

**Land Use Regulation Commission
Grid Scale Wind Energy Development Application**

**Stetson II Wind Project
T8 R4 NBPP
Washington County, Maine**

November 2008



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1.0 PROJECT DESCRIPTION

Stetson Wind II, LLC (Stetson II) proposes to construct 17 wind turbines along the ridgelines of Owl and Jimmey Mountains in T8 R4 NBPP, Washington County, Maine (Figure 1). The turbines will be General Electric (GE) 1.5-megawatt (MW) models, approximately 389 feet to the tip of the blade. The Stetson II Wind Project would be capable of producing 25.5 MWs of renewable energy.

The entire Township is in a single ownership and is primarily used for commercial timber harvesting. The applicant has leased the Township in its entirety, and the landowner will retain the ability to utilize the area for commercial timber harvesting. The leased area is zoned as a General Management Subdistrict (M-GN), with inclusions of Shoreland Protection (P-SL) and Wetland Protection Subdistricts (P-WL1, P-WL2, and P-WL3) (Figure 2). There is a network of existing haul roads and several gravel pits used for previous road construction. Existing roads will be utilized to the greatest extent possible and on-site gravel pits, if utilized, will not exceed five acres. The gravel roads will have a maximum slope of 12 percent. The 16-foot access roads and 32-foot wide crane path would be maintained by Stetson II. Roads outside of the leased area and therefore under the control of the landowner would continue to be maintained by the landowner. Erosion control measures will be maintained and monitored during and after construction activities. Maximum elevations are approximately 780 feet above sea level (asl) at Owl Mountain and 910 feet asl at Jimmey Mountain. Webster Brook flows easterly in the valley between the two peaks into Upper Hot Brook Lake, and Hot Brook flows southerly along the eastern boundary of the Township. Upper Hot Brook Lake is more than 3,500 feet from the nearest turbine location. The nearest residences, seasonal camps on the lake at Spinney Cove, are more than a mile from the nearest turbine location. The only existing structures within the lease area are two temporary meteorological towers permitted in DP 4786 (Figure 1). Both existing towers will be removed and replaced with 80 meter lattice type permanent meteorological towers. A permanent tower will be placed in the Owl Mountain location, and an additional two towers will be placed on Jimmey Mountain.

A 32,183 linear foot 34.5-kilovolt (kV) electrical collector line will connect the turbines on Jimmey Mountain to the turbines on Owl Mountain. The collector line will then cross Route 169 and follow Atlas Road south to a point where it will join the existing Stetson Wind Project (Stetson) collection system. From that point, it will use existing infrastructure to connect with the Stetson substation located at the south end of Stetson Mountain. There will be no substation or operations and maintenance facility located on the Stetson II Wind Project site, and no 115-kV transmission line will be constructed. An amendment to DP 4788, which authorized the construction and operation of Stetson, will be submitted for the 0.8 mile segment of the electric collector line connecting the Stetson II Wind Project to Stetson.

No Significant Wildlife Habitats (e.g., deer wintering areas or inland waterfowl and wading bird habitats) will be impacted by the proposed development. There will also be no dredge or fill wetland impacts. There will be a small (i.e., 0.06 acre) permanent clearing and shading wetland impact at the entrance to the Jimmey access road. A wetland clearing (an additional 0.27 acre) will be necessary for the electrical collector line. Impacts to Webster Brook and Hot Brook Stream will include some clearing of the canopy along the existing Jimmey access road. The road entrance will be widened and will involve some clearing on the east side of the road adjacent to Hot Brook. The Jimmey access road currently crosses Webster Brook. In this area, the road will not be widened; however, the electrical collector line will cross the brook alongside the road, and some canopy clearing will be required.

Table 1. Key Facts

Key Facts	Final Plan Units	Comments
Number of Turbines		
General Electric 1.5 sle	17 Turbines	1.5 MW, 389 feet to vertical blade tip
Stetson II Wind Output		
General Electric 1.5 sle	25.5 MW	
Stetson II: Wind Resource		
Prevailing wind direction	Northwest	
Average wind speed	7.5 meters/second	Between a Class IV and Class V wind resource
Cleared Acreage---within M-GN zone		
17 Turbine Pads Temporary clearing Permanent clearing	17.2 acres 4.3 acres	Temporary clearing = pad clearings + grading = 1.01 ac each. Permanent clearing = crane pad + OHE + driveway + foundation + 50 ft. perimeter = 0.25 acre each
New Crane Path Segments Temporary clearing Permanent clearing	4.7 acres 9.8 acres	Jimmy 2.79 ac + Owl 1.91 ac Jimmy 6.09 ac + Owl 3.71 ac
New Spur Roads Temporary clearing Permanent clearing	0.3 acre 0.5 acre	One spur road on Owl Crane Path., none on Jimmy Rd.
New Access Roads Temporary clearing Permanent clearing	0.5 acre 0.4 acre	Jimmy 0.00 ac + Owl 0.50 ac Jimmy 0.08 ac + Owl 0.33 ac
Existing Roads, Widening Temporary clearing Permanent clearing	1.0 acre 0.1 acre	Jimmy 0.84 ac + Owl 0.12 ac Jimmy 0.06 ac + Owl 0.01 ac
Stump Dump (Permanent)	<1 acre	
Lay down areas Temporary clearing Permanent clearing	5.0 acres 0.5 acre	material/equipment laydown areas only
Met Towers Permanent clearing	2.1 acres	Three separate towers
Collector line corridor Temporary clearing	33 acres	Corridor 80 feet wide cross-country
Total Temporary clearing	61.7 acres	
Total Permanent clearing	18.7 acres	
Total Project clearing	80.4 acres	
Wetlands & Streams Impacted		
Roads	2,614 square feet	Vegetation clearing, no fill
Turbines	0 square feet	
Collector line	11,581 square feet	Vegetation clearing, no fill
Total Wetland Impact	14,195 square feet	Vegetation clearing, no fill
Total Stream Impact	0 square feet	
Road Mileage		
Existing Crane Path	0.00 miles	All new roads
New Crane Path Segments	2.82 miles	
New Spur Roads	0.14 miles	1 spur road off of Owl Crane Path
Existing Access Road	3.34 miles	Existing logging road improvements
New Access Road Segments	0.31 miles	
Total Existing Roads	3.34 miles	
Total New Roads	3.27 miles	
Approximate Location Distances		
From State Route 169	0.2 miles	From closest turbine
From Danforth	7.0 miles	From closest turbine
From Springfield	15.3 miles	From closest turbine
From Hot Brook Lake	0.8 miles	From closest turbine
From Jimmy Access Road to west side of Upper Hot Brook Lake	0.17 miles	This is the closest project component to the township boundary.

2.0 ESTIMATED PROJECT COST AND FINANCIAL CAPACITY

As evidenced below, Stetson II has adequate financial and technical capacity to comply with state environmental laws and the standards and regulations adopted pursuant thereto.

2.1 Estimate Project Cost

The total project cost is expected to be approximately \$60 million, broken down as follows.

Turbine cost	\$34 million
Transportation	\$4.0 million
Turbine installation cost	\$3.0 million
Foundations	\$3.0 million
Roads	\$4.0 million
Connector electrical lines	\$4.0 million
Other construction costs	\$5.0 million
Development costs	\$3.0 million

Stetson II is the project applicant and lessee. A Certificate of Good Standing is included as Exhibit 2A. Stetson II is wholly owned by First Wind Maine Holdings, LLC, which in turn is a wholly-owned subsidiary of First Wind Holdings, LLC (First Wind). A third company and affiliate of Stetson II First Wind Energy, LLC provides consulting services to Stetson II for the development portion of the Stetson II Wind Project. Paul Gaynor is the President or Chief Executive Officer of all three companies. An affiliate of Stetson II and First Wind purchased the turbines that will be erected at the Stetson II Wind Project and will assign ownership of such turbines to Stetson II. First Wind will provide the initial funding for the Stetson II Wind Project. A letter of support from First Wind is attached. Exhibit 2B. In addition, a consolidated balance sheet for First Wind Holdings, LLC and its subsidiaries is attached. Exhibit 2C.

2.2 First Wind Background

First Wind is an independent North American wind energy company focused exclusively on the development, ownership, and operation of wind energy projects. As of August 31, 2008, its portfolio of wind energy projects included approximately 5,564 MW of capacity, of which 92 MW were operating and 182 MW were under construction. The remaining capacity is in early to advanced development stages.

First Wind's strategy since inception in 2002 has been to build a company able to develop, own, and operate a portfolio of wind energy projects in favorable markets. Its team of more than 140 employees has broad experience in wind project development, transmission line development, meteorology, engineering, permitting, construction, finance, law, asset management, maintenance, and operations. It has established land control, stakeholder relationships, meteorological programs, and community initiatives, and developed transmission solutions in the markets in which it focuses.

First Wind's project financing expertise has raised in excess of \$2 billion of capital for the development and construction of wind power projects in the U.S., and specifically in excess of \$230 million for the development and construction of wind power projects in the State of Maine.

The Mars Hill project in Mars Hill, Maine, represents New England's largest utility-scale operating wind energy project. During construction of this 28-turbine, 42-MW facility, approximately \$22 million of the roughly \$95 million project cost went to Maine businesses and local spending. In addition, \$10 million in tax payments will be paid to the town of Mars Hill over the next 20 years. This project became fully operational in March 2007. During its first year of operations, the project generated enough electricity to power approximately 29,000 households.

First Wind is currently constructing its second utility-scale wind power project in Maine, Stetson, approved by the Land Use Regulation Commission (LURC) in January 2008. This 38-turbine, 57-MW facility is expected to be fully operational by the end of 2008.

3.0 TECHNICAL CAPACITY

The assembled project team is nearly identical to the Stetson team and has a wealth of experience in project design and wind project development. Exhibit 3. First Wind has successfully permitted two projects in Maine, Mars Hill and Stetson, and is currently developing other projects in Maine. First Wind has three projects currently in operation, the Mars Hill project in Mars Hill, Maine, the Kaheawa project in Maui, Hawaii, and the Steel Winds project in Lackawanna, New York. In addition, First Wind is in the development and construction phases of other projects in Maine, including Stetson and the Rollins Wind Project. Many other projects are spread across the country and Canada.

The project team consists of James W. Sewall Company and SGC Engineering, LLC (engineering); Stantec Consulting (formerly Woodlot Alternatives, Inc.) (environmental); Terry J. DeWan and Associates (visual impact); Resource System Engineering (sound); Albert Frick and Associates (soils); TRC, Independent Archeological Consulting and Public Archeology Lab (cultural resources); and Verrill Dana (legal counsel). Each consultant has chosen for their extensive experience in development siting.

4.0 TITLE, RIGHT OR INTEREST

Stetson II presently holds a lease from Lakeville Shores, Inc., for those portions of T8 R4 NBPP that are not leased to Evergreen Wind Power V, LLC. Exhibit 4A. Included as Exhibit 4B is an analysis demonstrating that this lease does not create a subdivision.

5.0 ROAD AND TURBINE LOCATION AND DESIGN

Wind data and topographic terrain were analyzed when turbine and road locations were chosen in order to minimize impacts while meeting the project purpose. The civil designs for the project are located in Exhibit 1. Multiple alternatives were considered for road design and collector design. Final designs take advantage of existing roads to approach both Owl and Jimmey Mountains, and much of the collector line is adjacent to these roads in order to minimize clearing impacts. Turbine layouts were also designed to minimize clearing requirements needed for turbine construction. A typical turbine diagram and a rock anchor diagram are included in Exhibit 5A.

5.1 Alternatives, Avoidance, and Minimization

A number of alternatives were considered during the conceptual and planning phases of the Stetson Wind II Project. One such alternative proposed to build a crane path connecting Owl Mountain to Jimmey Mountain. A wetland reconnaissance revealed that this crane path would have required filling wetlands. To avoid these impacts, Stetson II proposes to break down the cranes on Owl Mountain and move them by truck to Jimmey Mountain to avoid impacting wetlands associated with a new cross-country crane path. This will involve multiple crane breakdowns, transportation, and re-assembly that will result in costs of hundreds of thousands of dollars.

Alternative designs were also evaluated for entrances to Owl and Jimmey Mountains. The original design looked at building a new road to Owl Mountain directly across from the Atlas Road. This would have been the shortest distance and would have taken advantage of being directly across from Stetson. However, this road would have included fill in a wetland and a stream crossing. The chosen alternative uses the existing road entrance, the Owl access road entrance, and a new road segment from Route 169 to Owl Mountain. This route is significantly longer than the original design alternative but avoids wetland fill impact. The Jimmey access road entrance needed to be widened or moved in order to accommodate the construction-related traffic. Due to the proximity of Hot Brook to the east, the only entrance alternative could be on the west side of the existing Jimmey access road entrance. Wetland delineations revealed that designs for a new road would require fill placement in wetlands. Instead, Stetson II engineered an entrance bridge that would span the entire wetland area and avoid fill entirely.

Finally, the original design for the collector line included connecting Owl Mountain directly to Jimmey Mountain in a relatively straight line. However, this design would have required new access roads and

the use of temporary fill to cross streams and wetlands. The proposed collector line, leaving Owl Mountain and going a short distance cross country before running adjacent to the Jimmey access road, will instead be longer and thus more costly but will avoid any permanent or temporary wetland fill. Once designed, the collector line was redesigned and shifted north and west to avoid clearing in a potential vernal pool and limit clearing within the potential vernal pool's buffer.

Wetland impacts were avoided and minimized throughout the planning of the Stetson II Wind Project. The project was redesigned numerous times in order to avoid wetland impacts altogether, including redesigning turbine pads and relocating the road and collector line. The project does not require placement of any fill in wetlands and limits wetland impacts to approximately 0.27 acre of clearing required for the collector system and approximately 0.06 acre of shading resulting from installation of a permanent bridge over a portion of wetland. The Stetson II Wind Project does not impact any significant wildlife. No rare, threatened, or endangered species were observed or have been documented within the project area. Additionally, no significant habitats are proposed to be impacted.

5.2 Grading and Filling

The project plan takes advantage of the existing topography at each turbine location and, where possible, utilizes existing roads to reduce overall cut and fill for the project. However, the project will require use of aggregate material for improvement of the existing logging roads and construction of new access roads, crane paths, and spur roads. Turbine sites must be graded to approximately level with no more than five percent cross slope. Table 2 outlines the cut and fill requirements for the different portions of the project.

Table 2: Cut and Fill Calculations

Project Section	Cut (Cubic Yards)	Fill (Cubic Yards)	Net (Cubic Yards)	
Owl Mountain Roads and Turbines	36,976	34,962	2,014	cut
Jimmey Access Road	9,193	12,244	3,051	fill
Jimmey Crane Road and Turbines	66,493	65,291	1,202	cut
Total	112,662	112,497	165	cut

These calculations are based on the following assumptions.

- Competent rock material will generally be found approximately five feet below grade (based on the geotechnical investigation and construction experience from Stetson).
- The Stetson II Wind Project site is suitable for rock anchor type foundations. This assumption is reflected in the turbine clearing elevations and site grading plans.
- Blast rock material will be reused on-site as roadway and turbine clearing fill material.
- Grubbings (i.e., top layer of soil that is heavy with organics) will be stockpiled on-site and reused in select areas for reseeding and final stabilization.
- The existing access roads for Owl and Jimmey Mountains are logging roads that are in very good condition. These roads will be topped and stabilized with blast rock material generated from project grading work. Regrading will be minimized to the greatest extent practicable and will be done only as necessary to remove "humps" that could potentially cause the turbine delivery vehicles to bottom out.
- The majority of project fill slopes have been graded at 2H:1V. It is assumed that suitable blast rock material will be available for these fills and slope stabilization. In a few select areas, fill slopes as steep as 1:1 have been used to prevent fill impacts to wetland resources. These 1:1 slopes will be stabilized with rip rap.

The vast majority of this aggregate material will come from blasted rock produced during ledge removal operations and will be graded for reuse in accordance with the project geotechnical specifications. Based on earthwork balance calculations, additional sources of aggregate will not likely be required. However, additional sources of aggregate material for specific applications such as rock sandwich road construction have been identified and include local gravel pits owned by Lakeville Shores.

Borrow pits at the Jimmey Mountain site will be evaluated by the project's geotechnical consultant for suitability of gravel supply. In addition to these existing sites, MGS mapping of surficial materials for the Stetson Mountain quadrangle (Weddle *et al.* 2001. *Surficial Materials – Stetson Mountain Quadrangle, Maine*. MGS, Open-File No. 01-309) indicates that there are at least one active gravel and sand borrow pit and two active gravelly sand borrow pits located within two miles of the project site. In addition, there are three abandoned/inactive borrow pits within two miles of the project site. The project's geotechnical engineering consultant will evaluate these potential gravel sources to assess their suitability for construction use. As part of their investigation, the project's geotechnical consultant will evaluate other potential gravel source areas based on review of on-site soils mapping and test pit data from Albert Frick and Associates, as well as the surficial materials mapping from MGS. Gravel extraction areas will be limited to less than five acres. Mineral extraction operations will be conducted in compliance with LURC Land Use Standard 10.27,C,2.

It is anticipated that during construction, blasting may be required in some locations to break up bedrock ledge along the ridgeline. This will enable road grades to accommodate oversized loads accessing the site and allow for construction of the turbine foundations. Exhibit 5B. This blasting and other areas of excavation cuts will provide fill that can be used elsewhere on site for road, turbine pad, and turbine crane pad material. When designing the access road and crane path for this project, the project cut/fill balance attempted to minimize the net import or export of fill to or from the site. As Table 2 above indicates, this was achieved, and the project design will have a total of 165 cubic yards of excess cut material. This excess material will be utilized on-site. In addition, any waste concrete from tower foundations will also be used as fill in the turbine clearings.

6.0 CLEARING AND RESEEDING

6.1 Clearing

The Stetson II Wind Project will require clearing a portion of the Owl Mountain and Jimmey Mountain ridgelines for construction of the wind turbine sites and spur roads. Timber harvesting has previously disturbed the entire development area so that clearing activities on these mountains will not be as extensive as would be required in virgin or otherwise unmanaged forest areas.

Clearing will involve a mix of temporary and permanent impacts. Erosion control protection will be installed as necessary prior to initiation of clearing operations, and buffer areas will be maintained as described more fully in Section 10 below. Construction of the wind turbines and a permanent access road will require permanent clearing. The electrical collector line will also require clearing. Vegetation in these areas will be allowed to grow in, but the line corridor will be maintained every 8 to 10 years by cutting and removing trees to protect the electric line. In addition, the construction process will require temporary clearing impacts such as clearings for turbine rotor assembly areas and clearings for material/equipment laydown. Areas of temporary clearing will be reseeded following completion of construction and startup of commercial operations. The Key Facts Table (Table 1 above) summarizes the permanent and temporary clearing impacts associated with this project. Wetland impacts were minimized to the greatest extent practicable, and the project was redesigned multiple times in order to minimize all impacts, including clearing.

General descriptions of the clearing required in each portion of the development area are provided in Exhibit 6.

6.2 Reseeding

Following construction lay down areas and approximately 1 acre of the total 1.26-acre clearing for each turbine pad will be reseeded. Topsoil material previously stripped from the development areas and stockpiles will be spread on these areas and seeded with a suitable mix of non-invasive species. Alternatively, some areas may be covered with bark mulch to prevent erosion and will be allowed to revegetate naturally. After October 15, seeding will be delayed until the following spring (after April 15) to

provide adequate growth time before the onset of cold weather. In this instance, each area will be heavily mulched to stabilize it for winter.

Following completion of reseeded activities, Stetson II will inspect the reseeded areas at one-month, three-month and six-month intervals to provide adequate herbaceous coverage. If eroded or poorly vegetated areas are noted during these inspections, the areas will be stabilized and reseeded. Areas will continue to be inspected and reseeded until a vegetative cover is established.

Topsoil stockpiles throughout the site will be protected from erosion and sedimentation through implementation of Best Management Practices (BMPs). This will include encircling down-gradient sides of stockpiles with silt fencing or an erosion control mix berm. Slopes will be left in a roughened condition to reduce runoff erosion.

Stetson is in the process of re-vegetating the 32-foot wide roadsides. During this process, several comments from the State Soil Scientist, Maine Department of Environmental Protection (MDEP) engineers, and third party inspectors were received that the roadside re-vegetation did little to minimize the impacts and created unstable soils along the roadside. The 32-foot wide roads are well constructed due to the heavy loads that need to be carried during construction. These heavy loads further compact and stabilize the roadway. Re-vegetating the sides of these roads is difficult because you are replacing a well compacted roadside with loose topsoil, and the benefit gained is little to non-existent. Maintaining the roads at 32 feet also facilitates access during operation of the project. As a result, the applicant is not proposing to reseed the 32-foot wide roads. The clearing numbers for the project reflect a permanent 32-foot wide clearing impact.

7.0 CONSTRUCTION, SIGNAGE, TRANSPORTATION AND TRAFFIC

7.1 Construction Plan

Construction of the Stetson II Wind Project is planned to minimize on-site environmental impacts while optimizing the efficiency of construction resources, including personnel, equipment, and supplies. The proposed construction schedule is attached as Exhibit 7A. Further details on the construction sequence are provided in Exhibit 1 Sheet C15.

Temporary office trailers will be utilized by the project contractor during the construction phase of the project. These trailers will likely be located within the proposed construction material laydown area located across from the Atlas Road near meteorological tower 1. See turbine site and road plans in Exhibit 1. This area is located beyond the 75-foot setback from the roadway as required by LURC's Land Use Districts and Standards. The temporary trailers will be removed within 3 months after the operation of the Stetson II Wind Project.

A Third Party Inspection Program provided in Exhibit 7B provides for construction oversight for the environmental aspects of the project. A Spill Prevention Control and Countermeasures Plan for construction was also prepared and included herein. Exhibit 7C.

7.2 Signage

Signage on the leased area will be limited to informational signs associated with site activities. An informational kiosk may be constructed at the Route 169 at some time after the project is operational. Stetson II will seek LURC approval for any sign that does not meet the criteria of LURC Standard 10.27,J,1.

7.3 Transportation

Turbine components will be delivered via the south end of the project on two existing private roads, the Owl access road and Jimmey access road (aka 8 Mile Road) leading to Owl and Jimmey Mountains. The entrances to these roads will be widened to accommodate the oversized components. There will be no concrete batching on-site; concrete for foundations will be delivered to the project site via Route 169 from

Houlton and/or Lincoln. Turbine foundations will generally be installed at a rate no greater than one turbine location per day to spread out construction crew utilization. Assuming that the rock anchor foundation is utilized, this schedule results in an anticipated 12-15 truckloads of concrete for each day a turbine pad is poured. Daily concrete requirements will increase if more than one foundation per day is poured. Traffic flagging crews will be utilized as necessary on Route 169 during periods of construction. A traffic study was completed and is discussed further below.

The route selection and transportation of turbine components is being managed by GE under the terms of the turbine purchase agreement. GE Transportation will continue to coordinate with the Maine Department of Transportation (MDOT) and other applicable agencies and town officials and is responsible for obtaining all necessary permits to affect delivery to both the temporary storage site and to the location of installation. This route and process proved to be efficient and effective for transportation and delivery of components for Stetson.

7.4 Traffic

Traffic movements associated with the Stetson II Wind Project will primarily consist of construction-related traffic, including delivery of construction equipment, and commuting of construction workers to the project site during the approximately eight-month construction period. A traffic study was conducted for Stetson and is attached as Exhibit 7D. The Stetson II Wind Project site is less than one mile from the Stetson site, and the same routes will be used. Once the wind turbines are online and fully operational, site-generated traffic will be limited to infrequent visits. Except for gates that Stetson II may install on new interior roads linking or leading to the turbines, the underlying fee owner will continue to regulate public access to the area.

Access to the site for both workers and materials will be gained via two existing logging roads off Route 169, Owl access road and Jimmey access road (aka Eight Mile Road). These existing roads will require only minor improvements such as culvert replacement, surface improvements and compaction, and general grading to support oversized deliveries and construction traffic. It is estimated that during peak construction, the number of worker vehicles traveling to the project site will be approximately 40 vehicles per day, which is a minor traffic demand given the rural setting of the project site. Turnouts have been incorporated in the design of the project access roads to allow construction equipment and material delivery trucks to pass safely and prevent construction traffic delays or unreasonable queuing of vehicles. This is also incorporated as a safety measure to allow emergency response unhindered access to the project (2-way traffic) in the event of an emergency.

An existing logging road located opposite Atlas Road on Route 169 will be improved and extended to form a wide loop road behind the forested buffer area along Route 169. This will be the primary parking area for construction workers' vehicles, the construction trailers, and laydown areas to stockpile construction materials. Following the completion of turbine construction, the road will be used only to conduct periodic inspection and maintenance of one of the three proposed meteorological towers. Trucks delivering turbines will use this turnaround in order to access Jimmey access road from the south.

The Jimmey access road and Route 169 intersection has suitable sight distances for traffic entering and leaving. The Owl access road intersection has adequate sight distances to the west, but horizontal and vertical curves on Route 169 are likely to limit the attainable sight distance to the east to no more than 300 feet. While this meets the minimum recommendation of 245 feet, it falls short of the recommended 425 feet for a 50-mile per hour posted speed road that carries less than 400 vehicles per day, per the guidelines presented in the American Association of State and Highway Transportation Officials "Green Book." The applicant will coordinate with the MDOT regional traffic engineer to determine whether additional work zone signage and temporary speed reduction plaques should be utilized. There should be no need for permanent mitigation of the limited sight distance at this location, in light of the very low traffic volume on Route 169 and the trip generation rate that is projected for the site following project completion.

The majority of traffic to the project site will occur over an approximately six-week period during delivery of the turbines. The turbine components, including hubs, DTA's, tower sections, and nacelles and blades

are estimated to be delivered to the site at a rate of five turbines per week. Approximately 14 truck loads are required to deliver the component sections of each turbine, resulting in a total of approximately 70 truck trips per week during the 6-week delivery period. Stetson II and its transportation contractor will coordinate closely with Maine State Police personnel and local authorities during the turbine delivery period to minimize any potential impacts on localized traffic movement. In the event turbines need to be stored in the area due to turbine delivery schedule, the applicant will ensure that necessary permits are in place for this storage. As occurred during construction of Stetson, it is expected that police escorts will be required for every oversized load. As predicted in the traffic impact study completed for Stetson, Exhibit 7D, transportation utilizing Route 169 went well, and routing and logistics are expected to be similar.

Necessary requirements and permits will be complied with and obtained from the Over Limit Permits Department, Maine Bureau of Motor Vehicles (BMV). Stetson II will continue to coordinate with the MDOT and BMV as more specific information is developed. In addition, approvals will be sought from MDOT for any temporary modifications to existing roadways that might be required to accommodate the construction of the Stetson II Wind Project.

8.0 LIGHTING

A safe, efficient turbine lighting scheme that encompasses key safety elements for obstructions has been approved by the Federal Aviation Administration (FAA). Exhibit 8. The lighting plan is in accordance with the FAA Technical Note Development of Obstruction Lighting Standards for Wind Turbine Farms (2005) and "Obstruction Marking and Lighting", Advisory Circular AC 70/7460-1K, Chapter 13 (February 2, 2007). Both are publications of the U.S. Department of Transportation/FAA. The determination of no hazard is conditioned on the project components being lit in accordance with the FAA Advisory circular 70/7460-1 K Change 2, Obstruction Marking and Lighting, white paint/synchronized red lights – Chapters 4, 12 & 13 (Turbines).

Although Stetson II did not consult with the Navy on lighting, during FAA's process it notifies and consults with federal agencies, including the Navy. The applicant received a Determination of No Hazard from the FAA for the Stetson II Wind Project on October 7, 2008. See Exhibit 8.

The layout of the Stetson II Wind Project will consist of 17 GE 1.5-MW sle turbines arranged in a linear configuration. Six turbines will be located on Owl Mountain, the remaining 11 will be located on Jimmey Mountain. Each turbine will be approximately 389 feet tall from the ground to the full vertical extent of the blade. The following FAA guidelines were used in placement of obstruction lighting for the turbines.

- Lights will be placed on the turbines positioned at each end of the line of turbines;
- Lights will be placed on the highest turbines;
- Lights will then be placed to provide the minimum number of lights that still maintains a safe standard of one lit turbine at least every half mile (i.e., no more than 2,640 feet between lit turbines);
- Lighting will be synchronized; and
- A high concentration of lights, in close proximity, will be avoided.

The only other permanent lighting that may be associated with the project will be motion sensitive entry lights at stairs located at the base of each turbine. These may or may not be utilized. This lighting would meet the requirements of LURC's Land Use Standard, 10.25.F.

Some temporary nighttime lighting may be required during construction. This lighting will be primarily limited to the tower erection phase of the project, which is largely dependent on favorable wind conditions. Therefore, methods such as nighttime lighting are anticipated to provide as much time as possible to take advantage of favorable construction conditions. If required, portable (i.e., trailer mounted) flood light systems will be used to facilitate nighttime tower erection. Approximately three of these portable flood light units would be used at each tower location. At entrances to the project, there will also be limited temporary nighttime security lighting.

9.0 SERVICES

9.1 Emergency Services

Current emergency services are adequate to meet the needs of the Stetson II Wind Project. No additional emergency medical services will be necessary. Additionally, current police and fire services provided to the area are adequate for the project. The Washington County Sheriff and Maine Forest Service were consulted and each has provided confirmation that current services are adequate. Exhibit 9A. If emergency medical services are required during or after construction, a cellular phone will be used to call 911. The emergency dispatcher will connect to the Houlton Regional Hospital, which will be able to dispatch LifeFlight.

9.2 Solid Waste

Construction of the wind turbines and the 34.5-kV electrical collection line will generate an estimated 27.2 tons (176 cubic yards) of solid waste consisting of construction debris, packaging material, and associated construction wastes. Waste concrete will be incorporated into the sub-base for the proposed roadway and turbine pads. Concrete truck washdown will be contained and not allowed to flow to waters of the state prior to appropriate treatment. Clearing of overstory vegetation along the proposed right-of-way will be required for construction of the collector line, but will be harvested and removed as merchantable forest products or chipped or flailed onsite.

The total volume of organic debris is estimated at 14,000 cubic yards of waste from land clearing. Marketable timber will be removed from the site for sale. Smaller woody debris will be mulched and used as a soil amendment or as an erosion control measure. In areas of fill around the turbine pads where trees need to be removed, stumps may be left in place and filled over to avoid unnecessary ground disturbance and minimize waste disposal of the grindings. Other stump grindings will be used to make erosion control mix berms, which will be used to augment or substitute for fabric silt fencing. Ultimately, some stumps and other organic debris may need to be disposed of. This will be done in a single stump dump constructed in an upland area that will have a footprint area of less than one acre. The location will be determined by the applicant and the contractor during construction.

Any general construction debris associated with the project, including packing or transportation materials, will be disposed of at appropriately licensed disposal facilities. Included as Exhibit 9B is a capability letter from Pine Tree Waste Services indicating capacity and willingness to take waste generated by the project.

Following construction, any operational solid waste generated at the site will be collected at the Stetson Operations and Maintenance (O&M) Building located to the south of this project.

9.3 Waste Water

There will not be any waste water disposal on-site. During construction, portable toilets will be serviced and wastewater disposed of by contract with a service provider. They will be placed throughout the site as required.

9.4 Water Supply

The Stetson II Wind Project will not require water supply for the operation of the wind turbines or the electrical transmission equipment. As the Stetson II Wind Project is proposed to be linked to Stetson and operated via the existing Stetson O&M Building, no additional water use for operation of the Stetson II Wind Project is necessary.

During construction, Stetson II (or its contractors) will supply drinking water for workers and water for dust abatement on the gravel access roads. Drinking water will be sourced from the existing water well at the Stetson O&M Building located to the south, or provided by the project contractor from off-site drinking

water sources. No new water wells are proposed for the Stetson II Wind Project. Dust abatement water will be drawn from off-site non-potable water sources, and its use will not require withdrawals from any ground water source. A 4,000-gallon truck will be used with a maximum of 4 trips per day for a maximum of 20,000 gallons of water withdrawal a day. Note that the off-site water sources will include lake water but not water from streams or brooks.

No concrete batch plants are proposed during construction; concrete for the turbine foundations will be supplied and delivered to the project site by local concrete plants.

10.0 STORMWATER CONTROL AND PHOSPHORUS ANALYSIS

The construction of gravel roads, tower foundations, and pads will create stormwater runoff in excess of what the project area presently generates. To mitigate this increase in stormwater runoff and prevent erosion or damage to downgradient ecosystems, the stormwater control plan is designed to minimize the concentration of stormwater flows off the project site. The primary components of the plan include (1) minimizing the permanently impacted areas of the project site, and (2) incorporating appropriate BMPs in the project design.

The primary component of the stormwater management will be minimizing the permanent impacts through reseeded. See Section 6 Clearing and Reseeding. The total temporary and permanent clearing impacts associated with the Stetson II Wind Project are summarized in Table 1, Key Facts.

The impacts to site hydrology from the proposed project will also be minimized by the use of appropriate stormwater management BMPs such as culverts with riprap outlet protection and level spreaders. Where appropriate, the design incorporates the use of a “rock sandwich” road design that allows surface water and ground water presently flowing or seeping from uphill areas to continue flowing under the road through a layer of coarse gravel. This specialized technique is superior to culverts in some instances because the flows are distributed instead of concentrated, thus minimizing the potential for erosion. Rock sandwich construction has been used as appropriate in fill areas where there are groundwater seeps or other hydrologic conditions that warrant its application. Culverts were determined to be more appropriate in some areas, and their outlets have been protected by plunge pools and level spreaders to dissipate concentrated flows. Stormwater ditches have been outletted to ditch turnouts with level spreaders as suggested by MDEP and LURC design criteria. See Exhibit 1 for locations of appropriate stormwater management BMPs. Field determinations and changes may be necessary during construction. The most appropriate method in light of the conditions encountered in the field will be utilized. Prior to clearing activities Stetson II, its consultant, and its forest operations contractor will meet to discuss on-site clearing activities and standards. Erosion control requirements and measures will be discussed. A third party inspector will be retained at the commencement of clearing to inspect clearing activities and ensure BMPs are implemented and erosion control requirements are being met.

10.1 Erosion and Sedimentation Control

An erosion and sedimentation plan has been developed and is included in Exhibit 10A. The specific site plan is Exhibit 1, Sheet ES 1 through 7.

10.2 Phosphorous Analysis

The Stetson II Wind Project lies partially in the watershed of Upper Hot Brook Lake, which is located less than one mile to the east. The runoff from the western side of Owl Mountain flows downslope to Webster Brook, then to Upper Hot Brook Lake. To the east it flows to Hot Brook, then to the lake. Runoff from the west side of Jimmey Mountain flows to Hawkins Brook and on to the Mattawamkeag and Penobscot Rivers. From the east side of Jimmey Mountain, the runoff flows to an unnamed stream, then into the Mattawamkeag and Penobscot Rivers, or to Upper Hot Brook Lake.

Runoff from the project has the potential to increase phosphorus to the watershed of Hot Brook Lake. MDEP was consulted regarding allowable phosphorus loading to the lake watersheds. MDEP noted that given the distance from the lake and minimal amount of disturbance, the phosphorus loading regulations

could be met through use of vegetated buffers along 75 percent of the project roads. This was also the method of minimizing phosphorous loading for Stetson. The Stetson II Wind Project has been designed to exceed that level of buffering, with buffers designed along approximately 81.1 percent of the project roads. (See Buffers below). During construction, BMPs will be used where appropriate. The Erosion and Sedimentation Plan identifies other techniques that will also limit the phosphorous export from the site. Exhibit 10A. The MDEP agreed that the phosphorous loading associated with the project could be minimized with the 75 percent buffers, and with the buffers in place, the MDEP standards would be met.

10.3 Buffers

Buffers around project construction areas are vital to minimize construction-related impacts to existing wetlands, streams, and soils in the project area. In development of the turbine site and road plans, Stetson II has provided for several types of buffers. These buffers include general stormwater buffers, wetland and stream buffers, and vernal pool buffers.

The length and width of the proposed buffers will be based on site-specific conditions, including land slope and soil type, as defined by the Maine BMP Manual Chapter 500, Appendix F. However, general guidelines are laid out below.

Included in Exhibit 1, Sheet C14 are typical details showing the two types of forested phosphorus buffers that are proposed for this project. As noted above, the project exceeds the MDEP requirement and buffers 81.1 percent of the project. The first type of buffer is for areas adjacent to the downhill side of a road (Maine BMP Manual Appendix F, Section 4), in which runoff from the road and shoulder sheet flow directly into a 55-foot wide wooded buffer. The second type is a ditch turn-out buffer (Maine BMP Manual Appendix F, Section 5), in which ditch runoff is diverted to a 20-foot long stone bermed level lip spreader and then distributed into a buffer. The length of the buffer depends on soil type; however, in most instances, the length of the available buffer far exceeds the required length. These sample buffers will be replicated, as appropriate, over the remaining road sections.

10.1.1 Stormwater Buffers

There will be a 55-foot wide stormwater buffer along the access roads and crane paths and adjacent to the turbine clearings, whenever practical. This buffer width complies with MDEP guidance based on the 32-foot crane path width. These areas will be used to mitigate any changes in site hydrology caused by the proposed construction, as well as to minimize any potential phosphorus loading associated with the developed project.

10.1.2 Wetland and Stream Buffers

The Stetson II Wind Project design also incorporates a 75-foot buffer around delineated wetlands and streams within the project area, where practical. Several encroachments of these buffers were required, including where existing roadways crossed or were adjacent to wetlands and streams and for spanning such resources by the collector line. In one case, a concrete bridge structure will be constructed at the Jimmey access road entrance to span an existing wetland and stream area, thereby avoiding any direct impact to those resources.

There are mapped Wetland Protection Subdistricts, including *Wetlands of Special Significance* (P-WL1), within the Stetson II Wind Project site. Exhibit 11. Some of these subdistricts are located adjacent to the existing road systems. Any regrading of these roads will be designed to eliminate fill or sedimentation runoff in the wetland.

10.1.3 Vernal Pool Buffers

Only one significant vernal pool was identified in the project area adjacent to the Jimmey access road. The existing development within the 250-foot habitat buffer accounts for 16.7 percent of the total habitat area. The proposed development within this area would include clearing for the collector line and would

result in an additional 5.2 percent development within the 250-foot habitat. Following construction, approximately 21.5 percent of the total habitat area will be cleared, and 79.5 percent will remain forested.

One other vernal pool was surveyed within the project area outside of the breeding season. For the purposes of evaluating impacts, Stetson II treated the potential vernal pool as a significant vernal pool. The pool itself is 0.16 acre, and the 250-foot habitat buffer equals 6.74 acres. The proposed development would include clearing of 1 acre or 14.1 percent of the habitat area for the collector line.

10.1.4 Vegetative Visual Buffers

The crane path road and overhead electrical collector system will be visually buffered by trees and the elevation difference between the ridge and the lower surrounding topography. Between the loop road at the southern end of Owl Mountain and Route 169, a nearly 200-foot vegetative buffer will be retained to screen the development from Route 169. See Section 17 for a full visual analysis.

11.0 WETLAND IMPACT

The wetland impacts associated with construction and operation of the project totals 0.33 acre of vegetation clearing in P-WL1, P-WL2, P-WL3. There is no wetland fill associated with this project.

At the entrance to the Jimmey access road, there will be approximately 0.06 acre of wetland vegetation clearing for access of the oversized turbine components. See Exhibit 1, Sheet C14. In addition, construction of the electrical collector line requires clearing of wetland areas under and directly adjacent to the line. After construction, the vegetation in the corridor is allowed to grow back but it is typically cut every 8 to 10 years to keep the vegetation away from the lines. Maintenance cutting will remove the trees and not allow the canopy to form, but will leave vegetative undergrowth. The total wetland clearing for the collector line will be 0.27 acre. The majority of that clearing is approximately 0.25 acre associated with construction of a segment of the 34.5-kV electrical collector line between Owl Mountain and Jimmey Mountain. See Exhibit 1, Sheet C6 and Exhibit 11 Appendix B. An additional 0.02 acre of wetland will be cleared for the electrical collector line in an area between Route 169 and turbine 1. See Exhibit 1, Sheet C2.

There are several areas where the existing road crosses a wetland and culverts have been installed. Culverts that may be replaced are as shown in Exhibit 1 Sheet C1 through Sheet 13. Wetlands within the project area have been delineated (Exhibit 11) and have been identified in the turbine site and road plans included in Exhibit 1. In each instance, the current road layout utilizes culverts to span the resource; culverts that are plugged or in poor condition will be replaced with new culverts of the same length and therefore will not result in any new impact to the resource. There is one wetland area that will be altered at the entrance to the Jimmey access road. The entrance will be widened using a bottomless concrete bridge structure that will span the resource so as to avoid any wetland fill impacts.

The temporary vegetation clearing for the collector line in forested wetlands will alter the wetland type, converting them from forested wetlands to scrub-shrub wetlands. Clearing may have a minor impact on the functional value of the wetland but will not likely impact its primary hydrological functions and values. Spanning existing scrub-shrub or emergent wetlands will have minimal wetland impact. Overall, the limited vegetation clearing associated with the transmission line will have a minimal impact on habitat values and wetland function. Some clearing will be required around Webster Brook and Hot Brook but this has been minimized to the extent practicable.

A complete wetland and stream report was prepared by Stantec and is included in Exhibit 11.

12.0 WILDLIFE

A variety of forested natural communities can occur within this ecosystem but only one, Beech-Birch-Maple Forest, predominates in the project area. See Exhibit 12A for a complete characterization of the area. This is a common forest type across the State, and as such the project area includes many common wildlife species.

The construction and operation of wind turbines on Owl and Jimmey Mountains will result in direct and indirect impacts to local wildlife communities and their habitats. In general, the impacts could include habitat loss or conversion, disturbance effects that could result in animals avoiding the project area, habitat fragmentation, and collision-related fatalities. However, impacts to wildlife communities due to loss of habitat on Owl and Jimmey Mountains are not expected to be adverse to those populations, particularly in light of the fact that the local wildlife populations already adapt to the occasional rapid changes in the distribution of habitats along the ridge from harvesting activities.

No Significant Wildlife Habitats were documented or observed within the project area. In addition, no rare, threatened, or endangered species were documented or observed within the project area. However, the Maine Department of Inland Fisheries and Wildlife (MDIFW) have provided comments on species within close proximity to the project. MDIFW fisheries division provided comments on the project that included concern over upgrades to the existing Jimmey access road (8 Mile Road) entrance crossing Hot Brook and the existing crossing of Webster Brook. They also identified yellow lampmussel (*Lampsilis cariosa*) in Upper Hot Brook Lake at the mouth of Webster Brook and identified a potential white sucker (*Catostomus commersoni*) spawning habitat. The latter could be an attractant for eagles, and its close proximity to a wind site may cause concern. Stantec and MDIFW conducted a site visit on July 9, 2008, to address these issues. This preliminary visual survey identified appropriate habitat for the yellow Lampmussel but no presence of the species. The preliminary survey also concluded that it is not anticipated that large aggregations of spawning white suckers occur at the mouths of Webster or Hot Brooks due to unsuitable spawning habitat. It is unlikely that this area would be a large attraction for foraging eagles. Exhibit 12C. MDIFW fisheries division provided a supplementary response following the site visit requesting a review of the final plan around Hot Brook and commenting that because the road around Webster Brook was not being widened the only recommendations were that MDEP standards for erosion and sedimentation control should be implemented. Exhibit 12B.

MDIFW wildlife division provided comments, including the location of an active eagle's nest on Kittery Island located in Upper Hot Brook Lake. Exhibit 12B. The active eagle nest is approximately 7,000 feet from the nearest turbine on Owl Mountain. Stantec followed up with MDIFW regarding the proximity of the nest to the Stetson Wind II Project and MDIFW commented that they advocate for considering impacts within 1320-feet. Exhibit 12B. Thus the nest is outside of the area MDIFW would consider. Bald eagles (*Haliaeetus leucocephalus*) were observed flying in the vicinity of Stetson Mountain during the fall 2006 raptor survey.

Additional pre-construction surveys were deemed not to be necessary. This is due to the physical proximity of the project to other similar wind projects where data has been collected, as well as their obvious topographic and ecological (i.e., managed forest ridgeline) similarities.

These similarities extend beyond their general inclusion within the same (Maine-New Brunswick Lowlands) biophysical region (McMahon 1990) but include the relative north-south orientation and moderate elevations of both project area ridgelines. The project area is also largely dominated by upland hardwood and early successional forests. The finding for no additional studies also takes into account the fact there are neither Maine Natural Areas Program-listed critically imperiled or imperiled natural communities nor Significant Wildlife Habitats within any of the higher elevation areas, and recognizes the direct and indirect effects of ongoing commercial and industrial timber management and associated road networks that have, and will continue to, occur within each project area.

In further support of this decision, the results of completed and ongoing avian and bat survey work within the regions has been shown to be relatively consistent for six projects conducted to date (Table 3 below). In general, nightly and seasonal passage rates, average flight heights, average seasonal flight directions, and percentage targets observed below turbine height have nearly all been within general ranges of other ongoing seasonal migration studies. The exception is a variation in average flight direction at Rollins in Spring 2008. Together, these studies help demonstrate a relatively high elevation and broad front migration pattern over the project area landscape, and support the finding that added pre-construction studies at this time would provide little additional new information and data.

Table 3. Summary of available avian radar survey results

Project Site	Season	Number of Survey Nights	Number of Survey Hours	Avg Passage Rate (t/km/hr)	Range in Nightly Passage Rates	Avg Flight Direction	Avg Flight Height (m)	% Targets Below Turbine Height
Mars Hill	Fall 2005	18	117	512	60-1092	228	424	(120 m) 8%
Mars Hill	Spring 2006	15	85	338	76-674	58	384	(120 m) 14%
Stetson	Fall 2006	12	77	476	131-1192	227	378	(120 m) 13%
Stetson	Spring 2007	21	134	147	3-134	55	210	(120 m) 22%
Rollins	Fall 2007	22	231	368	82-953	284	343	(120 m) 13%
Rollins	Spring 2008	20	189	247	40-766	75	316	(120 m) 13%

MDIFW was consulted regarding pre-construction avian and bat surveys and provided correspondence to Stantec that confirmed that the studies for Stetson (Exhibit 12D) are representative for the Stetson II Wind Project, and no additional pre-construction avian (i.e., marine radar, NEXRAD, migratory raptor, breeding bird, or migrant stopover surveys) or bat studies would be necessary. Interest remained, however, in conducting post-construction bat mortality monitoring in conjunction with avian monitoring. A post-construction monitoring plan is included as Exhibit 18.

13.0 UNUSUAL NATURAL AREAS

Stantec contacted MNAP during the course of project development and requested information regarding known botanical features, including rare and exemplary natural communities, that have been documented within the vicinity of the proposed Stetson II Wind Project.

A Northern Hardwoods Forest was initially identified by MNAP on Jimmey Mountain. Upon further review, the area has been extensively cut. MNAP has not requested any additional protection or special management for the area. MNAP also stated that there are no known rare or exemplary communities in the project area. Exhibit 13. The botanical communities that do exist within the project area reflect that the area has been heavily managed for commercial forestry for several generations.

MNAP also provided information regarding rare and exemplary botanical features in the project vicinity (i.e., within four miles of the project). The wetland delineation efforts for the project in 2007 and 2008 included a field evaluation of hydrologic, soil, and vegetative conditions for the entire project area. None of the endangered, threatened or special concern species noted by MNAP as occurring in the vicinity of the project were observed within the project area during the course of those field efforts.

14.0 HISTORICAL AND ARCHAEOLOGICAL

In response to the Maine Historic Preservation Commission (Exhibit 14A), Stetson II conducted historic architecture, Euroamerican archaeological, and historic archaeological investigations of the project area to determine what impact the project might have on these historic resources. Reports of these investigations are included as Exhibit 14A through 14D. Each report has been provided to the Maine Historic Preservation Commission for its review.

14.1 Historic Architecture Survey

The historic architectural survey was conducted in accordance with the requirements of Section 106 of the National Historic Preservation Act of 1966. The survey of historic resources within the five mile Area of Potential Effect evaluated 118 historic resources. No properties are listed on the National Register.

Three properties were identified as having the potential for listing in the National Registry of Historic Places. The report concluded that two of the potentially listed properties will not have any views of the project. The third property may have a view of the turbines. However, the report concludes that the project will have no effect on this property due to vegetated buffers and distance from the project. Exhibit 14B.

14.2 Euroamerican Archaeology Phase I and Phase II Surveys

The survey for Euroamerican historic resources evaluated cartographic information and conducted field investigations to identify likely locations of historic structures. That effort found that the area has been historically used for logging activities, but there is no evidence of historical development or historical archaeological resources in the project area. Exhibit 14C.

14.3 Prehistoric Archaeological Survey

Most prehistoric sites found in interior sections of the state are close to streams, rivers, or wetlands. The Stetson II Wind Project site is largely on top of the mountain ridgelines, except for a crossing of Webster Brook on the Jimmey access road. Neither documentary research nor field surveys revealed any prehistoric archaeological sites. Other prehistoric resources that had potential to be within the project area were rock outcroppings that were used for tool making. A documentary review revealed that rock outcrops suitable for tool making have been identified in the region. A survey for rocks that could be chipped for stone tool making was conducted, and lithic stone outcrops suitable for tool making were not found. The report concluded the project area is of low archaeological sensitivity. Exhibit 14D.

15.0 SOILS AND BEDROCK CHARACTERIZATION

Soil surveys have been completed in the project area on Owl and Jimmey Mountains. A Class C Medium-High Intensity Soil Survey of the summit areas was conducted by Albert Frick Associates, Inc. Exhibit 15A. The report concludes that with proper planning and construction techniques, the soils are appropriate for the proposed construction activities. During surveying and planning of the Stetson II Wind Project the applicant worked closely with the State Soil Scientist and at his request additional field work was completed in 2008 to provide more detailed soils information for the new road segments of the project. The results of that analysis are included in Exhibit 15A.

Areas of hydric soils are identified in the wetland delineation report (Exhibit 11) of this application and are shown on the civil design plans, Exhibit 1.

Prior to construction, a geotechnical investigation of new road segments and each turbine pad will be conducted. A preliminary geotechnical assessment has been completed recently and that report should be available within a few weeks. A full assessment will be completed in the spring of 2009 and the results provided to LURC. The results of this investigation will determine the type of turbine foundation design appropriate for each location. Rock anchors were used exclusively at both Mars Hill and Stetson and are expected to be utilized for this project (see Section 5 for additional information). It is likely these anchors will be utilized due to the proximity of the areas and the similar geology of Owl and Jimmey Mountain to the Stetson Mountain Ridge. If rock anchors are not appropriate, another turbine foundation may be necessary. In the unlikely event that a different foundation type is required and there is a resulting increase in impacts, the applicant will seek appropriate approvals.

Finally, an analysis of the potential for acid rock drainage was prepared. Exhibit 15B. In accord with the recommendations of that report, additional evaluation of the potential for acid rock drainage will occur during the geotechnical investigation.

16.0 SOUND ANALYSIS

The Stetson II Wind Project is within the “expedited permitting area” as identified by LURC and defined by 35-A M.R.S.A. Chapter 34-A, Expedited Permitting of Grid-Scale Wind Energy Development. In accordance with the provisions of 12 M.R.S.A. Section 685-B, a wind energy development within the expedited permitting area is required to meet the requirements of the MDEP noise control rules. These rules were adopted pursuant to the Site Location of Development Law and are identified as MDEP Chapter 375.10, Control of Noise. The MDEP noise control regulation applies to in lieu of Section 2, F,1 Noise of LURC Chapter 10 *Land Use Districts and Standards*.

An analysis of the likely sound impacts of the project was completed. Exhibit 16. This assessment determines expected sound levels from the project and compares them to the MDEP sound level limits for quiet areas of 45 dBA nighttime and 55 dBA daytime at protected locations.

The report conservatively estimates wind turbine sound levels and propagation by:

- utilizing conservative factors for ground attenuation, specifically mapping the surrounding lakes and ponds as reflective surfaces and excluding potential sound attenuation due to foliage;
- adding five dBA to the manufacturer’s wind turbine performance specification to account for uncertainty in measurements used to derive turbine sound output; and
- assuming that all turbines are operating simultaneously at continuous full sound output.

The report demonstrated that the operation of the Stetson II Wind Project will not exceed MDEP sound level requirements during construction or routine operation.

17.0 VISUAL ANALYSIS AND SCENIC CHARACTER

The Stetson II Wind Project is a grid scale wind energy development in an expedited area.¹ There are no scenic resources of state or national significance within three miles of the project. There is one such resource within three to eight miles from the project. The Million Dollar View Scenic Byway is 6.6 miles from Jimmey Mountain and 7.9 miles from Owl Mountain. The closest turbine would be 6.7 miles from the Scenic Byway.

Since there are no scenic resources of state or national significance within three miles of the project, there is a rebuttable presumption that a visual impact assessment (VIA) is not required.² Despite that presumption, LURC may require a VIA if it determines that a scenic resource of state or national significance is located between three and eight miles from the project, there is substantial evidence that the visual impact is significant, and there is the potential for significant adverse effects.³ Facilities associated with the wind generating project will be evaluated based on their impact to scenic resources of state or national significance, unless LURC determines that those associated facilities may result in unreasonable adverse effects due to their scope, scale, location or other characteristics.⁴ Minimal “associated facilities” are included in this project, the Stetson II Wind Project will use existing infrastructure of Stetson to its south.

Although the statutory presumption applied to this project indicates a VIA is not required, Stetson II conducted a VIA using the relevant visual evaluation standards. Exhibit 17. This report took into consideration the lighting plan approved by the FAA. Exhibit 8.

The visual analysis found that there would be only one viewpoint from the southern overlook of the Million Dollar View Scenic Byway (Route 1) in Weston. See visual simulation in Exhibit 17. From this viewpoint,

¹ 34-A M.R.S.A. §3451(3), (6)

² 34-A M.R.S.A. §3452(4)

³ Ibid

⁴ 34-A M.R.S.A. §3452(2)

the tops of the 11 turbines on Jimmey Mountain will be visible at distances of 6.7 to 7.4 miles. Due to the distance and intervening vegetation, the turbines will not be dominant in this view. The turbines will not block the view of Mount Katahdin, which is 50 miles to the northwest. Other overlooks along the Byway are over nine miles from the project; therefore, the turbines will be barely visible with the naked eye.

The VIA demonstrates that the Stetson II Wind Project will not have an unreasonable adverse effect on the scenic values and the existing uses related to scenic character of a scenic resource of state or national significance.

18.0 POST-CONSTRUCTION MONITORING

During the construction phase of the project, the general contractor will be responsible for site management and maintenance of roads and facilities.

Following completion of construction activities, Stetson II will assume responsibility for monitoring and maintaining roads and facilities associated with the project. Disturbed areas will be seeded and mulched or otherwise managed for slope stabilization, as explained in the erosion and sedimentation control plan. A 0.25-acre area around each turbine foundation pad will be maintained as an unvegetated part of the project.

Activities and facilities at the site will be monitored both remotely and by on-site personnel. Turbines and overhead electrical systems will be visually inspected once a month. The turbines will receive a detailed annual inspection and will undergo regular maintenance in accordance with the manufacturer's recommendations. These inspections and maintenance procedures will be conducted by technicians trained in the design of the GE 1.5-MW sle turbine.

Overhead electrical collector system inspections will focus on ensuring adequate vegetation clearances and integrity of poles, insulators, and guy wires. Any trees that threaten the collection system will be removed, and vegetation will be managed on an 8 to 10-year cycle to ensure adequate clearance below the lines.

Stetson II will enter into a maintenance agreement with a contractor to provide any services necessary to maintain stormwater and erosion control structures. Ditches, culverts, and drainages for roads and access ways will be inspected and repaired as necessary after heavy rain events and spring runoff each year. Maintenance and inspection logs will be maintained and kept at the Stetson O&M Building.

Post-construction avian and bat monitoring will generally be conducted according to the post-construction monitoring protocol included in Exhibit 18. This protocol is evolving to take into account post construction monitoring that is completed at existing operating facilities, and may be modified in consultation with the MDIFW prior to implementation.

19.0 DECOMMISSIONING

Attached as Exhibit 19 is the Decommissioning Plan. It provides a mechanism to set money aside over the next 7 years in order to finance decommissioning, with a commitment to full decommissioning funding by year 15.

20.0 SHADOW FLICKER

Shadow flicker from wind turbines is the effect resulting from the shadows cast by the rotating blades of the turbine on sunny days. The effect may be more or less pronounced depending on the intensity of the sun/shadow contrast and the distance from the turbines to a receptor. The effect is most pronounced during sunrise and sunset on clear days and on receptors closer than 1,000 feet to a turbine.⁵

⁵ Environmental Impacts of Wind Energy Projects, National Academies Press, 2007, p. 160.

The 17 potential turbine sites were modeled using the Windpro software model. This software is designed to simulate the path of the sun over the course of a year in order to predict the area where shadow flicker is likely to occur. It is worst case prediction, assuming the sun is shining each day, and does not take into account vegetation screening between a turbine and a receptor. It also assumes that the turbines are perpendicular to the receiver and are always operating. See Exhibit 20 for the complete shadow flicker report and illustrative maps.

Of the 20 potential shadow flicker receptors analyzed using the Windpro software, none showed shadow flicker impact.

21.0 TANGIBLE BENEFITS

The Stetson II Wind Project will provide significant tangible benefits to surrounding communities, Washington County, and the entire State of Maine.⁶ On a local level the nearby communities will benefit through employment opportunities and the local purchase of materials and supplies. The unorganized territories will benefit through the taxes paid on the project. On a larger scale, the project will increase energy diversity thereby helping to reduce electric price volatility in Maine. The project will also help Maine meet its commitments under the Regional Greenhouse Gas Initiative, which establishes limits for emissions associated with the generation of electricity.

21.1 Economic Benefits

21.1.1 Local Landowner Benefits

The Stetson II Wind Project provides a direct economic benefit to the local landowner participating in the project through a land lease. The project allows the landowner to realize an additional economic benefit from land that will supplement what the landowner typically makes from logging and other uses of the land. This will help maintain traditional economic and recreational uses while creating a new source of clean energy.

21.1.2 Increased Employment Opportunities

Washington County's estimated 2005 population was 33,448; the land area of the county encompasses 2,568 square miles.⁷ The local community in this area suffers from chronic high unemployment due to the lack of an established employment base. The average unemployment rate for 2006 in Washington County was 7.6 percent, well above the Maine's average of 4.6 percent.⁸ Since 1990, the unemployment rate in this area has exceeded the state average.⁹ Moreover, according to a recent report to LURC, the Rim Region, which includes Washington County, has a disproportionately small share of the State's earnings and employment relative to its population. That is, "the LURC-related economy provides fewer jobs per resident than the economy of the rest of the state and the earnings made in those jobs are less than those made in the rest of the state."¹⁰ That report points out that employment and earnings in interior Maine, including Washington County, have been stagnant for over a decade. This has led to a large number of LURC households living below the poverty level. In fact, Washington County has the highest poverty rate in the state, calculated at 20.9 percent in 2000.¹¹ Washington County, according to the last U.S. census, also has the lowest median household income in Maine at \$25,869.¹² Per capita income is 28 percent below the state average, and median household income is 31 percent below.¹³

⁶ See 35-A MRSA §3454 and 38 MRSA §484(3) for relevant criteria.

⁷ 2000 U.S. Census Data.

⁸ Maine Department of Labor, Civilian Labor Force Estimates, January – November, 2006, available at <http://state.me.us/labor>.

⁹ *Id.*

¹⁰ Planning Decisions, Inc., *Patterns of Change: Three Decades of Change in LURC's Jurisdiction* (May, 2006).

¹¹ Statewide Needs Assessment by the Maine Community Action Association, 2003.

¹² 2000 U.S. Census Data.

¹³ *Id.*

The Stetson II Wind Project would respond directly to area needs and to the people who live and work in the vicinity of T8 R4 NBPP. A significant portion of the estimated \$60 million dollar project cost is expected to be spent on development, engineering, and construction-related activities that will directly benefit Maine. The surrounding areas will benefit through construction-related employment opportunities, and the ancillary economic benefits of that construction activity. There will be the opportunity for direct jobs for activities like tree clearing and excavation, and jobs in ancillary businesses that support construction such as lodging, restaurant, fuel, and concrete supply. Following the construction phase, Stetson II anticipates hiring additional employees to maintain and operate the project. Stetson II will hire locally whenever possible, providing construction, operations, and maintenance employment opportunities to community residents.

Although the exact amount of direct and indirect economic benefits of a project cannot be predicted, the actual economic spending associated with the development and construction of Stetson is evidence of the tangible economic benefits that can be expected from the Stetson II Wind Project. Included as Exhibit 21 is a graphic representing the local and statewide economic benefits associated with Stetson. The economic benefits of a wind project are significant and can provide value and stability to the local and regional economy. As indicated in that graphic, of the approximately \$65 million spent for construction, engineering, and development services, about \$50 million was spent in Maine. This includes contractors throughout the state from Fryeburg to Presque Isle, consultants with offices throughout the state, and local businesses in the Lincoln and Danforth area. These amounts reflect only direct spending by the developer and do not capture the indirect jobs and benefits that may result from that direct spending. For example, the contractors hired by the developer to build the project will spend money on food, lodging, and fuel in the area. Similar benefits during construction are expected for the Stetson II Wind Project.

21.2.3 Property Tax Benefits

Utility-scale wind power projects require significant capital investments that have been estimated from \$95 million to \$270 million.^[1] These large investments in grid-size wind power projects typically result in a dramatic increase in property value, and typically have the corresponding effect of substantially increasing the local property tax base. The Stetson II project, like the Stetson Project, is located solely within the Unorganized Territory of Washington County. Similar to the Stetson project, the applicant expects that it will pay significant annual property taxes on the Stetson II wind power facilities, which would make the Stetson II Project one of the largest taxpayers in the region.

Host communities to large projects with high taxable value, such as a grid-size wind power project, enjoy tangible benefits related to the taxes paid on these projects, and can select the manner in which the community wishes to enjoy those benefits. Some communities choose to use the new property taxes to reduce local property taxes. As an example, the mil rate in Mars Hill decreased significantly (from \$25.00 to \$20.00) in 2007 as a result of the tax payments associated with the Mars Hill wind power project. Under the terms of a Tax Increment Financing (“TIF”) agreement, Evergreen Wind Power, LLC (an affiliate of this applicant) pays the Town of Mars Hill \$500,000 in property taxes annually, and will continue to pay that amount annually through 2026. Thus, TIF agreements such as that between Mars Hill and Evergreen Wind Power, LLC can provide long-term stability, predictability and property tax relief to the municipality arising from the substantial property tax payments associated with commercial wind power facilities.

Other host communities choose to enjoy their tangible tax-related benefits by segregating the new property taxes in a TIF program, and by using the community’s share of those new taxes to fund municipal economic development projects that have been approved by the legislative body of the municipality and the State of Maine Department of Economic and Community Development.¹⁴ As an example, the Washington County Commissioners entered into a TIF agreement with Evergreen Wind Power V, LLC (an affiliate of this applicant) for the Stetson Wind Power Project (the “Stetson TIF”). The Stetson TIF will provide an average annual payment of approximately \$185,000 to Washington County for

¹⁴ In an unorganized territory, the county acts in the place of the municipality in creating and implementing a TIF program. 30-A M.R.S.A. § 5235.

the County's use in funding economic development projects within the Unorganized Territories of Washington County during the 20-year life of the TIF.

The Washington County Commissioners have expressed a strong interest in exploring a TIF agreement for this Stetson II project as well. While the terms of any potential TIF program for the Stetson II project have not yet been determined, it is clear that the addition of the significant new property tax value this project will inject into the Unorganized Territory of Washington County will provide a considerable and tangible tax-related benefit within Washington County generally, and within the Unorganized Territory of Washington County in particular.

21.1.4 Reduced Energy Price Volatility

The addition of new power generation facilities in Maine will likely lead to lower and less volatile electricity prices. This is particularly true in the case of the addition of renewable power facilities like wind projects. The price and reliability benefits of new renewable resources have been described by the Maine Public Utilities Commission (MPUC) as follows:

*The addition of diverse (non-gas) resources in Maine and elsewhere in the region will be beneficial for several reasons. As more non-gas generation is added to the mix, cheaper gas resources and non-gas resources will set the clearing prices in a greater number of hours. **This would have the general effect of reducing both the level and volatility of electricity prices throughout the region. To the extent new generation is constructed within Maine's borders, the benefit to Maine consumers is more direct in that the result would be lower prices within the Maine zone.** In addition, any overall reduction in the demand for gas that results from the addition of non-gas resources in the region should have the effect of reducing the price of natural gas which translates into lower electricity prices. Finally, a reduction in the region's reliance on natural gas would result in a more secure system that is less vulnerable to gas shortages and thus less susceptible to curtailments and blackouts.*¹⁵

Given that the cost of wind power is stable and is not subject to fluctuations in fossil fuel prices, the development of new wind facilities like the project will also create an opportunity to reduce price volatility directly for certain consumers. In addition to opportunities to work directly with consumers, the cost stability of wind energy makes it a strong candidate for long-term contracts under the auspices of the MPUC.¹⁶

Additionally, in a number of New England states, including Maine, some type of Renewable Portfolio Standards (RPS) have been adopted to diversify the electricity supply portfolio, stabilize rates, increase energy security, improve environmental quality, invigorate the clean energy industry, and promote economic development. Essentially, RPSs create market demand for clean power, and the Maine Legislature has reaffirmed its support for the Maine RPS, and in fact expanded it, in recent sessions. The combined effect of the RPSs in New England is an increasing regional demand for renewable energy that far outstrips the currently available and qualifying supply of renewable energy. This 25.5-MW project will help meet this growing demand, and thereby take an important step toward achieving the policy objectives of the Maine RPS law.

21.2 Environmental Benefits

The operation of the project is expected to generate approximately 25.5 MW of electricity each year without any air or water pollution and with no greenhouse gas emissions, a leading cause of global warming.

¹⁵ MPUC Review Comments for the Land Use Regulation Commission, Zoning Petition ZP 702 (Maine Mountain Power, LLC), April 14, 2006, page 4.

¹⁶ According to PUC staff, the Commission plans to initiate shortly a process intended to use their authority to direct investor-owned utilities to enter into long-term contracts for capacity and energy.

Wind projects create zero air or water pollution. Each local, clean MW produced through wind energy means less produced through costly and polluting fossil fuels. To put this into perspective, the clean energy produced last year at the nearby Mars Hill Wind Project in Mars Hill, Maine, is the equivalent of burning approximately 260,000 barrels of oil or 70,000 tons of coal per year, but without the associated toxicity, health, or cost issues.

Maine and the region have set aggressive greenhouse gas reduction goals. State and regional experts, including the MPUC and ISO-New England, have concluded that Maine and the region cannot meet these greenhouse gas policy goals without significant additions of wind power and other renewable in Maine and elsewhere.

The significant environmental benefits associated with wind power, including avoided air pollution benefits, were recently recognized by the Governor's Task Force on Wind Power Development, and affirmed by the Legislature with enactment of "An Act to Implement the Recommendations of the Governor's task Force on Wind Power Development, Public Law 2008, Chapter 661."¹⁷

22.0 PUBLIC SAFETY

Recently enacted legislation requires a demonstration that the proposed generating facilities will be constructed with setbacks adequate to protect public safety. Subsequent guidance from the LURC and MDEP states that this requirement is fulfilled by providing documentation that the turbine design meets accepted safety standards, and has appropriate overspeed control and evidence that the generating facilities have been sited with the appropriate safety related setbacks.¹⁸

22.1 Turbine Design Certification

The Stetson II Wind Project will use GE 1.5-MW sle wind turbine generators. The turbines are National Electric Code compliant and are designed to withstand Class IIa wind gusts of 55 meters per second, as established by the International Electrotechnical Commission. Exhibit 21. GE's 1.5 sle turbine design is also certified by Germanischer Lloyd, the leading wind power product certification authority.

22.2 Overspeed Control

The GE 1.5-MW turbines are protected from speed variation by a "safety chain" system. If any link in the chain senses vibration or overspeed, it triggers shutdown of the turbine.

Sensors within the nacelle will trigger braking if:

- the rotor is spinning overspeed (1.135 times nominal speed);
- the generator is spinning overspeed (1.135 times nominal speed);
- there is vibration beyond tolerance;
- the pitch control mechanism fails; or
- control systems fail ("fail-safe" mode).

In addition, safety chain braking can be initiated by emergency stop switches located at three locations within the turbine: the base, the nacelle, and the hub. The turbine is not generating electricity once the safety chain is initiated. Once stopped for speed variation, the turbine cannot be restarted remotely.

There are two independent methods of speed control in each turbine: blade pitch control and hydraulic disc braking. Either or both of these systems can initiate to prevent overspeed. The three rotor blades have pitch control that adjusts to wind conditions. Once optimal rotation speed is achieved, operational braking will occur by the blades automatically adjusting their pitch to spill excess wind and keep the turbine spinning at optimum speed. In addition, the turbines will "cut out" and the braking system will be

¹⁷ See e.g., 35-A MRSA §3402(1).

¹⁸ Grid Scale Wind Energy Development Permit Applications, Guidance Document issued Sept. 3, 2008 and Checklist for LURC, Appendix B (5). 35-A M.R.S.A § 3455.

initiated if wind speeds exceed 25 meters per second in any 10 minutes. The blades will automatically adjust to a feathered position at 85 degrees to the wind, and the hydraulic braking will be applied to bring the turbine to a neutral position. In fully feathered position, the blades will be allowed to idle

The blade pitch control is tested every 168 partial load hours, and the disc brake is tested every 1400 hours. In the event of a power failure, the pitch control for the three blades is automatically switched to a backup battery system, which moves the blades to a feathered position.

22.3 Public Safety Setbacks

Recent guidance associated with LURC's application requires evidence that the wind turbines have been sited with the appropriate safety related setbacks from adjacent properties and adjacent existing uses. The MDEP and LURC Guidance Documents recommend a minimum setback from property lines, roads, or other structures equal to the local setback requirements or 1.5 times the maximum turbine blade height, whichever is greater.

The Stetson II Wind Project has been sited with appropriate safety-related setbacks. The recommended setback of 1.5 times the maximum blade height is 584 feet for the GE turbines, which is greater than any local setback requirements. Each turbine is more than 584 feet from the property boundary and approximately 1,050 feet from the center of Route 169, the nearest public road. The closest dwelling is a seasonal camp on Spinney Cove over one mile away.

23.0 NOTICE AND PUBLIC MEETINGS

In accordance with Chapter 4 of LURC's Regulations, 4.04,4,(B), LURC staff must provide notice of the application to all persons owning or leasing land within 1,000 feet of the proposed project. There are no properties within 1,000 feet of the Stetson Wind II Project. However, the applicant has provided a list of the names and addresses of all persons within close proximity of the project and a copy of the Notice of Intent to File has been sent to these addresses on November 13, 2008. Exhibit 23. It was also published on November 15, 2008, in the *Bangor Daily News* and November 19, 2008, in the *Houlton Pioneer Times*. In addition, a newsletter was created and made available at area businesses and mailed to abutters.

The applicant has hosted additional public meetings and forums.

- Stetson Tour, Stetson Mountain, Maine, August 27, 2008. The invitation was sent to everyone within close proximity. See Exhibits 23A and B.
- Stetson II Open House, Danforth, Maine, September 25, 2008. A poster was displayed on 6 area business's front doors and at the Danforth Town Office. See Exhibit 23C.
- Pre-submission meeting, Augusta Maine, October 3, 2008.

24.0 ADDITIONAL PERMITS REQUIRED

This project will require the following additional permits.

- FAA approved lighting plan
- MDEP Notice of Intent for a Construction General Permit
- Forest Operation Notification
- MDOT road opening permit
- MDOT road crossing permit for overhead lines
- An amendment to DP-4788 for the portion of the collector line located south of Route 169 and within the D-PD zone for Stetson.

Exhibit 1
Site Plans, Collector Design

Exhibit 2A
Certificate of Good Standing

Exhibit 2B
Financial Capacity Letter from First Wind

Exhibit 2C
First Wind Holdings, LLC and Subsidiaries Consolidated
Balance Sheet

Exhibit 3
Resumes

Exhibit 4A
Lease Agreement

Exhibit 4B
Land Division History

Exhibit 5A
Typical Turbine Design
Rock Anchor Turbine Design

Exhibit 5B
Blasting Plan

Exhibit 6 Typical Clearing

Exhibit 7A Construction Schedule

Exhibit 7B
Third Party Inspection Program

Exhibit 7C
Spill Prevention and Discharge Control Plan

Exhibit 7D Transportation Assessment

Exhibit 8
Federal Aviation Administration Lighting Approval

Exhibit 9A
Service Letters

Exhibit 9B
Solid Waste Capacity

Exhibit 10A
Erosion and Sedimentation Control Plan

Exhibit 10B
Notice of Intent

Exhibit 11A
Wetland Report

Exhibit 11B
Delineation Field Forms

Exhibit 12A
Wildlife Habitat Report

Exhibit 12B
Maine Department of Inland Fisheries and Wildlife
Correspondence

Exhibit 12C
Habitat Assessment

Exhibit 12D
Stetson Avian Report

Exhibit 13
Maine Natural Areas Program Correspondence

Exhibit 14A
Maine Historic Preservation Commission Correspondence

Exhibit 14B
PAL Report

Exhibit 14C
IAC Report

Exhibit 14D
TRC Report and Figure

Exhibit 15A
Soil Survey
Albert Frick and Associates Report
Supplement Frick Report

Exhibit 15B
Acid Rock Drainage Report

Exhibit 16
Sound Assessment

Exhibit 17

Visual Analysis Report

Exhibit 18
Avian and Bat Monitoring Protocol

Exhibit 19 Decommissioning Plan

Exhibit 20
Shadow Flicker Report

Exhibit 21
Stetson Economic Benefits

Exhibit 22
General Electric 1.5 sle Turbine Specifications

Exhibit 23A
Notice List and Notice of Filing

Exhibit 23B
Tour Invitation

Exhibit 23C
Project Poster