

The price includes a buffet dinner at the Croasdaile Country Club. The buffet features an extensive salad bar, and a variety of hot dishes; the food is excellent. Social hour is from 6:00 to 6:30 pm and there is a cash bar. Dinner is from 6:30 to about 7:00 and the seminar will begin about 7:00, the presentation will be about an hour followed by Q&A.

One (1.0) PDH will be provided; a terrific bargain! Please join us for this great presentation by clicking on the "Register Now" link below, if you cannot attend please let us know as well, and feel free to forward this invitation to as many others as you would like using the button below.

**[Register Now!](#)**

**[Forward to a Friend !](#)**

**[I can't make it](#)**

If you do not wish to continue to receive event invitations from the Durham Engineers Club please unsubscribe using the link at the bottom. The Durham Engineers Club has one meeting per month.

We look forward to seeing you at the meeting!

**Sincerely,**

Michael M. Hughes, PE  
Durham Engineers Club  
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919-560-4326\*30266

**HAPPY NEW YEAR!**

**Dues for 2014 are due! (\$40)**

Upcoming Meetings:

*April 17, 2014 - Engineering  
an Urban Trail in Northwest  
Arkansas*

*May 15, 2014 - Annual  
Scholarship Awards &  
Speaker*