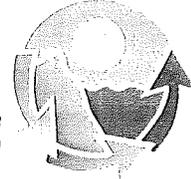


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Horsley Witten Group
Sustainable Environmental Solutions

90 Route 6A • Sandwich, MA • 02563
Tel: 508-833-6600 • Fax: 508-833-3150 • www.horsleywitten.com



August 6, 2014

VIA EMAIL

Town of Carlisle, Zoning Board of Appeals
Steve Hinton
66 Westford Street
Carlisle, MA 01741

BREM 019-2014
08-06
RECEIVED
AUG 06 2014

TOWN CLERK-CARLISLE
CHARLENE M. HINTON

Re: Environmental Consulting Services
Long Ridge Road, Carlisle, MA

Dear Mr. Hinton:

The Horsley Witten Group, Inc (HW) is pleased to submit this proposal to provide Environmental Consulting Services regarding a technical review of the proposed 40B project located at the above referenced address. HW has conducted dozens of similar reviews and has provided testimony at local and state hearings and expert testimony in court on similar matters.

Based upon my preliminary review of the project it warrants a review of wetlands jurisdiction (intermittent stream), need for a public water supply, the adequacy of private wells as a viable drinking water source, design of the shared septic systems (with shallow water table conditions) and the adequacy of the stormwater management system. Our proposal also includes a provision to provide a traffic impact review by a subcontractor.

1. Preliminary Review: HW will review all available plans, reports, test pit data, and related publicly available data including MAGIS. HW will identify key issues and with regard to probable compliance with the Massachusetts Wetlands Protection Act and Regulations, Massachusetts Stormwater Standards, Massachusetts Drinking Water Regulations, Massachusetts Surface Water Quality Standards and Title 5.
Budget: \$500.00
2. Conference with Client and Site Visit: HW will meet with client to discuss the issues identified, and project review objectives (including any desired project changes) and will develop a strategy to attain these objectives (including the need for additional hydrologic analyses and/or water quality impact assessments). HW will also conduct a site visit to view the subject property and abutting properties.
Budget: \$800.00
3. Hydrogeologic Evaluation: HW will utilize existing available information provided by the Applicant and other sources to conduct a groundwater mounding analysis and a flow net analysis. The groundwater mounding analysis will evaluate the hydrologic modifications to the water table as a result of the proposed wastewater and stormwater infiltration systems. These discharges will result in "mounding" of the water table, compromising the functioning

of the systems, and possible modifications in flow direction. The flow net analysis will evaluate the potential impacts of the proposed wastewater and stormwater discharges on private drinking water wells in the neighborhood. HW will also evaluate the impacts of the proposed project on adjacent wetland system.

Budget: \$5,000.00

4. Report: HW will prepare a written report with supporting graphics, tables and charts. The report will document our project review method, our findings and recommendations for the protection of public health and wetlands.

Budget: \$1,200.00

5. Traffic Analysis: HW will retain a subcontractor to perform a review of the traffic impacts associated with the proposed development. The subcontractor will prepare a letter report that outlines their findings.

Budget: \$2,500.00

6. Meetings: HW will prepare for and attend public meetings to present our findings and answer questions. For the purposes of this proposal we have budgeted for three meetings. Additional meetings will be attended and billed at our contracted hourly rates.

Budget: \$2,400.00

TOTAL BUDGET: \$12,400

I will serve as the Project Manager and primary expert for this project and will participate directly in the public meetings. I have extensive experience in site design, wastewater and stormwater management, and water quality assessments and have worked on dozens of 40B projects, some for the applicant and some as a peer reviewer. I will be supported on the project by Neal Price, Senior Hydrogeologist who will conduct the groundwater mounding analysis. Please call me with any questions at my cell 508-364-7818 as I will be out of my office until next Tuesday. I look forward to working with you on this project.

Sincerely,

HORSLEY WITTEN GROUP, INC.



Scott W. Horsley
Principal

**ACKNOWLEDGED AND ACCEPTED
BY:**

Name

Title

Date

Horsley Witten Group

Sustainable Environmental Solutions

Scott W. Horsley, LEED AP

President and Senior Environmental Scientist



Areas of Expertise

- Wetland and Natural Resource Area Assessments
- Coastal Resources Management
- Smart Growth/ Low Impact Development
- Climate Change/ Energy
- Integrated Water Management
- Watershed Planning & Assessment
- Wastewater Management
- Stormwater Management
- Low Impact Design
- Climate Change Adaptation Design
- Training
- Meeting Facilitation

Professional Registrations

- LEED AP
- LID Designer, State of Rhode Island, 2006

Professional Affiliations

- Adjunct Professor, Tufts University, Graduate Department of Urban and Environmental Planning and Policy
- Massachusetts Stormwater Advisory Committee
- Massachusetts Sustainable Water Resource Advisory Committee
- Board of Directors, Massachusetts Rivers Alliance

Scott Horsley has 30 years of professional experience in the fields of watershed planning and water resources management. He has worked as a consultant to federal, state, and local jurisdictions, and private industry throughout the United States, Central America, the Caribbean, the Pacific Islands, and China. Scott has been an innovator in the environmental profession, and thrives on bringing new and fresh approaches to challenging projects. Scott has a strong understanding of the full range of technical, planning, and policy issues associated with land use and environmental science. Scott has served as an instructor for a nationwide series of U.S. Environmental Protection Agency (EPA) workshops on water resource protection and coastal resources management. He has also served on numerous advisory boards to the EPA, the National Academy of Public Administration, Massachusetts Department of Environmental Protection (DEP), Massachusetts Executive Office of Energy and Environmental Affairs (EEA), National Groundwater Association, and Massachusetts Audubon Society. Scott has received national (EPA) and local awards (Mashpee Conservation Commission) for his work in the wetlands and stormwater management fields. He is an Adjunct Professor at Tufts University, where he teaches courses in water resources policy and low impact development (LID).

REPRESENTATIVE PROJECTS

Cape Cod 208 Water Quality Management Plan: Consultant to the Cape Cod Commission for the preparation of the 2014 Cape Cod 208 Plan was prepared in response to litigation filed by the Conservation Law Foundation to bring the fifteen Cape Cod towns into compliance with the Clean Water Act. Fifty-seven estuaries are impacted by excessive nutrient loading derived from wastewater, stormwater, fertilizers and natural sources. Traditional sewerage options have been defeated numerous times at town meetings and are deemed to be not affordable by the voters. The plan presents an innovative alternative approach that includes a broad range of green infrastructure including shellfish restoration, permeable reactive barriers, fertilizer management, ecotoilets and other decentralized solutions. An adaptive management plan provides a practical framework to implement and optimize an integrated array of strategies to attain compliance with the Clean Water Act. Mr. Horsley led a team of scientists and engineers in the development of a non-traditional/green infrastructure approach and conducted dozens of public stakeholder workshops.

Coventry Woods 40B Peer Review, Carlisle, MA: Served as a peer review consultant in the review of a proposed affordable housing project. Conducted a groundwater mounding and water quality impact assessment, provided letter report and testimony at local ZBA hearings.

Billerica 40B Peer Review, Billerica, MA: Served as a peer review consultant in the review of a proposed affordable housing project for 384 units. Conducted a groundwater mounding, water quality and wetlands impact assessment, provided letter report and testimony at local ZBA hearings.

Horsley Witten Group

Sustainable Environmental Solutions

Scott W. Horsley, LEED AP
President and Senior Environmental Scientist

Awards

- Mashpee (MA) Conservation Commission Annual Environmental Achievement Award, 2002
- EPA Environmental Technology Innovator Award for Stormwater Treatment Design, 1999

Academic Background

Masters of Arts, Marine Affairs
- Environmental Protection,
University of Rhode Island

Bachelor of Science, Biology,
Southeastern Massachusetts
University

Patent

United States Patent Number
5,549,817 for Stormwater
Treatment System/Apparatus

South Sandwich Village Conceptual Master Plan, Sandwich, MA: Project Manager for the development of a master plan and a regional wastewater treatment facility for a mixed use village development to be located on 50 acres in Sandwich, MA. The wastewater treatment plant has a design flow of 500,000 gallons/day, the fourth largest treatment facility on Cape Cod. The regional wastewater treatment plant facility is being designed to service the South Sandwich Village project as well as several other existing and new projects in the neighborhood. It will significantly reduce nitrogen loading to a Zone 2 drinking water area and several marine recharge areas.

Smart Growth and Smart Energy Toolkit, EEA: Served as a consultant to the EEA to design an outreach tool for local governments and the development community. The Toolkit includes descriptions of twenty techniques, including transfer of development rights (TDR), transit-oriented development (TOD), village center zoning districts, open space residential design (OSRD), LID, agricultural preservation, integrated water, and wastewater management, brownfields redevelopment, and the newly-legislated Chapter 40R smart growth overlay districts. It also includes case studies and model bylaws on the twelve subject areas.

Massachusetts Climate Change Advisory Committee, EEA: Scott served as a member of the Coastal Zone and Oceans Subcommittee of the Climate Change Advisory Committee convened by the Secretary of EEA. The Committee was assembled to develop recommendations, strategies, and criteria to implement the Global Warming Solutions Act passed by the Massachusetts legislature last year. The main task of the subcommittee is to analyze strategies for adapting to the predicted impacts of climate change in the Commonwealth of Massachusetts. Among other recommendations, Scott proposed regulatory changes to accommodate the landward migration of wetland systems that will result from sea level rise.

Hydrologic and Water Quality Investigation of Savin Hill Cove Related to Proposed Improvements to the Morrissey Boulevard Stormwater System, BWSC: HW worked with Fay, Spofford, and Thorndike, Inc. (FST) to assist the Boston Water and Sewer Commission to evaluate potential impacts to an estuarine system from a stormwater improvement project. Scott was the Principal-in-Charge for the Project, contributing through multiple project phases, from initial impact evaluation, through permitting, to construction and post-construction monitoring.

Low Impact Development (LID) Certification Program, Rhode Island Coastal Resources Center: Assisted the State of Rhode Island Coastal Resources Management Council in developing and teaching a training course to certify LID designers including engineering, landscape architects, planners and ecologists. Developed LID techniques for application in the coastal zone to reduce stormwater flows and to provide water quality restoration.



Neal M. Price

Senior Project Manager – Senior Hydrogeologist

Estuarine Resource Protection Study, Harwich, MA: Project Manager for a hydrodynamic and watershed assessment designed to investigate the baseline characteristics and potential threats to the estuary environment. The project included intensive components of water level and water flow data collection, water budget analyses and tidal flushing estimates.

Riverine Resource Protection Study, Canoe River, MA: Conducted a water quality and hydrodynamic sampling study of the Canoe River in Massachusetts to help assess water quantity and water quality risks from increasing development and associated water withdrawals, wastewater disposal, and stormwater runoff.

Estuarine Resource Assessment, Clark Pond, MA: Project manager for a watershed assessment of Clark Pond in Manchester, Massachusetts that included field survey, hydrodynamic measurements, water quality sampling, land use inventories, water quality modeling, and tidal flushing modeling.

Sediment Transport, Sediment Sampling, and Dredging Assessment, North Dorchester Bay, Dorchester, MA: Project Manager for major sedimentation and sediment quality assessment in the vicinity of four former CSO outfall pipes in North Dorchester Bay. The first project phase involved an assessment of sediment dynamics and the potential for infilling of the outfall pipes after CSO separation reduced the frequency of discharges as part of the continuing MWRA cleanup of Boston Harbor. The second phase involved collecting and analyzing more than 30 sediment cores to permit and plan a dredging maintenance program for the outfalls. Both phases also included bathymetric mapping and field survey components.

Parker River Low-Flow Study, MA: Project Manager for a project assessing the extent of flow impairment, potential causes of flow impairment, and potential mitigation strategies to address the critical low flow conditions in this basin. The project included components of groundwater recharge water budget assessment, statistical analyses of measured historical and current streamflows, and estimates of potential streamflow depletions caused by groundwater withdrawals using the USGS StrmDepl modeling tool.

Watershed Assessment Studies for Peconic Bay, Long Island, NY: Project Manager for major watershed assessment of four subwatersheds to The Peconic Bay of northern Long Island. The project focused on assessing and improving potential stormwater impacts but also included components of habitat evaluation and conservation. The project began with the evaluation and mapping of existing data, followed by an intensive field investigation of watershed characteristics and finished with conceptual stormwater BMP designs and land conservation recommendations in a watershed management plan.

Aberjona River/ Davidson Park Restoration, Winchester, MA: Project Manager for a river and park restoration project in a historic park with flooding concerns and sediment quality concerns related to two upstream superfund sites. The Project includes site survey, natural resources and habitat assessment, sediment quality/ dredging assessment, hydraulic evaluation, conceptual river and park site designs, and public outreach.

Freshwater Wetland Restoration, Tidmarsh Farms, Plymouth, MA: HW project manager contributing to a major ongoing restoration of approximately 200 acres of cranberry bogs to Atlantic White Cedar Swamp and other native bordering vegetated wetland habitat along the headwaters of Beaver Dam Brook in the Manomet Village of Plymouth. The project includes dredging, contaminant sediment re-use evaluations, hydrologic evaluations, permitting, stormwater management, dam removal, and culvert replacement.

Freshwater Wetland Restoration Feasibility Study, Cold Brook, Harwich, MA: Project Manager conducting restoration feasibility assessment to restore approximately 10 acres of cranberry bogs to pre-existing riparian and native bordering vegetated wetland habitat along the headwaters of Cold Brook. To date, the project has included a dredging feasibility assessment, sediment sampling, site survey, and baseline hydrologic



Neal M. Price

Senior Project Manager – Senior Hydrogeologist

monitoring. The project is currently awaiting funding to move forward with the hydraulic evaluation, design, and permitting phases.

Freshwater Wetland Restoration, Tidmarsh Farms, Plymouth, MA: HW project manager contributing to a major ongoing restoration of approximately 200 acres of cranberry bogs to Atlantic White Cedar Swamp and other native bordering vegetated wetland habitat along the headwaters of Beaver Dam Brook in the Manomet Village of Plymouth. The project includes dredging, contaminant sediment re-use evaluations, hydrologic evaluations, permitting, stormwater management, dam removal, and culvert replacement.

Freshwater Wetland Restoration, Eel River Headwaters, Plymouth, MA: HW project Manager for this widely acclaimed restoration of approximately 35 acres of cranberry bogs to Atlantic White Cedar Swamp and other native bordering vegetated wetland habitat along the headwaters of the Eel River. The project includes dredging, contaminant sediment disposal issues, hydrologic evaluations, permitting, dam removal, and culvert replacement.

Bedford Golf, Bedford, NY: Provided peer review of Integrated Pest Management plans and water quality monitoring results for a golf course with a flow through stream tributary to a water supply reservoir.

Glen Arbor Golf, Bedford, NY: Provided peer review of Integrated Pest Management plans and water quality monitoring results for a golf course with a flow through stream tributary to a water supply reservoir.

PROFESSIONAL EXPERIENCE

Horsley Witten Group, Inc., Senior Hydrogeologist/Senior Project Manager, 1997 to present

MetroWest Water Supply Tunnel Project, 1997

Water Resources Research Center, Univ. of Massachusetts, Research Scientist, 1995 to 1997

Fugro East Inc., Geologist, 1995

21E, Inc., Environmental Scientist, 1993

PUBLICATIONS & PRESENTATIONS

Price, N. April 1, 2010. "Using Groundwater Modeling and Geochemical Principles to Design a Replacement Drinking Water Well with Reduced Susceptibility to Dissolved Iron and Manganese Concerns." Spring Joint Regional Conference, New England Water Works Association (NEWWA), Worcester, MA.

Price, N. 2009. A GIS-Based Water Budget Tool for Subwatersheds of the Taunton River Watershed. Massachusetts Water Resources Conference.

Price, N. 2007. An Environmentally Sustainable Approach to Water Supply Resource Protection and Development, a Southeastern Massachusetts Case Study. Massachusetts Water Resources Conference.

Watras, C.J.; Morrison, K.A.; Vent, A.; Price, N.; Negnell, O.; Eckley, C.; Hintelman, H.; Hubacher, T. 2005. Sources of Methylmercury to Wetland-Dominated Lake in Northern Wisconsin. Environmental Science Technology, Volume 39, Pages 4747-4758.

Price, N. 2000. Seasonal and climatic influences on the hydrology of the Gull-Higgins kettle pond complex, Wellfleet, MA. Cape Cod Environment.

Godfrey, P. K. Galluzzo, N. Price and J. Portnoy. 1999. Water Resource Management Plan for the Cape Cod National Seashore, for the National Park Service.

Price, N. 1999. Seasonal and Climatic Influences on the Hydrology of the Gull-Higgins Kettle Pond Complex in Wellfleet, MA. Poster presentation at the American Geophysical Union Conference, Spring 1999.