

**AMENDMENT Application to the  
North Dakota Public Service Commission for a  
Certificate of Site Compatibility  
Antelope Hills Wind Project  
Mercer County, North Dakota**

**Case #: PU-14-679**



**Antelope Hills Wind Project, LLC**

**July 22, 2015**

**AMENDMENT APPLICATION TO THE  
NORTH DAKOTA PUBLIC SERVICE COMMISSION FOR  
A CERTIFICATE OF SITE COMPATIBILITY  
ANTELOPE HILLS WIND PROJECT,  
MERCER COUNTY, NORTH DAKOTA**

**CASE #: PU-14-679**

Prepared by

**Antelope Hills Wind Project, LLC**

**July 22, 2015**

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## **1.0 INTRODUCTION**

On December 14, 2014, the Public Service Commission (“PSC”) issued a Certificate of Site Compatibility Number 41 (“Certificate”) for the Antelope Hills Wind Energy Project (“the Project”). The PSC Certificate approved a project design that consisted of 172 Megawatt (MW) (name plate) capacity and a maximum of 105 wind turbines. The PSC Certificate approved options for use of 105 of the Vestas V100-2.0 MW turbines or 92 of the Vestas V110-2.0 MW turbines.

The PSC Certificate for the Project included preliminary (conceptual) design locations for the wind turbines. Based on site specific analyses (including geotechnical and detailed electrical and civil engineering studies, micro siting evaluations, and an effort to avoid and minimize potential impacts to wetlands), that will ensure compliance with the ND Energy Conversion Facility Siting Criteria (ND AC Section 69-06-08-01; the (“Siting Criteria”), Antelope Hills Wind Project, LLC (“Antelope”) has prepared a revised wind turbine layout for the Project. This revised layout (Figure 1 and 2) consists of a maximum of 87 wind turbines (either the Vestas V100-2.0 MW or the Vestas V110-2.0 MW turbines) in arrays that generally follow the arrays approved in the PSC-approved Certificate. The revised layout for the Vestas V100-2.0 MW turbine compared to the PSC-approved layout for the V100-2.0 MW turbine is illustrated on Figure 1. The revised layout for the Vestas V110-2.0 MW turbine compared to the PSC-approved layout for the V110-2.0 MW turbine is illustrated on Figure 2.

The Project area approved under the PSC Certificate will remain the same with the current proposed turbine layout. There have been no new additional parcels added or removed from the project area since the time of the PSC approval and issuance of the Certificate. Additionally, Antelope commits to working with landowners to ensure they are informed, and aware of any turbine changes prior to any public hearing before the Commission.

## **2.0 PSC SITING CRITERIA**

### **2.1 AVOIDANCE AND EXCLUSION AREAS**

As illustrated in Figure 3, Antelope’s environmental consultant, TRC, created a map depicting the revised turbine layout’s compliance with the Siting Criteria’s avoidance and exclusion areas in the vicinity of the Project. In all cases where turbines have been relocated, Antelope has complied with all applicable setbacks from non-participating landowners. As a result all turbines have been located in the Feasible Turbine Placement Area (i.e., non-setback or non-exclusion areas).

### **2.2 SELECTION AND POLICY CRITERIA**

In accordance with ND AC Section 69-06-08-01-3, a site shall be approved in an area only when it is demonstrated to the PSC by the applicant that any significant adverse effects resulting from the location, construction, and operation of the facility in that area, as they relate to the criteria listed in the following tables.

### **3.0 ENVIRONMENTAL ANALYSIS - UPDATED**

#### **3.1 INTRODUCTION**

Antelope has undertaken and updated several relevant environmental studies that were included in the Projects original PSC application and these updated studies are included in this Amendment Application and briefly discussed below.

#### **3.2 SHADOW FLICKER STUDY**

Shadow flicker modeling was conducted using the revised turbine layout to ensure no additional impacts above the acceptable range. The results of this study indicated that the revised layout complies with the applicable shadow flicker standard. A copy of this study is presented in Appendix A.

#### **3.3 NOISE STUDY**

A noise study was conducted using the revised turbine layout to ensure compliance with the applicable PSC standard. This study was conducted for both the Vestas V100-2.0 MW turbine and Vestas V110-2.0 MW turbine. The results of this study indicate that the revised layout for both turbines comply with the applicable PSC noise standard. A copy of this study is presented in Appendix B.

#### **3.4 WETLAND STUDY**

A site specific wetland delineation study was performed using the revised turbine layout to avoid and minimize impacts to wetlands and waters of the U.S. The results of the micro siting effort by Antelope has resulted in the significant reduction in the potential wetland impacts. Based on the revised layout the Antelope will be able to comply with Section 404 of the federal *Clean Water Act* and Antelope will meet the requirements to obtain permit coverage for a Nationwide permit. The applicable Nationwide permit can only be issued if it is determined that the project

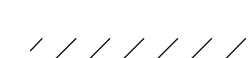



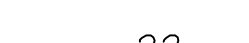
will result in no more than 0.5 acres of permanent impacts to jurisdictional wetlands and no more than 300 ft of permanent impacts to waters of the U.S. The revised layout allows the Project to meet these criteria. Antelope is currently in the process of securing coverage from the U.S. Army Corps of Engineers for inclusion under a Nationwide permit. A copy of the wetland delineation report is presented in Appendix C.

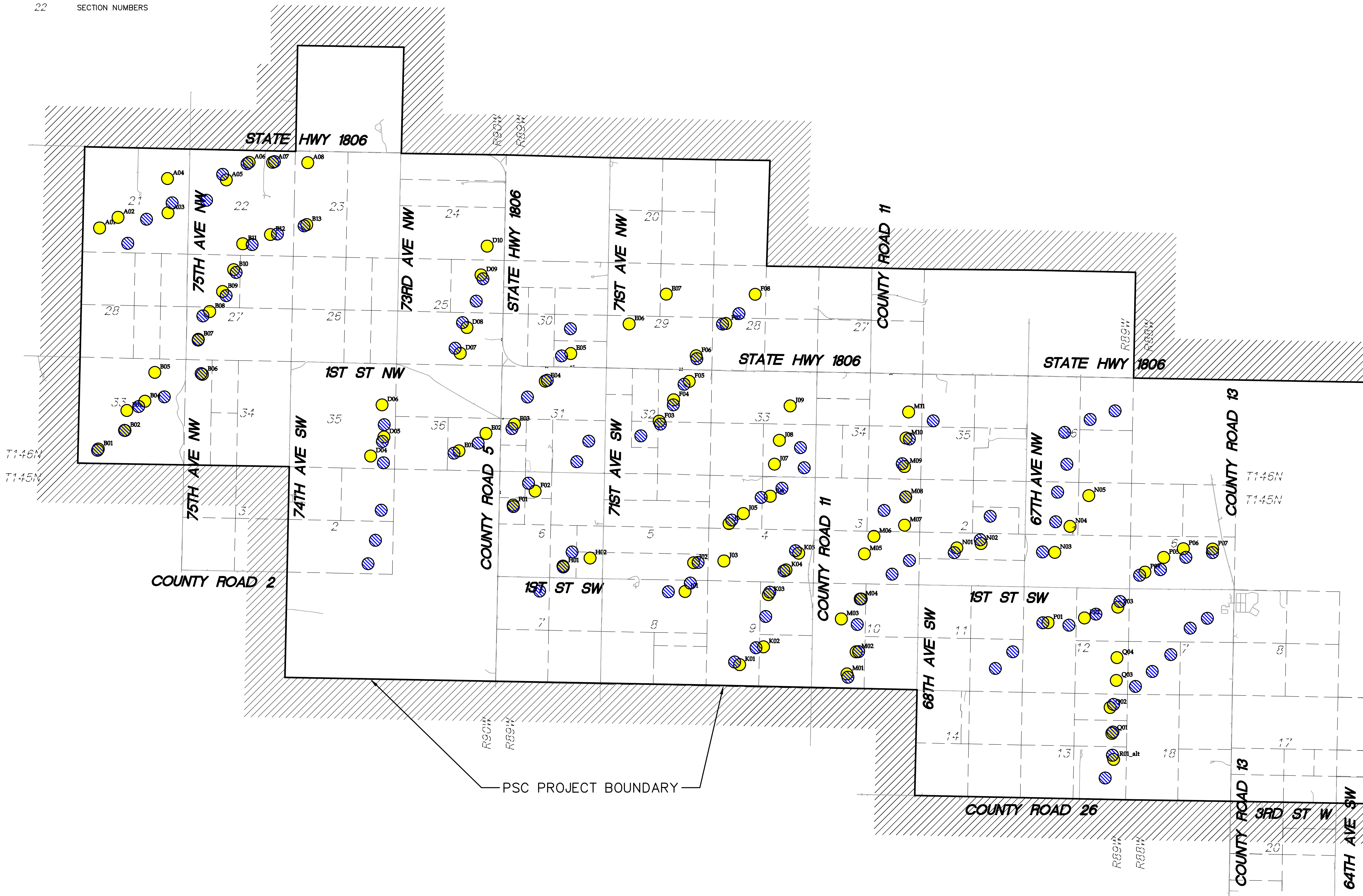
### **3.5 CULTURAL RESOURCES SURVEY**

As a result of the revised turbine layout, some additional land needed to be surveyed for cultural resources. The survey was completed and it was determined that no sites listed on the National Register of Historic Places (NRHP) or sites that are eligible for listing on the NRHP will be impacted by the revised turbine layout. The cultural resource survey report was also reviewed and accepted by the North Dakota State Historic Preservation Office. This Amended Application will be supplemented to include a copy of the North Dakota State Historic Preservation Office concurrence letter when it is available.

**FIGURES**

**LEGEND:**

-  PSC PROJECT BOUNDARY
-  APPROVED PSC TURBINE LOCATIONS (V100)
-  CURRENT TURBINE LOCATIONS
-  TURBINE NUMBERS
-  PARCEL & SECTION LINES
- 22 SECTION NUMBERS



Designed:	DFK
Checked:	RSC
Drawn:	DFK
Record Drawing by/date:	

Revisions:	DATE	DESCRIPTION

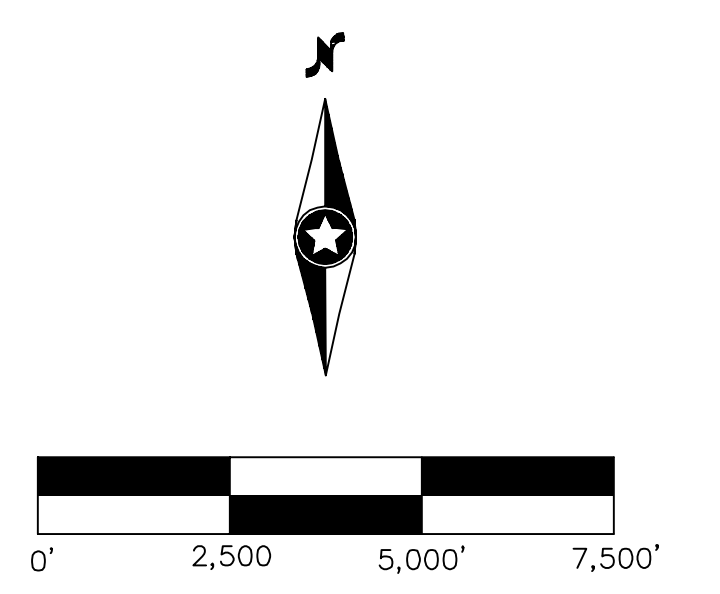
Prepared for:



**Mortenson**  
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 700 Meadow Lane  
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**SunEdison**  
 179 Lincoln Street, Suite 500  
 Boston, MA 02111



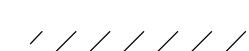





**Antelope Hills  
 Wind Project**  
 Mercer County, North Dakota

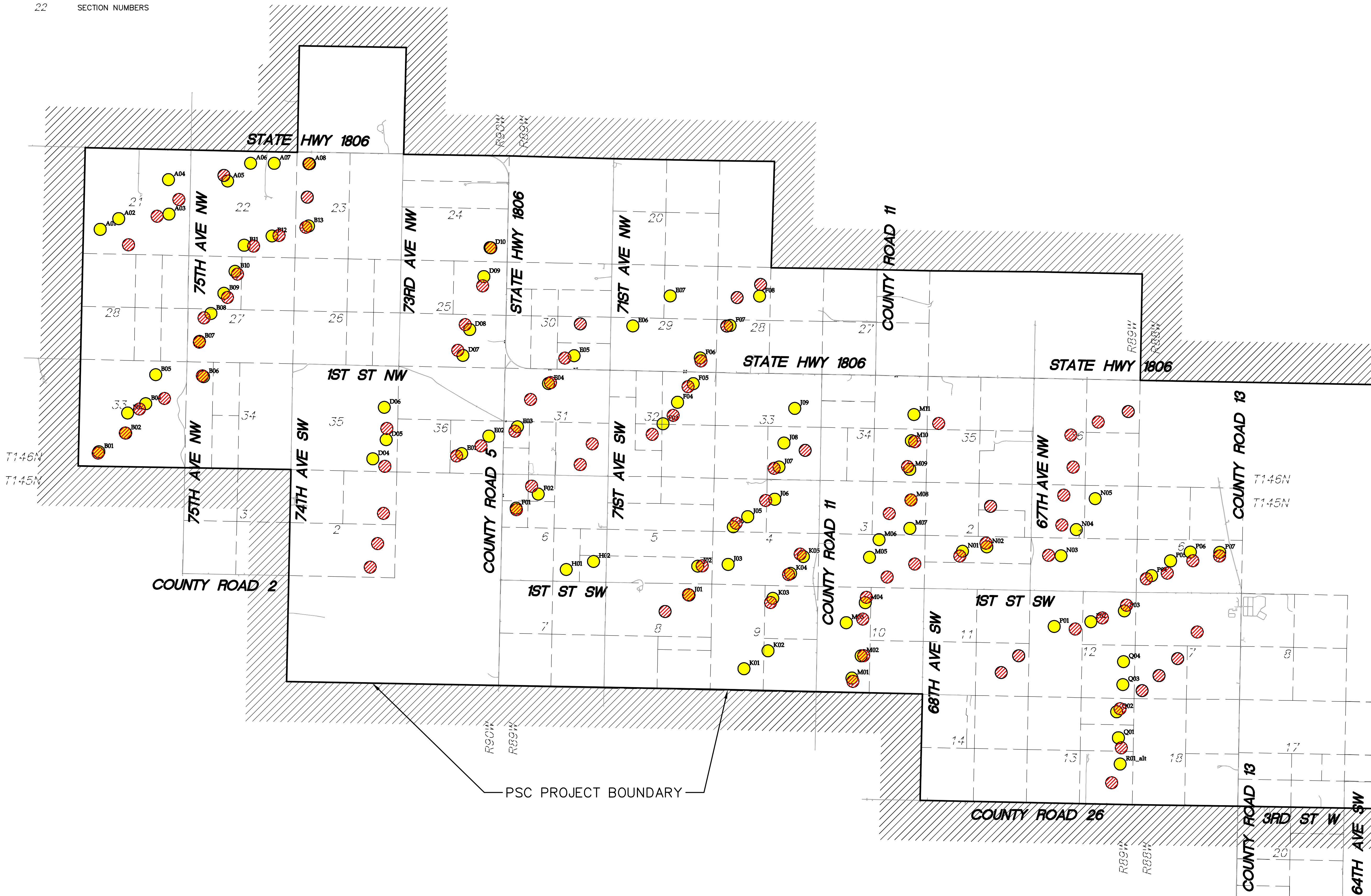
PSC (V100) and Current  
 Turbine Locations Exhibit

**FIGURE 1**

**NOT FOR CONSTRUCTION**

**LEGEND:**

-  PSC PROJECT BOUNDARY
-  APPROVED PSC TURBINE LOCATIONS (V110)
-  CURRENT TURBINE LOCATIONS
-  TURBINE NUMBERS
-  PARCEL & SECTION LINES
-  SECTION NUMBERS



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Checked:	RSC
Drawn:	DFK
Record Drawing by/date:	

Revisions #	DATE	DESCRIPTION

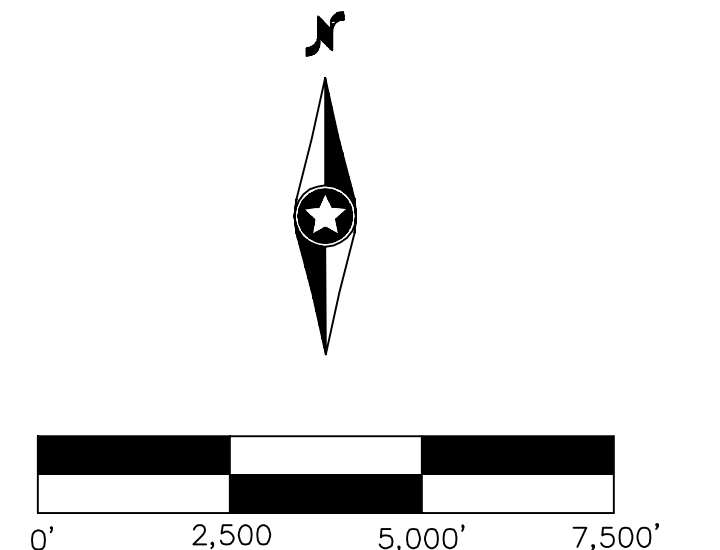
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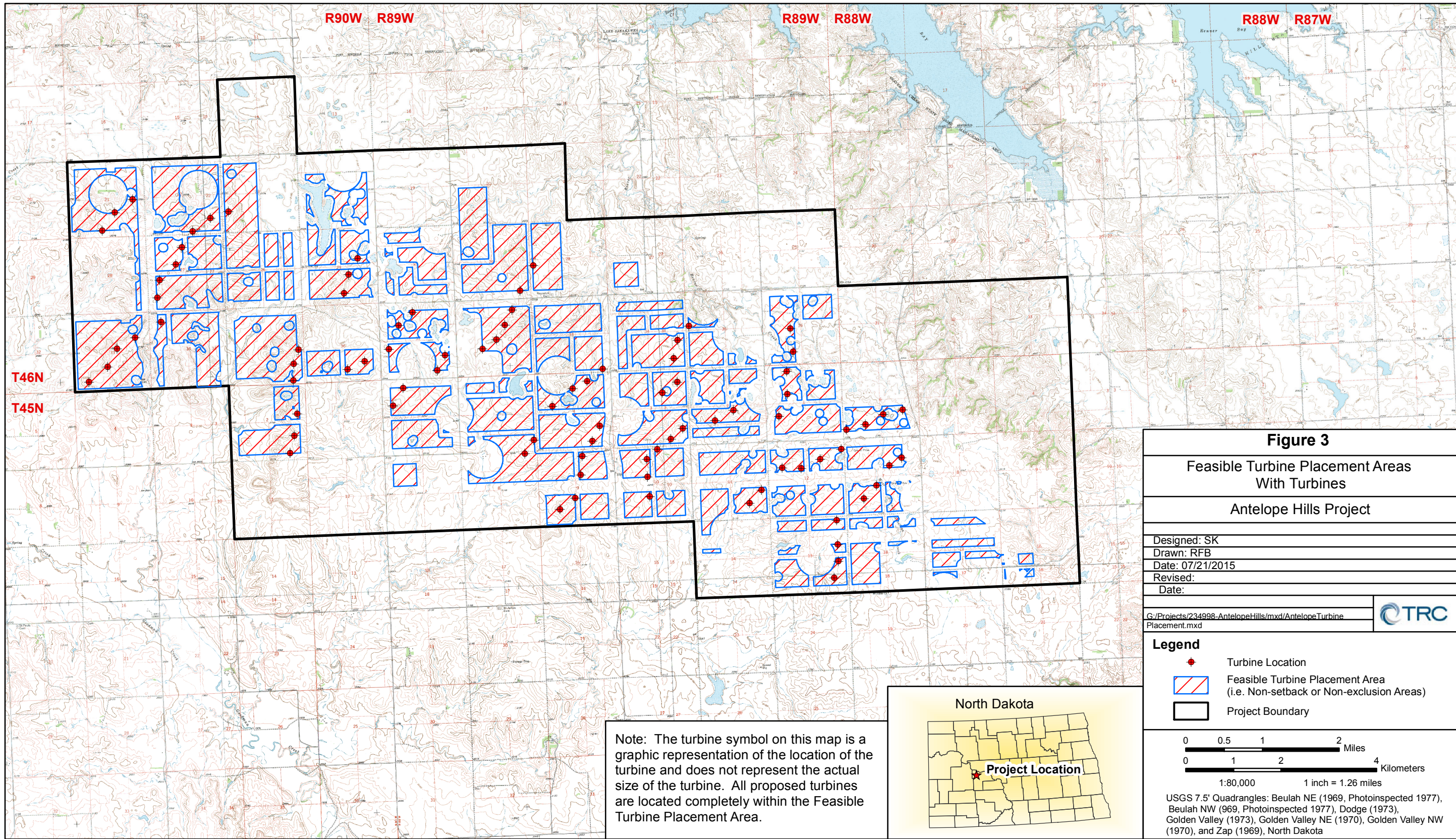


**Antelope Hills  
 Wind Project**  
 Mercer County, North Dakota

PSC (V110) and Current  
 Turbine Locations Exhibit

**FIGURE 2**

**NOT FOR CONSTRUCTION**



**Figure 3**  
**Feasible Turbine Placement Areas**  
**With Turbines**  
**Antelope Hills Project**

Designed: SK  
 Drawn: RFB  
 Date: 07/21/2015  
 Revised:  
 Date:

G:/Projects/234998-AntelopeHills/mxd/AntelopeTurbine  
 Placement.mxd

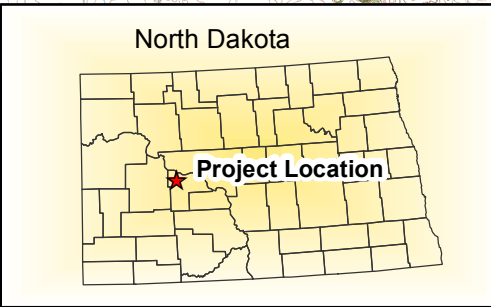


- Legend**
- Turbine Location
  - Feasible Turbine Placement Area  
(i.e. Non-setback or Non-exclusion Areas)
  - Project Boundary

0 0.5 1 2 Miles  
 0 1 2 4 Kilometers  
 1:80,000 1 inch = 1.26 miles

USGS 7.5' Quadrangles: Beulah NE (1969, Photoinspected 1977),  
 Beulah NW (969, Photoinspected 1977), Dodge (1973),  
 Golden Valley (1973), Golden Valley NE (1970), Golden Valley NW  
 (1970), and Zap (1969), North Dakota

Note: The turbine symbol on this map is a graphic representation of the location of the turbine and does not represent the actual size of the turbine. All proposed turbines are located completely within the Feasible Turbine Placement Area.



**APPENDIX A:**  
SHADOW FLICKER STUDY FOR THE  
ANTELOPE HILLS WIND PROJECT

**APPENDIX B:**  
NOISE STUDY FOR THE ANTELOPE HILLS WIND PROJECT,  
MERCER COUNTY, NORTH DAKOTA

**APPENDIX C:**  
WETLAND AQUATIC RESOURCE INVENTORY FOR THE  
ANTELOPE HILLS WIND PROJECT