

STATE OF MAINE  
LAND USE REGULATION COMMISSION

IN THE MATTER OF DEVELOPMENT )	Pre-Filed Direct Testimony of
APPLICATION DP 4886 )	Brett Hart, John Theriault, and Jodi O’Neal
BLUE SKY EAST, LLC )	on behalf of Blue Sky East, LLC
BULL HILL WIND PROJECT )	

On behalf of Blue Sky East, LLC (“Blue Sky”), Brett Hart, John Theriault, Jodi O’Neal are submitting this pre-filed direct testimony in support of DP 4886 for the Bull Hill Wind Project.

**I. QUALIFICATIONS AND BACKGROUND**

**A. Brett Hart**

I am employed by James W. Sewall Company (Sewall) of Old Town as a Project Manager and am a Licensed Professional Engineer in the State of Maine. I have worked for Sewall since 1999. I am responsible for the management, scheduling, and overall design and quality of civil engineer projects. I graduated from the University of Maine with a B.S. Degree in Bio-Resource Engineering Technology in 1997. During my employment at Sewall, I have worked on the civil engineering design of several wind projects within the State of Maine including: the Kibby Wind Project, Record Hill Wind Project, Highland Wind Project, and the Rollins Wind Project. Our work on these wind projects typically included the layout and design of the access roads, crane paths, and turbine pads. My resume is attached as Exhibit A.

**B. John Theriault**

I am employed by James W. Sewall Company (Sewall) as a Project Manager/Transportation Engineer and am a Licensed Professional Engineer in the States of Maine, New Hampshire, and Vermont. I have worked for Sewall since 2009. I am primarily responsible for the management and design for transportation projects being worked on in the

Old Town office. I graduated from the University of Maine with a B.S. Degree in Civil Engineering in 1993. During my employment at Sewall, I have worked on transportation projects for State, municipal, and private clients including highway design, intersection improvements, and traffic impact studies. I am certified as a Profession Traffic Operations Engineer by the Transportation Professional Certification Board. Prior to my employment at Sewall, I worked as a transportation engineer at the following locations: New York State DOT – 1993-1995, Hoyle Tanner Associates – 1995 – 2001, AMES A/E – 2001 – 2009. My resume is attached as Exhibit B.

**C. Jodi O’Neal**

I am employed by James W. Sewall Company (Sewall) as a Staff Engineer and I am Certified as an Engineer-Intern in the State of Maine. I am also a Certified Professional in Erosion and Sediment Control. I have worked for Sewall since 2007. I graduated from the University of Maine with a B.S. Degree in Civil Engineering in 2002. Prior to working for Sewall, I was employed by Plymouth Engineering from 2002 to 2007. The majority of my experience involves development of site designs and the preparation of hydraulic and drainage calculations and analysis for large land development projects. This work is typically utilized for permitting of large projects and the development of design measures to control the quantity and quality of storm water runoff from developed sites. My resume is attached as Exhibit C.

**D. Company Qualifications and Background**

James W. Sewall Company (Sewall) is a full-service consulting firm based in Old Town, Maine. The company offers a multidisciplinary array of services, including engineering, surveying, construction management, land use planning, Geographic Information Systems (GIS) consulting, aerial mapping and photogrammetry, and forest resource consulting. The

Engineering, Surveying, and Utilities (ESU) Division includes professional engineers, professional land surveyors, GIS analysts, and technicians with expertise in virtually every discipline of civil engineering, including site design and permitting, structural, hydraulic, environmental, geotechnical, and transportation engineering.

Sewall has 150 employees and nine corporate offices in six states: Alabama (two offices), Minnesota, New York (two offices), North Carolina, South Carolina, and two offices in Maine. Sewall has built its business over the years by establishing collaborative long-term partnerships with its clients. Sewall consultants assist public and private sector clients throughout the United States, Canada, and overseas with projects that range in size and scope from municipal subdivision peer reviews to massive multi-year geocoding contracts in major metropolitan areas.

To date, Sewall professionals have been involved with several of the wind power generation projects that have occurred within the State of Maine. These projects have included 264 wind turbines and 122 miles of access road and crane paths.

## **II. INVOLVEMENT WITH THE BULL HILL WIND PROJECT**

The James Sewall Company (Sewall) has provided the civil engineering design for the layout of the access roads, crane paths, turbine pads, and the substation and operation and maintenance building for the Bull Hill Project. During the design of the project, efforts were made to utilize the existing network of forestry roads to access the turbine pads and minimize the amount of new roadways and land disturbance necessary for the project. We have completed the drainage analysis within the project area to properly size drainage structures as well as develop stormwater quantity and quality control measure to address runoff from the site. The stormwater erosion and sediment control measures included within the permitting plans for this project were

developed in cooperation with input from professionals at the Department of Environmental Protection (DEP), Land Use Regulation Commission (LURC) and the State of Maine's Soil Scientist.

The purpose of this testimony is to briefly explain the process and the design criteria utilized for the development of the access roads, crane paths, and the turbine pads for the Bull Hill Project. The civil design plans for the Project are included as Exhibit 1A of the Application. Of primary concern with the development of any of these types of projects is to minimize the overall disturbance of the project area, avoid natural resources, and utilize existing roadways whenever possible. This task must be balanced with development of access roads and crane paths that are suitable for the transport and installation of the large components that are typical to wind energy projects. Minimum roadway widths, grades, and curvature all play an important role in the proper layout of wind projects. Turbine pads must be developed that not only provide room for the permanent installation and maintenance of the wind turbines, but also allows room for the large equipment and components necessary to assemble the turbines. In addition, balancing grades of the access roads, crane paths, and turbine pads such that large quantities of roadway materials do not need to be brought in from offsite or removed from the site also needs to be considered to balance project costs and practical construction methodologies.

The Bull Hill Project includes 19 Vestas V100 Turbines. The roadway and crane path geometry used for this project was based on recommendations from Vestas, the applicant's experience with other wind projects, and input from Reed & Reed Construction and include 24' wide access roads and 36' crane paths. The minimum curvature for centerline alignments used for access roads and crane paths was 200 feet. The maximum longitudinal slope along access roads and crane paths was 12 percent and the maximum cross slope grade used was 2.0 percent.

The typical size of the turbine pad was 200 feet by 175 feet with a maximum cross slope of 1.0 percent. Avoidance of resource impacts was a key design criteria and the location of the proposed access roads, crane paths, and crane pads to avoid any impacts to existing wetlands and vernal pools.

The hydraulics and drainage analysis was completed for this project for the pre development and post development conditions for the site. The purpose of this analysis was to properly size drainage structures, design temporary and permanent erosion control and water quality measures, to demonstrate that there will not be any adverse effects downstream of the project, and to insure that the proposed design for the facility is in accordance with State and Federal regulations.

The drainage analysis was completed using the 2, 10, and 25-year Type III 24 hour design storms. All drainage structures were sized to accommodate the 25-year storm. Watershed areas used in our analysis are from Maine GIS watershed mapping. The hydrologic soils properties within the project area were provided from soils analysis completed by Albert Frick Associates, Inc.

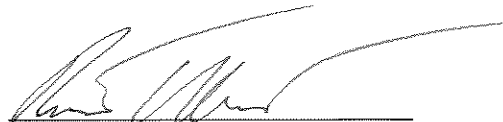
Sewall worked closely with DEP and Dave Rocque, the State soil scientist, to ensure that the stormwater management and erosion and sedimentary control measures are appropriate for the type of development and existing conditions. For example, a number of construction techniques have been developed in prior wind projects in Maine and used successfully during construction to ensure that groundwater hydrology is maintained and erosion during construction is minimized. These measures are reflected in the site specific erosion and sedimentation control plan (the "E&S Plan"), which is included as Exhibit 11A of the Application. Additionally, the full stormwater analysis is included in section 11.0 and Exhibit 11B of the Application.

The project was designed to meet the State's water quality standards based on the development within the watersheds. The State erosion and sedimentation control standards were met using a variety of DEP approved BMPs including silt fence, bark mulch berms, level lip spreaders, rock sandwiches, and vegetated buffers. A small portion of the project lies within the Spectacle Pond watershed. This watershed requires phosphorous calculations to be completed and appropriate treatment measures taken to protect Spectacle Pond. Phosphorous treatment measures utilized for this project include designating vegetated buffer areas to be maintained with limited disturbance.

### **III. CONCLUSION**

Sewall believes that we have provided a design for the access roads, crane paths, turbine pads, and substation and O&M building that minimizes impacts to the surrounding landscape and natural resources while providing an efficient and practical roadway network for component delivery and installation at the Bull Hill Wind Farm. Our design takes advantage of the existing forestry roads as much as practicable to access the site. We have included within our design Best Management Practices approved by DEP and LURC to treat stormwater run off from the site.

Date: APRIL 25, 2011

  
Brett Hart

STATE OF MAINE  
County of Penobscot

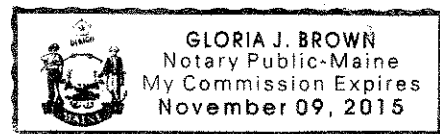
Date: April 25, 2011

Personally appeared before me the above named Brett Hart, who, being duly sworn, did testify that the foregoing testimony was true and correct to the best of his knowledge and belief.


Before me,

  
Notary Public

My commission expires November 9, 2015



Date: 4-22-11

  
John Theriault

STATE OF MAINE  
County of Penobscot

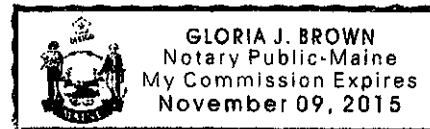
Date: 4/22/11

Personally appeared before me the above named John Theriault, who, being duly sworn, did testify that the foregoing testimony was true and correct to the best of his knowledge and belief.

Before me,

  
Notary Public

My commission expires: 11-9-15





Date: 4/25/11

Jodi O'Neal  
Jodi O'Neal

STATE OF MAINE  
County of Penobscot

Date: April 25, 2011

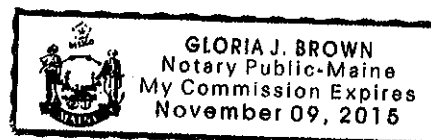
Personally appeared before me the above named Jodi O'Neal, who, being duly sworn, did testify that the foregoing testimony was true and correct to the best of his knowledge and belief.

Before me,

Gloria J. Brown

Notary Public

My commission expires: November 9, 2015



Hart, Theriault and O'Neal Pre-Filed Direct Testimony Exhibits

Exhibit A: Brett Hart Resume

Exhibit B: John Theriault Resume

Exhibit C: Jodi O'Neal Resume



**Brett C. Hart, P.E.**

**Project Manager**

**Engineering, Survey, & Utilities Division**

Brett Hart joined the James W. Sewall Company in 1999 offering a strong background in site design and surveying. Mr. Hart brings to Sewall 11 years of experience in site development and permitting, traffic and transportation engineering, roadway and intersection design, and stormwater management. Recently, Brett has been responsible for managing four wind turbine road and site design projects located within the State of Maine.

**EDUCATION**

B.S., Bio-Resource Engineering Technology, University of Maine, Orono  
Traffic and Transportation Engineering Seminar, Northwestern University, Evanston Illinois

**PROFESSIONAL LICENSES AND AFFILIATES**

Licensed Professional Engineer, Maine #10658  
Treasurer, American Council of Engineering Companies of Maine

**RELEVANT EXPERIENCE**

*Kibby Wind Power Project, Kibby & Skinner Townships, Maine.* Project Manager for civil road and site design for the 132-megawatt (MW) wind farm including 44 Vestas V90 3.0-MW wind turbine generators. Initially responsible for value-engineering existing design to improve project constructability and reduce overall construction costs. Ultimately responsible for oversight and development of new design plans and Land Use Regulation Commission (LURC) permitting submittals for the Owner's revised turbine layout. Review required by LURC. Project is under construction.

*Record Hill Wind Project, Rosbury, Maine.* Project Manager for civil road and site design for a proposed 50.6-megawatt (MW) wind farm including 22 Siemens SWT 2.3-MW wind turbine generators. Responsible for oversight and development of project design plans and Maine Department of Environmental Protection (MDEP) permitting submittals. Review required by MDEP. Project is under construction.

*Highland Wind Project, Highland Plantation, Maine.* Project Manager for civil road and site design for a proposed 128.6-megawatt (MW) wind farm including 48 wind turbine generators. Responsible for oversight and development of project design plans and Land Use Regulation Commission (LURC) permitting submittals. Review required by LURC and MDEP. Permit application pending.

*Rollins Wind Project, Penobscot County, Maine.* Project Manager for civil road and site design for a proposed 60-megawatt (MW) wind farm including 40 General Electric 1.5-MW wind turbine generators. Responsible for value-engineering existing design to improve project constructability and reduce overall construction costs as well as oversight and development of final construction plans. Project is nearing construction.



*The Widewaters Group, Offsite Mitigation, Bangor, Maine.* Project Manager responsible for design of offsite mitigation improvements for approximately one-half mile of Stillwater Avenue. Project included roadway widening, signalization, underdrain system installation, utility relocation, and Right of Way acquisition. Review required by the City of Bangor and the Maine Department of Transportation. Project is complete.

*Wal-Mart Real Estate Business Trust, Offsite Mitigation, Bangor, Maine.* Senior Consultant to Sewall Project Team responsible for design of offsite mitigation improvements for portions of Stillwater Avenue and Hogan Road. Project included roadway widening, signalization, underdrain system installation, utility relocation, and easement/right of way acquisition. Review required by the City of Bangor and the Maine Department of Transportation. Project is under construction.

*First Hartford Realty Corporation, Triangle Center Offsite Mitigation, Bangor, Maine.* Project Manager responsible for design of offsite mitigation improvements for portions of Stillwater Avenue. Project included roadway widening, signalization, underdrain system installation, utility relocation, and easement/right of way acquisition. Review required by the City of Bangor and the Maine Department of Transportation. Project is under construction.

*Traffic Impact Analysis.* Performed numerous traffic impact analyses per municipal ordinance requirements for development projects located throughout the State of Maine.

*Traffic Movement Permits.* Drafted and contributed to numerous Maine Department of Transportation traffic movement permit application sections 1 through 6 and section 7 for projects located throughout the State of Maine.

*Pleasant Point Passamaquoddy Tribe, Pleasant Point, Maine.* Development of a 20 year Long Range Transportation Plan for the Passamaquoddy Tribe utilizing Federal Highway Administration guidelines. Review required by the Bureau of Indian Affairs. Project is complete.

*Downeast Heritage Center – Downtown Revitalization, Calais, Maine.* Site and road reconstruction design for a downtown revitalization museum and community center in conjunction with Lewis & Malm Architecture. Project included site layout, upgrading the stormwater collection system, and road reconstruction for approximately 1,000 feet of Union Street. Review required by the Maine Department of Transportation. Project is complete.

*Pleasant Point Passamaquoddy Tribe, Pleasant Point, Maine.* Design of a 2.6-mile shared use bicycle/pedestrian path along an abandoned Maine Central Railroad Line. Review required by Maine Department of Transportation. Project is complete.

*Pleasant Point Passamaquoddy Tribe, Perry, Maine.* Design of a new residential subdivision including a 0.7-mile long road, sewer and water infrastructure, and site layout of 28 housing units. Review required by Bureau of Indian Affairs, Indian Health Services, USDA Rural Development, and the Federal Highway Administration. Project is complete.



## John Theriault, P.E., PTOE, LEED® AP Project Manager / Traffic Engineer

Mr. Theriault joined Sewall in 2009. He has more than 17 years of diverse experience in many areas of engineering, including intersection and highway design, traffic engineering and analysis, State and local permitting, and project management. John has significant experience with traffic modeling and forecasting for commercial and municipal development to determine future highway/intersection improvements necessary to accommodate future traffic demands. John has worked with the Multimodal Division at MaineDOT to assist with the design and development of construction documents for several at-grade railroad crossings improvement projects. His experience includes working within a diverse market area of retail/commercial, government, healthcare, and institutional.

### EDUCATION

B.S., Civil Engineering, University of Maine, 1993  
A.S., Civil Engineering Technology, University of Maine, 1990

### CERTIFICATION

Licensed Professional Engineer: Maine, New Hampshire, Vermont  
Professional Traffic Operations Engineer, PTOE  
LEED Accredited Professional

### RELEVANT EXPERIENCE

**2009 - Present, James W. Sewall Company**

***Senior Project Manager and Traffic Engineer***

Mr. Theriault's responsibilities include, but are not limited to, developing and monitoring project scopes, budgets and schedules as well as managing the design and production of construction drawings and specifications for traffic and highway and intersection improvement projects.

**2001 - 2009, AMES A/E Architects and Engineers**

***Senior Civil / Traffic Engineer and Project Manager***

Senior engineer responsible for the management and design of civil engineering projects including site plan design, intersection and highway design, traffic signal design, railroad crossings, DEP storm water and wetland permitting, and local permitting of land development projects. Responsible for preparing traffic impacts studies and MaineDOT permitting for development projects and providing recommendations and design for offsite mitigation for traffic impacts resulting from new development. Completed construction documents and specifications for highway/traffic projects for MaineDOT and local municipalities. Developed construction plans for several at grade railroad crossings for the Multimodal Program at MaineDOT. Provide client representation at public meetings to provide overview of projects and answer technical questions. Experience with AutoCAD, Synchro/Simtraffic Traffic Software, and Hydrocad.

**1995 – 2001, Kimball Chase Company, A Division of Hoyle Tanner Associates**

***Civil / Highway Engineer***

Responsible for all aspects of highway design for NHDOT and municipal highway projects including horizontal and vertical alignments, pavement design, cost estimates, drainage, and temporary traffic control. Used AutoCAD with Softdesk software to generate plans, profiles, and cross sections for the construction plans. Analyzed existing and future traffic volumes using highway capacity software to determine lane requirements, signal phasing, and levels of service at intersections. Developed rendered preliminary plans for use at public hearings. Completed site plans for commercial development and designed drainage using Hydrocad software. Completed Site Specific Permit applications for NHDES.

**1993 – 1995, New York State Department of Transportation**

***Civil Engineer 1***

Responsible for preparing the Engineer's estimates for State Highway contracts. Reviewed consultant's plans, specifications and details to insure conformance with department policy and AASHTO standards. Utilized Microstation 5.0 to generate plans and details for in-house design projects. Calculated drainage area runoffs and designed roadside drainage systems.

***Relevant Highway, Intersection, and Traffic Signal projects completed by John Theriault, PE, PTOE, while employed by others***

*Cedar Street/Main Street Intersection, Bangor, Maine* – Traffic signal upgrade

*Bangor Gas, Bangor, Maine* – Provided design and permitting plans for approximately 1 mile of new gas main along Union Street in Bangor, Maine

*Eastern Maine Healthcare Mall, Main Entrance/Union Street, Bangor, Maine* - New driveway with new traffic signal installation

*Armory Road/Route 104, Waterville, Maine* – Intersection and roadway improvements with traffic signal upgrade

*Route 196/I-295 NB Off Ramp, Topsham, Maine* – Interstate ramp widening with intersection improvements and new traffic signal installation

*Topsham Fair Mall Road, Topsham, Maine* – Roadway widening improvements with two new traffic signal installations and one traffic signal upgrade

*Wilson Street/Peirce Road, Brewer, Maine* - Roadway and intersection improvements with new traffic signal installation

*Wilson Street/North Main Street, Brewer, Maine* – Intersection improvements and traffic signal upgrade

# Jodi O'Neal, EI, CPESC

## Staff Engineer

Mrs. O'Neal joined the James W. Sewall Company in January of 2007. She has eight years of experience in engineering design and permitting. Her primary focus is in wind power, commercial/retail development and subdivision design which includes site and utility design, stormwater management, and environmental and construction related permitting.

### EDUCATION

BS in Civil Engineering, University of Maine, Orono, 2002

### PROFESSIONAL CERTIFICATION

Engineer Intern

Certified Professional in Erosion and Sediment Control #3888

### RELEVANT EXPERIENCE

#### ***STAFF ENGINEER***

*Stormwater Design and Analyses* Successfully designed and permitted many stormwater systems for many different types of sites from complex wind power projects, commercial developments, subdivisions and mining operations to small site reconfigurations throughout the state. She uses the existing grade of the land to accomplish stormwater treatment to the best extent possible. This preserves the natural beauty of the site and minimizes development costs.

*Kibby Wind Power Project, Kibby & Skinner Townships, Maine.* Stormwater analysis, erosion and sedimentation control and permitting for civil road and site redesign for proposed 132MW wind farm including 44 Vestas V90 3.0MW wind turbine generators. Permitting was done through the Maine Land Use Regulation Commission

*Record Hill Wind Project, Roxbury, Maine.* Stormwater analysis, erosion and sedimentation control and permitting for civil road and site redesign for proposed 50.6MW wind farm including 22 Siemens 23MW wind turbine generators. Permitting was done through the Maine Department of Environmental Protection for a Site Location of Development Act permit.

*ALSID Site, Bangor, Maine.* Design and permitting for 3+ acre commercial lot including site and storm drainage design and utility coordination. Permitting included MDEP Stormwater Permit and local Site Plan approval.

*Emerson Mill Road Pit, Hermon, Maine.* Design and permitting for a commercial clay mining pit. This was a sensitive erosion and sedimentation control project because it was a large exposed area that is constantly being disturbed. This project had to meet both State and Local requirements.

*Kayden's Corner Subdivision, Hermon, Maine.* Designed roadway and lotting for a 10 lot residential subdivision. configuration to maximize lot efficiency and minimize wetland impacts. Used soil filters for stormwater drainage control. Represented the client at planning board meetings. Achieved State and local approval.