Pawnee Nation of Oklahoma
Office of Historic Preservation
657 Harrison Street
P.O. Box 470
Pawnee, OK 74058

July 31, 2013

Robin Bellmard
Superintendent
Bureau of Indian Affairs
Pawnee Agency
P.O. Box 440
Pawnee, OK 74058

RE: Section 106 Review of Chilocco Wind Farm, LLC – Wind Resource Lease

Superintendent Bellmard,

The Pawnee Nation Office of Historic Preservation has received all information and materials requested for our Section 106 Review and Consultation. As you know, our comment on this project and its potential to affect Historic or Archaeological Properties, Traditional Cultural Places (TCP), or Sacred Pawnee sites is required by Section 106 of the National Historic Preservation Act of 1966 (NHPA), and 36 CFR Part 800. The People of the Pawnee Nation thank you for submitting the Wind Resource Lease and Wind Energy Evaluation Lease for our review and comment.

We are aware of and satisfied with the Chilocco Wind Farm, LLC and in reviewing the lease, particularly, Pg. 29; Sec. 40 (6), which states, "In the event that historic properties, archaeological resources, human remains, or other cultural items, not previously reported are encountered during the course of an activity associate with this WRL, all activity in the immediate vicinity of the properties, resources, remains, or items will cease, and Company will contact BIA and Tribe to determine how to proceed and appropriate disposition".

Given the information provided you are hereby notified that the proposal project location should have no potential to adversely affect any known Archaeological, Historical, or Sacred Pawnee sites. Therefore, in accordance with 36 CFR 800.4(d)(1), the may proceed with your proposed project. However, please be aware that they may encounter undiscovered properties which must be immediately reported to us under both the NHPA and NAGPRA regulations.

This information is provided to you at your request to assist you in complying with 36 CFR Part 800 for Section 106 Consultation procedures. Please retain this correspondence to show

Rebekah Horsechief
ACTING | Tribal Historic Preservation Officer
Ph: 918.762.3227 *rebekahh@pawneenation.org* *Fax: 918.762.3662*

compliance with Section 106. With questions, please contact, Rebekah HorseChief, Acting THPO Director. We look forward to working with you.

Regards,

Rebekah Horsechief

Rebekah Horsechief
ACTING | Tribal Historic Preservation Officer
Ph: 918.762.3227
rebekahh@pawneenation.org
Fax: 918.762.3662

Ponca Tribe of Oklahoma

"Rich In Culture and Tradition"

"Equal Opportunity Employer"

August 21,2013

Ms. Robin Bellmard, Superintendent,
Bureau of Indian Affairs, Pawnee Office
P.O. Box 440
Pawnee, OK 74058

RE: Chilocco Wind Farm Cultural Impacts

Dear Superintendent Bellmard,

The Ponca Tribe of Oklahoma has reviewed the information and materials concerning the Chilocco Wind Farm's impact and potential impacts to Ponca cultural and historic resources on the Tribe's Chilocco School property.

We are aware of and satisfied that Chilocco Wind Farm, LLC has properly surveyed the property for cultural resources prior to construction. In reviewing the lease, particularly, Pg. 29; Sec. 40 (6), which states, "In the event that historic properties, archaeological resources, human remains, or other cultural items, not previously reported are encountered during the course of an activity associate with this WRL, all activity in the immediate vicinity of the properties, resources, remains, or items will cease, and Company will contact BIA and Tribe to determine how to proceed and appropriate disposition", we are satisfied that any cultural, historic, or sacred resources that may be discovered during construction will be dealt with properly.

Given the information provided you are hereby notified that the proposed project should have no potential to adversely affect any known Ponca archaeological, historical, or sacred sites.

This information is provided to you at your request to assist you in complying with 36 CFR Part 800 for Section 106 Consultation procedures. Please retain this correspondence to show
compliance with Section 106. With questions, please contact Mr. Earl Howe III, Chairman, Ponca Tribe of Oklahoma.

Regards,

Earl Howe III, Chairman
Ponca Tribe of Oklahoma

20 White Eagle Drive ♦♦ (580) 762-8104 ♦♦ Fax: (580) 762-2743 ♦♦ Ponca City, Oklahoma 74601

Appendix K:

Representative Photographs of Project Area

Grassland on Western edge of project.

Hayland on Western Edge of project.

Trees removed - south of Judo Road near center of project.

Agricultural field south-west side of project area.

Agricultural field north-east side of project area

Agricultural field west side of project area.

Chilocco School.

Chilocco School.

Chilocco School Campus.

View from western edge of campus toward west, toward proposed turbine location WTG 59.

Appendix L:

Vitae of Principal Investigator

Abraham Ledezma Martinez, MS, RPA

Abraham.ledezma@icloud.com
Phone: 218.790.0690
2502 Woodcrest Dr., Chaska, MN 55318

Education

B.A. Minnesota State University Moorhead, Moorhead, MN (Anthropology with an emphasis in Archaeology); May 2008

M.S. Missouri State University, Springfield, MO (Applied Anthropology); May 2012

- Thesis Title: Resistivity Survey to Identify Archaeological Features at the Nathan Boone Homestead State Historic Site

Archaeological Field Experience

2013 Principal Investigator; Westwood Professional Services, Inc. Conducted Background Literature Review and Field Survey of the Chilacco Wind farm near the Chilacco Indian School in Kay County, OK. The survey was done with coordination from the Bureau of Indian Affairs in Oklahoma. Report to Follow for submittal to Oklahoma Archaeological Survey and BIA for review. Project will be reviewed under section 106 due to the need of a regional permit from the United States Army Corps of Engineers. June 2013 - Present.

2013 Principal Investigator; Westwood Professional Services, Inc. Conducted Field Survey, Background Literature Review and Currently working on the report for the YGrade Pipeline Upgrade Project near Lisbon, OH. Performed visual inspection and shovel testing of proposed route along 18 mile pipeline route. Field Investigations are ongoing due to route changes, Report to follow in compliance with Nationwide 12 permit requirements for the United States Army Corps of Engineers. June 2013 - Present.

2013 Field Crew Chief and GIS Specialist; Conducted the Phase I Archaeological Reconnaissance Survey and created Geographical Information System database for the Northwest Ohio Wind Company Turbine Farm project in Paulding County, Ohio. The investigations and report submittal were completed in compliance with Ohio Power Siting Board permitting requirements. April 2013

2013 Field Crew Chief and GIS Specialist; Westwood Professional Services, Inc. Supervisor: Dean Sather. Conducted Phase I archaeological Investigations of the Savanna Transmission Line – Savanna to Cromwell Segment Project in St. Louis and Carlton Co. Minnesota. Performed visual inspection and shovel testing of proposed route along a 6 mile transmission route. Project was reviewed under Section 106 due to the need of a regional permit from the United States Army Corps of Engineers. May 2013

2013 Field Crew Chief and GIS Specialist; Westwood Professional Services, Inc. Supervisor: Dean Sather. Conducted Phase I archaeological Investigations of the Shell Lake 69kV Transmission Line Project in Becker Co. Minnesota. Performed visual inspection and shovel testing of proposed route along a 6 mile transmission route. Project was reviewed under Section 106 due to the need of a regional permit from the United States Army Corps of Engineers. May 2013

2013 Field Crew Chief and GIS Specialist; Westwood Professional Services, Inc. Supervisor: Dean Sather. Surveyed a 3 acre parcel at request of White Earth Nation THPO. The proposed supportive housing project was investigated using visual inspection, pedestrian survey, and shovel testing. Project was reviewed under Section 106 due to funding by HUD. June 2013

2012 Field Crew Chief and GIS Specialist; Westwood Professional Services, Inc. Supervisor: Dean Sather. Conducted Phase I archaeological Investigations of the Stinson to Bay Front Transmission Line Project near Iron River, in Bayfield Co. Wisconsin. August 2012

2012 Principal Investigator; Westwood Professional Services, Inc. Conducted Field Survey, Archaeological Monitoring, and Wrote Archaeological Report for the Three Rivers 74 Ranch to Marathon Central Tank Battery Pipeline near Campbellton, TX. September - November 2012.

2011 Thesis Work; Missouri State University, Springfield, MO. Advisor: Dr. Elizabeth Sobel. Conducted Resistivity and Ground Penetrating Radar surveys of the Nathan Boone Homestead State Historic Site near Ash Grove, MO. Using RM 15, 64 Channel GF Instruments DC-Resistivity Imaging System, and RAMAC Ground Penetrating Radar system to identify subsurface features. Mar-Apr 2011

2011 Field Crew Chief; Westwood Professional Services, Inc. Supervisor: Dean Sather. Conducted Phase III investigation at Gull River Lumber Camp near Baxter, MN October 2011-Novermber 2011.

2011 Field Crew Chief and Field Director; Westwood Professional Services, Inc. Supervisor: Dean Sather. Conducted Phase I surveys for three pipeline projects in South Texas; May 2011-October 2011. Pipeline projects included The Three Rivers Pipeline, Sweeny Switch Truck Terminal to Midstream Terminal Pipeline, and Gardendale Pipeline.

2010 Field Technician; Westwood Professional Services, Inc. Supervisor: Dean Sather Conducted Phase I surveys for five wind farms in the Midwest; May 2010-August 201

2009 Excavation Crew Member; Judy’s Cave, Wright Co., MO; directed by Dr. David Byers; Anthropology program, Missouri State University; November 2008–November 2009.

2008 Field Crew Member; KXL Pipeline, various counties in SD; directed by Scott Slessman; SWCA Environmental Consultants, CO; July 2008.

2007 Excavation Crew Member; Peterson Site, ND; directed by Michael Michlovic; Minnesota State University Moorhead; July 2007.

2007 Field Crew Member; Geophysical Methods Field School, Biesterfeldt Site, Ransom Co., ND; directed by Dr. Rinita Dalan; Anthropology Program, Minnesota State University Moorhead; Conducted geophysical survey of Biesterfeldt site using RM15 Resistivity System, FM 256 Gradiometer System, and seismic soundings. May–July 2007.

2006 Excavation Crew Member; various small CRM projects in MN and ND; directed by Dr. George Holley; Anthropology Program, Minnesota State University Moorhead; May 2006–May 2008.

2006 Excavation Crew Member; Sprunk Site, Cass Co., ND; Directed by Dr. Michael Michlovic; Anthropology Program, Minnesota State University Moorhead; May-July 2006.

Biological Field Experience

2013 Environmental Scientist; Westwood Professional Services, Inc. Supervisors Dean Sather and Eric Hansen. Environmental Crews Lead on the Delineation and Identification of Threatened and Endangered Indiana Bat Habitat on the Flanagan South Pipeline Project throughout Missouri and Illinois. December 2012 to January 2013. Field work included delineating all suitable Bat Habitat Tree Species within the pipeline corridor, determining tree diameter, and mapping trees on Trimble Yuma GPS unit.

2012 Environmental Scientist; Westwood Professional Services, Inc. Supervisors Jeff Richards. Assisted Environmental Crews on the Delineation and Identification of Wetlands and Threatened and Endangered Species on the Three Rivers 74 Ranch to Marathon Central Tank Battery Pipeline Project near Campbellton, Texas. September 2012. Field work included delineating all wetlands according to the U.S. Army Corps of Engineers 1987 Wetland Delineation manual, determining OHWL, width and depth of all potential drainage crossings within the corridor and reviewing the corridor for both federal and state listed rare and endangered plant and animal species and habitat.

2011 Environmental Scientist; Westwood Professional Services, Inc. Supervisors Jeff Richards. Assisted Environmental Crews on the Delineation and Identification of Wetlands and Threatened and Endangered Species on the Gardendale Pipeline Project in South Texas. August 2011-September 2011. Field work included delineating all wetlands according to the U.S. Army Corps of Engineers 1987 Wetland Delineation manual, determining OHWL, width and depth of all potential drainage crossings

within the corridor and reviewing the corridor for both federal and state listed rare and endangered plant and animal species and habitat.

2011 Environmental Scientist; Westwood Professional Services, Inc. Supervisors Jeff Richards. Assisted Environmental Crews on the Delineation and Identification of Wetlands and Threatened and Endangered Species on the Sweeny Switch Truck Terminal to Midstream Terminal Pipeline Project in South Texas. Jul 2011-Sep 2011. Field work included delineating all wetlands according to the U.S. Army Corps of Engineers 1987 Wetland Delineation manual, determining OHWL, width and depth of all potential drainage crossings within the corridor and reviewing the corridor for both federal and state listed rare and endangered plant and animal species and habitat.

2011 Environmental Scientist; Westwood Professional Services, Inc. Supervisors Jeff Richards. Assisted Environmental Crews on the Delineation and Identification of Wetlands and Threatened and Endangered Species on the Three Rivers Pipeline Project in South Texas. Jul 2011-Sep 2011. Field work included delineating all wetlands according to the U.S. Army Corps of Engineers 1987 Wetland Delineation manual, determining OHWL, width and depth of all potential drainage crossings within the corridor and reviewing the corridor for both federal and state listed rare and endangered plant and animal species and habitat.
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Environmental Inspector Field Experience

2012 Environmental Monitor/Inspector; Westwood Professional Services, Inc. Supervisors Jeff Richards. Monitor and Inspect Work Done By Construction Crews on the Karnes County Crews Gathering System Pipeline Project near Karnes City, TX. September 2012-November 2012.

2012 Environmental Monitor/Inspector; Westwood Professional Services, Inc. Supervisors Jeff Richards. Monitor and Inspect Work Done By Construction Crews on the Three Rivers 74 Ranch to Marathon Central Tank Battery Pipeline Project near Campbellton, TX. September 2012-November 2012.

2012 Environmental Monitor/Inspector; Westwood Professional Services, Inc. Supervisors Dean Sather and Jeff Richards. Monitor and Inspect Work Done By Construction Crews on the EOG Hoff Pipeline Project near Cotulla, TX. July 2012-August 2012

Archaeological Lab Experience

2006 Archaeology Lab and Research Assistant; Anthropology Program, Minnesota State University Moorhead, Moorhead, MN; ceramic and lithic analysis from various field schools; various tasks including equipment management and maintenance, cataloging, mapping, and preparing photos for reports; supervised by Dr. Michael Michlovic and Dr. George Holley. May 2006-May 2008.

Other Relevant Experience

2008 Graduate Assistant; Latino Health Program (Por La Salud de Nuestros Ninos); sponsored by Missouri State University, Springfield, MO; supervised by Dr. Suzanne Walker

2008 Workshop Assistant for Dr. Rinita Dalan during the Park Service Geophysical Methods Workshop; sponsored by the Park Service and Minnesota State University Moorhead; Fargo, ND; supervised by Dr. Michael Michlovic. Assisted various instructors with geophysical surveys including: Resistivity, Magnetometery, Ground Penetrating Radar, Arial Photography, and Seismic. At the start of the workshop I led a crew of students out to site and shoot in the grid using a Nikon M series Total Station.

2007 Mapping Assistant during the mapping of various sites in ND (including Sprunk, Bisterfeldt, and Peterson sites); supervised by Dr. Michael Michlovic.

Other Relevant Skills

- Proficiency in Spanish (Native Speaker, Reading, and Writing)
- Geographical Information Systems (GIS) experience: Created maps and GIS databases for cultural resource management at Westwood Professional Services, Inc using ArcMap software, GeoMapper Software, and Google Earth Pro.
- Experience with GPS devices: Trimble Yuma series, Trimble Geo series, Trimble Juno series, Delorme PN60, and Garmin. Familiar with both Terrasync and ArcPad GPS software.
- Trained in using survey equipment including Nikon M series Total Station, Transit equipment, Sokkia Total Station.
- Experience texturing soils, using a total station to gather topographic data and setup archaeological grid. Extensive experience using geophysical equipment for geophysical survey and data processing using the Geoscan Geoplot 3.0 software and AGI Earth Imager 2D Inversion and Modeling Software. Experience with the following instruments: RM15-D Resistance Meter System, FM256 Gradiometer System, Mala GPR System, 64 Channel GF Instruments DC-Resistivity Imaging System, and RAMAC Ground Penetrating Radar system.

Professional Reports

Sep 2012 *Cultural Resources Intensive Survey for the Three Rivers 74 to Marathon Central Tank Battery Pipeline Project, Live Oak County, Texas.* Report prepared for Harvest Pipeline

Company, Houston, Texas. Prepared for Non-Reporting Nationwide 12 Permit process to the United States Army Corps of Engineers, Galveston District, Galveston, Texas.

Oct 2011 *Cultural Resources Intensive Survey for the Gardendale Pipeline Project La Salle, McMullen and Live Oak Counties, Texas.* Report prepared for Arrowhead Eagle Ford Pipeline, LLC., Houston, Texas. Submitted for review under the 106 process to the United States Army Corps of Engineers, Fort Worth District, Fort Worth, Texas.

Aug 2011 *Cultural Resources Intensive Survey for the Sweeny Switch Truck Terminal to Midstream Terminal Pipeline Project, Live Oak, San Patricio, and Nueces Counties, Texas.* Report prepared for Arrowhead Eagle Ford Pipeline, LLC., Houston, Texas. Submitted for review under the 106 process to the United States Army Corps of Engineers, Galveston District, Galveston, Texas.

Jun 2011 *Cultural Resources Intensive Survey for the Three Rivers Pipeline Project, Live Oak, Atascosa, and Karnes Counties, Texas*. Report prepared for Arrowhead Eagle Ford Pipeline, LLC., Houston, Texas. Submitted for review under the 106 process to the United States Army Corps of Engineers, Galveston District, Galveston, Texas.

May 2010 *Phase I Cultural Resources Intensive Survey for the Ridgeport Wind Energy Project*
Westwood Professional Services, Inc.
Boone and Hamilton Counties, Iowa
Kevin Mieras, Abraham Ledezma, and Craig Picka

July 2010 *Phase I Archaeological Reconnaissance Survey for the Goodhue Wind Energy Project*
Westwood Professional Services, Inc.
Goodhue County, Minnesota
Dean Sather, Abraham Ledezma, Daniel Salas, and Craig Picka

July 2010 *Phase II Intensive Cultural Resources Survey for the Proposed Solomon Forks Wind Project*
Westwood Professional Services, Inc.
Thomas County, Kansas
Dean Sather, Ryan Grohnke, Abraham Ledezma, Daniel Salas, and Craig Picka

Conference Presentations

2011 Ledezma, A., Kevin Mickus, and Elizabeth Sobel. Electrical Resistivity Survey of the Nathan Boone Homestead State Historic Site, Southwest Missouri. Presented at the Geology Society of America 2011 Meeting. September 2011, Minneapolis MN

2008 Ledezma, A., and G. Holley. Bisterfeldt Ceramics. Presented at the Annual Minnesota State University Moorhead. Student Conference, April 2008, Moorhead, MN

2007 Ledezma, A., and G. Holley. Sprunk Site: Ceramics Analysis. Presented at the Annual Minnesota State University Moorhead. Student Conference, April 2008, Moorhead, MN

Memberships

- Register for Professional Archaeologists
- Society for American Archaeology

References

Dean Sather, MA

- Senior Cultural Resource Specialist
- URS
- Fifth Street Towers Minneapolis, MN
- dean.sather@urs.com
- 218.373.6533

Dr. Elizabeth Sobel

- Assistant Professor of Anthropology
- Department of Sociology, Anthropology, and Criminology
- Missouri State University
- 901 South National, Springfield, MO
- Esobel@missouristate.edu
- 417.836.5145

Dr. George Holley

- Assistant Professor of Anthropology
- Department of Anthropology and Earth Science
- Minnesota State University Moorhead
- 1104 7th Ave South, Moorhead, MN
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Dr. Michael Michlovic

- Professor of Anthropology
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- 1104 7th Ave South, Moorhead, MN
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- 218.477.2035

Dr. Rinita Dalan

- Chair and Professor of Anthropology
- Department of Anthropology and Earth Science
- Minnesota State University Moorhead

- 1104 7th Ave South, Moorhead, MN
- dalanri@mnstate.edu
- 218.477.5900

Appendix M:

Shovel Test Notes

Location	Description	Positive or negative
WTG 1	0-2 cmbs - 7.5YR 3/2 clay loam 2-10 cmbs - 7.5 YR 4/4 clay loam 10-25 cmbs - 7.5YR 4/5 clay loam	negative
WTG 2	0-22 cmbs - 7.5YR 3/2 silty clay 22-26 cmbs - 7.5YR 4/4 clay loam	negative
WTG 3	0-40 cmbs - 7.5YR 3/1 clay loam w/sand 40-45 cmbs - rusty red clay	negative
WTG 4	area flooded	negative
WTG 5	0-25 cmbs - 10YR 3/2 loam 25-41 cmbs - 10YR3/3 clay loam	negative
WTG 6	0-22 cmbs - 10YR 3/2 loam 22-55 cmbs - saturated clay/water filled	negative
WTG 7	0-6 cmbs - 10YR 2/2 clay loam 6-22 cmbs - 10YR 2/1 clay loam 22-35 cmbs - 10YR 3/3 clay loam	negative
WTG 8	0-19 cmbs - 7.5YR 3/2 silty clay 19-22 cmbs - 7.5YR 4/4 clay loam	negative
WTG 9	0-3 cmbs - 10YR 2/2 clay loam 3-28 cmbs - 10YR 2/1 clay loam 28-37 cmbs - 10YR 3/3 clay loam	negative
WTG 10	0-22 cmbs - 7.5YR 3/1 silty loam 22-35 cmbs - 7.5YR 4/4 clay loam	negative
WTG 11	0-28 cmbs - 10YR 3/2 loam 28-40 cmbs - 10YR3/3 clay loam	negative
WTG 12	0-4 cmbs - 10YR 2/2 clay loam 4-13 cmbs - 10YR 2/1 clay loam 13-28 cmbs - 10YR 3/3 clay loam	negative
WTG 13	0-9 cmbs - 7.5YR 3/2 silty clay 9-20 cmbs - 7.5YR 4/4 clay loam	negative
WTG 14	0-6 cmbs - 10YR 3/4 clay loam 6-28 cmbs - 10YR 3/4 clay loam 28-33 cmbs - 10YR 3/4 clay loam	negative
WTG 15	0-5 cmbs - 10YR 2/1 clay loam 5-28 cmbs - 10YR 3/2 clay loam 28-40 cmbs - 10YR 3/4 clay loam	negative
WTG 16	0-5 cmbs - 10YR 2/1 loam clay 5-29 cmbs - 10YR3/2 loam clay 29-39 cmbs - 10YR 3/1 loam clay	negative
WTG 17	0-4cmbs - 2.5YR 2/4 clay loam 4-22 cmbs - 2.5YR 2/4 clay loam 22-32 cmbs - 2.5YR 2/4 clay loam	negative
WTG 18	0-3 cmbs - 7.5YR 3/4 clay loam 3-26 cmbs - 7.5YR 3/4 clay loam 26-33 cmbs - 7.5YR 3/4 clay loam	negative

WTG 19	0-9 cmbs - 10YR 4/2 loam 9-24 cmbs - 10YR 2/1 loam 24-42 cmbs - 10YR 2/2 loam	negative
WTG 20	0-2cmbs - 7.5YR 3/4 clay loam 2-25 cmbs - 7.5YR 3/4 clay loam 25-29 cmbs - 7.5YR 3/4 clay loam	negative
WTG 21	0-2cmbs - 2.5YR 3/6 clay loam 2-18 cmbs - 2.5YR 3/6 clay loam 18-27 cmbs - 2.5YR 3/6 clay loam	negative
WTG 12	0-8 cmbs - 10YR 4/2 loam 8-24 cmbs - 10YR 2/1 loam 24-39 cmbs - 10YR 2/2 loam	negative
WTG 23	0-23 cmbs - 7.5YR 3/2 silty clay 23-28 cmbs - 7.5YR 4/4 clay loam	negative
WTG 24	0-2cmbs - 7.5YR 3/4 clay loam 2-19 cmbs - 7.5YR 3/4 clay loam 19-32 cmbs - 7.5YR 3/4 clay loam	negative
WTG 25	0-6 cmbs - 10YR 2/1 clay loam 6-31 cmbs - 10YR 3/2 clay loam 31-43 cmbs - 10YR 3/1 clay loam	negative
WTG 26	0-28 cmbs - 10YR 3/1 silty clay 28-33 cmbs - 10YR 3/4 silty clay	negative
WTG 27	0-2cmbs - 5YR 3/6 clay loam 2-21 cmbs - 5YR 3/6 clay loam 21-30 cmbs - 5YR 3/6 clay loam	negative
WTG 28	0-3cmbs - 5YR 3/6 clay loam 3-25 cmbs - 5YR 3/6 clay loam 25-32 cmbs - 5YR 3/6 clay loam	negative
WTG 29	0-27 cmbs - 10YR 3/4 loam 27-30 cmbs - 10YR 4/4 loam	negative
WTG 30	0-18 cmbs - 7.5YR 3/2 silty clay 18-27 cmbs - 7.5YR 4/4 clay loam	negative
WTG 31	0-3cmbs - 7.5YR 3/4 clay loam 3-9 cmbs - 7.5YR 3/4 clay loam 9-27 cmbs - 7.5YR 3/4 clay loam	negative
WTG 32	0-32 cmbs - 10YR 3/1 silty clay 32-34 cmbs - 10YR 3/4 silty clay	negative
WTG 33	0-3 cmbs - 10YR 2/1 clay loam 3-29 cmbs - 10YR 3/2 clay loam 29-41 cmbs - 10YR 3/1 clay loam	negative
WTG 34	0-10 cmbs - 10YR 2/2 clay loam 10-26 cmbs - 10YR 2/2 clay loam 26-33 cmbs - 10YR 3/6 clay loam	negative
WTG 35	0-12 cmbs - 10YR 2/2 clay loam 12-37 cmbs - 10YR 2/2 clay loam 37-55 cmbs - 10YR 3/6 clay loam	negative

WTG 36	0-18 cmbs - 7.5YR 3/2 silty clay 18-25 cmbs - 7.5YR 4/4 clay loam	negative
WTG 37	0-29 cmbs - 10YR 3/4 loam 29-32 cmbs - 10YR 4/4 loam	negative
WTG 38	0-24 cmbs - 10YR 3/1 silty clay 24-26 cmbs - 10YR 3/4 silty clay	negative
WTG 39	0-3 cmbs - 10YR 2/1 loam clay 3-18 cmbs - 10YR 3/2 loam clay 18-28 cmbs - 10YR4/3 loam clay	negative
WTG 40	0-7 cmbs - loam 7-22 cmbs - loamy clay 22-28 cmbs - clay loam	negative
WTG 41	0-32 cmbs -dark brown 32-40 cmbs - reddish dark brown	negative
WTG 42	0-24 cmbs - 7.5YR 3/2 silty clay 24-29 cmbs - 7.5YR 4/4 clay loam	negative
WTG 43	0-26 cmbs - 10YR 3/4 loam 26-30 cmbs - 10YR 4/4 loam	negative
WTG 44	0-26 cmbs - 7.5YR 3/2 silty clay 26-31 cmbs - 7.5YR 4/4 clay loam	negative
WTG 45	0-27 cmbs - 10YR 3/1 silty clay 27-30 cmbs - 10YR 3/4 silty clay	negative
WTG 46	0-35 cmbs- 10YR 3/4 silty clay	negative
WTG 47	not tested - previously surveyed	
WTG 48	0-24 cmbs - 10YR 3/4 loam 24-34 cmbs - 10YR 4/4 loam	negative
WTG 49	0-32 - test filled with water	
WTG 50	0-26 cmbs - 7.5YR 3/2 silty clay 26-32 cmbs - 7.5YR 4/4 clay loam	negative
WTG 51	0-4 cmbs - 10YR 2/1 loam clay 4-20 cmbs - 10YR 3/2 loam clay 20-31 cmbs - 10YR 4/3 loam clay	negative
WTG 52	0-31 cmbs - 10YR 3/3	negative
WTG 53	0-47 cmbs - 10YR 3/1 silty clay 47-50 cmbs - 10YR 3/4 silty clay	negative
WTG 54	0-36 cmbs - 7.5YR 3/2 silty clay 36-40 cmbs - 7.5YR 4/4 clay loam	negative
WTG 55	0-30 - test filled with water	
WTG 56	0-22 cmbs - 10YR 3/3 clay loam 22-30 cmbs - 10YR 3/4 clay loam	negative
WTG 57	0-7 cmbs - 10YR 2/1 clay loam 7-25 cmbs - 10YR 2/2 clay loam 25-39 cmbs - 10YR 3/2 clay loam	negative
WTG 58	0-24 cmbs - 7.5YR 3/2 silty clay 24-30 cmbs - 7.5YR 4/4 clay loam	negative
WTG 59	0-28 cmbs - reddish brown 28-35 cmbs - light reddish brown	negative

WTG 60	0-3 cmbs - 10YR 2/1 clay loam 3-22 cmbs - 10YR 3/2 clay loam 22-32 cmbs - 10YR 4/3 clay loam	negative
WTG 61	0-22 cmbs - 10YR 3/1 silty clay 22-30 cmbs - 10YR 3/4 silty clay	negative
WTG 62	0-12 cmbs - loam 12-24 cmbs - loamy clay 24-35 cmbs - clay loam	negative
WTG 63	0-8 cmbs - 10YR 2/1 clay loam 8-30 cmbs - 10YR 2/2 clay loam 30-40 cmbs - 10YR 3/2 clay loam	negative
WTG 64	0-26 cmbs - 7.5YR 3/2 silty clay 26-32 cmbs - 7.5YR 4/4 clay loam	negative
WTG 65	0-7 cmbs - 10YR 2/1 clay loam 7-28 cmbs - 10YR 2/2 clay loam 28-32 cmbs - 10YR 3/2 clay loam	negative
WTG 66	0-9 cmbs - loam 9-22 cmbs - loamy clay 22-31 cmbs - clay loam	negative
WTG 67	0-29 cmbs - 10YR 3/1 silty clay 29-37 cmbs - 10YR 3/4 silty clay	negative
WTG 68	0-30 cmbs -10 YR 3/3 clay loam	negative
WTG 69	0-5 cmbs - water level 5-30 cmbs - dark brown	negative
WTG 70	0-40 cmbs -loamy clay	negative
WTG 71	0-26 cmbs - 7.5YR 3/2 silty clay 26-30 cmbs - 7.5YR 4/4 clay loam	negative
WTG 72	0-26 cmbs - 10YR 3/1 silty clay 26-35 cmbs - 10YR 3/4 silty clay	negative
WTG 73	0-25 cmbs - 10YR 3/2 clay loam 25-46 cmbs - 7.5YR 4/6 clay loam	negative
WTG 74	0-9 cmbs - 10YR 2/2 loam 9-23 cmbs - 10YR 2/2 loam clay 23-34 cmbs - 10YR 3/3 loam clay	negative
WTG 75	0-4 cmbs - 10YR 2/2 loam 4-24 cmbs - 10YR 3/1 loam clay 24-28 cmbs - 10YR 3/2 loam	negative
WTG 76	0-38 cmbs -loamy clay	negative
WTG 77	0-17 cmbs - 7.5YR 3/2 silty clay 17-34 cmbs - 7.5YR 4/4 clay loam	negative
WTG 78	0-22 cmbs - 10YR 3/2 clay loam 22-33cmbs - 10YR 3/3 loam	negative
WTG 79	0-24 cmbs - 10YR 3/1 silty clay 24-34 cmbs - 10YR 3/4 silty clay	negative
WTG 80	0-5 cmbs - 10YR 2/2 loam 5-27 cmbs - 10YR 2/2 loam clay 27-32 cmbs - 10YR 3/3 loam clay	negative

WTG 81	0-24 cmbs - 10YR 3/2 silty clay 24-40 cmbs - 10YR 4/4 clay loam	negative
WTG 82	0-49 cmbs -loamy clay	negative
WTG 83	0-45 cmbs -loamy clay	negative
WTG 84	0-26 cmbs - 10YR 3/2 clay loam 26-43 cmbs - 10YR 3/3loam clay	negative
WTG 85	0-4 cmbs - 10YR 2/2 loam 4-24 cmbs - 10YR 3/1 loam clay 24-28 cmbs - 10YR 3/2 loam	negative
WTG 86	0-30 cmbs - 10YR 3/2 clay loam 30-40 cmbs - 10YR 3/4 clay loam	negative
WTG 87	0-28 cmbs - 10YR 2/2 clay loam 28-40 cmbs - 10YR 3/4 clay loam	negative
WTG 88	0-9 cmbs - 10YR 2/2 loam 9-24 cmbs - 10YR 3/1 loam clay 24-35 cmbs - 10YR 3/2 loam	negative
WTG 89	0-28 cmbs - 10YR 2/2 clay loam 28-38 cmbs - 10YR 4/2 clay loam	negative
WTG 90	0-40 cmbs - 10YR 3/1 clay loam	negative

South of Chilocco Creek

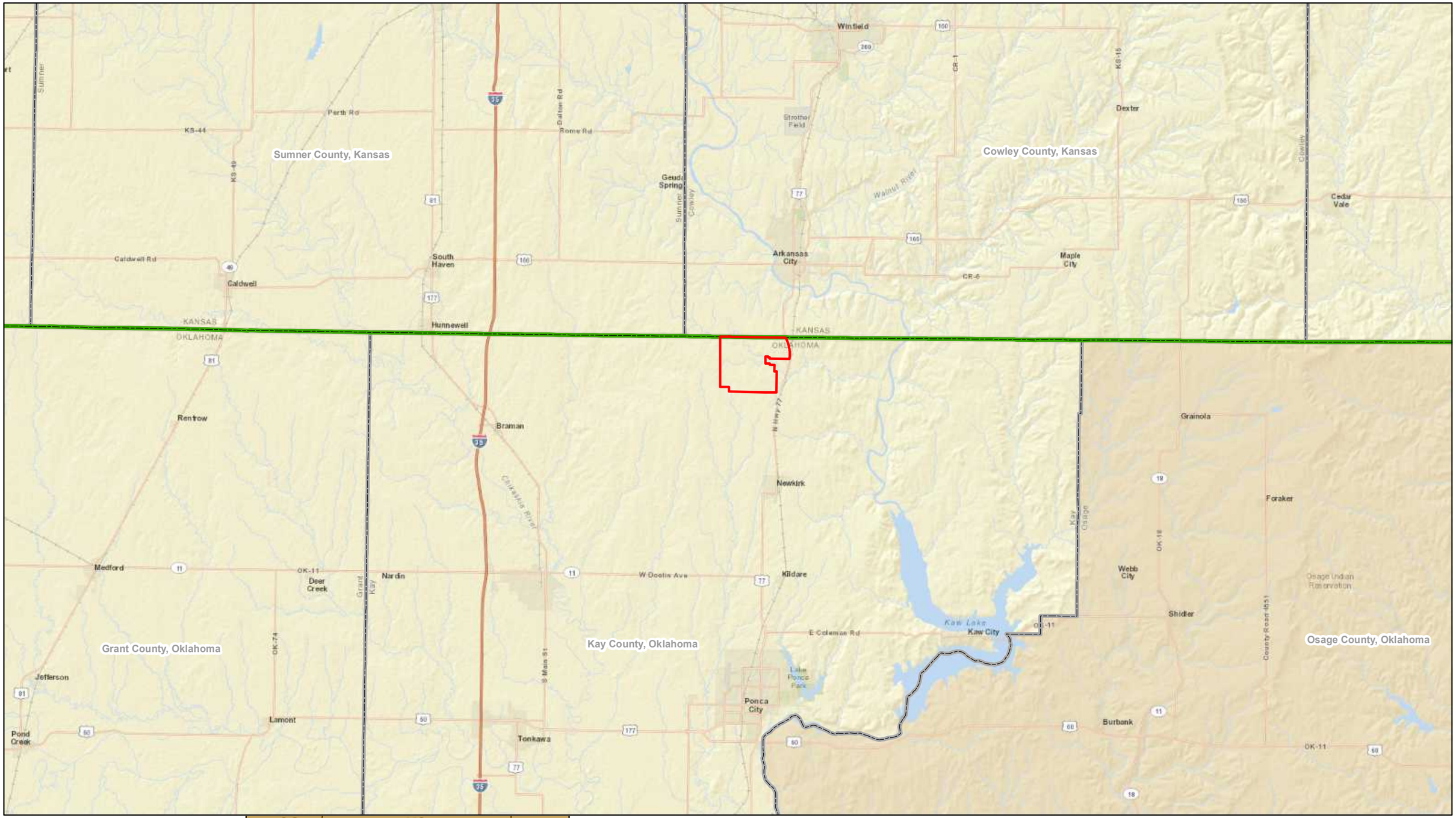
T1	0-7 cmbs - 10YR 3/1 loam clay 7-29 cmbs - 10YR 3/2 loam clay 29-38 cmbs - 10YR 3/3 loam clay	negative
T2	0-6 cmbs - 10YR 3/1 loam clay 6-26 cmbs - 10YR 3/2 loam clay 26-36 cmbs - 10YR 3/3 loam clay	negative
T3	0-6 cmbs - 10YR 3/1 loam clay 6-36 cmbs - 10YR 3/2 loam clay 36-42 cmbs - 10YR 3/3 loam clay	Flake of Florence A chert
T4	0-6 cmbs - 10YR 3/1 loam clay 6-30 cmbs - 10YR 3/2 loam clay 30-39 cmbs - 10YR 3/3 loam clay	Flake of Florence A chert
T5	0-5 cmbs - 10YR 3/1 loam clay 5-28 cmbs - 10YR 3/2 loam clay 28-34 cmbs - 10YR 3/3 loam clay	Flake of Florence A chert
T6	0-6 cmbs - 10YR 3/1 loam clay 6-27 cmbs - 10YR 3/2 loam clay 7-35 cmbs - 10YR 3/3 loam clay	Flake of Florence A chert
T7	0-7 cmbs - 10YR 3/2 loam clay 7-27 cmbs - 10YR 3/2 loam clay 27-39 cmbs - 10YR 3/6 loam clay	negative
T8	0-30 cmbs - 10YR 3/4 silty loam 30-40 cmbs - 10YR 4/4 clay loam	Flake of Florence A chert

T9	0-35 cmbs - 10YR 3/4 silty loam 35-43 cmbs - 10YR 4/4 clay loam	negative
T10	0-25 cmbs - 10YR 4/4 silty loam 35-43 cmbs - 10YR 4/4 clay loam	negative
T11	0-5 cmbs - 10YR 3/1 loam clay 5-24 cmbs - 10YR 3/2 loam clay 24-35 cmbs - 10YR 3/3 loam clay	Flake of Florence A chert
T12	0-6 cmbs - 10YR 3/1 loam clay 6-27 cmbs - 10YR 3/2 loam clay 7-35 cmbs - 10YR 3/3 loam clay	Flake of Florence A chert
T13	0-6 cmbs - 10YR 3/1 loam clay 6-28 cmbs - 10YR 3/2 loam clay 28-37 cmbs - 10YR 3/3 loam clay	negative
C1	Disturbed, but artifact found	Flake of Florence A chert
C2	0-26 cmbs - 10YR 3/4 silty loam 26-39 cmbs - 10YR 4/4 clay loam	Flake of Florence A chert
C3	0-4 cmbs - 10YR 3/1 loam clay 4-27 cmbs - 10YR 3/2 loam clay 27-35 cmbs - 10YR 3/3 loam clay	Flake of Florence A chert
C4	0-5 cmbs - 10YR 3/1 loam clay 5-28 cmbs - 10YR 3/2 loam clay 28-34 cmbs - 10YR 3/3 loam clay	Flake of Florence A chert
C5	0-6 cmbs - 10YR 3/1 loam clay 6-28 cmbs - 10YR 3/2 loam clay 28-35 cmbs - 10YR 3/3 loam clay	Flake of Florence A chert
C6	0-5 cmbs - 10YR 3/1 loam clay 5-26 cmbs - 10YR 3/2 loam clay 26-33 cmbs - 10YR 3/3 loam clay	negative

Intuitive Tests

I-1	0-27 cmbs - 7.5YR 3/2 silty clay 27-33 cmbs - 7.5YR 4/4 clay loam	negative
I-2	0-5 cmbs - 10YR 2/1 clay loam 5-21 cmbs - 10YR 3/2 clay loam 21-30 cmbs - 10YR 4/3 clay loam	negative

EXHIBITS



Data Source(s): Some data are approximate. Symbols are not representative of any dimension. Westwood (2013); PNE Wind USA, Inc. (2013); Bureau of Transportation Statistics National Transportation Atlas Database (2000); National Atlas of the United States of America; ESRI World Physical Map WMS (accessed 2013); ESRI USA Topographic Map (accessed 2013)

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Legend

- Project Boundary
- States
- Oklahoma Counties

N

0 5 Miles

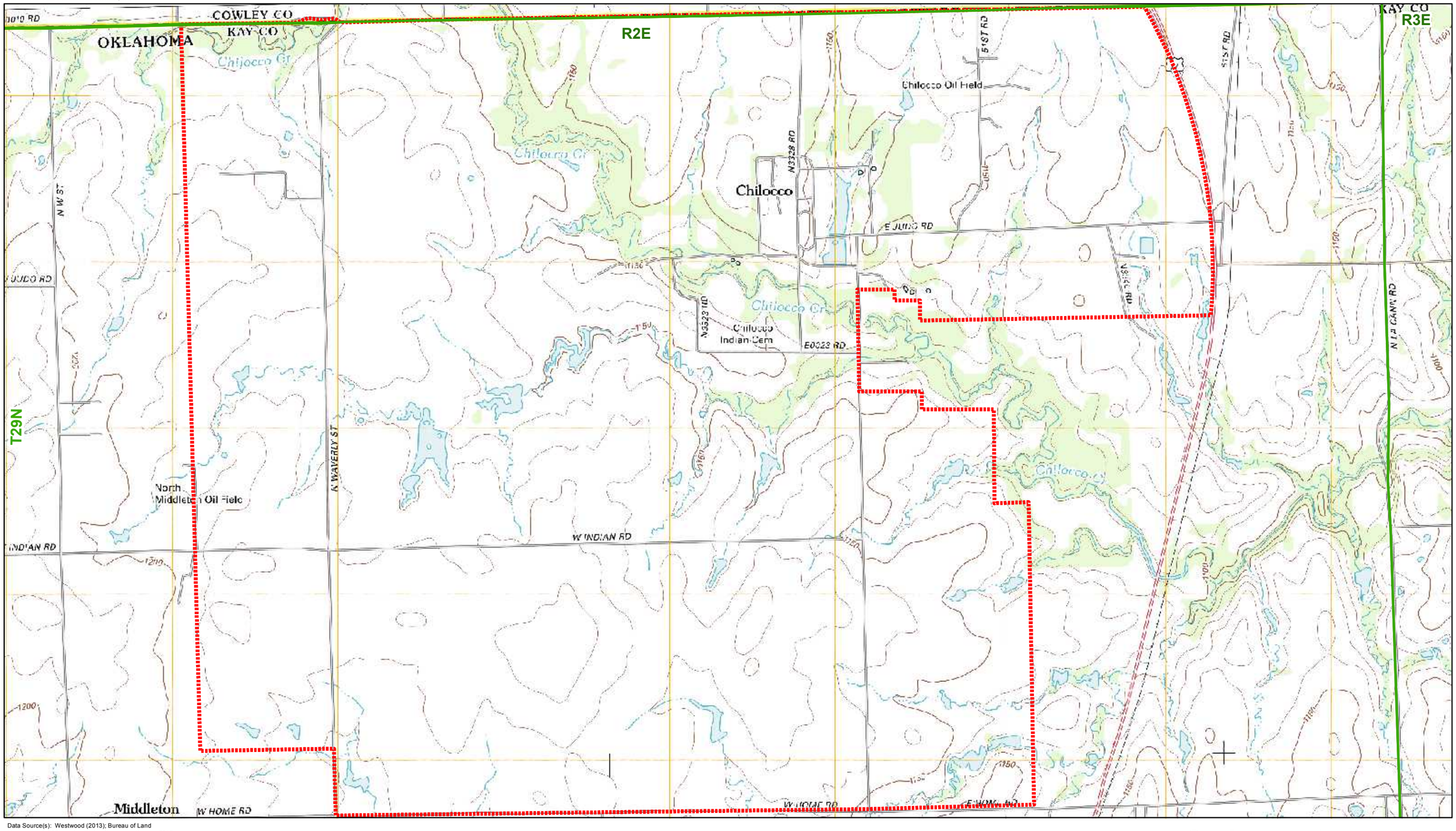
Chilocco Wind Farm

Kay County, Oklahoma

Project Location

EXHIBIT 1

Map Document: P:\0000488.00\GIS\CRM\Chilocco_ProjLoc_130826.mxd 8/26/2013 1:36:13 PM



Data Source(s): Westwood (2013); Bureau of Land Management (200); United States Geological Survey (2012)

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N

0 Feet 1,800

Legend

- Townships
- Project Boundary

USGS 7.5-Minute Series
Newkirk Quadrangle

Chilocco Wind Farm

Kay County, Oklahoma

Project Area

EXHIBIT 2

Map Document: P:\0000488.00\GIS\CRM\Chilocco_ProjArea_130822_.mxd 8/22/2013 3:12:00 PM

Data Source(s): Westwood (2013); PNE Wind (2013); ESRI WMS World Imagery (accessed 2013)

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N

0 2,000 Feet

Legend

- Turbine
- Meterological Tower
- Substation
- Project Boundary
- Collector Run
- Access Road
- Crane Path

Chilocco Wind Farm

Kay County, Oklahoma

Project Layout

EXHIBIT 3

Map Document: P:\0000488.00\GIS\CRM\Chilocco_PrgLayout_130822.mxd 8/22/2013 3:11:33 PM

Data Source(s): Westwood (2013); PNE Wind (2013); Bureau of Land Management (2000); United States Geological Survey (2012)

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N

Feet
0 2,000

Shovel Test Results

- 🔴 Negative
- 🟢 Positive
- 🟩 Townships
- 🟥 Area of Potential Effect

USGS 7.5-Minute Series
Newkirk Quadrangle

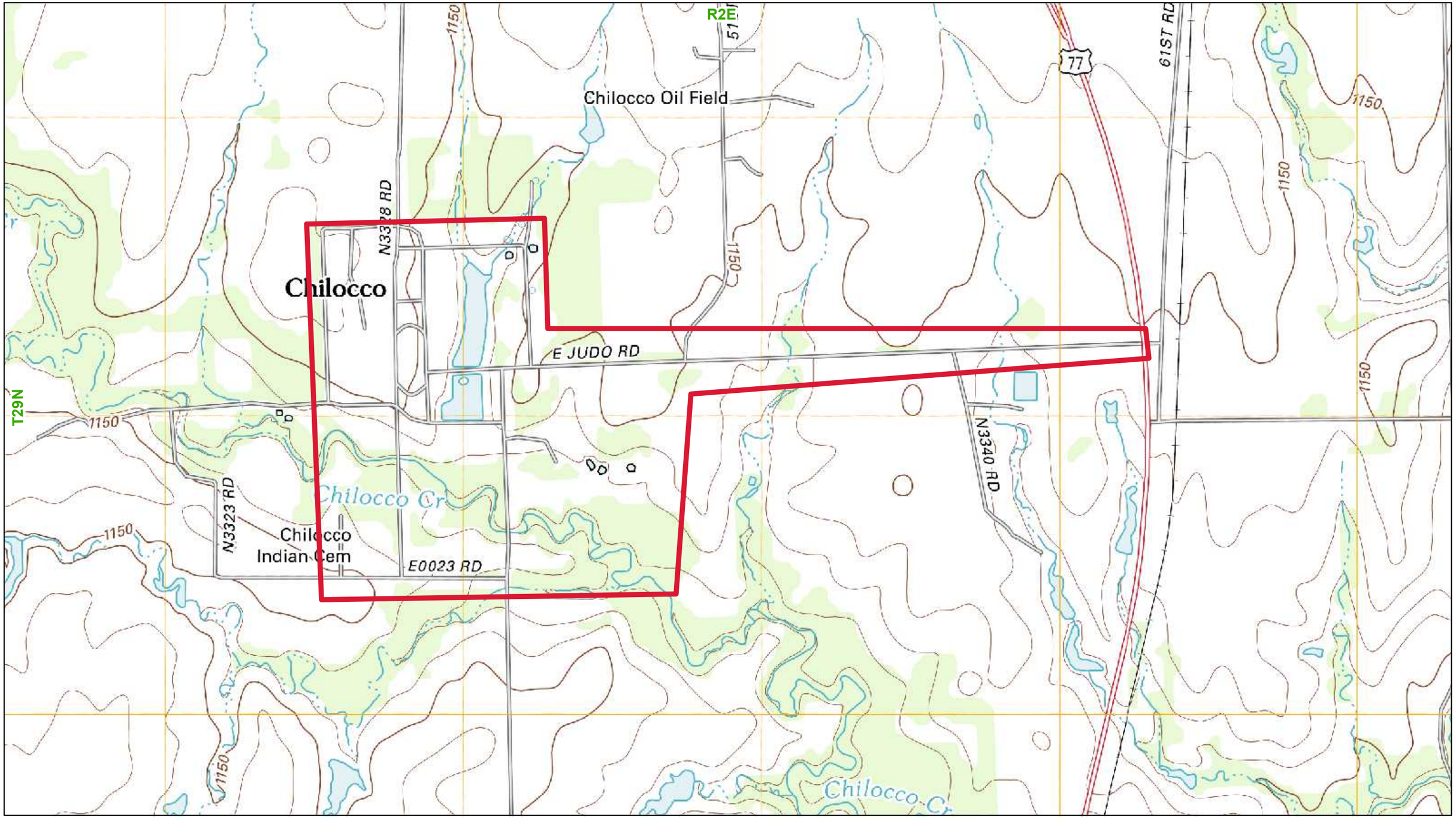
Chilocco Wind Farm

Kay County, Oklahoma

Archaeological Area of Potential Effect

EXHIBIT 4

Map Document: P:\0000488.00\GIS\CRM\Chilocco_APE_130912.mxd 9/12/2013 1:23:41 PM



Data Source(s): Westwood (2013); PNE Wind (2013); Bureau of Land Management (2000); United States Geological Survey (2012)

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N

0 Feet 1,000

Legend

Chilocco Indian Agricultural School Historic District

USGS 7.5-Minute Series
Newkirk Quadrangle

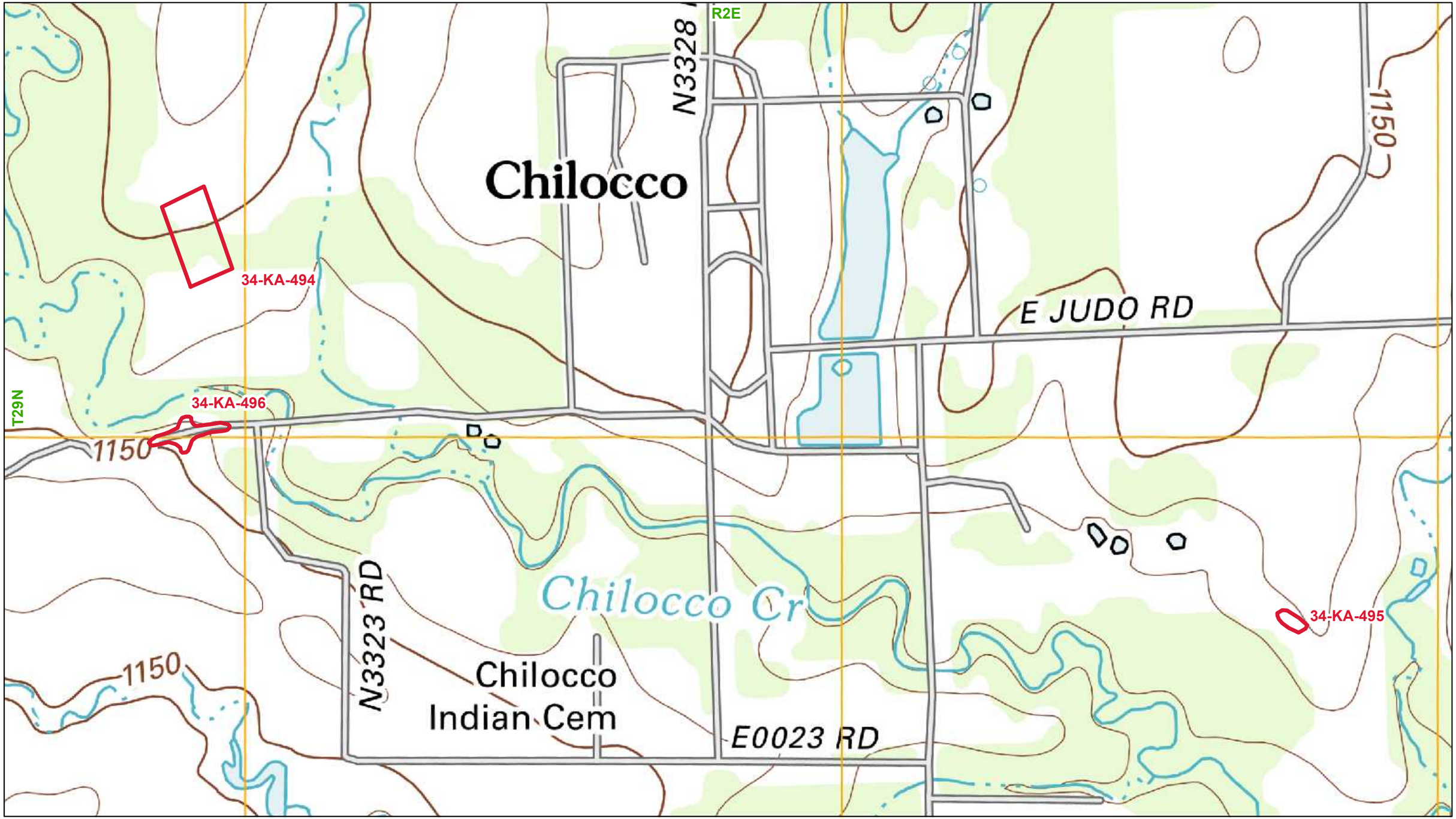
Chilocco Wind Farm

Kay County, Oklahoma

Chilocco Indian Agricultural School Historic District

EXHIBIT 5

Map Document: P:\0000488.00\GIS\CRM\Chilocco_HistoricDistrict_130822.mxd 8/26/2013 1:00:58 PM



Data Source(s): Westwood (2013); PNE Wind (2013); United States Geological Survey (2012)

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N

0 500 Feet

Legend

Archaeological Sites

USGS 7.5-Minute Series
Newkirk Quadrangle

Chilocco Wind Farm

Kay County, Oklahoma

Archaeological Sites

EXHIBIT 6

Map Document: P:\0000488.00\GIS\CRM\Chilocco_ArchSites_130822.mxd 8/22/2013 3:09:33 PM

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Date: February 4, 2014

Re: Addendum to the Class III Archaeological Survey for the Proposed Chilocco Wind Farm Project, Kay County, Oklahoma
SHPO File #0502-14
File R000488.00

To: John A. Worthington
Regional Archaeologist
Southern Plains Region
Bureau of Indian Affairs

From: Ryan P. Grohnke; Amanda Gronhovd, MS, RPA

Westwood Professional Services, Inc. (Westwood) was contracted by PNE Wind, USA (PNE) to conduct a Class III Archaeological Survey of the Proposed Chilocco Wind Farm Project. The report which detailed the methods, results, and conclusions of the investigation was developed in consultation with the Bureau of Indian Affairs (BIA) which served as lead Federal Lead Agency for this project. The report, *Class III Archaeological Survey for the Proposed Chilocco Wind Farm Project, Kay County, Oklahoma*, prepared by Westwood on September 12, 2013 was submitted to the BIA in September of 2013.

After the BIA accepted and concurred with the report, they submitted the report to the Oklahoma Historical Society-State Historic Preservation Office (SHPO) and the Oklahoma Archeological Survey (OAS). Following review of the report, the SHPO and OAS requested additional information. The requests were detailed in letters dated January 10, 2014 from the SHPO and January 3, 2014 from OAS. This addendum is a submittal of the requested information.

1. **Request by SHPO for a map showing turbine locations and proximity to the Chilocco Indian Agricultural School historic district.**

The requested map is attached as Exhibit 1.

2. **Request by SHPO for a description of wind turbines including their height, lighting, and other information.**

The GE 1.7-100 MW wind turbines planned for installation have a monopole design, a hub height of 80 meters (262 feet), and rotors with a 97.4-meter (320-foot) diameter operating at approximately 9 to17.5 revolutions per minute. The maximum blade-extended height of each structure is approximately 128.7 meters (422 feet). GE wind turbines have a 20 to 25 year expected lifespan and are designed to operate effectively in areas with slower average wind speeds.

The FAA has oversight on any object that could have an impact on aviation. The FAA determines which turbines will be lit and how they will be lit. Flashing red lights (L864) will be used on this project. There will be no unlighted separations more than 0.5 miles in length. Lights will be placed on each turbine at the end of a turbine string as well as on isolated turbines. Flash frequency will be at 20 flashes per minutes to minimize any effects on ground structures. The flash frequency is the lowest rate permitted by the FAA. A total of 29 turbines will have the flashing red lights (Exhibit 1).

3. **Request by SHPO for total size of Area of Potential Effect in acres.**

The total size of the Area of Potential Effect (APE) which was surveyed for archaeology was 692 acres.

4. **Request by SHPO for total size of project area for which archival searches were conducted.**

The total size of the project area only, without a one-mile buffer is 6,210 acres. With a one-mile buffer included for archival searches, the entire study area is 16,765 acres. Both of the archival searched conducted by OAS and the archival search conducted by Westwood used the project area plus a one mile buffer (16,765 acres). Point # 10 below has additional comments on the project area and the study area for archival research.

5. **Request by SHPO to update site form for 34KA448.**

A review of the site form for 34KA448 indicates that the site is located on land owned by the Tonkawa Tribe. The written description and UTM coordinates also indicate the site is on land under ownership of the Tonkawa Tribe. This area is both outside of the Area of Potential Effect and the Project Area. The Tonkawa tribe is not participating in the current project and archaeologists did not have access to the site in order to ascertain its present condition or complete an updated form.

6. **Request by SHPO to provide a historic, post-contact period background summary. Additionally, add a more extensive and detailed prehistoric context per comments from OAS.**

The Oklahoma Archaeological Society has developed archaeological contexts for Oklahoma. These contexts are based on years of prehistoric and historic research in the region in order to examine regional historic (Contact and Post-contact) and prehistoric (Pre-contact) past. They are a general description and interpretation of regional history. The contexts give basic observations of current theories relating to prehistoric and historic people from different locations throughout the history of the region.

The Pre-Contact period is focused solely on Native American peoples before the arrival of Euro-Americans. This period is divided into four traditions: Paleoindian, Archaic, Woodland, and Villagers. These traditions are defined, and sub-defined, by changes in technology and food sources exploited.

The Protohistoric and Historic cultural history is focused on the interaction of American Indians and Euro-Americans during the Contact and Post-Contact periods. These contexts range from the first contact between Europeans and American Indians during European exploration in the region (Contact), through Euro-American settlement of traditionally American Indian lands (Post-contact).

The current project area is located within the Oklahoma biotic district known as Region 2, or the Mixed Grass-Tall Grass Prairie, which encompasses the area of north-central Oklahoma bounded by the Ozark Uplift on the east and the High Plains on the west. Up through and slightly past the middle of the 20th century, "archeological investigations in Region #2 were spotty and sporadic" (Wyckoff and Brooks 1983:34).

The pace of professional archaeological investigations in Region 2 increased exponentially during the 1960s and 1970s. The increased pace can be attributed largely to the proposed construction of a number of reservoirs. One area near the current project area that received a great deal of salvage archaeological attention in the early- to mid-1970s was the proposed Kaw Reservoir, on the Arkansas River between Kay and Osage counties.

Numerous archaeological reports detailing fieldwork conducted in and around the Kaw Reservoir were generated around that time, mostly under the auspices of the Oklahoma Archeological Survey and/or the Oklahoma River Basin Survey. Those investigations added a great deal to the knowledge of north-central Oklahoma's prehistory and proto-history, as they included both site-specific reports (e.g., Bastian 1969, Hartley 1974, Hartley and Miller 1977) as well as reports that trended more toward regional

syntheses (e.g., George 1982, Hartley 1975, Rohrbaugh 1973 and 1974, and Young 1978).

Many of the early initial published reports agreed that archaeological work in the vicinity of the Kaw Reservoir provided little if any new and compelling evidence on Paleoindian or Archaic period sites. Hartley (1974:7), for example, noted that up to the early 1970s, "no sites yielding good evidence for a Paleo-Indian occupation or kill site have been tested in the Kaw Reservoir [and that although] several Archaic complexes have been recognized in the area surrounding the Kaw Reservoir…evidence for an Archaic occupation in the Reservoir itself is rather scanty."

As opposed to the scant evidence for Paleoindian or Archaic sites, later period occupations were quite well represented. During his discussion of the northern section of the Kaw Reservoir, Young noted that the 22 sites investigated represented examples of Plains Woodland, Plains Village, and Proto-historic Plains Village sites, but nothing earlier.

Pre-Contact Period

Paleoindian Tradition (12,000 to 8,000 Before Present [B.P.])

The first people to arrive in North America, the Paleoindians, crossed the Bering land bridge from Siberia to Alaska. When they arrived, approximately half of North America was covered by a glacial ice sheet. As the glaciers melted, the people moved south and eventually spread throughout the entirety of the Americas (Dobbs 1990). Pleistocene megafauna, such as mammoth and mastodon, roamed the land.

Paleoindians were small groups known best for hunting large megafauna, including mammoth, mastodon, and Bison antiquus - an extinct bison up to one-third larger than modern bison (Frison 1998). By 11,000 years B.P., mammoth and other megafauna were extinct, and the Paleoindians shifted their hunting focus to bison, the next largest mammal (Frison 1998). Evidence also suggests that these people not only hunted megafauna and large mammals, but also exploited other food sources such as fish, berries, nuts, and small mammals (Tankersley 1998).

The earliest Paleoindian spearpoints are easily identified by a distinctive flute down both sides. During the middle of the Paleoindian period, lanceolate, nonfluted points began to emerge. During the late Paleoindian periods, we see a shift from fluted and lanceolate to exclusively lanceolate points.

The earliest of the fluted point style is known as the Clovis point, dating from 12,000 – 11,000 years B.P. (Justice 1987). The original Clovis point was recovered from the

Blackwater Draw site and named after the nearby town of Clovis, New Mexico. The spearpoints from Blackwater Draw were found in direct association with late Pleistocene fauna including Columbian mammoth, horse, camel, bison, and saber-tooth cat (Dobbs 1990).

Following the Clovis point is the Folsom point, differentiated from Clovis by a decrease in length and an increase in the length of the flute. Dates of the Folsom Complex last from approximately 11,000 – 10,200 years B.P. (Hofman 1995). The Folsom point and type site is named after the city of Folsom, New Mexico, where a Folsom projectile point was recovered with the ribcage of the now extinct species of bison, Bison antiquus (Dobbs 1990).

The Late Paleoindian period generally began toward the end of the Folsom Complex and lasted to the beginning of the Archaic Period. Late Paleoindian technology is marked by a change from the distinctive Folsom style. Lanceolate points vary greatly in style, but share the features of being nonfluted, unnotched, and finely flaked. They arrive in the archaeological record during the Folsom Complex, and continue to the end of the Paleoindian Tradition (Dobbs 1990).

Paleoindian sites are relatively uncommon and difficult to locate by archaeologists due to buried deposits. The lack of stratified sites and the small number of artifacts recovered from those sites suggests that Paleoindian people lived in small, nomadic groups (Frison 1998), and the most compelling evidence of a Paleoindian presence generally comes in the form of a well-defined kill site or camp.

Paleoindian sites accounted for only 228 of the 18,219 sites that had been documented in Oklahoma up to 2005 (Brooks 2005), and the majority of those were located in the western portion of the state. In Kay County, most Paleoindian archaeological evidence consists of a few lithic scatters but no well-defined kill site or camps have yet been identified (Brooks 1988). Environmental information has been derived from finds consisting of extinct fauna like the Trepp mammoth locality (Brooks 1988).

Archaic Tradition (8,000 to 2,000 B.P.)

Evidence suggests that Archaic people lived in small groups occupying seasonal camps, much like their Paleoindian predecessors (Jones et.al. 2003). Some research counters this belief, suggesting that community size increased and groups became more sedentary (Dobbs 1990). The major innovations differentiating the Archaic people from the Paleoindian people include a change in projectile point technology, the invention of groundstone tools, and a change in subsistence strategies. The Archaic Tradition is also noted for the development of regional differences, possibly due to regionalization of particular groups (Anfinson 1987).

By the beginning of the Archaic period, the megafauna had long been extinct. This resulted in a shift towards a more effective hunting and gathering subsistence. Hunters focused on bison, deer, and small mammals. Some archaeologists believe that Archaic people became more regionalized partly due to the major biomes. This regionalization allowed the people to perfect the exploitation of local raw material and food sources (Dobbs 1990).

The Archaic Tradition technology is marked by a change in projectile point manufacture. Projectile points have shifted from lanceolate to notched and stemmed points and the flaking quality begins to diminish. Other innovations of the Archaic people is the appearance of groundstone tools created by friction from grinding, polishing, and pecking igneous and metamorphic rocks, such as granite and basalt (Brooks 1988).

A variety of settlement types are defined for the study region, including base camps, temporary hunting camps, bison kill sites, cemeteries, quarries, and less defined activity areas. Several camps containing organic (bone and shell) tools are preserved. Most of the information on Archaic life was initially derived from sites in eastern Oklahoma (Brooks 1988), although the 1992 discovery of the Kubik Site (34KA354) in the Flint Hills region has provided solid evidence of an Archaic occupation in Kay County.

The Kubik Site has proven especially informative about Archaic period lifeways. The site's deeply buried cultural deposits, located approximately four to six feet below the present ground surface, yielded distinctive Calf Creek-style points as well as associated floral and faunal remains and dateable charcoal samples. Radiocarbon dates for the material recovered at the Kubik Site suggest an occupation of approximately 5,000 – 5,800 years ago.

Most of the previously known sites belonging to that geographic and temporal era (Calf Creek) had only surface manifestations. On sites that have only (or even mainly) a surface presence, archaeologists are often interpretively limited to gleaning some sense of time depth based on stone tool styles and perhaps to inferring some sort of landscape preferences of the groups subject to investigation. Excavation and subsequent interpretation of the deeply buried deposits at the Kubik Site therefore proved particularly valuable because the results "increased archaeologists' understanding of this group of prehistoric foragers, more accurately placing them in time and providing information about environmental conditions and diet" (www.digital.library.okstate.edu/encyclopedia/entries/K/KU002.html).

Woodland Tradition (2,000 B.P. to 1,200 B.P.)

The Woodland Tradition is generally divided into three periods – Early, Middle and Late. The Woodland Tradition is marked by the emergence of ceramic pottery vessels

and the adoption of farming practices. The multiple contexts describing the Woodland period are a result of increased regionalization of the Woodland people (Brooks 1988).

The Woodland people most certainly exploited similar food sources to their Archaic ancestors. Bison, deer, and small mammals were still a major food source. Plants, such as wild rice, were exploited more heavily than in previous times, and there is evidence of cultivation of maize and squash (Dobbs 1990).

The primary technological advance during the Woodland Tradition is the advent of ceramic pottery. The original divisions of Early, Middle, and Late Woodland were differentiated by their technology. Ceramics during the Early Woodland period are normally thick and crude with cord-marked decoration on the exterior. Middle Woodland shows early evidence of earthen burial mounds. Late Woodland continues the tradition of ceramics and burial mounds. Woodland sites in this region of Oklahoma include small villages or hamlets, base and temporary camps, workshops, and small rock mounds associated with burials (Brooks 1988).

Despite the notion that "Woodland, or perhaps more properly Plains-Woodland, material and sites are quite common in the Kaw Reservoir and surrounding regions" (Hartley 1974:8), the Woodland Tradition still is not well understood for northern Oklahoma. It is especially difficult to try and distinguish any type of transition from the Late Archaic into the Early Woodland. Indeed, during one of the initial attempts to define a cultural sequence for this area, Bastian (1969:7) suggested that "there appears to have been a direct transition from the Late Archaic horizon into the Middle Woodland or later horizons." Bastian's initial sequence, or at least parts of it, however, was challenged within just a few years (e.g., Hartley 1974:7) by subsequent fieldwork conducted in the region.

A few years farther into the archaeological investigations around the Kaw Reservoir, Young (1978:291) defined the Plains Woodland as the cultural stage that marked a transition from hunting and gathering to a sedentary horticultural subsistence mode. He suggested that, in addition to the appearance of pottery (which at this point was comprised of straight-sided vessels with pointed bottoms), during this transition stage diagnostic artifacts included combinations of corner-notched dart points, contracting stemmed dart points, and corner-notched arrow points.

The earliest Woodland Tradition sites in Kay County include Hudsonpillar, Von Elm, Vickery, and Hammons, all of which are located along the Arkansas River Valley (Wyckoff and Brooks 1983:38). Archaeological investigations at the Von Elm Site (34KA10) led to an interpretation that each of four distinct site areas had a Woodland component that dated to somewhere between AD 1 and 900 (Hartley 1974:124).

Villagers (1,200 B.P. to 500 B.P.)

At the end of the Woodland Tradition, large societies of farming people established themselves along major rivers in Oklahoma. The people of this period continued to create ceramic vessels and earthen burial mounds. Populations became larger and even more regionalized than previous. These traditions lasted from the end of the Woodland Tradition to first contact with European explorers (Anfinson 1987).

The Village Farming cultures relied heavily on raising corn, beans, and squash supplemented by hunting game and collecting seasonal resources. The establishment of small to moderate-sized villages along terraces of major rivers due an increase in population led to a greater complexity in social organization. Throughout the state of Oklahoma, groups shared similar economies and levels of technology. Variations in farming and village patterns were maintained by all dependent on the physical environment (Brooks 1988).

Villages were comprised of 10 to 20 houses and a burial area. Burial areas are often associated with exotic goods indicating special treatment of individuals and status differentiation in their social organization. Corn horticulture intensified, as these people became more regionalized and limited the number of different species of plants they exploited. Perhaps the intensification of corn horticulture is a response to larger community size.

The site types assigned to the Plains Village Tradition are similar to the Woodland Tradition, and the archaeological remains of these complexes range from cemeteries to small burials, limited use sites to extensive habitation sites. Site location is also consistent with the previous period and depends on numerous factors, including the location of specific resources the people were using or the presence of a particular desirable environment (Brooks 1988).

Archaeological manifestations of technological differences between the Woodland Tradition and the Plains Village Tradition include the distinction that stone projectiles are almost all arrow points, with side-notched and un-notched forms being the most common. Additionally, pottery is globular, and the presence of corn cobs and grain provide evidence of horticulture. One of the first excavated Plains Village sites in Kay County was the Uncas Site (34KA172), where investigators found evidence of increased sedentism in the form of a 700 year old house (Wyckoff and Brooks 1983:41).

Florence-A Chert

Florence-A chert was the primary raw material encountered during the archaeological survey of the Chilocco Wind Farm. This resource occurs naturally relatively near the proposed project area within Kay County, OK and Cowley County, KS (Vehik 1990). Florence-A is one of the most heavily used resources in the region, but it was traded

extensively to more distant locales. It generally can be found from outcrops and occasional erosional remnants in the Flint Hills area. This chert appears first to have been used by Caddoan peoples of the Arkansas River Valley beginning around A.D. 900, spread to the Plains Village people including the Washita River and Smoky Hill phases by A.D. 1000, but became the most common after A.D. 1450 (Vehick 1988).

Protohistoric and Historic (500 B.P. to present)

This period generally refers to the span of time extending from the first European explorations until intensive Euro-American settlement of the region. Possible archaeological site types associated with this period are generally consistent with those of earlier periods, but the influence of European and Euro-American traders, missionaries, settlers, and industries affected the locations of these sites. This period also includes the settlement patterns, subsistence activities, and economic strategies employed by Euro-American immigrants. Associated archaeological and historic site types categorized in the Contact/Post-Contact period include standing structures as well as archaeological sites.

The specific dates for the protohistoric vs. historic are still open to some debate. This section will look at the protohistoric and historic together as they both involve influence and activities of European newcomers on the region. While some researchers consider de Coronado's search for Quivira and thereby entering the state in A.D. 1541 as the beginning of the protohistoric, there are others who suggest an earlier date of A.D. 1450 (Perkins and Baugh 2008). Although this date is pre-Columbus, it takes into account changes already occurring in the region as well as later impacts from European trade goods, disease, and movement of peoples. Perkins and Baugh also suggest 1846 as the ending of the protohistoric. Brooks (1988) uses dates of A.D. 1500 to 1800 for the protohistoric. These dates incorporate the influence the Europeans prior to contact through the initial contact stage during European Expansion.

European Expansion 1541-1803

At the time of contact, Wichita and other Caddoan groups were living in villages in the southern and eastern portions of what is now present day Oklahoma, specifically along the Arkansas, Canadian, Washita, and Red Rivers (Baird and Goble 1994). Nomadic groups such as the Apache, the Osage, and Pawnee could be found in the prairies of the north and west (Everett 2007(a)). The current project area is in a location that would have had strong Wichita and Caddoan influence at the time of contact.

The first known European contact in the state of Oklahoma was the expedition of the Spaniard Francisco de Coronado in his search for gold and the city of Quivira in 1541 C.E. Besides being the first contact in the region between Europeans and Native Peoples, this expedition also gave Spain authority over the area, including Oklahoma

in the minds of the various European governments. Other Spanish journeys into Oklahoma included the de Padilla/do Compo attempt to found a Catholic Mission amongst the Kaw (1542-1547 C.E.) and de Onate's visit to Quivira in 1601 (Baird and Goble 1994).

French incursions into Oklahoma began following La Salle's claiming of the area called Louisiana. Jean –Baptiste de La Harpe led an expedition to explore the region and begin trade with the Native peoples in 1719 (Baird and Goble 1994). Additional French exploration and trade would follow. France would lose control of Louisiana (including Oklahoma) to Spain in 1763, but it would be returned in 1800.

Within Kay County are two significant sites related to this time period. The Deer Creek Site (34KA3) and the Bryson-Paddock Site (34KA5) are both listed as National Historic Landmarks. These 18th century, fortified Wichita villages associated with early trade are located on terraces of the Arkansas River (Wedel 1981). These villages were especially significant and different from other contemporaneous Wichita villages in that evidence indicates that French hunters were also present and interacted extensively with the Wichita (Wedel 1981). These sites also give evidence that the villages had become much larger than the previous Village Farming period (Brooks 1988).

Westward Expansion 1803-1861

The region would be acquired by the United States in 1803 as part of the Louisiana Purchase. The next 20 years would see significant exploration of Oklahoma by European Americans. These expeditions included Lewis and Clark's scientific expedition (1804-1806), the Sibley expedition (1811), Thomas Nuttall's explorations (1819) and the Long and Bell expeditions (1820) amongst others (Baird and Goble 1994). During his expedition to find the beginning of the Red River Zebulon Pike sent Lieutenant James Wilkinson with several men down the Arkansas River. This exploration went through Kay County and near the project area. Besides the government and scientific expeditions occurring at this time, extensive trading between the Native People's and private individuals and companies were taking place.

One of the reasons President Jefferson purchased the Louisiana Territory was for a location to relocate Native Americans who were not willing to assimilate (Baird and Goble 1994). Throughout the Jefferson administration and after, Eastern tribes were encouraged to move west. Following the Indian Removal Act in 1830 the "encouragement" became much more forceful and even included those tribes who were successfully assimilating into Euro-American culture. Initially the Act, which was to relocate all Eastern Indians west of the Mississippi, was to use treaties to pressure voluntary relocation.

By 1835, the Five Tribes (sometimes called the Five Civilized Tribes) except for the Cherokee had relocated. On December 29, 1835 the Treaty of New Echota was signed by a small group of the Cherokee and against the wishes of the Cherokee Nation as a whole (Dale and Wardell 1948). This treaty sold all Cherokee lands in the east to the United States for five million dollars and required the federal government to pay for the cost of removal and assistance in the new lands. The Cherokee were gathered up and forced to head west in adverse conditions. The conditions were so awful that 13% died on their journey, which is referred to as the Trail of Tears (Baird and Goble 1994).

Following the relocation and prior to the Civil War, the Five Tribes began to rebuild their governments and societies in their new lands. Economies were being reestablished with agriculture, ranching and even manufacturing being practiced. Schools were built and many missions established. Although problems did exist within the Tribes, it seemed that a time of prosperity had come (Dale and Wardell 1948).

Civil War 1861-1865

Slavery was practiced in the Indian Territory at the outbreak of the Civil War with approximately 14% of the population being African American Slaves (Huston 2007). Knowing that many of the Indian leaders supported the Confederate States of America, Jefferson Davis sent Albert Pike to negotiate with the Five Tribes (Dale and Wardell 1948). Treaties between the Five Tribes and the Confederacy were quickly signed with only the Cherokee refraining for a time due to some members of the tribe hoping to remain neutral during the war. The treaties promised that the Confederacy would uphold all previous treaties between the Five Tribes and the United States, they would defend the Tribes militarily, and even gave some rights to the Five Tribes in Confederate courts and government (Baird and Goble 1994). Following their signing treaties with the Confederacy, the Five Tribes quickly started to form military units.

Although the leadership of the Five Tribes supported the Confederacy, many of the people wished to remain neutral. The Creek Leader Opothleyahola gathered together 7,000 of the Creek and Seminole and declared loyalty to the United States (Baird and Goble 1994). Indian and Texas troops loyal to the Confederacy attacked these Loyalists at Round Mountain, Chusto-Talasah and Chustenahlah before the Loyalists escaped into Kansas (Huston 2007).

After the defeat of Confederate forces at the Battle of Pea Ridge in March of 1862, the Confederacy's military leaders accused the Indian troops of scalping the Union dead and performing poorly (Baird and Goble 1994). Albert Pike, now general of the Indian troops, took his command back to Indian Territory. He resigned in May 1862 as the Confederacy was discriminating against his troops and not fulfilling the treaties.

In June 1862, Colonel William Weer led the Union Indian Expedition, an attempt by the Union to retake the Indian Territory (Huston 2007). Although the Indian Expedition was initially successful, a breakdown in leadership forced Weer to retreat. Although ineffective, the Union Indian Expedition caused the divisions in the Cherokee to resurface.

Union Brigadier General James Blunt invaded Indian Territory. At the battle of Honey Springs in July, 1863 he easily defeated the Confederate forces. Over the next two months he had additional victories at Perryville and Fort Smith, thereby giving the Union control over the northern two thirds of Oklahoma (Baird and Goble 1994). Many of the Loyalists began to return at that time. The Confederate military in Indian Territory was reduced to guerilla warfare.

By the war's end, the Tribes had been weakened and the successes of the previous decades were gone. Over 10,000 members of the Five Tribes had perished during the war, both to battles and to the deprivations caused by the war (Baird and Goble 1994). Divisions amongst the tribes had resurfaced and worsened. Now weakened and defeated, the Five Tribes were in a poor position to negotiate what was to come.

Territorial Era 1861-1907

The United States determined that all previous treaties were void due to the Five Tribes support of the Confederacy (Pennington 2007(a)). The reconstruction treaties of 1866 abolished slavery and gave rights to freedmen, an intertribal council was formed, railroads would be permitted, annuities restored, and much land lost. The Cherokee lost the neutral lands of Kansas and the Cherokee Strip as well as the Cherokee Outlet. The Five Tribes were required to sell the western half of their land. The Seminole had to sell all of their land and then purchase land from the federal government. The land taken from the Five Tribes was now used for reservations for other Plains tribes (Dale and Wardell 1948).

Following the initial recovery after the Civil War, many whites began to enter Indian Territory. The Unassigned Lands, an area taken from the Creek and Seminole, was still unused (Baird and Goble 1994). Many whites began to push to have this opened for homesteading. A group referred to as Boomers used the approach of settling the Unassigned Lands without permission, but hoping the publicity would entice the government to make it available. The railroads encouraged settlement as well as the opening of the Unassigned Lands for the profit it would bring them. Finally in 1889 the United States Government opened the Unassigned Lands for settlement.

On May 2, 1890, the Organic Act for the Territory of Oklahoma was passed (Everett 2007(b)). The previously Unassigned Lands became the Territory of Oklahoma and a territorial government was to be established. No Man's Land (the current Oklahoma Panhandle) was included. Methods were set forth to incorporate other Indian Lands as

allotments were given and reservations disbanded per the Dawes Act. The Dawes Act of 1887 ended tribal ownership of lands. Instead small allotments would be given to individuals within the tribes. The remainder of the land would then be open to settlement. The land of the Five Tribes was not included, but was formally given the name "Indian Territory" as well as increased rights and connections to the laws of the United States.

Piece by piece the lands in the west were opened up to settlement by allotment. Settlement was generally done by land run, where prospective settlers would need to compete with others and claim their land. Once claimed, the lands needed to be improved as per the Homestead Act. In 1893 the Cherokee Outlet was opened and became the largest land run in the Territory's history (Baird and Goble 1994). The current project area is located on the eastern side of the Cherokee Outlet.

Initially the Dawes Act did not apply to Indian Territory, but a law passed in 1893 allowed the government to begin to negotiate the process with the Five Tribes. Despite resistance from the Tribes, the government began to survey the tribal lands and prepare census rolls. In 1898 the Curtis Act was passed. This law ended tribal governments and placed individuals under the authority of the territorial government (Tatro 2007). In order to keep some control over the process, the Tribes negotiated the allotment procedures with the federal government (Baird and Goble 1994).

Oklahoma Territory in the west and Indian Territory in the east were referred to as the Twin Territories. Attempts were made to bring about separate statehoods for the two territories. The Sequoyah Convention of 1905 was an attempt by the Five Tribes to draw up a constitution for the new state of Sequoyah which was presented to Congress. Instead Congress passed the Oklahoma Enabling Act in 1906 which would unite the Twin Territories and prepare them for statehood (Pennington, 2007(b)). On November 16, 1907 Oklahoma officially became the forty-sixth state.

Twentieth Century

The first decades following statehood were marked by political issues, racial divisions, and economic disparity. With the coming of the Great Depression, the economic problems only worsened, with the issues previously confined to rural area spreading to the cities (Agnew 2007). Even though many efforts were made to mitigate situation, financial issues persisted until spending for World War II helped to encourage a recovery.

While racial divides were as bad in Oklahoma as anywhere in the United States, and in some ways persist to this day, there was one event which differed in Oklahoma compared to other southern states. Governor Raymond Gary did not fight integration, but instead accepted it and helped to change the state constitution to fit with the Supreme Court's ruling in Browns vs. Board of Education of Topeka (Baird and Goble

1994). Because of this, the conflicts which followed were perhaps less in Oklahoma than in other southern states.

Throughout the Twentieth Century agriculture and oil were two of the primary focuses on the state economy. Both went through multiple booms and busts (Baird and Goble 1994).

Kay County

The area which is now Kay County was first entered by Euro-American explorers James Wilkinson (1806) and George Sibley (1811). When the United States gained control of the region it became part of the Cherokee Outlet. At the time that the Cherokee Outlet was set forth as land for other tribes, the Kaw, the Ponca and the Nez Perce were placed on reservations in what is now Kay County. The Nez Perce returned to their home in 1885 and that land was given to the Tonkawa and the Apache. The Tonkawas received land allotments in 1891, the Ponca in 1904, and the Kaw in 1906. The Cherokee Outlet was opened to settlement by a land run in 1893. The Ponca and Kaw reservations were not opened to non-Indian settlement.

The name Kay was adopted by the County as it was originally labeled as K when counties were formed from the Cherokee Outlet. Agriculture and the oil/gas industry are the primary components of the County's economy. The county seat is located in Newkirk. (From Wilson 2007)

Kay County is located in SHPO Management Region #2 as part of Oklahoma's Comprehensive Preservation Planning Process (OHS 2014). Management Region #2 is made of 10 counties in the north-west portion of Oklahoma. Kay County is the most north-east county in this Management Region, being bordered by Management Region #3 to the east and the State of Kansas to the north. Management Region #2 has multiple historic contexts associated with it, including: Agriculture, Energy, Exploration, Industry, Ranching, European Settlement, White Settlement, Transportation, and Area: Ponca City. Although all of the historic contexts would apply to Kay County, the Agriculture and White Settlement contexts may be of particular interest when looking at the immediate vicinity surrounding the project area. As the project area itself has remained under the ownership of Native American Tribes to present day and was used for a specific purpose (the Chilocco Indian Agricultural School) for over a century, many of the contexts would not directly apply to the Chilocco Wind Farm project area. As the purpose of the Chilocco Indian Agricultural School was to instruct Native American students in agriculture and industry, there is the possibility of properties relating to both the Agriculture and Industry contexts within the project area.

As of 2005, only 86 historic archaeological sites or sites with historic components had been identified in Kay County (Brooks 2005). This was approximately 19% of the 449

total archaeological sites which had been identified in Kay County at that time. Over the last nine years, the number of archaeological sites, both historic and prehistoric, has most certainly grown.

Chilocco Indian Agricultural School

Prior to the latter part of the 19th century, education of Native Americans had been dealt with primarily through Christian missions and reservation schools. This policy changed through the efforts of Captain Richard Henry Pratt. In 1878 Pratt brought in teachers to instruct prisoners of war from the Arapaho, Cheyenne, and Kiowa tribes who had been placed under his guard (Reyhner and Eder 2004). After their release, some of the prisoners wished to continue their education so Pratt had them enrolled into the Hampton Institute. Following the success of the Indian students at the Hampton Institute, Pratt received permission to create a school for Indians of all tribes. Pratt established the Carlisle Indian Industrial School in 1879. This was the first of the off-reservation boarding schools.

The off-reservation boarding school system allowed for the education of Indian youth away from the influence of their cultures. Using a strong military disciplinarian attitude, the system was designed to "Christianize" and "civilize" Indian students. As Pratt said, "…the end to be gained…is the complete civilization of the Indian and his absorption into our national life…the Indian to lose his identity as such, to give up his tribal relations and to be made to feel that he is an American citizen" (Utley 1964). Following Carlisle, schools were established in Chemawa, Oregon in 1880 and Chilocco in 1884 (Reyhner and Eder 2004).

In 1882, the United States Congress authorized an off-reservation Indian boarding school in Indian Territory (Oklahoma) near the Kansas state line and the Ponca and Pawnee reservations on land that had been deeded by the Cherokee. Major James Haworth, the superintendent of Indian Schools, chose the location near Chilocco Creek (Lomawaima 1994). First called the Haworth Institute, Chilocco, Indian Territory, the name was changed to the Chilocco Indian Industrial School and later the Chilocco Indian Agricultural School. The original school property including the campus and fields had over 8,000 acres. Although primarily an agricultural school, Chilocco also taught industrial trades.

The school began as a single three story building serving as classrooms and dorms, constructed in 1883. Classes began in January of 1884 with 150 students. Over 500 students were attending by 1910, and that number grew to almost 1,300 in the 1950s (NPS 2013). Over the years, as enrollment grew so did the number of buildings needed for housing, staffing, and education.

The school's decline began in the 1960s due to changes in society and the Indian Service (NRHP 2006). In 1979, the United States Senate recommended closing

Chilocco. On July 15, 1980, Chilocco Indian Agricultural School closed. The campus was to be jointly owned by the Ponca, Tonkawa, Kaw, Pawnee, and Otoe-Missouria, with the surrounding land to be split between the five tribes. The Cherokee were also a given a portion of the land as well as 50% of mineral rights (NRHP 2006). Since its closure, the school has been used for various purposes; however, the buildings have largely been left empty and fallen into disrepair. In 2006 the Chilocco Indian Agricultural School was listed on the National Register of Historic Places. The Chilocco Indian Agricultural School was also nominated for listing as a National Historic Landmark (NHL); however, in 2011 at the request of landowner tribes the review was postponed due to concerns of the effects of NHL designation upon economic development.

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7. <u>Request by SHPO for assessment of indirect effects.</u>

The Chilocco Wind Farm will not have direct effects upon the Chilocco Indian Agricultural School and the proposed wind farm will not affect the eligibility of the school. The indirect effects of the wind farm upon the integrity of the Chilocco Indian Agricultural School are discussed here.

According to *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation* (1997), in order for a resource to be eligible for the NRHP under any of the Criteria, it must also retain historic integrity. The seven aspects of integrity include:

- **Location** – the resource remains where it was originally constructed or located, or remains associated with the place where an event occurred;
- **Design** – the elements that comprise the form, plan, space, and style of a resource remain unchanged;
- **Setting** – the site's physical environment remains recognizable;
- **Feeling** – the resource retains its aesthetic or historic sense of a specific period of time;
- **Association** – the resource represents a link between the site and an important historic event, pattern, or person;
- **Material** – the site holds a significant artifact assemblage and/or has good feature preservation;
- **Workmanship** – the labor or skill employed in constructing the site or carrying out the tasks performed at the site is evident.

Chilocco Indian Agricultural School was visited to assess its current condition and the potential for indirect visual effects. With the exception of three structures currently in use for research purposes by the University Multispectral Laboratories in coordination with the Department of Defense and others, all structures at the Chilocco School have become dilapidated and are in a serious state of disrepair. The school campus boundary is lined by trees which screen the external view shed from the school campus itself, and will limit the indirect visual impact the proposed turbines have on the site. The wind generating turbines themselves are symmetrical and will be painted neutral

white to blend in with the natural sky. The aspects of integrity taking into account these proposed changes are considered here.

- **Location** – The proposed project will not move or alter the location of the Chilocco Indian Agricultural School
- **Design** – The proposed project will not alter the layout or plan of the Chilocco Indian Agricultural School.
- **Setting** – Turbines for the proposed project will not be placed within the boundaries of the Chilocco Indian Agricultural School property. The physical environment within the boundaries of the Chilocco Indian Agricultural School will not be affected. Trees surround the campus and will limit the visual impact the turbines have on the campus's setting.
- **Feeling** – Turbines for the proposed project will not be placed within the boundaries of the Chilocco Indian Agricultural School property. Trees surround the campus and will limit the visual impact the turbines have on the campus's feeling.
- **Association** – The proposed project will not change the associations between the Chilocco Indian Agricultural School and the contexts of Indian education or U.S. Government Policies.
- **Material** – The proposed project will not affect the structures of the campus; therefore, there will be no changes the materials of the Chilocco Indian Agricultural School.
- **Workmanship** – The proposed project will not alter the structures or the layout of the campus; therefore, there will be no changes to the workmanship of the Chilocco Indian Agricultural School.

None of the buildings will be affected by the proposed project; therefore, the integrity of the Chilocco Indian Agricultural School in relation to its significance under Criterion C will not be affected. Considering the proposed project's effects upon the integrity of the Chilocco Indian Agricultural School in relation to its significance under Criterion A, the integrity aspects of Location, Design, Association, Material and Workmanship will be unaffected. Should the proposed wind farm potentially affect the integrity of Feeling and Setting in relation to its significance under Criterion A is subjective. The screening of the campus by the extant trees should limit the effect upon those aspects of integrity.

According to National Register Bulletin 15, under Criterion A, "A property important for association with an event, historical pattern, or person(s) ideally might retain *some* features of all seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association." The proposed project would at worst have limited affects upon the integrity of feeling and setting, but some features of feeling and setting would most certainly remain as the campus and the overall landscape will not be immediately affected. National Register Bulletin 15 also states, "A basic

integrity test for a property associated with an important event or person is whether a historical contemporary would recognize the property as it exists today." Even with the construction of the wind farm around the school, the property will undoubtedly remain recognizable as the Chilocco Indian Agricultural School.

The BIA conducted consultation formally on a government to government basis with tribes whose lands will be affected by the proposed project including: the five tribes of the Chilocco Development Authority (the Kaw Nation, Otoe-Missouria, Pawnee Nation, the Tonkawa Tribe and Ponca Nation) as well as the Cherokee Nation. The Chilocco Development Authority is comprised of the tribes who own the land of the Chilocco Indian Agricultural School. Four of the five tribes which make up the Chilocco Development Authority (the Kaw Nation, Otoe-Missouria, Pawnee Nation, and Ponca Nation) submitted a letter to the BIA that they, "agree and consent that the Chilocco School, though historically significant does not necessitate visual resource setbacks as it relates to wind power generation equipment." The Tonkawa Tribe, which is the fifth member of the Chilocco Development Authority, did not sign the letter, but has provided no opposition or additional input.

Other potential indirect effects might include vibration due to moving construction equipment as well as construction activity. These effects were considered. Access routes to all construction areas by machinery will avoid the Chilocco School campus preventing any vibration effects upon the historic structures. No construction will be taking places within the Chilocco School Campus.

The indirect effect of wind turbine operation vibration on the historic district buildings was also evaluated. The operation of commercial scale turbines creates both ground and air vibration. Because the historic district is comprised of buildings, potential impact would come from ground vibration, or seismic energy. The occurrence of air vibration is at frequencies and amplitudes that do not have the potential to impact physical structures. The study of the impacts of seismic vibrations created by commercial wind turbine is limited in the literature. Several studies have been performed on the health impacts of low frequency vibration, but these are not germane to seismic impacts to physical structures.

Foremost, the turbine manufacture, General Electric, was contacted for information regarding their GE 1.7 MW turbines. Based on their design and testing programs, GE is not aware that an operating GE wind turbine would seismically influence a structure located 800 feet or more from a turbine (Lobdell, 2014). This distance is based on the minimum setback typical of such development projects.

This opinion is consistent with available literature. Two studies were located that assessed seismic vibration created by operating commercial wind farms. Both are related to the impact commercial wind farms could have on scientific measurement

facilities. The first studied impacts to the Laser Interferometric Gravitational Wave Observatory on the Hanford reservation in Washington State (Schofield, 2002). The second studied impacts to a site in Scotland where compliance with the Comprehensive Test Ban Treaty for nuclear testing is seismically monitored (Styles, Stimpson et. al., 2005). Both studies conducted field measurements to monitor vibration propagating from operational wind farms. The turbines were found to produce seismic peaks at multiples of 3 times their rotational frequency. However, this amplitude of ground motion is significantly lower than the regional earthquake accelerations typical for Oklahoma. Similarly, the study done by Keele University determined that wind farm development could occur without compromising the mission of the sensitive monitoring facility.

Based on this research and experience with similar commercial scale wind farms across the Midwest, it is believed that vibration or ground motion from the proposed wind farm will not create a significant indirect impact on the Chilocco School historic district.

Other than those already considered, no additional indirect effects, further in the distance or in the future, are anticipated. It should be noted that the wind farm is not considered to be a permanent development. Chilocco Wind Farm will comply with rules set forth by the State of Oklahoma for decommissioning the facility. This includes setting aside funds for the facility's decommissioning beginning in year 15. Decommissioning will be completed within 12 months after abandonment or at the end of the useful life of the wind energy equipment. Upon termination of project operations, any necessary authorization and permits will be obtained, all infrastructure including wind turbines will be dismantled and removed, and the landscape will be restored to the same physical condition that existed prior to construction.

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8. Request by SHPO for information on consultation efforts.

This information will be provided by the Bureau of Indian Affairs in its role as federal lead agency.

9. Request by OAS for acreage of areas of potential ground disturbing activities that was surveyed for archaeology (the Area of Potential Effect).

The total size of the Area of Potential Effect which was surveyed for archaeology was 692 acres.

10. Request by OAS for information of prior cultural resource work in project area.

A review of mapping acquired from the OAS during a visit to the OAS offices in August, 2013, indicated that only a few locations in the project area had been previously surveyed for cultural resources. Several of the surveys included BIA pond repairs or construction. The BIA pond surveys were conducted in 2000 by Perry in limited locations of Sections 22, 23, and 26 of Township 29N, Range 2E. The BIA pond surveys did not include any of the current proposed project's APE.

According to mapping obtained from OAS, a survey might have been conducted in the current project's APE on the western edge of Section 26 of Township 29N, Range 2E. The mapping from OAS notes Austin Field Services, pipeline, 1/7/94. As additional details could not be found about this survey during a visit to OAS offices, Westwood chose to resurvey that location.

The largest area previously surveyed was in the SE ¼ of Section 21 and the SW ¼ of Section 22 in Township 29N, Range 3E. This survey was completed by S.Bossey on July 1, 1990, for a proposed hazardous waste disposal area. According to details obtained at the OAS offices, no sites were identified during this survey and the project was cleared. However, Westwood took this opportunity to conduct a surface survey of this area as part of their due diligence.

No previously recorded sites were identified within the Chilocco Wind Farm Project Area. Initially it was unclear exactly where site 34-KA-448 was located, but a thorough review of the site form indicates that the site is located outside of the Chilocco Wind Farm Project Area. Although no previously recorded sites were identified within the current project's Area of Potential Effect (692 acres) or within the entirety of the Chilocco Wind Farm Project Area (6,210 acres), the archival research

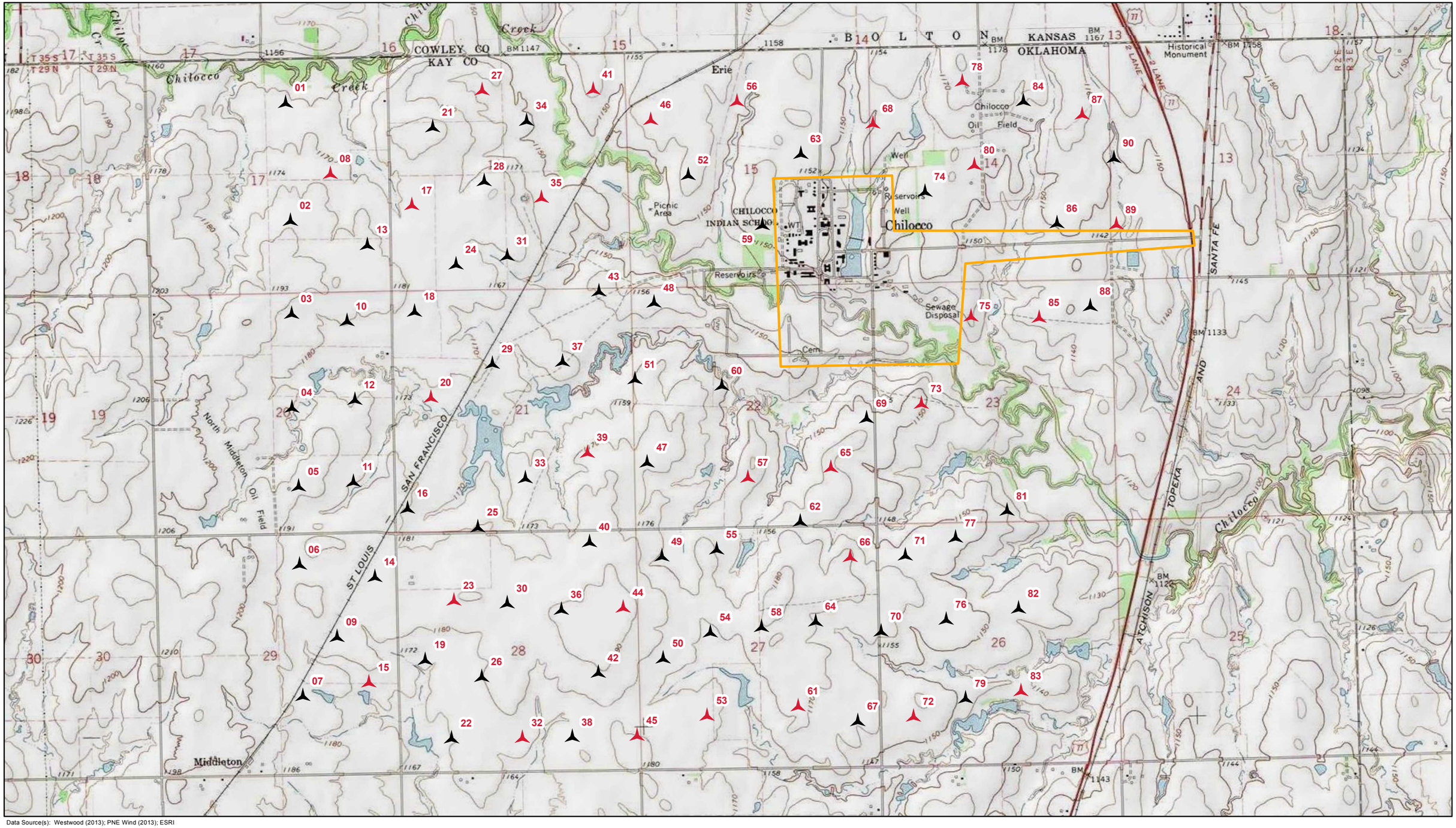
also looked at a one-mile buffer of the project area in order to understand what potential site types may be identified in the project area (16,765 acres). The seven sites previously identified outside of the project area, but within a one-mile buffer are listed in the following table.

Previously Inventoried Archaeological Sites Within One-Mile of Project Area				
Site Number	Site Type	Cultural Period	NRHP Status	Project Area / Buffer
34-KA-398	Lithic Scatter	Unassigned Prehistoric	Not Eligible	Buffer
34-KA -399	Historic Trash Dump	Historic non-Indian	Not Eligible	Buffer
34-KA -401	Historic Farmstead	Historic non-Indian	Not Eligible	Buffer
34-KA -448	Rock Alignment	Protohistoric/Historic Indian	Further work may be necessary	Buffer
34-KA -465	Historic Farmstead	Historic non-Indian	Not Eligible	Buffer
34-KA -466	Historic Farmstead	Historic non-Indian	Not Eligible	Buffer
34-KA -467	Historic Farmstead	Historic non-Indian	Not Eligible	Buffer

Sites 34-KA-398, 34-KA-399, and 34-KA-401 were identified in July 1998 during a survey by Cojeen Archaeological Services of the Conoco Ponca City to Arkansas City Pipeline. Site 34-KA-448 was identified by NRCS archaeologist K. Kraft in August 2002 during the Tonkawa Pond, EQIP survey. Sites 34-KA-465, 34-KA-466, and 34-KA-467 were identified in October 2009 by BCS as part of the WFEC Chilocco Sub and Tap project.

11. <u>Request by OAS for a more extensive/detailed discussion on the prehistory of Kay County.</u>

See point # 6 above.



Data Source(s): Westwood (2013); PNE Wind (2013); ESRI WMS USA Topo (accessed 2013)

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Legend

- Chilocco Indian Agricultural School Historic District
- Turbines With Red Lights For Aviation Safety
- Turbines Without Red Lights

Chilocco Wind Farm

Kay County, Oklahoma

Historic District and Turbine Layout

EXHIBIT 1

Map Document: P:\0000488.00\GIS\CRM\Chilocco_TurbLayoutCIASHD_140122.mxd 1/22/2014 11:45:20 AM

Christopher A. Cojeen
Principal Investigator
Cojeen Archaeological Services, LLC
cojeenarch@sbcglobal.net

Archaeology
Research
History

Report on the Class III Archeological Survey of the PNE Wind, USA Proposed Cherokee East Addition to the Chilocco Wind Farm, Kay County, Oklahoma

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DRAFT 8/9/2016

Controlling Agency: Bureau of Indian Affairs, Eastern Oklahoma Region

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Project: Cherokee East Addition to the Chilocco Wind Farm
Prepared for: PNE Wind, USA
Location: Portions of Sections 13, 24, 25, 26, and 27 T29N, R2E, Kay County, Oklahoma
USGS Newkirk, OKLA quadrangle, 7.5-minute series 1976

File Search: 6/15/2016
Survey: Christopher Cojeen, James Munkres, Meghan Dudley, David Boling, and Faisal Muhammad, 6/22-24/2016 and 7/6-10/2016
Report: Christopher Cojeen, James Munkres, and Meghan Dudley, 8/9/2016

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ABSTRACT

Between June 22-24 and July 6-10, 2016, Cojeen Archeological Services, LLC (CAS) conducted an archeological survey of a proposed PNE Wind, USA wind farm in northern Kay County, Oklahoma. The project is located on lands owned by the Cherokee Nation and administered by the Bureau of Indian Affairs, Eastern Oklahoma Region.

Files at the Oklahoma Archeological Survey (OAS) in Norman indicate no previously recorded archeological sites are located in the specific project area. Survey methodology included pedestrian transects augmented by shovel testing. Along the proposed collector lines and access roads, a 100 foot wide corridor was studied. Approximately 3.7 acres (400 feet × 400 feet) were studied for each of the 21 proposed turbine locations. Approximately 10 acres were studied for a proposed substation in Section 27 T29N R2E. Approximately 165 acres of land area were studied for this report.

One 20th-century farmstead (34KA528), one large check dam, and one prehistoric archeological site (34KA529) were documented within the study area during the course of these investigations. 34KA528 has not been assessed for its inclusion to the National Register of Historic Places (NRHP). The project has been redesigned to avoid this resource.

Neither the rock check dam nor 34KA529 are recommended as eligible for inclusion to the NRHP. The project as planned will have no effect on significant cultural resources.

PROJECT LOCATION

The proposed project is located in portions of Sections 13, 24, 25, 26, and 27 T29N R2E in northern Kay County, Oklahoma (Figure 1). The project is located adjacent to U.S. Highway 77 approximately 6.5 miles north of Newkirk, Oklahoma. The project area occupies primarily cultivated fields and partially wooded pasture intersected by Chilocco Creek and its drainages (Figure 2).

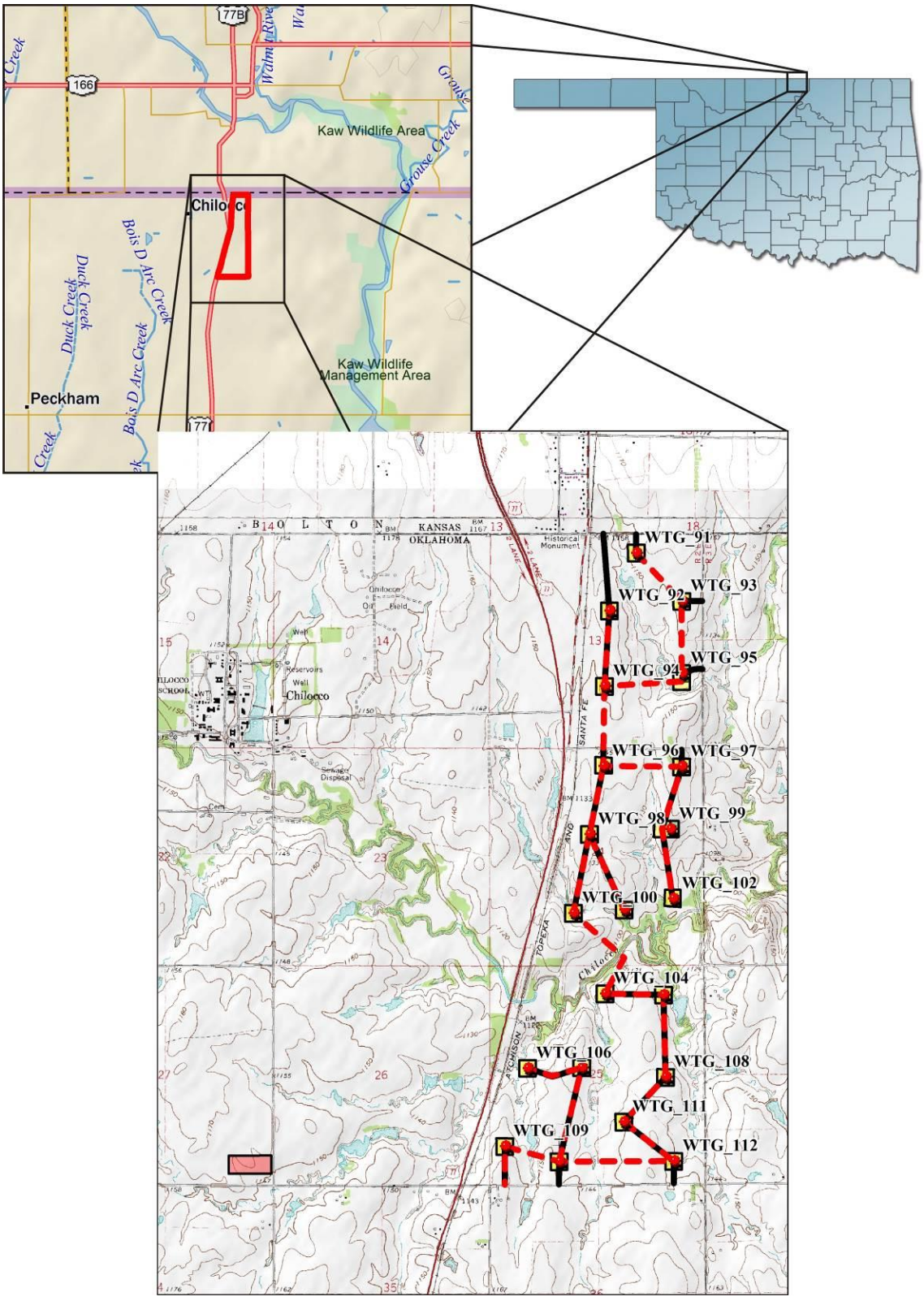

Figure 1. Project vicinity (redesigned turbine footprints in green) (USGS Newkirk, OKLA, 7.5-minute series 1976).

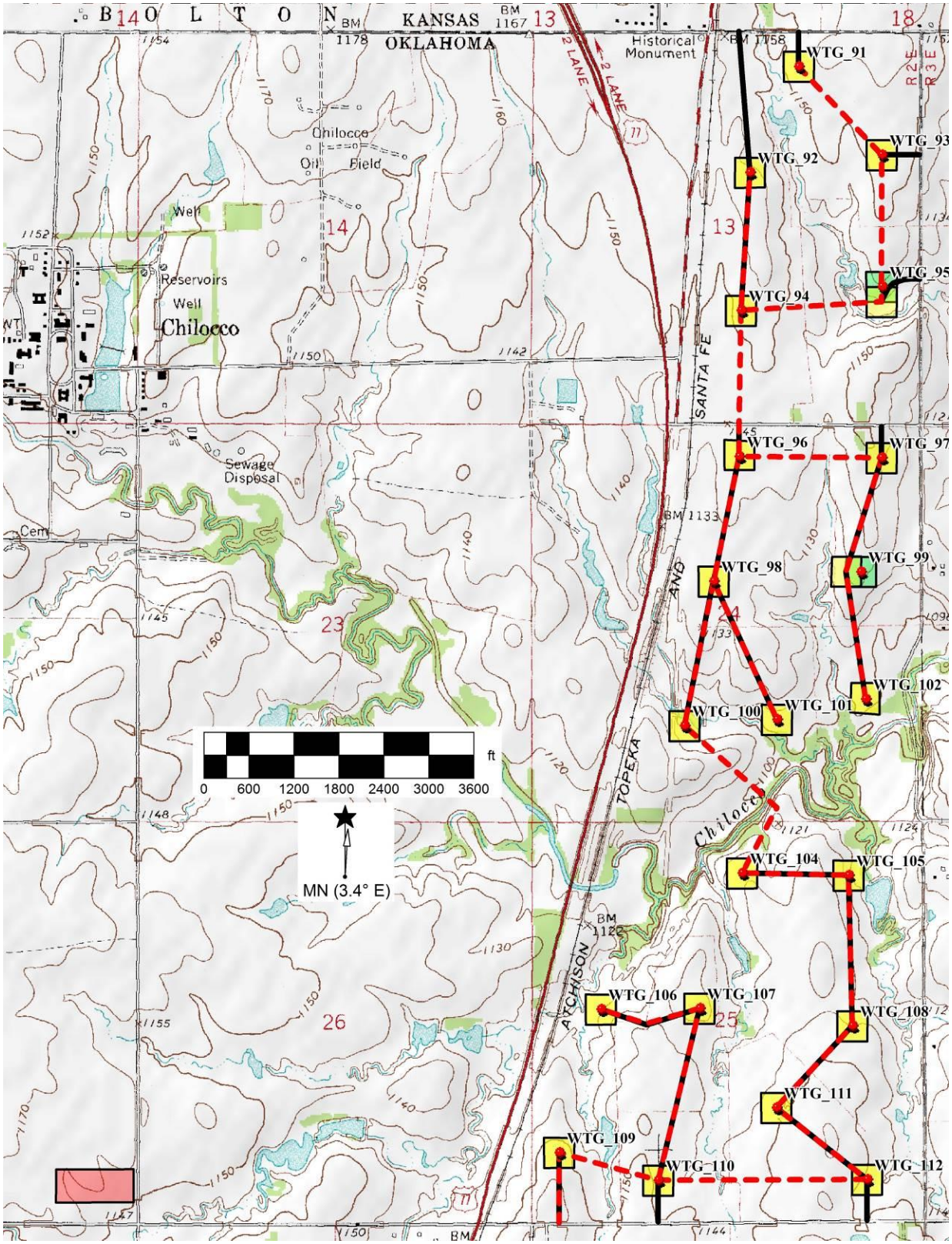

Figure 2. Project area depicting substation, turbine footprints (yellow squares), substation (red block area), collector lines (red dashed lines), and access routes (solid black lines) (redesigned turbine footprints in green).

DESCRIPTION OF PROJECT

The proposed project (Figure 2) occupies approximately 164.6 acres. There are 21 proposed turbine locations, each 400 feet by 400 feet, occupying approximately 77.1 acres (Table 1). There are approximately 7.39 miles (39,000 feet) of proposed collector line and approximately 5.18 miles (27,349 feet) of access routes. Approximately 4,994 feet (0.95 miles) of the access routes are not coterminous with the proposed collector line routes. Along the proposed collector lines and access roads, a 100 foot wide corridor was studied. Together the access and collector lines occupy approximately 77.5 acres. Approximately 10 acres were studied for a proposed substation located in Section 27 T29N R2E. The substation is located in a level cultivated field which offered 50% surface visibility. A chart of the proposed turbine locations is listed below:

WTG #	UTM (NAD83 Datum)	PLSS	Major Land Use	Visibility	Landform Type	Setting
WTG 91	14S E0674805 N4096418	NE/NW/NE Section 13 T29N R2E	Cultivated Field and Woods/Forest	50-75%	Dissected Uplands	Level
WTG 92	14S E0674616 N4095987	NW/SW/NE Section 13 T29N R2E	Cultivated Field	50-75%	Dissected Uplands	Level
WTG 93	14S E0675151 N4096069	NE/SE/NE Section 13 T29N R2E	Cultivated Field	50-75%	Dissected Uplands	Level
WTG 94	14S E0674591 N4095430	SW/NW/SE Section 13 T29N R2E	Cultivated Field	50-75%	Dissected Uplands	Level
WTG 95	14S E0675163 N4095477	SE/NE/SE Section 13 T29N R2E	Pasture, Scrub/Secondary Growth/Oil Field, and Woods/Forest	<10%	Dissected Uplands	Slope
WTG 96	14S E0674595 N4094841	NW/NW/NE Section 24 T29N R2E	Cultivated Field	50-75%	Dissected Uplands	Level
WTG 97	14S E0675176 N4094848	NE/NE/NE Section 24 T29N R2E	Pasture and Oil Field	<10%	Dissected Uplands	Slope
WTG 98	14S E0674502 N4094336	SE/SE/NW Section 24 T29N R2E	Cultivated Field	50-75%	Dissected Uplands	Level
WTG 99	14S E0675040 N4094386	NW/SE/NE Section 24 T29N R2E	Pasture	<10%	Dissected Uplands	Slope
WTG 100	14S E0674395 N4093751	NE/SE/SW Section 24 T29N R2E	Pasture and Woods/Forest	<10%	Dissected Uplands	Level
WTG 101	14S E0674771 N4093784	SE/NE/SE Section 24 T29N R2E	Cultivated Field and Woods/Forest	25-50%	Dissected Uplands	Level
WTG 102	14S E0675131	SW/NE/SE Section 24	Pasture and Woods/Forest	<10%	Dissected Uplands	Level

	N4093874	T29N R2E				
WTG 104	14S E0674642 N4093162	NW/NW/NE Section 25 T29N R2E	Pasture and Woods/Forest	<10%	Dissected Uplands	Slope
WTG 105	14S E0675076 N4093162	SW/NE/NE Section 25 T29N R2E	Pasture and Woods/Forest	<10%	Dissected Uplands	Slope
WTG 106	14S E0674078 N4092601	SE/SW/NW Section 25 T29N R2E	Pasture, Scrub/Secondary Growth, and Woods/Forest	<10%	Dissected Uplands	Level
WTG 107	14S E0674480 N4092613	SE/SE/NW Section 25 T29N R2E	Cultivated Field and Woods/Forest	10-25%	Dissected Uplands	Level
WTG 108	14S E0675104 N4092555	NW/NE/SE Section 25 T29N R2E	Cultivated Field and Pasture	25-50%	Dissected Uplands	Level
WTG 109	14S E0673920 N4092020	NW/SW/SW Section 25 T29N R2E	Cultivated Field	50-75%	Dissected Uplands	Level
WTG 110	14S E0674326 N4091916	SW/SE/SW Section 25 T29N R2E	Cultivated Field	50-75%	Dissected Uplands	Level
WTG 111	14S E0674801 N4092219	SE/NW/SE Section 25 T29N R2E	Cultivated Field	50-75%	Dissected Uplands	Level
WTG 112	14S E0675177 N4091937	SW/SE/SE Section 25 T29N R2E	Cultivated Field and Pasture	10-25%	Dissected Uplands	Level

Table 1. Turbine location descriptions.

Of the 21 proposed turbine locations, four (WTG 95, WTG 97, WTG 99, and WTG 100) require a more thorough description beyond that provided in Table 1 due to the presence of significant ground disturbance or observed cultural resource localities in their vicinity.

WTG 95

The footprint for WTG 95 (Figures 3-6), along with the other 20 proposed turbine locations, is 400 feet by 400 feet (3.67 acres) in size. The center point of WTG 95 is located at 14S E0675163 N4095477 in the SE/NE/SE Section 13 T29N R2E. WTG 95 is located on a gentle (~5°) south-facing slope on mixed grass dissected upland pasture overlooking an unnamed intermittent stream that drains into Chilocco Creek to the south. Approximately 25 percent of the footprint of the proposed turbine location (3.67 acres) is occupied by a well pad (0.88 acres) in the north half of the footprint. The well, presently operated by Musgrove Energy, Inc. (Operator No. 22252), is Cherokee Lease 3 and is located at 14S E0675146 N4095495. 34KA528, an historic farmstead or other agricultural facility, occupies the northeast corner of the footprint (see page 38). Access Route 4 accesses the location from a county line road (La Cann Road) to the east. A proposed collector line route enters the footprint from WTG 94 approximately 1,900 feet to the west and exits the footprint heading to WTG 93 approximately 1,900 feet to the north. Overall visibility is less than 10 percent.

Figure 3. Center stake for the proposed turbine location at WTG 95 facing south.

Figure 4. Cherokee Lease 3 well, located on the footprint for proposed turbine WTG 95, facing southwest.

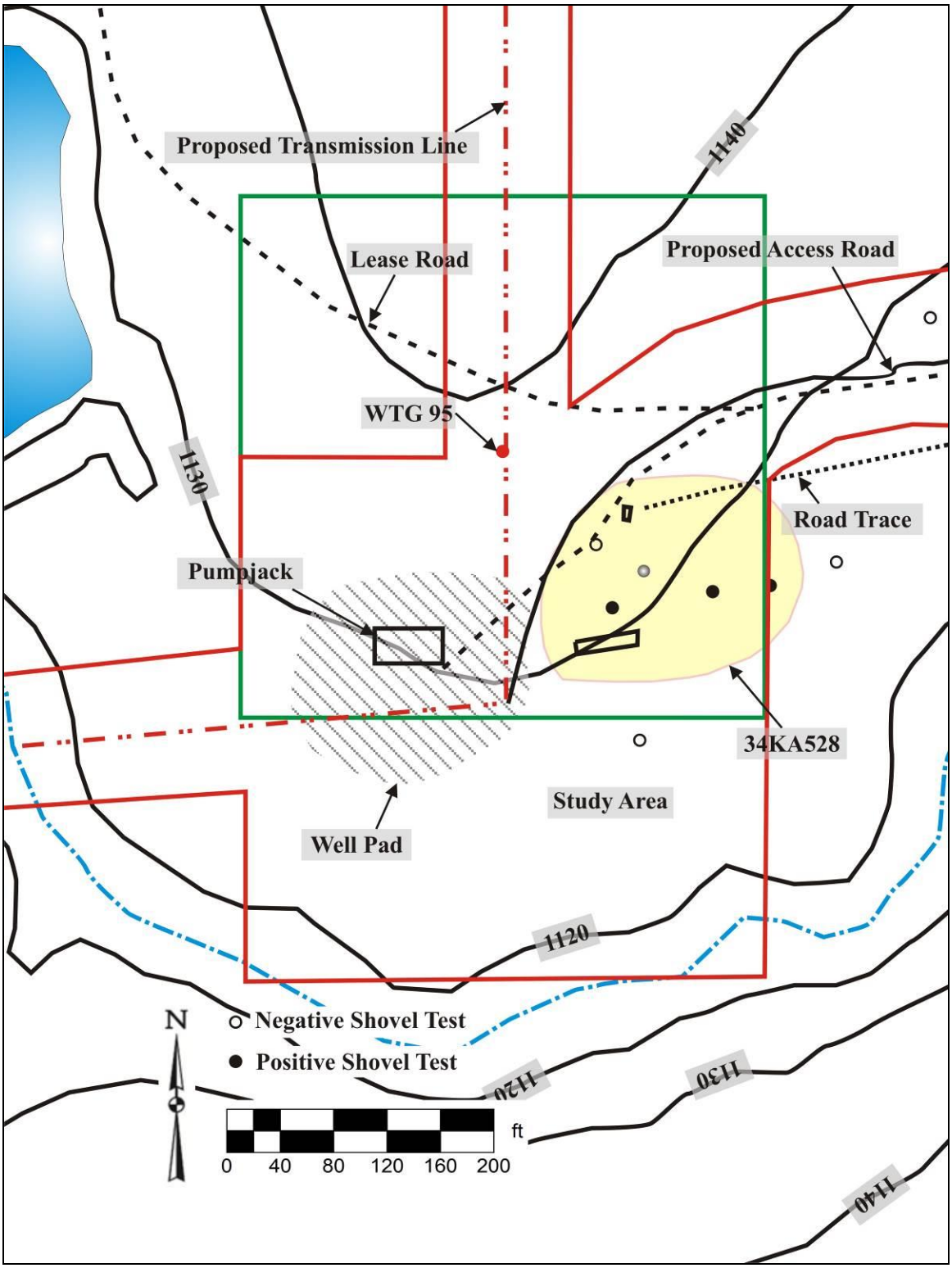

Figure 5. Sketch map of the turbine location at WTG 95 (redesigned turbine footprint in green).

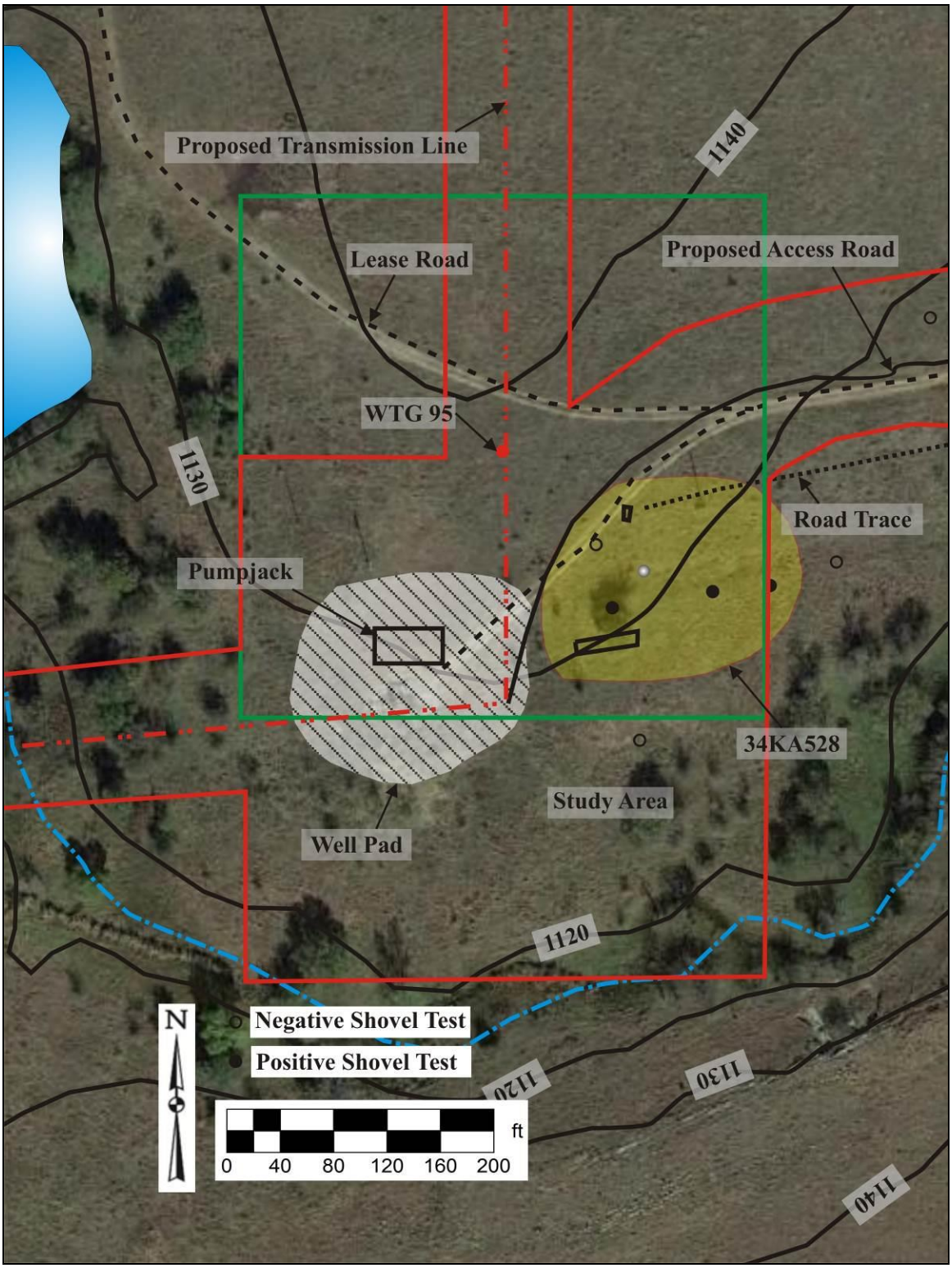

Figure 6. Aerial photograph of WTG 95 (redesigned turbine footprint in green).

WTG 97 (the in-use pumpjack is not considered a cultural resource).

The footprint for WTG 97 (Figures 7-10), along with the other 20 proposed turbine locations, is 400 feet by 400 feet (3.67 acres) in size. The center point of WTG 97 is located at 14S E0675176 N4094848 in the NE/NE/NE Section 24 T29N R2E. WTG 95 is located on a level (~0°) mixed grass dissected upland pasture. Approximately 12 percent of the footprint of the proposed turbine location (3.67 acres) is occupied by a well pad (0.43 acres) in the northeastern corner of the footprint. The well, presently operated by Musgrove Energy, Inc. (Operator No. 22252), is Cherokee B No. 1 and is located at 14S E0675236 N4094887. Access Route 5 accesses the location from a county line road (Juno Road) to the north. A proposed collector line route enters the footprint from WTG 99 approximately 1,600 feet to the south-southwest and exits the footprint heading to WTG 96 approximately 1,900 feet to the west. Overall visibility is less than 10 percent.

Figure 7. Center stake for the proposed turbine location at WTG 97 facing south.

Figure 8. Cherokee B No. 1 well, located in the northeast corner of the footprint for proposed turbine WTG 97, facing southwest.

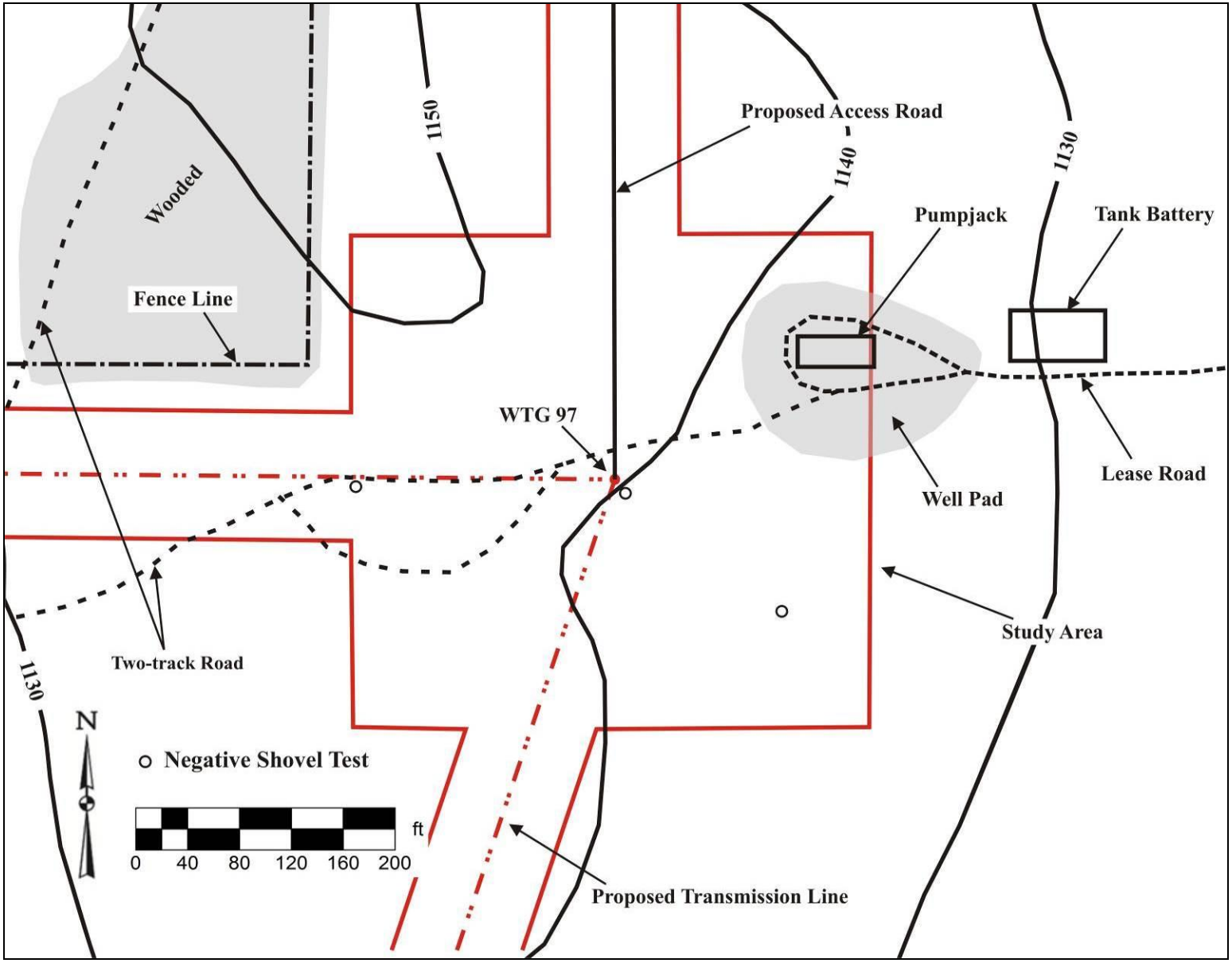

Figure 9. Sketch map of the turbine location at WTG 97.

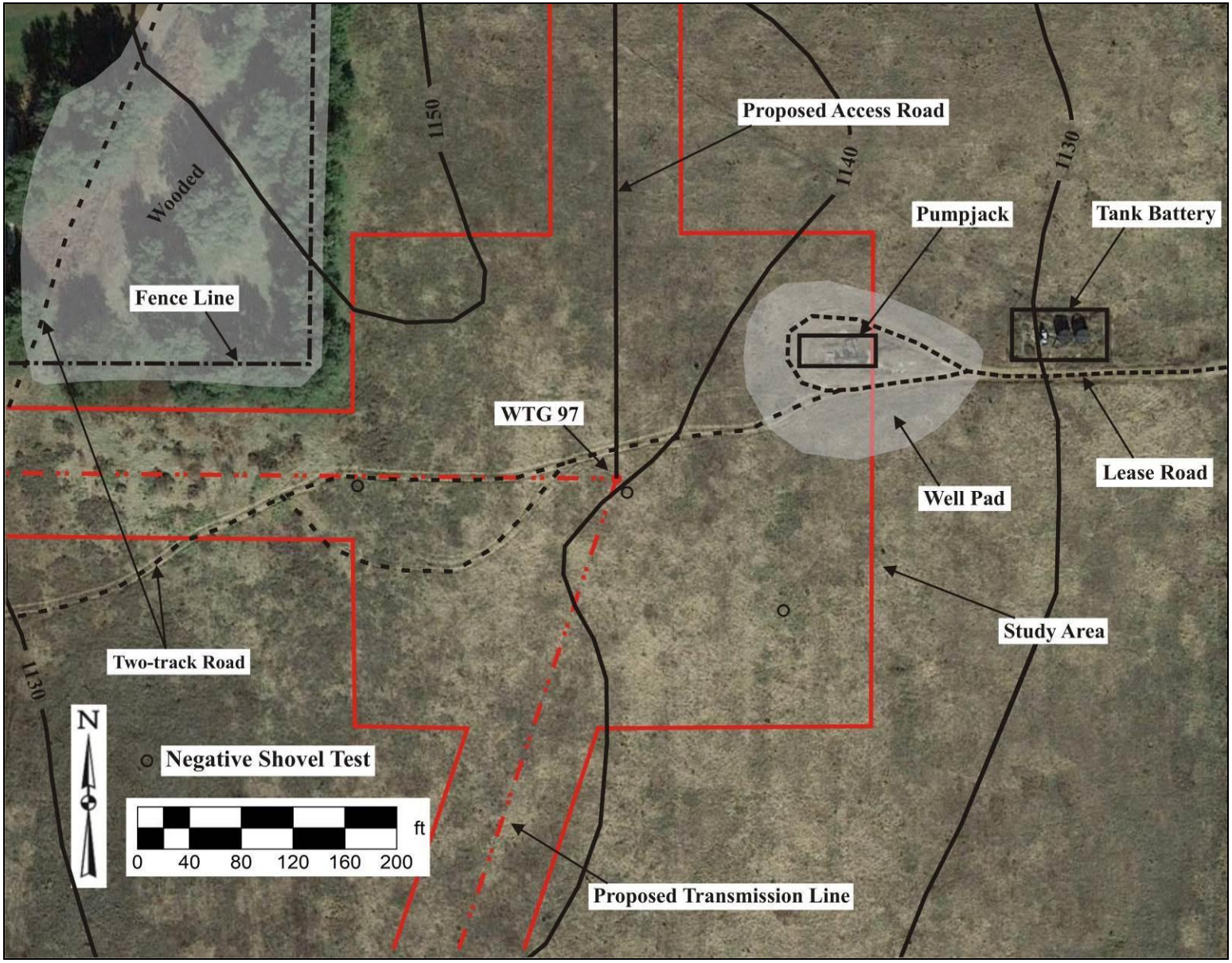

Figure 10. Aerial photograph of WTG 97.

WTG 99

The footprint for WTG 99 (Figure 11-14), along with the other 20 proposed turbine locations, is 400 feet by 400 feet (3.67 acres) in size. The center point of WTG 99 is located at 14S E0675040 N4094386 in the NW/SE/NE Section 24 T29N R2E. WTG 99 is located on a gentle (~5°) west-facing slope on mixed grass dissected upland pasture overlooking an unnamed intermittent stream approximately 300 feet to the west that drains into Chilocco Creek approximately 2,250 feet to the south. A large rock check dam (a 20th-century rainwater management structure) is located northwest of the footprint. IO 1 (two lithic flakes) was also observed (Appendix B). A proposed collector line route enters the footprint from WTG 97 approximately 1,575 feet to the north-northeast and exits the footprint heading to WTG 102 approximately 1,700 feet to the south-southeast. Overall visibility is less than 10 percent.

Figure 11. Center stake for the proposed turbine location at WTG 99 facing south (IO 1 is located in the foreground of the photograph).

Figure 12. The rock check dam facing northwest (the northwestern corner stake of WTG 99 is obscured but located in the left-hand portion of the photograph).

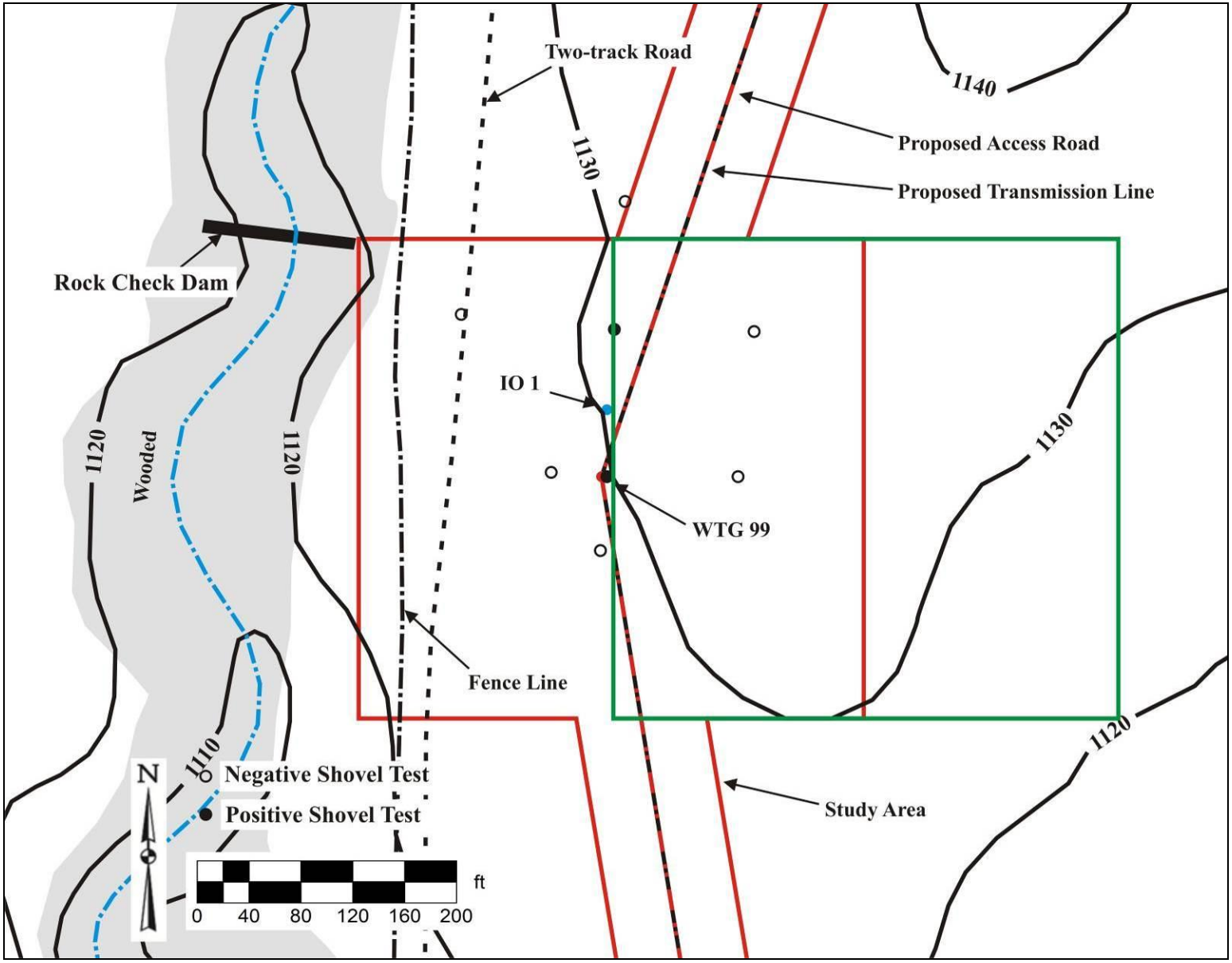

Figure 13. Sketch map of the turbine location at WTG 99 (redesigned turbine footprint in green).

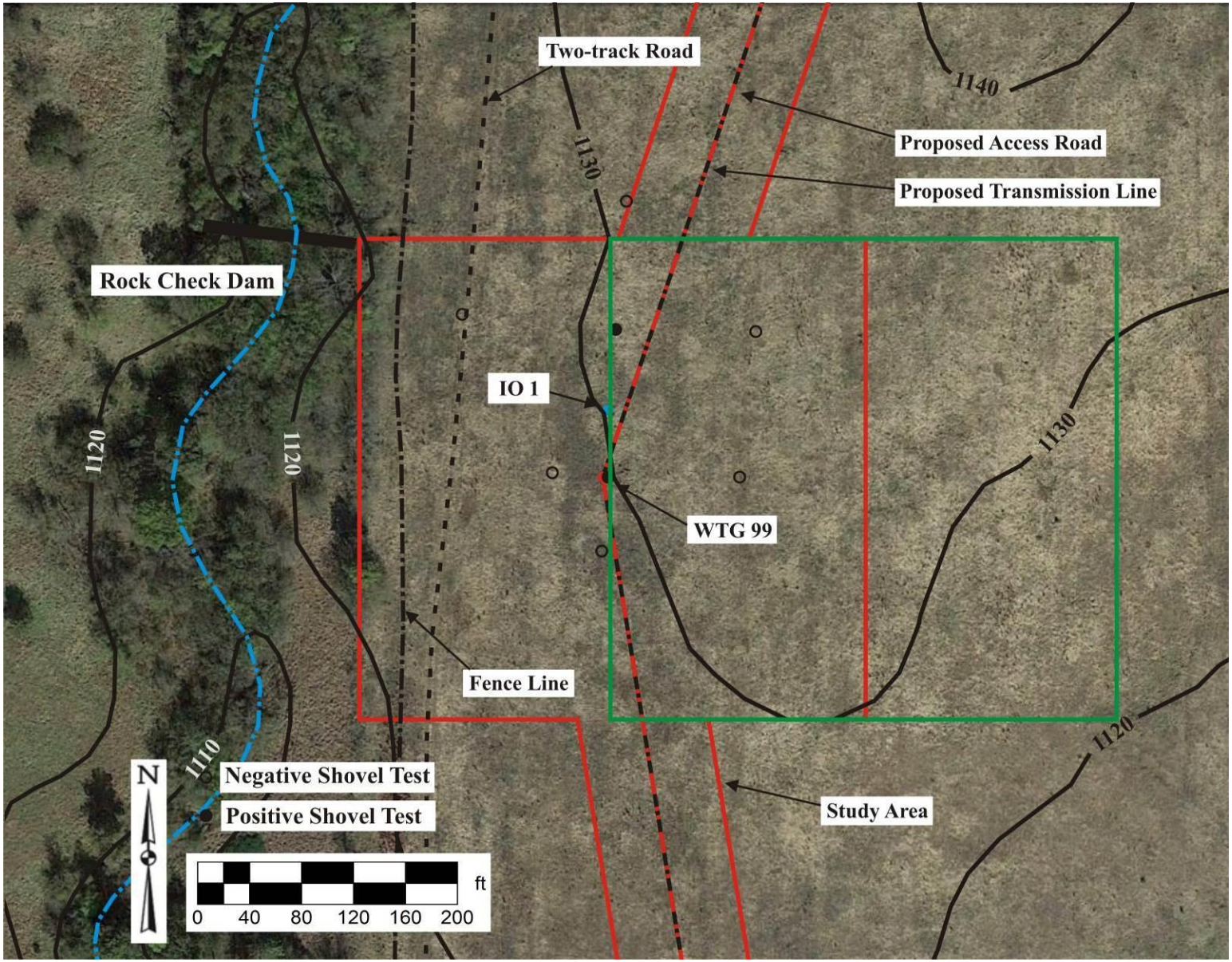

Figure 14. Aerial photograph of WTG 99 (redesigned turbine footprint in green).

WTG 100

The footprint for WTG 100 (Figures 15-18), along with the other 20 proposed turbine locations, is 400 feet by 400 feet (3.67 acres) in size. The center point of WTG 100 is located at 14S E0674395 N4093751 in the NE/SE/SW Section 24 T29N R2E. WTG 100 is located on a level (~5°) mixed grass dissected upland pasture bisected by a narrow, broad unnamed intermittent stream that drains into Chilocco Creek to the southeast. Approximately 21 percent (0.78 acres of 3.67 acres) of the footprint of the proposed turbine location is occupied by the original alignment of the Atchison, Topeka and Santa Fe Railroad right-of-way in the western half of the western half of the footprint. A proposed collector line route enters the footprint from WTG 98 approximately 1,950 feet to the north and exits the footprint heading to an intersection with Chilocco Creek approximately 1,450 feet to the southeast. Overall visibility is less than 10 percent.

Figure 15. Center stake for the proposed turbine location at WTG 100 facing northeast.

Figure 16. Original alignment of the Atchison, Topeka and Santa Fe Railway right-of-way to the west of WTG 100 facing north.

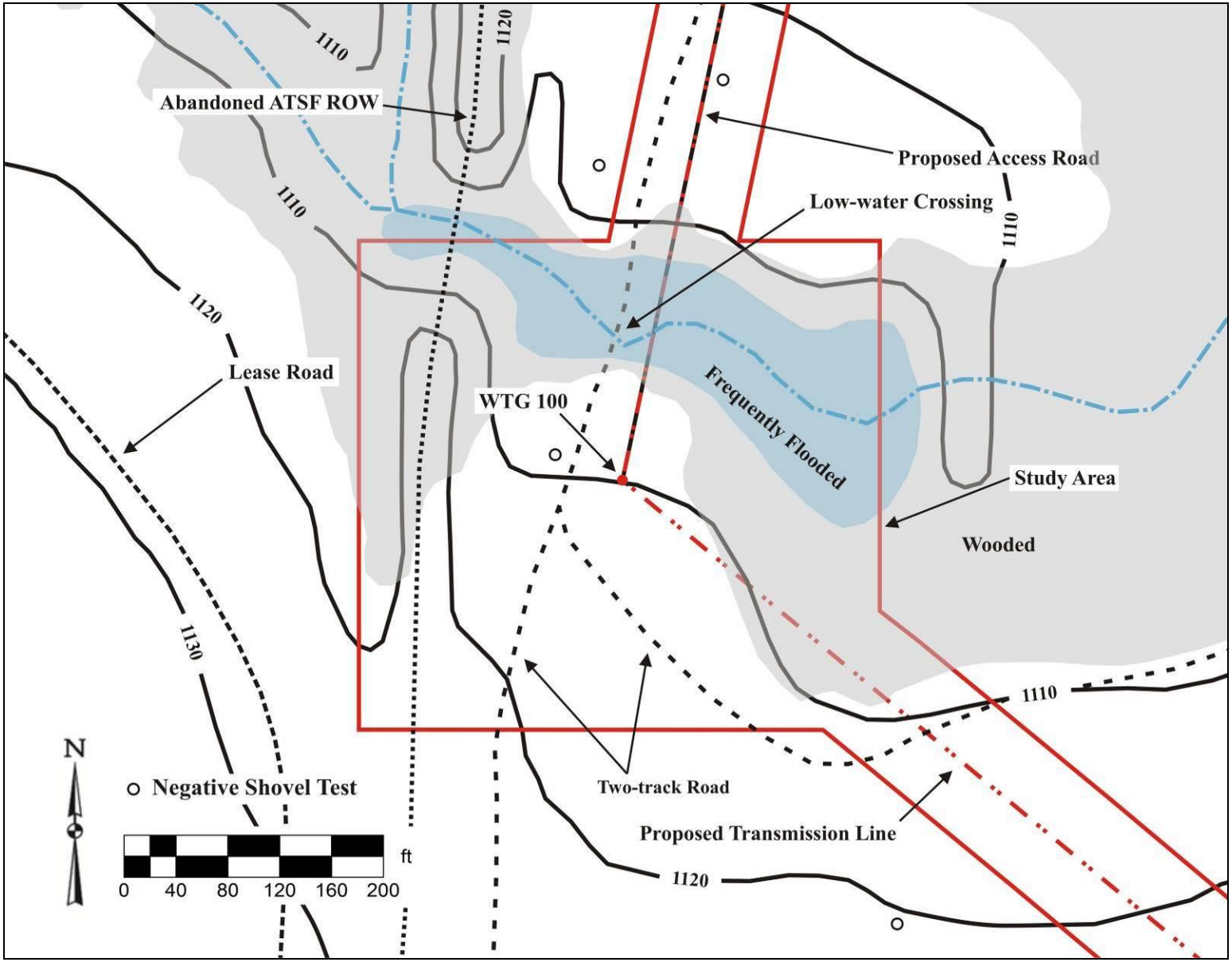

Figure 17. Sketch map of the turbine location at WTG 100.

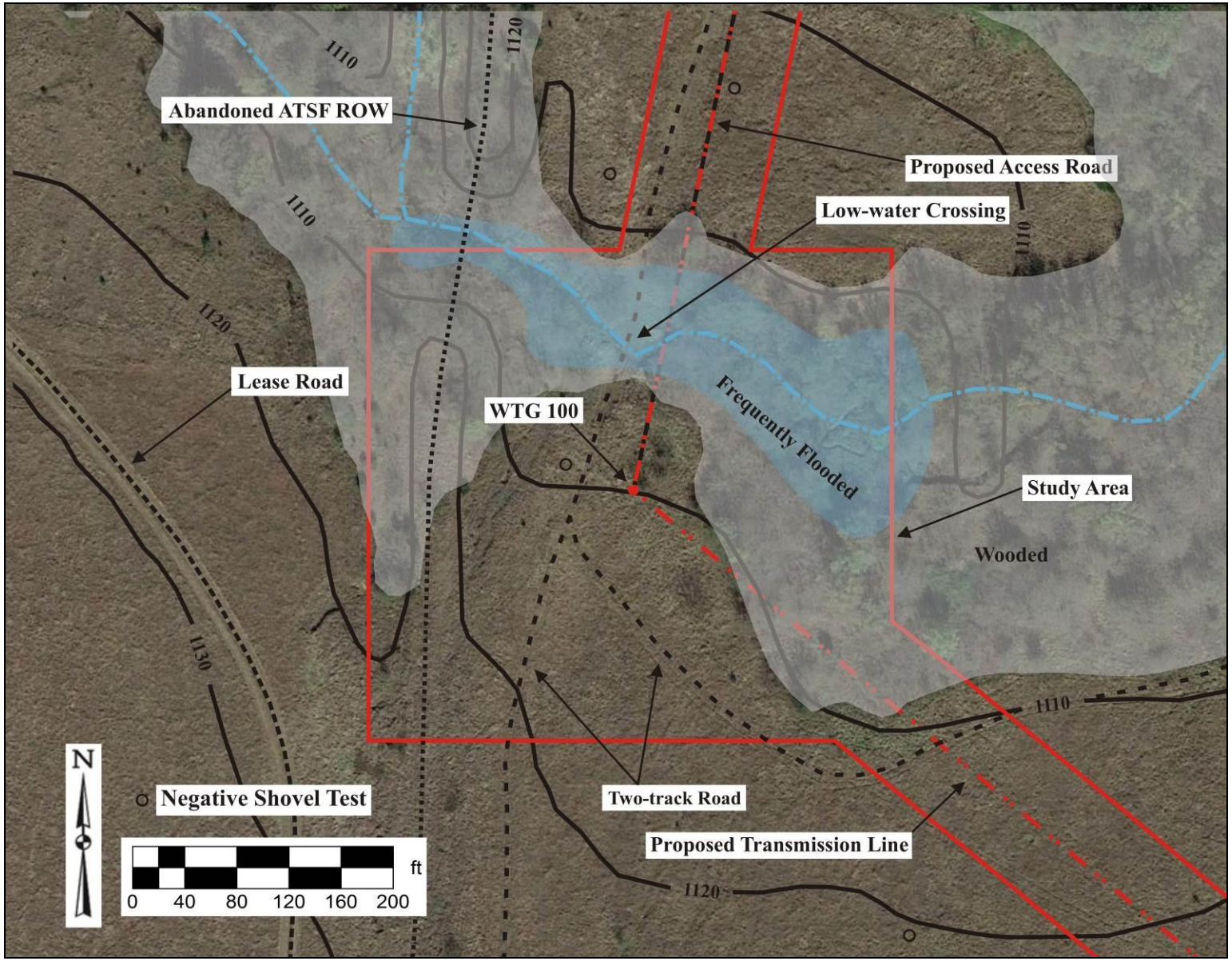

Figure 18. Aerial photograph of WTG 100.

ENVIRONMENTAL SETTING

The project is located within the Central Red-Bed Plains Geomorphic Province, an area generally described as "Permian red shales and sandstones [that] form gently rolling hills and broad, flat plains" (Curtis Jr., Ham and Johnson 2008). The project lies within the Tall Grass Prairie Vegetation Region described as "little bluestem, big bluestem, Indiangrass and switchgrass" and the dominant plant species include the "lead plant, Indian plantain, prairie clover, heath aster, small panic grass, pallid coneflower, ashy sunflower and Missouri goldenrod" (Hoagland 2008). The mean annual temperature in Kay County is 58° F, with mean seasonal temperatures as high as 80° F to a low of 36° F. Average precipitation in the county is 36-40 inches annually (Johnson 2008).

Habitat types in the project area include prairie habitat, edge-habitat associated with agricultural production and riparian bottomlands. Historically, the major grazing animals in the area were bison and pronghorn. Major predators were the wolf, coyote, bobcat and kit fox. Woodlands along streams supported wapiti, deer, and cottontail. Additionally, there were many burrowing animals (prairie dogs, pocket mice, kangaroo rats, etc.) and their predators (badger, black-footed ferret, etc.). The active hydrology and typography of the region support a wide variety of faunal resources. A more complete list is provided by Albert and Wyckoff (1984).

Soils in the project area are derived mostly from Quaternary and Recent fluvial deposits deposited along terraces of active streams and their tributaries, and local Permian bedrock material. Major soil mapping units along uplands overlooking Chilocco Creek and associate tributaries in the study area include Bethany silt loam (0-1% slopes), Kirkland silt loam (1-3% slopes), Agra-Foraker complex soils (1-3% and 3-5% slopes) and Milan loam (1-3% slopes). These soils are convex to linear, well drained soils derived from silty to clayey alluvium or residuum weathered from sedimentary rock or shale (Natural Resources Conservation Service [NRCS] 2016).

Soils adjacent Chilocco Creek and its tributaries consist of Grainola-Ashport complex (0-12% slopes), convex, well drained back- and side-slope soils parented from calcareous clayey residuum weathered from shale, and Ashport, Port and Pulaski soils (0-1% slopes, frequently flooded), linear soils derived from loamy alluvium (NRCS 2016).

PRE-FIELD RECORDS CHECK/REVIEW OF PREVIOUS RESEARCH

CAS visited the offices of the Oklahoma Archeological Survey (OAS) in Norman, Oklahoma to examine maps and files pertaining to the project area in an effort to identify previously recorded cultural resources within or near the project area. **OAS files indicate that no known archeological sites are located within the specific area of this project.**

According to the most recent listings, no properties listed on the NRHP are in the specific study area of this project. Additionally, no structures determined eligible by the Oklahoma State Historic Preservation Office (SHPO) but not listed on the NRHP are indicated within the project area (Determinations of Eligibility list, Oklahoma SHPO, 2016).

The main building complex for the Chilocco Indian Agricultural School (NPS #: 06000792), entered in the National Register on September 8, 2006, is located approximately 1.7 miles to the west of the project area. The district's boundary extends to US Highway 77 and includes the road leading to the highway and the school's main entrance. The entrance is approximately 900 feet west of the nearest proposed activities and will not be affected.

On behalf of PNE Wind, USA Westwood Professional Services conducted a survey of portions of Sections 13-17, 20-23, and 26-29 T29N R2E for the proposed Chilocco Wind Farm Project August 7-14, 2013 (Grohnke and Martinez 2013). The proposed activities included approximately 28 miles of access roads, 39 miles of collector cable runs, 29 miles of crane paths, 90 turbine locations and a substation location. In their report on the survey, dated September 12, 2013 and submitted to the U.S. Bureau of Indian Affairs, Southern Plains Region, they reported documenting three previously-identified prehistoric lithic scatters. All were avoided by design and a finding of *no historic properties affected* was recommended.

The 1872 General Land Office (GLO) plat maps for Sections 13, 24, 25, 26, and 27 T29N R2E (Figure 19) were examined. These maps show no structures, cultivated fields, fence lines, or roads in the project area.

The 1907 GLO plat map for Sections 13, 24, 25, 26, and 27 T29N R2E (Figure 20) was also examined. This map shows the original alignment for the Atchison, Topeka and Santa Fe Railway (ATSF) with a siding running north-south through the center of Sections 13 and 24 T29N R2E, southwest in the western half of Section 25 T29N R2E and through the southeastern quarter of Section 26 T29N R2E. An ATSF station, and an associated roadway, appears in the NE/SW Section 13 T29N R2E. A bridge carrying the old alignment also appears in the northeastern quarter of the northwestern quarter of Section 25 T29N R2E. The alignment is lined on both sides by a fence line. A quarry also appears in the northern portion of Section 25 T29N R2E. A short length of the road that runs along the eastern section line road of Section 24 T29N R2E appears in the eastern half of the southeastern quarter of Section 24 T29N R2E. A roadway bridge carrying the section line road that runs along the eastern section line road of Section 24 T29N R2E also appears in the southeastern quarter of the southeastern quarter of Section 24 T29N R2E. Project activities are located in the vicinity of a 200-foot-long section of the original ATSF alignment at the proposed turbine location at WTG 100 in the northeastern quarter of the southwestern quarter of Section 24 T29N R2E.

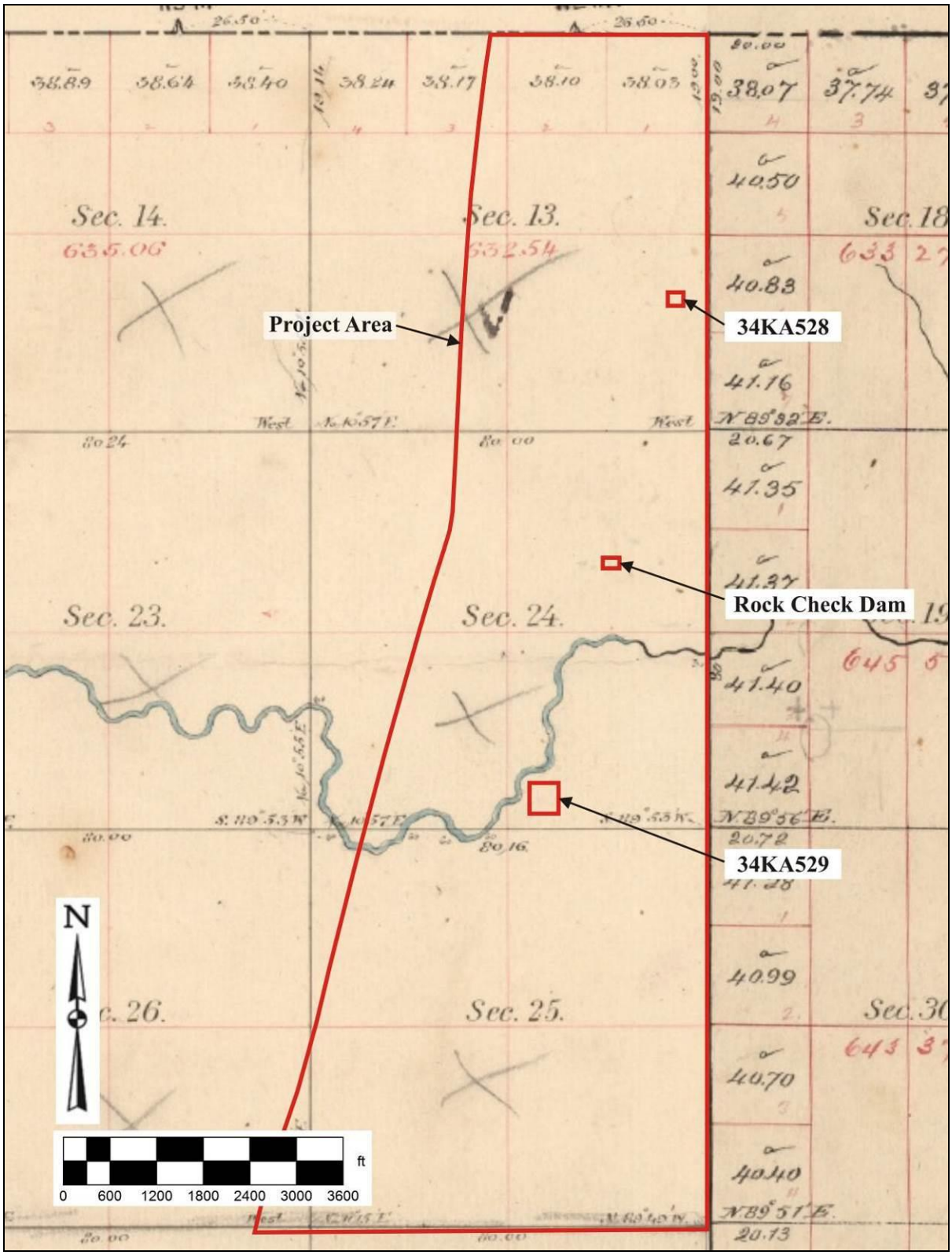

Figure 19. Detail of 1872 GLO plat maps of Sections 13, 24, 25, and 26 T29N R2E showing the study area and observed localities.

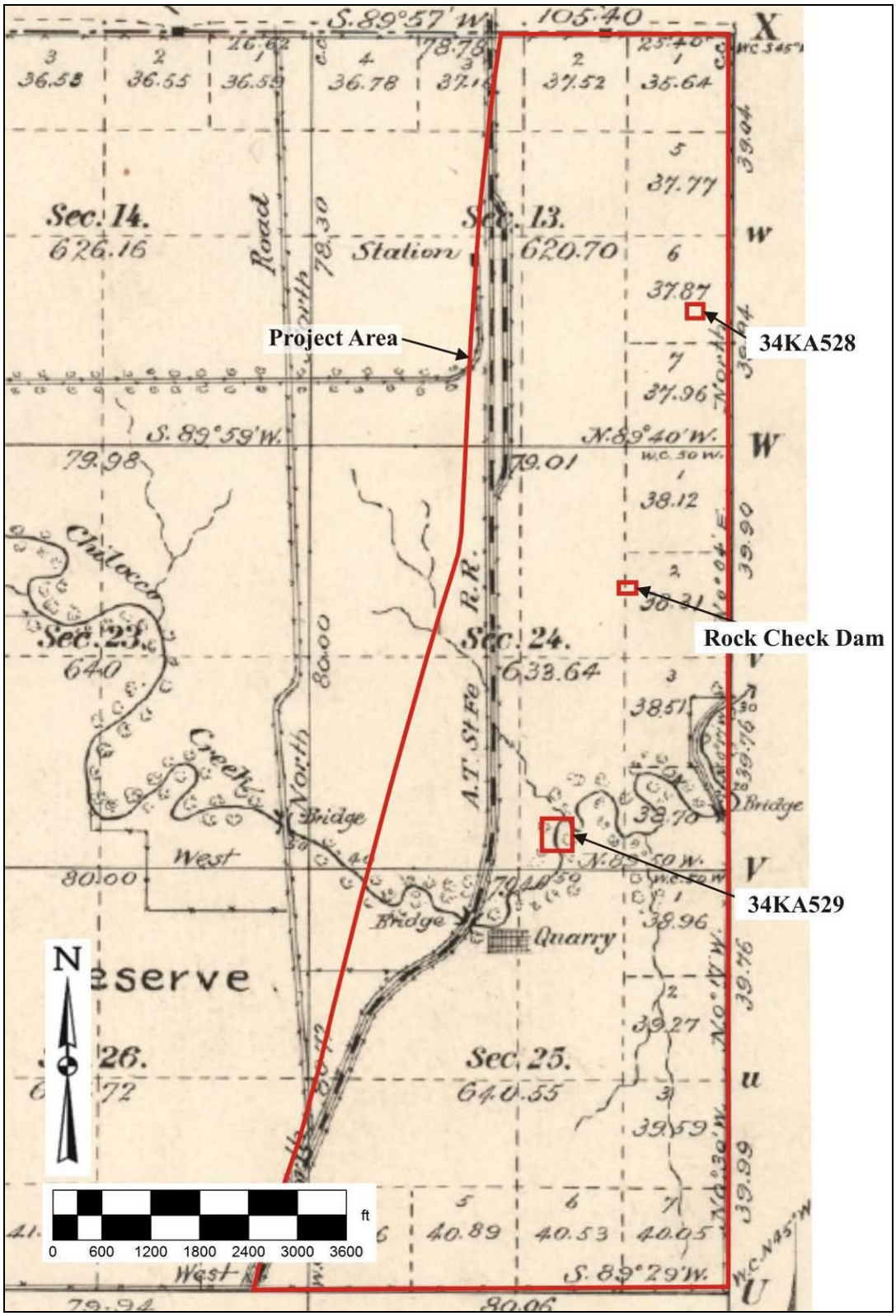

Figure 20. Detail of 1907 GLO plat map of Sections 13, 24, 25, and 26 T29N R2E showing the study area and observed localities.

Aerial photographs were also examined. An image taken in 1938 (Figure 21) shows several large cultivated fields, impoundments, and light-duty roads throughout Sections 13, 24, 25, 26, and 27 T29N R2E; two farmsteads in Section 13 T29N R2E; one farmstead in Section 24 T29N R2E; and three farmsteads in Section 25 T29N R2E. The image also shows that the ATSF alignment has been changed. The ATSF station appears in the northeastern quarter of the southwestern quarter of Section 13 T29N R2E and bridges carrying the new ATSF route appear in the western half of Section 24 T29N R2E. The remnants of the original alignment appear in the western half of Section 24 T29N R2E as well and the two bridges carrying the original alignment have been removed. Finally, the bridge in the southeastern quarter of the southeastern quarter of Section 24 T29N R2E carrying the eastern section line road of Section 24 T29N R2E is apparent. Project activities are located in the vicinity of a 200-foot-long section of the original ATSF alignment at the proposed turbine location at WTG 100 in the northeastern quarter of the southwestern quarter of Section 24 T29N R2E. The S ½ of the SE/SE of Section 27, T29N R2E (the location of the proposed substation) appears to be in pasture with no apparent structures or improvements.

An image taken in 1954 (Figure 22) shows that the objects and features indicated on the 1938 aerial photograph remain visible. The cultivated fields in the northeastern quarter of the northeastern quarter of Section 13 T29N R2E and in the eastern half of Section 24 T29N R2E appear to have been contour-terraced. An object, most likely a tree, appears in the vicinity of 34KA528.

An image taken in 1966 (Figure 23) shows that the objects and features indicated on the 1938 aerial photograph remain visible.

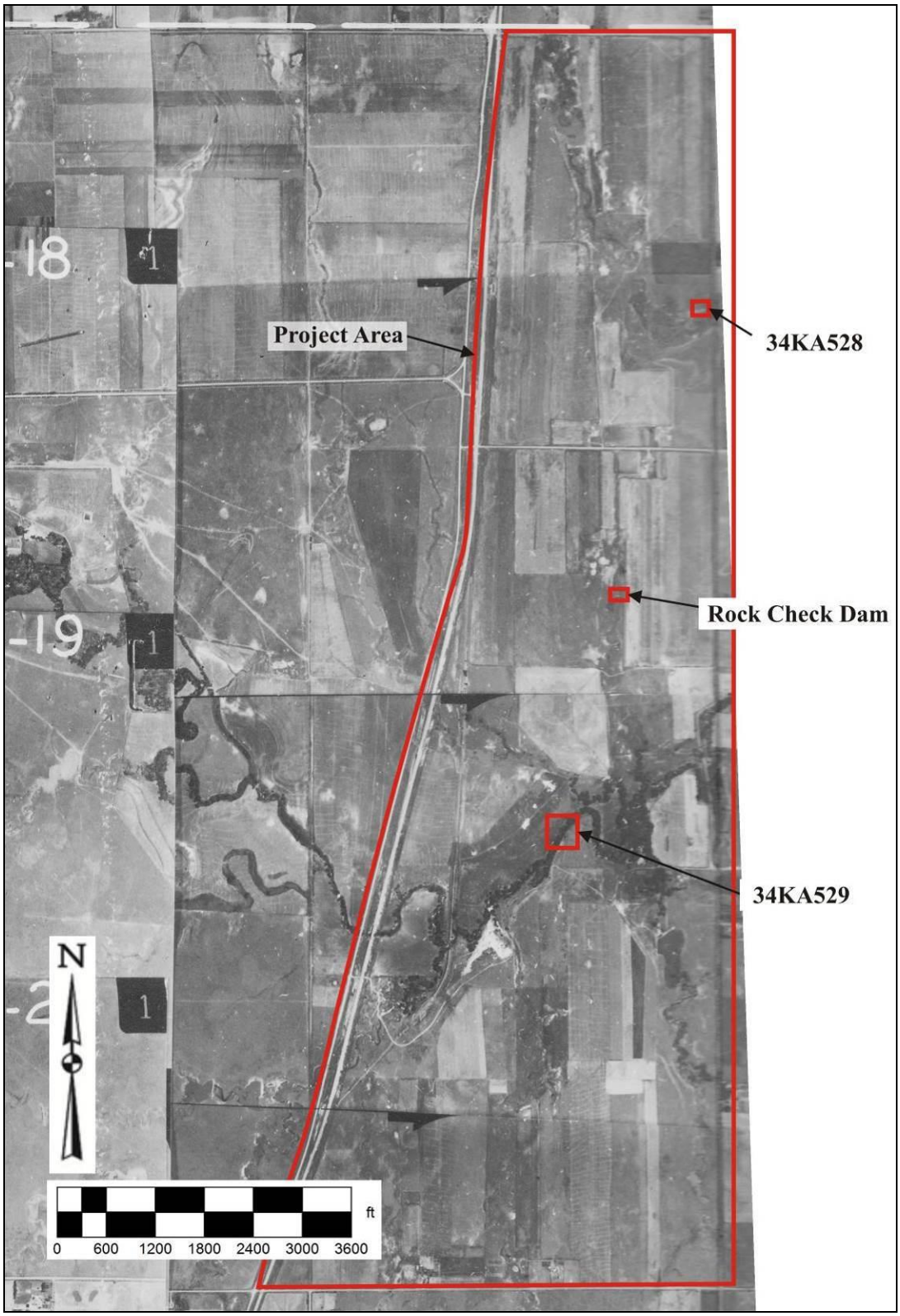

Figure 21. Detail of 1938 aerial photograph maps showing the study area and observed localities.

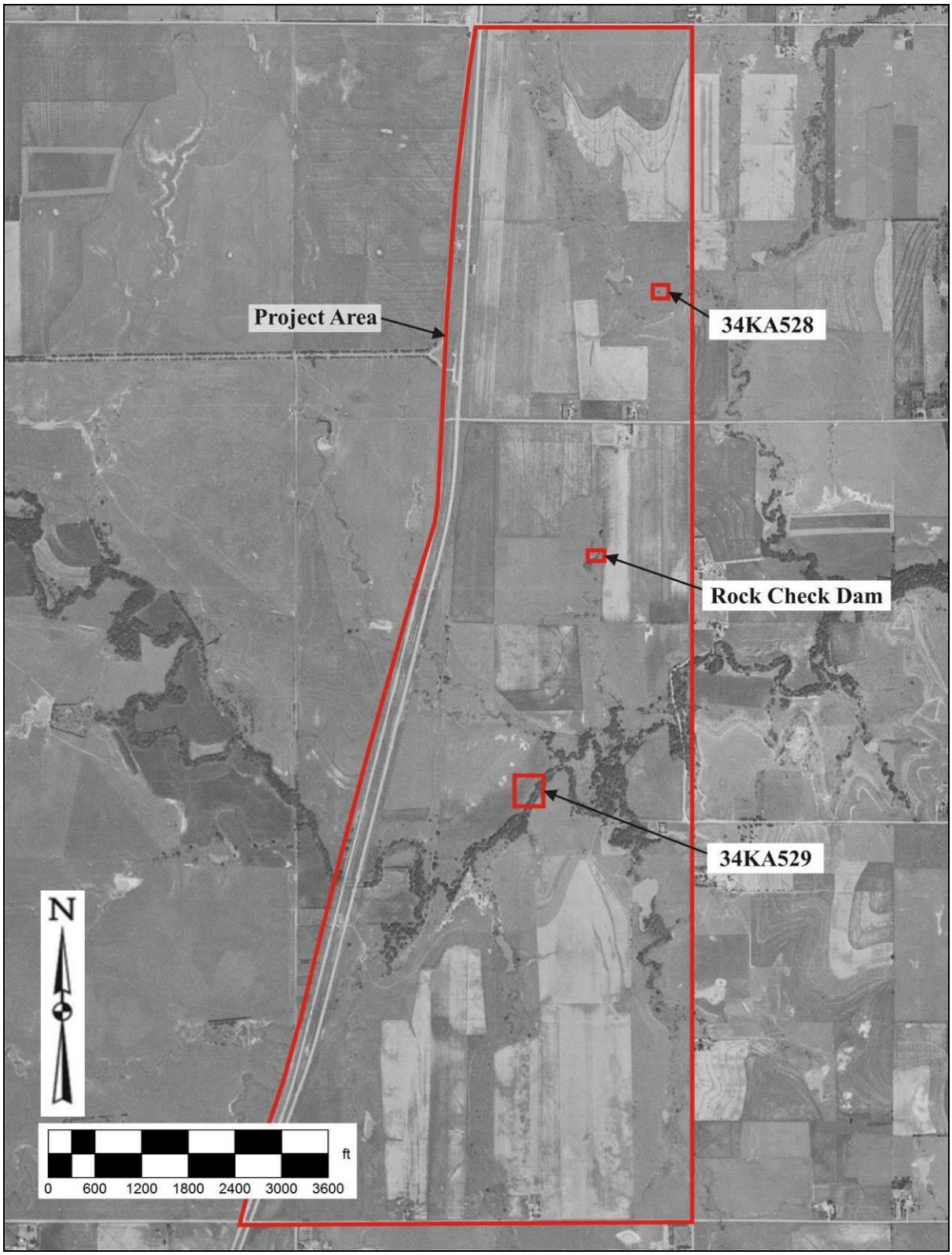

Figure 22. Detail of 1954 aerial photograph maps showing the study area and observed localities.

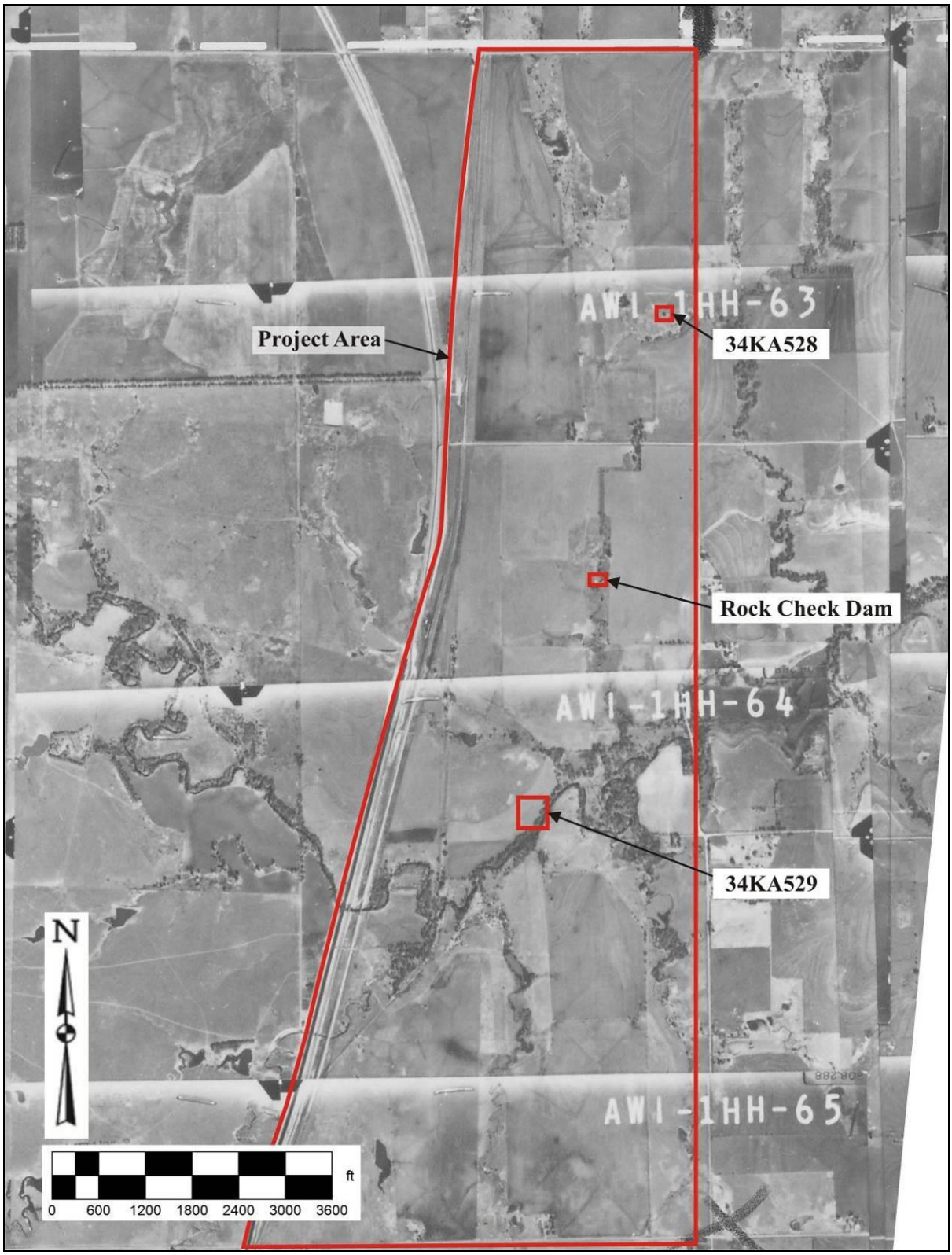

Figure 23. Detail of 1966 aerial photograph maps showing the study area and observed localities.

Cultural Setting

The majority of archeological research in Kay County in the 1960's through 2000 focused on reservoir and recreation facilities construction, thematic surveys along major drainages, and road construction. These studies mainly documented prehistoric components found along waterways and adjacent lowlands and include Kaw Reservoir, as well as Shidler Reservoir (proposed), Bluestem, and Keystone Reservoir in adjacent Osage County. Detailed summaries of these projects can be found in Hofman et. al (1989). From the late 1990's to the present, increased oil and gas development on tribal lands under Section 106 review have greatly increased studies beyond lowland and fluvial environments.

The initial colonization of North and South America has been categorized as Paleoindian, or "old Indian". In the Southern Plains this period is classically characterized by nomadic bands of hunters using lanceolate points to hunt various species of megafauna and other smaller game. The earliest generally accepted culture is the Clovis or Llano complex that is dated between 12,000-11,000 B.P. The Clovis complex is followed by the Folsom complex and then succeeded around 10,000 B.P. by what many researchers refer to as Late Paleoindian complexes. Paleoindian sites are uncommon, with only a few isolated or surface finds of diagnostic artifacts reported, mostly along the Arkansas River at Kaw Reservoir and below the dam at Keystone Reservoir (Bell 1977, George 1978, Johnson 1989) and the report of an isolated Clovis-like point near Hominy (Hofman 1971).

The Paleoindian period is followed by the Archaic Period and subsequently divided into the Early Archaic (8000-5000 B.P.), Middle Archaic (5000-3000 B.P.), and Late Archaic (3000-2000 B.P.). Based on geoarcheological investigations along the Walnut River in adjacent southern Kansas, the archeological record for much of the Archaic period is deeply buried, possibly several meters in depth, in alluvial deposits (Mandel 1995). An Early Archaic component in adjacent Kansas, the Stigenwalt site (14LT351) dates from 6190 to 7913 B.C. and contains burned rock features and a variety of lithic tools and debris and includes lanceolate, basally notched, side-notched, and corner-notched dart points in addition to grinding basins and manos, drills, knives, flake scrapers, hammerstones, bone awls, and bird bone beads (Thies 1990).

The only identified Middle Archaic component known from the area is from the Calf Creek horizon (Duncan 1995). The Calf Creek groups in north central Oklahoma appear to have relied heavily on Florence-A chert for use in manufacturing their chipped stone tools. Calf Creek points have been found at several sites in the Kaw Lake area. George (1985) reports on nineteen sites in the Kaw Lake area containing Calf Creek components. Splawn and Wyckoff (1995) report on an additional three sites in the Kaw Lake area with Calf Creek components and Sullivan (1995) reports on three additional Calf Creek bearing sites in the Kaw Lake area. Excavations at the Kubik site (34KA354) revealed hearths, a burned rock oven, bison and deer bone, Calf Creek points, and chipped stone debris (Neal and Drass 1998, Neal and Benefield 2001). This site has been radiocarbon dated (calibrated ages) to about 3660 to 3975 B.C., corrected.

Late Archaic sites in the region include temporary open camps situated on stream or river terraces and have been reported along the Arkansas River (Kaw Lake) area and Salt Creek

drainage (Vehik 1985), and as a minor constituent in other parts of the county. These sites tend to be located on sandy ridges overlooking streams (Moore 1988, Steinacher 1986) and have corner-notched, weakly barbed dart points (Marcos or Ellis, Palmillas or Williams, and Ensor) and contracting stem darts, primarily Gary points. One site along Salt Creek, 34OS245, has been tested and dated to about 160-430 B.C. (Buehler 1985). This site has small pits and burned rock features with contracting stem dart points and ground stone.

Vehik (1984) notes the transition from Late Archaic to Woodland is based on a change in food storage technology (pottery) and weaponry (bow and arrow). Settlement and subsistence patterns do not seem to have been drastically altered and technology advances are seen as an addition to the typical Late Archaic toolkit rather than a replacement. Research in the Kaw Lake area has provided many dated Woodland period sites. There are no defined complexes, but Vehik (1984) has suggested three groups or components for Woodland sites. These sites date from about 950 to 1850 YBP. Woodland period sites are by far the most common in north central Oklahoma (Drass 1985), and numerous sites along the Arkansas River (Kaw Lake) in Kay County (Hartley 1975; Rohrbaugh 1974; Young 1978); 34PW54 and 34PW92 in the Keystone Reservoir area (Moore 1980); and Weston (34OS99), Jackson Fall-Leaf (34WN42), and Drumming Sauna (34WN29) in the Copan Reservoir area (Farley and Keyser 1979; Howard 1970, 1971; Reid and Artz 1984). Woodland sites consisting of small to medium sized open occupations, rockshelters, and burned rock mounds have also been found in the Skiatook, Birch Creek, and Caney Lake Reservoir areas (Henry 1977a, 1977b, 1982, 2002; Saunders 1980), and along Bird Creek (Drass 1985).

An expanding population, increasing numbers of permanent or repeatedly occupied settlements, and the expansion of farming are iconic of the transition from the Woodland Period into the Late Prehistoric Period. Small villages previously established on floodplains of major watercourses become more intensively and more permanently occupied (Wyckoff et al. 1983). Most of the documented sites in the region are known from west of the Bird Creek drainage (Drass 1985) and several sites along the Arkansas River (Kaw Lake) area (Galm 1979; Sudbury 1976; Vehik and Flynn 1982). Late Prehistoric remains in the Bird Creek area have been identified in both the Birch Creek and Skiatook Reservoir areas and along the main branch of the creek (Drass 1985; Henry 1977a, 1977b, 1978, 1980). They include several caves or rockshelters used as transitory campsites, small upland camps, and probably seasonal base camps located on terraces.

The Late Ceramic or Protohistoric period represents the time of initial contact between Native American populations and European explorers, about A.D. 1500 to 1800. Indigenous populations of this period were able to gather into large villages due to reliable agricultural subsistence, while increasing their dependency on bison procurement. Until European trade avenues were fully opened, little was documented concerning the indigenous peoples of the Southern Plains. Poorly detailed journals of the Spanish Conquistadors indicate that only three incursions were made into the region. The protohistoric archeological settlements in southern Kansas and northcentral Oklahoma, particularly in the Arkansas River lowlands, are believed to be ancestral to the Caddoan-speaking Wichita Indians (Vehik and Flynn 1986, 1992; Wedel 1961). Wedel (1959) defined the Great Bend aspect, which extends from about the mid-l5th century until the early 18th century (Hawley and Haury 1994), on the basis of archeological investigations at a number of sites in McPherson, Rice, and Cowley counties, Kansas. Two significant early to mid-18th

century Wichita sites, the Deer Creek site (34KA3) and the Bryson-Paddock site (34KA5) have been studied in the Kaw Lake area (Sudbury 1976; Hartley and Miller 1977; Wedel 1961). These two sites, occupied most intensively from 1700 to 1750, have yielded through surface collections and test excavations an extensive series of trade items, such as gun parts, gun flints, knives, axes, scissor blades, pipes, ornaments, etc. Wichita groups subsequently moved south to the Red River in south central Oklahoma and northern Texas (Hofman et. al 1989).

The Civil War was an important period with regard to political and social developments in the area and had both direct and indirect impacts on the Native American landholdings in Indian Territory. The tribes of eastern and southeastern Oklahoma were as divided as the rest of the nation and the fighting within groups was often more merciless than fighting between groups. One battle, the battle of Chustenahlah, took place in eastern Osage County near the confluence of Battle and Quapaw Creeks. This battle was part of a running skirmish between Union Loyalist Native Americans and organized Confederate forces and resulted in the defeat of the Loyalists in December 1861. After the defeat of the Confederacy in 1865, tribes both sympathetic to and against the Union were forced to give up lands; for example, the Five Civilized Tribes gave up more than half their lands (Hofman, et al. 1989).

The Chilocco Indian Agricultural School (NRHP site ID #06000792) and its contributory elements were placed on the NRHP in 2006 under Criteria A and C. The period of significance is indicated as between 1883 to 1956 (Gabbert 2006). Approximately 50 buildings and seventy-five structures are associated with the campus, most of which are considered contributory elements. The general landscape, including pump houses, culverts, and sidewalks are also considered contributory, however are not accounted for in the above structure count. The plotted UTM boundaries of the District represent 407 acres.

According to the Bureau of Land Management, Native American Tribes/Groups primarily associated with Kay County include the Wichita and Affiliated, Kaw (Kansa), Tonkawa, Ponca and Cherokee (Bureau of Land Management 2012).

SURVEY METHODS

The purpose of this investigation was to locate any cultural resources along the defined impact area of the project, and to provide sufficient detail for the protection and management of such resources. By strict definition, cultural resources are any evidence of human use or occupation without any age limitations, but for this project, the term was restricted to cultural remains that were at least 45 years in age.

The proposed activities are planned for portions of Sections 13, 24, 25, 26, and 27 T29N R2E. These sections are presently occupied by several farmsteads, cultivated fields, and pasture (Figures 24-30). Survey methodology included pedestrian transects augmented by shovel testing. Approximately164.6 acres of land area were studied for this report.

Surface visibility averaged 25-50 percent overall due to intensive cultivation, previous development, and ground cover. Surface visibility in the corn fields was excellent (>90%).

Shovel tests were excavated to 30-50cmbs, screened through 1/4-inch hardware cloth, and backfilled (Appendix A). The study area was marked by GPS in the field. All UTM coordinates were recorded in datum NAD83 CONUS, using WAAS-enabled, handheld DeLorme Earthmate PN-60 units, offering optimal accuracy of < 3m.

Development activities including road, fence, and utility construction, installation, and maintenance and two instances of oil and gas exploitation have impacted the study area.

PALEONTOLOGICAL RESOURCES

No vertebrate paleontological resources or significant invertebrate resources were noted during the course of this archeological investigation.

CULTURAL RESOURCE FINDINGS AND DETRMINATION OF EFFECT

Between June 22-24 and July 6-10, 2016, CAS conducted an archeological survey of a proposed PNE Wind, USA wind farm in northern Kay County, Oklahoma. The project is located on lands owned by the Cherokee Nation and administered by the Bureau of Indian Affairs, Eastern Oklahoma Region.

Figure 24. Project setting in the southern portion of the project area in Section 13 T29N R2E facing east.

Figure 25. Project setting in the southeastern portion of Section 13 T29N R2E facing north.

Figure 26. Project setting in the western portion of Section 13 T29N R2E facing south.

Figure 27. Project setting in the eastern portion of the project area in Section 24 T29N R2E facing south.

Figure 28. Project setting in the northwestern portion of Section 24 T29N R2E facing south.

Figure 29. Chilocco Creek floodplain in the project area in the southeastern portion of Section 24 T29N R2E facing south.

Figure 30. Project setting for the proposed substation in Section 27 T29N R2E facing northwest.

One 20th-century farmstead (34KA528), one large check dam, and one prehistoric archeological site (34KA529) were documented within the study area during the course of these investigations (Figures 31 and 32).

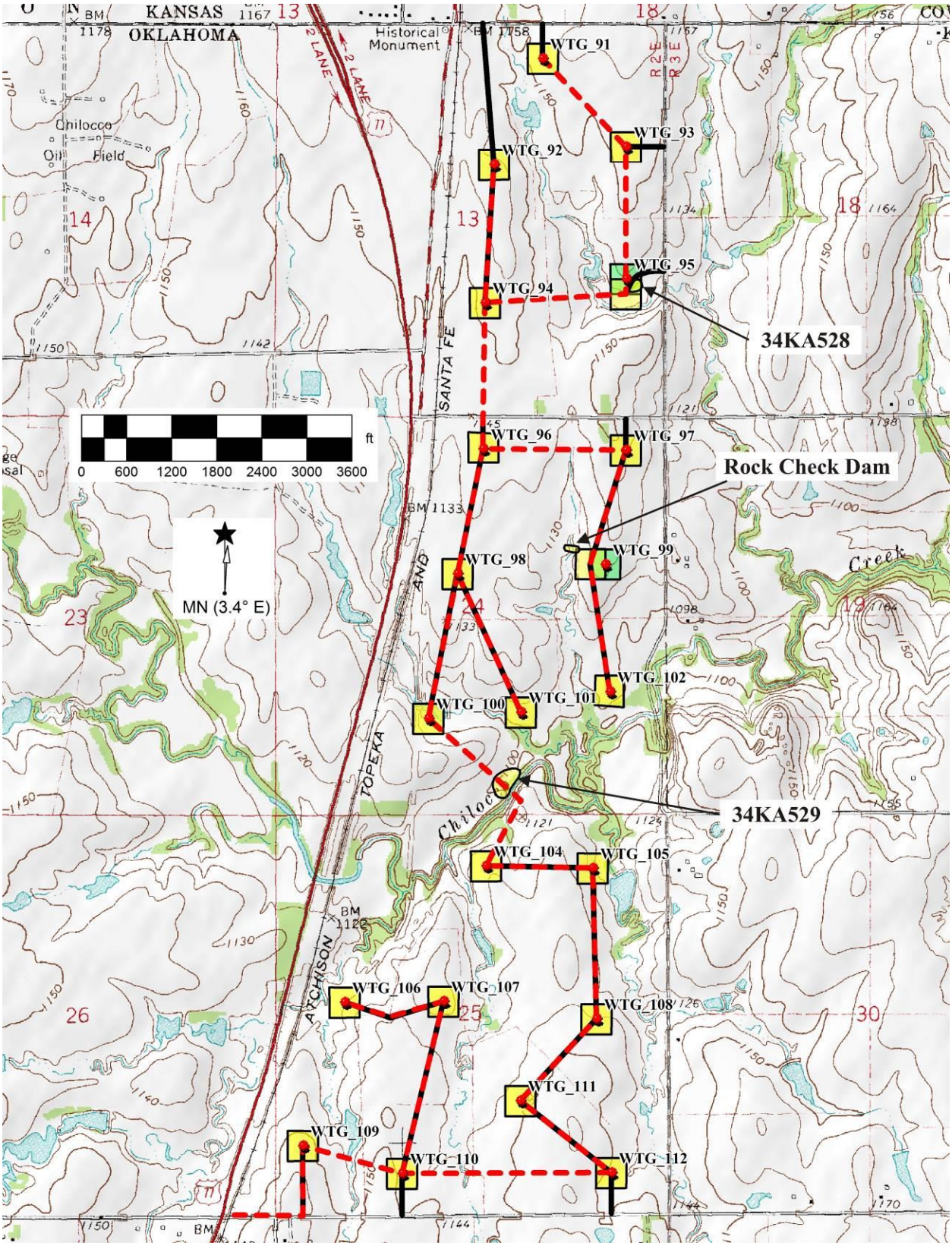

Figure 31. USGS topographic map (Newkirk 7.5″ series, 1976) showing the study area and observed localities (redesigned turbine footprints in green).

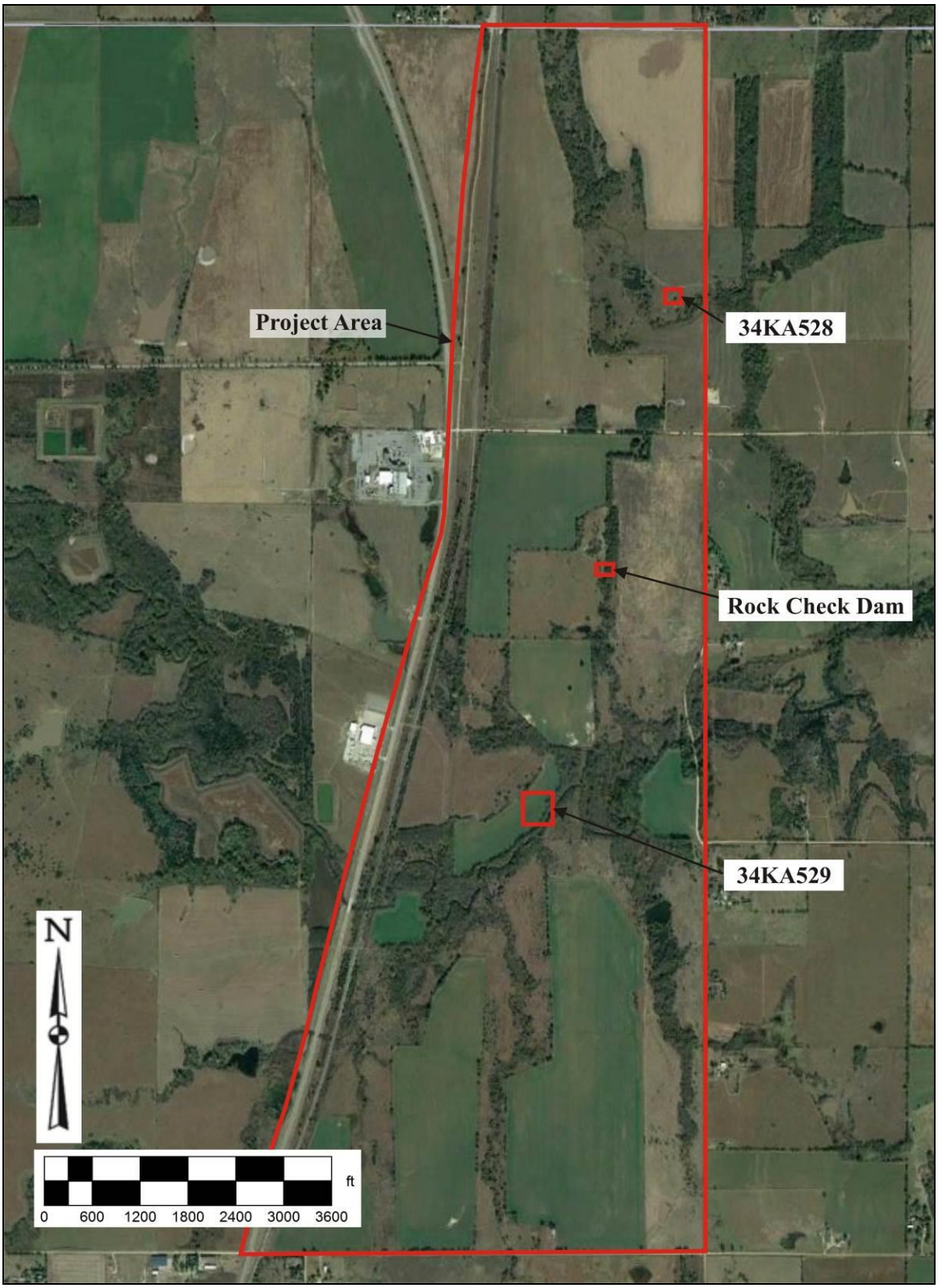

Figure 32. Detail of the 2014 aerial photograph map showing the study area and observed localities.

34KA528 (Farmstead)
SE/NE/SE Section 13 T29N R2E
UTM (CONUS NAD83): 14S E0675193 N4095496

34KA528 (Figures 33-35) is approximately 250 feet × 250 feet (1.4 acres) in size and is located at 14S E0675193 N4095496 (UTM CONUS NAD83) in the SE/NE/SE Section 13 T29N R2E. The site is located approximately 0.3 miles north-northwest of the intersection of Juno Road and North La Cann Road, Kay County, Oklahoma. The locality consists of two very low linear rock alignments and one limestone stone well or cistern. Rusted metal fragments were observed in the vicinity of the first, and larger, of the two linear rock alignments. A road trace runs from the north-central portion of the site for approximately 400 feet to the east. Three positive shovel tests yielded a total of 47 artifacts, including clinkers, clear bottle and window glass, round-head nails, and two horseshoe fragments. The features and artifacts suggest a twentieth-century farmstead, with possible landscape stabilization features and a structure that is now no longer present. The site is located on a gently sloping (~5°), south-facing, upland pasture. Surface visibility in the farmstead area was very low (<10 percent) and vegetation consisted of low mixed prairie grasses and sparse immature hardwoods and brush (Figure 36).

The first of the two very low rock alignments (Figure 37) consists of a single course of very roughly-cut limestone blocks approximately 1 ft^3 in size. The alignment is roughly oriented east-west and is approximately 40 feet in length. The western terminus of the alignment is located at 14S E0675179 N4095493 (UTM CONUS NAD83). The eastern terminus of the alignment is located at 14S E0675193 N4095496 (UTM CONUS NAD83). The alignment is located in the southwestern portion of the site area. A shovel test excavated approximately 10 feet to the north of the center of the alignment yielded eight clinkers, eight shards of clear pane and bottle glass, two horseshoe metal fragments, and one sherd of undecorated stoneware.

The second of the two very low rock alignments (Figure 38) consists of approximately eight thin (~6″), short (12″) blocks of cut limestone. These were roughly flush with the ground surface. The alignment was approximately eight feet in length, roughly oriented north-south, appears to be associated with the narrow road trace, and is located at 14S E0675190 N4095526 (UTM CONUS NAD83). Shovel tests excavated in the vicinity of the second alignment yielded no cultural material. The alignment is located in the north-central portion of the site.

The limestone stone well or cistern (Figure 39) consists of several courses of small 8″×5″×6″ rough-cut limestone blocks partially capped by a large (3′×3′×1.5′) limestone block. The large limestone block, a tree growing adjacent to the feature, and wood debris and leaves observed inside the well or cistern, obscure the bottom of the feature. The well or cistern is approximately 3 feet in diameter and is located at 14S E0675194 N4095512 (UTM CONUS NAD83). The well or cistern is located in the central portion of the site.

The locality is not apparent on GLO plat maps completed in 1872 and 1907 and aerial photographs taken in 1938, 1954, and 1966 (Figure 40).

The site is located in the northeast portion of the footprint of a proposed turbine at WTG 95. Approximately 25 percent of the footprint of the proposed turbine location (3.67 acres) is also occupied by a well pad (0.88 acres) in the north half of the footprint. PNE Wind, USA redesigned project activities in order to avoid 34KA528, moving the footprint for the turbine at WTG 95 200 feet to the north.

NRHP eligibility of this site has not been assessed. Three features, including a well or cistern, were observed and artifacts were recovered from three shovel tests. The site may be potentially eligible under criteria A, B, or D.

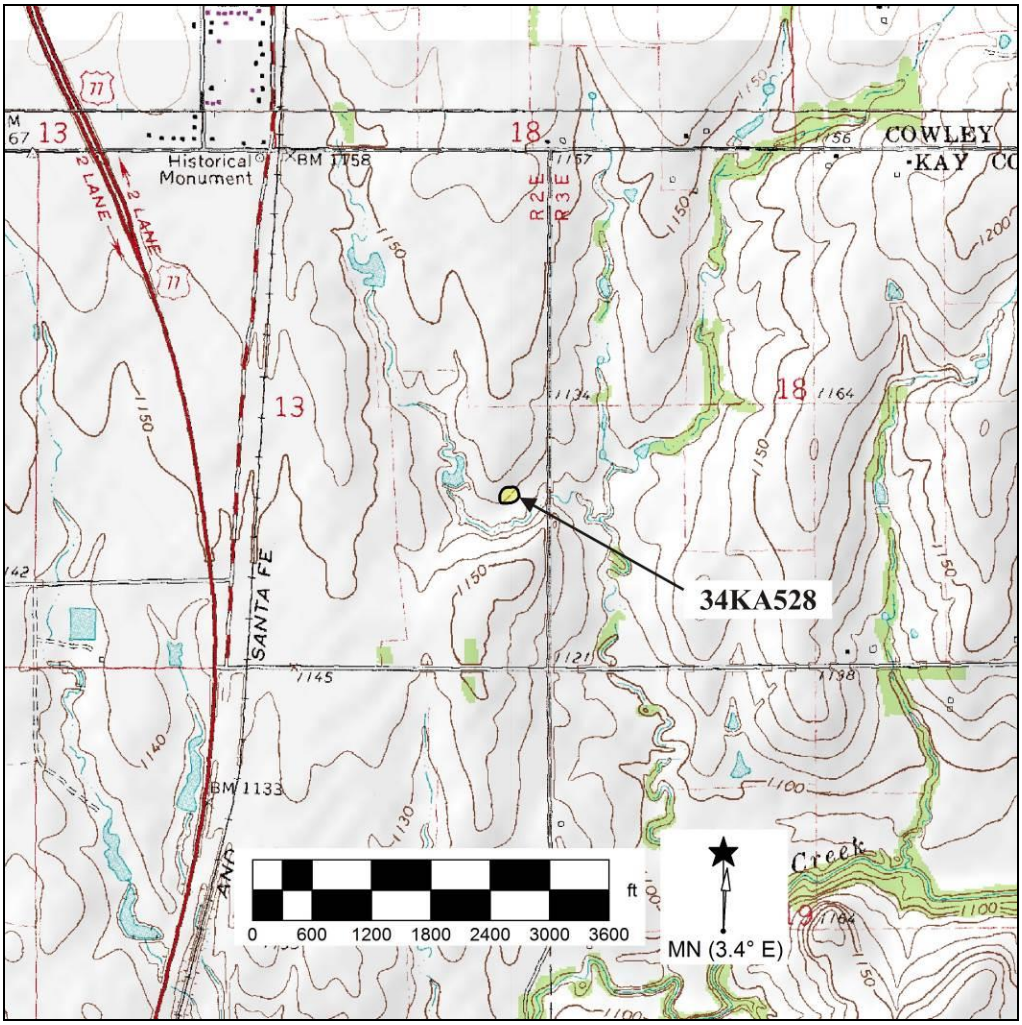

Figure 33. USGS topographic map (Newkirk 7.5″ series, 1976) showing the location of 34KA528.

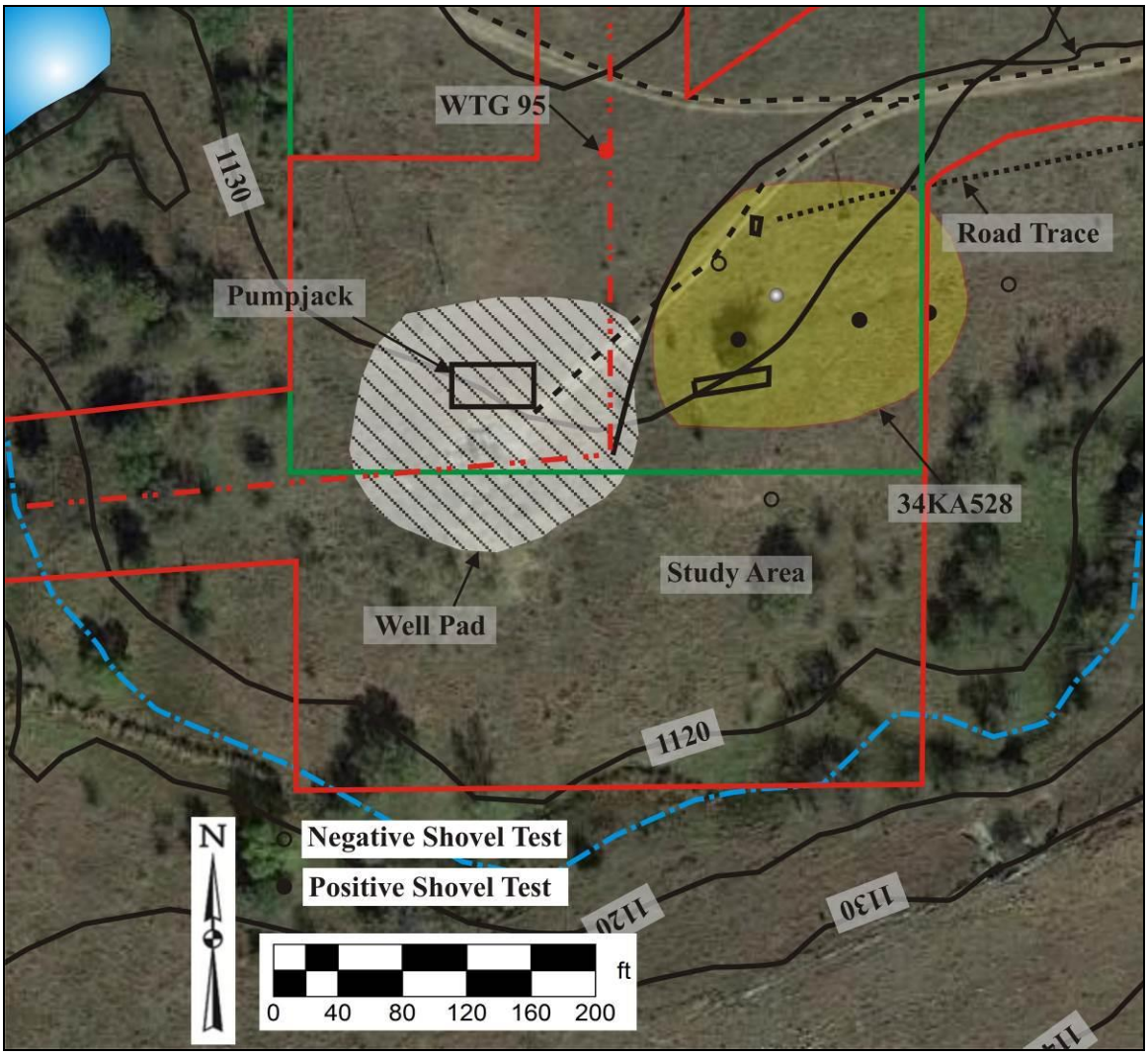

Figure 34. Aerial photograph of 34KA528 (redesigned turbine footprint in green).

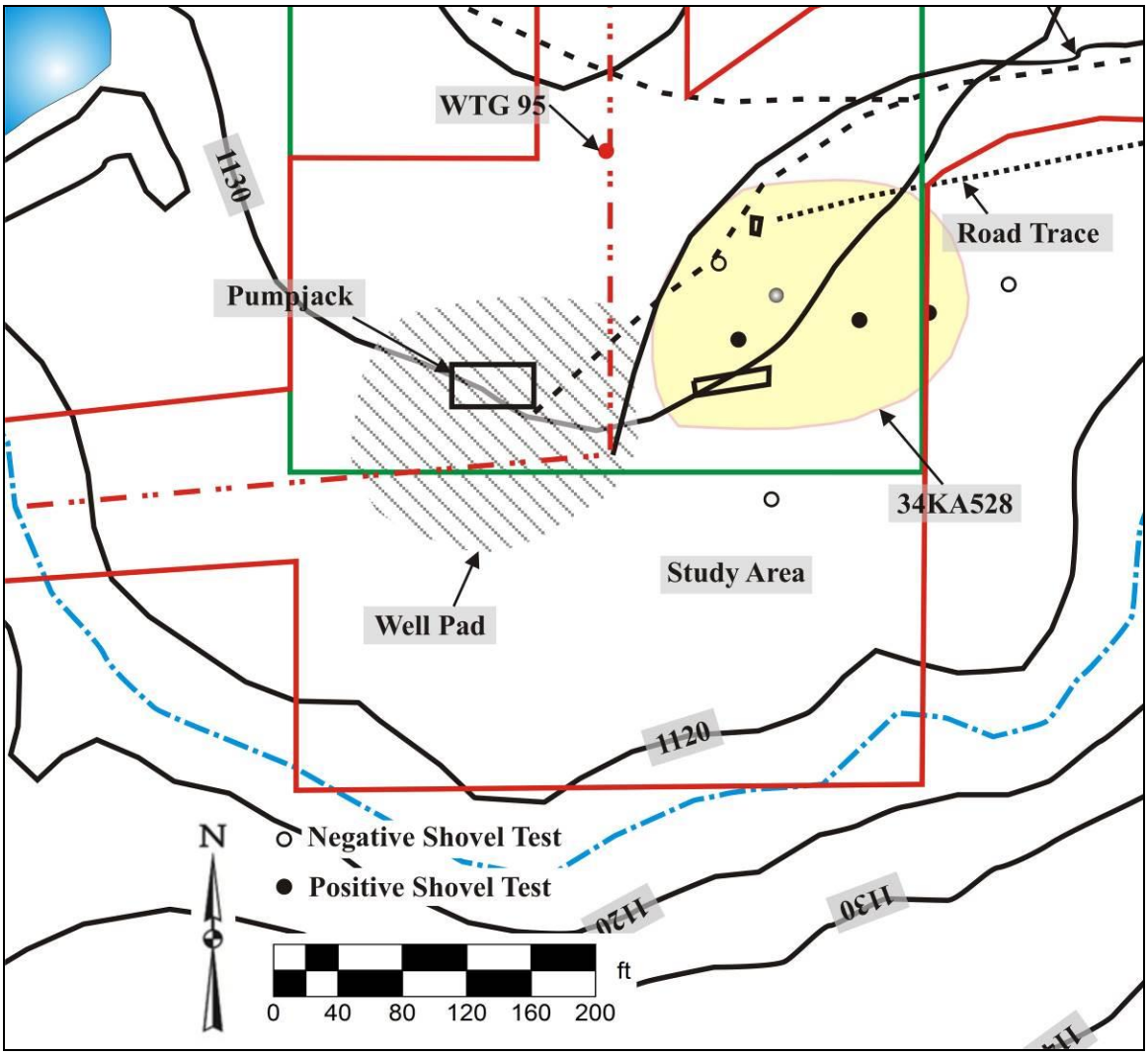

Figure 35. Sketch map of 34KA528 (redesigned turbine footprint in green).

Figure 36. Setting for 34KA528 facing west.

Figure 37. First rock alignment at 34KA528 facing west.

Figure 38. Second rock alignment at 34KA528 facing southwest.

Figure 39. Rock well or cistern observed at 34KA528 facing southwest.

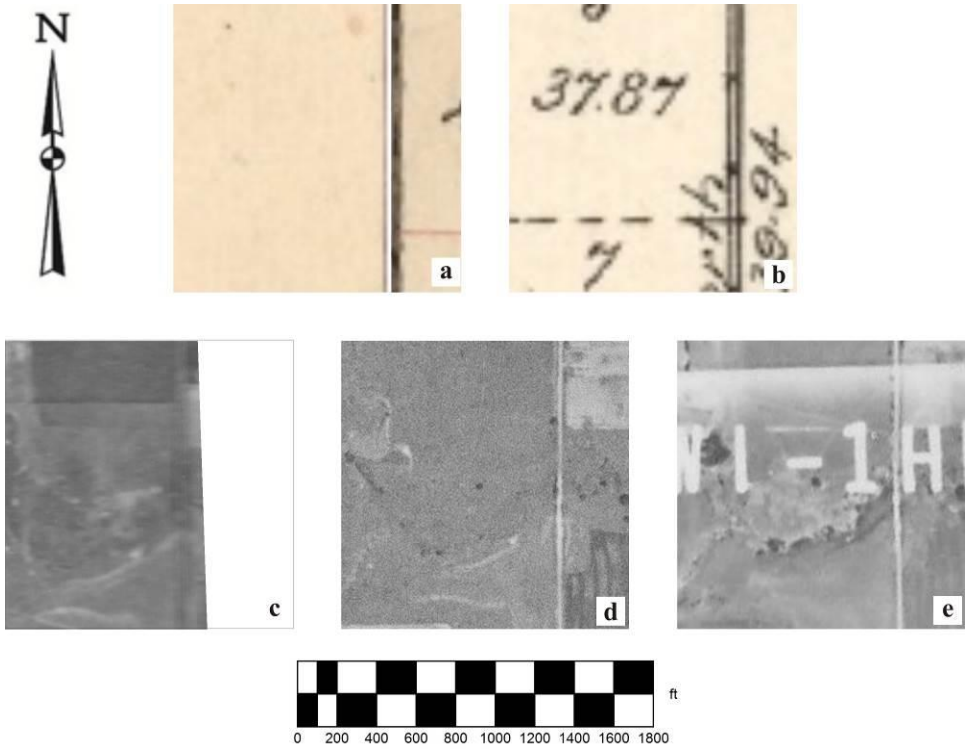

Figure 40.GLO maps and aerial photographs of 34KA528: (a) 1872; (b) 1907; (c) 1938; (d) 1954; and (e) 1966.

Rock Check Dam
NW/SE/NE Section 24 T29N R2E
UTM (CONUS NAD83): 14S E0674966 N4094442

The rock check dam (Figures 41-43) is approximately 150 feet × 10 feet (0.3 acres) in size and is located at 14S E0674966 N4094442 (UTM CONUS NAD83) in the NW/SE/NE Section 24 T29N R2E approximately 0.4 miles southwest of the intersection of Juno Road and North La Cann Road, Kay County, Oklahoma. The locality consists of an historic erosion control facility consisting of a 143 feet long, 2.5 feet wide, 2 feet high rough-cut limestone and coarse-aggregate mortar check dam with two 2 feet × 2 feet buttresses of the same material on either side of the main course of the draw that serve to stabilize the wall. It crosses a broad shallow draw that flows into Chilocco Creek approximately 0.5 miles to the south. Vegetation consists of dense mixed mature hardwoods and a low sparse understory. The site is located on a gently sloping (~5°), south-facing, densely wooded, upland pasture. Surface visibility in the farmstead area was very good (50-75 percent) (Figures 44-46).

The locality is not apparent on GLO plat maps completed in 1872 and 1907 but appears to be visible on aerial photographs taken in 1938, 1954, and 1966 (Figure 47).

The eastern end of the wall is located immediately adjacent to the northwestern corner of the footprint of the proposed turbine at WTG-99 and will not be disturbed by the proposed construction activities. PNE Wind, USA redesigned project activities in order to avoid the rock check dam, moving the footprint for the turbine at WTG 99 200 feet to the east.

This rock check dam does not appear to meet any criteria for inclusion on the NRHP. A Historic Preservation Resource Identification form was completed for the resource (Appendix D).

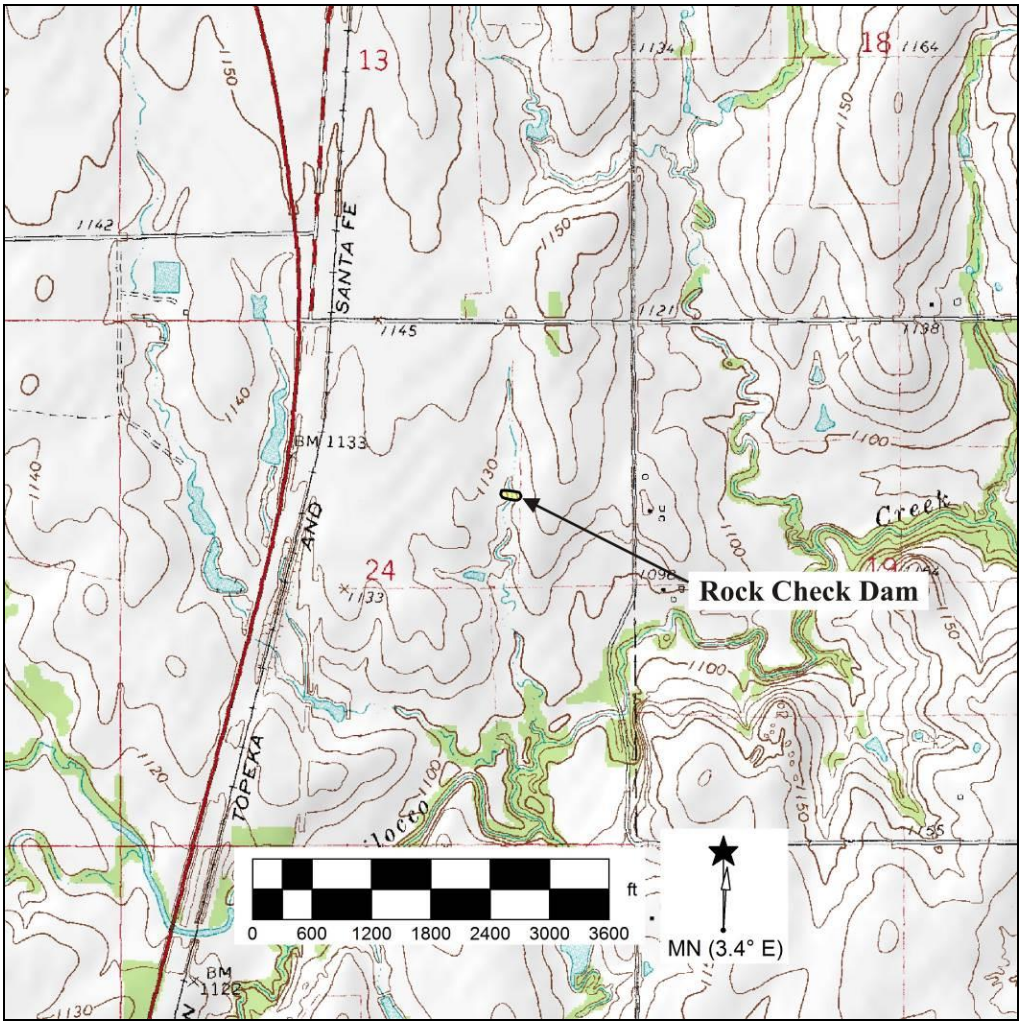

Figure 41. USGS topographic map (Newkirk 7.5″ series, 1976) showing the location of the Rock Check Dam.

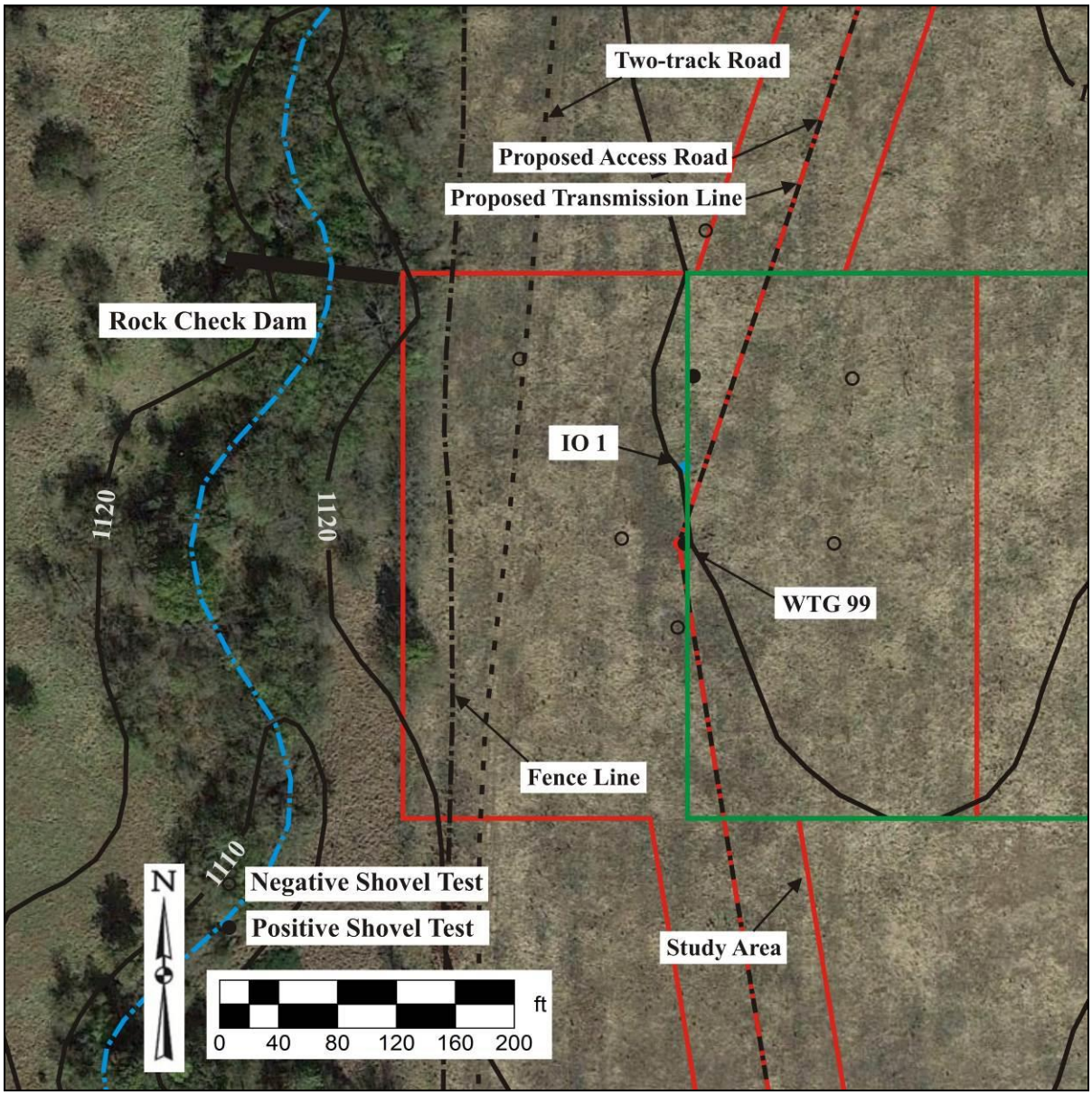

Figure 42. Aerial photograph of the Rock Check Dam (redesigned turbine footprint in green).

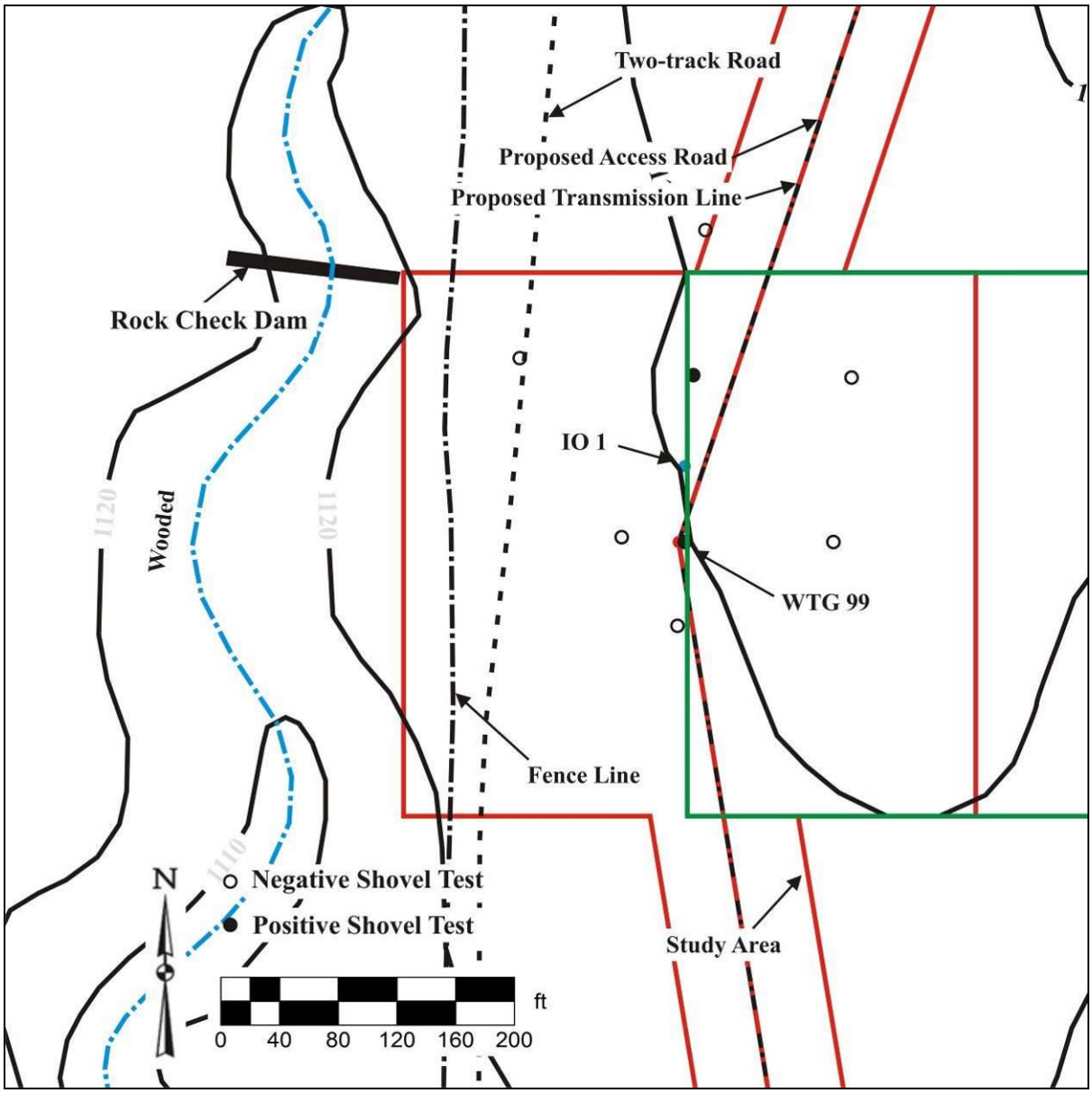

Figure 43. Sketch map of the Rock Check Dam (redesigned turbine footprint in green).

Figure 44. Rock Check Dam facing northwest.

Figure 45. Central portion of the check dam facing northeast.

Figure 46. Rock check dam facing east from the western terminus of the dam.

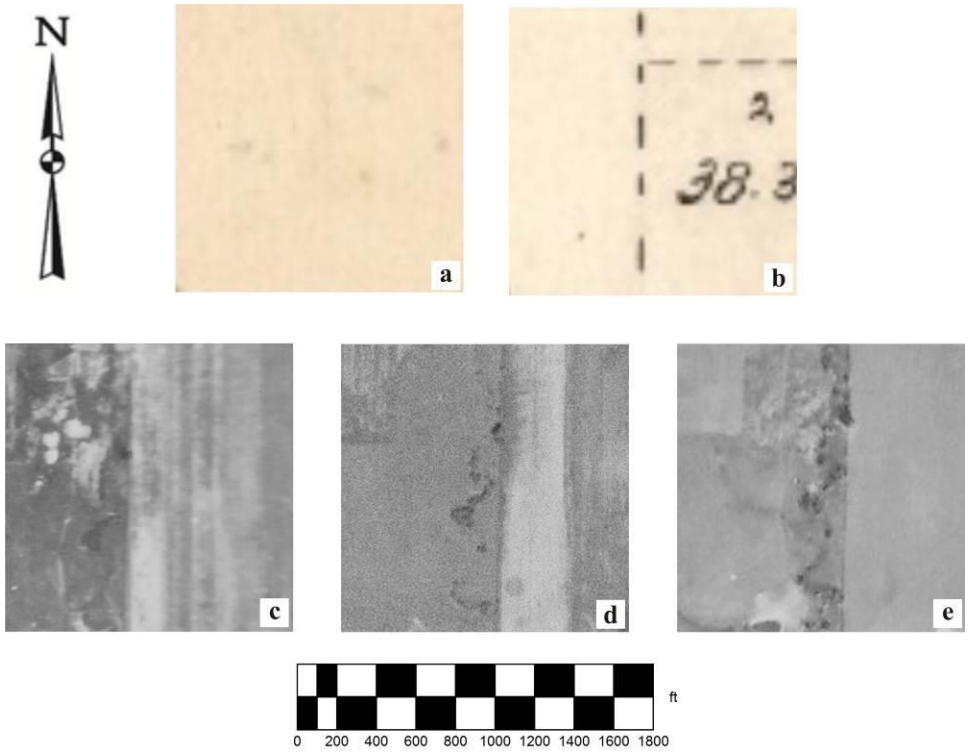

Figure 47.GLO maps and aerial photographs of the Rock Check Dam: (a) 1872; (b) 1907; (c) 1938; (d) 1954; and (e) 1966.

34KA529 (Sparse Surface Prehistoric Lithic Scatter)
SE/NE/SW Section 24 T29N R2E
UTM (CONUS NAD83): 14S E0674731 N4093535

34KA529 (Figures 48-51) is approximately 6400 m^2 in size and is located at 14S E0674731 N4093535 (UTM CONUS NAD83) in the SE/NE/SW Section 24 T29N R2E approximately 0.4 miles west of the intersection of East Indian Road and North La Cann Road, Kay County, Oklahoma. The locality consists of a sparse surface prehistoric lithic scatter consisting of 5 chert flakes (three thinning flakes, one heat-treated oolitic chert, and two larger flakes from tool manufacture) and one expedient flake tool of heat-treated oolitic chert. The artifacts were observed in a maturing corn field with very good visibility (50-75%). Nine shovel tests were excavated in the vicinity of the scatter. None yielded additional cultural material. The soils from those tests revealed an initial layer of very black silty clay loam or silty loam over very dark brown silty clay. The site is located on an upper floodplain of Chilocco Creek.

The vicinity of 34KA529 on GLO plat maps completed in 1872 and 1907 appears to have been unaffected by any specific form of land use. Aerial photographs taken in 1938, 1954, and 1966 (Figure 52) indicate that the area has been under cultivation since 1938.

The site will be bisected by a proposed collector line.

Based on the sparse nature of the findings at 34KA529, further excavation would not likely recover significant scientific information. This site does not appear to meet criteria for inclusion on the NRHP.

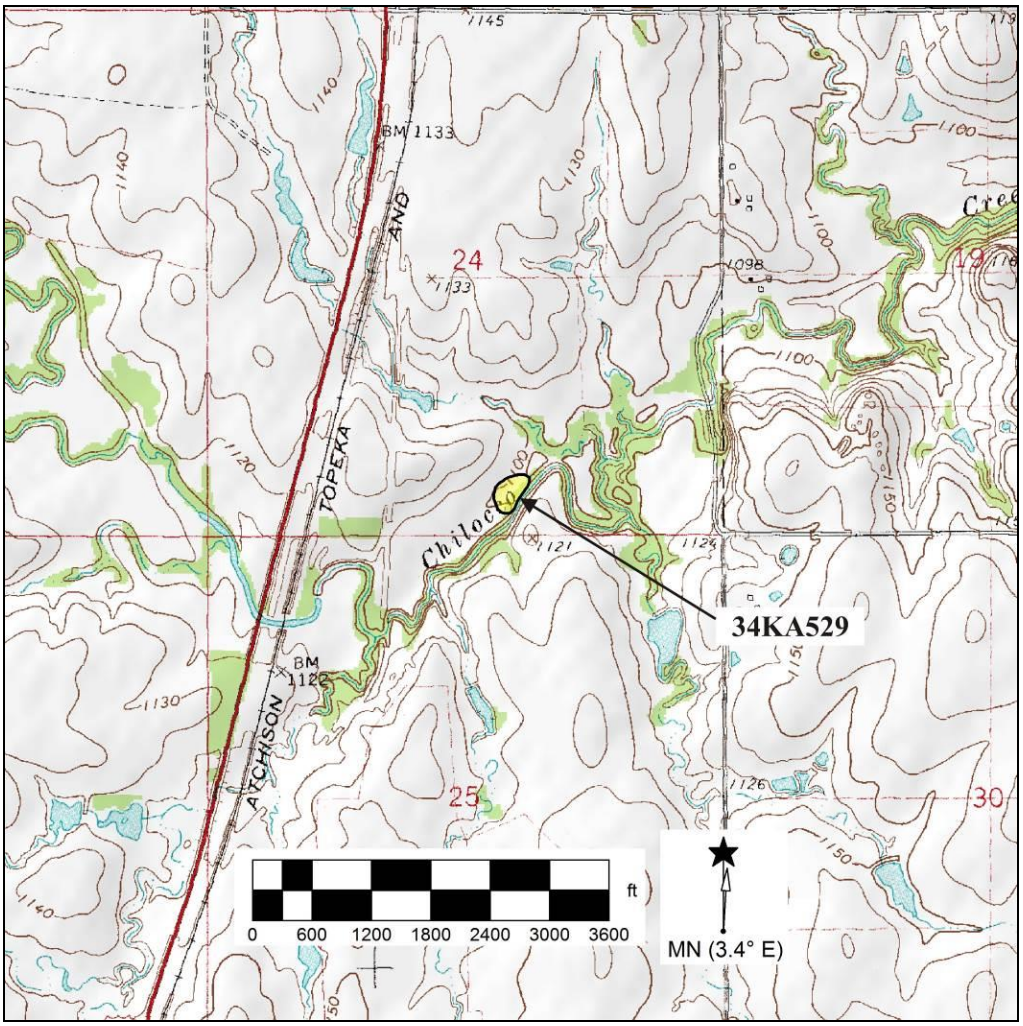

Figure 48. USGS topographic map (Newkirk 7.5″ series, 1976) showing the location of 34KA529.

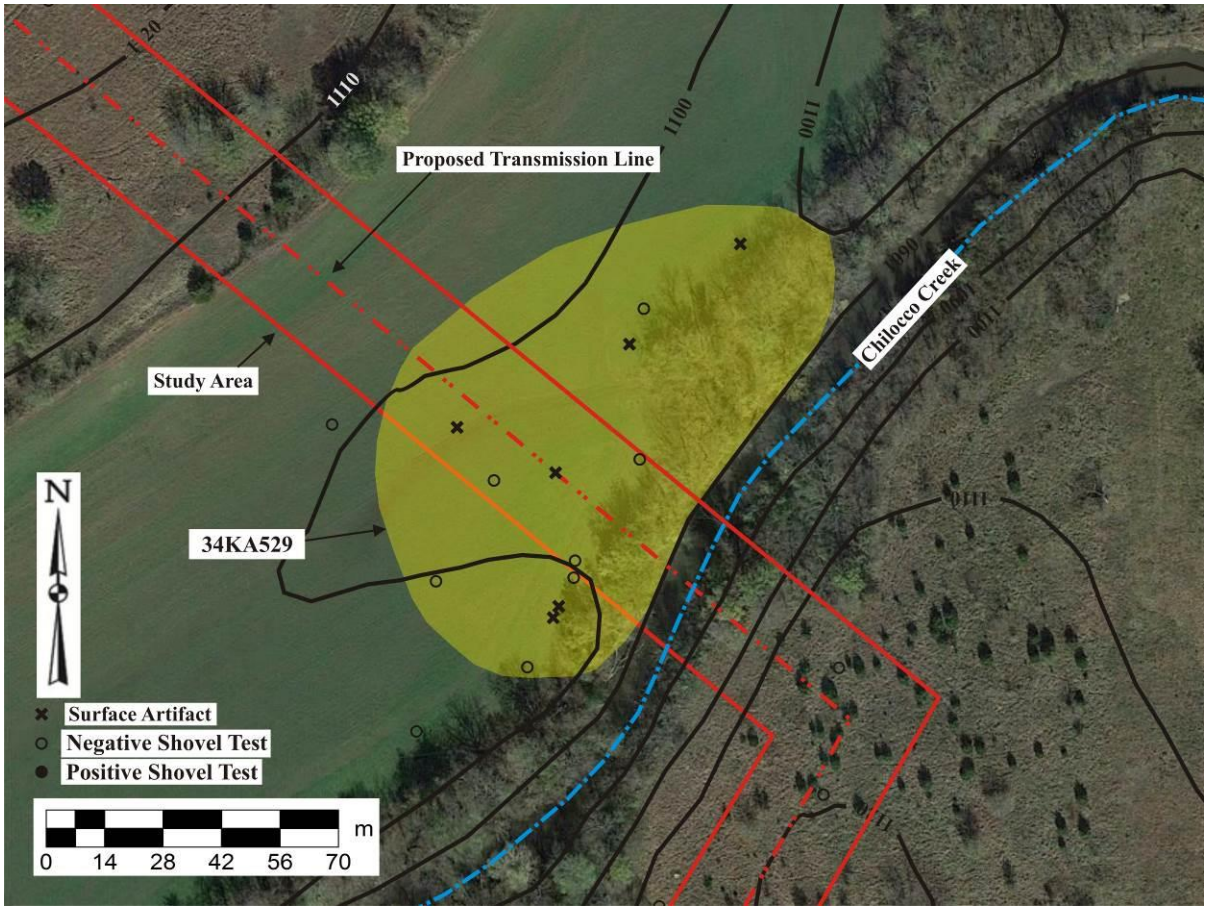

Figure 49. Aerial photograph of 34KA529.

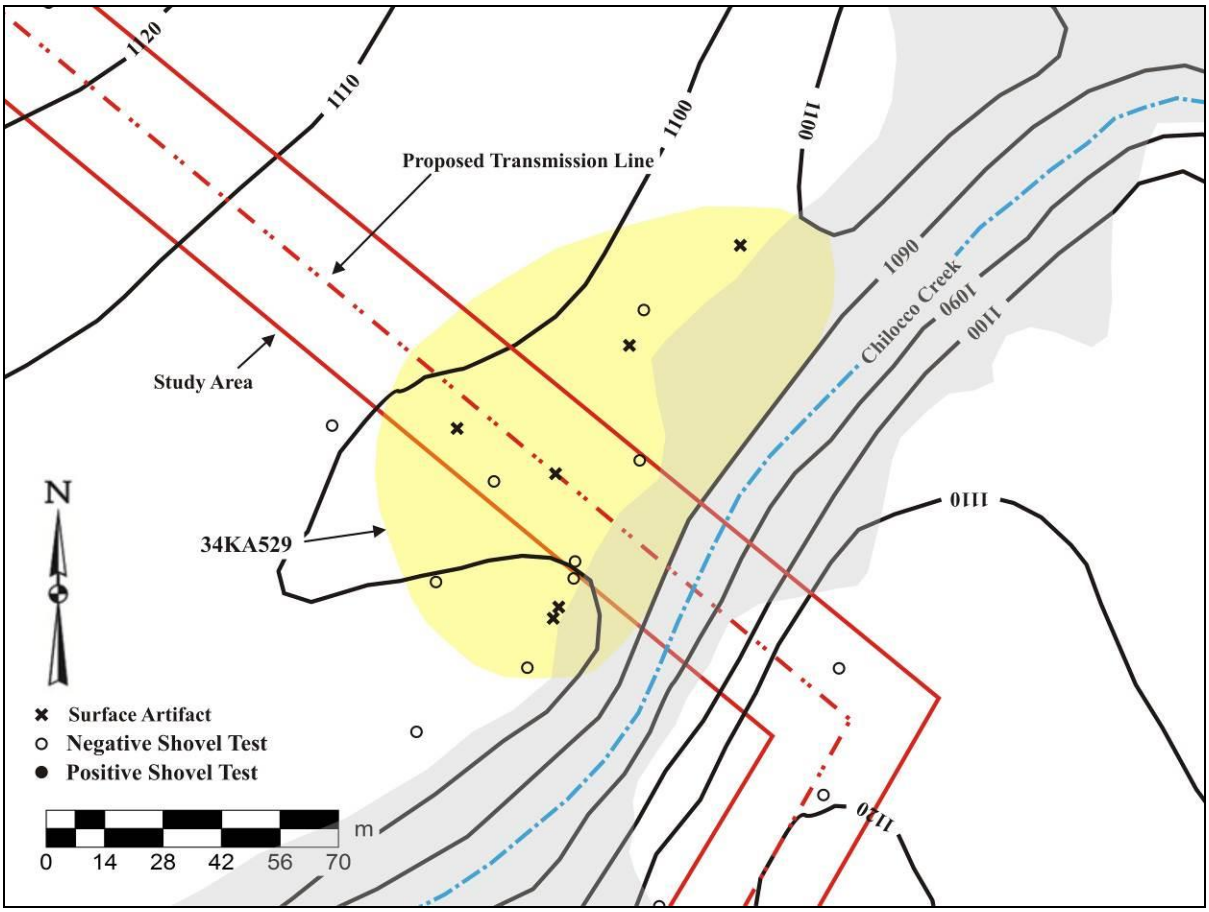

Figure 50. Sketch map of 34KA529.

Figure 51. Setting for 34KA529 facing south.

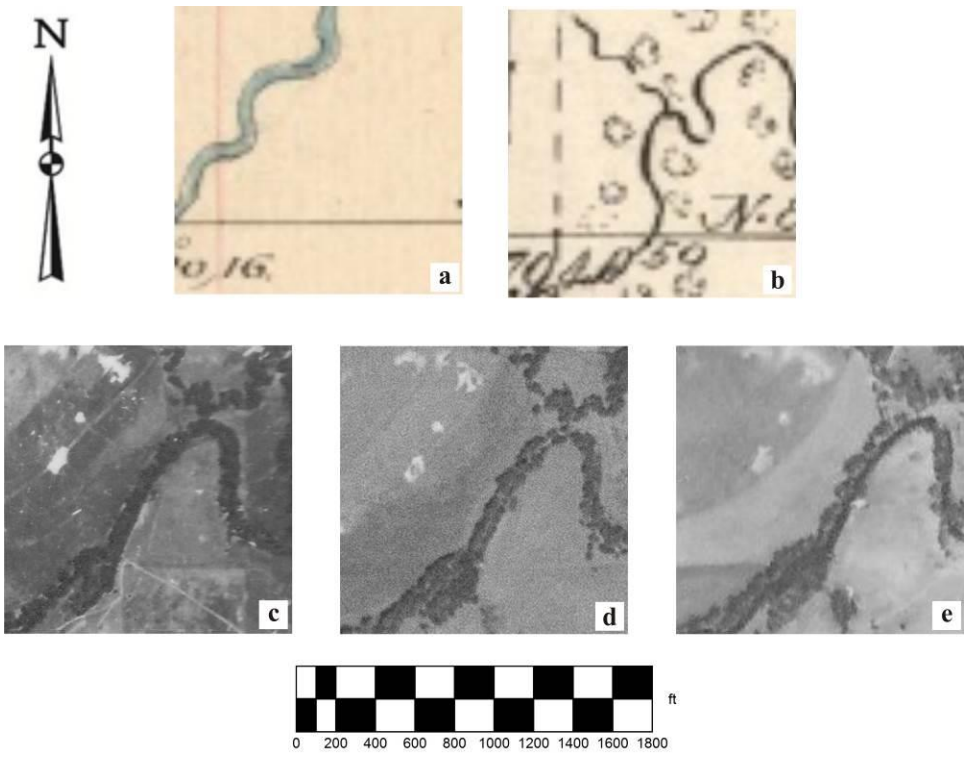

Figure 52. GLO maps and aerial photographs of 34KA529: (a) 1872; (b) 1907; (c) 1938; (d) 1954; and (e) 1966.

RECOMMENDATIONS

One 20th-century farmstead (34KA528), one large check dam, and one prehistoric archeological site (34KA529) were documented within the study area during the course of these investigations. 34KA528 has not been assessed for its inclusion to the NRHP. Three features, including a well or cistern, were observed and artifacts were recovered from three shovel tests. The site may be potentially eligible under criteria A, B, or D. It is PNE Wind USA's concern to avoid impacts to found cultural resources. The project has been redesigned to avoid impact to 34KA528.

Neither the rock check dam nor 34KA529 are recommended as eligible for inclusion to the NRHP. The project has been redesigned in order to allow a buffer of avoidance from the rock check dam. The project as now planned will have no effect on significant cultural resources.

Christopher Cojeen
Principal Investigator

copies:

PNE Wind, USA
150 N. Michigan Ave., Ste. 1500
Chicago, Illinois 60601
Attention: Mark Randall

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APPENDIX A
SHOVEL TEST LOG

Shovel Test	UTM (NAD83 Datum)	Soils	Visibility	Setting	Cultural Materials
JMST-001	14S E0674616 N4095988	0-50 cm red brown sandy clay silt	25-50%	Corn Field	Negative
JMST-002	14S E0674649 N4095965	0-50 cm red brown sandy clay silt	25-50%	Corn Field	Negative
JMST-003	14S E0674583 N4095419	0-50 cm red brown sandy clay silt	25-50%	Corn Field	Negative
JMST-004	14S E0674566 N4095468	0-50 cm red brown sandy clay silt	25-50%	Corn Field	Negative
JMST-005	14S E0675258 N4095575	0-30 cm dark brown clay silt, 30-40 cm red brown clay silt	<10%	Open Pasture	Negative
JMST-006	14S E0675171 N4095674	0-30 cm dark brown clay silt, 30-40 cm red brown silty clay	<10%	Open Pasture	Negative
JMST-007	14S E0675155 N4096072	0-50 cm red brown sandy clay silt	25-50%	Corn Field	Negative
JMST-008	14S E0675178 N4094845	0-30 cm dark brown clay loam, 30-40 cm brown fine sandy clay	<10%	Open Pasture	Negative
JMST-009	14S E0675115 N4094845	0-30 cm dark brown clay loam, 30-40 cm dark brown/red brown mottled fine sandy clay	<10%	Open Pasture	Negative
JMST-010	14S E0675216 N4094816	0-30 cm dark brown sandy clay loam, 30-40 cm red brown/dark brown silty fine sandy clay	<10%	Open Pasture	Negative
JMST-011	14S E0675108 N4094581	0-25 cm dark brown sandy clay loam, 25-40 cm red brown/dark brown silty fine sandy clay	<10%	Open Pasture	Negative
JMST-012	14S E0675041 N4094387	0-15 cm dark brown sandy loam, 15-30 cm dark brown sine sandy clay, 30-40 cm red brown fine sandy clay	<10%	Open Pasture	Positive (n =1)
JMST-013	14S E0675028 N4094387	0-20 cm red brown sandy clay, 20-30 cm very dense red brown fine sandy clay	<10%	Open Pasture	Negative
JMST-014	14S E0675040 N4094368	0-25 cm dark brown sandy clay, 25-40 cm red brown fine sandy clay	<10%	Open Pasture	Negative

JMST-015	14S E0675072 N4094387	0-30 cm dark brown sandy clay, 30-40 cm red brown fine sandy clay	<10%	Open Pasture	Negative
JMST-016	14S E0675042 N4094423	0-25 cm dark brown fine sandy clay, 25-40 cm red brown fine sandy clay	<10%	Open Pasture	Positive (n =1)
JMST-017	14S E0675006 N4094426	0-10 cm dark brown fine sandy clay loam, 10-35 cm dark brown fine sandy clay, 35-50 cm red brown fine sandy clay	<10%	Open Pasture	Negative
JMST-018	14S E0675044 N4094455	0-20 cm dark brown fine sandy clay loam, 20-30 cm dense red brown fine sandy clay, 0-30 cm dark brown fine sandy clay loam	<10%	Open Pasture	Negative
JMST-019	14S E0675075 N4094423	0-30 cm dark brown fine sandy clay loam, 30-40 cm dense red brown fine sandy clay	<10%	Open Pasture	Negative
JMST-020	14S E0675086 N4094138	0-30 cm compact strong brown fine sandy silt, 30-40 cm dark brown fine sandy clay	<10%	Open Pasture	Negative
JMST-021	14S E0675130 N4093876	0-15 cm strong brown fine sandy clay, 15-30 cm very dense mottled very dark brown/red brown fine sandy clay	<10%	Open Pasture	Negative
JMST-022	14S E0675159 N4093908	0-10 cm very strong brown fine sandy loam, 10-30 cm very strong brown fine sandy silt, 30-40 cm extremely dense very strong brown clay	<10%	Open Pasture	Negative
JMST-023	14S E0675106 N4093914	0-35 cm very strong brown fine sandy clay loam, 35-45 cm very strong brown fine sandy clay	<10%	Open Pasture	Negative
JMST-024	14S E0675157 N4093814	0-60 cm very strong brown sandy silt, 60-70 cm strong brown sandy clay	10-25%	Densely wooded pasture	Negative
JMST-025	14S E0674726 N4093531	0-40 cm very dark silty loam, 40-50 cm very dark silty clay	75-99%	Corn field	Negative
JMST-026	14S E0674726 N4093493	0-40 cm very dark silty loam, 40-50 cm very dark silty clay	75-99%	Corn field	Negative
JMST-027	14S E0674711	0-40 cm very dark silty loam,	75-99%	Corn field	Negative

	N4093467	40-50 cm very dark silty clay			
JMST-028	14S E0674700 N4093440	0-40 cm very dark silty loam, 40-50 cm very dark silty clay	75-99%	Corn field	Negative
JMST-029	14S E0674674 N4093423	0-40 cm very dark silty loam, 40-50 cm very dark silty clay	75-99%	Corn field	Negative
JMST-030	14S E0674678 N4093461	0-40 cm very dark silty loam, 40-50 cm very dark silty clay	75-99%	Corn field	Negative
JMST-031	14S E0674691 N4093487	0-40 cm very dark silty loam, 40-50 cm very dark silty clay	75-99%	Corn field	Negative
DBST-001	14S E0674595 N4094841	0-30 cm red brown silty clay loam, 30-40 cm red brown silty clay	25-50%	Corn Field	Negative
DBST-002	14S E0674631 N4094835	0-30 cm red brown silty clay loam, 30-40 cm red brown silty clay	25-50%	Corn Field	Negative
DBST-003	14S E0674649 N4094830	0-30 cm red brown silty clay loam, 30-40 cm red brown silty clay	25-50%	Corn Field	Negative
DBST-004	14S E0674593 N4094800	0-30 cm red brown silty clay loam, 30-40 cm red brown silty clay	25-50%	Corn Field	Negative
DBST-005	14S E0674514 N4094323	0-30 cm red brown silty clay loam, 30-40 cm red brown silty clay	25-50%	Corn Field	Negative
DBST-006	14S E0674514 N4094290	0-30 cm red brown silty clay loam, 30-40 cm red brown silty clay	25-50%	Corn Field	Negative
DBST-007	14S E0674622 N4094093	0-30 cm red brown silty clay loam, 30-40 cm red brown silty clay	25-50%	Corn Field	Negative
DBST-008	14S E0674702 N4093924	0-30 cm red brown silty clay loam, 30-40 cm red brown silty clay	25-50%	Corn Field	Negative
DBST-009	14S E0674723 N4093942	0-30 cm red brown silty clay loam, 30-40 cm red brown silty clay	25-50%	Corn Field	Negative
DBST-010	14S E0674722 N4094001	0-30 cm red brown silty clay loam, 30-40 cm red brown silty clay	25-50%	Corn Field	Negative
DBST-011	14S E0674663 N4094008	0-30 cm red brown silty clay loam, 30-40 cm red brown silty clay	25-50%	Corn Field	Negative
DBST-012	14S E0674642	0-30 cm red brown silty clay	50-75%	Corn Field	Negative

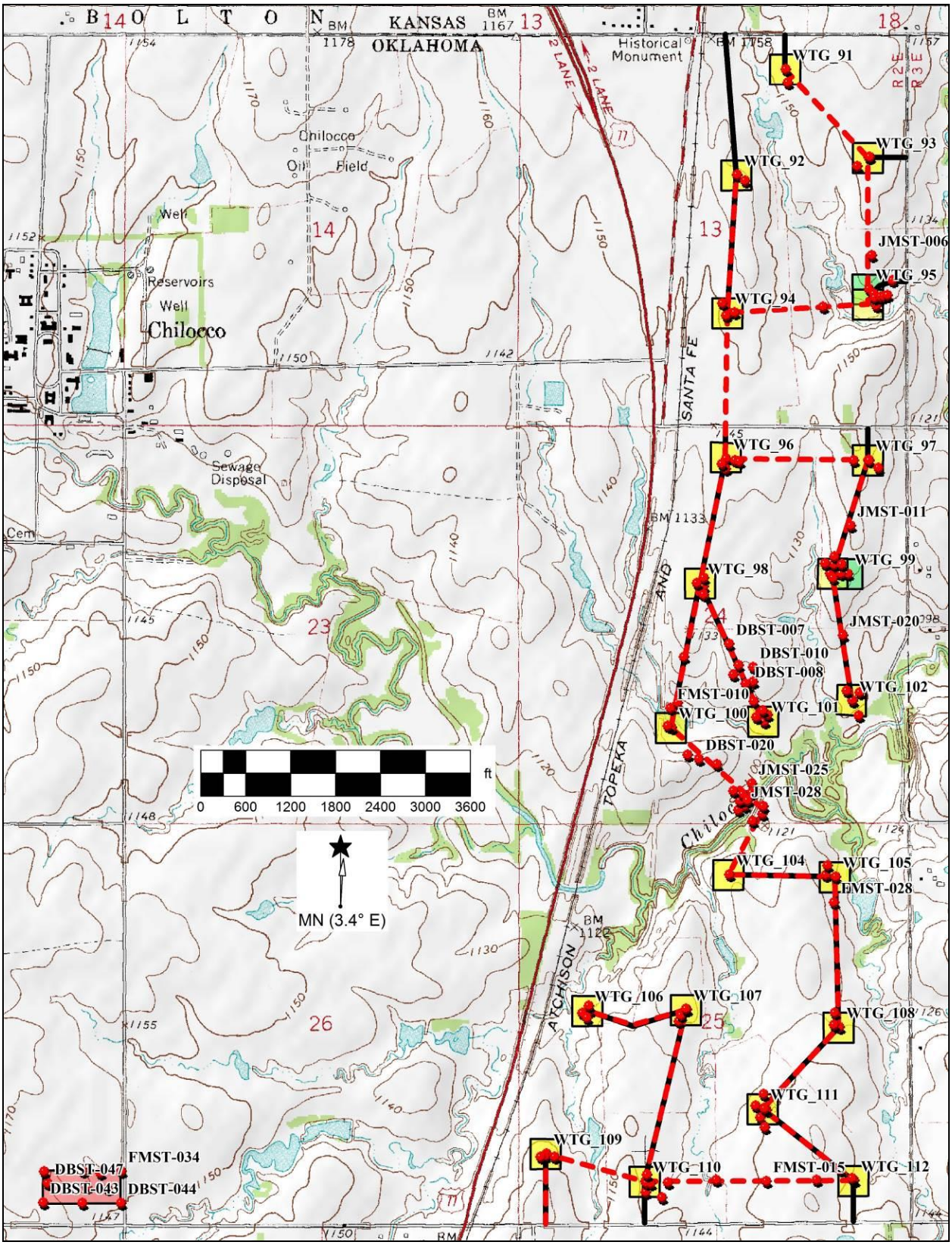
	N4093969	loam, 30-40 cm red brown silty clay			
DBST-013	14S E0674693 N4093934	0-30 cm red brown silty clay loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
DBST-014	14S E0674728 N4093863	0-30 cm red brown silty clay loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
DBST-015	14S E0674772 N4093782	0-30 cm red brown silty clay loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
DBST-016	14S E0674785 N4093810	0-30 cm red brown silty clay loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
DBST-017	14S E0674765 N4093827	0-30 cm red brown silty clay loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
DBST-018	14S E0674739 N4093800	0-30 cm dark red brown silty clay loam, 30-40 cm dark red brown silty clay	50-75%	Corn Field	Negative
DBST-019	14S E0674379 N4093757	0-30 cm dark red brown silty clay loam, 30-40 cm dark red brown silty clay	50-75%	Fallow Field	Negative
DBST-020	14S E0674509 N4093626	0-30 cm dark red brown silty clay loam, 30-40 cm dark red brown silty clay	50-75%	Fallow Field	Negative
DBST-021	14S E0674582 N4093606	0-30 cm dark red brown silty clay loam, 30-40 cm dark red brown silty clay	50-75%	Fallow Field	Negative
DBST-022	14S E0674328 N4091872	0-30 cm dark red brown silty clay loam, 30-40 cm dark red brown silty clay	50-75%	Corn Field	Negative
DBST-023	14S E0674330 N4091909	0-30 cm dark red brown silty clay loam, 30-40 cm dark red brown silty clay	50-75%	Corn Field	Negative
DBST-024	14S E0674347 N4091908	0-30 cm dark red brown silty clay loam, 30-40 cm dark red brown silty clay	50-75%	Corn Field	Negative
DBST-025	14S E0674331 N4091943	0-30 cm dark red brown silty clay loam, 30-40 cm dark red brown silty clay	50-75%	Corn Field	Negative
DBST-026	14S E0674449 N4092565	0-25 cm red brown silty loam, 25-35 cm red brown silty clay	50-75%	Corn Field	Negative
DBST-027	14S E0674457 N4092589	0-25 cm red brown silty loam, 25-35 cm red brown silty clay	50-75%	Corn Field	Negative

DBST-028	14S E0674476 N4092616	0-25 cm red brown silty loam, 25-35 cm red brown silty clay	50-75%	Corn Field	Negative
DBST-029	14S E0674084 N4092600	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	<10%	Fallow Field	Negative
DBST-030	14S E0674080 N4092620	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	<10%	Fallow Field	Negative
DBST-031	14S E0674054 N4092590	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	<10%	Fallow Field	Negative
DBST-032	14S E0674074 N4092571	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	<10%	Fallow Field	Negative
DBST-033	14S E0673953 N4092007	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
DBST-034	14S E0673914 N4092008	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
DBST-035	14S E0673896 N4092006	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
DBST-036	14S E0674803 N4092221	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
DBST-037	14S E0674814 N4092214	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
DBST-038	14S E0674789 N4092184	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
DBST-039	14S E0674769 N4092231	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
DBST-040	14S E0675076 N4093162	0-30 cm red brown silty clay	<10%	Fallow Field	Negative
DBST-041	14S E0675035 N4093168	0-30 cm red brown silty clay	<10%	Fallow Field	Negative
DBST-042	14S E0674733 N4093380	0-30 cm red brown silty clay	<10%	Fallow Field	Negative
DBST-043	14S E0671872 N4091780	0-30 cm brown silty loam no inclusions	<10%	Open pasture	Negative
DBST-044	14S E0672190 N4091785	0-30 cm brown silty loam no inclusions	<10%	Open pasture	Negative
DBST-045	14S E0672134	0-30 cm brown silty loam no	<10%	Open pasture	Negative

	N4091842	inclusions			
DBST-046	14S E0672048 N4091848	0-30 cm brown silty loam no inclusions	<10%	Open pasture	Negative
DBST-047	14S E0671889 N4091859	0-30 cm brown silty loam no inclusions	<10%	Open pasture	Negative
DBST-048	14S E0671873 N4091906	0-30 cm brown silty loam no inclusions	<10%	Open pasture	Negative
FMST-001	14S E0674617 N4095432	0-50 cm red brown sandy clay silt	25-50%	Corn Field	Negative
FMST-002	14S E0674977 N4095463	0-40cmbs Dark brown sandy-silty clay soil, 40-50cmbs Dark brown silty clay mottled with rusty orange clay	25-50%	Upland Pasture	Negative
FMST-003	14S E0675183 N4095518	0-30 cm dark brown clay silt, 30-40 cm red brown clay silt	<10%	Open Pasture	Negative
FMST-004	14S E0675105 N4096033	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
FMST-005	14S E0674815 N4096365	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
FMST-006	14S E0674578 N4094820	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
FMST-007	14S E0674514 N4094358	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
FMST-008	14S E0674486 N4094336	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
FMST-009	14S E0674439 N4094037	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
FMST-010	14S E0674388 N4093829	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
FMST-011	14S E0674417 N4093851	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
FMST-012	14S E0674462 N4093642	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
FMST-013	14S E0674652 N4093500	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
FMST-014	14S E0674711	0-30 cm red brown silty	50-75%	Corn Field	Negative

	N4093463	loam, 30-40 cm red brown silty clay			
FMST-015	14S E0674819 N4091927	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
FMST-016	14S E0675023 N4091936	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
FMST-017	14S E0675176 N4091937	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
FMST-018	14S E0675168 N4091946	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
FMST-019	14S E0675119 N4091979	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
FMST-020	14S E0674805 N4092219	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
FMST-021	14S E0674800 N4092278	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
FMST-022	14S E0674808 N4092144	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
FMST-023	14S E0674614 N4091928	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
FMST-024	14S E0674418 N4091913	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
FMST-025	14S E0674394 N4091852	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
FMST-026	14S E0675084 N4092612	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
FMST-027	14S E0675082 N4092564	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Corn Field	Negative
FMST-028	14S E0675071 N4093058	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Open Terrace Pasture	Negative
FMST-029	14S E0675042	0-30 cm red brown silty	50-75%	Open Terrace	Negative

	N4093207	loam, 30-40 cm red brown silty clay		Pasture	
FMST-030	14S E0674693 N4093235	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Open Terrace Pasture	Negative
FMST-031	14S E0674772 N4093409	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Open Terrace Pasture	Negative
FMST-032	14S E0674775 N4093441	0-30 cm red brown silty loam, 30-40 cm red brown silty clay	50-75%	Open Terrace Pasture	Negative
FMST-033	14S E0672031 N4091911	0-30 cm brown silty loam no inclusions	<10%	Open pasture	Negative
FMST-034	14S E0672188 N4091913	0-30 cm brown silty loam no inclusions	<10%	Open pasture	Negative
FMST-035	14S E0672032 N4091781	0-30 cm brown silty loam no inclusions	<10%	Open pasture	Negative
FMST-036	14S E0672103 N4091905	0-30 cm brown silty loam no inclusions	<10%	Open pasture	Negative
MDST-001	14S E0675194 N4095471	0-40cmbs Dark brown sandy-silty clay soil, 40-50cmbs Dark brown silty clay mottled with rusty orange clay	25-50%	Upland Pasture	Negative
MDST-002	14S E0675187 N4095503	0-50cmbs Dark brown sandy-silty clay soil (most artifacts between 0-30cmbs), 50-60cmbs Dark brown silty clay mottled with rusty orange clay	50-75%	Upland Pasture	Positive (n = 19)
MDST-003	14S E0675210 N4095507	0-40cmbs Dark brown sandy-silty clay soil, 40-50cmbs Dark brown silty clay mottled with rusty orange clay	50-75%	Upland Pasture	Positive (n =27)
MDST-004	14S E0675223 N4095509	0-40cmbs Dark brown sandy-silty clay soil, 40-50cmbs Dark brown silty clay mottled with lighter brown and rusty orange clay	50-75%	Upland Pasture	Positive (n = 1)
MDST-005	14S E0675238 N4095515	0-20cmbs Dark brown sandy-silty clay soil, 20-30cmbs Dark brown silty clay mottled with lighter brown and rusty orange clay	50-75%	Upland Pasture	Negative



Shovel Tests Placed in the Study Area (redesigned turbine footprints in green).

APPENDIX B
ISOLATED OCCURRENCES

CAS personnel observed and recorded one locality not considered an archaeological site in the project area (Figure 1):

IO 1
NW/SE/NE Section 24 T29N R2E
UTM (CONUS NAD83): 14S E0675040 N4094403
This is an Isolated Occurrence consisting of two chert flakes (one thinning, the other interior) recovered from shovel tests. Six additional shovel tests, excavated in the vicinity, failed to yield additional material. The IO is located on gently sloping, southwest-facing, open pasture. Soils consisted of dense dark brown and strong brown silty sandy loams above dense mottled red brown/dark brown or red brown fine sandy clay. Vegetation consisted of low to very low mixed prairies grasses with the occasional low shrub. Overall visibility was poor (10-25%) with the exception of bare ground (>90%) observed along a lease road located west of the IO. This IO is located on the extreme edge of the redesigned footprint at WTG 99 and should not be disturbed. IOs, by their very nature, are not considered eligible for inclusion to the NRHP.

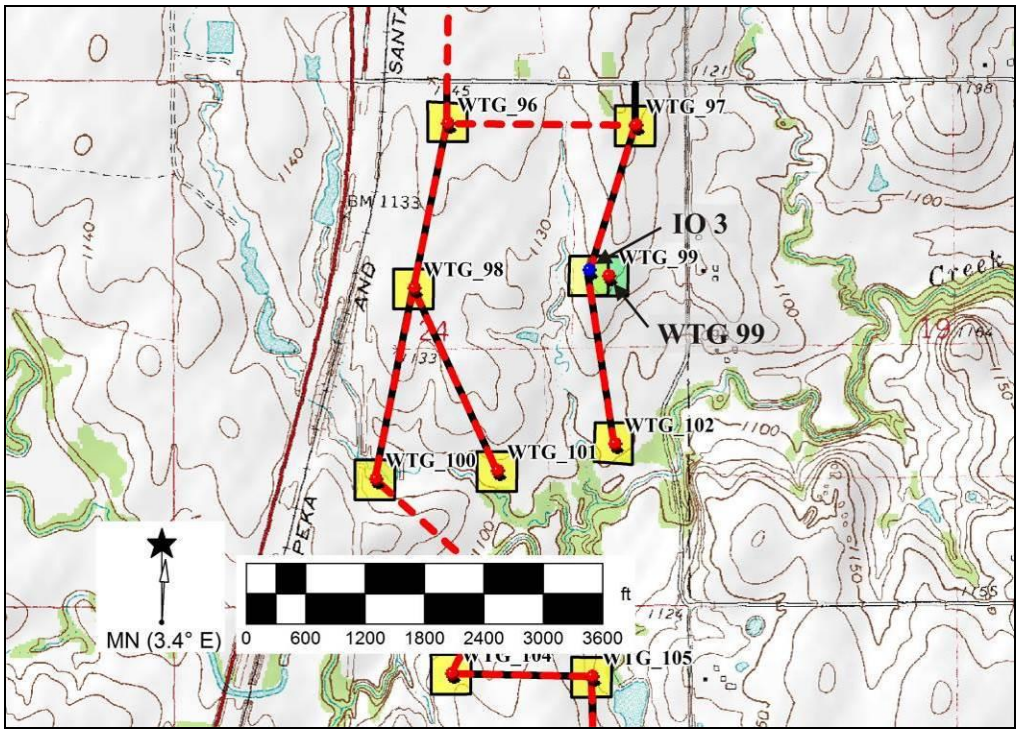


Figure 1. USGS topographic map (Newkirk 7.5″ series, 1976) showing the location of IO 1 (redesigned turbine footprint in green).

Figure 2. Setting for IO 1 facing south.

APPENDIX C
ARPA PERMIT and RIGHT OF ENTRY

Please use this number
when referring to this permit

No.: EOR-FAPWT-16-01

DI Form 1991 (Rev Jan 2008)
for use with DI Form 1926
OMB No 1024-0037
Exp. Date (6 30 2014)

United States Department of the Interior

PERMIT FOR ARCHEOLOGICAL INVESTIGATIONS

To conduct archeological work on Department of the Interior lands and Indian lands under the authority of:

- ☐ The Archaeological Resources Protection Act of 1979 (16 U.S.C. 470aa-mm) and its regulations (43 CFR 7).
- ☐ The Antiquities Act of 1906 (P.L. 59-209; 34 Stat. 225, 16 U.S.C. 431-433) and its regulations (43 CFR 3).
- ☐ Supplemental regulations (25 CFR 262) pertaining to Indian lands.
- ☐ Bureau-specific statutory and/or regulatory authority: _____

1. Permit issued to Cojeen Archaeological Services, LLC	2. Under application dated 5.26.2016
3. Address P.O. Box 1186, Norman, OK 73070	4. Telephone number(s) 405-360-9996
	5. E-mail address(es) cojeenarch@sbcglobal.net

6. Name of Permit Administrator Chris Cojeen Telephone number(s): 405-360-9996 Email address(es): cojeenarch@sbcglobal.net	7. Name of Principal Investigator(s) Chris Cojeen Telephone number(s): 405-360-9996 Email address(es): cojeenarch@sbcglobal.net
8. Name of Field Director(s) authorized to carry out field projects James Munkres, M.A. Amy Cojeen, M.A.	Telephone number(s): 405-360-9996 Email address(es): cojeenarch@sbcglobal.net

9. Activity authorized: Pedestrian Survey with Subsurface Sampling (shovel testing) and Recordation.
Artifacts recovered from testing will be returned to the Cherokee Nation.
Shovel testing will follow the methods as described in the permit application. Should anomalies be identified, additional consultation with the Cherokee Nation THPO may be necessary with potential for alternative methods of investigation authorized (ground penetrating radar).

10. On lands described as follows: Sections 13, 24, 25 of T 29N R 2E. See map attachment as described in permit application.

11. During the duration of the project From June 22, 2016 To December 22, 2016

12. Name and address of the curatorial facility in which collections, records, data, photographs, and other documents resulting from work under this permit shall be deposited for permanent preservation on behalf of the United States Government. N/A

A copy of the final report and CD with PDF copy will be submitted to the Bureau of Indian Affairs Eastern Oklahoma Region Office.

13. Permittee is required to observe the listed standard permit conditions and the special permit conditions attached to this permit.

14. Signature and title of approving official Acting Regional Director	15. Date 6-22-2016

15. Standard Permit Conditions

a. This permit is subject to all applicable provisions of 43 CFR Part 3, 43 CFR 7, and 25 CFR 262, and applicable departmental and bureau policies and procedures, which are made a part hereof.

b. The permittee and this permit are subject to all other Federal, State, and local laws and regulations applicable to the public lands and resources.

c. This permit shall not be exclusive in character, and shall not affect the ability of the land managing bureau to use, lease or permit the use of lands subject to this permit for any purpose.

d. This permit may not be assigned.

e. This permit may be suspended or terminated for breach of any condition or for management purposes at the discretion of the approving official, upon written notice.

f. This permit is issued for the term specified in 11 above.

g. Permits issued for a duration of more than one year must be reviewed annually by the agency official and the permittee.

h. The permittee shall obtain all other required permit(s) to conduct the specified project.

i. Archeological project design, literature review, development of the regional historic context framework, site evaluation, and recommendations for subsequent investigations must be developed with direct involvement of an archeologist who meets the Secretary of the Interior's Standards for Archeology and Historic Preservation; fieldwork must be generally overseen by an individual who meets the Secretary of the Interior's Standards for Archeology and Historic Preservation.

j. Permittee shall immediately request that the approving official (14. above) make a modification to accommodate any change in an essential condition of the permit, including individuals named and the nature, location, purpose, and time of authorized work, and shall without delay notify the approving official of any other changes affecting the permit or regarding information submitted as part of the application for the permit. Failure to do so may result in permit suspension or revocation.

k. Permittee may request permit extension, in writing, at any time prior to expiration of the term of the permit, specifying a limited, definite amount of time required to complete permitted work.

l. Any correspondence about this permit or work conducted under its authority must cite the permit number. Any publication of results of work conducted under the authority of this permit must cite the approving bureau and the permit number.

m. Permittee shall submit a copy of any published journal article and any published or unpublished report, paper, and manuscript resulting from the permitted work (apart from those required in items q. and s., below), to the approving official and the appropriate official of the approved curatorial facility (item 12 above).

n. Prior to beginning any fieldwork under the authority of this permit, the permittee, following the affected bureau's policies and procedures, shall contact the field office manager responsible for administering the lands involved to obtain further instructions.

o. Permittee may request a review, in writing to the official concerned, of any disputed decision regarding inclusion of specific terms and conditions or the modification, suspension, or revocation of this permit, setting out reasons for believing that the decision should be reconsidered.

p. Permittee shall not be released from requirements of this permit until all outstanding obligations have been satisfied, whether or not the term of the permit has expired. Permittee may be subject to civil penalties for violation of any term or condition of this permit.

15. Standard Permit Conditions (continued)

q. Permittee shall submit a preliminary report to the approving official within a timeframe established by the approving official, which shall be no later than 6 weeks after the completion of any episode of fieldwork, setting out what was done, how it was done, by whom, specifically where, and with what results, including maps, GPS data, an approved site form for each newly recorded archeological site, and the permittee's professional recommendations, as results require. If other than 6 weeks, the timeframe shall be specified in Special Permit Condition p. Depending on the scope, duration, and nature of the work, the approving official may require progress reports, during or after the fieldwork period or both, and as specified in Special Permit Condition r.

r. Permittee shall submit a clean, edited draft final report to the agency official for review to insure conformance with standards, guidelines, regulations, and all stipulations of the permit. The schedule for submitting the draft shall be determined by the agency official.

s. Permittee shall submit a final report to the approving official not later than 180 days after completion of fieldwork. Where a fieldwork episode involved only minor work and/or minor findings, a final report may be submitted in place of the preliminary report. If the size or nature of fieldwork merits, the approving official may authorize a longer timeframe for the submission of the final report as specified in Special Permit Condition q.

t. Two copies of the final report, a completed NTIS Report Documentation Page (SF-298), available at http://www.ntis.gov/pdf/rdpform.pdf, and a completed NADB-Reports Citation Form, available at http://www.cr.nps.gov/aad/tools/nadbform_update.doc, will be submitted to the office issuing the permit.

u. The permittee agrees to keep the specific location of sensitive resources confidential. Sensitive resources include threatened species, endangered species, and rare species, archeological sites, caves, fossil sites, minerals, commercially valuable resources, and sacred ceremonial sites.

v. Permittee shall deposit all artifacts, samples and collections, as applicable, and original or clear copies of all records, data, photographs, and other documents, resulting from work conducted under this permit, with the curatorial facility named in item 12, above, not later than 90 days after the date the final report is submitted to the approving official. Not later than 180 days after the final report is submitted, permittee shall provide the approving official with a catalog and evaluation of all materials deposited with the curatorial facility, including the facility's accession and/or catalog numbers.

w. Permittee shall provide the approving official with a confirmation that museum collections described in v. above were deposited with the approved curatorial facility, signed by an authorized curatorial facility official, stating the date materials were deposited, and the type, number and condition of the collected museum objects deposited at the facility.

x. Permittee shall not publish, without the approving official's prior permission, any locational or other identifying archeological site information that could compromise the Government's protection and management of archeological sites.

y. For excavations, permittee shall consult the OSHA excavation standards which are contained in 29 CFR §1926.650, §1926.651 and §1926.652. For questions regarding these standards contact the local area OSHA office, OSHA at 1-800-321-OSHA, or the OSHA website at http://www.osha.gov.

z. Special permit conditions attached to this permit are made a part hereof.

16. Special Permit Conditions

- ■ a. Permittee shall allow the approving official and bureau field officials, or their representatives, full access to the work area specified in this permit at any time the permittee is in the field, for purposes of examining the work area and any recovered materials and related records.
- ■ b. Permittee shall cease work upon discovering any human remains and shall immediately notify the approving official or bureau field official. Work in the vicinity of the discovery may not resume until the authorized official has given permission.
- ■ c. Permittee shall backfill all subsurface test exposures and excavation units as soon as possible after recording the results, and shall restore them as closely as reasonable to the original contour.
- ☐ d. Permittee shall not use mechanized equipment in designated, proposed, or potential wilderness areas unless authorized by the agency official or a designee in additional specific conditions associated with this permit.
- ■ e. Permittee shall take precautions to protect livestock, wildlife, the public, or other users of the public lands from accidental injury in any excavation unit.
- ■ f. Permittee shall not conduct any flint knapping or lithic replication experiments at any archeological site, aboriginal quarry source, or non-site location that might be mistaken for an archeological site as a result of such experiments.
- ■ g. Permittee shall perform the fieldwork authorized in this permit in a way that does not impede or interfere with other legitimate uses of the public lands, except when the authorized officer specifically provides otherwise.
- ■ h. Permittee shall restrict vehicular activity to existing roads and trails unless the authorized officer provides otherwise.
- ■ i. Permittee shall keep disturbance to the minimum area consistent with the nature and purpose of the fieldwork.
- ■ j. Permittee shall not cut or otherwise damage living trees unless the authorized officer gives permission.
- ■ k. Permittee shall take precautions at all times to prevent wildfire. Permittee shall be held responsible for suppression costs for any fires on public lands caused by the permittee's negligence. Permittee may not burn debris without the authorized officer's specific permission.
- ■ l. Permittee shall conduct all operations in such a manner as to prevent or minimize scarring and erosion of the land, pollution of the water resources, and damage to the watershed.
- ■ m. Permittee shall not disturb resource management facilities within the permit area, such as fences, reservoirs, and other improvements, without the authorized officer's approval. Where disturbance is necessary, permittee shall return the facility to its prior condition, as determined by the authorized officer.
- ■ n. Permittee shall remove temporary stakes and/or flagging, which the permittee has installed, upon completion of fieldwork.
- ■ o. Permittee shall clean all camp and work areas before leaving the permit area. Permittee shall take precautions to prevent littering or pollution on public lands, waterways, and adjoining properties. Refuse shall be carried out and deposited in approved disposal areas.
- ☐ p. Permittee shall submit the preliminary report within _____ days/weeks of completion of any episode of fieldwork..
- ■ q. Permittee shall submit the final report within _____ days/weeks/months after completion of fieldwork..
- ☐ r. Permittee shall submit progress reports every _____ months over the duration of the project.
- ■ s. Additional special permit conditions are attached.

Permit No. _ EOR-FAPWT-16-01

DI Form 1991 (Rev Jan 2008) Page 5

Special Permit Conditions Continuation Sheet

Human Remains, funerary objects, sacred objects, and objects of cultural patrimony may not be excavated or removed unless the permittee has first obtained the written consent of the tribe having jurisdiction over the lands. Ownership and control of the items shall be in accordance with the order of priority provided in the Native American Graves Protection and Repatriation Act. The permittee must also obtain the written consent of the Regional Director.

Artifacts recovered from shovel testing activities are to be returned to the Cherokee Nation Tribal Historic Preservation Officer per the instruction of Sheila Bird. Please update the cultural preservation office on the project status as often as possible. Shelia Bird, Tribal Historic Preservation Officer, Cherokee Nation, PO Box 948, Tahlequah, Oklahoma. Phone: 918-453-5389

Email: sheila-bird@cherokee.org

The Tribal Historic Preservation Officer may instruct the use of Tribal monitoring in sensitive areas. The field director is responsible for communicating project highlights.

Should testing activities reveal anomalies, additional methods may be authorized through subsequent consultation prior to project construction.

By signing below, I, the Principal Investigator, acknowledge that I have read and understand the Permit for Archeological Investigations and agree to its terms and conditions as evidenced by my signature below and initiation of work or other activities under the authority of this permit.

Signature and title:	Date:
Christopher Cozen	6/22/16

Paperwork Reduction Act and Estimated Burden Statement: This information is being collected pursuant to 16 U.S.C. 470cc and 470mm, to provide the necessary facts to enable the Federal land manager (1) to evaluate the applicant's professional qualifications and organizational capability to conduct the proposed archeological work; (2) to determine whether the proposed work would be in the public interest; (3) to verify the adequacy of arrangements for permanent curatorial preservation, as United States property, of specimens and records resulting from the proposed work; (4) to ensure that the proposed activities would not be inconsistent with any management plan applicable to the public lands involved; (5) to provide the necessary information needed to complete the Secretary's Report to Congress on Federal Archeology Programs; and (6) to allow the National Park Service to evaluate Federal archeological protection programs and assess compliance with the Archaeological Resources Protection Act of 1979 (16 U.S.C. 470). Submission of the information is required before the applicant may enjoy the benefit of using publicly owned archeological resources. To conduct such activities without a permit is punishable by felony-level criminal penalties, civil penalties, and forfeiture of property. A federal agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. Public reporting for this collection of information is estimated to average three hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Departmental Consulting Archeologist; NPS; 1849 C Street, NW (2275); Washington, DC 20240-0001.

Christopher A. Cojeen Archaeology
Principal Investigator Research
Cojeen Archaeological Services, LLC History

ARPA Permit Application, Part 11:

a) The project entails the placement of 21 turbine pads, 27,122 linear feet of access roads, and 17,907 linear feet of (underground) collector lines in portions of Sections 13, 24 and 25 T29N R2E (maps attached). A 10-acre lay-down yard is also planned. A records search of known archaeological resources near or within the boundaries of the proposed project area would be preformed prior to a field survey. Historic homesteads may be located on older aerial photographs. This records search would determine whether cultural resources are known to exist in the study area, and to provide a limited general cultural resource summary based on a regional synthesis of known sites.

During the course of an archaeological survey, Cojeen Archeological Services, LLC (CAS) personnel will examine ground surface for evidence of cultural resources, with shovel tests concentrated 600 ft. either side of Chilocco Creek, which has the greatest potential for prehistoric resources. Surface visibility, as well as topographical and hydrological factors in the field will determine the extent of shovel testing.

Once CAS locates any cultural resources we will establish the horizontal and vertical extent of the material, in order to delineate the boundaries of the site. If the site is not found to contain significant archaeological materials or features, no avoidance will be recommended. If the site has potential for additional research, avoidance will be recommended. Per BIA request, no artifacts will be collected.

Upon completion of fieldwork, a report of acceptable quality will be presented for the client to submit to the appropriate agencies for their review.

The investigations documented in the final report will address the surface expression of any cultural resources located in the proposed project area. The primary goals of this survey would be to identify both prehistoric and historic archaeological sites within the project area, and to provide recommendations concerning the avoidance of these sites from proposed activities if necessary. By strict definition, cultural resources are any evidence of human use or occupation, however for an archaeological study this term is restricted to cultural remains that are at least 45 years of age.

b) CAS maintains vehicles and all equipment necessary for field investigations in Norman, Oklahoma. Office and office staff (Thomas Lindsey, B.A.) are located in Norman, Oklahoma. Additional field personnel include Meghan Dudley (M.A.-lacks thesis) and Aaron Varela, B.A.

c) Under the direction of Christopher A. Cojeen, Principal Investigator, CAS has conducted thousands of archaeological investigations in Oklahoma since 1982. During this time, we have worked on BLM, BIA, Forest Service, Bureau of Reclamation, U. S. Army Corps of Engineers, and State lands throughout Oklahoma.

d) Vitas of supervisory personnel are attached.

e) Per BIA request, no collection of artifacts will occur. Artifacts will be recorded/left in the field.

VITA

CHRISTOPHER A. COJEEN

Principal Investigator, Cojeen Archaeological Services, LLC

Address: P.O. Box 1186
Norman, Oklahoma 73070
(405) 360-9996
email: cojeenarch@sbcglobal.net

EDUCATION

Western Michigan University: 1978-1981. M.A. 1982 (Anthropology--emphasis North American Archaeology; thesis: Eastern Wyoming).
Michigan State University: 1974-1978. B.S. 1978 (Anthropology/Geography).

PROFESSIONAL SOCIETIES

Register of Professional Archaeologists (RPA)
Plains Anthropological Society

EXPERIENCE

Mr. Cojeen has over 35 years of field, laboratory and analysis experience at cultural resource sites throughout the U.S. and abroad, including:

> Alaska, Arkansas, California, Colorado, Florida, Hawaii, Kansas, Michigan, Nebraska, Oklahoma, Texas, Wyoming, West Germany, Wales, Isle of Man

From August 1982 to present, Mr. Cojeen has served as Principal Investigator/archaeological consultant/owner of an independent cultural resource management consulting business (Cojeen Archaeological Services, LLC). Responsible for all aspects of fieldwork and report preparation for over 2,000 energy related and other Section 106 undertakings.

* Prepared 30 years of reports for submission to State and Federal agencies, as well as working as Principal Investigator for the Cherokee Nation for 20 years

* Participated in archaeological investigations prior to development projects in numerous regions of the Unites States

* Development of cultural resource management overviews for numerous oil and gas field areas in Oklahoma

* Designed and completed testing and mitigation projects prior to development activities, including both prehistoric and historic excavations.

James Munkres, M.A.

(702) 769-4804 ▪ jwmunkres@gmail.com
118 S. Berry ▪ Norman, Oklahoma ▪ 73069

NHPA ▪ NEPA

Experience Summary

Over 13 years of supervised and supervisory experience in the identification and excavation of archaeological sites; the recovery, curation, and analysis of human skeletal remains; conducting and reporting on research and analysis in compliance with NAGPRA; monitoring of construction activities in the vicinity of Historic Properties; participating in government-to-government consultation as a Tribal representative on matters related to the NHPA, NAGPRA, NEPA, ARPA, and AIRFA; NHPA Sections 106 and 110 compliance review; the presentation of invited lectures on matters related to Section 106 of the NHPA, Forensic Archaeology, and the methods and goals of Cultural Resource Management; and participation in professional conferences related to fields of Archaeology and Historic Preservation.

Education

M.A. Anthropology, University of Nevada–Las Vegas, Las Vegas, Nevada, May 2009
B.A. Anthropology, University of Oklahoma, Norman, Oklahoma, May 2000
A.A. Sociology, Rose State College, Midwest City, Oklahoma, May 1997

Professional Employment

Archaeologist: Cojeen Archaeological Services, LLC, Oklahoma and Surrounding States
October 2013 through Present
Services include assistance with the development of agreement documents concerning NHPA, NEPA, ARPA, NAGPRA, and AIRFA; the review and analysis of cultural material and human skeletal remains associated with processes conducted pursuant to NAGPRA; project management and planning; supervised and unsupervised pedestrian and reconnaissance cultural resource surveys typically under hazardous or difficult circumstances; drafting of reports documenting the conduct and results of cultural resource identification efforts; recording prehistoric and historic archaeological sites; and supervised conduct of excavation of NRHP-eligible archaeological sites.

Archaeologist: Osage Nation Historic Preservation Office, Pawhuska, Oklahoma
May 2009 through October 2013
Duties included participation in key government-to-government consultations concerning NHPA, NEPA, ARPA, NAGPRA, and AIRFA; research into site exploitation related to collection of items and human skeletal remains subject to the provisions of NAGPRA; evaluation and analysis of material collections and human skeletal remains associated with NAGPRA processes and reviews; development of agreement documents concerning NHPA, NEPA, ARPA, NAGPRA, and AIRFA; review of notification letters, supporting documentation, and identification and mitigation efforts performed pursuant to the provisions of the NHPA; and assisting with the general management and improvement of the Osage Nation Historic Preservation Office.

Graduate Assistant: Department of Anthropology, University of Nevada–Las Vegas, Las Vegas, Nevada
May 2006 through May 2009

Duties included classroom lecture preparation and presentation; laboratory section preparation and presentation; student evaluation; and curation of human remains, including the inventory, preliminary analysis, and overall improvement of the curatorial status of human skeletal remains while working in the Anthropology Department's Human Remains and Osteological Laboratory.

Archaeologist: Self-Employed, Oklahoma and Surrounding States
May 2000 through October 2003
Duties included supervised and unsupervised pedestrian and reconnaissance cultural resource surveys that were largely supplemented by subsurface testing; project management and planning; unsupervised management of multi-week cultural resource identification efforts, typically under hazardous or difficult circumstances; drafting of reports documenting the conduct and results of cultural resource identification efforts; recording prehistoric and historic archaeological sites; the recovery of human remains from a discrete burial in a primary context; and supervised conduct of excavation of NRHP-eligible archaeological sites.

Continuing Education Topics

NAGPRA, Native American Cultural Property Law, Section 106, National Register of Historic Places, Traditional Cultural Places, Agreement Documents through the National Preservation Institute, the Advisory Council on Historic Preservation, and the Oklahoma State Historic Preservation Office

Areas of Expertise

Section 106 and 110 of the National Historic Preservation Act, Agreement Development, Native American Graves Protection and Repatriation Act, Preparation and Presentation of Presentations and Lectures, Archaeological Standards and Methods, Cultural Reconnaissance Survey, Project Management and Logistics, Archaeological and Biological Taphonomy, Osteological Methods, Curation, and Reports, Relevant Federal Structures and Operations

Areas of Familiarity

National Environmental Policy Act, Ground-Penetrating Radar, Budget Development, and the Archaeological Resources Protection Act

Professional Organizations and Memberships

Society for American Archaeology, Oklahoma Historical Society, Arkansas Archeological Society, Missouri Archaeological Society

Additional information available upon request.

VITA

Amy Camden Cojeen

Cojeen Archaeological Services, LLC

920 McNamee
Norman, OK 73069
405-360-9996

Experience

1995-Present Cojeen Archaeological Services, Norman, OK
Archeological Field Supervisor, Research,
Crew Management.

Phase I, Phase II and Phase III mitigation and excavations
Historic records research
Laboratory analysis
Assisted in organizing and planning volunteer surveys and
Excavation including Paleo-Indian site 34LT287, Oklahoma

Field Director:
Blue Canyon Wind Farm, Caddo County, Oklahoma
Limited Testing at Archeological Sites 34DL300 and 34DL301, Delaware County, Oklahoma
Limited Testing at Archeological Sites 34MR003 and 34MR050, Murray County, Oklahoma
Limited Testing at Archeological Site 34GR197, Greer County, Oklahoma

Education

1997 University of Oklahoma, BA in Anthropology

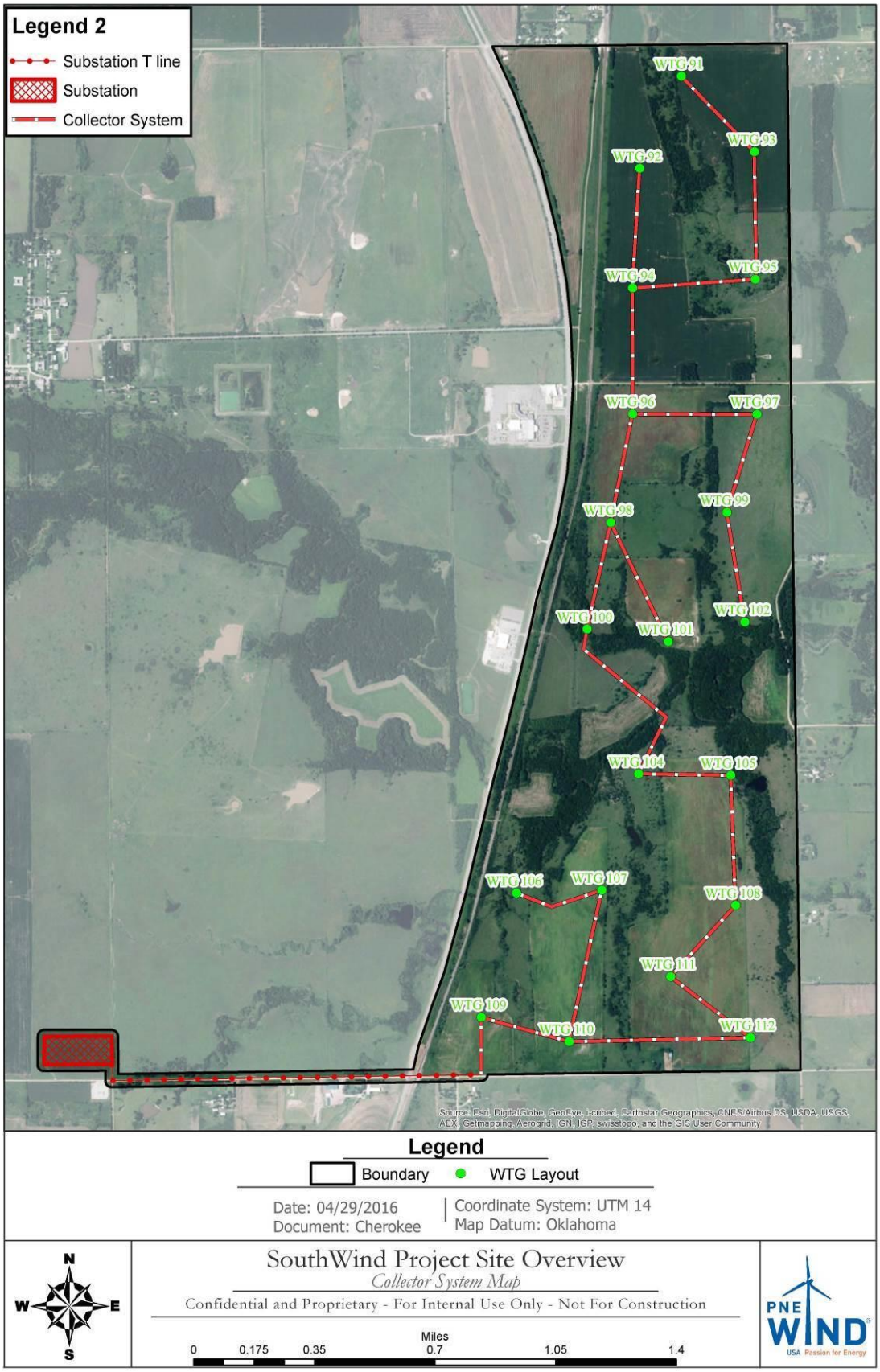
July 1992 Field School, Iowa Department of Transportation
Under the direction of Mark Anderson, excavated a historic farmstead and prehistoric rock shelter site in Iowa

Selected Reports

Report on the Archeological Survey of Portions of the Burlington Northern Santa Fe Railway Company Proposed Oklahoma State Line to Brinks, Oklahoma Capacity Improvement Project, Alfalfa and Woods Counties, Oklahoma

Report on the Archeological Study of the Proposed Phase II of the Blue Canyon Windpower, L.L.C. Blue Canyon Wind Farm, Kiowa County, Oklahoma

Report on the Archeological Survey of the Cholla Petroleum, Inc. Proposed Wells Located on Brazos River Authority Administered Lands at Possum Kingdom Lake, Palo Pinto County, Texas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Document: Cherokee
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Collector System Map
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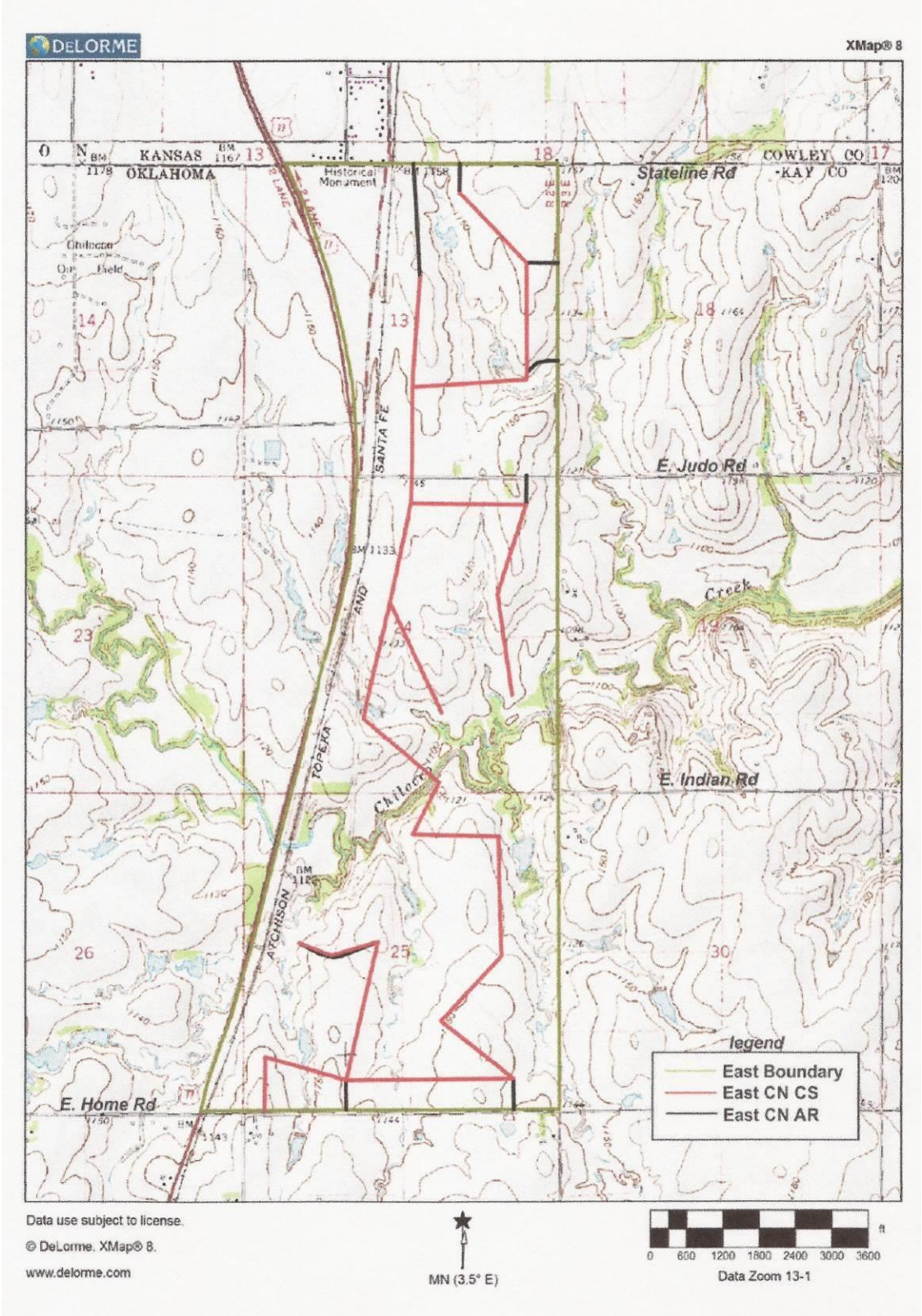
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Data use subject to license.
© DeLorme. XMap® 8.
www.delorme.com
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UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF INDIAN AFFAIRS
CHEROKEE NATION

OWNERS CONSENT TO RIGHT OF ENTRY

ACCESS DATES: June 15, 2016 and July 14, 2016

Owner: United States of America in Trust for Cherokee Nation

Grantor: Cherokee Nation

Legal Description. Township 29 North, Range 2 East, I B.&M., Kay County, Oklahoma
Section 13
Section 24 All that part lying East of RR ROW.
Section 25 All that part lying East of RR ROW.
Section 26 All that part lying East of RR ROW.

Purpose of Right of Entry. Section 106 Survey. Access is WALK IN only.

The undersigned authorized owner of said described land hereby consents the Right of Entry upon said USA in Trust Indian Lands to:

Christopher Cojeen, Principal Investigator
Cojeen Archeological Services, LLC
920 McNamee Street
PO Box 1186
Norman, OK 73070
Phone: 405-360-9996
Cell Phone: 405-412-6580
cojeenarch@sbcglobal.net

James Munkres, Archeologist
Cojeen Archeological Services, LLC
Cell Phone: 702-769-4804

Amy Cojeen, Archeological Field Supervisor
Cojeen Archeological Services, LLC
Cell Phone: 405-229-3112

Authorized representatives of:
Andy Zalay, Senior Developer
PNE WIND USA, Inc.
150 North Michigan Avenue, Suite 1500
Chicago, Illinois 60601.
Andy.zalay@pnewind.com,
Phone: 312-873-2241, Mobile: 312-465-0745, Fax· 312-873-2256.

Other terms or comments: **Right of Entry is for the aforementioned purpose and any other use will be treated as trespass.**

Authorized Owner/Representative:

Ginger Reeves, Realty Director, Cherokee Nation

SUBSCRIBED and sworn to before me this 19th day of May, 2016.

MARSHEA HALTERMAN NOTARY # 04006116 EXP. 07/08/16 PUBLIC OF OKLAHOMA

Marshea Halterman, Notary Public

My commission expires. 7-8-2016
My Commission No: 04006116

APPENDIX D
SITE FORMS

Oklahoma
Archeological Site Survey Form

Site 34KA528
County KAY

Complete All Sections

1. Site Number and Name
Site Name

(derived from owners' name, etc.)

Project No Locality 10

(temporary number or name assigned during project)

2. Locational Information

U.T.M. Reference

Zone	Northing	Easting
14S	4095496	0675193

Legal Description

SE/NE/SE of Section 13 Township 29N Range 2E

U.S.G.S. Quad Name
Newkirk

Quad Date (revised)
1968 (1976 photoinspected)

Other Locational References (i.e., benchmarks, road intersections, bridges, etc. please give distance and bearing to site)

Approximately 0.3 miles north-northwest of the intersection of Juno Road and North La Cann Road

3. Owner(s) of Property
Name(s)
Cherokee Nation
Street and Number
17675 S. Muskogee Ave.

City and Town
Tahlequah

State
OK

Zip Code
74464

4. Site Surveyed By:
Name
Cojeen Archaeological Services, LLC

Reported by: (if different)
Name

Date Recorded
7/6/2016

Time spent at site and time of day
4 hours, p.m.

5. Cultural Affiliation

Cultural Periods

☐ Unassigned Prehistoric				☐ Village Farming/Mississippian
☐ Paleoindian	☐ Early	☐ Middle	☐ Late	☐ Plains Village
☐ Archaic	☐ Early	☐ Middle	☐ Late	☒ Protohistoric/Historic Indian
☐ Woodland	☐ Eastern	☐ Plains		☐ Historic non-Indian

Archeological Cultures, Phases, etc. Represented

_____

How was cultural affiliation determined (diagnostic artifacts, radiocarbon dates, etc.)

_____

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6. Historic Phase Identification (Ethnic) ___

Circle appropriate group

1. Choctaw	11. Pawnee	21. Creek
2. Cherokee	12. Arapaho	22. Dakotas
3. Sauc-Fox	13. Ottawa	23. Chickasaw
4. Pottawatomie	14. Wichita	24. 12 &17
5. Seminole	15. Quapaw	25. Missouri-Otos
6. Comanche	16. Osage	26. Iowa
7. Apache	17. Cheyenne	27. Anglo-American
8. Kiowa	18. Caddo	28. French
9. Kiowa-Apache	19. Shawnee	29. Spanish
10. Kickapoo	20. Delaware	30. Other _____

How was historic identification determined?

_____

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7. Historic Site Range 5

0. Missing data; unknown	5. 1890-1929
1. pre-1800	6. 1930-1950
2. 1800-1830	7. 1800-1900
3. 1830-1859	8. 1800-present
4. 1860-1889	9. 1900-present

8. Inferred Site Type (can be more than one category)

- ☐ open habitation w/o mounds
- ☐ open habitation with mounds
- ☐ earth mound (not midden mound)
- ☐ mound complex
- ☐ stone mound/rock piles
- ☐ burned rock concentrations
- ☐ non-mound earthworks
- ☐ rock shelter
- ☐ cave
- ☐ quarry/workshop
- ☐ petroglyph - pictograph
- ☐ isolated burials (<2)
- ☐ cemetery (>2)
- ☐ specialized activity sites
- ☐ rock alignments (tipi rings, etc.)
- ☐ historic farmstead
- ☒ historic mill/industrial
- ☐ historic fort
- ☐ dugout
- ☐ historic trash dump

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9. Midden At Site

- ☒ don't know
- ☐ absent
- ☐ present, earth
- ☐ present shell
- ☐ present, rock

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10. Materials Collected

Type	Number	Type	Number
☐ ceramics	____	☐ scrapers (unshafted)	____
☐ projectile points/ base fragments	____	☐ debitage (flakes, cores, chunks)	____
☐ hafted scrapers	____	☐ ground/pecked/battered stone	____
☐ drills	____	☐ worked bone/shell	____
☐ bifaces/frags.	____	☐ human bone	____
☐ unifaces	____	☐ faunal remains	____
☐ perforators/ gravers	____	☐ floral remains	____
☐ spokeshaves	____	☐ other prehistoric	____
		☒ historic (describe)	47

Total Items 47

Briefly describe diagnostic artifacts including type names. Attach outline drawings.

Collected material included eight clinkers, one undecorated stoneware fragment, 7 rusted metal fragments, and 31 clear glass fragments.

Materials observed but not collected
Approximately 4 fragments of unidentified rusted metal fragments

Name and address of other collections from site

11. Artifact Repository

Name of institution where artifacts are to be stored

Photos

☐ black and white ____ no. of pictures

☒ color 8 no. of pictures

Name and address of institution where photos are filed

CAS, P.O. Box 1186, Norman, OK 73072

12. Evidence of Recent Vandalism Observed:

☒ no ☐ yes

13. Site Condition: 5

1. apparently undisturbed
2. <25% disturbed
3. 26-50% disturbed
4. 51-75% disturbed
5. 76-99% disturbed
6. totally destroyed
7. disturbed, % unknown

14. Major Land Use

☐ cultivated field ☐ modern cemetery ☐ commercial
☒ pasture ☐ mining ☐ military
☐ woods, forest ☐ inundated ☐ logging/fire break
☐ road/trail ☐ industrial ☒ scrub/secondary growth/old field
☐ ditch/dike/barrow pit ☐ residential ☐ modern dump
☐ landfill ☐ recreation

Other

15. Amount of Ground Surface Visible

1. <10%	3. 26-50%	5. 76-90%
2. 11-25%	4. 51-75%	6. 91-100%

Survey Conditions (wet, dry, sunny, ground coverage, etc.):
warm, dry, no impediments to survey

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16. Physiographic Division: 4

1. High Plains	6. Sandstone Hills
2. Gypsum Hills	7. Prairie Plains
3. Wichita Mtns.	8. Ozark Plateau
4. Red Bed Plains	9. Ouachita Mtns.
5. Arbuckle Mtns.	10. Red River Plains

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17. Landform Type: 4

1. Floodplain	4. Dissected Uplands
2. Terrace	5. Undissected Uplands
3. Hillside-Valley Wall	

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18. Locality Type (specific site setting): 1

1. Level	5. Mesa
2. Knoll-Low Land	6. Slope
3. Blowout	7. Bluff Crest
4. Ridge-Upland	8. Bluff Base

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19. Soils (if known)
Agra-Foraker complex, 3 to 5 percent slopes

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20. 1120 Elevation amsl ~0 Slope (degrees) south Slope (facing direction)

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21. Natural Vegetation: 2

1. short grasses	6. mesquite
2. mixed grasses	7. juniper-pinion
3. tall grasses	8. oak-hickory forest
4. cross-timber	9. oak-pine
5. shin-oak	10. loblolly pine forest

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22. Site Area 5000 (square meters)
Basis for area estimate: GPS

1. taped	3. guessed	5. alidade/transit
2. paced	4. range finder	

Confident of site boundaries ☒ yes ☐ no

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23. Description of Site:

Give physical description of site and its setting, including dimensions, features, nature of materials and artifacts concentrations. Include copy of U.S.G.S. topographic map with site location and boundaries marked.

34KA528 is approximately 250 feet × 250 feet (1.4 acres) in size and is located at 14S E0675193 N4095496 (UTM CONUS NAD83) in the SE/NE/SE Section 13 T29N R2E. The site is located approximately 0.3 miles north-northwest of the intersection of Juno Road and North La Cann Road, Kay County, Oklahoma. The locality consists of two very low linear rock alignments and one limestone stone well or cistern. Rusty metal fragments were observed in the vicinity of the first, and larger, of the two linear rock alignments. A road trace runs from the north-central portion of the site for approximately 400 feet to the east. Three positive shovel tests yielded a total of 47 artifacts, including clinkers, clear bottle and window glass, round-head nails, and two horseshoe fragments. The features and artifacts suggest a twentieth-century farmstead, with possible landscape stabilization features and a structure that is now no longer present. The site is located on a gently sloping (~5°), south-facing, upland pasture. Surface visibility in the farmstead area was very low (<10 percent) and vegetation consisted of low mixed prairie grasses and sparse immature hardwoods and brush.

The first of the two very low rock alignments consists of a single course of very roughly-cut limestone blocks approximately 1 ft^3 in size. The alignment is roughly oriented east-west and is approximately 40 feet in length. The western terminus of the alignment is located at 14S E0675179 N4095493 (UTM CONUS NAD83). The eastern terminus of the alignment is located at 14S E0675193 N4095496 (UTM CONUS NAD83). The alignment is located in the southwestern portion of the site area. A shovel test excavated approximately 10 feet to the north of the center of the alignment yielded eight clinkers, eight shards of clear pane and bottle glass, two horseshoe metal fragments, and one sherd of undecorated stoneware. The second of the two very low rock alignments consists of approximately eight thin (~6"), short (12") blocks of cut limestone. These were roughly flush with the ground surface. The alignment was approximately eight feet in length, roughly oriented north-south, appears to be associated with the narrow road trace, and is located at 14S E0675190 N4095526 (UTM CONUS NAD83). Shovel tests excavated in the vicinity of the second alignment yielded no cultural material. The alignment is located in the north-central portion of the site. The limestone stone well or cistern consists of several courses of small 8"×5"×6" rough-cut limestone blocks partially capped by a large (3´×3´×1.5´) limestone block. The large limestone block, a tree growing adjacent to the feature, and wood debris and leaves observed inside the well or cistern, obscure the bottom of the feature. The well or cistern is approximately 3 feet in diameter and is located at 14S E0675194 N4095512 (UTM CONUS NAD83). The well or cistern is located in the central portion of the site.

The locality is not apparent on GLO plat maps completed in 1872 and 1907 and aerial photographs taken in 1938, 1954, and 1966.

NRHP eligibility of this site has not been assessed. Three features, including a well or cistern, were observed and artifacts were recovered from three shovel tests. The site may be potentially eligible under criteria A, B, or D. The proposed project has been redesigned in order to avoid the

resource.

24. Drainage: 1

1. Arkansas	7. Illinois	13. Poteau
2. Beaver-N. Canadian	8. Kiamichi	14. Red
3. Canadian	9. Little River (McCurtain Co.)	15. Salt Fork Arkansas
4. Caney	10. Muddy Boggy	16. Salt Fork Red
5. Cimarron	11. Neosho	17. Verdigris
6. Deep Fork	12. North Fork Red	18. Washita

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25. Nearest Natural Source of Water: 2

1. Permanent stream/creek	5. River
2. Intermittent stream	6. Slough or oxbow lake
3. Permanent spring	7. Relic stream channel (if observable)
4. Intermittent spring/seep/bog	8. Also consider wells if site is historic

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26. Distance to Water (in 10's of meters): 6

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27. Investigation Type: 1

1. Reconnaissance (survey)	3. Excavated
2. Intensive (survey and testing)	4. Volunteered report

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28. Significance Status:

- ☐ National Register Property
- ☐ Eligible for National Register
- ☐ Nominated to National Register by SHPO
- ☐ Considered eligible but not nominated by SHPO
- ☐ Inventory Site
- ☒ National Register status not assessed

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29. Discuss the Potential Significance of the Site

NRHP eligibility of this site has not been assessed. The site may be potentially eligible under criteria A, B, or D.

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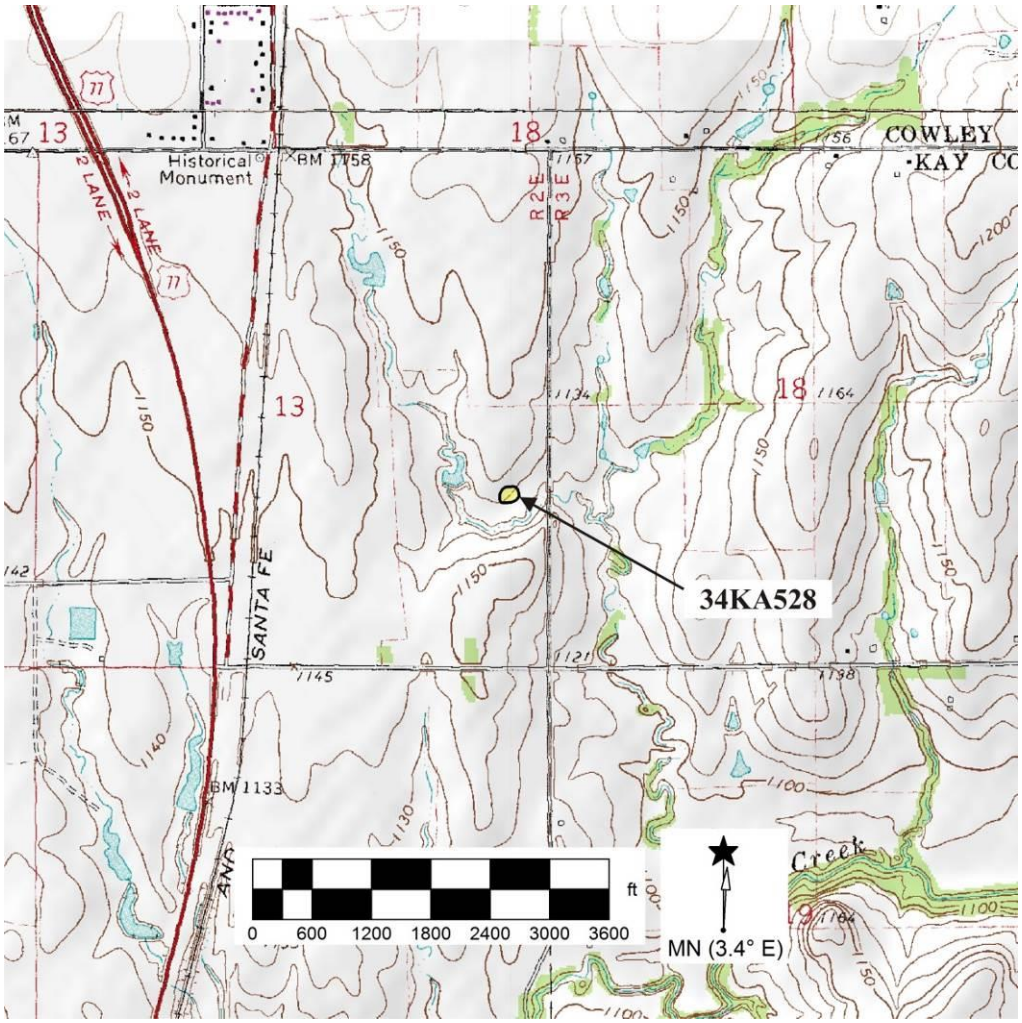
30. Published or Forthcoming Reports on the Site

Report on the Class III Archeological Survey of the PNE Wind, USA Proposed Cherokee East Addition to the Chilocco Wind Farm,
Kay County, Oklahoma


34KA528
Historical Monument
BM 1133
SANTA FE
2 LANE
COWLEY
KAY
R2E
R3E
0 600 1200 1800 2400 3000 3600 ft
MN (3.4° E)

HISTORIC PRESERVATION RESOURCE IDENTIFICATION FORM

PLEASE ENTER ALL DATA IN UPPERCASE

1. PROPERTY NAME: CHEROKEE CHECK DAM
2. RESOURCE NAME: SAME
3. ADDRESS: 1.75 MILES EAST OF CHILOCCO INDIAN AGRICULTURAL SCHOOL
4. CITY: NEWKIRK 4. VICINITY: V
6. COUNTY NAME: KAY
7. LOT: 8. BLOCK: 9. PLAT NAME:
10. SECTION: 24, NW/SE/NE 11. TOWNSHIP: 29 N 12. RANGE: 2 E
13. LATITUDE (NORTH): (ENTER AS: "dd.dddddd") 36.9798472°
14. LONGITUDE (WEST): (ENTER AS: "-dd.dddddd") -97.0344222°
15. UTM ZONE: 14 16. NORTHINGS: 4094442 17. EASTINGS: 674966
18. RESOURCE TYPE: STRUCTURE
19. HISTORIC FUNCTION: WATER-RELATED
20. CURRENT FUNCTION: WATER-RELATED
21. AREA OF SIGNIFICANCE, PRIMARY: AGRICULTURE
22. AREA OF SIGNIFICANCE, SECONDARY: CONSERVATION
23. DESCRIPTION OF SIGNIFICANCE: THIS SITE HAS LIMITED RESEARCH POTENTIAL AND WOULD NOT APPEAR ELIGIBLE FOR INCLUSTION ON THE NRHP.
24. DOCUMENTATION RESOURCE:
25. NAME OF PREPARER: COJEEN ARCHAEOLOGICAL SERVICES
59. SURVEY PROJECT: YES 26. PROJECT NAME: PNE WIND USA CHILOCCO CHEROKEE EAST
27. DATE OF PREPARATION: JULY, 2016 28. PHOTOGRAPHS YES
29. YEAR: 2016

30. ARCHITECT/BUILDER:

31. YEAR BUILT:

32. ORIGINAL SITE: YES

33. DATE MOVED:

34. FROM WHERE:

35. ACCESSIBLE: YES

36. ARCHITECTURAL STYLE: NO STYLE

37. OTHER ARCHITECTURAL STYLE:

38. FOUNDATION MATERIAL: LIMESTONE

39. ROOF TYPE:

40. ROOF MATERIAL: NO DATA

41. WALL MATERIAL, PRIMARY: LIMESTONE

42. WALL MATERIAL, SECONDARY: CONCRETE

43. WINDOW TYPE: NONE

44. WINDOW MATERIAL:

45. DOOR TYPE: NONE

46. DOOR MATERIAL:

47. EXTERIOR FEATURES: NONE

48. INTERIOR FEATURES: UNKNOWN

49. DECORATIVE DETAILS: NONE

50. CONDITION OF RESOURCE: FAIR (SOMEWHAT IN NEED OF MAINTENANCE)

51. DESCRIPTION OF RESOURCE: THIS IS AN EROSION-CONTROL FACILITY (CHECK DAM) CONSISTING OF A 143 FOOT LONG, 2.5 FOOT IDE, 2 FOOT HIGH ROUGH-CUT LIMESTONE AND COARSE AGGREGATE MORTAR WALL WITH TWO 2 FOOT BY 2 FOOT BUTTRESSES ON EITHER SIDE OF THE COURSE OF AN UNNAMED TRIBUTARY OF CHILOCCO CREEK.

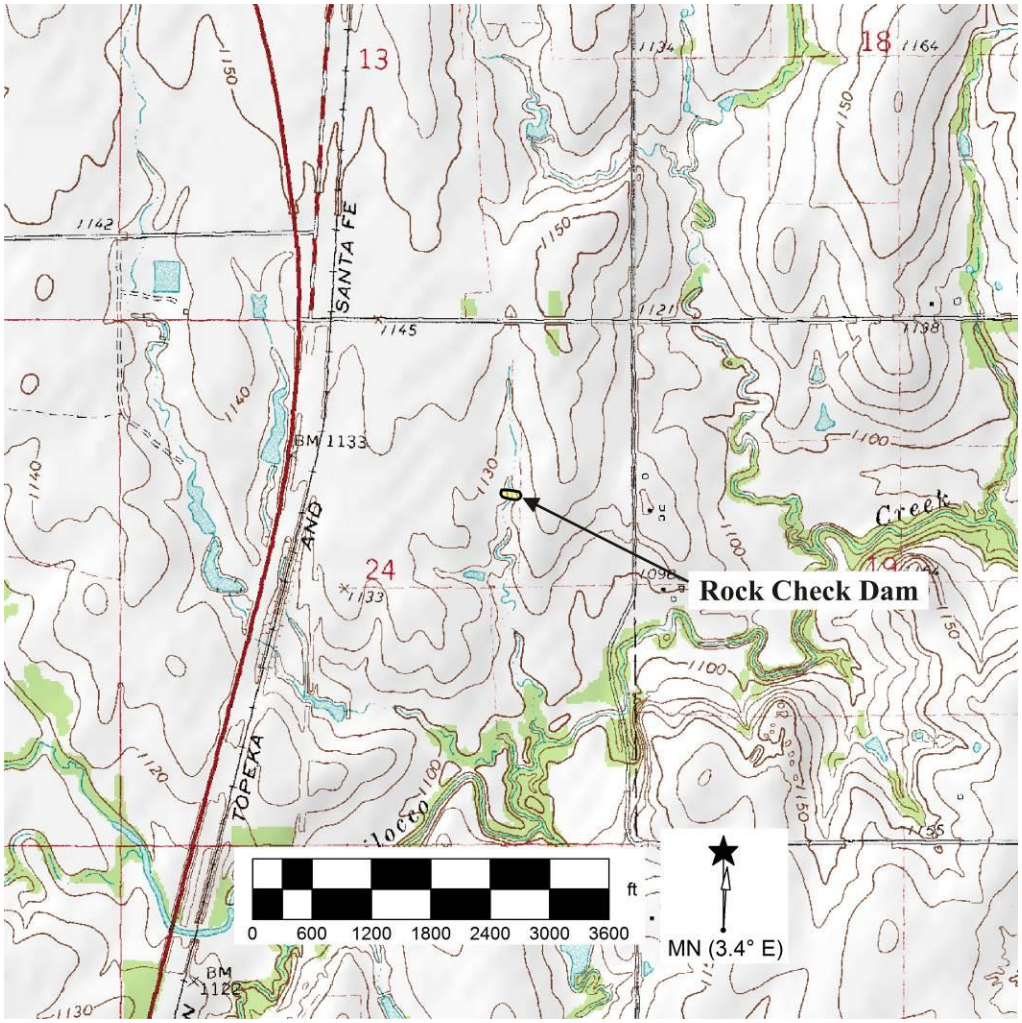
52. COMMENTS: NONE

53. ATTACH LOCATION MAP

54. LISTED ON NATIONAL REGISTER: NO

55. NATIONAL REGISTER ENTRY:

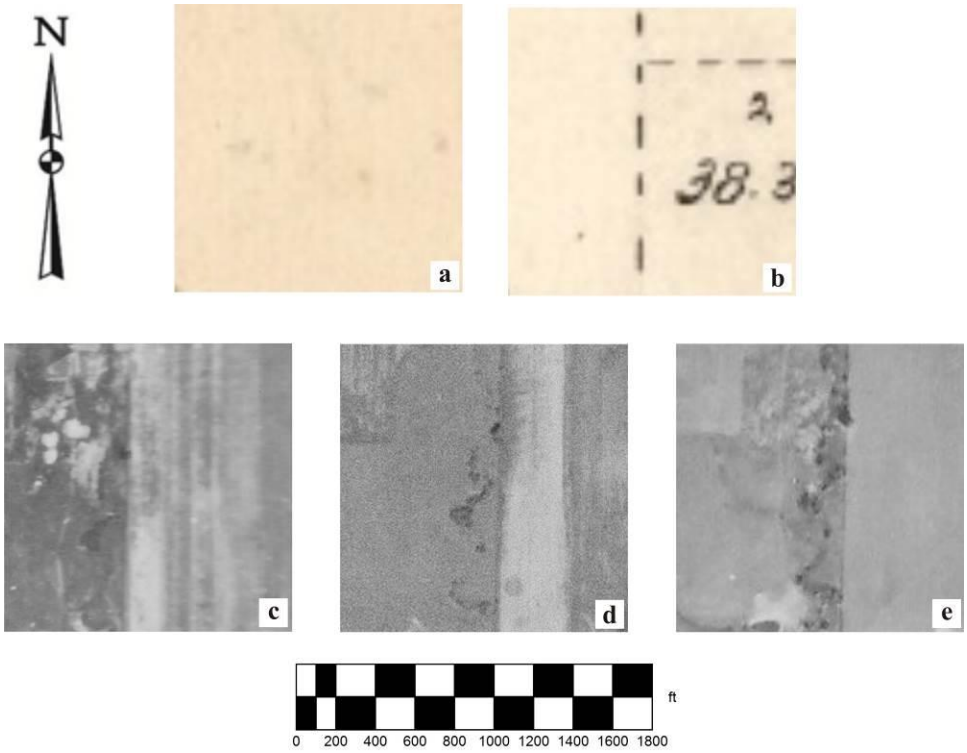
56. CONTINUATION THE STRUCTURE CROSSES A BROAD SHALLOW DRAW THAT FLOWS INTO CHILOCCO CREEK APPROXIMATELY 0.5 MILES TO THE SOUTH. VEGETATION CONSISTS OF DENSE MIXED MATURE HARDWOODS AND A LOW SPARSE UNDERSTORY. NO STRUCTURES APPEAR IN THE VICINITY OF THE SITE ON THE 1907 GLO MAP. THE WALL IS ALSO NOT VISIBLE ON EITHER A 1954 AERIAL PHOTOGRAPH OF THE AREA OR A 1977 AERIAL PHOTOGRAPH OF THE AREA.


Rock Check Dam
SANTA FE
TOPEKA AND
BM 1133
BM 1128
13
24
18
0 600 1200 1800 2400 3000 3600 ft
MN (3.4° E)

Rock Check Dam facing northwest.

Central portion of the check dam facing northeast.

Rock check dam facing east from the western terminus of the dam.



GLO maps and aerial photographs of the Rock Check Dam: (a) 1872; (b) 1907; (c) 1938; (d) 1954; and (e) 1966.

Oklahoma
Archeological Site Survey Form

Site 34KA529
County KAY

Complete All Sections

1. Site Number and Name
Site Name

(derived from owners' name, etc.)

Project No Locality 12

(temporary number or name assigned during project)

2. Locational Information

U.T.M. Reference

Zone	Northing	Easting
14S	4093535	0674731

Legal Description

SE/NE/SW of Section 24 Township 29N Range 2E

U.S.G.S. Quad Name
Newkirk

Quad Date (revised)
1968 (1976 photoinspected)

Other Locational References (i.e., benchmarks, road intersections, bridges, etc. please give distance and bearing to site)

Approximately 0.4 miles west of the intersection of East Indian Road and North La Cann Road

3. Owner(s) of Property
Name(s)

Cherokee Nation
Street and Number

17675 S. Muskogee Ave.

City and Town: Tahlequah
State: OK
Zip Code: 74464

4. Site Surveyed By:
Name
Cojeen Archaeological Services, LLC

Reported by: (if different)
Name

Date Recorded
7/6/2016

Time spent at site and time of day
4 hours, p.m.

5. Cultural Affiliation

Cultural Periods

☒ Unassigned Prehistoric				☐ Village Farming/Mississippian
☐ Paleoindian	☐ Early	☐ Middle	☐ Late	☐ Plains Village
☐ Archaic	☐ Early	☐ Middle	☐ Late	☐ Protohistoric/Historic Indian
☐ Woodland	☐ Eastern	☐ Plains		☐ Historic non-Indian

Archeological Cultures, Phases, etc. Represented

_____

How was cultural affiliation determined (diagnostic artifacts, radiocarbon dates, etc.)

_____

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6. Historic Phase Identification (Ethnic) ___

Circle appropriate group

1. Choctaw	11. Pawnee	21. Creek
2. Cherokee	12. Arapaho	22. Dakotas
3. Sauc-Fox	13. Ottawa	23. Chickasaw
4. Pottawatomie	14. Wichita	24. 12 &17
5. Seminole	15. Quapaw	25. Missouri-Otos
6. Comanche	16. Osage	26. Iowa
7. Apache	17. Cheyenne	27. Anglo-American
8. Kiowa	18. Caddo	28. French
9. Kiowa-Apache	19. Shawnee	29. Spanish
10. Kickapoo	20. Delaware	30. Other _____

How was historic identification determined?

_____

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7. Historic Site Range 5

0. Missing data; unknown	5. 1890-1929
1. pre-1800	6. 1930-1950
2. 1800-1830	7. 1800-1900
3. 1830-1859	8. 1800-present
4. 1860-1889	9. 1900-present

8. Inferred Site Type (can be more than one category)

- ☒ open habitation w/o mounds
- ☐ open habitation with mounds
- ☐ earth mound (not midden mound)
- ☐ mound complex
- ☐ stone mound/rock piles
- ☐ burned rock concentrations
- ☐ non-mound earthworks
- ☐ rock shelter
- ☐ cave
- ☐ quarry/workshop
- ☐ petroglyph - pictograph
- ☐ isolated burials (<2)
- ☐ cemetery (>2)
- ☐ specialized activity sites
- ☐ rock alignments (tipi rings, etc.)
- ☐ historic farmstead
- ☐ historic mill/industrial
- ☐ historic fort
- ☐ dugout
- ☐ historic trash dump

---

9. Midden At Site

- ☒ don't know
- ☐ absent
- ☐ present, earth
- ☐ present shell
- ☐ present, rock

---

10. Materials Collected

Type	Number	Type	Number
☐ ceramics		☒ scrapers (unshafted)	1
☐ projectile points/ base fragments		☒ debitage (flakes, cores, chunks)	5
☐ hafted scrapers		☐ ground/pecked/battered stone	
☐ drills		☐ worked bone/shell	
☐ bifaces/frags.		☐ human bone	
☐ unifaces		☐ faunal remains	
☐ perforators/ gravers		☐ floral remains	
☐ spokeshaves		☐ other prehistoric	
		☐ historic (describe)	

Total Items 6

Briefly describe diagnostic artifacts including type names. Attach outline drawings.

Collected material included 5 chert flakes (three thinning flakes, one heat-treated oolitic chert, and two larger flakes from tool manufacture) and one expedient flake tool of heat-treated oolitic chert.

Materials observed but not collected
None

Name and address of other collections from site

11. Artifact Repository

Name of institution where artifacts are to be stored

Photos

☐ black and white ____ no. of pictures
☐ color ____ no. of pictures

Name and address of institution where photos are filed

CAS, P.O. Box 1186, Norman, OK 73072

12. Evidence of Recent Vandalism Observed:

☒ no ☐ yes

13. Site Condition: 7

1. apparently undisturbed
2. <25% disturbed
3. 26-50% disturbed
4. 51-75% disturbed
5. 76-99% disturbed
6. totally destroyed
7. disturbed, % unknown

14. Major Land Use

☒ cultivated field
☐ pasture
☐ woods, forest
☐ road/trail
☐ ditch/dike/barrow pit
☐ landfill
☐ modern cemetery
☐ mining
☐ inundated
☐ industrial
☐ residential
☐ recreation
☐ commercial
☐ military
☐ logging/fire break
☐ scrub/secondary growth/old field
☐ modern dump

Other

15. Amount of Ground Surface Visible

1. <10%	3. 26-50%	5. 76-90%
2. 11-25%	4. 51-75%	6. 91-100%

Survey Conditions (wet, dry, sunny, ground coverage, etc.):
warm, dry, no impediments to survey

---

16. Physiographic Division: 4

1. High Plains	6. Sandstone Hills
2. Gypsum Hills	7. Prairie Plains
3. Wichita Mtns.	8. Ozark Plateau
4. Red Bed Plains	9. Ouachita Mtns.
5. Arbuckle Mtns.	10. Red River Plains

---

17. Landform Type: 1

1. Floodplain	4. Dissected Uplands
2. Terrace	5. Undissected Uplands
3. Hillside-Valley Wall	

---

18. Locality Type (specific site setting): 1

1. Level	5. Mesa
2. Knoll-Low Land	6. Slope
3. Blowout	7. Bluff Crest
4. Ridge-Upland	8. Bluff Base

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19. Soils (if known)

Port silt loam, 0 to 1 percent slopes, occasionally flooded

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20. 1100 Elevation amsl ~0 Slope (degrees) southeast Slope (facing direction)

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21. Natural Vegetation: 2

1. short grasses	6. mesquite
2. mixed grasses	7. juniper-pinion
3. tall grasses	8. oak-hickory forest
4. cross-timber	9. oak-pine
5. shin-oak	10. loblolly pine forest

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22. Site Area 6400 (square meters)

Basis for area estimate: GPS

1. taped	3. guessed	5. alidade/transit
2. paced	4. range finder	

Confident of site boundaries ☒ yes ☐ no

---

23. Description of Site:

Give physical description of site and its setting, including dimensions, features, nature of materials and artifacts concentrations. Include copy of U.S.G.S. topographic map with site location and boundaries marked.

34KA529 is approximately 6400 m2 in size and is located at 14S E0674731 N4093535 (UTM CONUS NAD83) in the SE/NE/SW Section 24 T29N R2E approximately 0.4 miles west of the intersection of East Indian Road and North La Cann Road. The locality consists of a very sparse surface prehistoric lithic scatter consisting of 5 chert flakes (three thinning flakes, one heat-treated oolitic chert, and two larger flakes from tool manufacture) and one expedient flake tool of heat-treated oolitic chert. The artifacts were observed in a maturing corn field with very good visibility (50-75%). Nine shovel tests were excavated in the vicinity of the scatter. None yielded additional cultural material. The soils from those tests revealed an initial layer of very black silty clay loam or silty loam over very dark brown silty clay. The site is located on an upper floodplain of Chilocco Creek.

The vicinity of 34KA529 on GLO plat maps completed in 1872 and 1907 appears to have been unaffected by any specific form of land use. Aerial photographs taken in 1938, 1954, and 1966 (Figure 51) indicate that the area has been under cultivation since 1938.

The site is bisected by a proposed collector line.

Based on the sparse nature of the findings at 34KA529, further excavation would not likely recover significant scientific information. This site does not appear to meet criteria for inclusion on the NRHP.

24. Drainage: 1

1. Arkansas	7. Illinois	13. Poteau
2. Beaver-N. Canadian	8. Kiamichi	14. Red
3. Canadian	9. Little River (McCurtain Co.)	15. Salt Fork Arkansas
4. Caney	10. Muddy Boggy	16. Salt Fork Red
5. Cimarron	11. Neosho	17. Verdigris
6. Deep Fork	12. North Fork Red	18. Washita

25. Nearest Natural Source of Water: 1

1. Permanent stream/creek	5. River
2. Intermittent stream	6. Slough or oxbow lake
3. Permanent spring	7. Relic stream channel (if observable)
4. Intermittent spring/seep/bog	8. Also consider wells if site is historic

26. Distance to Water (in 10's of meters): 1

27. Investigation Type: 1

1. Reconnaissance (survey)	3. Excavated
2. Intensive (survey and testing)	4. Volunteered report

28. Significance Status:

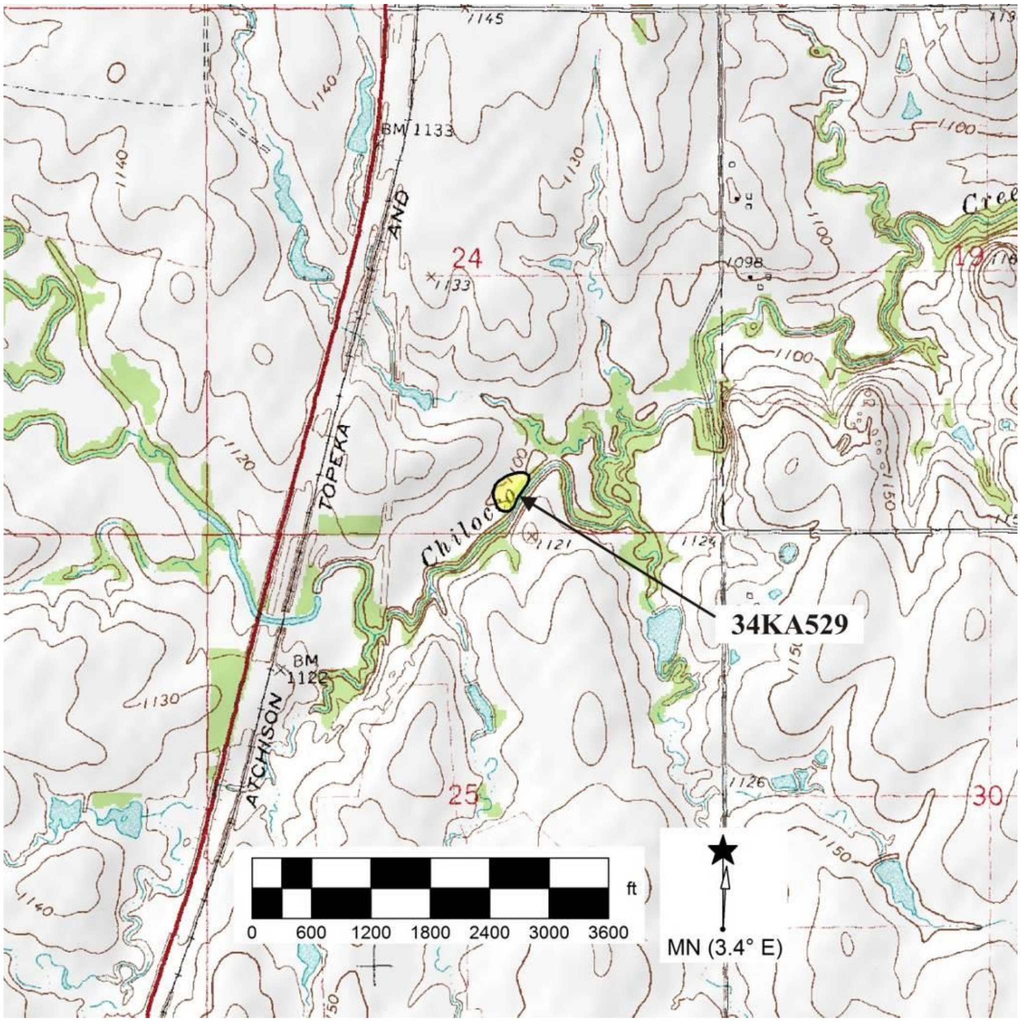
- ☐ National Register Property
- ☐ Eligible for National Register
- ☐ Nominated to National Register by SHPO
- ☐ Considered eligible but not nominated by SHPO
- ☒ Inventory Site
- ☐ National Register status not assessed

30. Discuss the Potential Significance of the Site

This site has limited research potential and would not appear eligible for inclusion on the NRHP.

30. Published or Forthcoming Reports on the Site

Report on the Class III Archeological Survey of the PNE Wind, USA Proposed Cherokee East Addition to the Chilocco Wind Farm, Kay County, Oklahoma. Cojeen Archaeological Services, LLC.


34KA529
0 600 1200 1800 2400 3000 3600 ft
MN (3.4° E)
ATCHISON
TOPEKA
AND
Chilocco
Creek
BM 1133
BM 1122
24
25
19
30

Christopher A. Cojeen
Principal Investigator
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Archaeology
Research
History

Arthur Roden
PNE Wind, USA
150 N. Michigan Ave., Ste. 1500
Chicago, Illinois 60601
Mark Randall

March 16, 2017

Re: Clarification, Redesigned Turbine Locations WTG95 and WTG99, Cherokee East Addition to the Chilocco Wind Farm, Kay County, Oklahoma

Dear Mr. Roden:

This letter is to affirm that during the Class III Archeological Survey of the PNE Wind, USA Proposed Cherokee East Addition to the Chilocco Wind Farm, Kay County, Oklahoma conducted in June and July of 2016, the redesigned footprint locations of turbine locations WTG95 (represented by the graphic [Figure 5] on page 7 of the report) and WTG99 (represented by the graphic [Figure 13] on page 15 of the report) were archeologically examined. Both the red (original footprint) and green (redesigned footprint) of each location as indicated on the maps was archeologically examined, utilizing pedestrian transects augmented by shovel testing during the survey. I have attached Figures 5 and 13 from the report for reference.

Christopher Cojeen
Cojeen Archaeological Services, LLC

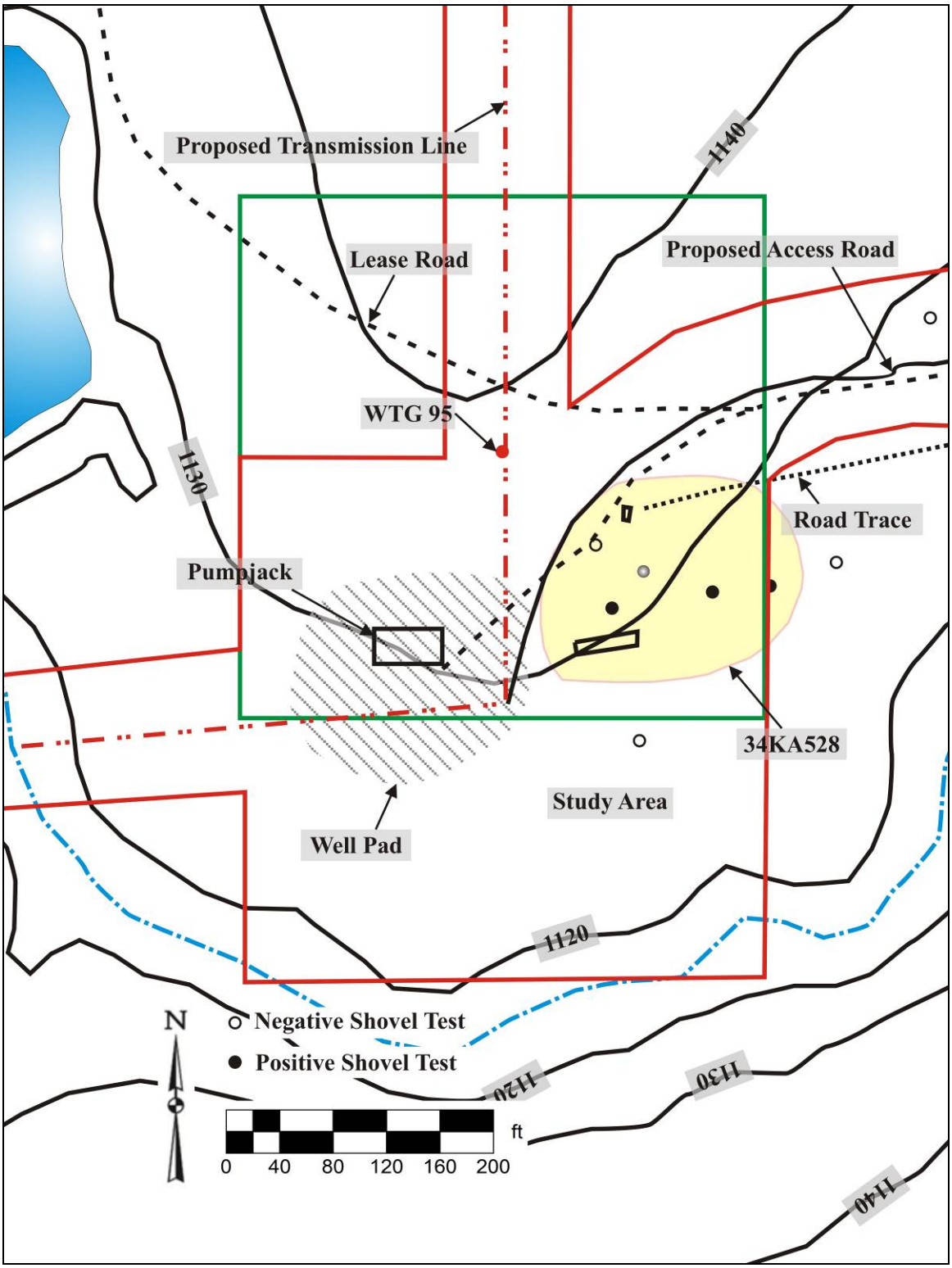


Figure 5. Sketch map of the turbine location at WTG 95 (redesigned turbine footprint in green).

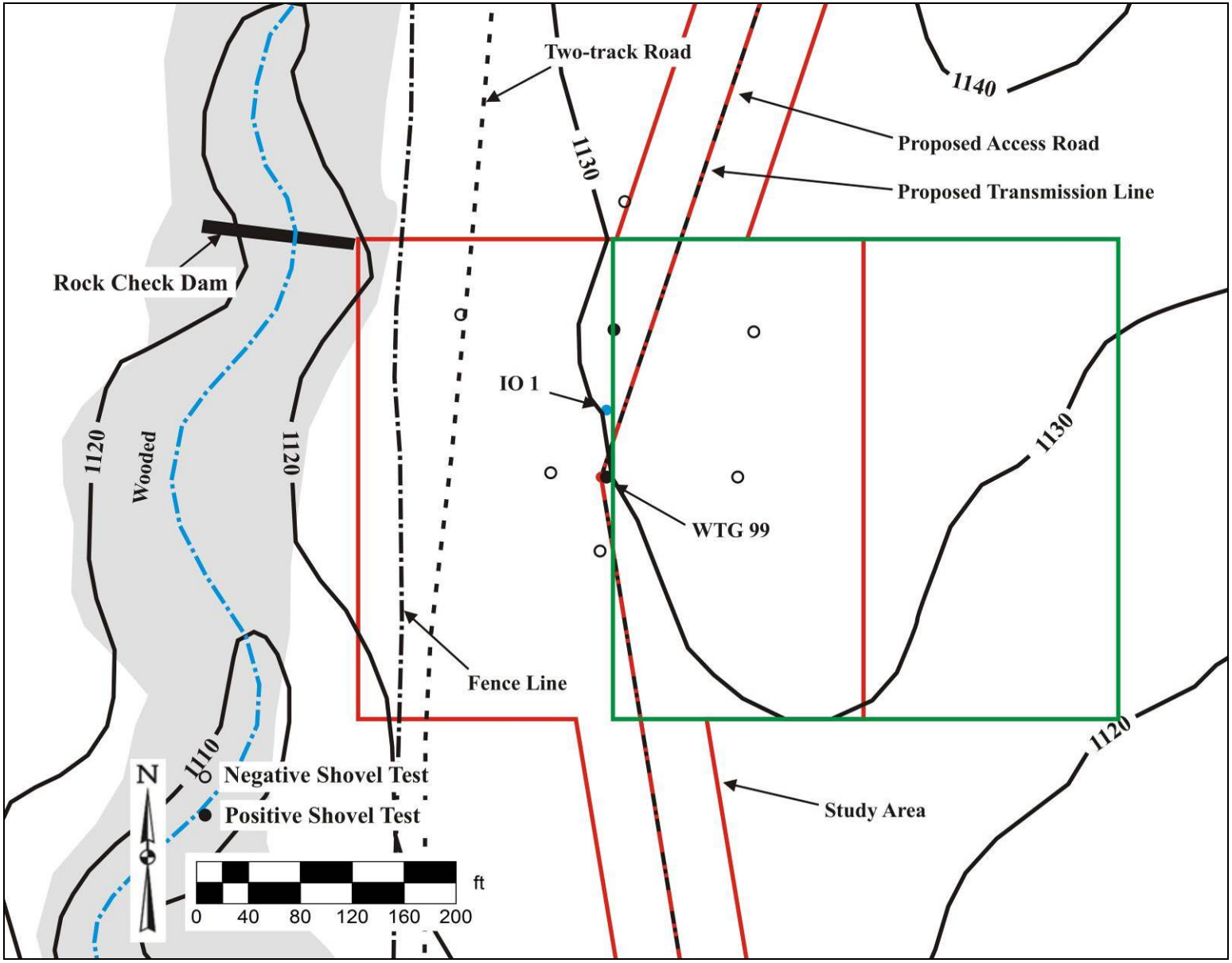


Figure 13. Sketch map of the turbine location at WTG 99 (redesigned turbine footprint in green).

Appendix R

Water Resources

Redacted for Confidentiality

D. Arthur Roden Lead Developer	Phone (312) 873-2240	Main (312) 882-2687	Fax (312) 873-2242	E-Mail arthur.roden@pnewind.com

PNE WIND USA, INC. 150 North Michigan Avenue, Suite 1500 | Chicago, IL 60601

Via Electronic Mail

May 31, 2017

Mr. Tom Nystrom
USEPA Region 6
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

Dear Mr. Nystrom:

Thank you for taking my call this morning regarding fulfilling the requirements for a Water Quality Certification in conjunction with our Nationwide Permit activity with the U.S Army Corps of Engineers (USACE) Tulsa District. As you recall, PNE Wind USA's Chilocco Wind Farm Project is located on tribal land in Kay County, Oklahoma. Per the guidance you provided during the call, below is a list of the tribal contacts for the project:

Ms. Sara Hill, Esq.
Secretary of Natural Resources
Cherokee Nation
(918) 822-2304
sarah-hill@cherokee.org

Mr. Ken Bellmard
Director of Development Affairs
Kaw Nation
(580) 269-2552
kbellmard@bellmardlaw.com

Ms. Melanie Harader
Tribal Council Second Member
Otoe-Missouria Tribe
(580) 723-4466
mharader@omtribe.org

Attached please find a brief description of the project and its impacts on Waters of the U.S. Also attached is a map of the project showing infrastructure and areas where waters of the U.S are impacted.

PNE Wind and its tribal partners, have worked diligently with the USACE to avoid and minimize impacts to Waters of the US and the Tulsa District has issued an authorization for the project under Nationwide Permit #51. We appreciate EPA's commitment to processing this request for Water Quality Certification per Section 401 of the Clean Water Act as quickly as possible.

Should you have any questions or need any additional information, please do not hesitate to contact me.

Sincerely,

Arthur Roden
Lead Developer
PNE Wind USA, Inc

Enclosures:
Project Work Description
Chilocco Wind Farm Project Map
Typical Construction Details

CC:
Ron Flax-Davidson, PNE
Mark Randall, PNE
Andy Zalay, PNE
Bryan Noblitt, USACE
Sara Hill, Cherokee Nation
Ken Bellmard, Kaw Nation
Melanie Harader, Otoe-Missouria Tribe

Project and Work Description

Chilocco Wind Farm is a 200MW wind farm project in Kay County, Oklahoma. The Project will encompass approximately 6,000 acres of tribal trust land owned by the Cherokee Nation, Kaw Nation, and the Otoe-Missouria Tribe.

The proposed Project will involve the construction and operation of various wind farm features, associated structures, and infrastructure necessary to support these facilities. These constructed features will include: access roads including crane paths, turbine pads, underground power transmission lines, and a project substation. Those activities with associated permanent and temporary wetland impacts, are described below and in the attached construction details:

Access Roads (Permanent impacts) .1544 acres

The Project will include approximately 22 miles of permanent gravel access roads. The minimum full surfaced travel-way width would be approximately 16 feet; overall permanent surface disturbance will be approximately 40 feet wide around turbine pads. The access roads will be crowned in the center with the surface sloped at a minimum 2%. The road surface will consist of six inches of compacted ODOT Type A & B aggregate.

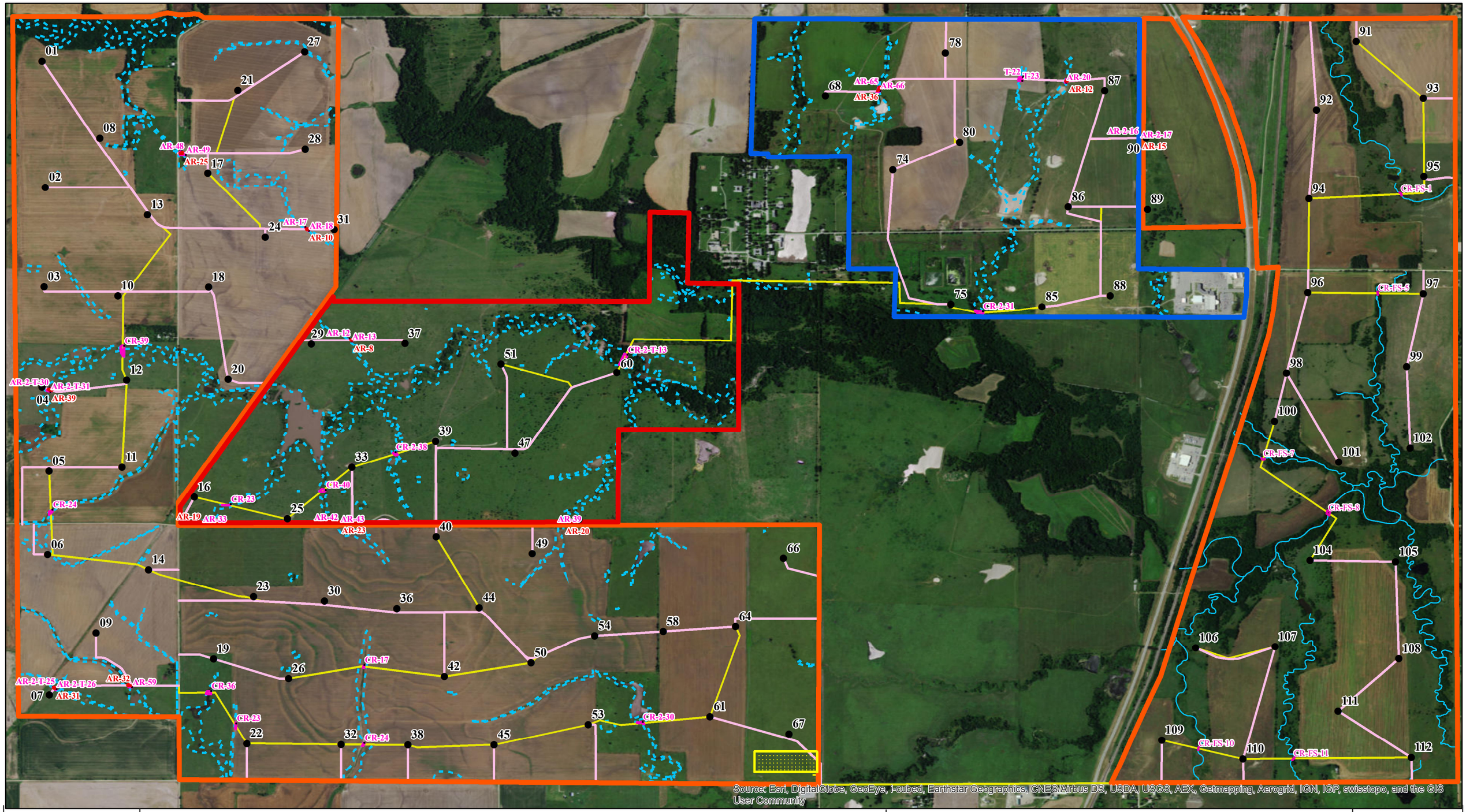
Access roads will be constructed in compliance with all applicable codes, and in accordance with landowner easement agreements. Access roads will be constructed to withstand the expected weights of the vehicles transporting turbine components and the lifting equipment that will be used during construction. Drainages shall be installed as required to prevent storm water runoff from adjacent slopes above roads to carry runoff from the road service to a natural drainage outlet. Rock Filter dams and other erosion controls will be installed throughout the construction process to minimize any potential adverse effects. All road construction areas will be re-vegetated consistent with an approved Project SWPPP.

Electrical Collection System (Temporary Impacts) 3.455 Acres

A system of approximately 30 miles of 34.5kV underground electrical collector cables will transmit electricity from each turbine to the collector substation. Underground electrical and communications cables would be placed in approximately two to four-foot wide trenches along the length of each

turbine string corridor. Wherever possible, underground electrical collection cables will be co-located with access roads. Trenches for electrical cables will be installed using conventional excavation and backfilling procedures or using a “plow” method to excavate a narrow trench and install the cable in one complete process. Directional boring will also be deployed when appropriate; typically at crossings of Chilocco Creek.

Trenches would be excavated to below frost line depth of approximately four feet. The cable installation depth may be adjusted to shallower depths depending on soil management practices in the agricultural areas or the nature and depth of bedrock, if present. Installed cable depth would conform to all applicable codes. Trenches will be re-vegetated concurrently with re-vegetation of other disturbed areas, and consistent with the approved Project SWPPP.



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

N
W E
S

- Turbine
- Kaw Nation
- Otoe Nation
- Cherokee Nation
- Substation
- Proposed Turbine Pad
- Permanent Wetland Impacts
- Temporary Wetland Impacts
- Proposed Access Roads (AR)
- Access Roads Permament Corridor
- Proposed Collector Run (CR)
- Collector Runs Temporary Corridor
- Waterways

0 0.3 0.6 1.2 1.8 2.4 Miles

Chilocco Project Site Overview

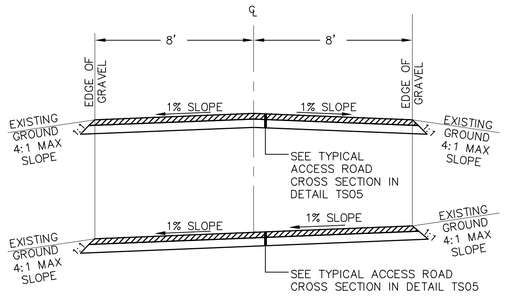
Wetland Impact Map

Confidential and Proprietary - For Internal Use Only - Not For Construction

Date: 05/31/2017
Document: Chilocco

Coordinate System: UTM 14
Map Datum: NAD 83

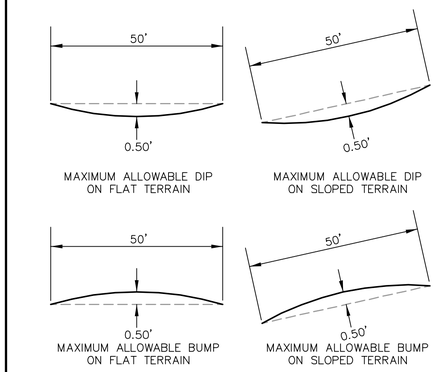
PNE WIND
USA Passion for Energy



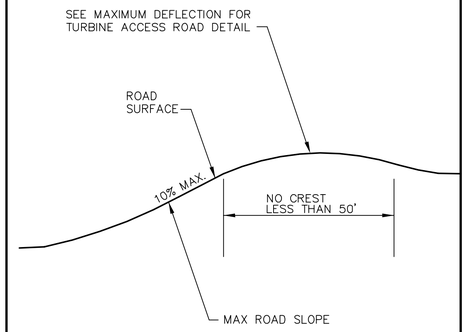
NOTES:

1. CONTRACTOR SHALL CONSTRUCT CROSS-SLOPE ROAD SECTION WHERE ACCESS ROADS ARE CONSTRUCTED ON A SIDE SLOPE, AND WHERE OTHERWISE NOTED ON PLANS, TO ENSURE THAT ROADS AND SHOULDERS REMAIN WELL DRAINED AT ALL TIMES.
2. ROADS TO GENERALLY FOLLOW EXISTING CONTOURS EXCEPT IF GRADES EXCEED TURBINE DELIVERY VEHICLE CAPABILITIES, IF THIS OCCURS GENERAL CONTRACTOR MAY PROVIDE ASSIST VEHICLE OR MODIFY GRADE

	TYPICAL TURBINE ACCESS ROAD	LAST REVISED: 11/4/13 RD01-A



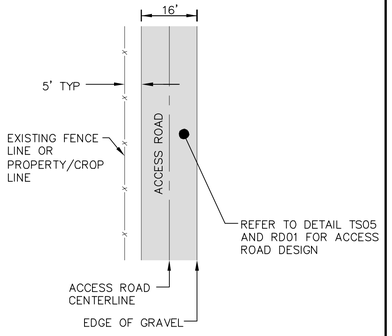
	MAXIMUM DEFLECTION FOR TURBINE ACCESS ROAD	LAST REVISED: 11/4/13 RD02



NOTES:

1. ROAD SLOPE SHALL NOT EXCEED 10% WITHOUT OWNER APPROVAL

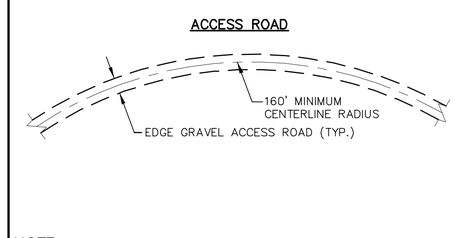
	MAXIMUM VERT. SLOPE FOR TURBINE ACCESS ROAD/CRANE TRAVEL PATH	LAST REVISED: 11/4/13 RD03



NOTE:

1. COMPACTED SHOULDER SHALL BE RETURNED TO NATIVE CONDITION FOLLOWING TURBINE GENERATOR CONSTRUCTION.
2. THE ACCESS ROAD MAY NEED TO BE CONSTRUCTED FARTHER FROM THE PROPERTY LINE IF OBSTRUCTIONS SUCH AS TREES FOLLOW THE PROPERTY LINE.

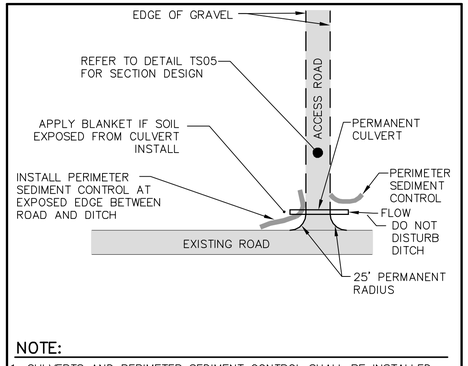
	TURBINE ACCESS ROAD ALONG FENCE/PROPERTY/CROP LINE	LAST REVISED: 11/4/13 RD04



NOTE:

1. SOME RADII MAY REQUIRE ADDITIONAL SOIL COMPACTION OR GRAVEL OUTSIDE OF THE WIDTH SHOWN ABOVE TO ACCOMMODATE TRACTORS OR TRAILERS TRACKING OFF THE ACCESS ROAD.

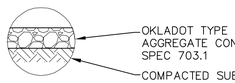
	MINIMUM RADIUS FOR TURBINE ACCESS ROAD	LAST REVISED: 11/4/13 RD05



NOTE:

1. CULVERTS AND PERIMETER SEDIMENT CONTROL SHALL BE INSTALLED AND MAINTAINED AT INTERSECTIONS WHERE THE ACCESS ROAD IS CROSSING AN EXISTING COUNTY DITCH.

	TURBINE ACCESS ROAD TYPICAL INTERSECTION	LAST REVISED: 10/21/13 RD07

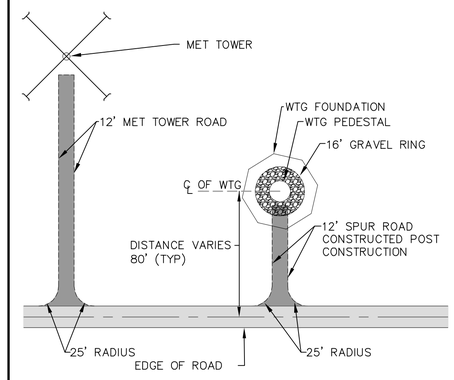


ACCESS ROAD SECTION

NOTES:

1. STRUCTURAL SECTIONS SHOWN ARE THE MINIMUM THICKNESS REQUIREMENTS DURING NORMAL FIELD CONDITIONS. THE SECTIONS MAY NEED TO BE INCREASED BASED ON ACTUAL FIELD CONDITIONS AT THE TIME OF CONSTRUCTION. CONDITIONS INCLUDE, BUT ARE NOT LIMITED TO, CONSTRUCTION DURING UNUSUALLY WET PERIODS, OR IN LOW/WET AREAS.
2. CONTRACTOR SHALL SUBMIT GRADATIONS TO ENGINEER FOR APPROVAL.

	TYPICAL STRUCTURAL CROSS SECTIONS	LAST REVISED: 11/4/13 TS05



	PERMANENT SPUR AND MET TOWER ROAD (TYPICAL)	LAST REVISED: 11/4/13 TS02

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Westwood Professional Services, Inc.

Designed: DJF
Checked: DDB
Drawn: DJF
As-Built Drawing:

Revisions:

#	DATE	DESCRIPTION
.	.	.

Prepared for:

WANZEK
a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Chilocco Wind Project

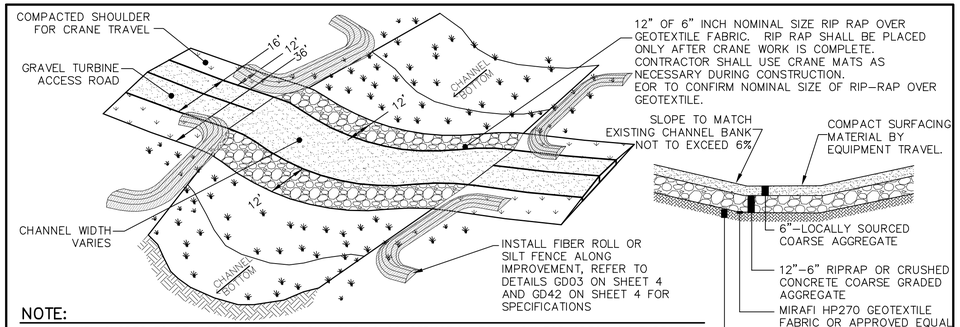
Kay County, Oklahoma

Construction Details

Permitting Plans
Not For Construction

Date: 12/01/2016
Sheet: 2 OF 11

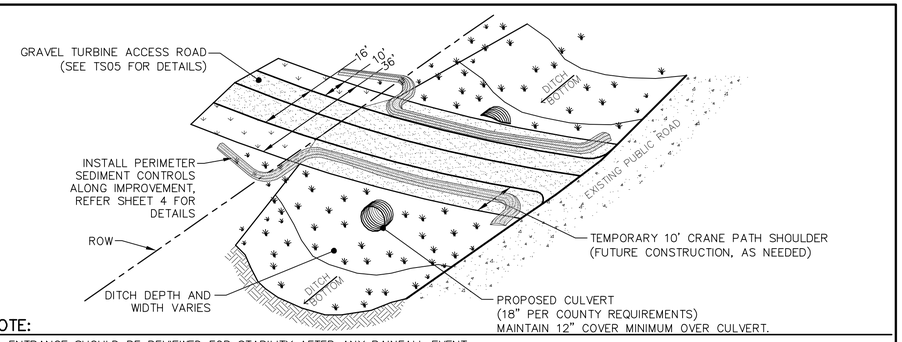
00106.38DTF01.dwg



NOTE:

1. CHANNEL SLOPES TO BE MODIFIED TEMPORARILY DURING CONSTRUCTION TO ALLOW FOR ADEQUATE TURBINE COMPONENT DELIVERY AND RESTORE TO ORIGINAL CONDITIONS UPON SITE RESTORATION.
2. CROSSINGS SHALL HAVE THE TOP-MOST SURFACE LAYER A MINIMUM OF 2.5 INCHES BELOW THE STREAM CHANNEL BOTTOM.
3. THE ACCESS ROAD SHALL CROSS THE DITCH AT 90° ANGLE.
4. THE TOP BED OF THE ROCK CHANNEL CROSSING SHALL CONFORM TO THE EXISTING DITCH CROSS SECTIONAL SLOPES.
5. MATERIAL THICKNESSES SHOWN ARE MINIMUMS. IT MAY BE NECESSARY TO FIELD ADJUST THICKNESSES TO ACHIEVE SUFFICIENT BEARING CAPACITIES AS ARE NECESSARY FOR ANTICIPATED ROAD USE.
6. GRAVEL BAG BERMS MAY BE NECESSARY IF FLOWS AND DRAINAGE AREAS REQUIRE. SEE DETAIL RD13 FOR GRAVEL BAG BERM INSTALLATION.

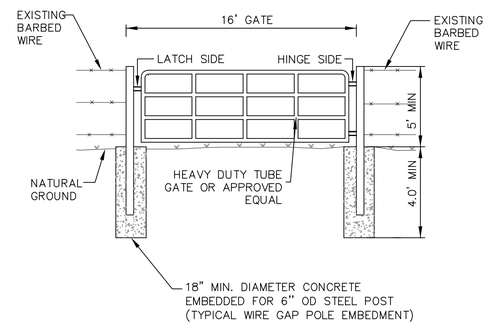
	MINOR CROSSING – PERMANENT TURBINE ACCESS ROAD LOW WATER CROSSING	LAST REVISED: 3/29/12 RD11



NOTE:

1. ENTRANCE SHOULD BE REVIEWED FOR STABILITY AFTER ANY RAINFALL EVENT.
2. MATERIAL THICKNESSES SHOWN ARE MINIMUMS. IT MAY BE NECESSARY TO FIELD ADJUST THICKNESSES TO ACHIEVE SUFFICIENT BEARING CAPACITIES AS ARE NECESSARY FOR ANTICIPATED ROAD USE.
3. ROCK CHECK DAMS MAY BE NECESSARY IF FLOWS AND DRAINAGE AREAS REQUIRE. SEE DETAIL GD18.
4. CULVERT INSTALLATION SHALL CONFORM WITH MANUFACTURERS RECOMMENDATION FOR INSTALLATION. CULVERT TO BE SUMPED 2.5" BELOW EXISTING FLOW LINE.
5. RESTORE DISTURBED AREA TO NATIVE CONDITIONS IN ACCORDANCE WITH THE SWPPP.

	TURBINE ACCESS ROAD ENTRANCE CULVERT CROSSING	LAST REVISED: 10/21/13 RD16-C



NOTE:

1. SUPPORTS MUST BE PLACED IN EXISTING FENCE LINE & EXISTING FENCE ATTACHED TO NEW SUPPORTS PRIOR TO CUTTING OF EXISTING FENCE
2. ALL FITTINGS, HARDWARE AND OTHER APPURTENANCES SHALL BE FABRICATED AND FITTED IN ACCORDANCE WITH THE MANUFACTURES RECOMMENDATIONS.
3. ALL DIRECT BURIED POSTS SHALL BE BACKFILLED WITH TWO BAGS OF UNMIXED, NO WATER ADDED, QUICKRETE®, OR APPROVED EQUAL, FOLLOWED BY NATIVE SOIL.

	GATE TYPE A – SINGLE GATE	LAST REVISED: 11/4/13 GA01

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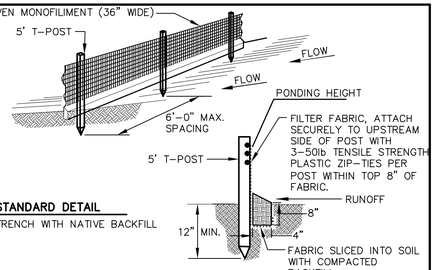


STANDARD DETAIL

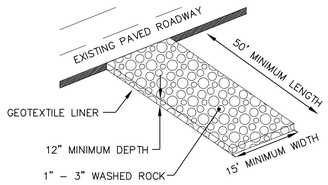
TRENCH WITH NATIVE BACKFILL

NOTE:

1. INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN ACCUMULATED TO 1/3 THE HEIGHT OF THE FABRIC OR MORE.
2. REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
3. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
4. ALL ENDS OF THE SILT FENCE SHALL BE WRAPPED UPSLOPE SO THE ELEVATION OF THE BOTTOM OF FABRIC IS HIGHER THAN "PONDING HEIGHT".

	SILT FENCE	LAST REVISED: 11/4/13 GD03

****ACCESS ROADS SHALL BE CONSTRUCTED FROM PUBLIC ROADS WHERE THE CONSTRUCTION DELIVERY TRAFFIC WILL TRAVEL ON THE CONSTRUCTED ACCESS ROAD. SEDIMENT TRACKING ONTO PUBLIC PAVED ROADS IS NOT ANTICIPATED. IF SEDIMENT TRACKING DOES OCCUR, THE SEDIMENT SHALL BE REMOVED AND A ROCK CONSTRUCTION ENTRANCE CONSTRUCTED****

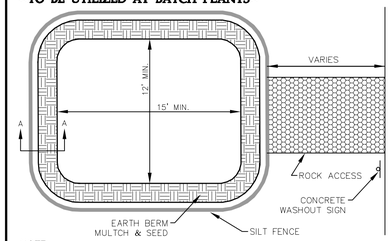


NOTE:

ROCK CONSTRUCTION ENTRANCE SHOULD BE A MINIMUM THICKNESS OF 1.0' AND CONTAIN MAXIMUM SIDE SLOPES OF 4:1. ROCK ENTRANCE SHOULD BE INSPECTED AND MAINTAINED REGULARLY. ROCK ENTRANCE LENGTH MAY NEED TO BE EXTENDED IN CLAY SOILS.

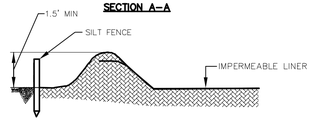
	ROCK CONSTRUCTION ENTRANCE	LAST REVISED: 11/4/13 GD05

****TO BE UTILIZED AT BATCH PLANTS****

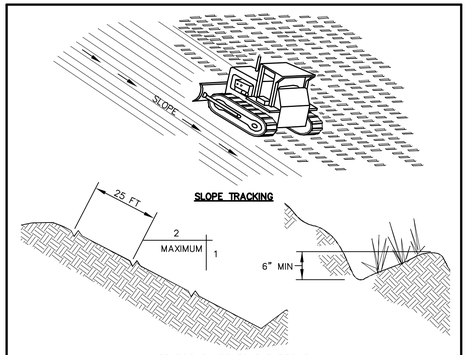


NOTE:
CONCRETE WASHOUT AREAS WILL HAVE AN IMPERMEABLE LINER TO PREVENT CONCRETE WASHOUT WATER FROM INFILTRATING/CONTACTING WITH SOIL. IMPERMEABLE LINER INCLUDES 10 MIL POLYLINER OR COMPACTED CLAY LINER. WASHOUT SYSTEMS CAN BE USED AS ALTERNATE WASHOUT AREAS.

SECTION A-A



	CONCRETE WASHOUT AREA	LAST REVISED: 11/4/13 GD08

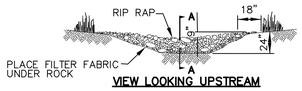


NOTE:

1. GROOVES WILL CATCH SEED, FERTILIZER, MULCH, RAINFALL AND DECREASE RUNOFF RATE.
2. USE SLOPE TRACKING FOR SLOPES 4:1 AND 50 FEET LONG OR STEEPER/LONGER.
3. USE TEMPORARY CONTOUR FURROWS FOR SLOPES 3:1 AND 75 FEET LONG OR STEEPER/LONGER.

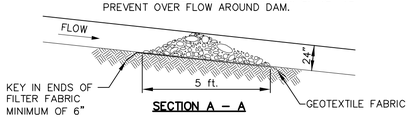
	SURFACE ROUGHENING FOR ALL SLOPES GREATER THAN 4:1	LAST REVISED: 11/4/13 GD09

ROCK CHECK SHALL BE USED WHERE NEEDED AS A FILTER MEDIA, OR WHERE EROSION CONTROL BLANKETS AND/OR MULCH BERMS DO NOT PROVIDE ADEQUATE EROSION AND SEDIMENT CONTROL.



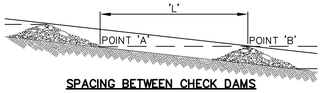
VIEW LOOKING UPSTREAM

KEY STONE INTO THE DITCH BANKS AND EXTEND IT BEYOND THE ABUTMENTS A MINIMUM OF 18" TO PREVENT OVER FLOW AROUND DAM.



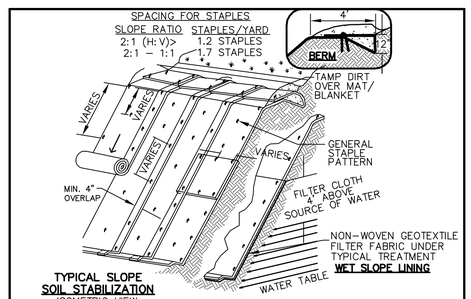
SECTION A - A

'L' = THE DISTANCE SUCH THAT POINTS 'A' AND 'B' ARE OF EQUAL ELEVATION.



SPACING BETWEEN CHECK DAMS

	TEMPORARY ROCK CHECK DAM	LAST REVISED: 11/4/13 GD18



TYPICAL SLOPE SOIL STABILIZATION
ISOMETRIC VIEW

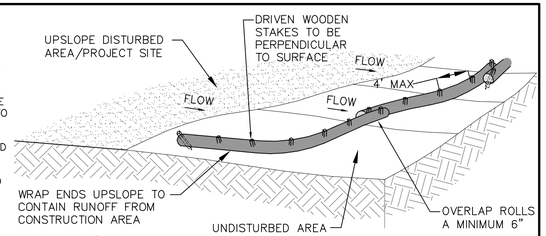
NOTE:

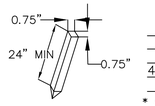
1. REFER TO THE CHILOCCO WIND PROJECT SWPPP FOR IMPLEMENTATION REQUIREMENTS.
2. MATS/BLANKETS SHOULD BE INSTALLED VERTICALLY DOWNSLOPE.
3. SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICK AND GRASS.
4. MATS/BLANKETS SHALL HAVE GOOD SOIL CONTACT.
5. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL.
6. DO NOT STRETCH.
7. BLANKET TYPE AND WEIGHT MUST BE CHOOSEN BASED ON SITE CONDITIONS, TxDOT PERFORMANCE FACTORS AND MANUFACTURERS RECOMMENDATIONS.
8. STAPLE LENGTHS SHALL CONFORM TO MANUFACTURERS RECOMMENDATIONS.

	TYPICAL SLOPE STABILIZATION - TEMPORARY EROSION BLANKETS TURF REINFORCEMENT MATS FOR SLOPES	LAST REVISED: 11/4/13 GD21

NOTES:

1. FIBER ROLLS SHALL BE INSTALLED PRIOR TO UPSLOPE DISTURBANCE ACTIVITIES COMMENCE.
2. FIBER ROLLS SHALL BE PREFABRICATED AND MADE FROM WEED FREE RICE STRAW, FLAX, OR A SIMILAR AGRICULTURAL MATERIAL BOUND INTO A TIGHT TUBULAR ROLL BY NETTING. USE A 6" OR 12" DIA. ROLL.
3. TRENCHES SHALL BE CREATED ALONG THE SLOPE OF THE PERIMETER. THE TRENCH DEPTH SHOULD BE 1/4 TO 1/3 OF THE THICKNESS OF THE ROLL, AND THE WIDTH SHOULD EQUAL THE ROLL DIAMETER, IN ORDER TO PROVIDE AREA TO BACKFILL THE TRENCH.
4. STAKE FIBER ROLLS INTO THE TRENCH. DRIVE STAKES AT THE END OF EACH FIBER ROLL AND SPACED 4 FEET MAXIMUM ON CENTER. USE WOOD STAKES WITH NOMINAL CLASSIFICATION OF 0.75 IN BY 0.75 IN. AND A MINIMUM LENGTH OF 24 IN.
5. ROLLS SHALL BE INSTALLED PERPENDICULAR TO WATER MOVEMENT, AND PARALLEL TO THE SLOPE CONTOUR.
6. TURN THE ENDS OF THE FIBER ROLLS UP SLOPE TO PREVENT RUNOFF FROM GOING AROUND THE ROLL. THE UPSLOPE POINT SHOULD BE A MINIMUM 6" HIGHER IN ELEVATION THAN THE LOW POINT.
7. IF MORE THAN ONE FIBER ROLL IS PLACED IN A ROW, THE ROLLS SHOULD BE OVERLAPPED A MINIMUM OF 6 INCHES, NOT ABUTTED.
8. FIBER ROLLS ENCASED WITH PLASTIC NETTING ARE USED FOR A TEMPORARY APPLICATION ONLY AND SHOULD BE REMOVED FOLLOWING STABILIZATION. FIBER ROLLS USED IN A PERMANENT APPLICATION SHALL BE ENCASED WITH A BIODEGRADABLE MATERIAL AND MAY BE LEFT IN.
9. TEMPORARY INSTALLATIONS SHOULD ONLY BE REMOVED WHEN UP GRADIENT AREAS ARE STABILIZED PER GENERAL PERMIT REQUIREMENTS, AND/OR POLLUTANT SOURCES NO LONGER PRESENT A HAZARD. BUT, THEY SHOULD ALSO BE REMOVED BEFORE VEGETATION BECOMES TOO MATURE SO THAT THE REMOVAL PROCESS DOES NOT DISTURB MORE SOIL AND VEGETATION THAN IS NECESSARY
10. FIBER ROLLS MUST BE INSPECTED IN ACCORDANCE WITH GENERAL PERMIT REQUIREMENTS FOR THE ASSOCIATED PROJECT TYPE AND RISK LEVEL. IT IS RECOMMENDED THAT AT A MINIMUM, THE BMPS BE INSPECTED WEEKLY, PRIOR TO FORECASTED RAIN EVENTS, DAILY DURING EXTENDED RAIN EVENTS, AND AFTER THE CONCLUSION OF RAIN EVENTS.





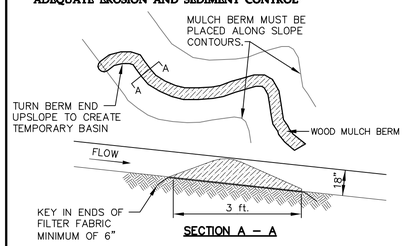
SLOPE (H:V)	MAX SPACING FT.
< 4:1	20
4:1 - 2:1	15
> 2:1	10

* A CLOSER SPACING IS MORE EFFECTIVE

12. REPAIR OR REPLACE SPLIT, TORN, UNRAVELING, OR SLUMPING FIBER ROLLS.
13. SEDIMENT THAT ACCUMULATES UPSLOPE OF THE BMP SHOULD BE PERIODICALLY REMOVED IN ORDER TO MAINTAIN BMP EFFECTIVENESS. SEDIMENT SHOULD BE REMOVED WHEN SEDIMENT ACCUMULATION REACHES ONE-THIRD THE DESIGNATED SEDIMENT STORAGE DEPTH.
14. RILLS OR GULLIES MAY BEGIN TO FORM FOLLOWING MAJOR STORM EVENTS WHERE RUNOFF HAS OVERTOPPED THE FIBER ROLLS. THESE RILLS OR GULLIES SHOULD BE PROMPTLY REPAIRED.

	TYPICAL FIBER ROLLS FOR PERIMETER CONTROL OF CONSTRUCTION AREA LIMIT	LAST REVISED: 09/09/13 GD42

WOOD MULCH BERM SHALL BE USED WHERE NEEDED AS A FILTER MEDIA, OR WHERE EROSION CONTROL BLANKETS DO NOT PROVIDE ADEQUATE EROSION AND SEDIMENT CONTROL



SECTION A - A

NOTE:

1. REFER TO THE CHILOCCO WIND PROJECT SWPPP FOR IMPLEMENTATION AND INSTALLATION REQUIREMENTS.
2. WOOD MULCH SHALL BE SHREDDED AND NOT CHIPPED.
3. MULCH SHALL BE COMPOSED OF CLEARED VEGETATION FROM THE PROJECT SITE.
4. THE WOOD MULCH BERM SHALL REMAIN IN PLACE THROUGHOUT CONSTRUCTION ACTIVITIES. THE BERM MAY REMAIN IN PLACE FOLLOWING FINAL STABILIZATION.
5. ROUTINELY INSPECT AND MAINTAIN BERM IN A FUNCTIONAL CONDITION AT ALL TIMES. INSTALL ADDITIONAL BERM MATERIAL AS DIRECTED. REMOVE SEDIMENT AFTER IT HAS REACHED 1/3 THE HEIGHT OF THE BERM.

	WOOD MULCH BERM	LAST REVISED: 11/4/13 GD24

NOTE - PERIMETER SEDIMENT CONTROL OPTIONS SHALL CONSIST OF SILT FENCE, FIBER LOGS (BIOROLLS), WOOD MULCH BERMS, OR TOPSOIL BERMS TO BE UTILIZED AND INSTALLED PER THE CONTRACTOR'S DISCRETION.

Westwood

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Westwood Professional Services, Inc.

Designed: DJF
Checked: DDB
Drawn: DJF
As-Built Drawing:

Revisions:

#	DATE	DESCRIPTION
.	.	.

Prepared for:

WANZEK
a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Chilocco Wind Project

Kay County, Oklahoma

Construction Details

Permitting Plans
Not For Construction

Date: 12/01/2016
Sheet: 4 OF 11

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ROAD DESIGN PARAMETERS

1. THE ROAD SECTION HAS BEEN DESIGNED TO ACCOMMODATE WIND TURBINE COMPONENT DELIVERY DURING CONSTRUCTION AND LIGHT DUTY TRUCKS FOR LOW VOLUME USE IN NORMAL OPERATING CONDITIONS. THE ROAD DESIGN SPECIFIED IS NOT INTENDED FOR ALL WEATHER USE FOR HEAVY DUTY, HIGH VOLUME, CONSTRUCTION LOADS.
2. ROAD MAINTENANCE CAN BE EXPECTED OVER THE LIFE OF THE PERMANENT FACILITY.
3. CONTRACTOR SHALL CONFIRM ROAD SECTIONS REQUIRED FOR TURBINE COMPONENT DELIVERY WITH THE FINAL GEOTECHNICAL REPORT.

PRODUCTS

1. AGGREGATE ROAD BASE AND TOP COURSE SHALL CONSIST OF LOCALLY SOURCED AGGREGATE.
2. ROAD SHOULDERS AND CRANE PADS SHALL CONSIST OF COMPACTED NATIVE SOILS.
3. CULVERTS: OKLAHOMA ACCESS ROAD CULVERTS SHALL MEET THE MINIMUM SPECIFICATIONS SET FORTH BY THE TEXAS DEPARTMENT OF TRANSPORTATION AND/OR KAY COUNTY. ALL CULVERTS SHALL BE MANUFACTURED OF STEEL AS REQUIRED BY KAY COUNTY.

EXECUTION

1. CLEARING AND GRUBBING
   A. THE CONTRACTOR SHALL BE REQUIRED TO GRUB/MULCH ALL TREES, STUMPS, BRUSH, AND DEBRIS WITHIN THE GRADING AREAS SHOWN ON THE PLANS. THE CONTRACTOR IS TO REMOVE ONLY THOSE TREES WHICH ARE DESIGNATED BY THE OWNER'S REPRESENTATIVE FOR REMOVAL, AND SHALL EXERCISE EXTREME CARE AROUND EXISTING TREES TO BE SAVED.
2. TOPSOIL STRIPPING
   A. TOPSOIL SHALL BE STRIPPED FROM ALL ROADWAY AND FOUNDATION AREAS THROUGH THE ROOT ZONE. TOPSOIL SHALL NOT BE STRIPPED OUTSIDE OF THE DESIGNATED DISTURBANCE AREAS.
   B. ANY TOPSOIL, THAT HAS BEEN STRIPPED, SHALL BE RE-SPREAD OR STOCKPILED WITHIN GRADING AREAS AND/OR USED AS FILL OUTSIDE OF THE DISTURBANCE AREAS, AS DIRECTED BY THE ENGINEER. ALL TOPSOIL SHALL BE REDISTRIBUTED TO THE LAND OWNER'S PROPERTY OF WHERE IT ORIGINATED FROM.
3. EMBANKMENT CONSTRUCTION.
   A. EMBANKMENT CONSTRUCTION SHALL CONSIST OF THE PLACING OF SUITABLE FILL MATERIAL, AFTER TOPSOIL STRIPPING, ABOVE THE EXISTING GRADE. GENERALLY, EMBANKMENTS SHALL HAVE COMPACTED SUPPORT SLOPES OF FOUR FOOT HORIZONTAL TO ONE FOOT VERTICAL, WITH SOME LOCATIONS THROUGHOUT THE PROJECT WITH SLOPES OF TWO FEET HORIZONTAL TO ONE FOOT VERTICAL. THE MATERIAL FOR EMBANKMENT CONSTRUCTION SHALL BE OBTAINED FROM THE ACCESS ROAD/TURBINE EXCAVATION (SEE GEOTECHNICAL REPORT FOR RESTRICTIONS), OR ANY SUITABLE, APPROVED SOIL OBTAINED ONSITE/OFFSITE BY CONTRACTOR, AS DIRECTED OR APPROVED BY THE ENGINEER. THIS MATERIAL SHALL BE PLACED IN LIFTS NOT TO EXCEED 8".
   B. SIDE SLOPES GREATER THAN 4:1 WILL NOT BE PERMITTED, UNLESS OTHERWISE NOTED ON THE PLAN.

STORM WATER DESIGN PARAMETERS

1. IF NEEDED CULVERTS WILL BE SIZED BASED ON OBSERVATIONS OF EXISTING UPSTREAM/DOWNSTREAM CULVERT SIZES. ALL CULVERTS SHALL BE INSTALLED PER KAY COUNTY STANDARD SPECIFICATIONS AND SHALL BE MANUFACTURED OF STEEL. ALL TEMPORARY PORTIONS OF THE INSTALLED CULVERTS SHALL BE REMOVED UPON COMPLETION OF THE PROJECT.
2. PROPOSED CULVERTS ARE DESIGNED TO HANDLE NUISANCE FLOWS ONLY. IT IS EXPECTED THAT CULVERTS WILL BE OVERTOPPED DURING SOME STORMS AND MAINTENANCE WILL BE REQUIRED THROUGH THE LIFE OF THE PROJECT.
3. WHEN INSTALLING DRAINAGE CULVERTS THE CONTRACTOR SHALL USE JUDGMENT IN SETTING THE FLOW LINE ELEVATIONS AND CULVERT LONGITUDINAL SLOPE. TYPICALLY THE FLOW LINE ELEVATIONS AND LONGITUDINAL SLOPE OF THE CULVERT SHOULD MATCH THE NATURAL GROUND ELEVATIONS AND SLOPE TO ENSURE POSITIVE DRAINAGE. WHEN POSSIBLE, ALL CULVERTS SHOULD BE PLACED AT A MINIMUM 0.5% GRADE.
4. ANTICIPATED CULVERT CROSSINGS ARE SHOWN ON THE CONSTRUCTION PLAN, ADDITIONAL CULVERTS MAY NEED TO BE INSTALLED IN AREAS WHERE CONCENTRATED FLOW IS EXPECTED DUE TO CONSTRUCTION ACTIVITIES.
5. LOW WATER CROSSINGS MAY BE USED IN LIEU OF CULVERTS WHERE APPROVED.

STORMWATER POLLUTION PREVENTION PLAN (SWPPP):

1. THE CONTRACTOR SHALL PROVIDE EROSION CONTROL MEASURES AS PLANNED AND SPECIFIED FOLLOWING BEST MANAGEMENT PRACTICES AS OUTLINED BY THE OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY AND BEING IN CONFORMANCE WITH THE OKLAHOMA POLLUTANT DISCHARGE ELIMINATION SYSTEM (OPDES) GENERAL STORMWATER PERMIT.
2. REFER TO THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) FOR THE PROJECT , PREPARED BY WESTWOOD PROFESSIONAL SERVICES, FOR EROSION CONTROL AND RESTORATION SPECIFICATIONS, SEDIMENT AND EROSION CONTROL PROCEDURES, LOCATIONS OF BMPs, DETAILS, AND INSPECTION INFORMATION.
3. ALL PASTURES AND DRAINAGE SWALES DISTURBED DURING CONSTRUCTION ACTIVITIES AND NOT COVERED BY ROAD SURFACING MATERIALS, SHALL BE SEEDED IN ACCORDANCE WITH THE SWPP PLAN.
4. TEMPORARY EROSION CONTROL SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE TEMPORARY EROSION CONTROL PLAN SHALL BE IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN ON FILE. IT IS THE CONTRACTOR'S/OPERATOR'S RESPONSIBILITY TO MAINTAIN COMPLIANCE.

TESTING:

1. TESTING SHALL BE PERFORMED BY A DESIGNATED INDEPENDENT TESTING AGENCY.
2. SUBMIT ONE SET OF TESTING AND INSPECTION RECORDS SPECIFIED TO THE CIVIL ENGINEER OF RECORD.

DEFINITIONS:

1. PROOF ROLLING:
   SHALL BE PERFORMED IN THE PRESENCE OF THE GEOTECHNICAL ENGINEER OR QUALIFIED GEOTECHNICAL REPRESENTATIVE USING A FULLY LOADED TANDEM AXLE DUMP TRUCK OR WATER TRUCK WITH A MINIMUM GROSS WEIGHT OF 25 TONS OR A FULLY LOADED BELLY DUMP WITH AN EQUIVALENT AXLE LOADING. PROOF-ROLLING ACCEPTANCE STANDARDS INCLUDE NO RUTTING GREATER THAN 1.5 INCHES, AND NO "PUMPING" OF THE SOIL BEHIND THE LOADED TRUCK.
2. SIEVE ANALYSIS:
   SHALL BE CONDUCTED IN ACCORDANCE WITH AASHTO T27
3. PROCTORS:
   SHALL BE DETERMINED IN ACCORDANCE WITH AASHTO T99
4. ATTERBERG LIMITS:
   SHALL BE DETERMINED IN ACCORDANCE WITH AASHTO T89 AND T90
5. MOISTURE DENSITY (NUCLEAR DENSITY):
   SHALL BE DONE IN ACCORDANCE WITH AASHTO T310
6. DYNAMIC CONE PENETROMETER (DCP) TESTING:
   SHALL BE DONE IN ACCORDANCE WITH ASTM D6951-03

REQUIREMENTS:

1. FILL MATERIAL:
   A. SOILS USED AS FILL MATERIAL SHALL BE TESTED FOR GRAIN SIZE ANALYSIS, MOISTURE CONTENT, ATTERBERG LIMITS ON FINES CONTENT, AND PROCTOR TESTS.
   B. IN ROADWAY CUT AREAS, OR WHERE EMBANKMENT CONSTRUCTION REQUIRES LESS THAN 12 INCHES OF FILL PLACEMENT, COMPACT TO A MINIMUM OF 95 PERCENT OF THE MATERIAL'S STANDARD PROCTOR MAXIMUM DRY DENSITY. THE SCARIFICATION DEPTH SHALL BE ADJUSTED SUCH THAT THE COMBINED THICKNESS OF THE EMBANKMENT FILL MATERIAL AND SCARIFICATION DEPTH SHALL BE 12 INCHES OR GREATER.
2. COMPACTED SUBGRADE:
   A. THE ENTIRE SUBGRADE SHALL BE PROOF-ROLLED PRIOR TO THE PLACEMENT OF THE AGGREGATE BASE TO IDENTIFY AREAS OF UNSTABLE SUBGRADE.
3. AGGREGATE BASE:
   A. AGGREGATE BASE SHALL BE PROOF-ROLLED OVER THE ENTIRE LENGTH. IF PROOF ROLLING DETERMINES THAT THE ROAD IS UNSTABLE, ADDITIONAL AGGREGATE SHALL BE ADDED UNTIL THE UNSTABLE SECTION IS ABLE TO PASS A PROOF ROLL.
   B. PROVIDE 1 DCP TEST FOR EVERY 1,000 L.F. OF ROAD LENGTH. ROAD BASE SHALL BE COMPACTED TO ACHIEVE A PENETRATION INDEX VALUE LESS THEN OR EQUAL TO 10 MM/BLOW.
   C. PROVIDE 1 SIEVE ANALYSIS (PROJECT MAX OF 20) PER 2500 CY OF ROAD BASE PLACED.

GENERAL NOTES:

1. THE GROUND SURFACE CONTOURS AND ELEVATIONS HAVE BEEN PROJECTED FROM 10-METER USGS PUBLIC DATA. AS SUCH, THE ACCURACY OF THE ELEVATIONS AND CONTOURS IS NOT AS HIGH AS INFORMATION GATHERED USING CONVENTIONAL FIELD SURVEYING PROCEDURES. THE CONTRACTOR WILL FIND THAT GROUND ELEVATIONS DETERMINED DURING FIELD STAKING WILL VARY FROM THE GROUND ELEVATIONS SHOWN ON THE DRAWINGS. WHERE MAJOR DISCREPANCIES ARE FOUND, THE OWNER AND ENGINEER SHALL BE CONTACTED AND NOTIFIED.
2. WHERE SECTION OR SUBSECTION MONUMENTS ARE ENCOUNTERED, THE OWNER SHALL BE NOTIFIED BEFORE SUCH MONUMENTS ARE REMOVED. THE CONTRACTOR SHALL PROTECT AND CAREFULLY PRESERVE ALL PROPERTY MARKERS AND MONUMENTS UNTIL THE OWNER, AN AUTHORIZED SURVEYOR OR AGENT HAS WITNESSED OR OTHERWISE REFERENCED THEIR LOCATION. THE CONTRACTOR IS RESPONSIBLE FOR REPLACING DAMAGED PROPERTY MARKERS AND MONUMENTS.
3. EFFORTS SHALL BE MADE TO MINIMIZE SOIL DISTURBANCE TO AREAS OUTSIDE OF THE ROAD GRADING LIMITS, CRANE PATHS, AND TURBINE SITES. TYPICAL DISTURBANCE SHALL BE LIMITED TO 10 LF FROM THE EDGE OF PROPOSED GRADING.
4. THE CONTRACTOR SHALL MAKE ALL EFFORTS TO KEEP ACTIVITIES WITHIN THE ERECTION AREAS SHOWN ON THE PLANS BUT IT IS UNDERSTOOD THAT SOME ACTIVITIES THAT WILL NOT REQUIRE GRADING OR SOIL DISTURBANCE MAY EXTEND BEYOND THE DEFINED LIMITS. DURING THE ERECTION OF THE ROTOR, TRUCKS AND/OR FORKLIFTS MAY EXTEND BEYOND THESE LIMITS.
5. IF LOCALIZED LOW POINTS ARE ENCOUNTERED DURING TOPSOIL STRIPPING, MASSAGE SURROUNDING AREA TO MAINTAIN POSITIVE DIRECTION OF DRAINAGE TO MINIMIZE PONDING OF STORMWATER DURING RAINFALL EVENTS.
6. ANY FACILITIES REMOVED TO ALLOW FOR CONSTRUCTION (MAILBOXES, SIGNS, FENCES, ETC.) SHALL BE REPLACED BY THE CONTRACTOR IN A CONDITION AS GOOD AS EXISTING.
7. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING DRAINAGE THROUGHOUT THE CONSTRUCTION OF THIS PROJECT. CONSTRUCTION ACTIVITIES SHALL NOT BLOCK THE NATURAL OR MANMADE CREEKS OR DRAINAGE SWALES CAUSING RAINWATER TO POND. DEPENDING ON FIELD CONDITIONS, ADDITIONAL CULVERTS IN EXCESS OF THOSE ON THE PLANS MAY BE REQUIRED.
8. WHILE BUILDING THE ROADS AND EXCAVATING THE TURBINE FOUNDATIONS, EXCESS SOIL WILL RESULT. THE CONTRACTOR SHALL DISPOSE OF THIS EXCESS SOIL IN AN APPROVED MANNER. THE CONTRACTOR SHALL AVOID CAUSING RIDGES OR MOUNDS THAT WOULD MAKE IT DIFFICULT FOR STORM WATER RUNOFF TO DRAIN. THE FINAL SURFACE OF THE DISTURBED TOPSOIL SHALL BE SMOOTH AND FOLLOW THE NATURAL CONTOUR OF THE LAND.
9. THE CONTRACTOR SHALL NOTIFY OKLAHOMA 811 AT LEAST 48 HOURS BEFORE EXCAVATION ACTIVITIES COMMENCE.
10. TURBINE SETBACKS ARE NOT IDENTIFIED ON THE CONSTRUCTION PLANS. IT SHALL BE THE RESPONSIBILITY OF THE OWNER TO ENSURE THAT ALL TURBINE SETBACKS MEET PROJECT REQUIREMENTS.
11. WETLAND INFORMATION SHOWN ON THE PLAN WAS PROVIDED BY US FISH AND WILDLIFE SERVICE NWI MAPS. PRIOR TO IMPACTING ANY WETLANDS, THE GENERAL CONTRACTOR SHALL VERIFY WITH THE OWNER AND THE ENGINEER THAT ALL WETLAND PERMITS HAVE BEEN SUBMITTED AND APPROVED.
12. CULTURAL RESOURCE REPORTS HAVE NOT BEEN PROVIDED. THE GENERAL CONTRACTOR SHALL VERIFY WITH THE OWNER THAT THE SITE IS CLEAR OF CULTURAL SITES PRIOR TO CONSTRUCTION.
13. CONTRACTOR SHALL MAINTAIN THROUGH ACCESS FOR ALL EXISTING OIL AND GAS ROADS THAT ARE IMPACTED BY THE PROPOSED CONSTRUCTION. THIS MAY REQUIRE ADDITIONAL GRADE TRANSITIONS NOT DETAILED IN THIS PLAN SET.

TABLE 3: TESTING SCHEDULE SUMMARY

LOCATION	TEST	FREQUENCY
STRUCTURAL FILL	GRAIN SIZE ANALYSIS, MOISTURE CONTENT, ATTERBERG LIMITS ON FINES CONTENT, AND PROCTOR	1 PER MAJOR SOIL TYPE
COMPACTED SUBGRADE	PROOF-ROLL	ENTIRE LENGTH
	DCP (NOT REQUIRED UNLESS PROOF ROLL FAILS)	2 PER 1000 FT
AGGREGATE BASE	PROOF-ROLL	ENTIRE AREA
	SIEVE ANALYSIS, LL, PL, AND LA ABRASION	1 PER 2,500 CY
	DCP TEST	1 PER 1,000 LF OF ROAD

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Designed: DJF
Checked: DDB
Drawn: DJF
As-Built Drawing:

Revisions:

#	DATE	DESCRIPTION

Prepared for:

WANZEK
a MasTec company

2028 2nd Avenue NW
West Fargo, ND 58078

Chilocco Wind Project
Kay County, Oklahoma

Construction Notes

Permitting Plans
Not For Construction

Date: 12/01/2016
Sheet: 5 OF 11

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DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, TULSA DISTRICT
1645 SOUTH 101ST EAST AVENUE
TULSA, OKLAHOMA 74128-4609

May 26, 2017

Regulatory Office

Mr. Frank M. Kraatz
Chilocco Wind Farm, LLC
150 N. Michigan Ave., Suite 1500
Chicago, IL 60601-7570

Dear Mr. Kraatz:

Please reference your letter of January 26, 2017, regarding the Chilocco Wind Farm within Sections 13-17, 20-29, Township 29 North, Range 2 East, in Kay County, Oklahoma at Latitude N36.995238 and Longitude W97.089106. We have reviewed the submitted data to determine whether a Department of the Army permit will be required pursuant to Section 404 of the Clean Water Act.

Your proposed permanent and temporary impacts to Chilocco Creek, its unnamed tributaries, and its wetlands associated with your project shall comply with the scope of the Nationwide Permit (NWP-51) for Land Based Renewable Energy Generation Facilities, provided you comply with the conditions therein. However, the U.S. Environmental Protection Agency (EPA) has denied Section 401 Water Quality Certification (WQC) for all NWP's within Indian Country.

In accordance with 33 CFR 330.4(c)(5), we will not require or process an individual permit for your proposed activity solely on the basis that the 401 WQC was denied on this NWP. Therefore, your request is denied without prejudice until the EPA issues an individual 401 WQC for your proposal or waives its right to do so.

In instances where an agency has denied the WQC for a NWP, the applicant must obtain an individual 401 WQC from the appropriate agency (EPA) by submitting an application or letter of request. If the EPA fails to respond to your request for authorization within 60 days, we may deem a waiver of the WQC has occurred. The responsibility for obtaining the WQC rests with you. The EPA can be contacted by writing to the USEPA Region 6, 1445 Ross Avenue, Dallas, TX 75202-2733, or by telephoning 214-665-2200.

Upon receipt of your individual 401 WQC, or waiver of such certification, the proposed work will be authorized under the enclosed NWP, at which point you may proceed with the project. We will require compliance with the General Conditions of the NWP.

Also, enclosed is a self-addressed, "Permittee Construction Schedule" form to be completed and returned. If the WQC is issued and construction would be initiated prior to 30 days from receipt of this letter, you should return the completed form as soon as possible. If you prefer, you may telephone the individual listed below to inform this office regarding the construction start date.

Following completion of your proposed activity, you must complete and return the enclosed self-addressed, "Permittee Compliance Certification" form. This is the certification referred to in General Condition Number 30 of the NWP.

The NWP is scheduled to expire on March 18, 2022. It is incumbent on you to remain informed of changes to the NWPs. The U.S. Army Corps of Engineers will issue a public notice announcing the changes as they occur. Furthermore, if you commence, or are under contract to commence, this activity before the date the NWP is modified or revoked, you will have 12 months from the date of the modification or revocation to complete the activity under the present terms and conditions of this NWP.

The Nationwide Permit verification for this project is based on the proposed impacts to aquatic resources. No approved jurisdictional determination (AJD) is necessary unless jurisdictional questions arise. Should jurisdictional questions arise, you may request an AJD. Only an AJD, which may be appealed, may make a definitive, official determination that there are, or that there are not, jurisdictional aquatic resources on a parcel. Unless an AJD has been issued which identified applicable aquatic resources to be non-jurisdictional, undertaking any activity in reliance on any form of Corps permit authorization constitutes agreement that all aquatic resources in the review area, affected in any way by that activity, will be treated as jurisdictional.

If you desire to complete a "Customer Service Survey" on your experience with the Corps Regulatory Program, you are invited to visit http://corpsmapu.usace.army.mil/cm_apex/f?p=regulatory_survey on the internet at your convenience and submit your comments.

Your project has been assigned Identification Number SWT-2013-570. Please refer to this number during future correspondence. If you cannot comply with the conditions listed in the enclosed permit, contact Bryan Noblitt at 918-669-4904.

Sincerely,

for Michael Ware
Acting Chief, Regulatory Office

Enclosures

cc:
Ms. Bill Honker, Water Quality Protection Division Environmental Protection Agency
DOD Siting Clearinghouse

Appendix U

Energy Assessment - Chilocco Wind Farm

REDACTED FOR CONFIDENTIALITY

Evaluation and Recommendation
By
Cimmaron Power Ventures
of
Chilocco Wind Project, Kaw County, Oklahoma
February 1, 2013

Overview:

Cimarron Power Ventures, LLC (CPV) was engaged by Cherokee Nation Businesses, LLC (CNB), on January 24, 2013 to review the major project agreements governing the proposed development of Phase 1 of the Chilocco Wind Project ("CWP" or "Phase 1") proposed by PNE Wind USA ("PNE"), a subsidiary of PNE Wind AG, a German company active in the wind energy development industry. Phase 1 is one of six coordinated but independent wind projects, totaling 600MW, being developed by PNE in the area of the Chilocco Indian School lands. Phase 1 is located on that portion of the former Chilocco Indian School lands owned by, held in trust on behalf of, or nominated for trust status by, the Cherokee Nation (CN).

The major project agreements for CWP were sent to CPV by CNB on January 23, 2013. CPV was asked to offer an opinion about Phase 1 based on the project agreements, interviews with PNE and other industry experts, and to independently determine and advise the CN and the CNB as to, among other things, if the project provided appropriate value to CN and if the perceived urgency to proceed with Phase 1 is in fact justified.

This review, while focused on Phase 1, was expanded to include CWP Phase 2, an equal sized project being developed on an adjacent property controlled by the Kaw, Pawnee, Ponca and Otoe-Missouri tribes. Phase 1 and Phase 2 will generate 153.6 MW. PNE, although prepared to develop Phase 2 independently, would prefer to achieve certain efficiencies by financing, developing, constructing and selling the combined Phase 1 and 2 projects together.

Summary Conclusions:

1. **The current estimated value of the CWP transaction to the CN from the Wind Resource Lease ("WRL" or "Lease") and the Wind Development**

Agreement ("WDA" or "Development Agreement") is reasonable and likely above the standard compensation for wind lease agreements. CPV canvassed [need to have a few examples of this or citations in the Appendix] industry experts and found that such wind leases range from 4% to 6% of escalating gross revenues paid over the life of the lease. Some will start at 4% and escalate over the lease term to 6%. The WRL, which is subject to a "most favored nation" clause (cannot be changed unless all land owners benefit), stays at 4% but has an escalating minimum payment that is relatively high compared to projected revenues. CPV developed a summary model that compared the estimated actual gross revenues and determined that the indexed increasing base is attractive. What makes the CN income above standard is the Development Agreement that provides for payments at the commissioning of operations date for Phase 1 ("COD") based on fixed payments per MW and a 5% carried interest for CN of the net proceeds from the sale of the project. The current interpretation of the project documents and CPV's estimates of the components of compensation provide for the following estimated income for CN.

Chilocco Wind Project Compensation to CN		**Current**
Cash Payment (estimated Year 1)		-
WDA COD Payments		**$2,000,000**
WDA Project Sales Share		
Gross Project Sales		$15,000,000
Less: COD Payment		($2,000,000)
Less: PNE Expense Reimbursement		($2,000,000)
Net Proceeds to Distribute		$11,000,000
Project Sales Share	**5.0%**	**$550,000**
Total Cash Payments (estimated Year 1)		**$ 2,550,000**
Net Improvement		
% Improvement		
PV of WRL Lease Payments (20 year minimum)		**$ 3,663,080**
Total Present Value to CN from CWP Transaction		**$ 6,213,080**

2. **CN should make a serious effort to negotiate a restart of the development with PNE.** PNE and its German parent company is an experienced and well capitalized developer of such projects and has demonstrated a strong commitment to the CWP by spending significant

funds (approximately $1M for direct third party expenses and another $1M in indirect staff expense) without any controlling agreements in place. PNE also has advanced the project by having the EPC and environmental permitting contracts ready to proceed and a power purchase agreement ("PPA") signed for the projects. PNE has arranged an investor group for the purchase of the projects when completed. CN has no assurance that subsequent developers would provide the same level of economic benefits to the tribe as are now included in the agreements. A decision to return to the concept of developing the site directly by CN may generate much more return but would require a significant amount of upfront capital, on the order of $2-$3 million to develop the project.

3. **While time is of the essence in taking actions on Engineering and Environmental Permits and executing the Phase 1 project documents, options have been developed by CPV for key deadlines previously considered a problem.** Because the project lost credibility in December 2012 with an urgent deadline for the execution of the project agreements that now seems to have not been required, CPV's review focused on the many deadlines that affect this project that are both within and outside of the developers control. Below are the key findings related to the schedule for the project:

    a. The primary driver for the urgency to final the Phase 1 documents relates to the value gained by the projects, and ultimately CN, by financing and developing Phase 1 and 2 together, and getting these projects substantially if not completely done in 2013 so that the Production Tax Credit ("PTC") applicable to wind energy projects, which expires on December 31, 2013, could be received by the project. The investor group buying the project will more highly value the project with the PTC's.
    b. According to PNE, the rushed December 2012 deadline in which PNE asked that the project documents be signed by December 24, 2012, was driven by PNE's attempt to wire before the end of 2012 the $1.2 M in funds to be deposited with OGE as the 50% down payment required by OGE to start work on a 12 month project to design, engineer and construct the electrical substation interconnection facility required for exporting power from Phase 1 to the electrical transmission grid. The agreement to develop this facility, known as a Generator Interconnection Agreement (GIA), was previously acquired by CNB from Southwest Power Pool (SPP), working in cooperation with OGE. PNE had mistakenly interpreted the December 31, 2013 "In Use" date listed in the

GIA as an absolute deadline. PNE therefore believed that in order to get Phase 1 on line during 2013 and to capture the PTC, OGE's work under the GIA had to begin. To get OGE started, this payment needed to be made, and in order to make the payment to OGE, the project agreements needed to be executed. PNE believed that the approval of the Tribal Council Resolution on December 11, 2012 was the final hurdle following their presentation to CN officials in April, 2012, as no objections or changes to Phase 1 project concept or the project agreements had been proposed. A conference call to finalize these agreements on December 14, 2012 was set up but rescheduled to December 18, 2012. Issues were raised in the December 18, 2012 call and then the letter from Chief Baker was received by PNE on December 20, 2012, indicating that CN was not prepared to proceed with the project. PNE had set a financial closing on Phase 2 on December 18, 2012 and had cancelled this financing expecting that Phase 1 documents were to be signed shortly. When this did not occur and a response was not received to their reply to Chief Baker's letter, which PNE sent on December 21, 2012, they assumed that Phase I was lost or indefinitely deferred and they once again rescheduled the financing close for Phase 2 to February 15, 2013. By not closing Phase 2 or getting Phase 1 signed up by the years end, PNE lost its original investor for the combined project and has during January replaced their investor for the Phase 2, February 15 financial closing.

c. PNE is keenly aware of the efficiencies and benefits of developing both Phase 1 and Phase 2 together as a single project, and as a single financing package in a joint closing. According to PNE, if Phase 1 and Phase 2 could be closed in a single transaction, they could again change their equity investor to a group who will pay a premium for a larger project and could reschedule the financial close to March 21, 2013. They do not however wish to cancel another financial closing for Phase 2 unless they have some significant evidence that CN is willing to proceed with Phase 1. Ideally from PNE's perspective this would require the parties to agree and sign the PNE agreements prior to February 15, 2013. If this is not possible, then the signing of the EPC and Environmental Permitting contracts already matched by PNE and funded by the DOE grant would be enough evidence that Phase 1 is likely to proceed. If either of these actions occur, PNE would again reschedule their financial closing.
d. CPV has engaged with SPP and OGE to address the other scheduling deadlines that PNE believed had complicated Phase 1's development, operations and sale due to the delays in starting the project. PNE mistakenly reported that the February 1, 2013 registration deadline for

Phase 1 as a market participant in the SPP was absolute, and that Phase 1 would have to wait a year for economic access to the regional electrical transmission system. This delay meant Phase 1 would likely not be able to be on line until August, 2014. This would have radically affected the value of a Phase 1 development and sale. CPV took the initiative and has now confirmed in writing with SPP and OGE, and verbally confirmed with PNE's Washington based counsel, who PNE made available to CPV, that in fact so long as another market participant such as the utility purchaser of the energy from Phase 1 or 2 nominates Phase 1 as a new generation resource, that Phase 1 will have equal economic access to SPP's regional transmission system.

PNE also believed that, because the GIA had been earlier suspended and the December 31, 2013 deadline for "in use" contained in the GIA was absolute, that the Phase 1 interconnect facility could not be completed in time for the Phase 1 projects December, 2013 in service date. PNE was willing to proceed with Phase 1, recognizing that the GIA process would have to be restarted, which would result in costly delays in allowing full export of power from Phase 1 to its customers. Alternatively, Phase 1 would have to have limited operations by exporting its power through the Phase 2 interconnection facilities. Either action would have also radically reduced the value of Phase 1 in the eyes of investors. Again, CPV engaged directly with SPP and OGE, and confirmed that lifting the earlier suspension of the GIA would supersede the December 31, 2013 deadline, and that while there may be a month or two delay in the completion of the interconnect, that the GIA remains valid and the export of Phase 1 power through Phase 2 interconnect facility until Phase 1s interconnect is available should not significantly affect Phase 1 value. Through this work CPV has now re-established Phase 1 as a viable and valuable project that can be completed in 2013 and qualify for the PTC.

4. **CPV has identified a mechanism through the existing project documents to potentially increase the first year cash payments to CN by 100%.** This significant value increase depends on combining Phase 1 and Phase 2 projects and written confirmations by the parties on the interpretation of the contracts. The details of this will be discussed further with CN.

Chilocco Wind Project Compensation to CN	**Current**	**CPV Proposed**

Cash Payment (estimated Year 1)		-	-
WDA COD Payment		**$2,000,000**	**$4,000,000**
WDA Project Sales Share			
Gross Project Sales		$15,000,000	$30,000,000
Less: COD Payment		($2,000,000)	($4,000,000)
Less: PNE Expense Reimbursement		($2,000,000)	($2,000,000)
Net Proceeds to Distribute		$11,000,000	$24,000,000
Project Sales Share	**5.0%**	**$550,000**	**$1,200,000**
Total Cash Payments (estimated Year 1)		**$ 2,550,000**	**$5,200,000**
	Net Improvement		**$2,650,000**
	% Improvement		**103.9%**
PV of WRL Lease Payments (20 year minimum)		**$ 3,663,080**	**$3,663,080**
Total Present Value to CN from CWP Transaction		**$ 6,213,080**	**$8,863,080**

5. **The concerns expressed by Chief Baker can and should be addressed in the revised project agreements.** Additional language on the sequencing of the BIA and Trust Land approvals should be added. The Sovereignty issue also should be addressed in a manner that is acceptable to CN and still allows for financing. Such solutions are believed to be feasible and neither should create a fatal flaw to the agreements.

6. **If CN agrees to the approach outlined below under Next Steps, the CWP, PNE and CN would benefit in several significant ways, primarily due to the accelerated development of the Phase 1 project, which will provide upfront payments and recurring earnings to be made to CNB sooner than if Phase 1 is further delayed.** If Phase 1 is agreed to by the parties, Phase 2's February 15 scheduled closing will be set aside in favor of a joint closing on March 21. PNE believes that it can develop both projects so as to achieve commercial operations on or before December 31, 2013 and subsequently the significant payments accruing to the CN based on COD payments and receipt the 5% carried interest in net sale proceeds of Phase 1 from the sale of the projects to the investors.

Next Steps:

1. CPV, in cooperation with CN and CNB, should immediately engage PNE in a final set of negotiations, based on extensive discussions over the last week,

to improve and modify the terms of the Wind Resource Lease (WRL) and Wind Development Agreement (WDA). These changes will improve the economic returns and address the prior concerns on the BIA approval sequence and the Sovereignty issues. Ideally, these actions should occur prior to February 15, 2013.

2. If CN is working toward but unable to sign the revised agreements by February 15th, and as an expression of good-faith of CN's willingness to enter into the Phase 1 agreements, CNB should be directed prior to February 15 to execute the EPC contract ($250,000) and the Environmental Permitting contract ($200,000). These project requirements are funded by existing DOE grants that are dedicated to this purpose. PNE has said this would provide PNE with the assurance that Phase 1 will advance, and allows them to gain the permission of their board to cancel again the financial closing for Phase 2 now scheduled for February 15, 2013. In the absence of an agreement with PNE it is possible that they could withdraw their expenditures as a match of the DOE grant, which would lose the funding. This approach, even without PNE agreements, will provide valuable engineering and permitting to CNB in the event it decides in the future to pursue the project apart from PNE.
3. CPV should immediately pursue OGE and SPP on the extension of the in use deadline stated in Appendix B of the GIA.
4. When the amended and restated agreements are approved by CN, they should be executed prior to March 21, 2013 to facilitate the Phase 1 and Phase 2 financial closing scheduled for that date.
5. CNB should be authorized, considering CPV's review and input, to renegotiate existing agreements or contract with new subcontractors to complete the environmental and permit-related work for Phase 1 at less cost than budgeted. Monies saved can then be used for other purposes related to the Phase 1 project including providing additional contracts to CNB for environmental monitoring and related project work.

6. This development schedule would qualify both Phase 1 and Phase 2 for the Production Tax Credit (PTC), which has been recently extended by Congress until December 31, 2013. The PTC is a significant financial benefit to the investor group, which directly impacts the valuation of the 5% payment to the CNB upon the sale of the Phase 1 and 2 projects to PNE's investor group. This is a significant benefit to the investor group and one of the key determinants of making Phase 1 financeable and profitable for

investors (indeed any wind energy project, all of which are dependent on the PTC for financial viability). By delaying the development of Phase 1 to a later date when the PTC may no longer be available, the project economics most likely would no longer support development of a Phase 1 project.

7. A March 21st closing of Phases 1 and 2 would ensure that CNB's existing Generating Interconnection Agreement (GIA) with Southwest Power Pool (SPP) and the attendant investment of $220,000 remains intact. The GIA authorizes the construction of Interconnection Facilities to connect Phase 1's electrical output with the regional electric grid; Oklahoma Gas & Electric (OGE) will design and build the Interconnection Facilities covered under the GIA. These facilities are a significant requirement for connecting Phase 1 wind generation to OGE's transmission system, and onward to SPP's regional transmission network.

   PNE's development plans for Phase 1 after the December 2012 closing was missed were based on the assumption that Phase 1 would have no immediately available, dedicated Interconnection Facilities due to schedule slippages. PNE's in-house planners were of the impression the GIA would terminate by operation of SPP rules governing GIAs before the facilities covered by the GIA could be built. PNE's plan therefore was for Phase 1 energy sales to initially rely on surplus capacity in Phase 2's Interconnection Facilities to export power to customers until such time as the Phase 1 Interconnection Facilities could be built, a process requiring 12-18 months. CPV interceded with both OGE and SPP to demonstrate that the CNB's GIA is in fact viable and can be used to support Phase 1 requirements. Although the cost of this Interconnection Facility has not been included in PNE's current March 21st financing documents, which have already been assembled to support the combined Phase 1 and 2 financial closing, it can be corrected post-closing. PNE has agreed to pay for the design, engineering and construction of these facilities as part of their overall Phase 1 project costs.

8. An additional impetus to proceed now with Phase 1 is SPP's February 1, 2013 cutoff for including new generation sources like Phase 1 in its regional marketing system. This cutoff was required to allow SPP to plan the implementation of SPP's new Integrated Marketing (IM) scheme, which is scheduled to go live on March 1, 2014.

As background, the output of Phase 2 has been pre-sold by PNE to a utility or similar customer(s) under a Power Purchase Agreement (PPA). As a result, Phase 2 is already listed with SPP as a 'new generation source' by the utility purchaser, who is an Existing Market Participant (EMP) under SPP rules. This designation allows power from Phase 2 to be exported over SPP's regional transmission system at favorable rates. Without registration of the facility with a SPP-registered EMP, transmission rates for power exported from the project would have been at a significantly higher tariff. In addition, due to the self-imposed "freeze" by SPP in approving new generating projects, new projects would not be able to apply for more favorable transmission rates until June, 2014 at the earliest.

By moving forward in conjunction with Phase 2, the power output from Phase 1 would be sold under a PPA to the same utility purchaser(s) as power from Phase 2. The purchaser, a qualified EMP under SPP rules, has until June 15, 2013 to include additional new generation resources in its asset list, thereby qualifying Phase 1 for the more favorable transmission rates available to Phase 2.

9. Finally, PNE has demonstrated its long-term commitment to this project, placing its own funds at substantial risk and without imposing any funding requirements by CNB.

In summary, CPV believes that if CNB can quickly agree to a deal on Phase 1, that PNE can develop and construct both Phase 1 and 2 at the same time, thereby achieving substantial economies of scale for PNE and the ultimate buyers and offtakers of the power from Phases 1 and 2. CPV believes the CN should benefit as well.

It should be noted that CPV has canvassed the wind energy market to evaluate the value of the offer made by PNE, and found the offer to be above average as it is. However, as a result of the economies of scale and the value to PNE for future business by doing a large project with CN, CPV believes it can negotiate an improvement in the payout over that currently offered by PNE. CPV would expect to generate an increase in current year payments to CNB in the range of $2M to $4M.

Process Required For Moving Forward:

Failure to close on February 15th will force PNE to close on the Phase 2 project alone, leaving Phase 1 behind. However, PNE has agreed that there are two paths forward, either of which need to be completed by February 15, 2013:

1. either finalize and sign off on the major project agreements, or
2. CNB must commit the DOE grant funds to Phase 1 project development, after which the project agreements would have to be finalized before the March 21, 2013 closing for Phase 1 and Phase 2.

PNE has suggested a significant revision in the way the DOE grant funds would be spent, which on the surface CPV concurs in. These changes provide for a more efficient use of the limited DOE grant funds for outside vendors, provides for a qualified consultant to oversee the project so that CNB's interests are protected, and a provides a strong presence for CNB staff in reviewing and approving project-related engineering and design factors, and environmental studies both for permitting purposes and long term site monitoring.

Reasons Not to Delay:

If CNB elects not to participate in Phase 1 at this time, delays in later developing the project will range from one year to three years and be costly for CNB to implement. These delays are due to the:

1. Collective time lost from missing the March 21 financing and having to essentially redevelop the project;
2. Costly advance deposits and long lead times required for ordering and delivery of wind turbines from the manufacturer;
3. Having to apply for, wait in the queue and pay for a new GIA;
4. Incurring at least a one year delay in being registered with SPP as a new generating source by a SPP EMP:
5. Potential loss of the PTC if it is not reauthorized by Congress; and
6. Potentially losing the current developer and having to restart the development process, including having to pay for project development from tribal funds.

The CPV Review Process:

CPV has reviewed the three major project documents between the various parties including the Wind Energy Evaluation Lease (WEEL), the Wind Resource Lease (WRL), the Wind Development Agreement (WDA) and the Interconnection Agreement (summary and full versions) between CNB and SPP. CPV also

participated in conference calls involving Ms. Marguerite McKinney and Ms. Carol Wyatt of CNB , Mr. Andre De Rosa of PNE regarding the project, calls with SPP and OGE regarding the GIA and with Andrea Chambers of Foley & Lardner, LP, PNE's attorney who helped with SPP matters.

CPV was asked to come to some quick conclusions in the interest of time. As such there may be some dated information, inconsistencies or inaccuracies in the information that would have been corrected in a review that had the luxury of more time. CPV is however satisfied that it has obtained enough information to draw the general conclusions outlined herein.

CPV Review of Project Documents and Deal Terms:

A comprehensive outline of the Chilocco Wind Phase 1 Project and the agreements reviewed follows this discussion. The Project Agreements reviewed by CPV include: the Wind Energy Evaluation Lease (WEEL), Wind Resource Lease (WRL) and Wind Development Agreement (WDA). These documents are the major agreements establishing the project structure between PNE and its affiliates and subsidiaries and CN and CNB. A summary of the primary terms and conditions of each agreement are provided below.

Wind Energy Evaluation Lease (WEEL):

For good and valuable consideration of $500 plus payment of $50 per quarter for each meteorological and wind measurement installation, PNE's wholly-owned subsidiary, Chilocco Wind Park, LLC (the Company), will acquire from CN an exclusive and irrevocable lease for the Chilocco property for the sole purpose and use of the property by the Company to evaluate the wind energy potential of the property. The WEEL's provisions include:

1. The term of the WEEL is 3 years from date of signature
2. Allows development and installation of wind evaluation structures (data collection/met towers), allowing necessary and related activities supporting installation of the wind tower monitoring station(s) including erection, construction, and operating and maintenance activities as required to install and operate the wind towers,

3. Company has the non-exclusive right of egress and ingress along existing access routes, or to be built access routes as required, to install and operate the wind towers and collect wind data,
4. The Company may undertake any activities to facilitate the above, either by the Company or by Companies contractors.
5. Restrictions on Land Use:
    a. Obstructions to the free flow of wind during the term of the agreement are prohibited for a prescribed distance from any wind tower,
    b. The CN reserves the right to use the property for any purpose except those that obstruct the Company use of the property for the intended purpose.
6. Company has the option, exercisable at its discretion, during the 3 year period following the WEEL agreement, to enter into a Wind Resource Lease (WRL), subject to the following intent of the parties:
    a. The Parties will enter into a WRL for the purpose of installing energy resource development facilities
    b. The WRL will be limited to the property defined in the WEEL
    c. The WRL Option is subject to the Company's due diligence
    d. The WRL may be terminated by either party
    e. The Parties agree the WRL will be the direct result of wind data collected from the activities authorized under the WEEL
    f. The company may request an extension of the WRL for 3 additional years to allow BIA to approve the lease process.
7. Ownership of the collected wind data is exclusive to the Company until such time as the WRL is entered into, is approved by the BIA and BIA's approval is completed within the effective term of the WRL.
8. Assignment of the WEEL is only permissible to wholly owned subsidiaries of the Company or to others with the written consent of the other party.
9. The tribe shall restrict any activities on the land that may interfere with collection of wind data, but is otherwise free to pursue other ordinary agricultural, ranching, mineral development, oil and gas drilling and production activities, hunting, archeological or similar activities.
10. Covenant for Benefit of Company's Lenders:
    a. No cancellation or modification of the WEEL without the prior written consent of the Company's lenders.
    b. Lenders will have the right to act or do or perform under the WEEL as required of the Company to prevent a default and/or forfeiture of any of the Company's rights or obligations under the WEEL.
11. Governing law shall be the provisions of 25 USC Section 415, 25 CFR § 162 and any other applicable federal law including the Regulatory-Mandated

Provisions of 25 CFR § 162.513(b). To the extent no federal law governs the immediate issue, or a federal court determines it has no jurisdiction, the Parties agree to be governed by Oklahoma law, and specifically agree that the WEEL shall not be governed by tribal law.

Wind Resource Lease (WRL):

The WRL includes the same Parties as the WEEL. The WRL is for the purpose of granting the Company an exclusive and irrevocable lease to develop the wind energy resources of the Chilocco property. Key Provisions of the WRL include:

1. The Company will pay to CN:
    a. An installation payment of $2,000 per wind turbine at the start of construction or actual construction-related damages, whichever is greater [note: the value of this payment based on 48 wind turbines is $96,000]
    b. Minimum Payment of $5,000 per year per nameplate rated megawatt installed on the property, indexed to inflation [note: at 76.8 MW, this payment = $384,000/yr.]
    c. Operation Payment: paid quarterly, the greater of one-fourth the Minimum Payment or four percent [note the agreement says 'four percent' but numerically lists '3%'] of gross operating proceeds for the quarter
    d. Overhead Transmission Payment: $3/foot of actual transmission line length on the property, plus $250 per transmission line structure [not able to accurately estimate the value of this payment at this time]
    e. Permanent Tower Payment of $750 per quarter per meteorological tower or similar wind measurement equipment [$3,000/yr per met tower]
    f. Project Payment of the greater of $15 per acre of the property or 0.5 percent of the Gross Operating Proceeds of the project, adjusted for inflation.
2. Allowed Activities Under the Lease:
    a. Constructing, installing, using, replacing, relocating and removing from time to time, and maintaining and operating, wind energy conversion systems including all equipment necessary including towers, turbines, foundations, pads and similar
    b. Constructing, installing, using, replacing, relocating and removing from time to time, and maintaining and operating underground and

overhead electrical transmission and communications lines, poles, anchors, support structures, underground cables, interconnection facilities and equipment and any related or ancillary facilities or improvements and associated roads for access and for installation and repair, maintenance and operation purposes

c. The non-exclusive right of ingress to and egress from the Conversion Facilities and Transmission Facilities (whether located on the Property, on adjacent property, or elsewhere in the Project) over and across the Property by means of roads and lanes thereon if existing, or otherwise by such route or routes as Company may construct from time to time

d. Undertaking any other activities, whether accomplished by Company or a third party authorized by Company, that Company reasonably determines are necessary, useful or appropriate to accomplish any of the foregoing.

3. Any obstruction to the free flow of the wind is prohibited throughout the entire Property
4. The WRL gives the Company the exclusive right to convert all of the wind resources of the Property.
5. The Windpower Facilities are expected to operate in conjunction with other Windpower Facilities developed by the Company on other nearby properties (collectively, the "Project").
6. A resource development plan that describes the type and location of any improvements Company plans to install, and a schedule showing the tentative commencement and completion dates for those improvements, shall be submitted with this WRL pursuant to 25 CFR § 162.563(g)
7. The Company shall undertake the following under this WRL:
    a. Commence installation of energy facilities within two (2) years after the WRL Date [or other period designated in the WRL] and consistent with the timeframe contained in the resource development plan;
    b. Provide Tribe and BIA with an explanation as to good cause for any delay, the anticipated date of installation of facilities, and evidence of progress toward commencement of installation, if installation does not occur, or is not expected to be completed, within the time period specified immediately above;
    c. Maintain all on-site electrical generation equipment and facilities and related infrastructure in accordance with the design standards in the resource development plan; and

d. Repair, place into service, or remove from the site within 30 days any idle, improperly functioning, or abandoned equipment or facilities that have been inoperative for any continuous period of 3 months (unless the equipment or facilities were idle as a result of planned suspension of operations, for example, for grid operations or during bird migration season).

8. WRL Term. The term of this WRL is for an initial term ("Initial Term") commencing on the WRL Date and continuing until the later of:
    a. twenty (20) years after the first day of the first full month following the Commercial Operation Date, or
    b. twenty (20) years after the WRL Date.
    c. Unless earlier terminated, Company may elect to extend the Initial Term for one additional 20-year term
9. Assignment. Neither Tribe nor Company shall assign its rights or obligations to this WRL hereunder, in whole or in part, without the prior written notice to the other Party and the approval of the BIA pursuant to 25 CFR § 162.572(a); provided, however, that Company shall have the right to assign the WRL to the Company's wholly owned subsidiaries without notification or approval.
10. Ownership of Windpower Facilities.
    a. The tribe shall have no ownership or other interest in any Windpower Facilities installed on the Property, and
    b. The Company may remove any or all Windpower Facilities at any time during the Term and
    c. Shall remove any and all Windpower Facilities upon the expiration of the WRL Term, at Company's expense and with the Property to be restored as close as possible to its condition before installation of the Windpower Facilities, unless otherwise agreed in writing by the Parties
11. Section 16.10. Dispute Resolution; Limited Waiver Of Sovereign Immunity.
    a. So that Tribe and Company will be sure that it and/or they may enforce the terms and conditions of this WRL or resolve any dispute arising between the Parties, each of the Parties hereby covenants and agrees that each of them may sue or be sued to enforce or interpret the terms, covenants and conditions of this WRL or to enforce the obligations or rights of the Parties in accordance with the terms and conditions set forth in this Section.
    b. Informal Resolution. Any disagreement or dispute arising between the Parties under this WRL shall be resolved, whenever possible, by meeting and conferring.

c. Forum. Any controversy, dispute or claim arising out of or relating to this WRL, any modification or extension hereof, or any breach hereof shall be brought in any United States District Court or United States Court of Federal Claims, as applicable, in which the controversy may be heard or, if required, pursuant to 25 C.F.R. Parts 162 and 2, with rights of appeal to the appropriate federal court. If for any reason such United States District Court does not have or declines jurisdiction over the subject matter of the action, such controversy, dispute or claim shall be settled by binding arbitration as provided in Section 16.10.3 below. For such purpose, each of the Parties and the BIA hereby irrevocably submits to the non-exclusive jurisdiction of such courts and/or arbitrators.

d. Arbitration. In the event that each Party so agrees in writing or in the event the federal courts do not have or decline jurisdiction, any controversy, dispute or claim arising out of or relating to this WRL, any modification or extension hereof, or any breach hereof (including the question whether any particular matter is arbitrable hereunder) shall be settled by binding arbitration in accordance with the Center for Public Resources Rules for Non-Administered Arbitration of Business Disputes. The arbitration shall be governed by the United States Arbitration Act, 9 U.S.C. §§ 1 -- 16, and judgment upon the award rendered by the arbitrators may be entered by any court having jurisdiction thereof. If for any reason such United States District Court does not have or declines jurisdiction over the subject matter of the action, the Parties consent to the jurisdiction of the state courts of the State of Oklahoma solely for the purpose of compelling or enforcing arbitration with rights of appeal to the appropriate courts. If for any reason both the federal courts and the state courts do not have or decline jurisdiction over the subject matter of the action, the Parties consent to the jurisdiction of the Court of Indian Offenses under 25 C.F.R. Part 11 (or its successor court) solely for purposes of compelling or enforcing arbitration with rights of appeal to the appropriate courts.

e. Section 16.10.4. Limited Waiver of Sovereign Immunity. Tribe hereby specifically, expressly, and irrevocably waives its sovereign immunity and that of its agencies, officers and agents as to Company and its successors and assigns hereunder and any

disputes arising under this WRL. Without limiting the generality of the foregoing, Tribe irrevocably:

i. Waives any claim of sovereign immunity as to actions at law and in equity (including without limitation specific performance) and enforcement proceedings brought by Company to interpret or enforce the WRL or any other agreements by and among the Parties and actions to enforce the dispute resolution provisions of this Section;

ii. Waives the jurisdiction and procedures of any Tribal Courts in favor of any United States District Court in which the controversy may be heard (or if such District Court does not have subject matter jurisdiction over a particular action, binding arbitration as provided in Section 16.10.3 above) with all rights of appeal in appropriate federal or state courts or Court of Indian Offenses or courts of competent jurisdiction for actions brought by or against Company to interpret or enforce this WRL or any other agreements by and among such Parties including appeals from or enforcement of any arbitration decisions; and

iii. Waives any rights or obligations (for itself and for any other Party) to exhaust any tribal court, tribal administrative or other tribal procedures or remedies prior to involving Federal or State court jurisdiction, Court of Indian Offenses jurisdiction, binding arbitration or any Federal agency jurisdiction, with respect to the enforcement of this WRL or any other agreements by and between the Parties, including appeals from or enforcement of any arbitration decisions.

iv. Tribe further irrevocably consents to service of process out of such aforementioned courts by the mailing of copies thereof by certified or registered mail, postage prepaid, to Tribe at the address set forth in Section 30 hereof. Tribe hereby irrevocably agrees that any final judgment of any arbitration or court proceeding relating to or arising under this WRL shall be conclusive and may be enforced in any other jurisdictions by suit on the judgment or by any other method provided by law.

v. Nothing contained in this WRL shall be construed as waiving sovereign immunity in any suit for payment of damages from lands or funds held in trust for Tribe by the United States. Nothing contained in this WRL shall be construed as waiving

sovereign immunity in any suit by any party other than Company or its successors or assigns.

vi. The provisions of this Section 16.10 shall survive any termination of this WRL

12. Assignment; Cure; Company's Lenders; Assignees. Subject to the provisions set forth above, Company shall have the right, without need for Tribe's consent, to do any of the following, conditionally or unconditionally, with respect to all or any portion of this WRL: sell, assign, encumber, transfer, or grant easements to any or all of its rights and interests, including without limitation the right to grant to any utility the right to construct, operate and maintain electric transmission, interconnection and switching facilities on the Property pursuant to any standard form of easement or other agreement used or proposed by the utility, including, without limitation, a perpetual easement, provided no such transfer shall exceed the rights granted to Company under this WRL.
13. Covenants for Benefit of Company's Lenders. Company and Tribe expressly agree between themselves and for the benefit of any such Company's lenders as follows:
    a. Company and Tribe will not modify or cancel this WRL without the prior written consent of Company's lenders, which consent shall not be unreasonably withheld or delayed.
    b. Company's lenders shall have the right to do any act or thing required to be performed by Company under this WRL, and any such act or thing performed by Company's lenders shall be as effective to prevent a default under this WRL and/or a forfeiture of any of Company's rights under this WRL as if done by Company itself.
    c. No default which requires the giving of notice to Company shall be effective unless a like notice is given to all of Company's lenders. If Tribe shall become entitled to terminate this WRL due to an uncured default by Company, Tribe will not terminate this WRL unless it has first given written notice of such uncured default and of its intent to terminate this WRL to each of Company's lenders

Wind Development Agreement (WDA): Asset Purchase and Sale Agreement (PSA)

Parties to the WDA: Cherokee Chilocco Wind Farm, LLC (Buyer, a wholly-owned subsidiary of PNE), PNE Wind USA, Inc. and CNB, LLC (Seller)

1. Development Fees To Be Paid to Seller by Buyer:
    a. $1 million upon Commercial Operation of any plant capable of producing less than 50 MW of electrical energy per hour
    b. $1 million additional upon Commercial Operation of any plant capable of producing more than 50 MW of electrical energy per hour
    c. An additional $25,000 per MW for any capacity in excess of 76.8 MW.
    d. Effective at Closing of the WDA, Seller will be granted five percent passive ownership interest in Buyer
    e. Rent will be payable equal to three percent (3%) of annual gross revenues generated by the Chilocco Project [note: the WRL cites four percent]
2. Covenants of Buyer, Seller and PNE
    a. Cooperation
    b. Non-Interference and Non-Compete
    c. Transfer of Buyer's Interconnection Agreement (IA)
    d. Procurements of Permits
    e. Indian preference for labor
    f. DOE Grant – seller to fill role of buyer for matching funds
3. The SPP Interconnection Deposit made by Seller will be provided to Buyer if Buyer's IA is not entered into with SPP [CPV has no knowledge of the value of this deposit]
4. Governing Law: as the WDA/PSA agreement is currently with CNB, Oklahoma law governs.

Chilocco Wind: Project History and Summary

1. Chilocco Wind began as a tribal project sponsored by CNB but high costs forced it to turn to the development community
2. PNE emerged from a number of companies as offering the best deal to the CN
3. An agreement with PNE and CNB was signed in 2010
4. CNB approached the US Department of Energy (DOE) who provided a 60/40 matching grant, with DOE providing $990,500.
    a. CNB has DOE's approval to count PNE project development expenditures towards CNB's contribution requirement.
    b. PNE has agreed to pay CN's percentage of the matching funds going forward

    c. CN has used DOE and PNE funds to move to this point with little out of pocket expenditures
5. PNE/CNB have made significant strides toward bringing the project to a viable condition, including PNE gathering wind resource data for the past two years with the agreement of CNB (PNE has done so without benefit of the WEEL), conducting environmental studies, and developing major project documents.
6. CNB has its own signed Generator Interconnection Agreement (GIA) with Southwest Power Pool (SPP), implemented through Oklahoma Gas & Electric (OGE):
    a. CNB's GIA (GEN-2008-072) was initiated in 2008, progressing through a feasibility study, Preliminary Interconnect Study, Definitive Interconnect Study and Facilities Study. The GIA was executed on September 6, 2011 by SPP, OGE and CNB, but is currently listed as suspended per SPP's website (CNB says the GIA is active and not suspended).
    b. CNB's GIA original expiration date was extended to December 2013 by actions taken by PNE
    c. To maintain CNB's GIA, the process must be reinitiated in the near term by directing OGE to proceed with final design and engineering leading to construction of the GIA facilities. To do so, CNB (or PNE) must pay to OGE ten percent (10%) of the required $2.9 million in electrical upgrades and facilities as a security deposit, or the GIA will terminate
    d. If the GIA terminates, all of the $220,000 in funds expended by CNB in development of the GIA will be lost
    e. SPP and OGE have limited to no ability to extend the GIA further due to strict rules mandated by the Federal Energy Regulatory Commission (FERC) governing GIA applications and processing.
    f. Further extension of CNB's GIA would likely precipitate lawsuits from other generating projects in the GIA application queue over perceived favoritism in violation of Open Access Transmission rules promulgated by SPP, approved by FERC and implemented by OGE.
7. PNE is proceeding to develop up to 600 MW of wind generation in the Chilocco area with CN's participation (600 MW) or without CN's participation (525MW)
8. PNE has a large land resource (tribal and non-tribal) under contract to support its full 600 MW development in the Chilocco area
9. Phase 2 of PNE's 600 MW Project involves the Kaw, Otoe-Missouri, Pawnee and Ponca tribes

a. PNE will begin Phase 2 development on lands adjoining CN's within the next 2-3 months
b. PNE has a separate GIA in place with SPP/OGE for the Phase 2 project
c. PNE has a separate GIA application pending with SPP for Phase 4 of the project

10. Issues surfaced by CN in executing the Chilocco Phase 1 project documents with PNE include:
    a. minor wording as to the parties involved, including BIA as a required signatory, and
    b. limited waivers of tribal sovereign immunity to provide physical access to the wind generators as required by project lenders
        i. Per PNE, the four Phase 2 tribes have all signed off on essentially the same agreements and specifically the same limited waiver of immunity as required by project lenders
        ii. Conversations with PNE note the language of the sovereign immunity waiver were developed by Bank of America in order to fund casino developments on tribal lands and have been used extensively in Indian Country
        iii. CN's tribal council will need to address the immunity waiver in order for PNE to implement the Phase 1 project
11. PNE's Typical Deal Structure:
    a. PNE is a developer who sells their projects to investors when the project achieves its Commercial Operations Date (COD)
    b. PNE may or may not operate the project, depending on the needs and wants of the individual investor group
12. Chilocco CN deal overview:
    a. 76.8 MW nameplate electrical output using 48 GE 1.6MW turbines
    b. Offtakers/buyers for the power have been identified
    c. Project revenues are based on pricing of $25-$35/MWhr, escalating, for a 40 year term
    d. Chilocco is a good wind resource, with a National Renewable Energy Lab assessment of Class 3/Class 4 Wind Density
    e. PNE plans on installing oversized diameter wind turbines to create a 36 - 40 percent capacity factor, which is 4% higher than typical.
    f. Phase 1 Cost Estimates:
        i. $1.5 – 2.0 million/MW installed cost
        ii. $115 - $153 million total Phase 1 installed cost
        iii. Financing (assumed): 30 year term, 5 percent interest rate, 20 percent equity

iv. Fixed O&M: $40/kw-yr
v. Major Repair & Maintenance Fund: approximately $40/kw-yr

g. PNE's estimated costs of developing Phase 1 will total about $900,000 - $1,100,000. Future expenses would include:
   i. The required 10 percent GIA deposit of $290,000, up to the full $2.9 million cost
   ii. Completion of environmental studies, and filing and processing an Environmental Assessment (this EA is also intended to be used for transferring some of CN's Chilocco lands into trust status)
   iii. Other development activities leading to start of construction

h. Tax Credits:
   i. Production Tax Credits (PTC) for wind generation were recently extended to December 31, 2013
   ii. Qualifying Phase 1 for the PTC, which escalates, would be attractive to investors as the current PTC is $22.5/MWh sold
   iii. PNE financials are currently structured without the PTC but would be significantly enhanced with the PTC

i. Safe harbor provisions are available for claiming the PTC if 5% of the Phase 1 project capital costs are expended by December 31st , 2013.

j. At the point of sale to investors at COD, PNE would pay CN:
   i. $2 million
   ii. After deducting PNE expenses (estimated at about $1,000,000) and the $2 million paid to CN, CN would earn 5% of the remaining sales proceeds when the project is sold to investors (this value cannot currently be estimated)
   iii. An overriding royalty of 4% of escalated gross revenues per year with a guaranteed annual escalation factor of 2.25 percent for the 40 year life of the ground lease, or a minimum annual payment of $3,500/MW of installed capacity
   iv. Valuing item (ii) above at -0-, CN would realize nearly $13 million over a 30 year period
   v. PNE's agreement with Phase 2 tribal participants only includes item (iii) above

13. Possible Phase 1 Development Option Without CN's GIA: If CNB's GIA terminates, the energy from Phase 1 (CN's project) could be routed through Phase 2's electrical transmission interconnection when available (eg, when current flow from Phase 2 requires less than 100 percent of transformer capacity, Phase 1 power may be exported and sold – otherwise, it would be shut in):

a. The Phase 1 Project would suffer an estimated $2-$3 million revenue reduction from not selling its full output for the first year or two, but
b. Tax credits realized by investors from the PTC (currently $22.50/MWhr) would offset lost revenues until a new GIA is available for exporting Phase 1 energy
c. This step would preserve the PTC for Phase 1 of the project, which is highly attractive to investors

14. PNE background:
    a. German company recently taken public
    b. Actively developing 3.2 giga-watts (GW) of wind (one Gigawatt = one billion watts)
    c. Pipeline of 2 GW of wind projects
    d. 10 GW of wind projects built in the European Union
    e. 8 GW of wind projects built in the North Sea (includes a large project in offshore Scotland)
    f. Two US projects: Chilocco and Belle Fourche (30 MW) in Rapid City, North Dakota; actively ramping up US presence
15. PNE Business Model:
    a. Develop, sell, operate (if requested)
    b. Uses own funds to develop projects
    c. Sells the project after COD to investors/hedge funds
        i. Chilocco Phase 2 has already been placed with investors as of December, 2012
        ii. The same investors, according to PNE, are interested in acquiring Phase 1 if the development agreements can be signed and the project timely implemented
16. Reasons to favor working with PNE:
    a. Direct access to wind turbines manufacturers (GE in particular) – developers asking for less that 200 MW won't get access to turbine manufacturers due to high demand conditions
    b. PNE is currently buying $400-$500 million/year in turbines
    c. PNE will be spending multiple-billions on turbines beginning next year to buildout their North Sea projects
17. Other Phase 1 Project Benefits:
    a. Chilocco Phase 1 will require 18 employees: initially, 3 high level technical people from GE and 15 tribal members ($80k/yr average salary), with all jobs transitioning to tribal members within 3 years
    b. Benefits of involving Phase 1 with the rest of PNE's Chilocco-area projects includes spreading costs proportionately (wind data collection, geotechnical and environmental studies, etc.)

c. CN has a better financial offer from PNE as the other tribal entities in Phase 2 only receive the land lease payments.

18. Phase 1 Planning Considerations:
    a. Due to adoption of SPP's Integrated Marketplace (IM), SPP will not consider any new modeling inputs for new generation after March 2013 – if missed, any new proposed generation can't be considered until SPP's IM goes live in August, 2014.
    b. SPP's March 2013 planning cycle cutoff would allow Phase 1 to be brought online in 2016 or earlier; failure to move forward with Phase 1 would delay implementation until 2017 at the very earliest.

CIMARRON POWER VENTURES

Document and Deal Term Review Process

Chilocco Wind Farm Project

The CPV Review Process:

CPV has reviewed the three major project documents between the various parties including the Wind Energy Evaluation Lease (WEEL), the Wind Resource Lease (WRL), the Wind Development Agreement (WDA) and the Interconnection Agreement (summary and full versions) between CNB and SPP. CPV also participated in conference calls involving Ms. Marguerite McKinney and Ms. Carol Wyatt of CNB , Mr. Andre De Rosa of PNE regarding the project, calls with SPP and OGE regarding the GIA and with Andrea Chambers of Foley & Lardner, LP, PNE's attorney who helped with SPP matters.

CPV was asked to come to some quick conclusions in the interest of time. As such there may be some dated information, inconsistencies or inaccuracies in the information that would have been corrected in a review that had the luxury of more time. CPV is however satisfied that it has obtained enough information to draw the general conclusions outlined herein.

CPV Review of Project Documents and Deal Terms:

A comprehensive outline of the Chilocco Wind Phase 1 Project and the agreements reviewed follows this discussion. The Project Agreements reviewed by CPV include: the Wind Energy Evaluation Lease (WEEL), Wind Resource Lease (WRL) and Wind Development Agreement (WDA). These documents are the major agreements establishing the project structure between PNE and its affiliates and subsidiaries and CN and CNB. A summary of the primary terms and conditions of each agreement are provided below.

Wind Energy Evaluation Lease (WEEL):

For good and valuable consideration of $500 plus payment of $50 per quarter for each meteorological and wind measurement installation, PNE's wholly-owned subsidiary, Chilocco Wind Park, LLC (the Company), will acquire from CN an exclusive and irrevocable lease for the Chilocco property for the sole purpose and use of the property by the Company to evaluate the wind energy potential of the property. The WEEL's provisions include:

1. The term of the WEEL is 3 years from date of signature
2. Allows development and installation of wind evaluation structures (data collection/met towers), allowing necessary and related activities supporting installation of the wind tower monitoring station(s) including erection, construction, and operating and maintenance activities as required to install and operate the wind towers,
3. Company has the non-exclusive right of egress and ingress along existing access routes, or to be built access routes as required, to install and operate the wind towers and collect wind data,
4. The Company may undertake any activities to facilitate the above, either by the Company or by Companies contractors.
5. Restrictions on Land Use:

   a. Obstructions to the free flow of wind during the term of the agreement are prohibited for a prescribed distance from any wind tower,
   b. The CN reserves the right to use the property for any purpose except those that obstruct the Company use of the property for the intended purpose.
6. Company has the option, exercisable at its discretion, during the 3 year period following the WEEL agreement, to enter into a Wind Resource Lease (WRL), subject to the following intent of the parties:
   a. The Parties will enter into a WRL for the purpose of installing energy resource development facilities
   b. The WRL will be limited to the property defined in the WEEL
   c. The WRL Option is subject to the Company's due diligence
   d. The WRL may be terminated by either party
   e. The Parties agree the WRL will be the direct result of wind data collected from the activities authorized under the WEEL
   f. The company may request an extension of the WRL for 3 additional years to allow BIA to approve the lease process.
7. Ownership of the collected wind data is exclusive to the Company until such time as the WRL is entered into, is approved by the BIA and BIA's approval is completed within the effective term of the WRL.
8. Assignment of the WEEL is only permissible to wholly owned subsidiaries of the Company or to others with the written consent of the other party.
9. The tribe shall restrict any activities on the land that may interfere with collection of wind data, but is otherwise free to pursue other ordinary agricultural, ranching, mineral development, oil and gas drilling and production activities, hunting, archeological or similar activities.
10. Covenant for Benefit of Company's Lenders:
    a. No cancellation or modification of the WEEL without the prior written consent of the Company's lenders.
    b. Lenders will have the right to act or do or perform under the WEEL as required of the Company to prevent a default and/or forfeiture of any of the Company's rights or obligations under the WEEL.
11. Governing law shall be the provisions of 25 USC Section 415, 25 CFR § 162 and any other applicable federal law including the Regulatory-Mandated Provisions of 25 CFR § 162.513(b). To the extent no federal law governs the immediate issue, or a federal court determines it has no jurisdiction, the Parties agree to be governed by Oklahoma law, and specifically agree that the WEEL shall not be governed by tribal law.

Wind Resource Lease (WRL):

The WRL includes the same Parties as the WEEL. The WRL is for the purpose of granting the Company an exclusive and irrevocable lease to develop the wind energy resources of the Chilocco property. Key Provisions of the WRL include:

1. The Company will pay to CN:

   a. An installation payment of $2,000 per wind turbine at the start of construction or actual construction-related damages, whichever is greater [note: the value of this payment based on 48 wind turbines is $96,000]
   b. Minimum Payment of $5,000 per year per nameplate rated megawatt installed on the property, indexed to inflation [note: at 76.8 MW, this payment = $384,000/yr.]
   c. Operation Payment: paid quarterly, the greater of one-fourth the Minimum Payment or four percent [note the agreement says 'four percent' but numerically lists '3%'] of gross operating proceeds for the quarter
   d. Overhead Transmission Payment: $3/foot of actual transmission line length on the property, plus $250 per transmission line structure [not able to accurately estimate the value of this payment at this time]
   e. Permanent Tower Payment of $750 per quarter per meteorological tower or similar wind measurement equipment [$3,000/yr per met tower]
   f. Project Payment of the greater of $15 per acre of the property or 0.5 percent of the Gross Operating Proceeds of the project, adjusted for inflation.
2. Allowed Activities Under the Lease:
   a. Constructing, installing, using, replacing, relocating and removing from time to time, and maintaining and operating, wind energy conversion systems including all equipment necessary including towers, turbines, foundations, pads and similar
   b. Constructing, installing, using, replacing, relocating and removing from time to time, and maintaining and operating underground and overhead electrical transmission and communications lines, poles, anchors, support structures, underground cables, interconnection facilities and equipment and any related or ancillary facilities or improvements and associated roads for access and for installation and repair, maintenance and operation purposes
   c. The non-exclusive right of ingress to and egress from the Conversion Facilities and Transmission Facilities (whether located on the Property, on adjacent property, or elsewhere in the Project) over and across the Property by means of roads and lanes thereon if existing, or otherwise by such route or routes as Company may construct from time to time
   d. Undertaking any other activities, whether accomplished by Company or a third party authorized by Company, that Company reasonably determines are necessary, useful or appropriate to accomplish any of the foregoing.
3. Any obstruction to the free flow of the wind is prohibited throughout the entire Property
4. The WRL gives the Company the exclusive right to convert all of the wind resources of the Property.
5. The Windpower Facilities are expected to operate in conjunction with other Windpower Facilities developed by the Company on other nearby properties (collectively, the "Project").
6. A resource development plan that describes the type and location of any improvements Company plans to install, and a schedule showing the tentative commencement and completion dates for those improvements, shall be submitted with this WRL pursuant to 25 CFR § 162.563(g)
7. The Company shall undertake the following under this WRL:

a. Commence installation of energy facilities within two (2) years after the WRL Date [or other period designated in the WRL] and consistent with the timeframe contained in the resource development plan;
b. Provide Tribe and BIA with an explanation as to good cause for any delay, the anticipated date of installation of facilities, and evidence of progress toward commencement of installation, if installation does not occur, or is not expected to be completed, within the time period specified immediately above;
c. Maintain all on-site electrical generation equipment and facilities and related infrastructure in accordance with the design standards in the resource development plan; and
d. Repair, place into service, or remove from the site within 30 days any idle, improperly functioning, or abandoned equipment or facilities that have been inoperative for any continuous period of 3 months (unless the equipment or facilities were idle as a result of planned suspension of operations, for example, for grid operations or during bird migration season).

8. WRL Term. The term of this WRL is for an initial term ("Initial Term") commencing on the WRL Date and continuing until the later of:
    a. twenty (20) years after the first day of the first full month following the Commercial Operation Date, or
    b. twenty (20) years after the WRL Date.
    c. Unless earlier terminated, Company may elect to extend the Initial Term for one additional 20-year term
9. Assignment. Neither Tribe nor Company shall assign its rights or obligations to this WRL hereunder, in whole or in part, without the prior written notice to the other Party and the approval of the BIA pursuant to 25 CFR § 162.572(a); provided, however, that Company shall have the right to assign the WRL to the Company's wholly owned subsidiaries without notification or approval.
10. Ownership of Windpower Facilities.
    a. The tribe shall have no ownership or other interest in any Windpower Facilities installed on the Property, and
    b. The Company may remove any or all Windpower Facilities at any time during the Term and
    c. Shall remove any and all Windpower Facilities upon the expiration of the WRL Term, at Company's expense and with the Property to be restored as close as possible to its condition before installation of the Windpower Facilities, unless otherwise agreed in writing by the Parties
11. Section 16.10. Dispute Resolution; Limited Waiver Of Sovereign Immunity.
    a. So that Tribe and Company will be sure that it and/or they may enforce the terms and conditions of this WRL or resolve any dispute arising between the Parties, each of the Parties hereby covenants and agrees that each of them may sue or be sued to enforce or interpret the terms, covenants and conditions of this WRL or to enforce the obligations or rights of the Parties in accordance with the terms and conditions set forth in this Section.

b. Informal Resolution. Any disagreement or dispute arising between the Parties under this WRL shall be resolved, whenever possible, by meeting and conferring.

c. Forum. Any controversy, dispute or claim arising out of or relating to this WRL, any modification or extension hereof, or any breach hereof shall be brought in any United States District Court or United States Court of Federal Claims, as applicable, in which the controversy may be heard or, if required, pursuant to 25 C.F.R. Parts 162 and 2, with rights of appeal to the appropriate federal court. If for any reason such United States District Court does not have or declines jurisdiction over the subject matter of the action, such controversy, dispute or claim shall be settled by binding arbitration as provided in Section 16.10.3 below. For such purpose, each of the Parties and the BIA hereby irrevocably submits to the non-exclusive jurisdiction of such courts and/or arbitrators.

d. Arbitration. In the event that each Party so agrees in writing or in the event the federal courts do not have or decline jurisdiction, any controversy, dispute or claim arising out of or relating to this WRL, any modification or extension hereof, or any breach hereof (including the question whether any particular matter is arbitrable hereunder) shall be settled by binding arbitration in accordance with the Center for Public Resources Rules for Non-Administered Arbitration of Business Disputes. The arbitration shall be governed by the United States Arbitration Act, 9 U.S.C. §§ 1 -- 16, and judgment upon the award rendered by the arbitrators may be entered by any court having jurisdiction thereof. If for any reason such United States District Court does not have or declines jurisdiction over the subject matter of the action, the Parties consent to the jurisdiction of the state courts of the State of Oklahoma solely for the purpose of compelling or enforcing arbitration with rights of appeal to the appropriate courts. If for any reason both the federal courts and the state courts do not have or decline jurisdiction over the subject matter of the action, the Parties consent to the jurisdiction of the Court of Indian Offenses under 25 C.F.R. Part 11 (or its successor court) solely for purposes of compelling or enforcing arbitration with rights of appeal to the appropriate courts.

e. Section 16.10.4. Limited Waiver of Sovereign Immunity. Tribe hereby specifically, expressly, and irrevocably waives its sovereign immunity and that of its agencies, officers and agents as to Company and its successors and assigns hereunder and any disputes arising under this WRL. Without limiting the generality of the foregoing, Tribe irrevocably:

   i. Waives any claim of sovereign immunity as to actions at law and in equity (including without limitation specific performance) and enforcement proceedings brought by Company to interpret or enforce the WRL or any other agreements by and among the Parties and actions to enforce the dispute resolution provisions of this Section;

   ii. Waives the jurisdiction and procedures of any Tribal Courts in favor of any United States District Court in which the controversy may be heard (or if such District Court does not have subject matter jurisdiction over a

particular action, binding arbitration as provided in Section 16.10.3 above) with all rights of appeal in appropriate federal or state courts or Court of Indian Offenses or courts of competent jurisdiction for actions brought by or against Company to interpret or enforce this WRL or any other agreements by and among such Parties including appeals from or enforcement of any arbitration decisions; and

iii. Waives any rights or obligations (for itself and for any other Party) to exhaust any tribal court, tribal administrative or other tribal procedures or remedies prior to involving Federal or State court jurisdiction, Court of Indian Offenses jurisdiction, binding arbitration or any Federal agency jurisdiction, with respect to the enforcement of this WRL or any other agreements by and between the Parties, including appeals from or enforcement of any arbitration decisions.

iv. Tribe further irrevocably consents to service of process out of such aforementioned courts by the mailing of copies thereof by certified or registered mail, postage prepaid, to Tribe at the address set forth in Section 30 hereof. Tribe hereby irrevocably agrees that any final judgment of any arbitration or court proceeding relating to or arising under this WRL shall be conclusive and may be enforced in any other jurisdictions by suit on the judgment or by any other method provided by law.

v. Nothing contained in this WRL shall be construed as waiving sovereign immunity in any suit for payment of damages from lands or funds held in trust for Tribe by the United States. Nothing contained in this WRL shall be construed as waiving sovereign immunity in any suit by any party other than Company or its successors or assigns.

vi. The provisions of this Section 16.10 shall survive any termination of this WRL

12. Assignment; Cure; Company's Lenders; Assignees. Subject to the provisions set forth above, Company shall have the right, without need for Tribe's consent, to do any of the following, conditionally or unconditionally, with respect to all or any portion of this WRL: sell, assign, encumber, transfer, or grant easements to any or all of its rights and interests, including without limitation the right to grant to any utility the right to construct, operate and maintain electric transmission, interconnection and switching facilities on the Property pursuant to any standard form of easement or other agreement used or proposed by the utility, including, without limitation, a perpetual easement, provided no such transfer shall exceed the rights granted to Company under this WRL.
13. Covenants for Benefit of Company's Lenders. Company and Tribe expressly agree between themselves and for the benefit of any such Company's lenders as follows:
    a. Company and Tribe will not modify or cancel this WRL without the prior written consent of Company's lenders, which consent shall not be unreasonably withheld or delayed.
    b. Company's lenders shall have the right to do any act or thing required to be performed by Company under this WRL, and any such act or thing performed by Company's lenders shall be as effective to prevent a default under this

WRL and/or a forfeiture of any of Company's rights under this WRL as if done by Company itself.

c. No default which requires the giving of notice to Company shall be effective unless a like notice is given to all of Company's lenders. If Tribe shall become entitled to terminate this WRL due to an uncured default by Company, Tribe will not terminate this WRL unless it has first given written notice of such uncured default and of its intent to terminate this WRL to each of Company's lenders

Wind Development Agreement (WDA): Asset Purchase and Sale Agreement (PSA)

Parties to the WDA: Cherokee Chilocco Wind Farm, LLC (Buyer, a wholly-owned subsidiary of PNE), PNE Wind USA, Inc. and CNB, LLC (Seller)

1. Development Fees To Be Paid to Seller by Buyer:
    a. $1 million upon Commercial Operation of any plant capable of producing less than 50 MW of electrical energy per hour
    b. $1 million additional upon Commercial Operation of any plant capable of producing more than 50 MW of electrical energy per hour
    c. An additional $25,000 per MW for any capacity in excess of 76.8 MW.
    d. Effective at Closing of the WDA, Seller will be granted five percent passive ownership interest in Buyer
    e. Rent will be payable equal to three percent (3%) of annual gross revenues generated by the Chilocco Project [note: the WRL cites four percent]
2. Covenants of Buyer, Seller and PNE
    a. Cooperation
    b. Non-Interference and Non-Compete
    c. Transfer of Buyer's Interconnection Agreement (IA)
    d. Procurements of Permits
    e. Indian preference for labor
    f. DOE Grant – seller to fill role of buyer for matching funds
3. The SPP Interconnection Deposit made by Seller will be provided to Buyer if Buyer's IA is not entered into with SPP [CPV has no knowledge of the value of this deposit]
4. Governing Law: as the WDA/PSA agreement is currently with CNB, Oklahoma law governs.

Chilocco Wind Farm Transaction Summary (PPA with Option to Purchase)

October 22, 2015

A. The Project

The Chilocco Wind Farm Project ("CWF") is sited on tribal trust land in rural Oklahoma around the closed Chilocco Indian School, in Kay County, a few miles south of the Kansas Border. Two of the six tribes holding land around the school have agreed to wind leases that will allow for 20 turbine locations, totaling 48MW of wind generation capacity. The project benefits from strong wind resources in North Central Oklahoma. PNE Wind USA, a German based company experienced in wind was selected to develop the CWF in 2010. The project has benefited from approximately $1.57M in grants from the Department of Interior and the Department of Energy. PNE has invested to date approximately $5M in the project. The Project is fully qualified for the federal production tax credit ("PTC") and has a generation interconnection agreement ("GIA") with Western Farmers Electric Cooperative.

B. Transaction Advantages

1. Federally subsidized wind farms are an opportunity that will not be around much longer. The PTC subsidy will either expire this year or if renewed will likely expire the following year eliminating the 2.3 cent/kWh tax credit which funds nearly 60% of the project through the tax equity. This subsidy allows these projects to be economically viable at a power sales rate that is half of what it would have to be without such a subsidy. The ability to compete for 25 years at low cost rates, due to the low capital investment as a result of the tax incentive, makes such projects highly profitable ventures.

2. The advent of the Integrated Market in the Southwest Power Pool ("SPP IM") in early 2014 provides the certainty of selling the power into the Integrated Market, which takes renewable generation first, at rates that are forecasted to be higher than the purchase price for the power generated by CWF. In time the buyer of the power through the power purchase agreement ("PPA") may find opportunities to resell the power raising the margins even higher. The power from the Chilocco Wind Farm is expected to be available in December, 2016.

3. The $83.3M project cost is funded by GE contributing $48M as "tax equity" and a bank providing "back levered" funding of $27M. The balance of $8.3M would be owner equity ("Investor" or "Seller"). The leveraged returns on this equity are high.

C. Deal Structure

1. A taxable investor ("Investor") provides the cash equity for the CWF project in the amount of $8,358,000. The Investor may choose to finance this contribution in which case terms have been assumed (10 year am and term, 6%). The recourse of this loan will depend on the credit strength of the PPA and the lock box and cash sweep arrangements.

2. A buyer of the energy generated by CWF ("Buyer") agrees to a 20 year PPA with a 10 year option to extend power purchase agreement for the output of the CWF at a price of $27.75/MWh, escalating at 2.5% per year. It is proposed, that a "lockbox" and "cash sweep" arrangement would be included in the PPA as security of the payment for the energy received from the Buyer.

3. A separate instrument with a mutually agreed to escrow bank ("Bank") would be entered into to provide for the following:
    a. All revenue derived by the Buyer's use, consumption, resell or trade of the energy received from the Seller shall be deposited into an escrow account ("Account") at the Bank.
    b. The Market Participant handling the physical and financial reconciliation of the power for the Buyer generated by the CWF would be a party to the escrow agreement to insure that all funds are deposited into the Account.

4. The Bank under the escrow agreement would be instructed and obligated to distribute the funds received into the Account in the following manner:
    a. First for the payment of monthly payments ("Monthly Payments") of the required amount as provided under the PPA.
    b. Secondly, 75% of the remaining cash funds shall be withheld until the Account reaches a $1,000,000 cash balance ("Cash Reserve"). The Cash Reserve shall be made available as security for the payment of the Monthly Payments. If the Buyer is not in default under the PPA then the Cash Reserve shall be reduced to $500,000 at the beginning of year 6 of the PPA term. The Cash Reserve shall be eliminated at the conclusion of year 10 of the PPA if the Buyer is not in default under the PPA.
    c. All remaining funds shall be distributed to the Buyer.

5. The Buyer shall agree to establish a letter of credit from an A rated bank in the amount of $500,000 ("LC") to fund any shortfalls between the Monthly Payments under the PPA and the balance of Account including any accrued Cash Reserve. The LC amount is based on that amount necessary to fund the shortfall between the lowest estimated Brattle Group SPP IM forecasted payment, discounted by 10% and the PPA rate. At current forecasts a $500,000 LC balance would cover the shortfall in revenue and PPA payments for approximately three years. Once the Cash Reserve fund reaches $1,000,000 the LC would be released.

6. While the Buyer may use the power generated by the PPA in a variety of ways, the back stop is to resell any excess or all of the power into the SPP IM, which has a "must buy" condition on wind generated energy. Based on the base case from a Brattle Group forecast of rates for the SPP IM the Buyer would gross approximately $14M in trading profits over the course of the initial 10 years of the PPA. After paying expenses and transaction fees the net cash income would be $9.7M.

7. The Buyer would have the option to purchase 90% the CWF project at the end of 10 years from the Investor/Seller for an amount determined by a fair market valuation. A 6 X EBITDA value would be $27M based on estimates. Therefore, appraised value would likely be $25-35M. A purchase by the Buyer in year 10 for a total price of $30M would be funded by a $10M cash payment and the assumption of or refinancing of the $20M remaining balance of the back levered debt.

8. The Investor or its affiliate or subcontractor would be paid a fee by the Buyer to manage the overall transaction and coordinate, if needed, the SPP market participant as well as identifying opportunities for higher value resales of power.

D. Buyer Returns

1. The Buyer would receive a portion of the CWF project contingency fee savings, if any is available, at the completion of CWF. This is currently estimated at $1M.

2. The Buyer realizes profits on the sale of the power acquired at the PPA rate. The SPP IM is the likely buyer of any or all excess power not otherwise used or sold. If the SPP IM is the buyer of the power gross amount of revenue is estimated, using the base case of the Brattle Group forecast, for the first 10 years at $14.3M. The net amount, after removing legal expense and transaction management and trading expenses, would be an estimated $9.7M.

3. Based on a fair market value purchase of the plant by the Buyer for $30M in year 10 ($10M cash, assuming $20M in debt) then the IRR on the remaining term of 20 years for the Buyer based on before tax cash flows would be in the mid 30% range. The $10M cash purchase price in year 10 will be approximately equal to the accrued net trading earnings made by the Buyer over the first 10 years of the PPA term.

E. Investor Returns

1. The Investor would receive a portion of the contingency fee savings, if any is available, at the completion of CWF. This is currently estimated at $1M.

2. The Investor would be paid a transaction management fee by the Buyer during the first 10 years of the PPA in the amount of $4.6M. A portion of these funds could be pledged as additional security for an $8.3M investor loan, should the Investor choose to finance its contribution.

3. If the Investor chooses to borrow its equity contribution the bank equity loan would be amortized during the first 10 years so that when 90% of CWF is sold to the Buyer the Investor would realize a cash payment of $10M on the sale of the 90% to CWF.

4. The Investor will have an efficient tax advantage from the accelerated depreciation and the interest deductions for the back levered financing and, if any, the equity loan interest charges. All of the cash flow for the first 10 years of the project, either $14M or $25M including the gain on the sale of the project would be tax sheltered.

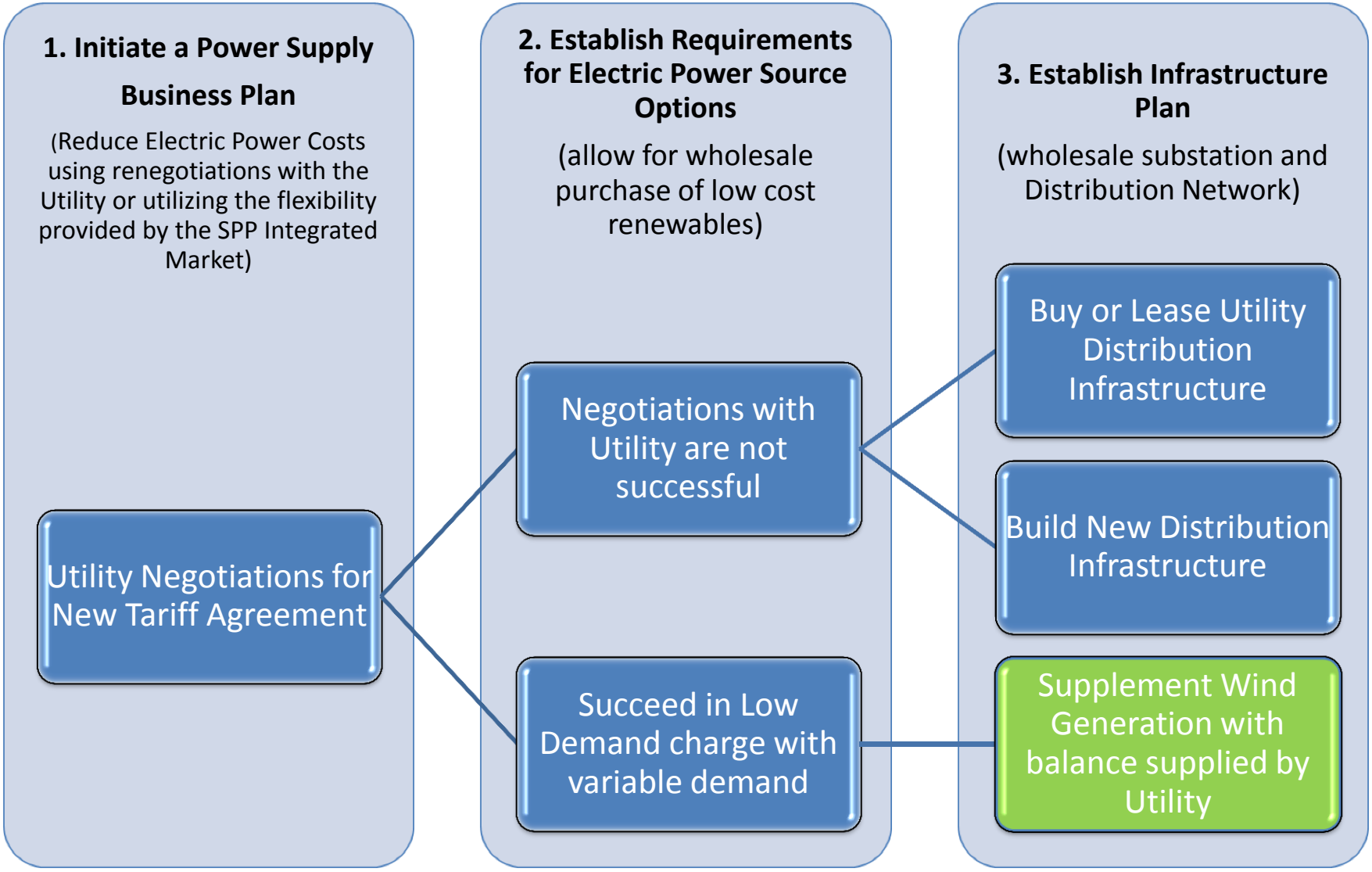
5. If the Investor makes a cash contribution to equity of $8.3M then the Investor's IRR is estimated at approximately 20%, after tax, with a total after tax return of $25.3M and an 8% net present value of $8.1M. If the Investor chooses to finance its equity contribution then there would be no IRR due to no initial cost but will receive an estimated after tax return of $14.5M and an 8% net present value of $9.1M.

6. The Investor would continue to have a 10% interest in the project that is estimated to generate initially $350,000 to $1M over the next 15 years.

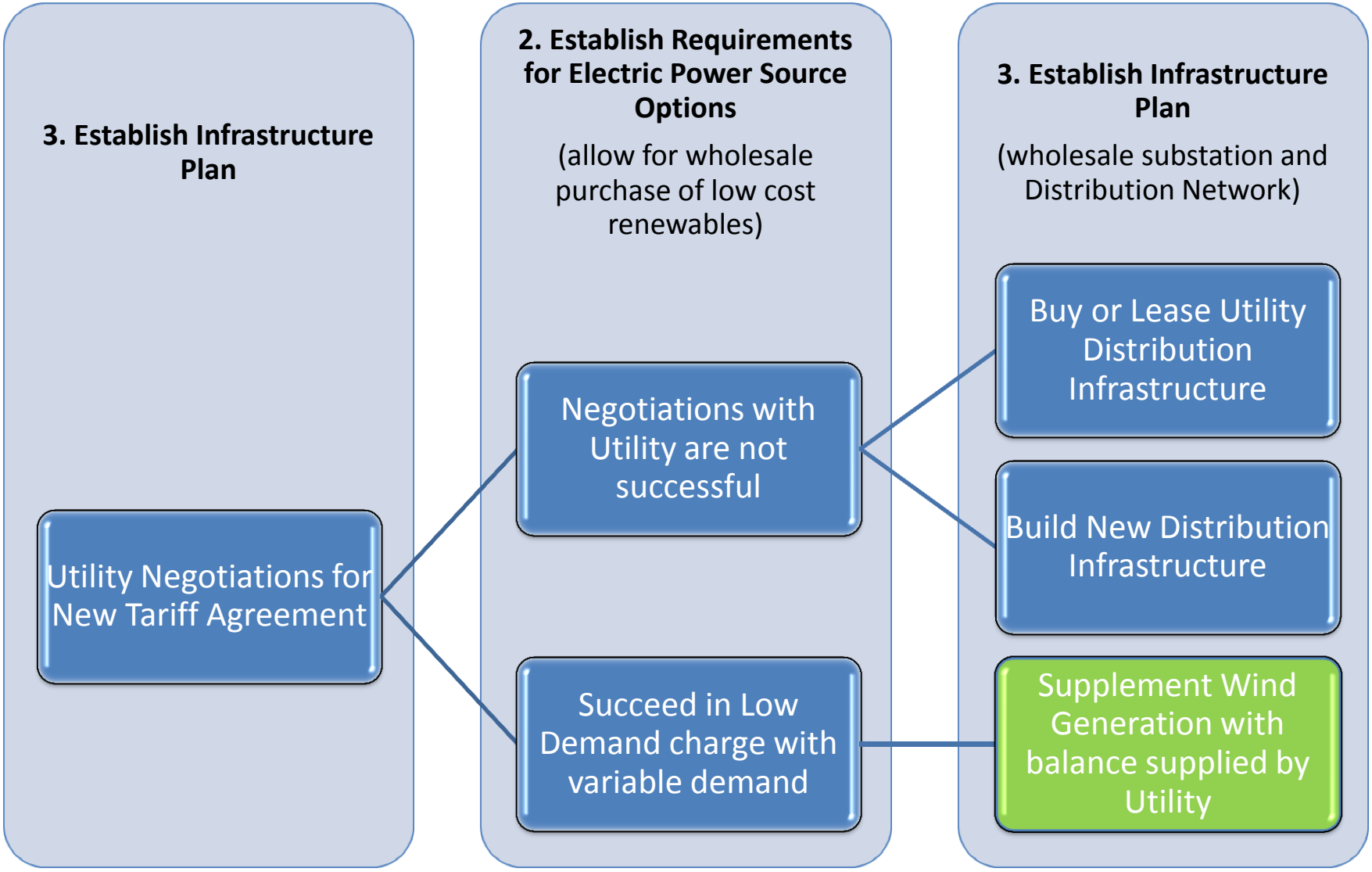
Electric Power Source Options

Walters Power International

Decision Tree of Power Source Plan



Decision Tree of Power Source Plan



Department of Energy Grant for Chilocco Wind Farm: Project Summary and Update

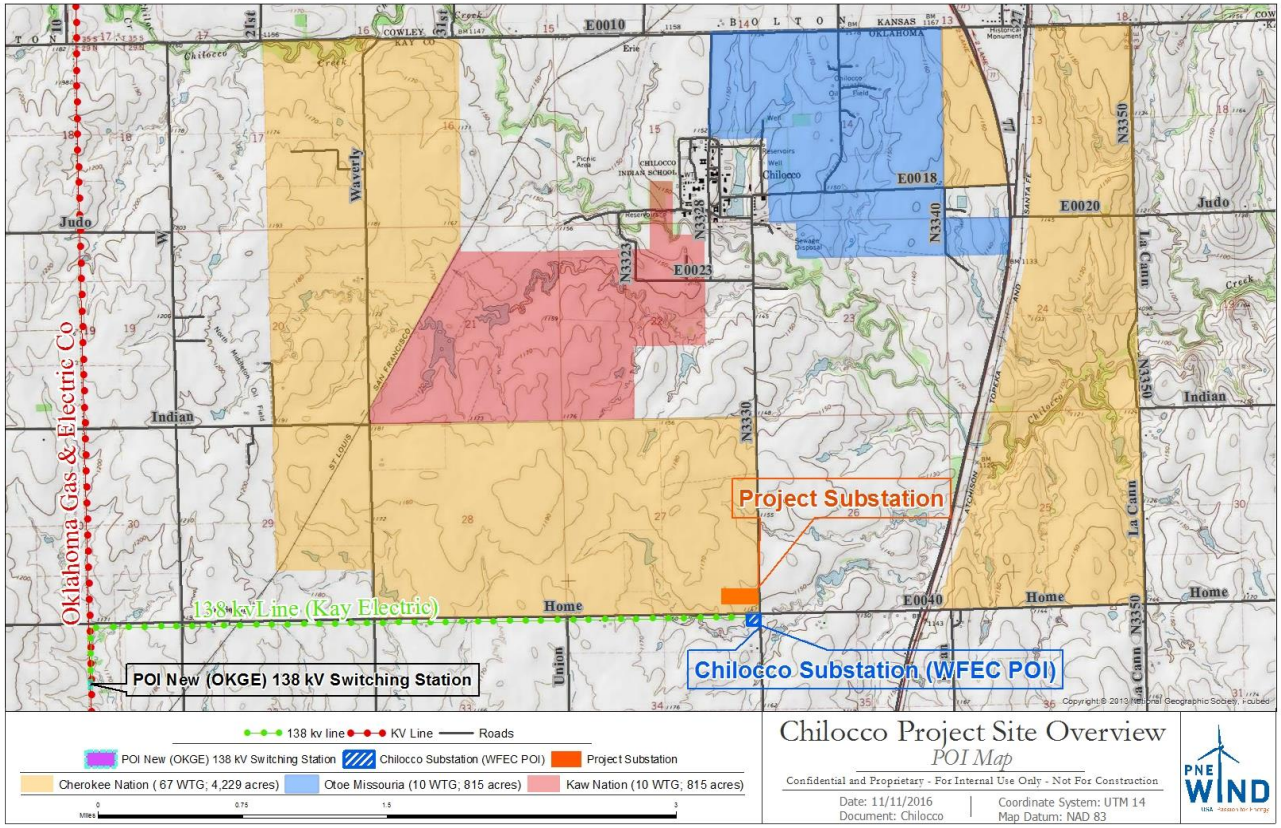
Presentation to DOE: Lizana Pierce, DOE Project Manager

Jami Alley, Principal Engineer/ Team Lease

December 16, 2016

OUTLINE OF PRESENTATION

1.0 Chilocco Wind Farm Project on Tribal Lands Update
2.0 Why DOE Grant?
3.0 Kaw Matching Funds
4.0 Path Forward



1.0 CHILOCCO WIND FARM ON TRIBAL LANDS

CHEROKEE PARCELS

Cherokee Resolution Approving *Wind Resource Lease* 17 Oct, 2016

Sixty-Seven (67) x 2.3MW Wind turbine generators on 4,229 acres

(154.1 megawatts)

OTOE–MISSOURIA TRIBE PARCEL

Ten (10) x 2.3MW Wind turbine generators on 815.3 acres

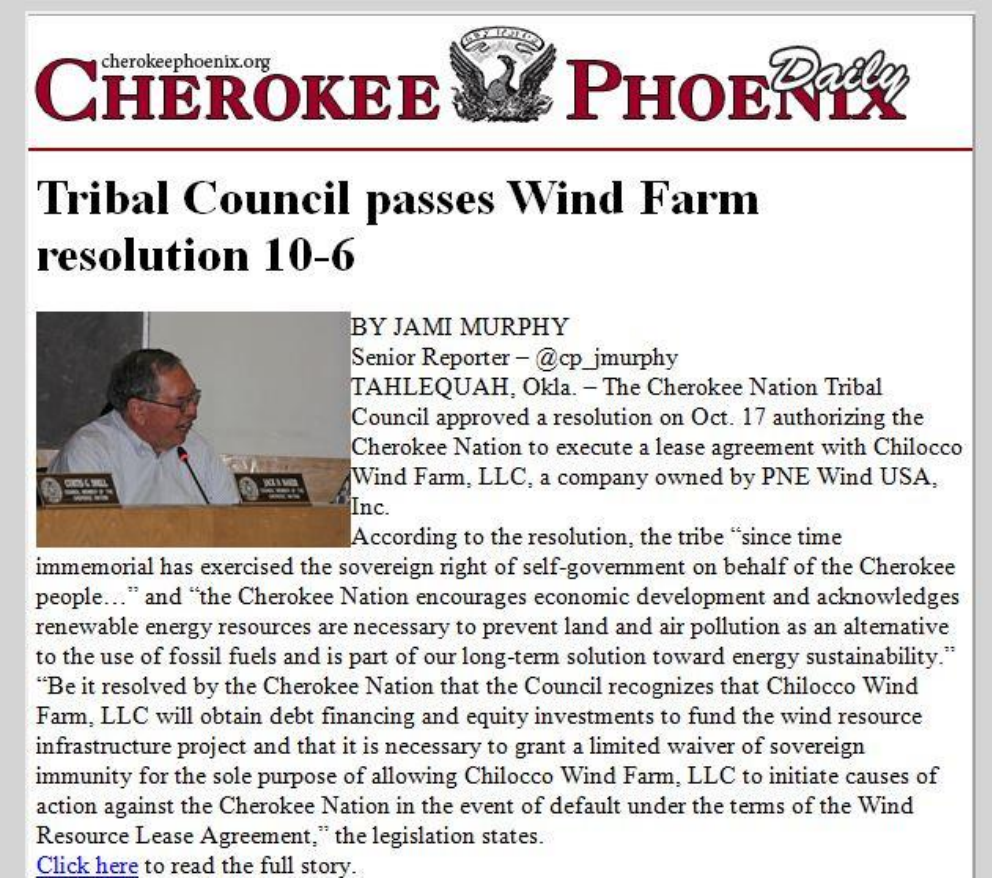
(23.0 megawatts)

KAW NATION PARCELS

Ten (10) x 2.3MW Wind turbine generators on 815 acres

(23.0 megawatts)

200.1 Combined Megawatts



cherokeephoenix.org

CHEROKEE PHOENIX Daily

Tribal Council passes Wind Farm resolution 10-6

BY JAMI MURPHY
Senior Reporter – @cp_jmurphy

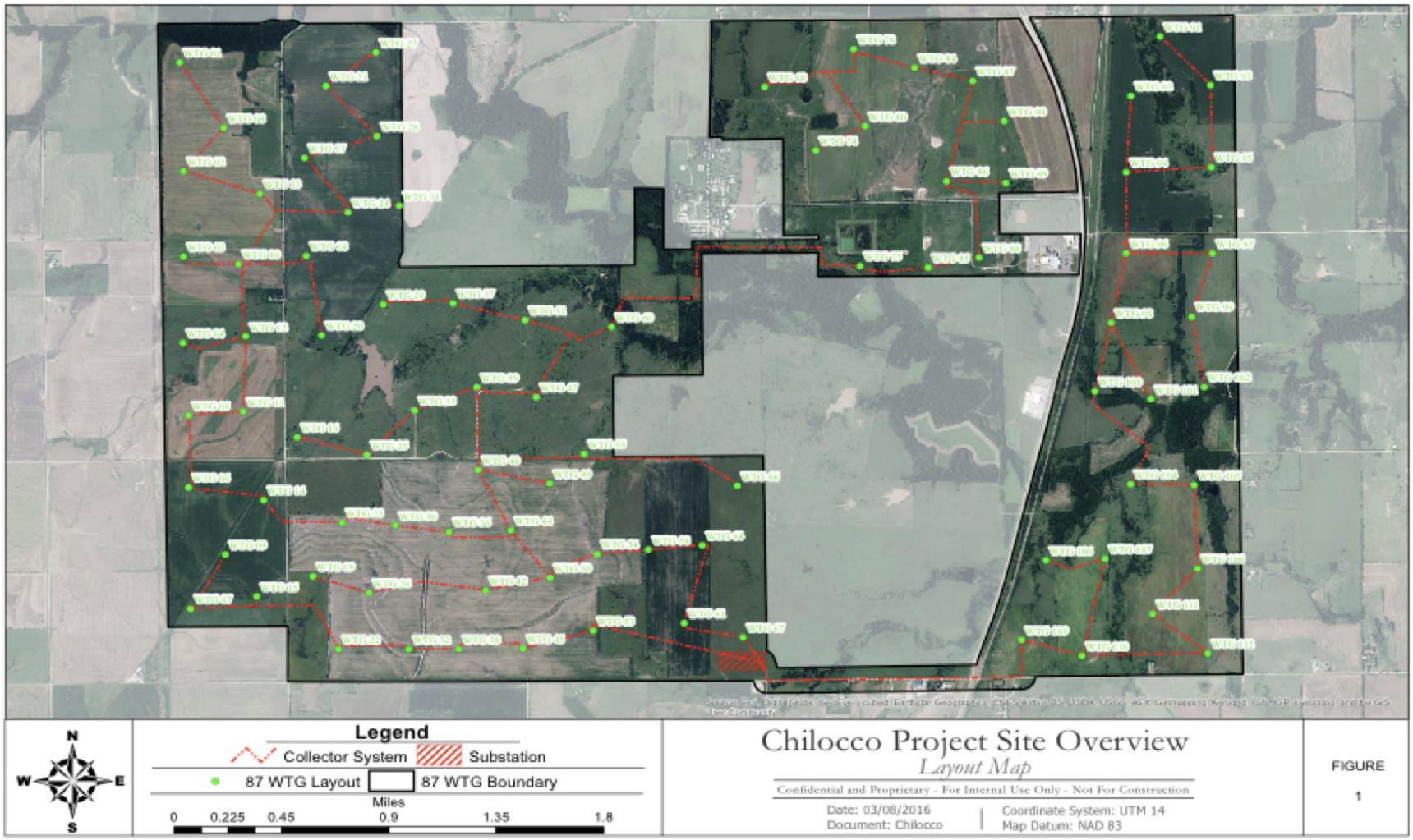
TAHLEQUAH, Okla. – The Cherokee Nation Tribal Council approved a resolution on Oct. 17 authorizing the Cherokee Nation to execute a lease agreement with Chilocco Wind Farm, LLC, a company owned by PNE Wind USA, Inc.

According to the resolution, the tribe "since time immemorial has exercised the sovereign right of self-government on behalf of the Cherokee people…" and "the Cherokee Nation encourages economic development and acknowledges renewable energy resources are necessary to prevent land and air pollution as an alternative to the use of fossil fuels and is part of our long-term solution toward energy sustainability."

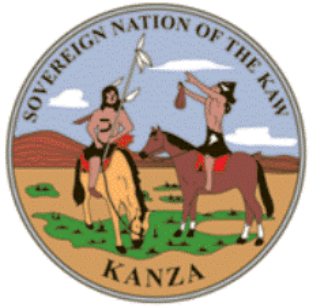
"Be it resolved by the Cherokee Nation that the Council recognizes that Chilocco Wind Farm, LLC will obtain debt financing and equity investments to fund the wind resource infrastructure project and that it is necessary to grant a limited waiver of sovereign immunity for the sole purpose of allowing Chilocco Wind Farm, LLC to initiate causes of action against the Cherokee Nation in the event of default under the terms of the Wind Resource Lease Agreement," the legislation states.

Click here to read the full story.

1.0 CHILOCCO WIND FARM ON TRIBAL LANDS



2.0 WHY DOE GRANT ?



- **$428K was originally part of a larger $990,520 grant allocated to the Cherokee Nation in 2010 for this Project. Since that time the grant funds have been novated to the Kaw Nation for what is now the evolution of same Project.**
- **Additional predevelopment works are required before the Project can obtain commercial financing in 2017.**
- **Project has full support of all three participating tribes.**
- **Grant funds were originally supposed to be disbursed for works relating to this Project in 2013.**

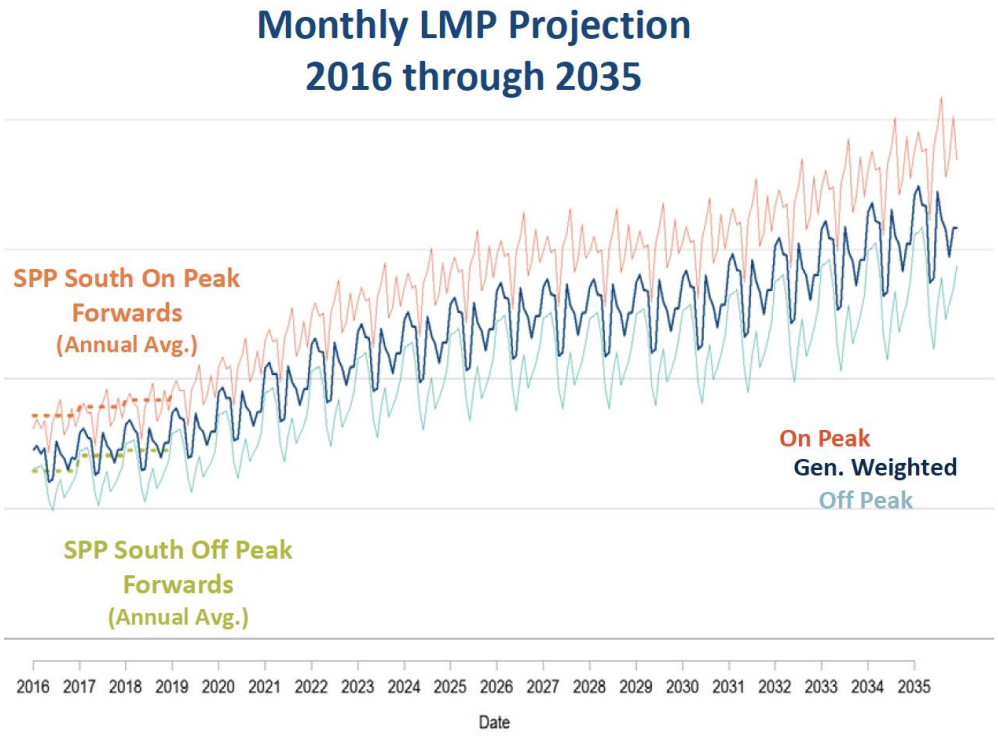
3.0 KAW MATCHING FUNDS

Large Ticket Matching:

1. $45k for Storm Water Pollution Prevention Plan.
2. $460k Qualifying works for Production Tax Credit qualification.
3. $69.5k Legal invoicing for negotiation of equipment and maintenance contracts.
4. $43.7k Power Marketing Study for Project.
5. $39.9k Archaeological services

TOTAL: $658k

- **DOE Grant requires matching funds for eligible disbursements.**
- **PNE through Chilocco Wind Farm has expended in excess of $3M since the conclusion of the "sister grant" in July 2013**



4.0 PATH FORWARD

- PNE to provide DOE with matching funds documentation.
- DOE confirms matching eligibility
- Grant funds disbursed relative to invoicing submitted to DOE.

Purpose and Basis of Cost	Cost
Southwest Power Pool Integrated Marketing Forecast;	$ 100,000.00
Legal and Regulatory Review, Tribal Utilities, et al.;	$ 12,000.00
Power Purchase Agreement (s), Hedge and Swap Contracts and Subordinate Power Purchase Agreement (s);	$ 63,000.00
Economic Pro Forma Analysis of Trading Options;	$ 53,000.00
Geotechnical Engineering; and	$ 150,000.00
Grant Compliance and Administration.	$ 50,000.00
TOTAL COST	**$ 428,000.00**