HARTCROWSER

N. JOHN BINGHAM, PE

Senior Associate Geotechnical Engineer

EMPLOYMENT HISTORY

Hart Crowser since 1998

EDUCATION

MS, Civil Engineering (Geotechnical Major), Colorado State University, 1997

BS, Civil Engineering with Honors, Colorado State University, 1994

REGISTRATIONS

Professional Civil Engineer, WA, 2001, #3784

AFFILIATIONS

American Society of Civil Engineers (ASCE) - Geo Institute

Northwest Regional Floodplain Management

John has 20 years of geotechnical engineering experience performing landslide/embankment investigation, slope stability hazard identification, analysis, stabilization design, and construction for bluffs along Puget Sound. His engineering experience also includes temporary and permanent earth retention design, review, and construction; critical area regulations; ground improvement; contaminated site redevelopment; and habitat creation, restoration, and mitigation. John's engineering, construction document preparation, construction oversight, and management experience with geotechnical, environmental, and natural resources projects enables him to offer innovative yet practical, solutions that are appropriate for site-specific problems. His communication skills and rapport with clients, stakeholders, diverse design teams, and contractors allow him to help project teams resolve challenging project components.

REPRESENTATIVE PROJECT EXPERIENCE

Amgen and Expedia Campuses at Terminals 88 and 89, Seattle, WA

Amgen. This project involved construction for eight office/laboratory buildings, a complex pedestrian bridge, site utilities, a cut-and-cover utilidor, and utilities pipe jacked underneath the BNSF railroad. John was initially responsible for site explorations, design analyses, lab testing program, and assisting with geotechnical design recommendations. He was also responsible for overseeing geotechnical construction observations for multiple field staff. A history of complex subsurface conditions required different foundation systems including mat, pile, and shallow foundations. John also oversaw pile load testing for high-capacity augercast piles and analysis of results. Stone columns and soil preload were installed to provide ground improvement against lateral spreading near the shoreline and to mitigate settlement. John also supported the environmental contingency plan and associated contaminated soil removal work that was done in conjunction with geotechnical work.

Expedia. John is managing geotechnical work for redeveloping the 40-acre site as headquarters. The current project includes two parking garages, one large iconic office building, campus wide utilities, unique landscaping mounds, a large water feature, site structures, and shoreline habitat enhancements. Potential future phases include additional buildings. Geotechnical work included explorations, lab testing, deformation modeling of stone columns to prevent liquefaction and lateral spreading, settlement modeling of complex site berms, deep foundation design, preloading, 30-foot-high mechanically stabilized earth (MSE) walls, infiltration PIT testing, and infiltration facility groundwater mounding. Site development also includes environmental contingency planning to address impacted soil encountered during construction.

Seattle Art Museum Olympic Sculpture Park, Bridges and Seawall, Seattle, WA

John managed geotechnical design for two pedestrian bridges spanning city streets and the BNSF railroad, a utility crossing underneath the BNSF railroad, and a pavilion building. John interacted with the design team

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to "value engineer" cost-effective solutions to geotechnical issues. The project involved assessing the effect of up to 30-foot-high MSE walls over existing utilities and adjacent to city streets. The project included seawall stabilization and creation of new intertidal habitat. The project required interacting with the City of Seattle Department of Transportation and Parks Department.

Permanent Soil Nail Shoring Design, Children's Hospital Ambulatory Care Facility, Bellevue, WA

John was the Project Manager for the geotechnical investigation, soil nail shoring design, and construction of a medical office building and underground parking on this sloped property. The on-site steep slope critical area was incorporated into the permanent shoring design. A 30-foot-high permanent soil nail shoring system was selected to provide economical shoring so that the building's moment frame did not have to resist permanent static or seismic earth loads. Three sides of the building had permanent soil nail walls. MSE walls were used above one of the permanent shoring walls to attain final grades.

Landslide Evaluation and Repair, Pacific Northwest

John is managing geotechnical engineering services to evaluate and repair a 150-foot-high landslide that occurred during interim grading activities. Initial slide repair design work was performed by another company, but the site owner asked that we evaluate the proposed solutions and recommend final repair alternatives. John reviewed the available information, technical analysis, and repair design plans; conducted a site reconnaissance; discussed likely causes of the failure based on the information developed to date; provided a preliminary evaluation of additional alternatives to be considered; and prepared recommendations for additional explorations as needed. He oversaw investigations, slope stability analysis, ongoing landslide geotechnical monitoring, ongoing slide repair construction observations, and providing preliminary geotechnical design recommendations for future site development.

Landslide repair alternatives considered subsurface soil and groundwater conditions, loading mechanisms, resistance mechanisms, constructability, and administrative constraints. We worked closely with specialty contractors and evaluated several repair alternatives which included: a) revising final grading of the site; b) buttressing the base of the slope; c) soil reinforcement using ground improvement (deep soil mixing, jet grouting, etc.); d) structural earth retention methods; e) permanent drainage measures that collect and convey groundwater away from the slide mass; and/or f) excavation and removal of the slide mass and replacing it with compacted fill and/or mechanically stabilized earth. We discussed these repair concepts with the owner, the governing agency, and other design consultants before selecting the final slide repair system. A three-tiered slope stabilization system including tie-back anchors, anchor blocks, and drilled shafts was selected and is currently being implemented at the site.

Beach Drive Estate Slope Monitoring and Stabilization, Shoreline, WA

John oversaw geologic reconnaissance of slopes, evaluation of slope stability, and slope stabilization construction for several areas of the property. In areas where planned structures were not close to the bluff, he informed the owner of the geologic hazards; analysis indicated drainage measures may be sufficient to control stability. John implemented groundwater monitoring, which led to design and installation of passive drainage systems with vertical and horizontal drains. He performed and oversaw recurring monitoring of the condition of slopes, an existing soldier pile wall near a building, and groundwater levels along the bluffs at the property.

The soldier pile wall near the building was designed to be retrofitted with permanent tieback anchors if too much ground loss occurred in front of the wall. A surficial slide occurred near this wall about 15 years after it was installed. John developed slope stabilization methods for limited access steep slope areas in front of the retaining wall. The slope repair included installing permanent ground anchors in the wall, spiral nail mechanical slope stabilization, a drainage system, and revegetation to aid in long-term surficial stabilization and erosion control of the slope. He coordinated the slide repair permitting with the City and the BNSF railroad (at the base of the bluff), other designers, and contractors to complete the slope stabilization.

Confidential Estate, Woodway, WA

John was the Project Engineer and Project Manager who performed and oversaw exploration, slope stability analyses, and design of an active dewatering system (pumped wells) at this site. A careful review of historic aerial photos of the site for evidence of historic landslides was also done to determine bluff regression rates toward the residence on the site. Geologic reconnaissance, explorations, slope stability analyses, and other available information in the general vicinity indicated that reducing groundwater levels/pressures would improve stability of the bluffs and help to slow bluff regression rates. Active vertical and passive horizontal drains were designed and installed to reduce water pressures at the site.

City of Bothell, Geotechnical Critical Area Review, Bothell, WA

John has performed third-party geologic critical area review for geotechnical items for the City of Bothell. This review work has included review of landslide/steep slope hazards, erosion hazards, seismic hazards, hydrogeologic evaluations (dewatering and critical aquifer recharge evaluation), and evaluation of other geologic hazards.

SDOT Shoring Review, Seattle, WA

As Project Manager, John assisted City of Seattle Department of Transportation (SDOT) in shoring review for excavations adjacent to City right-of-way. This work involved researching City utility records for potential conflicts with shoring systems, reviewing geotechnical shoring recommendations/design, reviewing shoring plans, assessing suitability of shoring to protect public utilities/property, writing responses to the shoring and design team, and coordinating legal document submission.

Place of Circling Waters Habitat Restoration, Port of Tacoma, Tacoma, WA

John was the geotechnical project engineer/manager for this earthwork/habitat mitigation project that restored a former gravel mine and inert waste disposal site to its natural state as a tidal marsh connected to Hylebos Creek. The work included geotechnical slope stability analysis, field engineering to control seepage in slope excavations, and design of engineered slopes to address Department of Natural Resources mine reclamation requirements. Newly constructed channels near historic grades were connected to Hylebos Creek by breaching the existing creek bank in a controlled manner during low tides. The project required a 255,000-ton remedial excavation clean-up component prior to habitat construction. The design required balancing many conflicting environmental, geotechnical, civil engineering, landscape, and regulatory criteria. The design also added public access with a view deck and educational signs. Hart Crowser was awarded a "Best in State Gold Engineering Excellence Award" by ACEC for this project.