



# Brian Bailey

## ASSOCIATE

Mr. Bailey supports the structural evaluation and materials teams with detailed field investigations, inspection, and complex failure analysis. He has experience in conducting condition assessments and evaluations for various structural concrete and flooring materials. He employs a wide range of nondestructive techniques such as visual observations, hammer sounding, Ground Penetrating Radar (GPR), and Ultrasonic Shear Wave Tomography (UST/MIRA). When that isn't sufficient for the task at hand, he utilizes minimally invasive techniques such as creating inspection openings and taking cores for laboratory testing such as compressive strength testing, chloride content analysis, and petrography. He also provides technical support in litigation disputes regarding underperforming or off-specification materials. Mr. Bailey is a graduate of the University of Illinois at Urbana-Champaign, where he studied Material Science Engineering.

### Academic Credentials

B.S. in Material Science  
Engineering, Business Minor  
University of Illinois Urbana-  
Champaign, 2019

### Contact Information

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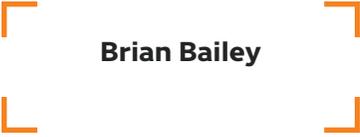
### Representative Project Experience

#### Condition Assessment and Evaluation

- Conducted a comprehensive evaluation of an approximately 100-year-old concrete floor slab conditions at a historic transportation hub in Illinois in preparation for renovation. Employed various assessment methods, including Ground Penetrating Radar (GPR) to map reinforcement spacing and coring to obtain samples in non-critical areas for compression strength, chloride content, petrographic, and steel tensile strength testing.
- Conducted a general condition assessment of a reinforced concrete seawater intake structure that supports a nuclear power plant in North Carolina. Employed techniques, including visual observations, hammer sounding, and taking cores for chloride content analysis and petrography.
- Investigated the extensive cracking of masonry piers at a correctional center in Illinois. Employed visual observations and inspection openings from an aerial lift to determine the extent of deterioration and identify as-built details.
- Documented as-built conditions of a paper mill concrete floor slab in Michigan to determine if loading could be safely increased.
- Investigated the extent and impact of contaminants discovered in precast concrete members for a parking garage in Michigan. The onsite evaluation utilized GPR and Ultrasonic Shear-wave Tomography (UST/MIRA). Offsite work included a literature survey and a variety of tests, such as chloride permeability.
- Supported assessment of concrete deck condition of a post-tensioned parking garage in need of repair in Illinois.
- Evaluated microstructure of steel side frames and bolsters that were suspected of being improperly heat treated and being used on railcars across North America.

#### Failure Investigation and Forensic Analysis

- Explored the cause of failure of a concrete channel roof slab that had collapsed at a power plant in Indiana. Work included documenting as-built conditions, chloride testing, carbonation testing, and petrography.
- Conducted an investigation of near-surface delaminations of concrete topping slabs on metal pan decks in a Chicago skyscraper.
- Provided technical support in a litigation dispute involving an Olympic-sized shotcrete swimming pool in Florida, that failed to hold water.
- Provided technical assistance to a contractor in a dispute involving allegedly understrength concrete for a bridge in Arkansas. Conducted an investigation to determine the probable cause of the low strength so construction could resume.



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- Conducted an evaluation of a self-leveling underlayment that had debonded in localized areas at a hospital in Illinois. Utilized various techniques, including hammer sounding, bond pulls, coring, and inspection openings, to assess the extent of the debonding and identify the causes.
- Provided technical support in a litigation dispute involving off-specification clinker. Conducted various analyses to compare the measured properties to relevant standards and investigate the cause of the deficient properties.
- Performed failure investigation of an epoxy terrazzo floor that was experiencing bubbling at a University in Wisconsin. Tasks included comparing petrographic findings to construction and manufacturers to identify nonconformance and causes of failure.