

**REQUEST FOR PROPOSAL
PROPOSED TRANSFER STATION
CONCEPT PLANS AND ENGINEERING ESTIMATE
BETHLEHEM, NEW HAMPSHIRE**



Prepared for:
Town of Bethlehem - Select Board
2155 Main Street
PO Box 189
Bethlehem, NH 03574

Prepared by:

104 Pleasant Street
Concord, New Hampshire 03301
(603) 228-0008

January 6, 2023
File No. 2023-001

A handwritten signature in blue ink, appearing to read 'GCH', is written over a horizontal blue line.

George C. Holt, P.G.
Principal Hydrogeologist

A handwritten signature in blue ink, appearing to read 'Jay Jonhonnott', is written over a horizontal blue line.

Jay Jonhonnott, P.E.
Senior Engineer

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**REQUEST FOR PROPOSAL
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INTRODUCTION

Aries Engineering, LLC (Aries) is pleased to submit to the Town of Bethlehem (Town) Select Board the enclosed work scope and budget estimate to develop conceptual drawings and a construction cost estimate for the construction of a solid waste transfer station on Town-owned property located on Route 116.

Aries understands that the Town will use the concept plans and engineering estimate to apply for a grant to construct the facility from the United States Department of Agriculture under its Community Facilities Direct Loan and Grant Program, the application of which is due by April 15, 2023. Aries further understands that the Town's transfer station design objectives are to: a) meet or exceed the State of New Hampshire's solid waste reduction goals, set forth in RSA 149-M:2; and b) achieve significant recycling and other diversions of items and materials from landfilling.

To meet these objectives, Aries will partner with The H.L. Turner Group Inc. (Turner) of Concord, New Hampshire to develop the requested concept plans and engineering estimate. Turner brings a wealth of solid waste and transfer station planning and design experience to this project with their award-winning architects and engineers.

Aries has read and understands the conditions outlined in the Draft Request for Engineering or Architectural Proposal (RFP) and Appendices to Engineering Proposals provided to Aries via email on December 21, 2022.

ORGANIZATION PROFILE

Aries has been located in Concord, New Hampshire since the company began in 1987. Aries' staff can be reached at the Concord office as follows:

Aries Engineering, LLC
104 Pleasant Street
Concord, New Hampshire 03301
(603) 228-0008 phone
(603) 226-0374 fax
www.aries-eng.com

Aries Engineering, LLC is a New Hampshire-registered Limited Liability Company (Employer Identification Number 02-0410989). Aries is a small business, and our clients include other small businesses, Fortune 500 corporations, small towns, large cities, public

service agencies, and non-profit organizations. At Aries, all of our projects receive the same expert attention, regardless of scale or complexity.

Aries' experienced staff is the key to helping our clients develop effective solutions for a wide range of environmental and technical challenges. Because our engineers and hydrogeologists work with environmental rules and regulations daily, Aries provides seasoned guidance to help our clients efficiently meet their environmental goals and obligations.

The H.L. Turner Group Inc. is comprised of 30 talented and dedicated architects, engineers, building scientists, designers, and administrative staff. Turner's statement of qualification is attached in Attachment A. Turner will provide subcontracted architectural and engineering services to Aries during the course of the project.

QUALIFICATIONS

For over 35 years, Aries has been committed to providing quality, cost-effective and responsive environmental solutions, environmental engineering, and hydrogeologic services to private, municipal, state and government clients, while meeting state and federal agencies' goals and objectives of protecting human health and the environment. Aries is firmly committed to performing cost-effective and efficient environmental engineering and hydrogeological technical assistance work in order to reach our clients' goals and objectives. Aries is centrally-located in Concord, New Hampshire. Our staff are connected and committed to improving our local communities and New Hampshire through volunteer work with local conservation commissions, parks and recreation committees, land trusts, and club activities.

Currently, Aries has 14 employees that include: three New Hampshire Professional Engineers (PE); four New Hampshire Professional Geologists (PG); four staff engineers/hydrogeologists; and three support staff.

Jay P. Johonnett, PE, Senior Engineer, will serve as the project manager and primary contact between Aries and the Town.

Resumes for Aries personnel who will be working on the project are provided in Appendix B.

LOCAL KNOWLEDGE

Aries has developed a relationship with the Town of Bethlehem, providing environmental consulting to the Town since 2008 for a variety of services including:

1. Landfill Groundwater Management Permit (GMP) monitoring and inspection service for the Town's closed unlined landfill located on Prospect Street;
2. Technical Document Review for the North Country Environmental Services, Inc. (NCES) Landfill Facility on behalf of the Bethlehem NH Conservation Commission,

for documents including: an April 2016 Work Plan for Monitoring Well and Gas Probe; a February 2015 Alteration of Terrain Permit; an October 2010 Alteration of Terrain Permit; and a 2008 NCES Dredge and Fill Permit Application.

3. Technical Review of Site Plan and Drainage Report documents for the proposed Community Living at Lloyd's Hills, on behalf of the Bethlehem NH Planning Board.

Aries has also work on several local private projects, including most recently, work on the Former Sinclair Hotel property on Main Street and a private water well siting project on Beech Hill located in the eastern portion of Town.

EXPERIENCE & REPRESENTATIVE PROJECTS

Over the years, Aries has assisted several municipalities with landfill capping, landfill management and monitoring, facility design and stormwater permitting at their solid waste management facilities. This work has included:

- Development of concept plans for a recycling center for the Town of Milford;
- Design of a stormwater containment strategy at the former Canterbury Landfill and Transfer Station to avoid the need to develop a Stormwater Pollution Prevention Plans (SWPPP) for the facility; and
- Landfill cap monitoring and annual reporting for the Towns of Milford, Canterbury, Bethlehem and Hooksett, New Hampshire.

Turner has extensive experience with transfer station design, including work at the following facilities:

- Renovation and addition construction for a new Merrimack, New Hampshire Department of Public Works Facility;
- Design of a 1,000-ton-per-day solid waste processing facility, transfer station and vehicle maintenance facility in Oxford, Massachusetts; and
- Design and upgrade of an existing 340-ton-per-day solid waste transfer station to a modern 750-ton-per-day processing facility in Lynn, Massachusetts.

WORK SCOPE AND LUMP SUM BUDGET ESTIMATE WITH TIMELINE

The Project Scope of work requires the following work tasks be completed by April 1, 2023 , including:

1. An assessment of the sufficiency of the current landscaping, grading, and stormwater drainage on the Route 116 site to facilitate a modern transfer station, and, if necessary, to describe what further work, along with its estimated cost, would be necessary to allow its use as a transfer station.

Lump Sum Task Cost Estimate = \$10,000

2. A conceptual drawing and itemized cost estimate incorporating those aspects of the original design plan that would allow the Town to construct and operate a modern transfer station.

Lump Sum Task Cost Estimate = \$8,000

3. A conceptual drawing and cost estimate to implement: a) a secured container to collect food waste for distribution to local farms and/or other entities for off-site composting and/or anaerobic digestion; and an enclosed swap shop, which could either be a freestanding structure or part of an office/storage structure.

Lump Sum Task Cost Estimate = \$3,000

4. Four supplemental cost estimates, stated separately, which set forth options for the Town to pursue either as part of the initial transfer station implementation or at a later date:

- a. A used compactor truck that could accommodate at least 6 tons of MSW, to be owned and operated by the Town, in lieu of having a compactor and roll-off bins for MSW.

Lump Sum Task Cost Estimate = \$1,500

- b. The costs of establishing a solar power system that could provide for the transfer station's power needs.

Lump Sum Task Cost Estimate = \$2,500

- c. A designated area for on-site composting, along with protection from wildlife, that would permit use of collected food waste, and use of brush and yard waste.

Lump Sum Task Cost Estimate = \$1,500

- d. The costs of purchasing and installing a scale system.

Lump Sum Task Cost Estimate = \$1,500

Total Lump Sum Cost Estimate with supplemental cost estimates = \$28,000

APPENDIX A

THE H.L. TURNER GROUP INC. QUALIFICATIONS

TURNER GROUP

Legal Name:

The H.L. Turner Group Inc.

Corporate Address:

27 Locke Road
Concord, NH 03301

Telephone:

(603) 228-1122

Fax:

(603) 228-1126

Website:

www.hltturner.com

Form of Organization:

Private New Hampshire
Corporation

Year Established:

October 26, 1990

Headquarters:

Concord, New Hampshire

Branch Office:

Harrison, Maine
Hartford, Connecticut

STATEMENT OF QUALIFICATIONS

GENERAL INFORMATION

PRINCIPAL OFFICERS



Gerard R. Blanchette, PE
President



William D. Hickey
Senior Vice President



Doug Proctor, AIA
Senior Vice President



Steven M. Caulfield, PE
Senior Vice President



Paul M. Becht, PE
Vice President



Heidi J. Nadeau
Chief Executive Officer

EMPLOYEES

Our firm is comprised of 30 talented and dedicated architects, engineers, building scientists, designers, and administrative staff. We provide all building and site design, with the exception of electrical engineering, utilizing in-house staff.

- 13 Licensed Professionals
- 3 LEED® Accredited Professionals
- 13 Technical Support Staff
- 6 Administrative Staff

Our nationally recognized designers, engineers, and building scientists work closely with our clients to produce healthy, efficient, and sustainable solutions.





The following summarizes our firm's vision, philosophy, and design approach:

- Nearly all of the essential building design disciplines are represented in-house, including architecture, civil, structural, mechanical engineering, and building science.
- All of our designs consider long-term building maintenance and functionality.
- As one of the leading design firms in New England, we have the expertise to develop your project and to make timely decisions throughout construction.
- We have been designing "green buildings" since the beginning. Our designs are engineered for exceptional energy efficiency and responsible environmental impact, even before it was a common practice.
- We take our fiscal responsibility to respect our client's budgets very seriously.
- We design buildings that "belong" to their community and are comfortable and durable.
- We take great pride in our ability to communicate clearly and promptly with committee members, administrators, staff, and the general public.
- We are an enthusiastic and professional team dedicated to our craft. The top priority for all of our staff is to collaborate to produce quality designs for our clients.
- We have developed a truly innovative approach to design by integrating exceptional air quality, efficient design, low-impact development, daylighting, and acoustics into each project.

The H.L. Turner Group Inc. will ensure your design and construction dollars are invested wisely and your project becomes a source of pride and satisfaction for you and your community.



PROFESSIONAL TEAM

Architects	3
CAD Technicians	6
Civil Engineer	4
Environmental Engineer	1
Industrial Hygienist	1
Mechanical Engineer	5
Project Manager	10
Structural Engineer	5
LEED® Accredited Professionals...	3



OUTLINE OF SERVICES

Architecture:

- Site Design
- Conceptual Design
- Master Planning
- Full Building Design & Documentation
- Sustainable & LEED® Design
- Feasibility Assessments

Engineering:

- Civil Engineering / Site Design
- Hydro Design
- Wastewater Design
- Roadway Design
- Structural
- Bridge Design
- Mechanical
- Plumbing
- Fire Protection

Environmental Engineering:

- Hazard Mitigation
- Hydrology & Hydraulics



Building Science:

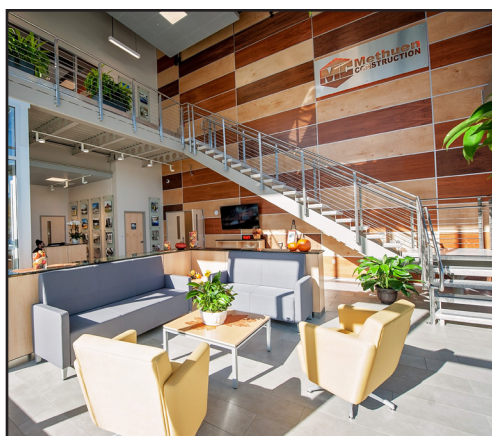
- Indoor Air Quality Investigation
- Building System Design
- Commissioning
- Mold & Pollutant Identification
- Building Performance / Evaluation
- Energy Audit

Sustainable Design Services:

- LEED® Accredited Architects & Engineers
- LEED® Design & Construction Documentation

Energy Auditing:

- Analysis of Energy Use & Cost Saving Measures



Types of Projects

- Commercial
- Corporate
- Dams
- Educational
 - Schools (Public & Private)
 - Universities / Colleges
- Financial Institutions
- Hazard Mitigation
- Healthcare
- Cleanrooms
- Hospitality
- Housing
 - Building Restoration & Preservation
- Hydroelectric Power Stations
- Industrial & Manufacturing
- Municipal & Government
- Roadways & Bridges
- Wastewater Areas

Delivery Methods

- Design / Bid / Build
- Design / Build
- Construction Management



MERRIMACK DEPARTMENT OF PUBLIC WORKS RENOVATION & ADDITION

MERRIMACK, NH



REFERENCE:

MR. KYLE FOX
PUBLIC WORKS DIRECTOR
TOWN OF MERRIMACK
(603)424-5137
KFOX@MERRIMACKNH.GOV

The H.L. Turner Group Inc. provided civil, structural, architectural, mechanical and plumbing design services for the \$3.3 million new Merrimack Department of Public Works Facility.

Work performed for this project included the renovation of existing space as well as an addition. The new facility features wood framing and a pre-engineered metal building.



POINTS OF INTEREST

- ▶ Design Development
- ▶ Construction Documents
- ▶ Architectural Design
- ▶ Structural Engineering
- ▶ Renovation
- ▶ Addition



WASTE SYSTEMS INTERNATIONAL, INC.

SOLID WASTE TRANSFER FACILITY

Oxford, MA



Complete design of a 1,000 ton-per-day solid waste processing facility. Project features included a 12,000 SF Transfer Building, an 8,500 SF Office and Vehicle Maintenance Building, truck scale, scale house, above-grade 32,000 gallon water storage tank with a diesel powered fire suppression/pumping system, outdoor truck heater systems, site drainage detention pond, and an 800' long, 20' high serpentine modular masonry retaining wall supported with geotextile grid.

The Transfer Building is fully sprinklered, has a 40' clear height under the roof framing, with 25' high reinforced concrete walls, a drive through truck loading pit with a large structural steel trash funnel and a sacrificial concrete wearing slab.



AMERICAN REF-FUEL, INC.

SOLID WASTE TRANSFER FACILITY

Lynn, MA



Upgrade of an existing 340 ton-per-day solid waste transfer station to a modern 750 ton-per-day processing facility. Upgrades were performed while the existing facility continued to process solid waste.

Project design features included :

- Tipping floor expansion to over 9,000 sf.
- New high capacity baling equipment.
- New 14,000 cubic foot bale storage area.
- Two new 80 foot long truck scales with modular scale and control house.
- Radiation detection equipment.
- Bird/Seagull mitigation system.
- Dust & odor suppression equipment.
- Helical pile foundations for soft soils.

A new storm water drain system was installed for the entire site with an in ground 1500 gallon oil/water separator.

The electrical systems were upgraded to meet the additional power demands of the new baler equipment as well as improved site lighting to enable "round the clock" operation. The Transfer Building is fully sprinkled with a 30 foot clear height to the underside of the roof framing. Two new 28'x 28' overhead doors onto the tipping floor and a new 2 bay loading dock.



APPENDIX B

RESUMES

George C. Holt, P.G.

Principal Hydrogeologist • gholt@aries-eng.com

Areas of Expertise

- Site Investigation Technologies for Porous & Fractured Media
- Remedial Alternative Assessment & Design
- Groundwater and Surface Water Modeling
- Water Supply Development
- Geographic Information Systems
- Surface Water Management and Erosion Control
- Brownfields Remediation and Assessment Assistance
- Hazardous Building Material Surveys

Education

University of Rochester, Rochester, New York; Bachelor of Arts - Geology & Political Science, 1984

Portland State University, Portland, Oregon; Post-Graduate Work - Hydrogeology, 1990 - 1992

Professional Licenses, Registrations, and Affiliations

- Licensed Professional Geologist (PG) - New Hampshire
- Licensed Registered Geologist (RG) - Oregon
- Licensed Hydrogeologist (LHG) - Washington
- Member, Geological Society of New Hampshire
- Member, National Ground Water Association
- Member, Town of Dunbarton, New Hampshire Planning Board, Conservation Commission, and Energy Committee
- HAZWOPER Training (40-Hour HAZWOPER Training; 8-Hour Supervisor Training)
- TSCA Title II Certified Asbestos Site Inspector
- New Hampshire Certified Asbestos Disposal Site Worker
- New Hampshire Certified Asbestos Inspector

Professional Experience Summary

George Holt has over thirty-one years of experience in the environmental consulting industry managing hazardous waste, petroleum and per- and polyfluoroalkyl substance (PFAS) release sites throughout New England. Mr. Holt's representative project work includes: hydrogeologic and fluvial geomorphological studies; soil and groundwater remediation projects; water supply exploration and permitting studies; indoor air quality assessments; industrial hazardous building material surveys; Phase I and II Environmental Site Assessments; natural resource studies and permitting; and land use projects.



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George C. Holt, P.G.

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His professional experiences with Aries and other environmental engineering and consulting firms include:

- Development and implementation of subsurface soil, soil gas and groundwater investigations and indoor air quality monitoring programs
- Design and implementation of site remediation programs which include: soil vapor extraction/bioventing; air sparging; dual-phase soil vapor and groundwater extraction; remedial soil excavation; light, non-aqueous phase liquid (LNAPL) recovery; soil bioremediation; in-situ chemical oxidation; enhanced in-situ bioremediation; and thermal treatment technologies
- Characterization and remediation of chlorinated solvents, and dense, non-aqueous phase liquids (DNAPLs) in porous media and fractured bedrock
- Computer modeling of groundwater flow systems and contaminant migration
- Water supply resource exploration and development and source water protection
- Groundwater hydraulic and contaminant fate and transport modeling
- Management of underground storage tank decommissioning activities
- ASTM Phase I & Phase II Environmental Site Assessment and property transfer support services
- Wetland impact evaluation, permitting and mitigation design
- Interpretation of aerial photographs relative to historical site waste management practices
- Assessment and interpretation of bedrock fracture traces and lineaments
- Vapor intrusion studies and mitigation strategies
- Air emission dispersion modeling and permitting
- Geographic Information Systems (GIS) mapping, including 3-D data visualization development, spatial analysis of environmental data, and data management
- Brownfield redevelopment assistance services
- Pre-demolition hazardous building material surveys, including inspections for asbestos-containing materials (ACMs) and lead-based paint (LBP)
- Surface water runoff management, modeling and permitting, and erosion control for wetland, shoreland and Alteration of Terrain (AoT) projects
- Expert testimony and litigation support

Representative Environmental Projects

- Testifying Expert, VOC-contaminated soils impacting off-site residential bedrock wells. Investigation and response actions included contaminated soil excavation and infrared on-site thermal contaminant destruction, design and implementation of a new, treated groundwater supply, assessment of PFAS in groundwater, and implementation of monitored natural attenuation (MNA) for residual contaminated groundwater - Manufacturing Facility, Tuftonboro, NH.
- Chlorinated solvent forensic release investigation and contaminated soil excavation and off-site treatment, MNA remediation in fractured bedrock - Material Control Building, Hudson, NH.
- Investigation and remediation of DNAPL source, and in-situ oxidant injection work under EPA SITES Program - MEC Building, Hudson, NH.



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- LNAPL release investigation and remediation using ISCO, sparging, soil vapor extraction, dual phase extraction, and natural attenuation - Gas Stations in NH, ME, and VT.
- Preliminary drought modeling simulations of two municipal well fields - Keene, NH.
- Investigation and remedial response for chlorinated solvent releases at an industrial facility - Newington, NH.
- Investigation of gasoline release into a fractured bedrock aquifer with high MTBE levels, emergency response included bedrock fracture investigation with product recovery and pump and treatment using the first bioreactor in New England - Bedford, NH.
- Alteration of Terrain and Wetland Dredge and Fill Permit application preparation and planning assistance for construction of an outdoor firing range - Newport, NH.
- Groundwater model, long-term pump test and preparation of a large groundwater withdrawal permit for a proposed bottled water facility - Nottingham and Barrington, NH.
- Gasoline release to a bedrock aquifer and Immediate Response Actions (IRA), including treatment of residential water supplies, excavation and on-site treatment of contaminated soils, and enhanced MNA - Former Dairy, Harvard, MA.
- Testifying Expert, land use dispute regarding logging and gravel extraction on a conservation property - Belmont, NH.
- Groundwater model and long-term pump test - South Municipal Well Superfund Site, Peterborough, NH.
- Hydrogeologic investigation and geophysical assessment services, fracture fabric survey, investigation of MTBE impacts in fractured bedrock - Bradford, NH.
- Brownfields redevelopment of the former Franconia Paper Mill properties, pre-demolition hazardous building material survey, asbestos abatement - RiverWalk at Loon Mountain, Lincoln, NH.
- Expert Witness Support Services, fluvial geomorphic analysis of the Merrimack River, Proposed Landfill Site, Canterbury, NH.
- Expert Witness, land use dispute regarding land subdivision and site development concerns - East Kingston, NH.
- Site investigation and remedial soil excavation of petroleum-contaminated soils, property transfer due diligence and technical assistance services for a proposed hotel property - Manchester, NH.
- Expert Technical Assistance Services for various per- and polyfluoroalkyl substances (PFAS) releases from firefighting foam - Londonderry, Salem and Tuftonboro, NH.
- Municipal Site Plan technical review for proposed indoor firing range - Warner, NH.
- Brownfields and redevelopment technical assistance services - Former Franconia Paper Mill, Lincoln, NH; Former B&M Railroad Yard, Concord, NH; Former Sinclair Hotel, Bethlehem, NH; Old City Landfill, Keene, NH; Former Ralph's Truck World Facility, Portsmouth, NH; Former Beebe Rubber Company, Nashua, NH.
- PFAS investigations at NH unlined landfills: Canterbury, Bethlehem, Lempster and Milford, NH.
- Geochemical mobility assessment of arsenic in groundwater - Court Street Wellfield, Keene, NH.
- Site-Specific Calculation of PFAS Partition Coefficients from Field Data – Presentation to National Groundwater Association's *Fate of PFAS: From Groundwater to Tap Water* Conference, June 22, 2021.

Jay P. Johonnett, P.E.

Geotechnical Project Manager/Senior Engineer • jjohonnett@aries-eng.com

Areas of Expertise

- Geotechnical Engineering - Deep Foundations, Ground Improvement, Earth Retaining Structures
- Environmental Engineering - Assessments & Remedial Systems
- Construction & Design Support

Education

B.S. in Civil Engineering, University of New Hampshire, 2012

A.S. in Civil Technology, University of New Hampshire, 2002

Professional Licenses, Registrations, and Affiliations

- Professional Engineer: Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, Vermont
- 40-hour OSHA Hazardous Waste and Emergency Response Training, 8-hour Annual Refreshers

Professional Experience Summary

Jay Johonnett is a Professional Engineer with over 20 years of diverse geotechnical and environmental engineering experience. Jay is the engineering lead for Aries' geotechnical group and is responsible for managing various engineering projects. Jay has conducted and managed numerous geotechnical and environmental investigations and evaluations throughout New England and the Mid-Atlantic states.

Jay's strengths include design and implementation of geotechnical investigations for building construction, road construction, utility corridors, earth retaining structures, and engineered fills, deep foundation systems, ground improvement methods for poor soils, and construction administration and oversight. Jay has extensive experience with project development from initial due diligence geotechnical evaluations through project construction and completion.

Representative Projects

- **National Chain Pharmacy, Massachusetts**

Conducted geotechnical evaluations for parcels of land proposed for commercial redevelopment throughout Massachusetts. Subsurface conditions throughout the state range from soft compressible glaciomarine deposits in lower lying areas, to very dense glacial till and bedrock in upland areas, and coastal sand deposits. Some of the project locations are Andover, East Bridgewater, Fitchburg, Framingham, Gloucester, Haverhill, Longmeadow, Malden, Millbury, North Reading, Plymouth, Shrewsbury, and Sturbridge.



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- **Elizabeth Stone House, Roxbury, Massachusetts**

Conducted geotechnical evaluations for a property proposed to be redeveloped into a women's shelter in Roxbury. The subject property had a long history of commercial development. Subsurface conditions at the property ranged from exposed bedrock at the ground surface to soft silt and clay. Jay provided geotechnical support through design of the new facility, demolition of the former building, and construction of the new 5-story housing and recovery building. Jay assisted the project earthwork contractor with management of shallow groundwater, remediation of unsuitable soils, and preparation of suitable bearing surface with significantly variable subsurface conditions.

- **Former Westborough State Hospital, Westborough, Massachusetts**

Performed a geotechnical evaluation for the former Westborough State Hospital with consideration for redevelopment of 700 residential housing units. The former hospital campus included 43 structures constructed between 1878 and 1970 spread throughout approximately 40 acres. Subsurface conditions included undocumented fill materials, glacial till with large boulders, and relatively shallow groundwater conditions. Redevelopment of the property required demolition of several buildings and a unique tunnel system. Jay made recommendations for managing undocumented fill materials and filling the tunnel structures to provide suitable foundation materials for the new buildings. Jay-provided direction for reuse of processed building materials (concrete, brick, asphalt) since such a large volume would be generated during construction.

- **University Station, Westwood, Massachusetts**

Provided geotechnical engineering services in support of redevelopment of the former Goodyear Rubber facility in Westwood. Soil explorations encountered undocumented fill materials, frequently underlain by buried topsoil, and naturally-occurring silt and clay. The buried topsoil was observed to be as much as 3-feet thick and unsuitable for supporting the proposed multi-story condominium buildings. The fill materials were likely placed during the initial development of the property in the 1950's. Jay provided design and construction support during the removal of unsuitable soils and preparation of foundation subgrades.

- **Horace Mann School, Newton, Massachusetts**

Provided geotechnical engineering services for a building addition on the Horace Mann School in Newton. Jay also provided an evaluation of soil and infiltration conditions for a proposed underground stormwater infiltration system at the school. Made recommendations for foundation systems and allowable bearing capacities based on the design loads of the structures.

- **Commercial Development, Sturbridge, Massachusetts**

Conducted a geotechnical investigation for a property previously used as a mill facility planned for redevelopment for commercial/retail use. The geotechnical investigation identified unsuitable fill materials, buried demolition debris, and shallow bedrock below the areas proposed for redevelopment. Performed settlement and slope stability analysis of the site given the proposed redevelopment which resulted in potentially unstable conditions and unacceptable building settlement. In addition, conducted

Jay P. Johonnett, P.E.

Geotechnical Project Manager/Engineer • jjohonnett@aries-eng.com

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infiltration testing and evaluated the feasibility of a site subsurface infiltration system. Designed pavement sections for the proposed traffic loading considering heavy-duty and standard-duty applications.

- **United States Army Corps of Engineers, Fort Drum, New York**

Conducted a geotechnical engineering evaluation and provided design support for a United States Army railhead loading facility in Fort Drum, New York. The work was conducted under a contract to provide architectural and engineering services for the US Army Corps of Engineers New York District. Analyzed the proposed construction which included a new railhead loading facility including a railhead building, concrete supply laydown areas, a scale house, loading ramps, and gravel parking areas. Made recommendations for foundation systems and allowable bearing capacities based on the design loads of the structures. In addition, evaluated traffic loads for several military vehicles and pieces of equipment that will be used or stored at the railhead facility. Developed recommended flexible and rigid pavement sections using the Pavement-Transportation Computer Assisted Structural Engineering (PCASE) computer program as required by the Department of Defense.

- **Confidential Client, Cumberland, Rhode Island**

Performed a geotechnical engineering evaluation to assess the viability of construction and operation of proposed hydroelectric power facilities at two existing dams located on the Blackstone River in Cumberland, Rhode Island. The geotechnical investigation activities included evaluations of soil and bedrock conditions at each dam site including an assessment of construction limitations including dewatering requirements and bedrock removal.

- **Municipal Airport, Lebanon, New Hampshire**

Intense precipitation resulted in several landslides at the end of a municipal airport runway and a potentially unstable slope. Developed and performed a geotechnical investigation to understand the physical geometry, the nature of slope movements, and the soil profile. Analyzed data from the geotechnical investigation and performed global stability analyses of the landslide areas. Assessed the potential for additional movements and evaluated methods to improve the global stability and reduce the potential for erosion to the slope. Provided recommendations for slope stabilization and reconstruction and stormwater management considerations.

- **Storage Facility, Millbury, Massachusetts**

Provided geotechnical engineering services for the redevelopment of a commercial property in Millbury, Massachusetts. Subsurface conditions at the site included up to approximately 15 feet of fill materials and fibrous peat. Conducted settlement and global stability assessments considering the proposed construction. Based on evaluations, recommended installation of an aggregate pier ground improvement system to support the proposed engineered fills, mechanically stabilized earth retaining walls, and commercial building. Designed pavement sections for the proposed traffic loading considering heavy-duty and standard-duty applications.

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Geotechnical Project Manager/Engineer • jjohonnett@aries-eng.com

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- **Commercial Development, Sturbridge, Massachusetts**

Conducted a geotechnical investigation for a property previously used as a mill facility planned for redevelopment for commercial/retail use. The geotechnical investigation identified unsuitable fill materials, buried demolition debris, and shallow bedrock below the areas proposed for redevelopment. Performed settlement and slope stability analysis of the site given the proposed redevelopment which resulted in potentially unstable conditions and unacceptable building settlement. In addition, conducted infiltration testing and evaluated the feasibility of a site subsurface infiltration system. Designed pavement sections for the proposed traffic loading considering heavy-duty and standard-duty applications.

- **Mixed Use Redevelopment, Allenhurst, New Jersey**

Conducted a geotechnical evaluation for multiple parcels in Allenhurst planned for redevelopment into multi-story residential condominiums and apartments, as well as commercial and retail space. The parcels have a long history of industrial and commercial uses including trolley car storage. The geotechnical investigation identified very loose sands likely to settle under the weight of the planned structural loads resulting in unacceptable building settlements. In addition, the loose saturated sands have the potential to liquefy under seismic loading. Site soils and groundwater have environmental impacts that carry a premium cost when handling. Jay recommended a system of aggregate piers be installed to densify the loose sand and improve ground conditions to provide sufficient bearing capacity for the building foundations. Jay recommended that the aggregate piers be installed using methods that minimize the generation of spoils to reduce/eliminate handling impacted soils.

- **Islington Street Reconstruction, Portsmouth, New Hampshire**

Conducted a geotechnical evaluation and provided engineering support as part of a "complete street" reconstruction for a major city corridor. Subsurface investigations, including soil borings and ledge probes were conducted over a mile-long stretch of the corridor to assess subsurface conditions in support of road, sidewalk, traffic signals, and underground utility design and construction. Subsurface conditions generally consisted of urban fill overlying, clay, and bedrock. Conducted geotechnical engineering evaluations including soil and bedrock excavation considerations, trench slope stability, protection of nearby utilities, dewatering methods, backfilling and compaction, and associated aspects of earthwork construction for the utilities and road.

- **Intersection Design Route1/Short Sands Road, York, Maine**

Provided geotechnical engineering services in support of the design of a new intersection on U.S. Route 1 in York, Maine. A geotechnical investigation and evaluation were conducted to provide design parameters for the foundations of three new mast-arm traffic signals to be constructed at the intersection. Subsurface conditions generally consisted of fill sands overlying bedrock. Bedrock coring was performed at to confirm the bedrock surface and to evaluate the bedrock composition and in-situ condition.