



## JAMES BARCOMB, PE

### Senior Engineer



**Education:** BS, Civil Engineering, 1992, North Carolina State University, Raleigh, NC  
MS, Civil Engineering, 1993, North Carolina State University, Raleigh, NC

**Registration:** Professional Engineer: North Carolina License 022997

**Affiliations:** National Society of Professional Engineers  
American Society of Civil Engineers  
American Society of Highway Engineers  
American Concrete Institute  
The Masonry Society

### Professional Summary

Jim has over 27 years of transportation-related project experience in the design and construction of bridge/structural and highway projects throughout North Carolina. This experience includes design-build pursuits, NCDOT and municipal bridge replacement projects. His fields of expertise include management of multi-discipline projects, design and preparation of transportation plans, specifications, estimating, and supervision and direction of personnel. He has experience in highway design, flood analysis, drainage facilities, utilities, traffic control, signing, pavement markings and delineation, erosion control, construction cost estimates, contract documents.

NCDOT R-0204E Roadway Widening, McDowell County, NC (principal)

NCDOT U-5115 Roundabout, Matthews, NC (principal)

B-5242, Barringer Drive Bridge Replacement, Charlotte, NC (project manager)

B-5543, Thunder Bridge Replacement, Whispering Pines, NC (project manager)

Division 8 Group I Bridge Replacements, Moore County, NC (principal)

NCDOT Division 13B Express Design-Build Year 3 (shortlist) (project manager)

NCDOT Division 7B Express Design-Build Year 2 (award), (principal – hydro/structures/WZTC)

NCDOT Division 7A & 7B Express Design-Build Year 1 (shortlist) (project manager)

NCDOT Division 14 Group 1, 9 Bridge Replacements (program principal)

### Experience:

#### LATEST PROJECTS WITH A&O GROUP (thru 2021)

##### **Winston Salem Bridge Repair, Winston Salem, NC**

Design engineer for proposed repairs to steel beams of bridge superstructure.

##### **Municipal Bridge Load Ratings, Clemmons, Kernersville, and Winston Salem, NC**

Engineer of Record for load rating analysis on NCDOT bridges.

##### **Merck Mezzanine Analysis, Wilson, NC**

Structural analysis of the existing framing components and deck of the mezzanine level to determine adequacy for the applied live loads.

##### **Carolina Pines Boardwalk, Raleigh, NC, 2020**

Engineer of Record for substructure and steel approach spans for pre-fabricated pedestrian bridge over Carolina Pines Pond as part of a larger road widening project.

##### **Carolina Springs, Holly Springs, NC, 2020**

Engineer of Record for top-down constructed timber pedestrian bridge and boardwalk and vehicular bridge.

**Lake Orange Erosion Control Barrier Replacement, Orange County, NC 2020** Engineer of Record for structural upgrades to a 40-foot-high earthen dam for a 150-acre surface water reservoir owned by Orange County. Work consisted of design for articulating concrete block revetment mats and poured-in-place concrete walls to repair and reduce future erosion issues of slopes upstream and adjacent to outfall weir.

**Weddington Bridge Analysis, Concord, NC, 2021** Project design engineer for concept for a standalone, pre-fabricated steel pedestrian bridge that would allow the City to widen the existing sidewalk from 5 feet to 10 feet for multi-path use and provide connection with the future Rocky River Trail.

**Tri-Pointe Homes Barlow Subdivision, Raleigh, NC, 2021** Structural designer for two cast-in-place reinforced concrete headwalls at Station 14+13.79 Berry Crest Avenue. Designed in accordance with the NCDOT current edition of the Structure Design Manual, AASHTO, North Carolina State Building Code (2018), The ACI Building Code (318) and City of Raleigh Standards.

**NCDOT 17BP.2.PE.94 - Bridge 14 Replacement, Pamlico County, NC, 2022** Structural designer to replace an existing bridge constructed in 1964 that crosses Beard Creek on NC Secondary Route 1005. Replacement is a three-span prestressed precast, concrete, cored-slab type supported by cast-in-place reinforced concrete caps supported by steel piles. The new bridge is approximately 42 feet longer than original.

**NCDOT BP2.R002.1 - Bridge 28 Replacement, Pamlico County, NC, 2022** Structural designer to replace an existing bridge constructed in 1964 that crosses Cedar Gut Creek on NC Secondary Route 1005. Replacement is a three-span prestressed precast concrete cored-slab type supported by cast-in-place reinforced concrete caps supported by steel piles. The new bridge is approximately 42 feet longer than original.

**NCDOT BP2.R001.1 Craven County Bridge 66 Replacement, Craven County, 2022** Structural designer to replace an existing Bridge 240066 on Cicero Riggs Road (SR 1232) over Grape Creek. Replacement is a two-span prestressed precast concrete cored-slab type supported by cast-in-place reinforced concrete caps supported by steel piles. The new bridge is approximately 102 feet long.

#### **Bridges:**

**B-5114, Bridge Design, Guilford County, NC, 2013** – Principal engineer for two span AASHTO prestressed girder bridge replacement.

**NCDOT B-5109, Bridge Design, Union County, 2013** – Principal engineer for three span, 135-ft, horizontal curved superstructure with chorded AASHTO prestressed girders bridge replacement for Bridge #29 on NC 218 over Goose Creek between NC SR1543 and NC SR2323 in Union County, NC.

**B-4701, Bridge Design, Alleghany County, NC, 2013** – Principal engineer for three-span, 135-ft, horizontal curved superstructure with chorded AASHTO prestressed girders bridge replacement for Bridge #15 on NC SR1341 over Elk Creek between NC 93 and NC SR1338 in Alleghany County, NC.

**17BP.8.R.8, Moore County, NC, 2013** – Principal engineer for a single span, 50-ft, 21-inch prestressed cored slab bridge replacement for Bridge #30 on NC SR1809 over Crance Creek between NC 24/27 and NC SR1805 in Moore County, NC.

**17BP.8.R.14, Moore County, NC, 2012-2013** – Principal engineer for a single span, 100-ft, 39-inch prestressed box beam bridge replacement for Bridge #174 on NC SR1403 over Williams Creek between NC SR1410 and NC SR1405 in Moore County, NC.

**NCDOT B-4817, US 74 Bridge Replacement, Scotland County, NC, 2012-2013** – Project principal for the replacement of the existing bridge on US 74.

**B-3929, Charles Creek Bridge Replacement, Elizabeth City, NC, 2008-2011** – Project manager for the replacement of the existing bridge over Charles Creek and installation of additional bulkhead along the west bank of Charles Creek. The historic significance of the bridge and the adjacent neighborhoods were critical aspects. Project involved coordination with NCDOT.

**Falls of Neuse Road Widening, Wake County, NC (City of Raleigh), 2006-2008** – As structural engineer, handled QA for the completion of final plans for the realignment and extension of Falls of Neuse Road to New Falls of Neuse Road located northeast of the City of Raleigh. Project included a new three-span PSCG dual bridge over the Neuse River.

**U-5117, Walker Street Extension under CSXT and NS Railroads, Wake County (Town of Cary), NC, 2007-2011** – Project manager for design.

**Briar Chapel - Four Pedestrian Bridges, Chatham County (Newland Communities), NC, 2005-2006**  
Project manager/engineer for design.

**Terminal C Building, RDU Airport, Raleigh, NC, 2003-2008** – Structural design manager/engineer.  
Dual Bridges on US 64 Bypass over US 64 Business, NCDOT, Wake County, NC, 2001-2002 Engineer of Record for the design of a single-span steel plate girder structure. The 81-meter-long, horizontally curved girders consist of a 1,450-mm web depth with a composite cast-in-place concrete deck.

**NCDOT Dual Bridges on US 64 Bypass over –RPBDY1, Wake County, NC, 2001-2002** – Engineer of Record for the design of a single-span steel plate girder structure. The 47-meter-long girders consist of a 1,700-mm web depth with a composite cast-in-place concrete deck.

**FDOT Miami Intermodal Center/Miami International Airport Interchange, Miami, FL, 2003** – Design manager for sign structures and temporary retaining structures for widening improvements to 21st Street and Lejeune Road Interchange. Design included sheet pile, temporary MSE wall and soldier pile design for complex MOT requirements including 14 phases and widening of four structures on 21st Street. Sign structures included three overhead and five cantilever structures.

**Morrisville Parkway Extension over Hatchet Creek Tributary, Wake County, NC (Town of Cary), 2003-2008** – Project manager for design of new stream crossing. Project included all hydraulic, roadway, utility and structural design, permitting.

**Glasgow Road over MacGregor Dam Spillway Bridge Replacement, Wake County, NC (Town of Cary), 2002-2003** – Project manager for replacement of 90 foot, three-span bridge structure over dam spillway. Project includes all hydraulic, roadway, utility and structural design, permitting, bidding and inspection services. Town added supplemental work to include hydraulic study and foundation design for additional upstream bridge replacement project.

**NCDOT R-2000AB, I-540 Ramps over Davis Drive (Site 1 & Site 4), Wake County, NC, 2002-2004** – Project manager for design, plan preparation and review of two 60± meter two-span continuous-for-live load chorded concrete 1600mm modified bulb-tee girder structures.

**TDOT Bridge on US 441 over the Tennessee River and Roadway Widening Improvements, Knox County, Tennessee, 2004-2011** – Project manager/Engineer of Record for final design phase involving field

inspection, bridge condition evaluation, surveys, seismic design, vessel collision design, preliminary, right of way, and construction plans for 1,720-foot long, six-span open spandrel reinforced concrete arch bridge with a three-span concrete deck girder approach at each end of the bridge. The goal of this rehabilitation project was to bring the existing bridge up to modern safety, live load, vessel collision, and current seismic standards, while increasing the number of lanes from five to six. When completed, the structure will be the longest jointless multi-span open spandrel deck arch bridge in the world.

**Ellis Street Bridge Replacement over Norfolk Southern Railroad, Salisbury, NC, 2002-2005** – Project structural engineer responsible for the preparation of planning and environmental documentation including Section 4(f) evaluation for a street/railroad bridge replacement in the historic section. Included planning, development, and environmental (preliminary and final design) of a roadway approach and a railroad separation structure.

**Copley Parkway over Stirrup Iron Creek, (Private Developer) Wake County, NC, 2001-2002** – Project manager/lead engineer for replacement of 90-foot, three simple spans, prestressed concrete channel superstructure on pile supported reinforced concrete cap bents with 60-foot simple span prestressed concrete cored slab superstructure on abutments. Included all hydraulic, roadway, utility and structural design, permitting, bidding and inspection services. Cored slab units used 0.6" strands and high strength concrete to reduce construction costs.

**MHD Route 3 North Design-Build, Massachusetts, 2001-2002** – Senior engineer for design, plan preparation and review of four simple span steel plate girder structures on concrete abutments on Route 3 over Dunstable Road and Middlesex Connector, and two-span continuous steel plate girder structure on concrete abutments on Lowell Connector over Route 3.

**Forest Pines Drive over Richland Creek, (Private Developer) Wake County, NC, 1999-2000** – Project manager for design of 150-foot, three simple spans, prestressed concrete cored slab superstructure on pile supported reinforced concrete cap end bents and interior bents. Bridge was on a 70-degree skew with geotextiles reinforced end slopes. Interior bent required design for over 20 feet of scour.

**NCDOT I-306DC, I-85/US 70 Interchange, Wake County, NC, 1996-1998** – Project manager/engineer for design of 138-meter, two-span continuous curved structural steel girder bridge with a 133- to 148-degree skew and 336-meter, seven-span curved structural steel girder flyover with a 90-degree skew, in high traffic corridor. Included coordination of complex traffic control issues, earth retaining system and non-standard end bent and approach slab structures and design of curved hammerhead and modified post and beam bents.

**NCDOT R-2248BA, I-85/I-485 Interchange (Charlotte Outer Loop), Mecklenburg County, NC, 1997-1998** – Project manager/engineer for design of 102-meter, three-span continuous curved structural steel girder superstructure supported on pile end bents and modified post and beam interior bents on pile foundations and 302 meter, eight-span curved structural steel girder superstructure supported on pile end bents and curved hammerhead bents with pile and spread footing foundations. Horizontal alignment of 51- to 74-degree skew, curve over tangent and 90-degree skew, curve over tangent, respectively.

**NCDOT R-2123AC, NC 51 over I-485 (Charlotte Outer Loop), Mecklenburg County, NC, 1997-1998** – Project engineer for design, plan preparation and review of two-span continuous curved steel plate girder structure.

**NCDOT B-2531B, Neuse River Bridge Replacement/Interchange, Craven County, NC, 1997** – Project engineer for four-span p/s concrete ramp extension structure. Substructure consists of p/s concrete pile bents with ship impact consideration.

**Sandy Fork Creek, WV, 1997** – Project engineer for design of three-span p/s concrete bridge replacement. Consisted of three p/s concrete girders on hammerhead bents for a single traffic lane.

**U-3408, Cary Parkway Ext. over Norfolk Southern Railway, (Private Developer) Wake County, NC, 1996** – Design engineer for preliminary design of dual three-span steel plate girder structures.

**NCDOT B-2659, Johnston/Wayne County, NC, 1996** – Project engineer for design, plan preparation and review of three-span p/s concrete slab structure over stream.

**NCDOT B-2655, SR 3008 (Hillsborough Street) over NS and CSX Railroad, Wake County, NC, 1995-1996** – Design engineer for preliminary design of single span steel plate girder structure over railroad.

**NCDOT B-3059, SR3007 (Morgan Street) over NS and CSX Railroad, Wake County, NC, 1995-1996** – Design engineer for preliminary design of five-span steel plate girder structure over railroad.

**NCDOT R-2248AB Brown-Grier Road over I-485 (Charlotte Outer Loop), Mecklenburg County, NC, 1995** – Project engineer for design, plan preparation and review of two-span continuous steel plate girder structure.

**NCDOT R-512E Dual Bridges on US 74 Bypass over NC 36, Richmond County, NC, 1995** – Project engineer for design, plan preparation and review of dual three-span p/s concrete girder structures.

**Windemere Bridge (Private Developer), Iredell County, NC, 1994** – Project engineer for design, plan preparation and review of six-span prestressed concrete girder bridge over Lake Norman, including design of 25-foot high retaining wall system.

**Flynt Bridge, (Private) Winston-Salem, NC, 1995** – Project engineer for analysis, design, plan preparation and review for reinforcement of 100-foot Pratt Truss bridge.

#### ***Bridge & Culvert Inspections:***

**Bridge Inspections, NCDOT, 1994-2013** – Senior engineer/Team leader/Project manager/Principal-in-Charge for consecutive contracts to field inspect, perform rating analysis and prepare reports for municipal and state-owned bridge and culvert structures:

1994 - 94 municipal bridges in eastern North Carolina

1996 - 228 municipal bridges in Charlotte, NC & central North Carolina

1997 - 53 municipal bridges in Charlotte, NC – interim

1998 - 271 municipal bridges in Charlotte, NC & western North Carolina

2000 - 108 municipal bridges in western North Carolina

2006 - 114 municipal bridges in central North Carolina

2008 - 130 municipal bridges in central North Carolina

2010 - 116 municipal bridges in central North Carolina

2012 - municipal and state bridges across North Carolina

2012 - signal pole inspections (principal)

2012 - 250 municipal bridges in Charlotte, NC (principal)

2014 - municipal and state bridges across North Carolina

2014 - 250 municipal bridges in Charlotte, NC (principal)

2016 – municipal and state bridges across North Carolina - selection in 2015

2016 - 250 municipal bridges in Charlotte, NC (principal) - selection in 2015

2004 Inspection of Gus Hasty Bridge, 1500 ft with 300-foot steel truss over Cape Fear River

2006 Inspection of Virginia Dare Bridge, 5.2-mile PPC girder and post-tensioned PPC girders over Croatan Sound

2008 rating analysis of Albemarle Sound and Hobucken concrete segmental bridges

2009 load testing of seven bridges/culverts statewide  
2010 load testing of two bridges/culverts statewide  
2010 posting/repair feasibility reports for six posted primary route bridges  
2011 load testing of six bridge/culverts statewide  
2011 corrosion testing of post-tension strands of Albemarle Sound Segmental Bridge  
2013 load rating of buried structures, RCBC

**Liberty Bridge Inspection, City of Greenville, SC, 2009-2015** – Team leader/Project manager/Principal-in-Charge for four consecutive contracts to field inspect, prepare reports and maintenance recommendations for cable suspension pedestrian bridge in Falls Park for Greenville Parks and Recreation.

***Construction Engineering & Inspections:***

**NCDOT Bridge on US 17 over Northeast Cape Fear River, New Hanover County, NC, 2004** – Bridge engineer for construction support services for the 10,000-foot long bridge supported by piers on drilled shafts in water. Services included shop drawing reviews and technical design office support services.

**B-3929, Charles Creek Bridge Replacement, Elizabeth City, NC, 2011**

**General Engineering Consultant Contract No. 5 – CSX Transportation Railway, Richmond and Atlanta Districts** – Project manager for preliminary engineering and construction inspection of railway projects located in eastern Tennessee, Georgia, South Carolina, and North Carolina. Projects include the construction of bridges, track work, drainage systems, and retaining wall structures, review of erection and demolition plans, and follow-up correspondence to ensure construction activities adhere to CSX requirements.

**Hamlet Depot Relocation, CSX Transportation Railway, Richmond District** – Project manager for on-site representation of Historic Train Depot Relocation in Hamlet, NC for rehabilitation and use by Amtrak. Moved building across tracks to new location and replacement of track diamond.

**Copley Parkway over Stirrup Iron Creek, Wake County, NC**– Project manager/Inspector for full-service project with complete CEI Services. Performed periodic field inspections and Material Testing Report review.

**FBOP Butner FCI-3 Institutional Firing Range, Butner, NC**– Project manager/Inspector for full service project with complete CEI Services. Performed periodic field inspections and material testing report review.

**Taxiway D Relocation and Terminal C Apron Expansion, RDU Airport, NC**– Full service project with complete CEI Services. Performed periodic field inspections for structural components when project enters construction in March 2003.

**PGI Non-Wovens Design-Build, All U.S. Sites** – Performed periodic structural inspection of all construction during project duration. On-site for 6 months full time for Arkansas renovation.

**Morton International Design-Build, Wytheville, VA** – Full service project with complete CEI Services. Performed periodic field inspections for structural components.

**Longview Baptist Church (Private), Raleigh, NC** Performed periodic structural inspection of all construction during project duration.

**Cape Fear Regional Hospital, Wilmington, NC** – Inspection and evaluation of existing structure for placement of imaging equipment.

**Carolina Power & Light, Raleigh, NC** – Performed visual inspection and evaluation of fossil fuel power plant structural systems, including boiler and precipitator steel, hangers and ductwork supports, foundations and coal handling equipment at Weatherspoon, Mayo and Cape Fear Plants.

#### ***Marine Port Facilities Projects***

**Assessment Berth Aprons, Port of Morehead City, North Carolina State Ports Authority, 2006** – Duties included technical review evaluating existing condition of asphalt and concrete pavements, crane rails, drainage, utilities, and curbs. Directed preparation of report and provided review and comments for results of the evaluations, maintenance recommendations, cost estimates, and capital improvement plan.

#### ***Building Structures:***

**23rd Fighter Group Facility Design, Pope Air Force Base, NC** – Design manager and Project structural engineer for two building additions and one new building. The facilities will be used for offices and training rooms. The URS team includes architects, structural, civil, environmental, mechanical, electrical, plumbers, interior designers, registered surveyors, and fire protection specialists to provide development of plans, specifications, and cost estimates for bidding. All drawings are prepared in AutoCAD format in conformance with Special Data Standards for Facilities, Infrastructure, and Environment (SDSFIE). The estimated construction cost is \$1,850,000.

**FBOP Butner FCI-3 Crisis Management Building-Design-Build, Butner, NC** – Project manager for design of armory, training and staging building for DOC personnel. Building included Class A and B secure construction.

**FBOP Butner FCI-3 Institutional Firing Range Design-Build, Butner, NC** – Project manager for design of canopy, office and classroom building for 24-station, Outdoor Firing Range.

**Durham Armory HVAC Platform, Durham, NC** – Design of modifications to existing HVAC steel support framework to accommodate access and future replacement of HVAC units. Improvements include grating and enlarged area for workers, steel railing and ladder to meet OSHA requirements.

**Morreene Road Park Recreation Center Repairs, Durham, NC** – Evaluation of building settlement including borings under slab and adjacent to footing to determine possible cause of settlement and cracking of building. Prepared structural assessment of building conditions and proposed remedial course of action to bring building back to useable condition. Currently preparing repair plans for installation of foundation and CMU wall repairs.

**PGI Non-Wovens, Saudi Arabia** – Project engineer for equipment foundation design of new textile facility.

**PGI Non-Wovens Design-Build, Benson, NC** – Project manager for repair and replacement of roof structure over carder and dryer equipment on active production lines. Included field inspection, analysis and design of repairs for heavily corroded steel roof structure.

**PGI Non-Wovens Design-Build, Little Rock, AR** – Project manager for building portion of \$120M project to construct a 77,000-square feet addition and renovate 177,000 square feet of existing textile plant. Work included design of mat, isolated and spread footing for new structural steel framing and equipment, design of structural steel column replacement, sub-roof framing structure, mezzanines, new penthouse, crane frames and temporary shoring. This design-build project was fast tracked and required extensive on-site design and construction administration including one to two engineers full-time for five months.

**Morton International Design-Build, Wytheville, VA** – Project manager for renovation of powder coating plant. Work involved structural design of new penthouse, two mezzanines and steel supports for the relocation of three production lines.

**Longview Baptist Church (Private), Raleigh, NC** – Project manager/engineer for design of 7200sf addition to church facilities. Design included foundation and metal stud wall system design with wood truss roof structure.

**Carolina Power and Light, Raleigh, NC** – Assisted project manager with site inspection of seven coal fired power plants. Involved visual inspection and conditional assessment of all structural steel components from boiler frame to coal handling facility to duct and pipe supports.

**D. H. Griffin Construction Material Reclamation Center, Raleigh, NC** – Design of concrete foundations and bin walls for two recycling facility buildings. Design addressed storage of materials, equipment and open-air canopy structure for workers.

**Benchmark Aggregates, Wake Forest, NC** – Foundation mat and concrete pier design for four modular buildings. Design considerations included the penetration of numerous large electrical conduit and uplift due to wind load.

**North Carolina Math and Science Building, Durham, NC** – Grading, selective demolition and general demolition for condemned power house on campus. Work involved removal of historically significant items from structure prior to demolition and civil work to provide new park area. Building is on the National Historic Register.

**Dismal Swamp State Park, Camden County, NC** – Project engineer for preliminary and design development stages of structural design for a Visitor's Center and pedestrian bridge. Building is wood and timber construction on timber piles.

**Enplane Deck Concrete Repairs at Terminal C, RDU Airport, NC** – Design engineer for structural investigation and development of contract documents, and construction administration of concrete repairs to the Enplane Deck at Terminal C. Work involved concrete spall repairs, expansion joint repairs and applied a waterproofing coating to the concrete surface to prevent moisture intrusion into the concrete. Work occurred at night to minimize disruption to the airports normal service operations.

**Carter-Finley Stadium Press Box Renovations, NCSU, Raleigh, NC** – Design engineer for design of catwalk on the existing roof to provide access to the existing stairwells in the event of a fire. The catwalk is reinforced concrete supported by structural steel beams on pipe columns anchored through the existing roof to the structural system. The existing stairwells were enclosed to meet current fire codes. Work included structural design, review and approval through the State Construction Office, construction administration and project closeout documents.

**Rick's Hall Parapet Wall Restoration, NCSU, Raleigh, NC** – Structural investigation, condition survey, the preparation of plans and specifications and construction administration for the repair of Rick's Hall parapet wall. The work included the design of a steel support structure for a non-reinforced masonry parapet wall 8' to 10' high, 26 roof penetrations, application of a cementitious structural skin, and the re-pointing of the entire building.

**Repairs to Bragaw Dormitory, NCSU, Raleigh, NC** – Structural investigation and development of contract documents, and construction administration of concrete repairs. The work included concrete and brick repairs, testing of concrete products, installation of a pedestrian traffic membrane system, and spall repairs to six stairwells.

**Carter Finley Stadium Caisson Cap Repairs, NCSU, Raleigh, NC** – Design and construction administration services for epoxy injection repair of concrete caisson caps.



**Riddick Hall Reactor Control Room Service Catwalk, NCSU, Raleigh, NC** – Design and Construction administration services for installation of service catwalk above the ceiling in reactor control room. Included installation of new ceiling grid, tile and access.

**Kilgore and Gardner Hall - HVAC, NCSU, Raleigh, NC** – Design and evaluation of roof structure and support frames for HVAC system replacement. Work included analysis of existing structure for proposed equipment loads and penetrations.

**New Hanover Regional Hospital, Wilmington, NC** – Design and evaluation of roof structure and support frames for HVAC system replacement. Work included analysis of existing structure for proposed equipment loads.

**Dowery Creek Condominiums, Belhaven, NC** – Project engineer for structural design of three-story wood-frame condominiums on timber piles in coastal zone.

**Chowan Medical Office Building (Private), Pasquotank County, NC** – Project engineer responsible for structural design of single-story building. Design included extensive truss work over glass at examination rooms and lobby with steel and wood framing on concrete slab. Entrance consisted of exposed timber truss canopies over drive.

**Fort Macon Restoration, Carteret County, NC** – Design engineer responsible for the analysis of brick arches at Fort Macon.

**Veterans Administration Medical Center, Butner, NC** – Design engineer responsible for layout and design of slab formwork for multi-story medical facility.

**Walnut Creek Business Park Buildings 1 & 2 (Private), Raleigh, NC** – Project manager/engineer for design of concrete tilt-up panels for 160,000 square feet of single-story commercial flex space. Design included tilt-up panel design and connection detailing.

**Two Gateway Centre (Private), Morrisville, NC** – Project manager/engineer for design of concrete tilt-up panels for over 60,000 square-foot single-story commercial flex space. Design included tilt-up panel design and connection detailing.

**Berkshire Corporation (Private), Orange County, NC** – Project manager/engineer for design of concrete tilt-up panels for over 60,000 square-foot single-story commercial flex space. Design included tilt-up panel design and connection detailing.

**Alcatel Network Systems Mezzanine Analysis, Raleigh, NC** – Design Engineer for load rating of nine steel frame mezzanines. Analysis of grating, stringers, beams, and columns to determine maximum allowable loading for each mezzanine. Work required field investigation of each mezzanine. Layouts, analysis, and recommendations for retrofitting to conform to required loadings was also performed.

**David Weekley Homes (Private), Wake County, NC** – Project engineer for foundation and framing design of residential development. Designs were for five models requiring coordination with Architect and Contractor to resolve design conflicts.

**Mechanical Penthouse Addition, Wake Medical Center (County), Raleigh, NC** – Design engineer responsible for analysis and structural reinforcement design of the main hospital buildings as part of vertical expansion and code compatibility for seismic loads. The building consists of a three-story steel frame structure with mechanical penthouse addition.

**UNC Hospital, Chapel Hill, NC** – Site layout and structural design for renovation and addition to Cardiac Catheter Center. Work included design of reinforced concrete foundations and masonry walls, analysis and modification to existing steel frame structure.

### **Hydraulics:**

**NCDOT W-5107, US-70, Johnston County, NC**

**NCDOT NC 43 Connector Design-Build, Craven County, NC** – Prepared design development level plans for hydraulic scope of work for NCDOT TIP Project R-4463B to extend NC 43 approximately 2.5 miles during the proposal phase.

**NCDOT Highway Stormwater Program, Statewide, NC** – Project coordinator for 12 year- (2004-2015), \$9.5 million stormwater program to NCDOT to incorporate NPDES Phase 2 requirements into their Term 2 Phase 1 permit. Worked with management team to develop budgets, task order scopes, scheduling, program planning and implementation of web-based program management tools.

**Morrisville Parkway Extension over Hatchet Creek Tributary, Wake County, NC** – Project manager for all hydraulic/hydrologic for proposed bridge. Crossing was on jurisdictional waters in unnumbered Zone A requiring HEC-2 model and NCDENR riparian and dam permitting. Submitted CLOMR to add elevations for area to FIRM.

**Glasgow Road over MacGregor Dam Spillway Bridge Replacement (Town of Cary), Wake County, NC** – Project manager for all hydraulic/hydrologic for bridge replacement project over dam spillway. Crossing was on jurisdictional waters requiring HEC-2 model and NCDENR riparian and dam permitting.

**Copley Parkway over Stirrup Iron Creek (Private Developer), Wake County, NC** – Project manager for all hydraulic/hydrologic for bridge replacement project. Crossing was on jurisdictional waters requiring HEC-2 model and NCDENR permitting.

**Walnut Creek/Rocky Branch Greenway, Raleigh, NC** – Project manager/engineer for hydraulic/hydrologic design of four stream crossing for Municipal Greenway System. Prepared HEC-2 study and report for submittal to FEMA for CLOMR.

**Bolin Creek Greenway (Town of Chapel Hill), Orange County, NC** – Hydraulic analysis included HEC-2 modeling for Bolin Creek, preparation and submittal of CLOMR application and floodway maps with channel relocation. Structure design included modular retaining wall.

**NCDOT R-2000F I-540 (North Wake Expressway), Wake County, NC** – Performed hydraulic design for multi-lane divided roadway on new alignment. Work included ditch, storm water system and erosion control design expressway, secondary roads and two diamond interchanges. Project was performed in metric units.

**NCDOT R-2123BA I-485 (ECOL), Mecklenburg County, NC** – Performed hydraulic design for multi-lane divided roadway on new alignment. Sections included a half-clover/half diamond interchange, railroad bridge drainage. Project was performed in metric units.

**NCDOT R-2123AC I-485 (ECOL), Mecklenburg County, NC** – Performed hydraulic design for multi-lane divided roadway on new alignment. Sections included two diamond interchanges. Analysis included HEC-2 modeling and preparation of culvert survey reports. Project was performed in metric units.

**NCDOT I-2506 Tyvola Road, Charlotte, NC** – Performed hydraulic designs for single point urban interchange with five lane curb and gutter roadway approaches. Analysis included HEC-2 modeling and preparation of three culvert survey reports. Project was performed in metric units.

**NCDOT R-2217A US 64, Randolph County, NC** – Hydraulic design for widening an existing two-lane roadway to a four-lane divided roadway for 11.2 kilometers. Work included ditch, curb and gutter, stormwater system and erosion control design. Sections of the project included five-lane curb and gutter, five-lane shoulder section and four-lane divided highway. Project was performed in metric units.

**NCDOT R-2248AB I-485 (WCOL), Mecklenburg County, NC** – Performed hydraulic design for multi-lane divided roadway on new alignment. Sections included two diamond interchanges. Analysis included HEC-2 modeling and preparation of culvert survey reports. Project was performed in metric units.

**NCDOT R-218AB NC 13, Pitt County, NC** – Hydraulic design for widening of existing roadway. Work included ditch, stormwater system and erosion control design.

**NCDOT R-512C US 74 Bypass, Richmond County, NC** – Performed hydraulic design for multi-lane divided roadway on new alignment. Sections included two diamond interchanges. Analysis included HEC-2 modeling and preparation of bridge and culvert survey reports. Project was performed in metric units.

**NCDOT R-512E US 74 Bypass, Richmond County, NC** – Performed hydraulic design for multi-lane divided roadway on new alignment. Sections included two diamond interchanges. Analysis included HEC-2 modeling and preparation of culvert survey reports. Project was performed in metric units.

**Sandy Fork Creek, West Virginia** – Project engineer for hydraulic/hydrologic design of bridge replacement project. Prepared HEC-2 study and report for submittal to FEMA.

**Weddington Road, Cabarrus County, NC** – Design engineer for hydraulic/hydrologic design for new bridge crossing. Prepared hydraulic study using WYSPRO and report for submittal to FEMA.

**B-2578 / B-2579, Statesville, Iredell County, NC** – Design engineer for hydraulic/hydrologic design for bridge replacement. Prepared hydraulic study and report for submittal to FEMA.

#### **Civil/Site**

**Bank of America, Various Sites, North Carolina** – Prepare due diligence reports for civil/structural aspects for new branch offices.

**Taxiway D Relocation and Terminal C Apron Expansion, RDU Airport, Raleigh, NC** – Design manager of retaining structures for \$2M design fee taxiway relocation project. Design of approximately 1000 feet of concrete cantilever. Walls function as retaining, blast protection and security fence between air side and land side areas.

**FBOP Butner FCI-3 Crisis Management Building Design-Build, Butner, NC** – Project manager for site layout and design of armory, training and staging building. Site design included utility layout, grading and staking. Utilities include fire suppression water supply and storm system extension.

**FBOP Butner FCI-3 Institutional Firing Range Design-Build, Butner, NC** – Project manager for site layout and design of 24 station, 50-yard outdoor firing range with 3000-foot access road. Site design included utility layout, grading and staking. Utilities include sanitary sewer pump station.

**Gorman Street Apartments (Private Developer), Raleigh, NC** – Project manager/engineer for site layout and design of 1.4-acre apartment site. Design included utility layout, grading, staking, and erosion control devices. Site was subject to Neuse River riparian rules that created tight constraints to meet setback, stream buffer, landscaping and parking requirements for two eight-unit apartment buildings.

**The Townes (Private Developer), Wakefield, Raleigh, NC** – Project manager/engineer for design of two 200-foot long brick and CMU retaining walls for townhome development.

**Anderson Point Park, Raleigh NC** – Project engineer for design of site utilities for facilities for the City of Raleigh Department of Parks and Recreation.

**Gorman Street Apartments, Raleigh, NC** – Site engineering services for two 4,700 square foot new apartment buildings on 1.36 acres, located near NCSU. Site has an active stream running along the eastern boundary that required Neuse River riparian regulations for development and is controlled under the City of Raleigh's Special Highway Overlay District 3 requirements. Elements included preparing a

grading plan, staking plan, erosion control plan, storm water drainage design, pavement design and water and sanitary sewer utility design.

**Southern Industrial Constructors Warehouse and Lay-down Area, Raleigh, NC** – Site and foundation engineering services for two properties. Work included clearing, grading, erosion control, minor utilities and landscaping for material lay-down area and new equipment warehouse on properties with existing development. Both properties located in Airport Overlay District.

**NC Museum of Art, Raleigh, N** – Site engineering services for evaluation and design of stormwater impoundment modifications and sidewalk installation. Evaluated existing stormwater impoundment to meet the increased runoff from new amphitheater and designed retention pond improvements. Also located more than 500 feet of sidewalk along Blue Ridge Road.

**Triangle Church, Durham, NC** – Site engineering services for modifications to previously developed property bordered by a creek. Work included site utility location, grading, pavement design, erosion control and the design of two stormwater detention ponds as well as design of underground drains and sand filters.

**Northwoods Elementary School, Cary, NC** – Engineering services for widening of entrance drive and addition of turn-lanes to NC54. Work included grading and pavement design for adding an additional lane to the school entrance drive and turn-lanes, hydraulic evaluation, drainage and stormwater design, erosion control and coordination between NCDOT, Town of Cary and Wake County Schools.

**Chowan Hospital, Chowan, NC** – Site engineering services for addition to Chowan Hospital. The work included grading and pavement design for additional parking tie-in and minor grading adjacent to new addition.

**Hanging Rock State Park, Danbury, NC** – Sanitary/civil engineering services for sewer improvements. Work included design of septic field and repair area, force main and dosing tanks.

#### ***Program Controls Manager***

Manager for administration of \$42 M CCP program for TVA involving coordination and oversight of over 10 URS offices including monthly reporting, risk review, project financials, scheduling. Program burn rate in excess of \$1 M per month involving approximately 100 staff (50 FTE).

Deputy program manager for financial performance, scoping and fee development of NCDOT Stormwater Program for eight years (2004-2011) of \$9M program. Involved coordination and oversight of over four URS Morrisville departments including monthly reporting, risk review, project financials, scheduling and invoicing. Program burn rate in excess of \$1 M per month involving approximately 100 staff (50 FTE).

#### ***Project Coordinator/ Asst. Project Manager -2019-2020***

Coordinator and Asst. Manager involving coordination and oversight of over 20 Feasibility Studies for NCDOT statewide including monthly reporting, review of alternates and estimate request, develop scheduling project submittals.