

Eric J. Steward, Ph.D.

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University of South Alabama
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EDUCATION

| | | | |
|---|----------------------------|-------|------|
| Louisiana Tech University | Engineering (Geotechnical) | Ph.D. | 2011 |
| Dissertation Title: <i>A Deterministic Method of Predicting Long-Term pile Capacity in Cohesive Soils after the Dissipation of Excess Pore Water Pressure</i> | | | |
| Louisiana Tech University | Civil Engineering | M.S. | 2011 |
| Practicum Title: <i>Strength and Deformation Testing of Rigid Polyurethane Spray-on Coating under Internal Pressure</i> | | | |
| University of Colorado at Colorado Springs | Mechanical Engineering | B.S. | 2003 |

PROFESSIONAL EXPERIENCE

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|-------------------|---------------------------|--|
| 8/2011 – Present | Assistant Professor | University of South Alabama, Department of Civil Engineering |
| 10/2013 – Present | Consultant | EJS Geotechnical Consultant |
| 8/2007 – 8/2011 | Research Engineer | Louisiana Tech University, Trenchless Technology Center |
| 2/2008 – 8/2011 | Technical Consultant | Hach Co. / ELE International, Loveland, CO |
| 6/2003 – 8/2007 | Technical Advisor | Hach Co. / ELE International, Loveland, CO |
| 9/1996 – 8/2007 | Field Services Supervisor | CTL/Thompson, Inc. Consulting Geotechnical and Materials Engineers, Colorado Springs, CO |

RESEARCH INTERESTS

- The development of predictive methods to determine the long-term bearing capacity of deep foundation elements.
- Laboratory investigation of the long-term behavior of the interaction of soil and common construction materials (ie. concrete, steel, timber, polymers, etc.).
- The short-term and long-term interactive frictional characteristics of soil and buried infrastructure.

- The development of the design criteria of the thickness of spray-on polymeric rehabilitation materials (polyurethane and polyurea) installed in pressure pipelines based on strength and deformation behavior.

PROFESSIONAL AFFILIATIONS

American Society of Civil Engineers (**ASCE**) – Associate Member

American Society of Engineering Educators (**ASEE**)

North American Society for Trenchless Technology (**NASTT**)

United States Universities Council on Geotechnical Education and Research (**USUCGER**)

HONORS AND AWARDS

Recipient of the PDCA Richard J. Stromness Award of Excellence, 2013

Awarded to one person at the Professors' Driven Pile Institute voted on by peers

Nominated for the College of Engineering Excellence in Teaching Award, 2012 - 2013

Recipient of the Louisiana Tech University Board of Regents Fellowship, 2007 - 2011

Awarded to a student in the College of Engineering and Science pursuing a Ph.D. providing full tuition, fees, and living funding for up to 4 years

Recipient of the Charles P. Lake/Rain for Rent Scholarship, 2009

Awarded to three students per year from many universities at the NASTT No-Dig Conference

Recipient of Roy T. Sessums Outstanding Graduate Student Scholarship, 2008

Awarded to one student per year in the College of Engineering and Science at Louisiana Tech University

Nominated to the global Danaher Corporation Talent Pool, 2005

Nominated by the president of ELE International to develop and encourage a career develop plan to allow growth and opportunity within the Danaher Businesses.

GRADUATE STUDENTS

Master's Thesis

Marcus Shekouh, Chair, *current*

“Laboratory determination of the time-dependent interface frictional behavior between cohesive soil and construction materials”

Cody Salter, Committee Member, *current*

“Closed-form solution for couple-stress formulation of smoothly heterogeneous media”

Elisa Prado, Chair, August 2015

“Determination of LRFD resistance factors utilizing setup for driven pile design in Alabama soils”

Ronald Jones, Chair, May 2015

“Evaluation of pile setup using dynamic restrike analysis in the State of Alabama”

Kibum Kwon, Committee Member, (Chair – A.V. Phan), Dec. 2014

“LaPlace-SGBEM analysis of the dynamic stress intensity factors and the dynamic T-stress for the interaction between a crack and auxetic inclusions”

Matthew Tabor, Committee Member, (Chair – A. Whelton), May 2014

“The Affect of Rehabilitated Stormwater Infrastructure on Water Quality and Daphnia magna Toxicity: A Field and Laboratory Investigation”

Andrew Gillis, Committee Member, (Chair – J. Cleary), May 2014

“Utilizing driven pile installation to predict ground vibration propagation”

Thomas Hassall, Committee Member, (Chair – K. White), Dec. 2012

“Biological Nitrogen Removal: Process Fundamentals, Kinetics & Configurations”

Master’s Coursework

David Teague, 2014

Jared Landry, 2014

Greg Mercer, 2013

Samuel Sternberg, 2012

Blake Betbeze, 2012

UNDERGRADUATE RESEARCH STUDENTS

Brandon Smith, Fall 2013 - Spring 2014

“Organizing and evaluating pile setup using dynamic restrike analysis in the State of Alabama”

Raymond Buchanon, Jr., Summer 2013

“An experimental evaluation of the effects of eccentric loading on the compressive strength of concrete test specimens”

Marcus Shekouh, Summer 2013

“Laboratory determination of the time-dependent interface frictional behavior between soil and construction materials”

Thomas Dodd, Jr., Summer 2012

“Preliminary Study on the Compressive Strength of Saturated Concrete Resulting from Freeze-Thaw Conditions utilizing a Super Absorbent Polymer”

PROPOSALS FUNDED

Investigation of pile setup (freeze) in Alabama: Development of a setup prediction method and implementation into LRFD driven pile design; Alabama Department of Transportation (ALDoT)

Research Council; Date: Feb. 2013 – present

Team: **Eric Steward** and John Cleary

Awarded: \$809,855

Standardized test method to quantify environmental impacts of stormwater pipe rehabilitation materials; Oct. 2012 – present, Virginia Department of Transportation (VDOT),
Team: Andrew Whelton (PI), Kevin White, Anne Boettcher, **Eric Steward** **Awarded: \$146,761**

Oyster shell strength determination: The affects of rehabilitated shells with Polydora infiltration; Dec. 2012 – present, Auburn University Dauphin Island Sea Lab.
Team: **Eric Steward** **Awarded: \$2633**

An investigation of the time dependent increased interface frictional behavior between soil and construction materials April 2012 – September 2013 USA Faculty Development Council Grant
Team: **Eric Steward** **Awarded: \$7550**

How freezing affects the compressive strength of partial saturation of SAP Concrete
May – July 2012 USA University Council of Undergraduate Research
Team: **Eric Steward** and Thomas Dodd, Jr. **Awarded: \$2070**

An experimental evaluation of the effects of eccentric loading on the compressive strength of concrete test specimens May – July 2013 USA University Council of Undergraduate Research
Team: **Eric Steward** and Raymond Buchanon, Jr. **Awarded: \$2000**

Dielectric characterization of soils for GPR applications
May 15 - July 15, 2011 Funded by Underground Imaging Technologies
Team: Arun Jaganathan (PI), Neven Simicevic, and **Eric Steward** **Awarded: \$2500**

REFEREED JOURNAL PUBLICATIONS

Allouche, Erez N., Alam, Shaurav, and **Steward, Eric**, *Experimental Investigation of Pipe Soil Friction Coefficients for Direct Buried PVC Pipes*, ASCE Journal of Pipeline Systems (*Submitted*)

REFEREED SPECIAL PUBLICATIONS

Jones, R. and **Steward, E.** *Evaluation of Pile Set-up using iCAP Dynamic Restrike Software Analysis in the State of Alabama*, Geotechnical Special Publication, GSP #256, (IFCEE 2015), ASCE Geo-Institute, San Antonio, TX, pp. 980-989

Steward, E. and Shekouh, M. *Laboratory determination of the time-dependent interface frictional behavior between cohesive soil and construction materials*, Geotechnical Special Publication, GSP #256, (IFCEE 2015), ASCE Geo-Institute, San Antonio, TX, pp.1861-1869

Steward, E. *A laboratory process to determine the time-dependent increased interface frictional behavior between soil and construction materials*, GeoCongress 2012: State of the Art and Practice in Geotechnical Engineering GSP 225, ASCE, Oakland, pp. 175-184.

Steward, E. and Wang, X. *Predicting Pile Setup (Freeze): A new approach considering soil aging and pore pressure dissipation*, Geo-Frontiers 2011: Advances in Geotechnical Engineering GSP 211, ASCE, Proceedings of the 2011 Geo-Frontiers Conference, Dallas, pp. 11-19.

Wang, X. and **Steward, E.** *Predictions of pile setup and its resistance factors for South Louisiana*, Deep Foundations and Geotechnical In situ Testing GSP 205, ASCE, Proceedings of the 2010 GeoShanghai International Conference, Shanghai, China, pp.129-134.

CONFERENCE AND OTHER PUBLICATIONS

Whelton, A., Tabor, M., Boettcher, A., White, K., Newman, D., **Steward, E.** *Standardized test method to quantify environmental impacts of stormwater pipe rehabilitation materials*. Technical Report for Virginia Center for Transportation Innovation and Research, VCTIR # 15-R11. November 2014.

Steward, E., Allouche, E., Baumert, M. and Gordon, J. *Strength Testing of Rigid Polyurethane Spray-on Coating Under Internal Pressure*. Pipelines 2009: Infrastructures Hidden Assets, ASCE, Proceedings of the 2009 Pipelines Conference, August 2009, pp. 751-764.

Allouche, E., **Steward, E.** *Organic “High-Build” Spray-in-Place Liners – An Emerging Class of Rehabilitation Methods*, Underground Construction Magazine, June 2009, pp. 28-32

Wang, X., **Steward, E.**, Virma, N. *Estimating setup of driven piles into Louisiana clayey soils*, Technical Report for Louisiana Department of Transportation and Development, LTRC Project Number: 04-1GT, Report # FHWA/LA.09/46, November 2009

INVITED PRESENTATIONS

45th Southeastern Transportation Geotechnical Engineering Conference, Mobile, AL, Oct. 27 – 30, 2014, Title: *Evaluation of pile setup using dynamic restrike analysis in the state of Alabama*

55th Annual Alabama Transportation Conference, Montgomery, AL, Feb. 24, 2012
Title: *Predicting Pile Setup (Freeze) for Driven Pile Foundations*

OTHER PRESENTATIONS

Invited Speaker to ASCE Mississippi Gulf Coast Branch Meeting, Title: *Utilizing setup in the design of safe and economical driven piles*, Apr. 2013.

Invited Speaker to ASCE Mobile Branch Meeting, Title: *Utilizing setup in the design of safe and economical driven piles*, June 2012.

COURSES TAUGHT

| Semester | Course Number | Course Name | Enrollment |
|--------------------|---------------|---|------------|
| Fall 2011 | CE 443 | Geotechnical Engineering | 31 |
| | CE 441 | Geotechnical Eng. Lab (2 sections) | 30 |
| | CE 315 | CE Materials Lab | 20 |
| Spring 2012 | CE 340 | Soil Mechanics | 40 |
| | CE 490/590 | *Infrastructure Management and Sustainability | 35 |
| | CE 592 | *Pile Foundation Design | 1 |
| Fall 2012 | CE 443 | Geotechnical Engineering | 39 |

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| | CE 441 | Geotechnical Eng. Lab (3 sections) | 38 |
| | CE 590 | *Advanced Geotechnical Topics | 4 |
| Spring 2013 | CE 340 | Soil Mechanics | 35 |
| | CE 441 | Geotechnical Engineering Lab (3 sections) | 36 |
| | CE 590 | *Pile Foundation Design | 6 |
| Summer 2013 | CE 592 | *Pile Foundation Design | 2 |
| Fall 2013 | CE 443 | Geotechnical Engineering | 38 |
| | EG 283 | Statics | 36 |
| Spring 2014 | CE 340 | Soil Mechanics | 25 |
| | CE 341 | Soil Mechanics Lab (2 sections) | 24 |
| | CE 442/542 | *Foundation Engineering (Taught at UAH & UAB) | 46 |
| Fall 2014 | CE 443 | Geotechnical Engineering | 25 |
| | CE 490/590 | *Management and Sustainability of Civil Infrastructure | 12 |
| Spring 2015 | CE 340 | Soil Mechanics | 38 |
| | CE 341 | Soil Mechanics Lab (2 sections) | 39 |
| | CE 442/542 | *Foundation Engineering (Also taught at UAB) | 16 |
| Summer 2015 | CE 443 | Geotechnical Engineering | 12 |
| | CE 590 | *Advanced Geotechnical Topics | 2 |
| | CE 591 | *Pile Foundation Design | 2 |

*Indicates a Graduate Course

SERVICE

Service within the University of South Alabama

- American Society of Civil Engineers Student Chapter, Faculty Advisor, 2012 – present
- University General Education Committee, College of Engineering Representative, 2013 - present
 - Gen. Ed. Subcommittee on university oral communication requirements
- Commencement Faculty Marshall, College of Engineering Representative, 2013 – present
- E-week Experimentation presentation “Quicksand” to Middle school visitors, 2013, 2014
- Academic advisor for 20-30 Civil Engineering students each semester, 2011 – present
- University Freshman Orientation Dinner. Civil Engineering Representative, 2012, 2013
- Fundamentals of Engineering (FE) Exam Review, College of Engineering, 2011 – present
- Mobile Area Science Fair, Lead Engineering Judge, 2014

External Professional Service

- ASCE Geo-Institute Student Participation Committee
 - GeoPoster Student National Competition Judge, 2013 – present
 - GeoPrediction Student National Competition Judge, 2013 - present
 - Chair of the Student GeoPrediction Competition, 2014 - present
- ASCE Geo-Institute Deep Foundations Committee
- ASCE Alabama Section Winter Meeting 2013 Speaker Organizing Committee
- ASTM Voting Member of Committee D18 on Soil and Rock, 2015 - present
- Peer reviewer, ASTM Journal of Testing and Evaluation, 2014
- Peer reviewer, American Society for Engineering Education (ASEE), 2014 – present
 - Annual Conference: Construction Division, Civil Engineering Division

- Peer review, Journal of Ocean Engineering, 2012
- 2nd grade rock and soil presentations, Rockwell Elementary School, 2012 and 2013
- 5th grade rocks and minerals presentation, Rockwell Elementary School, 2014

Community Service

- MLK Day of Service, Engineering project, 2013, 2014
- Volunteer with the Mobile Family Promise Homeless shelter, Nov. 2013 - present
- Organized Mobile Exploreum service project, Sept. 2013
- Habitat for Humanity Projects, 2012 – present