Willow Creek Wind Energy Facility

South Dakota Public Utilities Commission

Docket Number EL15-020

Public Input Hearing

Newell, South Dakota

July 9, 2015

Clean Energy for a Changing World ®

Our Team

Patrick O'Meara, DO

Chief Executive Officer

John O'Meara

Chief Operating Officer

Jim Tomsic

Electrical Engineer

Our Consultants

Marion Hill
Senior Manager, Engineering
DNV-GL Engineering, Montreal, QC

Jennifer Bell
Senior Environmental Scientist
Burns & McDonnell Engineering, Denver, CO

Eric Atkinson
Assistant Professor of Biology
Northwest College, Powell, WY

Lance Rom
President
Quality Services, Rapid City, SD

Our Goals

- **Produce** renewable electric power for consumers
- **Create** jobs by generating sustainable domestic energy
- **Coexist** with the traditional agricultural lifestyle
- **Enhance** the health of our citizens
- **Increase** the prosperity of local communities
- **Provide** a better future for generations to come

Why Wind Energy?

Revitalize Rural Economies

- Tax revenue
- Direct lease payments to landowners

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Why Wind Energy?

Create Jobs

- Short term and long term

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Why Wind Energy?

Supports Agriculture

- Wind power plants do not significantly displace crops or livestock

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Why Wind Energy?

Land Preservation

- Turbine's very small "footprint" creates minimal disruption to existing agricultural land uses

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Why Wind Energy?

Clean Water

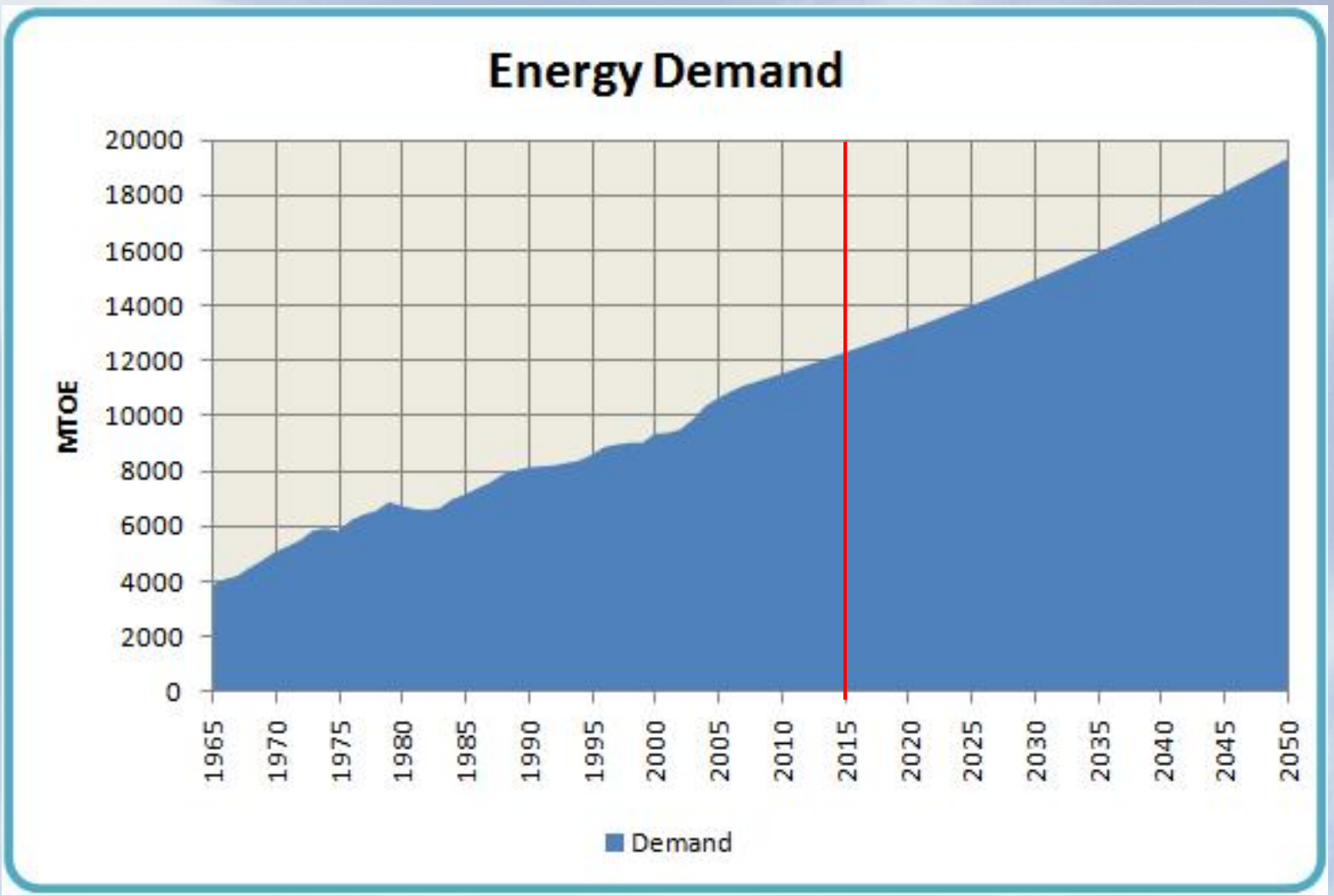
- No mercury contamination of lakes and streams
- No water consumption

Clean Air

- No particulate or carbon dioxide emissions
- No sulfur emissions that create acid rain

Wind Quarry LLC

Why Wind Energy?



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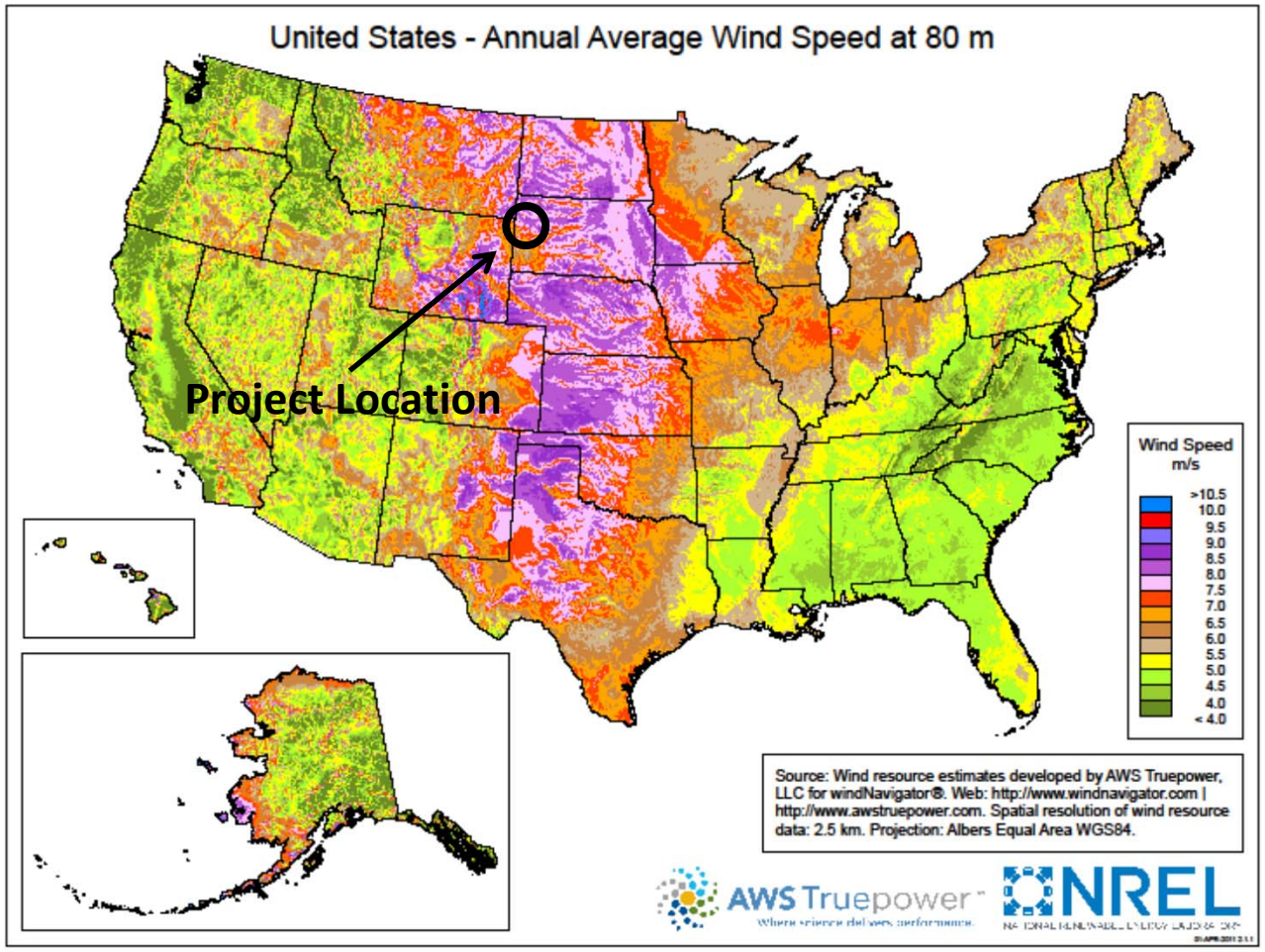
Site Selection



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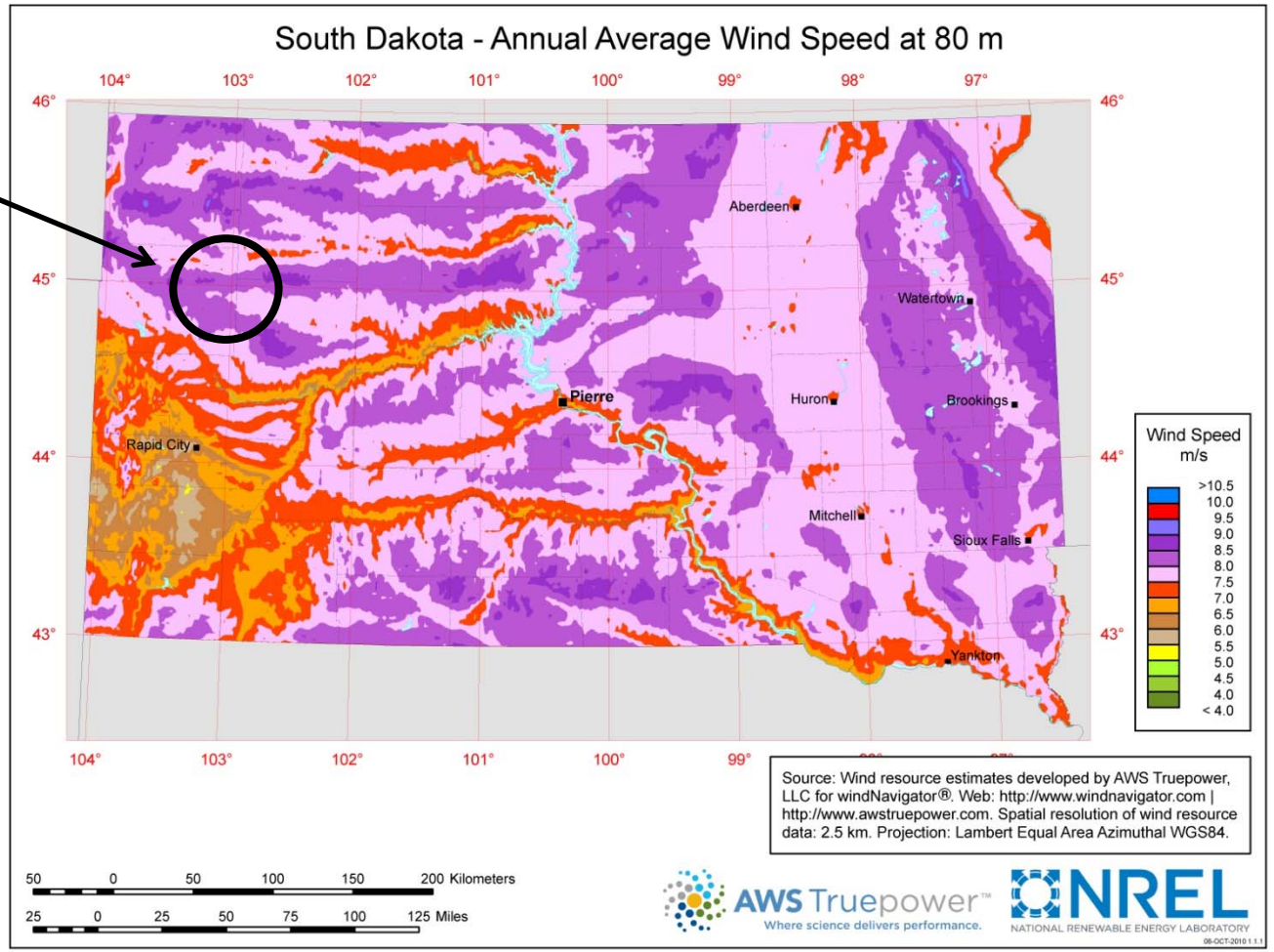
Site Selection

Project Location



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Resource Assessment

Five 60 meter meteorological towers and two SODAR units collecting wind data.

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Transmission

Western Area Power Administration 115kV transmission line.

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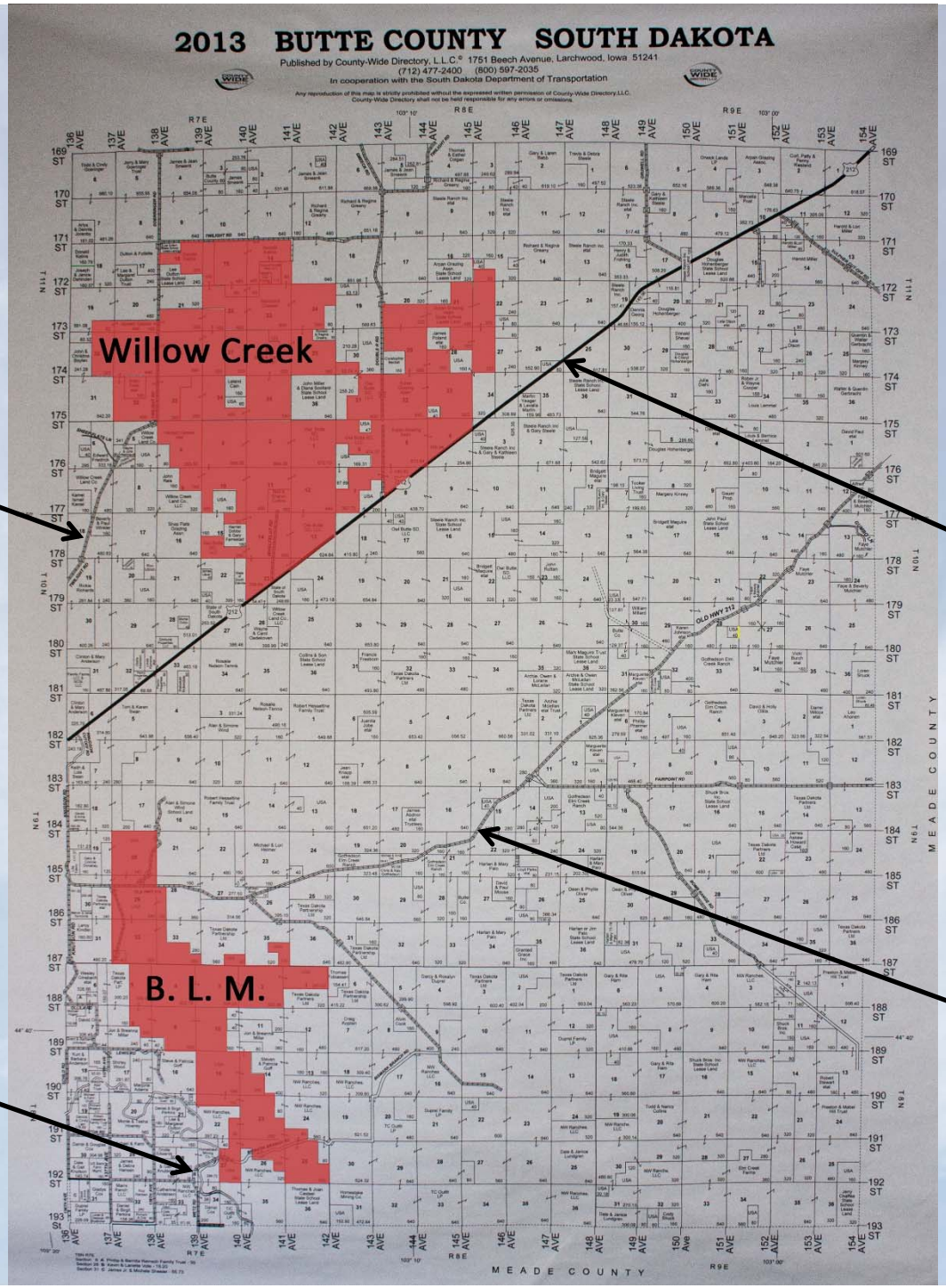


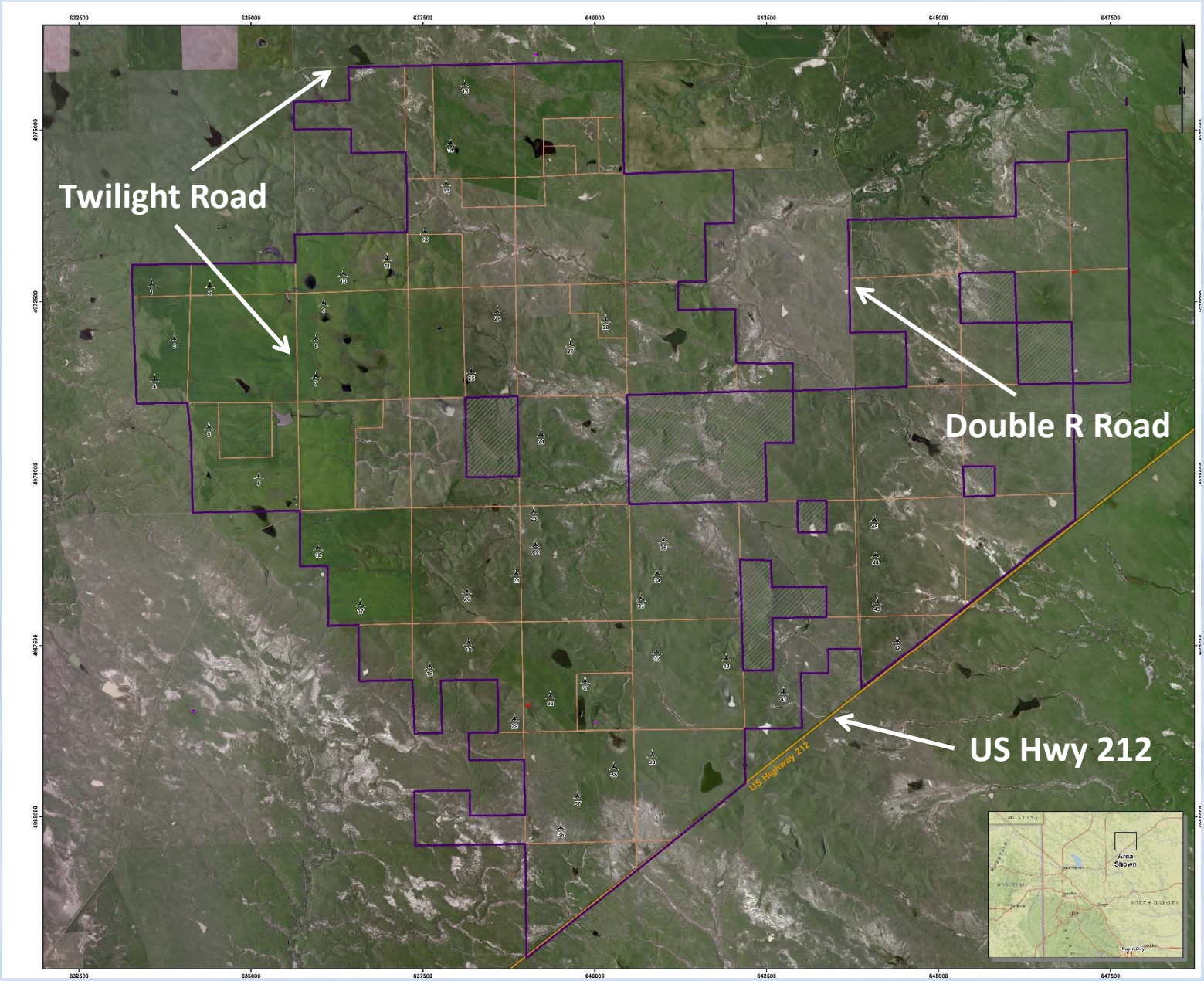
Twilight Road

US Hwy 212

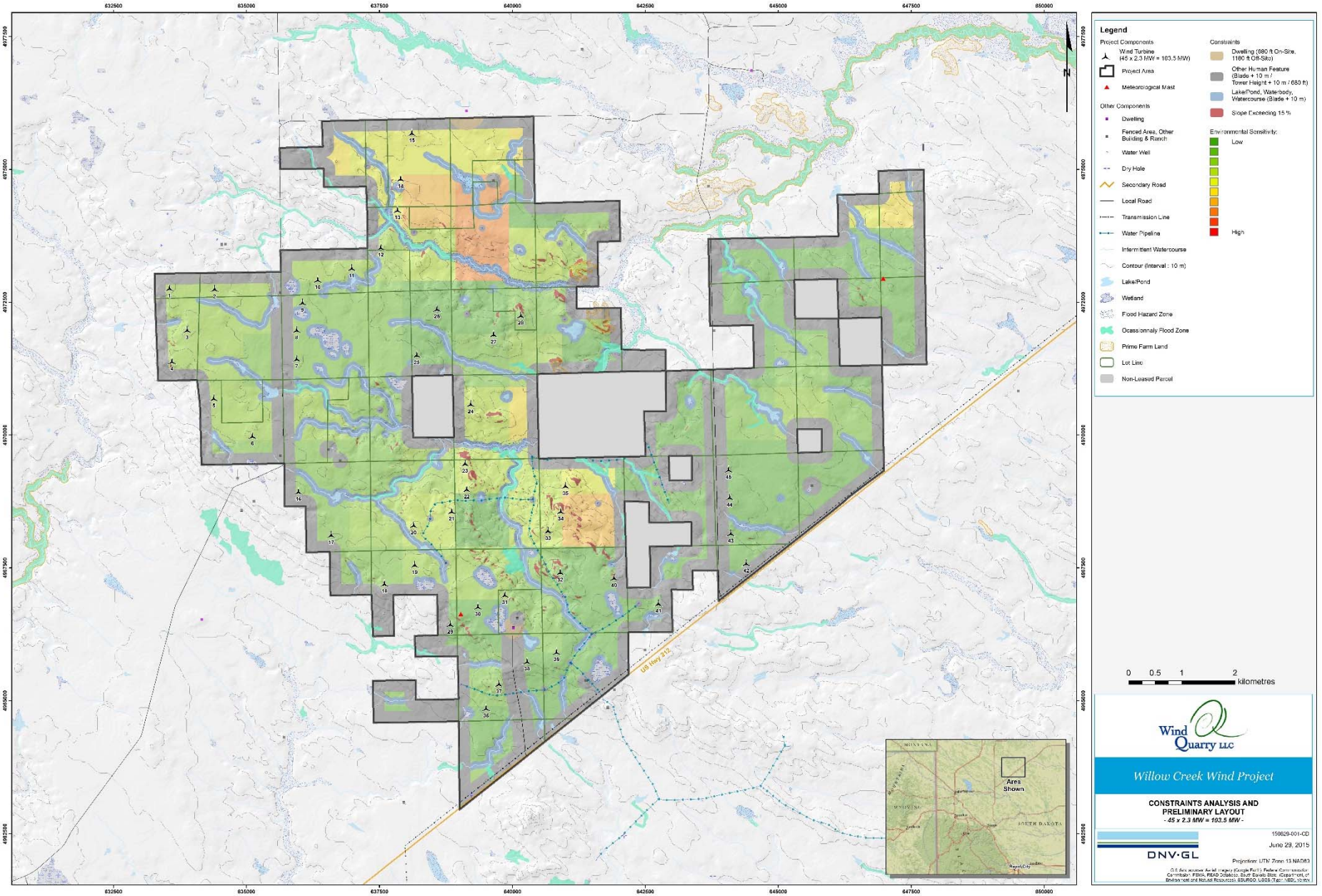
Old US Hwy 212

Belle Fourche River

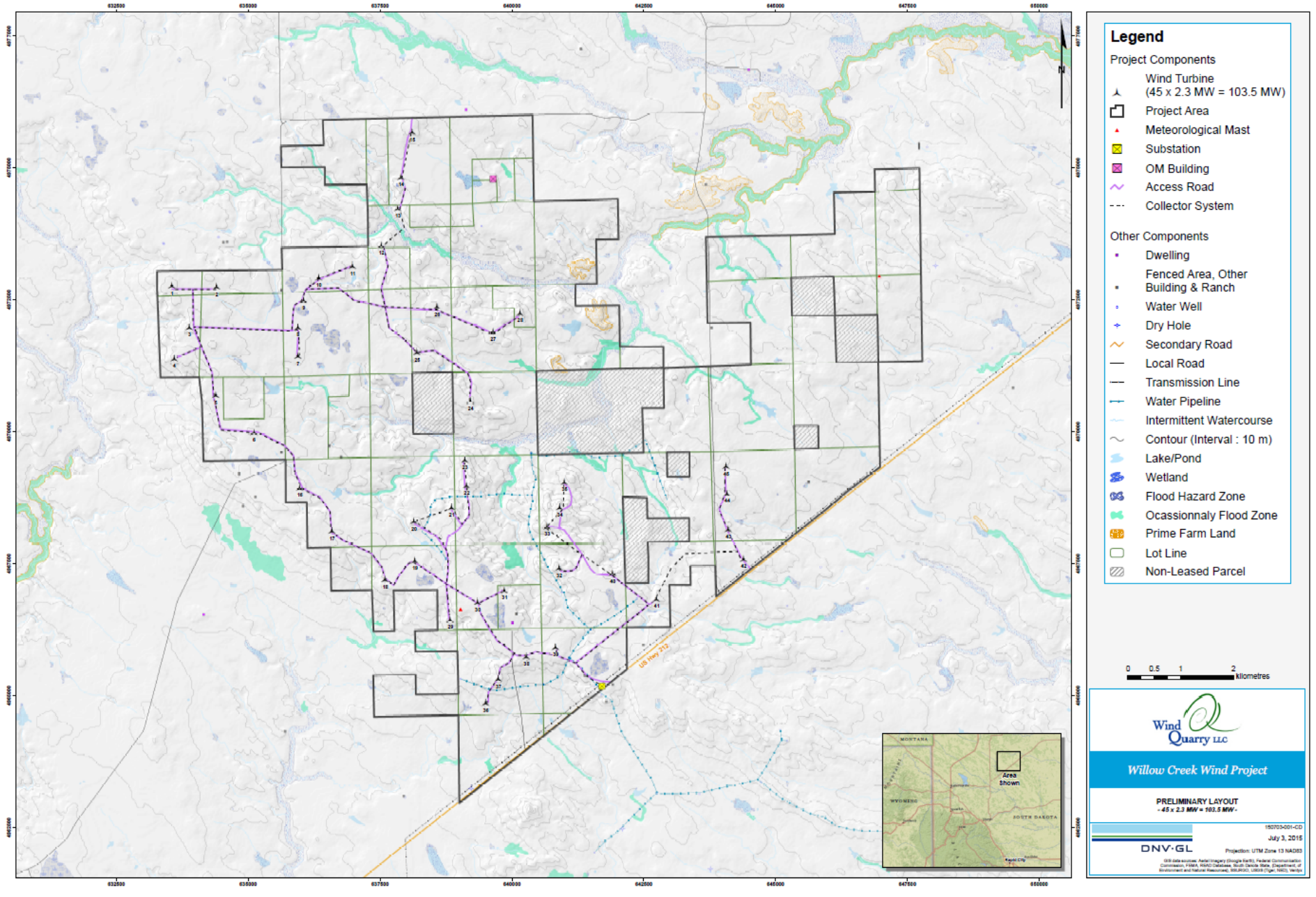
Aerial View


Twilight Road
Double R Road
US Hwy 212
US Highway 212
Area Shown

Constraints Map



Turbine Layout

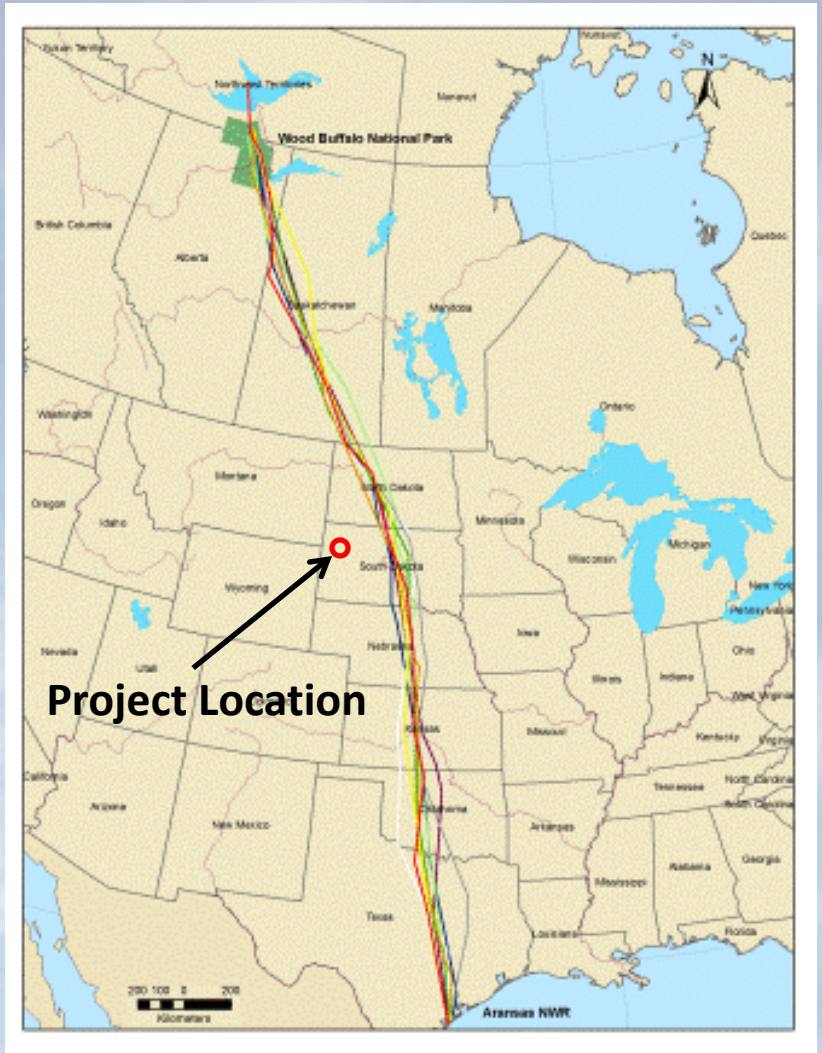


Environmental Review

Whooping cranes

Proposed site is outside of the

200 mile wide migration corridor.



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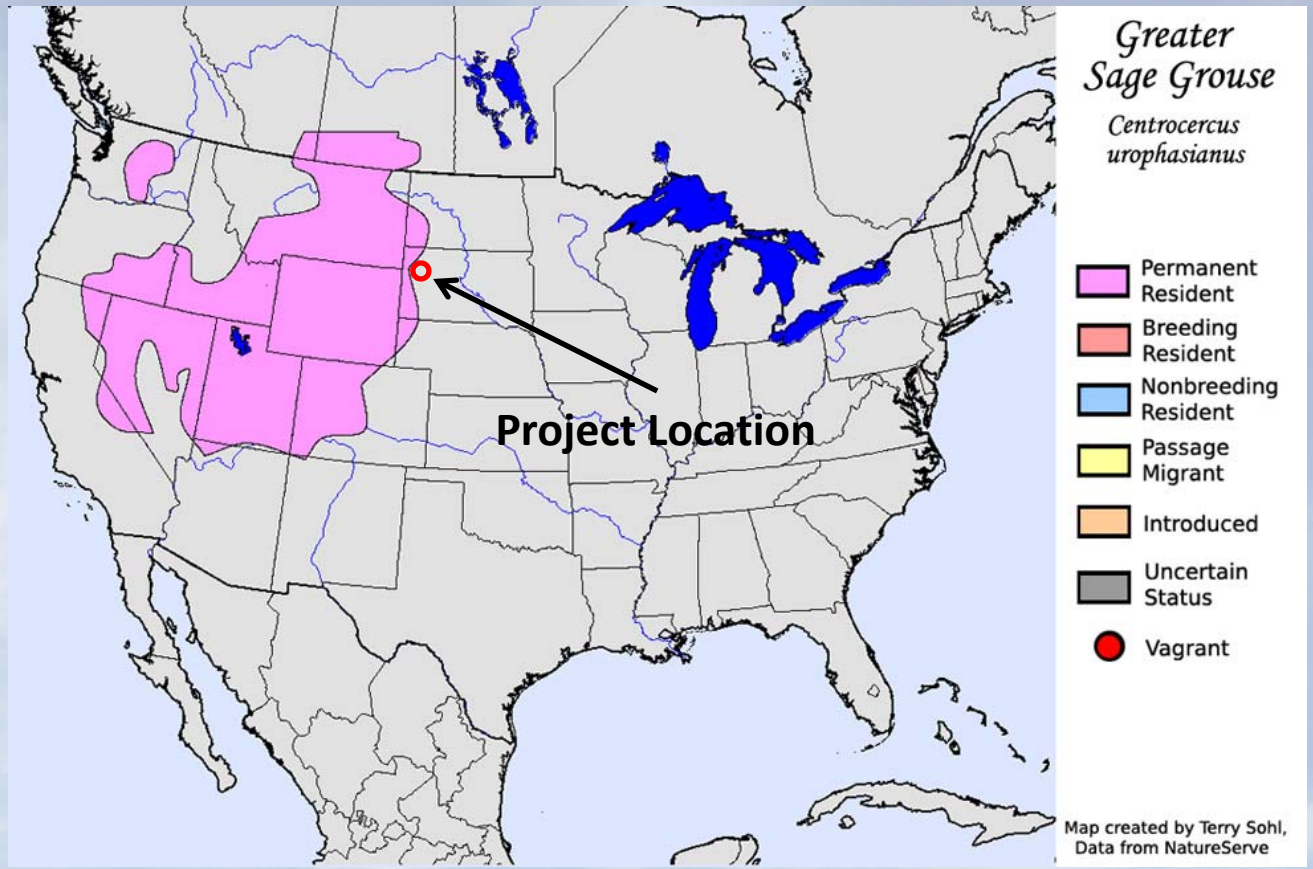
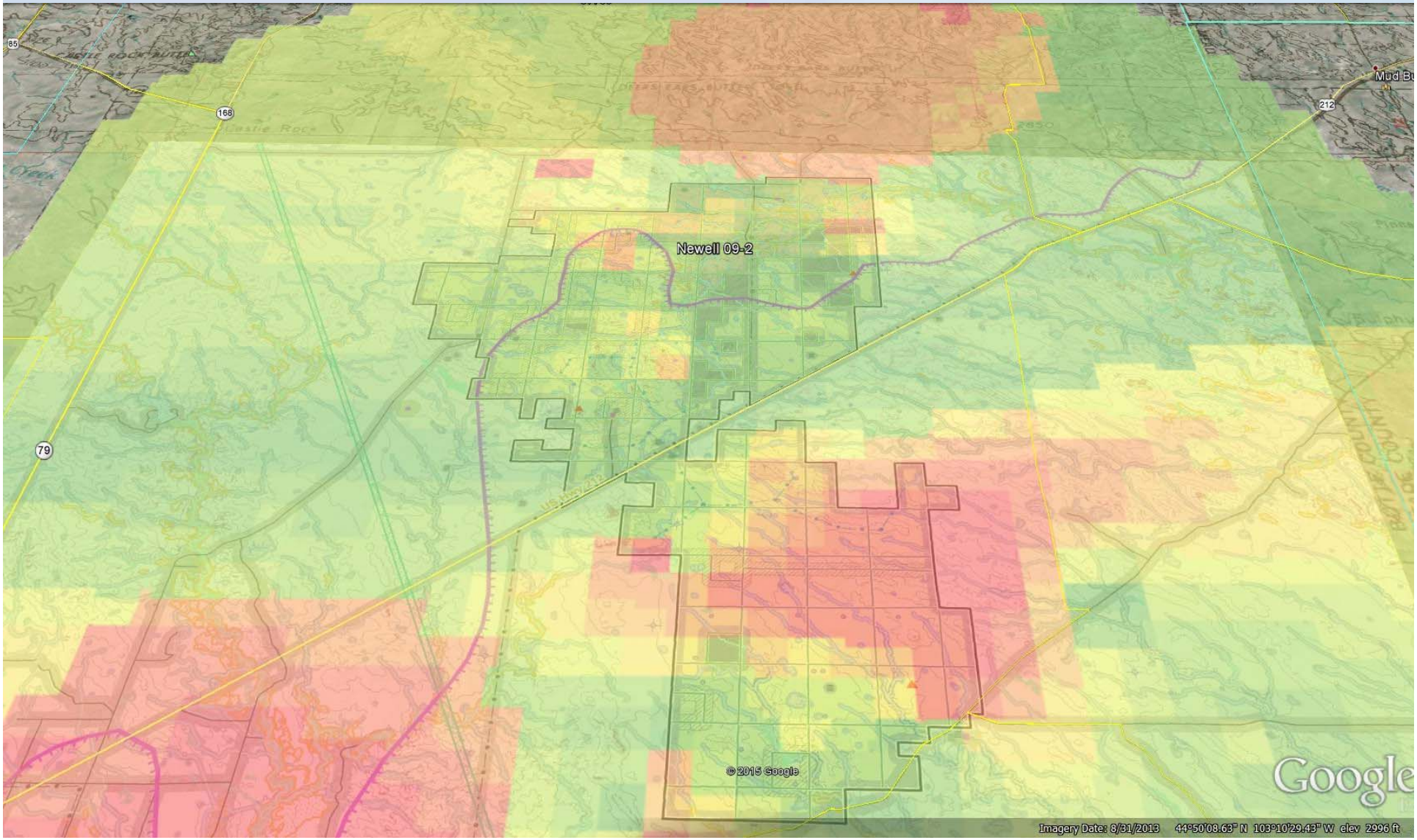
Environmental Review

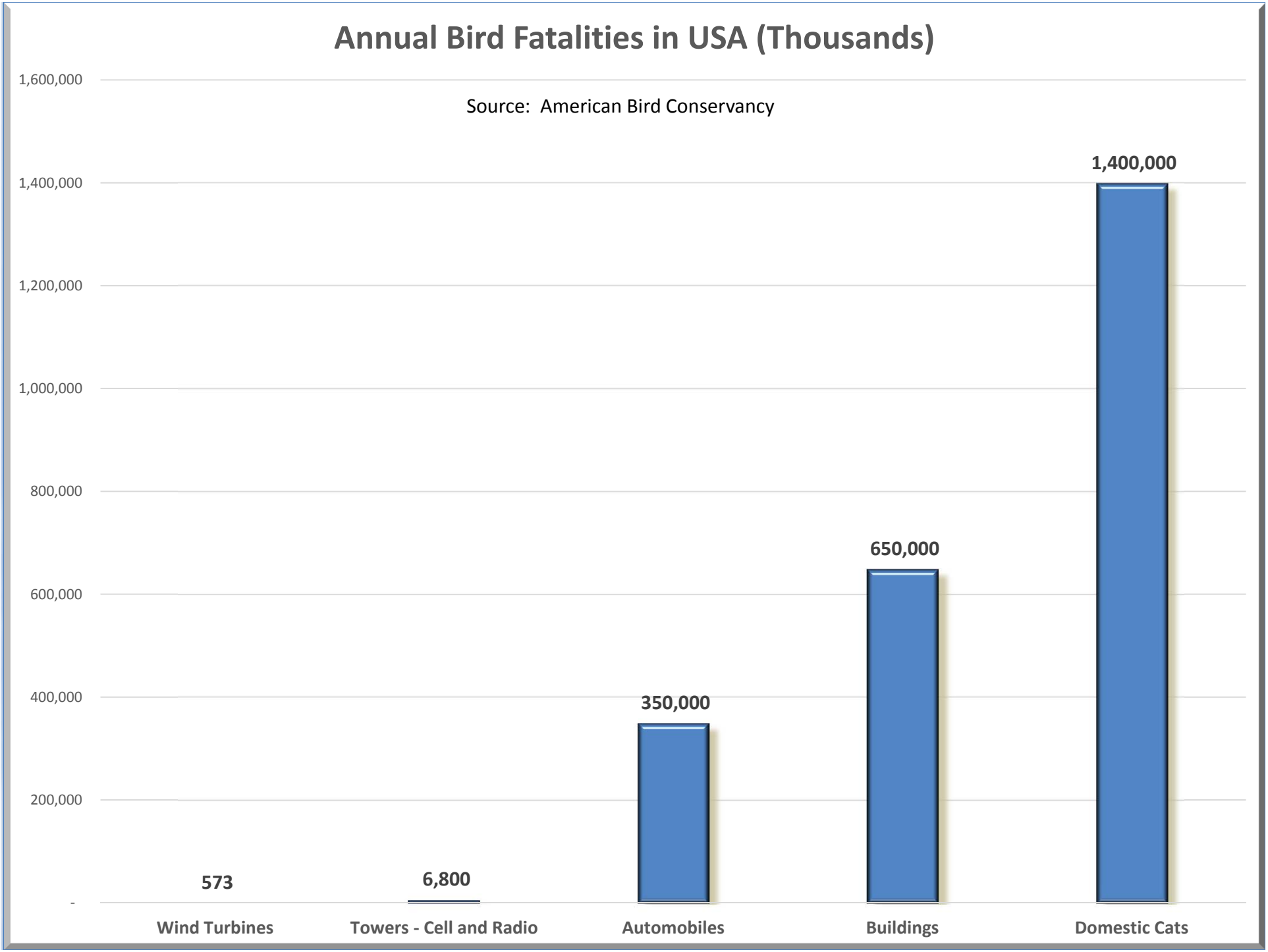
Sage Grouse

Proposed site is outside the current nesting range.



Wildlife Conservation and Protection




Annual Bird Fatalities in USA (Thousands)
Source: American Bird Conservancy
1,600,000
1,400,000
1,200,000
1,000,000
800,000
600,000
400,000
200,000
-
573
6,800
350,000
650,000
1,400,000
Wind Turbines
Towers - Cell and Radio
Automobiles
Buildings
Domestic Cats

Cultural Resources Inventory

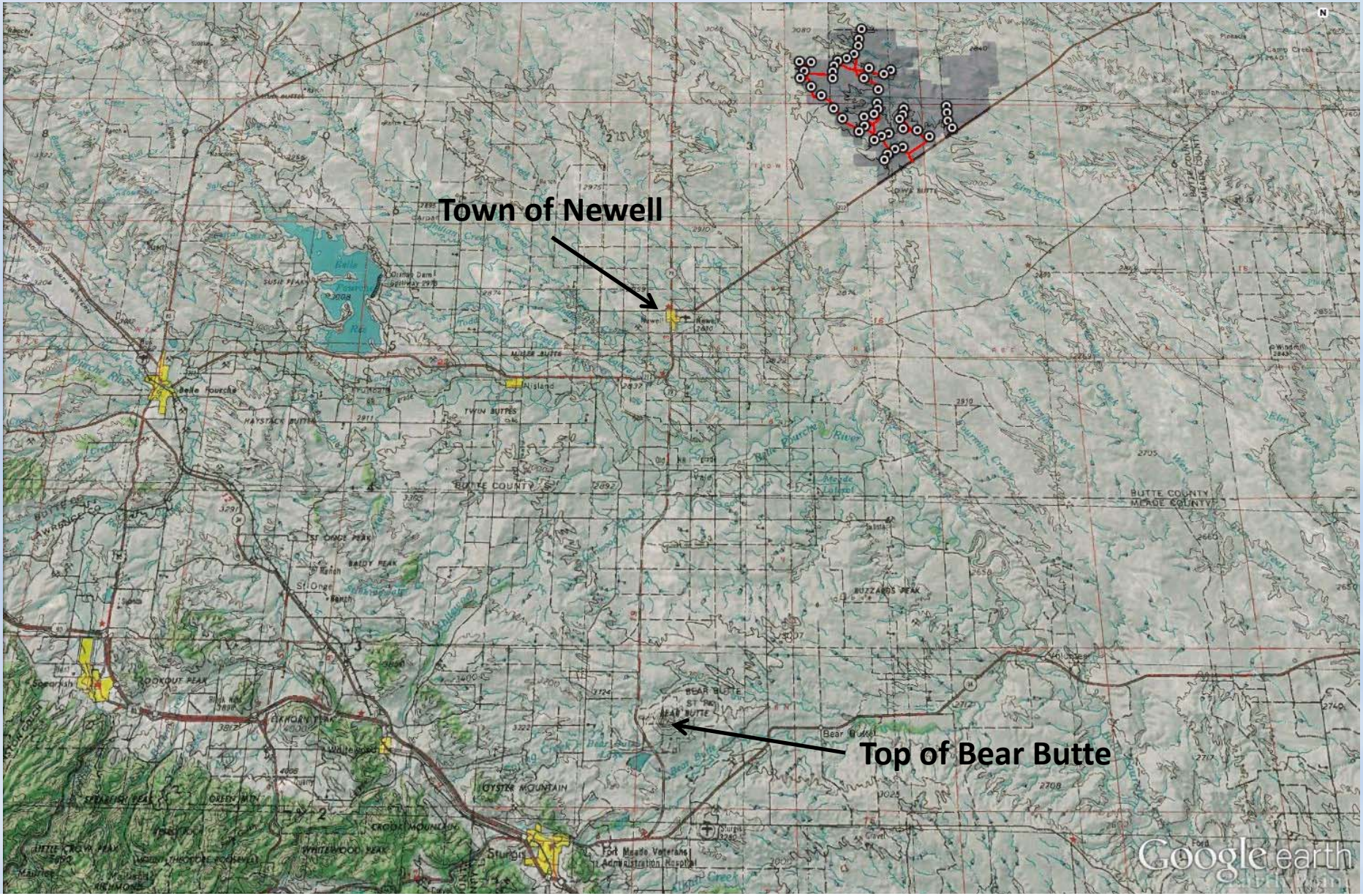
Level I Records Search Complete

- No National Register of Historic Places listed or eligible cultural resources in the Project Area or one-mile radius records search area.
- No National Historic Landmarks in the Project Area or one-mile radius records search area.

Level III Site Survey In Process

- Full on-site survey of all potential disturbed acreage and two-mile Area of Potential Impact (APE) will be completed by August 2015.

Visual Simulations – Newell and Bear Butte



Visual Simulation from Newell

Note
* The Wire Frame Technical drawing does not take into consideration vegetation. It is possible that wind turbines are visible on the wire frame drawing but not on the visual simulation.

TECHNICAL DATA

PHOTOGRAPH - VIEW POINT

Photograph Number:		IMG_7913
Coordinates (UTM 13 NAD83) :	625215 E	4953025 N
Altitude with respect to mean sea level:		860 m
Date Photograph was taken :		June 13, 2015
Direction :		55 degrees T.N.
Focal Length (35mm format):		33.6 mm
View span :		56 degrees
Height of photograph with respect to ground :		2 m

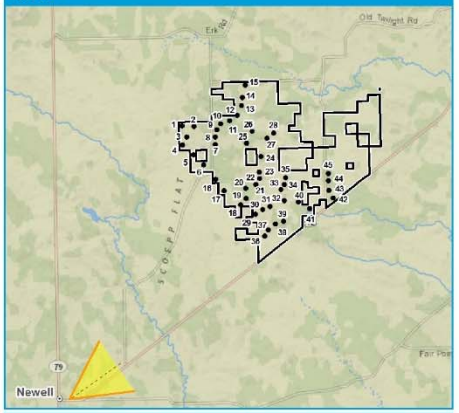
WIND TURBINES USED

Model :	Siemens 2.3 SWT 108
Height of nacelle—mid point :	80 m
Rotor Diameter :	108 m

SIMULATION

Visual Simulation No. :	PM01-703135WC-7913-L01-SWT108-HH80-AN00.WFV
Layout No. :	L01-AN.WFL
Total number of wind turbines for the project:	45
Total number of visible wind turbines in visual simulation:	25
Closest visible wind turbine :	No. 36 @ 18.5 km
Furthest visible wind turbine :	No. 9 @ 22.2 km

MAP



Prepared for : Wind Quarry LLC

Prepared by : DNV·GL

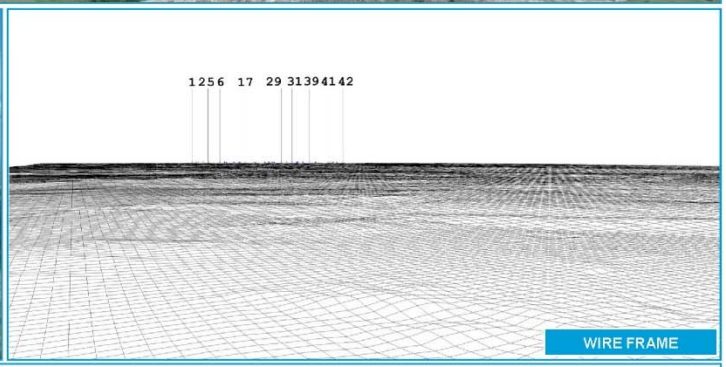
Date : June 29, 2015
Version 00

VISUAL SIMULATION

As viewed from the town of Newell

Willow Creek Wind Farm

Visual Simulation from Bear Butte



Note:
* The Wire Frame Technical drawing does not take into consideration vegetation. It is possible that wind turbines are visible on the wire frame drawing but not on the visual simulation.

TECHNICAL DATA

PHOTOGRAPH - VIEW POINT

Photograph Number:		IMG_7967
Coordinates (UTM 13 NAD83) :	625109 E	4925950 N
Altitude with respect to mean sea level:		1338 m
Date Photograph was taken :		June 13, 2015
Direction :		27 degrees T.N.
Focal Length (35mm format):		28.8 mm
View span :		64 degrees
Height of photograph with respect to ground :		2 m

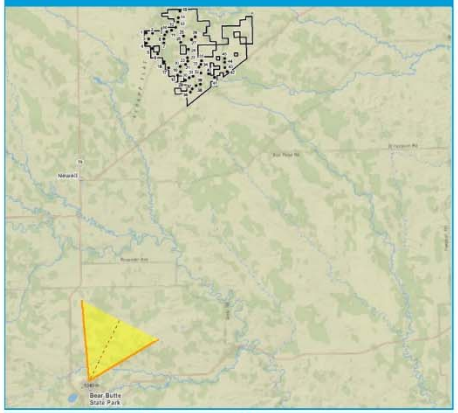
WIND TURBINES USED

Model :	Siemens 2.3 SWT 108
Height of nacelle—mid point :	80 m
Rotor Diameter :	108 m

SIMULATION

Visual Simulation No. :	PM03-703135WC-7967-L01-SWT108-HH80-AN00.WFV
Layout No. :	L01-AN.WFL
Total number of wind turbines for the project:	45
Total number of visible wind turbines in visual simulation:	45
Closest visible wind turbine :	No. 36 @ 41.5 km
Furthest visible wind turbine :	No. 15 @ 51.5 km

MAP



Prepared for : Wind Quarry LLC

Prepared by : DNV·GL

Date : June 29, 2015
Version 00

VISUAL SIMULATION

As viewed from Bear Butte

Willow Creek Wind Farm

Thank You

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