



## **NATHANIEL D. LANDSPERGER, P.E.**

### **SENIOR CONSULTANT**

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Mr. Landsperger is a Senior Consultant for Engineering Systems Inc. (ESi). He has over 20 years of consulting experience with the analysis, design, and construction of geotechnical, structural, civil, and drainage systems with an emphasis on rail transportation and civil infrastructure. He has performed engineering and forensic studies for the inspection, assessment, and repair designs of damaged, distressed or failed structural elements, including residential and commercial properties, roadway and railroad structures, culverts and storm drain piping, walls, tunnels, and marine structures. His experience includes detailed reviews of construction documents, construction materials, and construction practices, as well as engineering and design of site grading, retaining walls, foundation underpinning, drainage systems, pavements, earthwork volumes, and bridge repairs. In the residential and commercial property market, he has assessed property damages related to water intrusion, soil and/or foundation movement, expansive clays, frost heave, site drainage/flooding, site grading, and inadequate construction practices.

Prior to joining ESi, Mr. Landsperger worked for over fourteen years as manager of rail engineering and construction. His workload included multi-disciplinary rail projects involving railroad track bed stabilization, landslide or slope stability assessment and mitigation, earthwork and grading design, rail line capacity feasibility studies, geotechnical studies, stormwater modeling and management, groundwater studies, bridges, tunnels, culverts, retaining walls, passenger stations, marine and port facilities, industrial facilities, mines, intermodal facilities, railyards, and mainline trackage. He has experience working in challenging geotechnical conditions such as landslide-prone regions, rockfall hazard areas, high-groundwater settings, coastal and/or riverine settings, karst (sinkhole) topographies, and on swamp/soft ground soil deposits. Mr. Landsperger is also very familiar with typical construction procedures and costs for earthwork, bridges, tunnels, pavements, road and track, drainage systems, specialty geo-structural techniques for ground stabilization such as soil nailing, rock bolting, micropiles, grout injection, rockfall hazard mitigation, and structural underpinning. Mr. Landsperger has been involved in emergency response engineering related to train derailments, landslides, rockfalls, sinkholes, washouts, severe flooding, bridge or retaining wall collapse, tunnel failures, drainage culvert failures and has informed clients of safe, practical, and effective means to restore or repair damaged infrastructure to a safe operating condition.

In addition, Mr. Landsperger has authored several engineering standards used by Class 1 railroads and has provided peer review analysis of third-party construction plans and documents for bridges, tunnels, drainage systems, retaining walls, and civil earthworks to assess for feasibility, fatal flaws, and construction-related schedule or cost risks. Mr. Landsperger has performed peer review analysis of third-party work plan submittals for heavy crane lifts, pile driving and/or rock blasting vibrations, temporary shoring, tunneling, pipe jacking/boring, settlement predictions and monitoring, and job hazard analysis. He has provided forensic analyses related to damages caused by blasting, pile driving and/or other construction vibrations, shoring system failures, slope failures, soil liquefaction, retaining wall failure, tunnel failures, track settlement, improper soil compaction, flooding and poor drainage, and erosion and sediment control practices. Mr. Landsperger has also led engineering due diligence reviews to support and educate potential investors in evaluating the overall short-term and long-term risks with purchasing and operating railroad lines or rail facilities.

*March 2024*

Mr. Landsperger has served as an expert and/or testified on matters involving:

- Property damages due to illicit or improper stormwater runoff.
- Slope failures/landslides as a result of construction activity.
- Improper construction of drilled shaft foundations for railroad bridge.
- Pavement failures as a result of unanticipated traffic overloading.
- Foundation settlement of residential and commercial buildings.
- Damage to stormwater drainage systems due to improper stormwater controls.
- Failure of roadway culvert pipes due to improper construction/maintenance.
- Failure or movement of retaining walls including concrete, masonry, gabion, MSE, and pile supported walls.
- Cause of failure of brick-lined railroad tunnel.
- Improper construction of horizontally bored pipeline causing ground subsidence and train derailment.
- Improper construction oversight and practices leading to defective concrete poured for a new airport runway.
- Expected vibration levels from different types of construction activity and the potential to cause damage to nearby structures.
- Collapse of underground stormwater detention system due to design inadequacies.
- Impacts of temporary shoring and construction vibration on adjacent building.
- Probable construction costs for repairs to railroad trackage inside industrial facility.
- Stormwater encroachment, soil erosion resulting from stormwater detention pond.
- Dispute over mass excavation earthwork volumes and costs involving large excavation into bedrock.
- Engineering standard of care for geotechnical and civil design works for railroad siding construction within swamp lands.
- Engineering and construction issues related to stormwater ponding within highly erodible loess soil.
- Engineering standard of care for stormwater drainage system design in residential subdivision.
- Flooding analysis of various properties/locations related to heavy rainfall events.

## **Areas of Specialization**

- Civil Earthworks and Grading
- Constructability Assessments
- Construction Cost Estimating
- Construction Procedures / Inspections
- Design and Analysis of Railroad Structures
- Drainage System Evaluation / Design
- Earth Movement, Landslides and Slope Stability
- Earth Retention Systems
- Geotechnical Field and Laboratory Testing
- Inspection and Evaluation of Structures
- Marine Bulkheads
- Site Characterization and Assessment of Differing Site Conditions
- Technical Review of 3rd Party Documents
- Vibration Assessment due to Blasting or Construction Activity

## **Education**

B.S., Civil Engineering. Pennsylvania State University. 2003

## **Licensed Professional Engineer (P.E.)**

State of Alabama — License No. 39760-E  
State of Connecticut — License No. PEN.0037401  
State of Florida — License No. 95458  
State of Georgia — License No. 044318  
State of Illinois — License No. 062.064373  
State of Indiana — License No. PE11200141  
State of Iowa — License No. P28391  
State of Kentucky — License No. 28472  
State of Maryland — License No. 0046040  
State of Michigan — License No. 6201312474  
State of Minnesota — License No. 60211  
State of Missouri — License No. 2024007869  
State of Montana — License No. PEL-PE-LIC-76240  
State of North Dakota — License No. PE-30059  
State of Tennessee — License No. 112536  
State of Wisconsin — License No. 48145

## **Continuing Education**

Rock Slope Stability Analysis & Mitigation, Assoc. of Environmental & Engineering Geologists, AEG (2008)  
Design and Installation of Cost-Efficient Piles, Pile Driving Contractors Association (2010)  
Pile Driving Wave Equation Workshop, GRL Engineers (2011)  
LRFD for Geotechnical Engineering Features: Drilled Shaft Foundations, ASCE (2012)  
Fundamentals of Professional Practice (FOPP), Magna Cum Laude, ASFE Geo-professional Business Association (2012)  
Fundamentals of Project Management, Amec Environment & Infrastructure (2013)  
Attendance and Participation in AREMA Technical Committee Meetings and Technical Conferences on a basis of two to three times per year (2014 to present)  
OSHA – Stairways and Ladders, Course H1005 (2021 Online)\*  
OSHA – Trench and Excavation Safety, Course 802 (2021 Online)\*  
US Army Corps of Engineers - Design of Sheet Pile Walls, Course GE1002 (2021 Online)\*  
US Army Corps of Engineers - Design of Conduits, Culverts, and Pipes, Course P2019 (2021 Online)\*  
HydroCAD Stormwater Training by HydroCAD Software Solutions LLC (2022 Online Course)\*  
Instrumentation and Monitoring of Adjacent Structures during Construction, AIA CES Course #202216WJE (2022 Online)\*

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\*Online study course from pdhdirect.com



## Positions Held

### **Engineering Systems Inc. (ESi), Peachtree Corners, Georgia**

Senior Consultant, 2020 – Present

### **Wood Environment & Infrastructure Solutions Inc, Nashville, Tennessee**

*(formerly Amec Foster Wheeler, formerly Amec Environment & Infrastructure)*

Associate Engineer (Rail Program Manager), 2016 – 2020

Senior Engineer (Rail PM), 2009-2016

Staff Engineer, 2005-2009

### **Ralph Stone & Company, Los Angeles, California**

Staff Soils Technician and Engineer, 2004-2005

## Professional Affiliations/Honors

### **American Railway Engineering and Maintenance (AREMA)**

- Member, Committee 1: Roadway and Ballast, 2014 – present
- Member, Committee 8: Concrete Structures and Foundations, 2014 – present

## Publications/Presentations

Erickson, B., Schmidt, S., **Landsperger, N.** “Remediation of a Progressive Slope Failure,” AREMA Technical Sessions, Minneapolis, MN, 2019

“History of Roadbed Stabilization Techniques on CSX River Line Subdivision”

Presented to a Railroad Member Technical Advisory Group in Albany NY, 2019