

KENNETH JONES, P.E.
Structural/Bridge Engineer

ENGINEERING PROFILE

Over three decades of structural engineering experience. Structural design and inspection experience extends from New Jersey to California for buildings, storage tanks, retaining walls, tunnels, and includes numerous highway and railroad bridges. Site investigations incorporated high-level access efforts using complex equipment and rock-climbing techniques needed for visual and hands-on scrutiny. Well versed in facility safety inspections and evaluation for slips, trips and falls associated with ladders, rails, stairways, sidewalks, and multi-use trails to document deterioration and dangerous existing conditions. Designed new structures, designed the structural rehabilitation of existing structures, as well as performed structural analysis of existing structures to determine remaining structural capacities. Performed structural design/analysis on well over 800 structures. Structural design experience used various standards and codes and included methods like Allowable Stress Design (ASD), Load Factor Design (LFD), as well as Load and Resistance Factor Design (LRFD). Used simple hand calculations up through 3D finite element design and analysis programs that include: BSDI, STAAD, SAP, and MIDAS to meet client needs. Recommends sampling and testing plans for comparative modeling and causation determinations. Collects data to form the basis of opinions, reports, and conclusions; this information provides formulations for deterioration rates, crack propagation, and failure modes.

Structural Design and Analysis

Proficient in steel (including light gauge), concrete (including cast-in-place, precast, prestressed, post-tensioned, tilt-up, and shotcrete), masonry, wood, and aluminum materials. Designed retaining structures including soldier pile-tie-back, and Mechanically Stabilized Earth (MSE) walls. Foundation system experience includes shallow foundations (continuous footings, individual column footings and multiple column footings), "mat" foundations, and monolithic foundations, as well as deep foundation systems including pile-supported foundations, soil anchors with grade beams, driven piles (concrete, steel, and wood) and auger-cast concrete piles, and drilled caissons. Construction knowledge extends to rubber and fiberglass shingle roofing materials, neoprene joints and bearings, caulk and other watertight sealant materials, paints, and other protective coatings. This expertise led to value engineering work and constructability reviews for owners and contractors as well as teaching design and condition assessment/safety inspection courses for public entities. Select design projects include:

- Blennerhassett Island Bridge, U.S. 50 over both branches of the Ohio River, WVDOT.
- S.R. 0015, Section 077, Market Street Bridge over West Branch Susquehanna River, Williamsport, PA, PennDOT.
- S.R. 0021, Project for the Newark Liberty International Airport, NJDOT. Senior Engineer responsible for checking final design of Units 1 and 3 (multi-span curved steel girder structures) on Ramp 11.
- S.R. 0052 connecting US Route 9 in Somers Point (Atlantic County) to Bay Avenue in Ocean City (Cape May County), NJDOT.
- Columbus Southerly Wastewater Treatment Plant, OH with six-200'-diameter final settling tanks, two control buildings and a splitting chamber.
- Daniel Boone Homestead Exeter Township, Berks County, PA with foundations and rail systems.
- Emergency repair of retaining wall, foundation, and rail system associated with the landslide & structure collapse in Perry County, PA.
- Slab and buttress of Low-Head Hydroelectric power station in Luray, VA.
- Design and plan preparation at the Indian River Power Plant, DE for steel sheet pile walls with walers, soil anchors and struts for the cooling water intake channel.

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Construction Management Experience

Significant construction management experience includes a wide range of diverse engineering projects. Services were performed for both contractors and owners including review of excavation support and retaining wall systems, demolition plans, crane and rigging plans, shop drawing reviews, and construction sequencing plans including top-down construction to meet site specific requirements. Notable project management experience includes:

- Adrian Phillips Ballroom at Historic Boardwalk Hall in Atlantic City, NJ.
- Infinity Charter School in Harrisburg, PA.
- Construction Quality Acceptance Manager for PA's State-wide Rapid Bridge Replacement.
- Route 30 Sections 9, 10 & 11 in Lancaster, PA for PennDOT District 8-0.
- Route 15 Sections 9 & 12A Assistant to Structure Control Engineer for heat straightening of steel elements on the US 15 bridge over PA Route 94.
- S.R. 0011, Section 008 in Perry County.
- S.R. 3016, Section 002, Harvey Taylor Bridge Redecking between Dauphin and Cumberland counties.
- Gap Trail Bridge Re-Decking Project design of wood railing with steel posts and fencing for the conversion of three railroad bridges to pedestrian structures completing the remaining portion of this trail project near Fort Hill, PA.

Construction and Condition Assessment/Safety (CA/S) Inspection

Over 30 years of work with the National Bridge Inspection Standards (NBIS). Performed over 1000 bridge inspections ranging from small culverts to large structures including the Ogdensburg- Prescott International Bridge. This experience covered 25 states from NJ to CA and included seismic restraint details. Project management experience in one contract alone included more than 300 bridge load ratings. Taught NBIS courses across the country for nearly 20 years, as well as developed and presented course materials for other types of inspection training courses. Experience extends to other non-bridge structure types as well. Select CA/S projects included:

- CA/S bridge inspections for multiple years within PennDOT District 3.
- CA/S bridge inspections for multiple years within PennDOT District 5.
- CA/S bridge inspections for multiple years within Districts 2, 4, 5, & 8 for PennDOT Central Office.
- CA/S and construction inspection of Mellon Square Parking Garage Rehabilitation, Pittsburgh, PA, Public Parking Authority of Pittsburgh. Cast-In-Place (CIP) reinforced concrete and unreinforced masonry construction for this six-level underground parking garage.
- CA/S inspection of No. 1 Parking Garage, Charleston, WV. A six-floor prestressed concrete structure made of double T-beams supported by precast concrete inverted T-beams and concrete columns.
- CA/S inspection of 33 W. Salem Avenue Parking Garage, Roanoke, VA. A five-floor CIP reinforced concrete structure designed using 2-way slabs (flat plate) supported by CIP concrete columns.
- CA/S and construction inspection, and contract plan development of Low-Head Hydroelectric power stations in Luray, and Front Royal, VA along the Shenandoah River. Those projects included designs for fish ladders at the slab and buttress dams.
- Construction inspection of the Columbus Southerly Wastewater Treatment Plant with six-200'-diameter final settling tanks, two control buildings and a splitting chamber.

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- CA/S inspection and repair plans of columns, beams, and retaining structures exhibiting material deterioration, as well as foundation undermining, settlement, lateral movement, and retrofit designs throughout OH, WV, PA, MD, DE, NJ, NY, AZ, and CA.
- CA/S inspection of a number of manufacturing and government facilities in the northeast.
- CA/S inspection of York County Maintenance Facility at 1920 N Susquehanna Trail, York, PA.

PROFESSIONAL EXPERIENCE

2024 to Present **Robson Forensic, Inc.**
Associate

Provides technical investigations, analysis, reports, and testimony toward the resolution of commercial claims and personal injury litigation involving structural design, construction, construction management, structural engineering standard-of-care, code compliance, and failure analysis/causation investigations.

2017 to Present **Navarro & Wright Consulting Engineers, Inc.**
Senior Project Manager-Bridges

Provided staff training for bridge & structure design, site investigations, report preparations, and structure/bridge evaluations. Responsible as plan QA/QC manager to confirm adequate check completion needed to avoid design conflicts and reporting issues. Select projects included:

- Ryerson Station State Park Improvement Project in Richhill Township, Greene County for the Department of Conservation and Natural Resources upgrading the park with a new bridge and other facilities. This included connection design and detailing steel tubular rails, posts, and pickets meeting the appropriate architecturally aesthetic railing needs for the rustic park setting while also meeting the requirements of PennDOT's Design Manual Part 4 (DM-4) for the bridge.
- Design-Build Statewide Culvert and Wall Replacement Project. Responsible for all aspects of the project from development of environmental clearance work through the construction inspection documentation. Engineer of Record for twenty-eight sites for the 2017-2022 structure replacements going from the northern part of New Castle County to the southern part of Sussex County Delaware.
- Design of North Folk sound barriers for the Public Private Partnership (P3) project near Brookville, PA. Responsible for both the preliminary design development the Type, Size & Location (TS&L) as well as final design plans.

2016 to 2017 **Bentley Systems**
Project Manager

Provided guidance to Software Engineers for implementation and updating of the load rating and design programs for overweight truck permit application software, using RAM and other 3D analysis software, to transform the existing packages from ASD and LFD design methods to the current American Association of State and Highway Transportation Officials (AASHTO) LRFD Bridge Design Specifications.

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2014 to
2016

GAI Consultants

Senior Transportation Technical Manager

Provided guidance to Software Engineers for implementation of an updated inventory and maintenance database for bridges as well as tunnel facilities state-wide. Projects included all the systems associated with the control structures, retaining walls, and tunnels. Other select assignments included:

- Parametric study comparing the PennDOT's ML- 80 and TK-527 (including HS20 & H20 type) vehicles to the American Association of State and Highway Transportation Official's (AASHTO's) SU-family of vehicles thus eliminating the need to do an inventory wide load rating.
- Verified load ratings and emergency repairs for various damaged structures to ensure safety for the traveling public.

2013 to
2014

McMahon

Senior Project Manager

Projects included training staff for design, site investigation, report preparation, and structure/bridge evaluation. Responsible as plan QA/QC manager to confirm adequate check completion to avoid conflicts and to provide economical construction sequences.

2011 to
2013

HNTB

Senior Project Manager/Senior Squad Leader

Engineer of Record for structures. Reviewed QA/QC checklist for 3D complex structure models to verify the construction plans accurately represent the construction sequencing to prevent overstress while preparing Plan Specification and Estimate (PS&E) documents.

Site investigations ensured fabrication shops met QA/QC requirements to both improve the processes and delivery of structural products including beam and bracing members, bearings, joints, barriers, concrete filled steel grid decks, and overhead sign structures.

2009 to
2011

Wilbur Smith (CDM Smith).

Project Manager

Engineer of Record for structures. Projects included facilities design, evaluation of stairway and retaining walls stability, bridge retrofits, and site investigations of other facilities. Assignments included development of plan QA/QC checklists, and PS&E documents.

Conceptual investigations for 3D structural plans for curved beams. Assignments included plan QA/QC checks as needed for guidance of project engineers.

2006 to
2009

GPI

Project Manager

Engineer of Record for structures. Projects included buildings and retaining walls, bridges, and other facilities. Completed site investigations for context sensitive solutions for plans for historically sensitive structures. Assignments included QA/QC plan checks, public meetings, and PS&E documents.

Conceptual investigations for 3D structural plans for curved beams and QA/QC check for the bridge work. Assignments included technical guidance as needed throughout projects.

THE EXPERTS
Robson Forensic

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- 1993 to 2006 & 2011 **Michael Baker International**
Civil Engineer II/Technical Consultant
Projects included bridge design, CA/S and construction inspection of buildings, bridges, and tunnels, including 3D structural design plans for curved beams and complex framing. Assignments included plan QA/QC checks. Became plan QA/QC manager to confirm checks, to avoid conflicts, and to ensure economical construction sequences.
- 1990 to 1993 **GAI Consultants, Inc.**
Engineer in Training (EIT)
Projects included structure/bridge design, as well as CA/S and construction inspection of federal office buildings, bridge work, tunnels, parking garages, and coal burning and hydroelectric power plant facilities.
- 1988 to 1990 **Pittsburgh Engineer Consultants, Inc.**
Engineer in Training (EIT)
Projects included curved beam bridge design, CA/S, and construction inspection of park facilities, retaining walls and bridges.
- 1985 to 1988 **Burgess & Niple, Ltd.**
Engineer in Training (EIT)
Projects included structure/bridge design, CA/S and construction inspection of water storage tanks, bridges, wastewater treatment plants, manufacturing, power generation plant, and amusement park facilities.

PROFESSIONAL CREDENTIALS

Registered Professional Engineer: NCEES, Delaware, Florida, Maryland, New Jersey, Ohio, Pennsylvania, Virginia, West Virginia
Certified Bridge Safety Inspector, PennDOT PA
Certified Bridge Safety Inspector, National NHI

EDUCATION

B.S., Civil Engineering, Purdue University, West Lafayette, Indiana

COURSE INSTRUCTOR

Taught many courses for the National Highway Institute/ Federal Highway Administration (NHI/FHWA) while at Michael Baker International and later as a subconsultant. This work started in 1993 and continued through 2012:

- LRFD for Highway Bridge Substructures Design Highway Bridge Substructures (NHI/FHWA Course #130082).
- LRFD for Highway Bridge Superstructure Design (NHI/FHWA Course # 130081).
- Bridge Inspection Refresher Training (NHI/FHWA Course # 130053).
- Safety Inspection of In-Service Bridges (NHI/FHWA Course # 130055).

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Developed and presented courses for the New York State Thruway Authority, Nevada DOT, PennDOT and as well as other states across the country to cover specific course needs and topics:

- Bridge Inspection Refresher Training (Specific jurisdiction involved and based on NHI/FHWA Course # 130053).
- Safety Inspection of In-Service Bridges (Specific to jurisdiction involved and based on NHI/FHWA Course # 130055).
- Inspection of Ancillary Highway Structures (Specific to jurisdiction involved and based on NHI/FHWA Course # 130087).
- Bridge Inspection Techniques for Nonredundant Steel Tension Members (Specific to jurisdiction involved and based on NHI/FHWA Course # 130078).
- Introduction to Safety Inspection of In-Service Bridges (Specific to jurisdiction involved and based on NHI/FHWA Course # 130101).
- Earth Retaining Structures (Specific to jurisdiction involved and based on NHI/FHWA Course # 132036).
- Strut-and-Tie Modeling (STM) for Concrete Structures (Specific to jurisdiction involved and based on NHI/FHWA Course # 130126).
- Introduction to Engineering Concepts for Bridge Inspectors (A one-week basic course for an inspector just starting bridge inspection including culvert materials).
- Integral Abutment Structural Design Theory.

CONTINUING EDUCATION

Structures:

OSHA 30-Hour Outreach Training for the Construction Industry, June 2024
Building High Performance K-12 Education Facilities, High Concrete Group, June 2024
Engineering Ethics For New Jersey Professional Engineers, December 2023
Design with Assurance: No Wait for Lightweight, October 2023
Educating the Next Generation of Engineers - Why are We Stuck in 1955, October 2023
Design Strategies for Affordable Mass Timber Multi-Family Housing, September 2023
Design with Sectional Overhead Doors for Safety and Security, August 2023
Anchor 201: Evaluation of Factors that Affect Bond Stress, August 2023
Gateways to Performance Comparison, August 2023
Design of Mass Timber Diaphragms and the new CLT Diaphragm Design Guide, July 2023
Modular Design and Its Advantages, July 2023
Maintainable Drains: Innovations in Retaining Structure Drainage, July 2023
Tour of the Navarro and Wright AASHTO-Certified Testing Labs - Camp Hill, PA, May 2018
Personal VS. Professional Responsibility Camp Hill, PA, October 2017
Engineering Ethics for DE PE's Wilmington, Delaware, June 2017
OSHA 10-Hour OSHA Hazard Recognition Training for the Construction Industry Course, June 2017
PennDOT Lab Tour Harrisburg, PA, June 2017
Manual of Uniform Traffic Control Devices Dover, Delaware, May 2017
The Potential Perils of Construction Admin. Serv. - Harrisburg, PA, May 2017

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Bridge:

Fern Hollow Bridge Technical Presentation, October 2023

Association for Bridge Construction and Design (ABCD) Fall Tech. Conference, September 2023

PennDOT Bridge Inspection Refresher course, November 2022

FHWA/NHI Bridge Inspection Refresher Training course, September 2020

Design of the New Portageville Bridge Harrisburg, PA, February 2018

The Portageville Bridge, Crossing the Genesee River Gorge in Letchworth State Park, February 2018

ABCD Fall Tech. Conference Harrisburg, PA, September 2017

PROFESSIONAL MEMBERSHIPS

National Society of Professional Engineers: Member

Pennsylvania Society of Professional Engineers (PSPE): Harrisburg Chapter President

CPEWC: Website Chair (and former Chairperson of the Board)

American Society of Civil Engineers: Member

ABCD: Susquehanna Chapter - Clay Pigeon Event Coordinator with PSPE

Women's Transportation Seminar: Member

AWARDS

Central Penn Engineers Week Council (CPEWC) Engineer of the Year in 2013