LUCAS A. BEATTIE, P.E.

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LICENSURE

NCEES Principles and Practice of Engineering (PE) Exam   Passed Oct. 2017

- Licensed in Kentucky, Ohio, Alabama, and Georgia

EXPERIENCE

Palmer Engineering   Crescent Springs, KY
Project Engineer   Aug. 2018 – Present

- Designed new construction bridges for both Kentucky and Ohio.
- Superstructure types designed include rolled steel beam, prestressed I-girder, and precast box beam superstructures.
- Substructure design types include semi-integral abutments on piles, drilled shafts, spread footings, and integral abutments on steel and concrete piles.
- Designed several highway sign structures using SAP2000 and Excel VBA Macros, and performed analysis and design for KYTC in developing updated highway sign structures standard drawings for LFRD compliance.
- Load rated bridges of various types for both Kentucky and Ohio, including trusses, prestressed concrete bridges, concrete arches, and steel girder bridges utilizing softwares including LARS Bridge, AASHTOWare Bridge Rating, and SAP2000.
- SAP2000 was utilized for some of the less standard load ratings such as a truss with cable elements, truss gusset plates, and two concrete arches, along with Excel and VBA (Excel macros) for processing and organizing the associated data.
- Load rated bolted gusset plates on various bridges in Kentucky, including performing the basic and refined corner checks for more accurate controlling loads.

RS&H, Inc.   Atlanta, GA
Bridge Engineer   Jul. 2017 – Jul. 2018

- Completed design of two reinforced concrete integral abutments as well as QC of two conventional reinforced concrete backwall abutments for a job in North Carolina. All of these abutments were on steel H-piles, and RC-Pier was used for the design along with some Excel spreadsheets I created for the wingwall design.
- Inspected over 180 bulkheads for damage after hurricane Irma in Jacksonville, FL, reporting findings and suggested actions to the city for rebuilding and maintenance efforts.
- Used Georgia Skew to calculate deck elevations for more than 20 bridges on a large project in Jacksonville, FL, created an Excel VBA Macro to greatly speed up the calculation process, and drafted several associated project sheets in MicroStation.
- Designed over 20 span and cantilever highway sign structures for a large project in Jacksonville, FL utilizing FDOT's Mathcad design software, as well as Excel and SpColumn for further design checks.
- Performed preliminary bridge design calculations for cost estimation on a project in Virginia and calculated several bridge quantities as well as a preliminary design for a cantilever reinforced retaining wall.
- Studied for and passed the PE exam during this time and obtained licensure in both Alabama and Georgia.

EEFS Company, PC   Bessemer, AL
Structural Project Engineer   Jun. 2014 – Jun. 2017
- Performed complete design calculations and project plans drafting for various single and multi-span bridges per AASHTO Bridge Design Specifications including LRFD, LFD, and ASD procedures, as required by the state or other client. Designs completed include prestressed concrete girders, drilled shaft foundations, and reinforced concrete abutments and piers.
- Designed reinforced concrete tunnel and large retaining wall system for Mercedes-Benz facility in Vance, AL, using ACI 318.
- Automated creation of STAAD.Pro models using Excel and VBA Macros for efficient iterative structural analysis.
- Designed open pavilion structures for local parks and several building foundations using ACI 318, ASCE 7, AISC Steel Construction Manual, and NDS for Wood Construction.

EDUCATION

University of Kentucky
M.S in Civil Engineering   Jan. 2013 – May 2014
- Graduate GPA: 4.0

B.S.in Civil Engineering (Summa cum Laude)   Aug. 2009 – May 2013
- Undergraduate GPA: 3.94

SOFTWARE PROFICIENCIES

SAP2000/CSi Bridge – Finite element modeling and analysis. Used for design, analysis, and load ratings, as well as seismic design at Palmer Engineering.
Microsoft Excel/VBA Macros – Extensive practice and knowledge of Excel, including work with VBA macros.
Group/LPile – Laterally loaded pile and pile group with footing modeling and analysis. Modeled substructures at EEFS Company and Palmer Engineering.
RC-Pier – Bridge substructure design software. Utilized in abutment, pier, and drilled shaft design.
PSBeam – Prestressed girder design software.
MDX – Steel beam/girder design and rating.
LARS Bridge – Bridge load rating software used for load rating several bridges in Kentucky.
AASHTOWare Bridge Rating (BrR) – Used for load rating several bridges in Ohio.
Mathcad – Diverse engineering calculation creation. Utilized in school for computationally intensive assignments and professionally for design spreadsheet development.
Bentley MicroStation/AutoCAD – Substantial drafting experience.

HONORS AND AWARDS

University Honor: Summa Cum Laude – Awarded for a grade-point average of 3.8 or higher for at least three years (90 hours) of work at the University of Kentucky.
Tau Beta Pi Inductee – Membership offered to top one-eighth of class.
Dean's List (each semester) – Awarded to undergraduate students who earn at least a 3.6 GPA in twelve or more hours of courses with a letter grade.
Valedictorian Scholarship – Awarded for highest GPA at Southwestern High School.
Eagle Scout – Highest rank achieved in the Boy Scouts of America.